

Town of
CASTINE

Comprehensive Plan

2024

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We are indebted to everyone who participated in and provided guidance for the shaping of this plan.

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Executive Summary

The Castine Comprehensive Planning Committee which commenced work in July 2021, has explored the Town's opportunities and strengths across all sectors of our community, grouping them into three distinct pillars to have a more substantive conversation about strategic planning. The three pillars, Societal, Infrastructure, Environmental, contain thorough information requested by the state of Maine per the standard Comprehensive Committee touchpoints.

Like many small towns along Maine's coast, Castine represents an evolving intersection of a year-round workforce, a multi-generational habitation, a complex dynamic in housing and economic development, and a fragile utility and capital infrastructure that are becoming endangered due to a changing climate. Castine is home to Maine Maritime Academy, has a robust seasonal community, and a varied year-round population. Castine's geographic location at the mouth of the Penobscot and Bagaduce Rivers creates a near island and this "on-neck" portion of the town is linked by the road crossing the British Canal to Off-neck Castine, the rest of the town, and Blue Hill Peninsula.

This remote geographic location, coupled with a smaller year-round community and antiquated zoning for its business district, have all contributed to shrinking economic offerings and opportunities in Castine. Year-round housing availability has also decreased due to a robust rental market buoyed by the need for student rentals during the school year and the increase in short-term summer rentals. Like many Maine towns on the coast and inland, the COVID-19 Pandemic that began in 2020 has increased the cost of housing both from rental and purchasing standpoints, making housing accessibility a near crisis.

Castine has original access to many natural resources that lend themselves to a high and interesting quality of life. These include a large sandy beach with access to a natural swimming pool, over one hundred acres of preserved historic woodlands overlooking the Penobscot Bay complete with trails for year-round activity, and a walkable area of town with historic interests and well-funded non-profits to enhance the quality and availability of cultural life in Castine.

Castine's capital and facilities needs will require careful attention and planning. Castine is currently in a healthy financial position yet has to continue to plan for important infrastructure updates and find ways to spread costs over a small population, many of whom are on fixed budgets.

Introduction

This comprehensive plan proposes a vision of Castine's desired future and includes suggested goals and strategies to help us fulfill that vision. The vision expressed in this plan is informed by the views expressed by residents in the initial survey conducted in 2022, from subsequent input gathered from residents' responses to posted drafts of the Plan, and during the several public meetings held to solicit critiques and suggestions. Having an up-to-date comprehensive plan both helps a town plan for the future and makes it eligible for funds from the State and other sources that are necessary to implement the plan's recommendations.

This is Castine's third comprehensive plan. The first was completed in 1995. The second was 2010. Certain issues highlighted in the first two plans remain concerns in 2024. We continue to strive to grow our commercial district and expand our restaurants and other retail options. The Town Hall continues to work to improve communication with residents. We continue to grapple with parking issues during the summer and fall.

Other problems are new. The difficulties created by climate change, for example, were not considered in the 1995 or 2010 Comprehensive Plan. The current plan addresses these issues and the potential problems that may be created in the next ten years by the significant new development pressures brought about by climate change and other factors. Foremost among these are the need for affordable, work force housing, to increase public facilities to meet new need, and to create ordinances that will encourage appropriate economic growth while still protecting the town from unwanted kinds of development.

Each chapter of this plan begins with an inventory and analysis of the town in the following 13 areas: population, economy, housing, transportation, public facilities, marine resources, water resources, natural resources, agriculture, historical & archaeological, climate change and current and future land use. Each chapter ends with a chart articulating an overall goal for improving the situation in each area, strategies for reaching the stated goal and responsible parties for implementing the strategies along with a timeline.

To realize goals in many of these areas it will be necessary to create committees to study and implement needed improvements. One of our overall goals is to increase the participation of residents in these committees. Such participation is essential for the realization of our goals. It is our hope that this plan will help inspire and guide public involvement in the effort to make Castine the town we all want it to be.

Vision Statement

Our vision for Castine, Maine is to continue to be a welcoming place to live, work, raise a family, and enjoy the scenic beauty of the Maine coast through a variety of recreational activities, while focusing on responsible and sustainable growth in social, economic, and land use spheres with equitable and inclusionary practices.

Survey results indicate that a majority of Castine residents want to see population growth and development of small business while retaining the historic village character and rural charm of Castine. These sometimes-conflicting goals can be met through careful changes to zoning that will promote the construction of aesthetically appropriate workforce housing, protection and promotion of retail space, and ways to accommodate the needs of our residents who wish to age in place. The imminent impacts of climate change on our coastal community are also a concern for residents. We need to identify vulnerable infrastructure, agriculture and forestry resources, and archaeological treasures and create plans to upgrade or protect them. In addition, we need to plan to protect our residents during extreme weather events.

The success of the plan will rely on the leadership of town officials, but more importantly on the engagement and participation of Castine's citizens and provides many opportunities for involvement. To achieve the goals set forth in this Comprehensive Plan we will have to set firm priorities as a community. Through community engagement we will navigate conflicting interests, ways to procure funding for projects, and mitigate controversy. Together we will make decisions for our best possible future.

Data

The population and demographic data in this chapter come from two primary sources in the U.S. Census—the Decennial Census and the American Community Survey (ACS) 5-Year Estimates. The data from 2000 and earlier come from the Decennial Census, as does the data from 2010. More current data has been taken from the American Community Survey, the Census program’s current name for counts taken between decades. This is important to note because the margins of error are often quite large when it comes to counts such as household income, population size, and age in small or rural towns.

Nonetheless, it is still presented in this plan but should be analyzed and interpreted through the lens of other analytical sources of information.

Chapter A: Population

1. Purpose

Population is a foundational data set to guide all aspects of a comprehensive plan. The understanding of the town's past, current, and future population trends support many other aspects of the plan, such as housing, land use, and transportation, and will help Castine prepare for future municipal expenditures and investments.

This section will:

- A. Describe Castine's population trends;
- B. Discuss how these recent trends relate to and contrast with Hancock County, the State; and
- C. Review likely future population trends.

2. Key Findings & Issues

After experiencing population growth in the first decade of this century, the number of people living in Castine decreased by over 3% in the most recent decade. There also was a marked shift in age distribution with decreases in all age cohorts except for people 65-84 years old. Household size in Castine appears to be more stable than in other neighboring towns. Castine's 2021 median income of \$85,556 is higher than that for Hancock County and for Maine.

While the school-age and workforce-age population of Castine has decreased as a proportion of the total population, along with a population decrease in general, it will be important to review data after 2021 to see if recent national and global events result in any population increases.

3. Key Findings & Issues from Previous Plans

The 2010 Comprehensive Plan for Castine reflects some reservations about the official population figures. According to the U.S. Census, the Town's total population grew by 17% from 1990 to 2000. However, because this included MMA students who live off-campus, the Comprehensive Plan Committee concluded that the number of non-student residents of the Town had actually decreased. The Committee felt this decrease was likely to continue.

4. Public Opinion Survey Results

In the 2021 survey, 75% of respondents favor a slow increase in population over the next 10 years. Only 16% wish for the population to remain stable, and a minimal number advocate for rapid growth or decline.

The survey also identified areas needing improvement that could impact the town's ability to grow. These areas include housing affordability (59%), senior citizen services (64%), local job opportunities (78%), and commercial offerings (78%). Moreover, 88% of respondents stated that Castine lacks adequate year-round businesses and services.

Regarding future residency plans, approximately 10% of respondents intend to become year-round residents within the next five years, while 4% plan to leave Castine permanently during the same period.

5. Historical Trends

Table A - 1 shows historical population and projections through 2040. Castine's population reached a peak of 1,357 at the start of the Civil War (1860) and then declined to a low of 662 around the beginning of World War II (1940). The population increased from the 1940s until the 1980s, when it dipped again. The population reached a new high in 2010 but has declined by over 3% in the past decade. The 1960s stand out as the period with Castine's greatest percentage increase in population (31%).

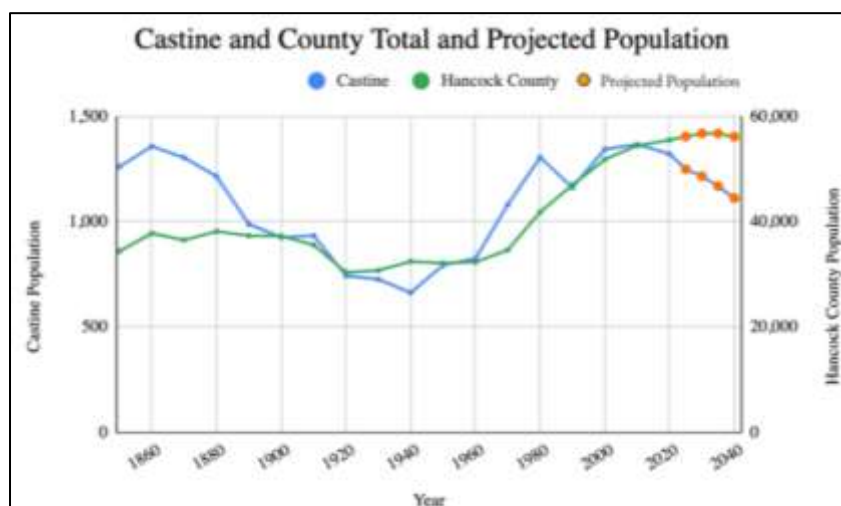
The State Economist's projections show Castine losing population in the coming years, while the State and the County will continue to have small gains through 2040. These projections are straight line trends that assume no change in underlying conditions. As such, they should be reviewed periodically to ascertain their accuracy and to account for any changes that might occur in the meantime. At the time of writing, Maine's rural population is increasing dramatically due to the influx of residents either fleeing denser population areas due to the COVID-19 pandemic, civil unrest, and/or climate impacts in other regions of the United States, such as severe drought, wildfires, and seasonal storms. Castine's population may thus increase as more people seek out areas of lower population density and are able to work remotely.

Table A-1: Historical and Projected Population

Year	Castine		Hancock County		State of Maine	
	Population	% Change	Population	% Change	Population	% Change
1850	1,260	N/A	34,372	N/A	583,169	N/A
1860	1,357	7.7%	37,757	9.8%	628,279	7.7%
1870	1,303	-4.0%	36,495	-3.3%	626,915	-0.2%
1880	1,215	-6.8%	38,129	4.5%	648,936	3.5%
1890	987	-18.8%	37,312	-2.1%	661,086	1.9%
1900	925	-6.3%	37,241	-0.2%	694,466	5.0%
1910	933	0.9%	35,575	-4.5%	742,371	6.9%
1920	743	-20.4%	30,361	-14.7%	768,014	3.5%
1930	726	-2.3%	30,721	1.2%	797,423	3.8%
1940	662	-8.8%	32,422	5.5%	847,226	6.2%
1950	793	19.8%	32,105	-1.0%	913,774	7.9%
1960	824	3.9%	32,293	0.6%	969,265	6.1%
1970	1,080	31.1%	34,590	7.1%	992,048	2.4%
1980	1,304	20.7%	41,781	20.8%	1,124,660	13.4%
1990	1,161	-11.0%	46,948	12.4%	1,227,928	9.2%
2000	1,343	15.7%	51,791	10.3%	1,274,923	3.8%
2010	1,366	1.7%	54,418	5.1%	1,328,361	4.2%
2020	1,320	-3.4%	55,460	1.9%	1,362,280	2.6%
2025	1,248	-5.5%	56,140	1.2%	1,374,728	0.9%
2030	1,215	-2.6%	56,707	1.0%	1,397,663	1.7%
2035	1,168	-3.9%	56,698	0.0%	1,407,396	0.7%
2040	1,111	-4.9%	56,092	-1.1%	1,404,176	-0.2%

Sources: Maine State Economist Population Projections, 2020

Figure A-1: Historical and Projected Population



Source: Maine State Economist, 2020

6. Current Conditions

6.1. Age Characteristics

Age distribution follows a trend similar to neighboring towns, Hancock County, and the State, when accounting for Maine Maritime Academy’s (MMA) predominately young, male population, but do not reflect larger trends within the United States.

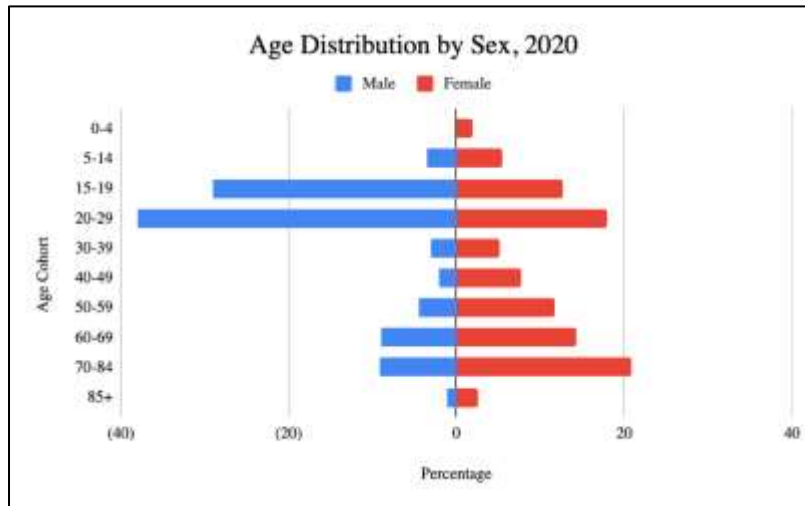
Castine’s population, like much of the rest of the County and Maine, is getting older. Castine did see a small increase in the age 18-44 population but decreases in the 5-17 and 45-64 age cohorts. The 65-84 years cohort increased by nearly 39% from 2000 to 2020. Dominating much of the data is the bulge in the male 15 – 24 age brackets due to MMA. The 0–4-year age group has decreased dramatically over the past two decades.

Table A-2: Age Distribution

Age Cohort	2000	% of Total	2010	% of Total	2020	% of Total	% Change '10 - '20	% Change '00 - '20
0 - 4	38	2.8%	19	1.4%	11	.8%	-42.1%	-71.1%
5 -17	100	7.4%	84	6.1%	72	5.5%	-14.3%	-28%
18 - 44	775	57.7%	828	60.6%	782	59.2%	-5.6%	0.9%
45 - 64	237	17.6%	214	15.7%	202	15.3%	-5.6%	-14.8%
65 - 84	167	12.4%	194	14.2%	232	17.6%	19.6%	38.9%
85+	26	1.9%	27	2.0%	21	1.6%	-22.2%	-19.2%
Total	1,343		1,366		1,320			

Source: US Decennial Census

Figure A-2: Age Distribution by Sex

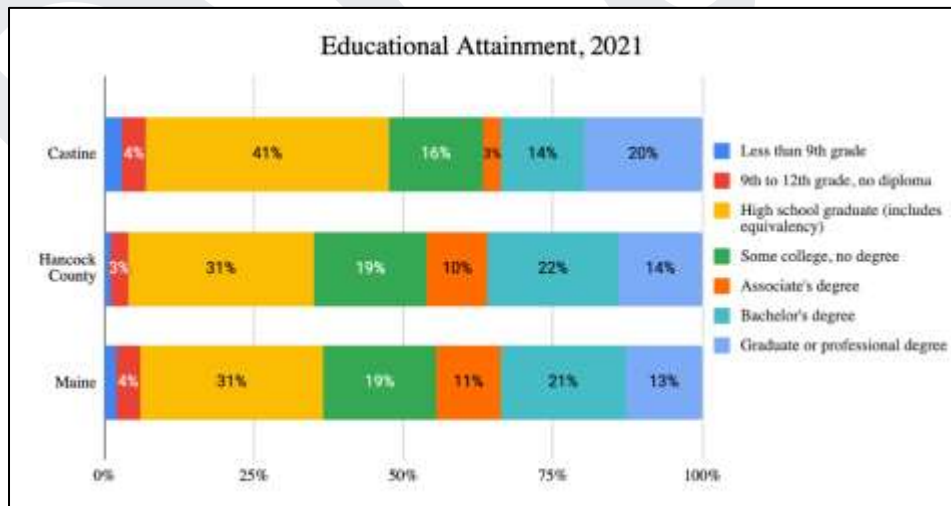


Source: US Decennial Census

6.2. Educational Attainment

Castine has a relatively high level of educational attainment as the percentage of high school graduates and people with graduate and professional degrees is higher than both Hancock County, the State, and most of the towns in its vicinity. See Figure A3 below.

Figure A-3: Educational Attainment for Population 25 Years and Older



Source: 2021 ACS 5-Year Estimates

6.3. Household Size

Since 2000, Castine’s average household size has increased from 2.16 persons per household to 2.34, which diverges from trends in neighboring communities, the County, and the State. The reasons for Castine’s increase in household size in contrast with County and State trends are hard to surmise without looking more closely at local data.

Table A-3: Average Household Size

	2000	2010	2021	% Change '00 - '21
Castine	2.16	2.59	2.34	8.3%
Brooklin	2.27	2.31	1.98	-12.7%
Brooksville	2.21	1.97	2.06	-6.7%
Blue Hill	2.23	2.19	2.24	0.4%
Sedgwick	2.34	2.58	2.10	-10.3%
Deer Isle	2.32	2.14	2.16	-6.9%
Hancock County	2.31	2.26	2.23	-3.4%
Maine	2.39	2.37	2.25	-5.8%

Source: US Decennial Census, 2021 ACS 5-Year Estimates.

6.4. Income

Castine's median income of \$85,556 is higher than that of surrounding towns, Hancock County, and the State. However, Castine's median income increased at a higher rate than that of many of the surrounding communities and Hancock County.

Table A-4: Median Household Income

	2000	2010	2021	% Change '00 - '21
Castine	\$46,250	\$61,250	\$85,556	84.9%
Brooklin	\$36,786	\$45,313	\$54,191	47.3%
Brooksville	\$36,458	\$46,156	\$52,917	45.1%
Blue Hill	\$31,484	\$44,158	\$53,566	70.1%
Deer Isle	\$32,826	\$42,537	\$58,250	77.4%
Sedgwick	\$35,000	\$39,167	\$64,803	85.2%
Hancock County	\$35,811	\$47,533	\$60,354	68.5%
Maine	\$37,072	\$45,815	\$69,543	87.5%

Source: US Decennial Census, 2021 ACS 5-Year Estimates.

6.5. Race

According to the 2020 Decennial Census, Castine is not unlike other Maine towns when it comes to diversity in terms of race. Castine is 96% white, with little variation.

6.6. Seasonal Population

Castine's seasonal population appears to have remained consistent since 2000. According to the 2020 Decennial Census, 258 units were occupied seasonally. This seasonal population is important to the town not only economically, but socially and culturally. The Town does have inns and short-term seasonal rentals that contribute to the seasonal population by increasing housing options for tourists. Based on the 2021 estimated

average household size of 2.34 people per household, the 258 seasonal housing units potentially increase Castine's population by approximately 604 people.

6.7. Major Employers

The major employer in Castine is Maine Maritime Academy (MMA). At this time serving the increase in daily population due to MMA does not require extra efforts on the part of Castine. However, the addition of year-round food venues and other services would promote economic improvement for the town and a more welcoming environment for the MMA employees. Furthermore, a supply of affordable year-round housing that supports the needs of MMA faculty and staff would increase the viability of a full-time residential population.

6.8. Projected Population

Projecting small town population is often imprecise due to the many factors that influence rural population. Any estimate will need to be reviewed within five years to measure accuracy. Sources for more up to date population figures include the ACS and Maine Department of Health and Human Services data sets. At the time of writing, several factors are impacting migration patterns throughout the United States such as cost of living, access to reliable internet, natural weather events and relocation as a result of climate shifts in various parts of the country. Migration towards rural places like Maine is expected to continue as a result. It will be necessary to review updated school enrollment data and building permits for new residences in the future to assess how Castine's population will change in the next several years.

Despite these trends, the Maine State Economist projects the population of Castine to continue to decline, and while the 2020 Census shows a decline in population over the past decade, this is inconsistent with anecdotal trends observed by residents. This suggests a need for additional housing, planning for increased elementary school population, and close monitoring of water and sewer infrastructure capabilities. In addition, a continued rise in year-round population indicates a need for more service-based businesses.

7. Goals & Objectives

GOAL: Achieve a more demographically diverse population in terms of age, employment, and year-round residency, without significantly altering Castine’s rural qualities.			
Objective	Strategy	Timeframe	Suggested Responsibility
Encourage moderate, year-round, population growth with a focus on the workforce-age and school-age populations	Review and amend zoning practices to encourage growth in housing supply and housing diversification.	2024	Select Board, Planning Board, Code Enforcement Officer
	Review larger scale development opportunities in line with current town character.	Ongoing	Planning Board
	Review and update Zoning Ordinances, as needed to increase availability of commercial opportunities.	Immediate and Ongoing	Select Board, Planning Board, Code Enforcement Officer
	Add incentive programs to encourage year-round businesses in both the service and non-service sectors.	2024	Select Board, Planning Board, Code Enforcement Officer
	Engage local development/tourism agencies for support, in collaboration with Castine Merchants Association.	Ongoing	Select Board, Planning Board, Code Enforcement Officer
	Support and invest in Adam’s school, Witherle library, and neighboring community high schools.	Ongoing	Select Board, School Board
	Work cooperatively with local childcare providers to ensure the continuity and availability of services.	2024 and Ongoing	Select Board, Implementation Committee
	Promote and collaborate with community partners encouraging youth recreation opportunities.	Ongoing	Select Board, Implementation Committee
Provide accessible support and facilities for Castine’s senior population.	Review and support age-in-place strategies.	2024	Select Board, Planning Board, Implementation Committee
	Support investment for applicable facilities and housing typologies.	Ongoing	Select Board, Planning Board
	Participate in regional opportunities and planning conversations.	Ongoing	Select Board, Planning Board

Maintain an annual understanding of population changes in Castine and the region.	Develop a plan to provide more accurate yearly updates on population changes, including collaboration with MMA, town tax and building records, and surveys.	2024	Select Board, Planning Board, BHHT, HCPC
	Provide in-depth five year assessment to assess regional trends related to remote-work and changes in general migration patterns.	2025 and 2030	HCPC, BHHT

Chapter B: Economy

1. Purpose

An understanding of past, current, and future potential economic trends in the local and regional economy is essential for assessing Castine's future economic development needs. As employment patterns change, such as increasing numbers of at-home workers and telecommuters, regional changes to major sources of employment, and/or changes in retail; transportation, telecommunication, and energy infrastructure will all be impacted and require adequate planning. This section aims to:

- A. Describe employment trends in Castine;
- B. Describe the local and regional economy; and
- C. Discuss likely future economic activity and market changes that may impact Castine.

2. Key Findings & Issues

As of 2021, Castine's labor force is declining, yet the unemployment rate has largely recovered from the pandemic. Additionally, the number of self-employed workers has declined over the last two decades but that may change as a result of new migration patterns and work preferences. Current improvements of broadband capabilities across the peninsula will play a major role in increasing the volume and quality of remote work options.

Maine Maritime Academy continues to be the Town's largest employer by far. Taxable sales, similar to employment, showed recovery after 2009 but then dropped significantly in 2020 as a result of the pandemic. In the future, economic opportunities may exist related to the growth of clean, renewable resources, and marine industries, such as aquaculture.

There is a lack of available commercial space from restaurants to retail/small business locations in what is identified as the downtown/commercial district. Space for light industrial development exists off-neck.

Castine does count tourism as an important part of its economic success. However, the increase in short-term vacation rental houses appears to have increased this tourist population.

There is little to no investment structure at the municipal level in economic development, implementing this would allow Castine to participate in regional economic planning. Castine has not been involved in any regional development plans over the past five (5) years nor does it currently have any development incentive districts at this time.

3. Key Findings & Issues from Previous Plans

Many of the same issues identified in the 2010 plan exist today. The 2010 Comprehensive Plan was somewhat pessimistic about the prospect for developing and keeping a mix of year-round businesses. The economic development goal set by the Committee was to seek to offer a variety of well-paying, year-round jobs both within the Town and within easy commuting distance. It also included seeking to preserve its important seasonal sources of employment, home occupations, and local entrepreneurial activities. Economic

development and growth in Castine are further compromised by lack of available commercial space due to residential conversions.

4. Public Opinion Survey Results

Overall, survey respondents would like to see most types of development over the next 10 years, several of which would impact on the local economy. Nearly all respondents (96.8%) would like to see restaurants, and 78.4% have similar interests about development that is commercial (trade/services). There is additional strong interest for inns, B&Bs and hotels (76.3%), medical (71.9%), office/business (68.4%) and technology business (65.77%). Respondents would not like to see gas stations (32.9%) or heavy industry (31.7%).

When asked about local job opportunities, 78% acknowledged that this needs improvement. Additionally, 88.6% said that there are not enough year-round services in Castine. When asked which businesses or services are underrepresented, the most common response was restaurants and dining options. Other recurring responses included a hardware store, inns and B&Bs, a grocery store, and a pharmacy or drugstore.

5. Recent Employment Trends

5.1. Employment & Unemployment

The Labor Force of a town is described as all persons aged 18 to 64 and able to work. According to the Maine Department of Labor (MDOL) there were 416 persons of Castine’s year-round population able to work in 2022. The figures represent people employed or looking for work. Castine’s unemployment rate in 2022 was slightly higher than the unemployment rate in Hancock County and the State. There was a substantial decline in Castine’s labor force from 2015 to 2016, which generally matches State and County trends.

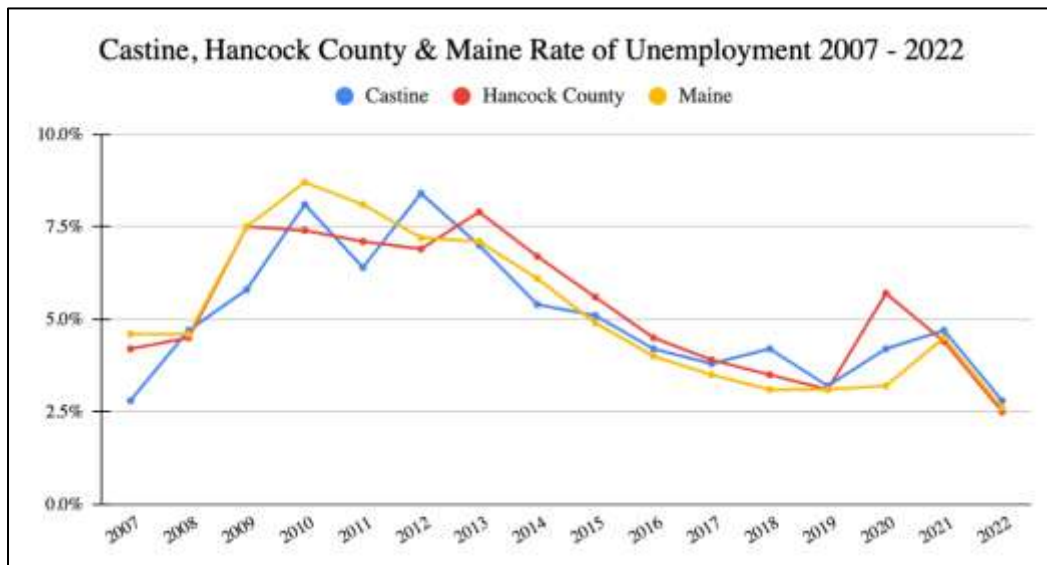
Table B-1: Employment Trends

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Labor Force	615	607	607	450	451	454	437	406	416	416
Employment	572	574	576	431	434	435	423	389	398	400
Unemployment Rate	7.0%	5.4%	5.1%	4.2%	3.8%	4.2%	3.2%	4.2%	4.3%	3.8%

Source: MDOL Center for Workforce Research and Information

As seen in Figure B – 1 below, a longer view of Castine’s unemployment rate shows the dramatic reduction in employment during the Great Recession (2007 – 2009) and the years thereafter. Ironically, Castine by 2019 had almost reached its pre-recession level of employment when the pandemic hit, and the unemployment rate started to rise again. In 2022, Castine’s unemployment rate seems to have recovered to almost pre-pandemic levels.

Figure B-1: Unemployment Rates, 2007-2022



Source: MDOL Center for Workforce Research and Information

5.2. Class of Workers

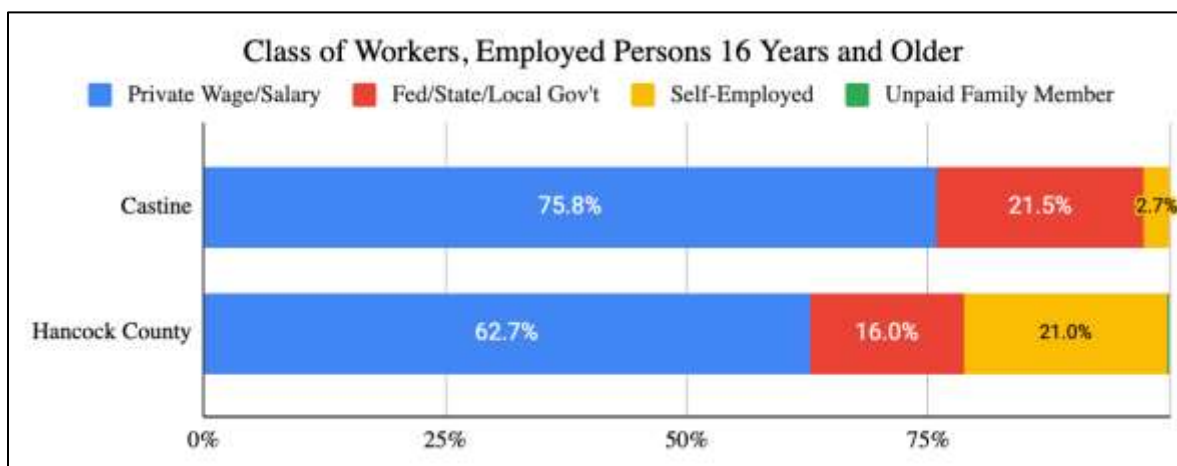
Based on Census data as depicted in table below, the number of Private Wage/Salary workers has increased over the last 21 years while the number of self-employed persons has decreased. Improvements in the availability and usage of broadband internet services may reverse this trend in coming years.

Table B-2: Class of Workers, Employed Persons 16 Years and Older

	Castine		Hancock County	
	Number	Percent	Number	Percent
Private Wage/Salary	370	75.8%	16,309	62.7%
Fed/State/Local Gov't	105	21.5%	4,173	16.0%
Self-Employed	13	2.7%	5,461	21.0%
Unpaid Family Member	0	0.0%	77	0.3%
Total	488		26,020	

Source: 2021 ACS 5-Year Estimates

Figure B-2: Class of Workers, Employed Persons 16 Years and Older, 2021



Source: 2021 ACS 5-Year Estimates

5.3. Employment by Sector

Table B – 3 shows employment by sector for Castine and Hancock County. This table represents both residents who work in town and also those who commute to other towns and locations for work. The largest sector of employment, by far, is Education, Healthcare and Social Services, which in 2021 employed 49.9% of all working civilians. The next largest sectors are Arts, Entertainment, Recreation & Food Service (16.4 %) and Retail Trade (10.5 %). The Maine Maritime Academy is Castine’s largest employer.

Compared with Census figures from 2000, Castine lost all of the 17 Manufacturing jobs it had previously. On the other hand, Retail Trade increased from 5.6% to 10.5%—an apparent success in achieving one of the Town’s economic objectives. Overall, employment in Castine decreased from 676 in 2000 to 488 in 2021.

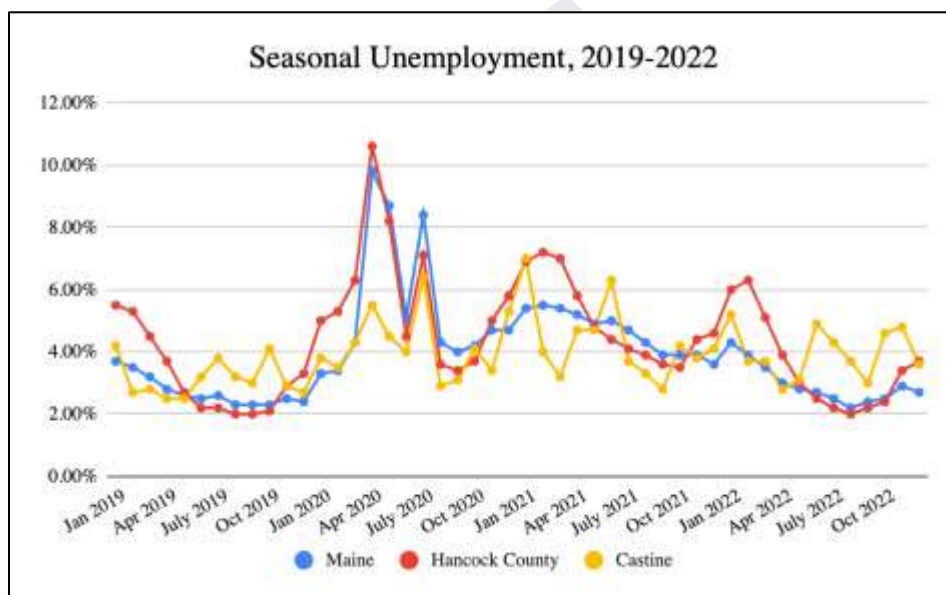
Table B-3: Employment by Sector

Category/Industry	Castine		Hancock County	
	Number	Percent	Number	Percent
Agriculture/Fishing	8	1.6%	1,806	6.5%
Construction	23	4.7%	2,438	8.7%
Manufacturing	16	3.3%	1,554	5.6%
Wholesale Trade	0	0.0%	560	2.0%
Retail Trade	51	10.5%	3,362	12.0%
Transportation	18	3.7%	1,152	4.1%
Information	0	0.0%	328	1.2%
Finance, Insurance & Real Estate	36	7.4%	1,374	4.9%
Professional, Scientific & Management Services	8	1.6%	3,734	13.4%
Educational, Health & Social Services	224	45.9%	6,952	24.9%
Arts, Entertainment, Rec & Food Service	80	16.4%	2,171	7.8%
Public Administration	19	3.9%	980	3.5%
Other Services	5	1.0%	1,499	5.4%
Total- employed civilian labor force 16+	488		27,910	

Source: 2021 ACS 5-Year Estimates

Figure B – 3 compares seasonal unemployment rates for Maine, Hancock County, and Castine for the years 2019 to 2022. The dramatic increase in unemployment in the spring and summer of 2020, due primarily to the pandemic, hit the State and the County harder than Castine, but some of the figures for the latter half of 2020 show that Castine has not had an easy time of it either. Additionally, this table demonstrates a post-pandemic recovery that began in 2021, as unemployment rates began to decrease.

Figure B-3: Seasonal Unemployment Rates, 2019-2022



Source: Maine Department of Labor, Center for Workforce Research and Information

5.4. Commuting Patterns

Castine is a rural community, and this requires that many residents (38.6%) commute to get to work. The Town is more walkable than many of the communities in Hancock County, as evident in a relatively short average commute time and percentage of workers who walk to work.

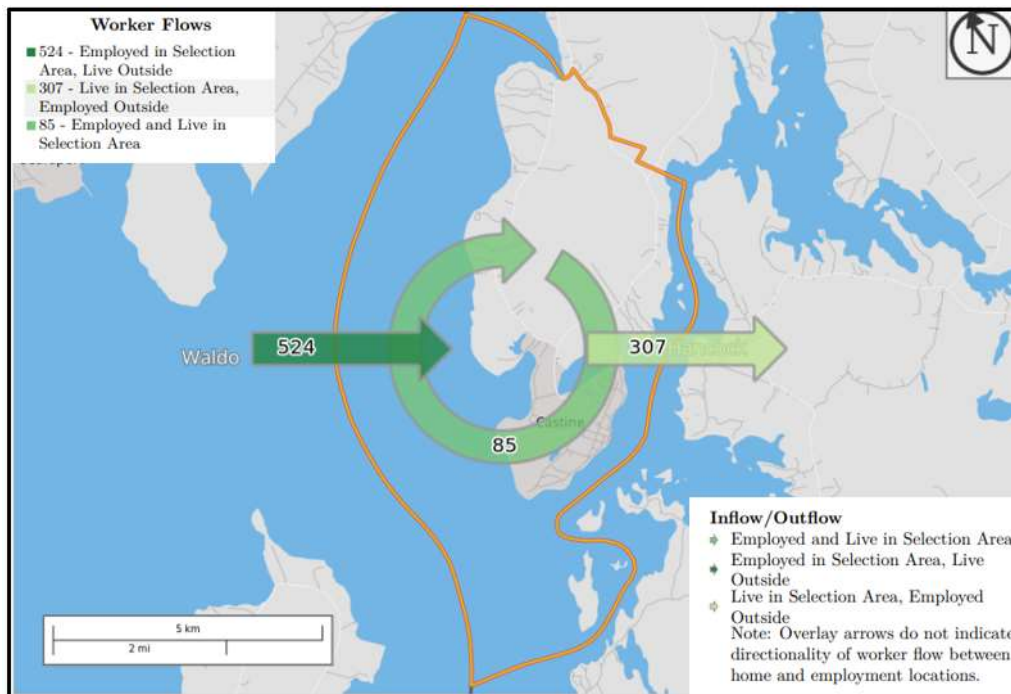
Table B-4: Means of Transportation to Work

Means of Transportation to Work	% of Total Workers
Car, truck, or van	37.2%
Drove alone	31.4%
Carpooled	5.7%
Public transportation (excluding taxicab)	0%
Walked	45.9%
Taxicab, motorcycle, or other means	3.4%
Worked from home	13.6%

Source: 2021 ACS 5-Year Estimates

Castine also receives a significant inflow of workers (Figure B4), as 524 people employed in the Town commute in from other communities. As the largest employer, Maine Maritime Academy is a likely contributor to this number.

Figure B-4: Worker Inflow and Outflow



Source: US Census OnTheMap, 2021

5.5. Major Employers

Maine Maritime Academy continues to be the largest employer in Castine. However, many of the employees do not reside in Castine due to increasing housing costs, they reside in neighboring towns (eg. Penobscot, Orland, or Bucksport).

A previous inventory of businesses, completed for the 2010 Comprehensive Plan, showed that the Town had a number of year-round businesses in addition to a selection of seasonal businesses, primarily restaurants (4) and Inns (3). Retail/Gift Shops (5) and Real Estate Agencies (4) were the sectors with the most year-round businesses in Castine in 2010. There were also two banks, two galleries, two contractors, a grocery store, a health clinic, a boat yard/marina, a lunch/ice cream parlor, and several home occupations.

Although fewer employers were included in 2010, there appear to have been increases since then in sectors such as Building and Home Services, Food Services, Real Estate, and Shops and Galleries. Table B - 5 inventories the Town’s current businesses by sector, and Table B - 6 lists the Town’s largest employers by size.

Table -B-5: Summary of Businesses, 2021

Sector	# of Businesses
Shops and Galleries	9
Building and Home Services	8
Food Services	8
Real Estate	6
Health	4
Professional Services	4
Recreation	4
Religious Organizations	4
Cultural	3
Education	3
Lodging	3
Marine Services	3
Financial	2
Municipal Government	2
Entertainment	1
Media	1
Utility	1
Several Home Occupations	

Source: Maine Dept. of Labor - Center for Workforce Research and Information; "Business Listings," Castine Maine, <https://castine.me.us/business-listing>, accessed August 2, 2021.

Table B-6: Major Employers

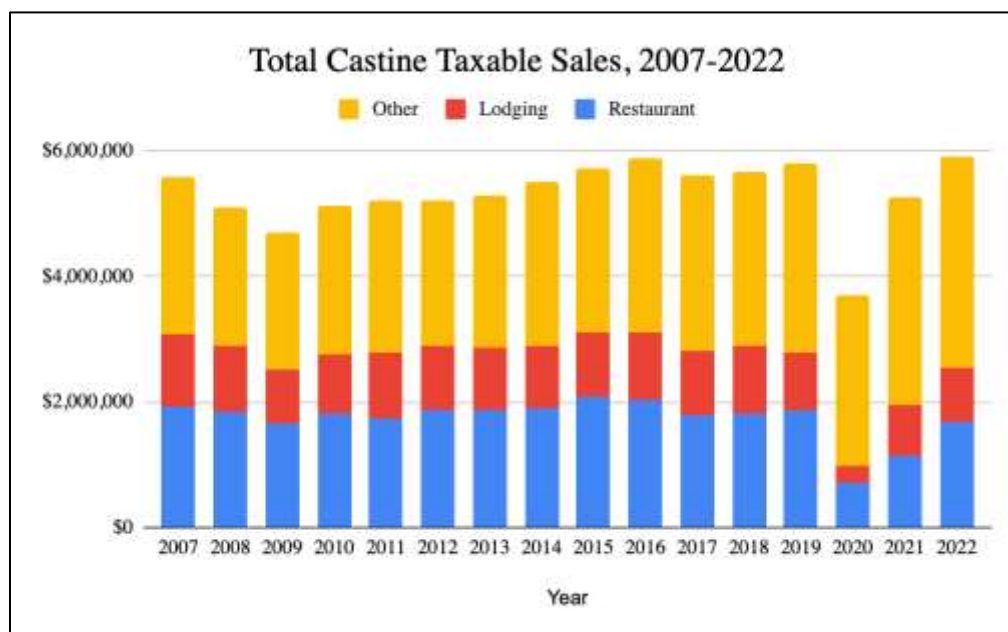
Employer Name	Employer Size	Sector
Maine Maritime Academy	250-499	Education
Castine Golf Club	20-30	Recreation
Adams School	20-25	Education
David Hatch Painting Inc	10-19	Building & Home Services
Castine Community Health Services	10-19	Health
Pentagoet Inn & Wine Bar	3-15	Food Services
Castine Fire Department	3-10	Municipal Government
Castine Inn	5-9	Lodging
Pentagoet Inn	5-9	Lodging
Saltmeadows Properties	5-9	Real Estate

Source: Maine Department of Labor – Center for Workforce Research and Information

5.6. Taxable Sales

Taxable sales data is another indicator of economic activity. Similar to the unemployment rate pattern, Castine showed a slowly growing rebound in taxable sales following the Great Recession until the onset of the pandemic caused sales to shrink by almost half. Post-pandemic data demonstrates that Castine's economy is recovering; taxable sales in 2022 were as high as they've been over the past decade and a half.

Figure B-5: Taxable Sales, 2007 - 2022



Source: Maine Revenue Services

5.7. Historical Perspective

Castine is at the end of State Highway 166 off of Route 1. In the mid to late Twentieth Century Castine was a self-contained town with car dealerships, a movie theater, a hardware store and other amenities to allow for a sustained year-round population. Improvements to roads and vehicles created a trend where residents ventured outside of town to shop, seek entertainment, and conduct business. This trend led to the closing of many year-round businesses. The presence of Maine Maritime Academy offsets those changes by bringing students and employees into Castine for the majority of the calendar year.

6. Projected Future Employers & Regional Economic Development

Castine's future economy will depend on a range of factors, including both regional and local demographics, as well as changes in climate and technology. While nearby municipalities are positioned to provide more retail offerings such as Blue Hill and Ellsworth, a certain number of local businesses will continue, mostly related to the industries connected to the land and water. Climate change's impact on fisheries and marine based industries also remains to be seen. This diverse sector, whether shellfish or sea-weed harvesting, etc., will be impacted by rising sea-temperatures and increasing cycles of extreme weather events. Castine will also be in competition with other towns and regions to attract remote workers as fiber optic internet access and telecommuting continues to increase across the State.

On the plus side, Castine has a high quality of life such that, with increasing broadband capability and penetration, it may have the ability to attract the talent that Maine desperately needs to offset its aging and declining workforce. In addition, Castine's oceanfront setting may enable the Town to participate to a degree in the potentially very large off-shore wind industry projected for Maine and in the growing aquaculture

opportunities. As will be discussed in coming chapters, an integrated approach that includes more affordable housing and other factors will be needed to capitalize on these and other economic possibilities.

Draft

7. Goals & Objectives

GOAL: Strengthen and support Castine’s Economy.			
Objective	Strategy	Timeframe	Suggested Responsibility
Support economic development in line with the community’s vision and role of the Blue Hill Peninsula.	Create greater accessibility to commercial space & protect existing commercial space through zoning, and tax incentives or disincentives.	2024	Planning Board, Select Board
	Review and update Zoning Ordinances, as needed to increase availability of commercial opportunities.	2024	Planning Board, Select Board
Commit to funding economic development.	Create an Economic Development Committee.	2024	Select Board
	Support businesses with redevelopment funds and other incentives.	2024	Planning Board
	Create an economic development fund and seek Community Development Block Grants.	2024	Planning Board
Collaborate with surrounding towns and regional organizations to support economic development.	Investigate regional, state, and national small town economic development programs to join. Work with HCPC to promote regional collaboration.	2024-2026	Select Board, Economic Development Committee

Chapter C: Housing

1. Purpose

A comprehensive plan needs to address several key housing issues. These include changes in conditions and needs as well as projecting future demand for housing. This section aims to:

- A. Describe recent trends in Castine's housing stock in terms of types and number of units created;
- B. Discuss housing affordability (cost to rent or own);
- C. Project future housing needs;
- D. Describe the benefits that will accrue to Castine from a supply of available and affordable housing; and
- E. Recommend ways to increase the supply of housing that is safe, energy-efficient and affordable for a multi-occupational and multi-generational community.

2. Key Findings & Issues

Castine's supply of housing does not meet the needs of the town. Housing supply is stagnant, with total housing units increasing only 4.2% between 2000 and 2020. Over half of Castine homeowners could not afford the current median price of a new home offered in Castine.

The lack of housing is a major impediment to the long-term sustainability of the town. Many businesses in Castine struggle to hire sufficient staff due to the lack of affordable housing, and as the town's median resident age continues to increase, the prospect of maintaining Castine's population through migration of young families continues to deteriorate.

In order to serve an increasing population, house more Maine Maritime Academy employees, attract more tradespeople to the area and house teachers, service industry employees, seasonal workers, Castine will need to increase new residential development by 10%. In addition, Castine will need to revisit housing for seniors in the community who wish to age in place. It will be necessary for Castine to work with regional partners to determine the best location for new housing units and to identify the needs of seniors and how to best serve them.

3. Key Findings & Issues from Previous Plans

Castine's 2010 Comprehensive Plan indicated concern that the decreasing supply of affordable housing was one of the critical issues facing the community. That committee indicated that the lack of housing affordable to people of all income levels affects the overall health of the Town's economy. It affects the availability of volunteers necessary to support the Town's fire and ambulance services, hampers the ability of the Maine Maritime Academy to hire and retain faculty and staff, diminishes the number of school-age children necessary to maintain the Adams School, and reduces Castine's age diversity.

4. Public Opinion Survey Results

Survey results show strong support for affordable housing in Castine. A majority back residential development, particularly single-family homes, and senior living facilities. Multifamily housing also received more support than opposition.

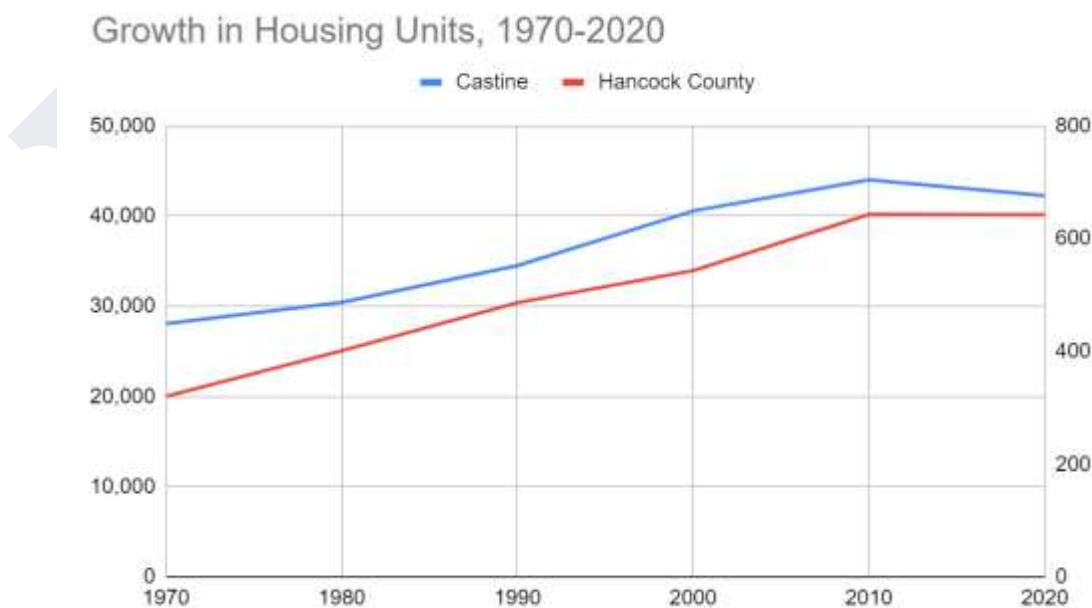
Concerning location, 75% approve of building single-family homes anywhere in town. Over 40% hold the same view for senior care facilities and multifamily apartments. Most respondents prefer that any future residential development should take place outside of the Village.

5. Recent Housing Trends and Analysis

5.1. Housing Unit Stock

The growth in housing units in Castine and Hancock County has occurred at a steady pace over the past 50 years. In the past decade, however, growth has slowed in Castine, and the total housing stock has declined by almost 4%. Compared to neighboring communities and Hancock County, Castine’s housing stock has grown at a significantly slower rate over the past two decades. In 2022, there were six building permits for residential structures and two permits for residential accessory structures. Additional information on building and development is found in Chapter E, Public Facilities.

Figure C-1: Total Housing Units, 1970-2020



Source: US Decennial Census

5.2. Occupancy Trends and Seasonal Housing

There has been a shift in Castine’s housing picture over the last 20 years with a significant uptick in vacant housing units. It is important to note that homes “vacant” for seasonal, recreational or occasional use are also classified as vacant, which likely influences this rise. Between 2000 and 2020, the total number of housing units

declined, while the number of vacant housing units increased from 277 to 329 units. Occupied units fell from 372 units to 347 units. Compared to Hancock County as a whole, Castine had a lower percentage of vacant units.

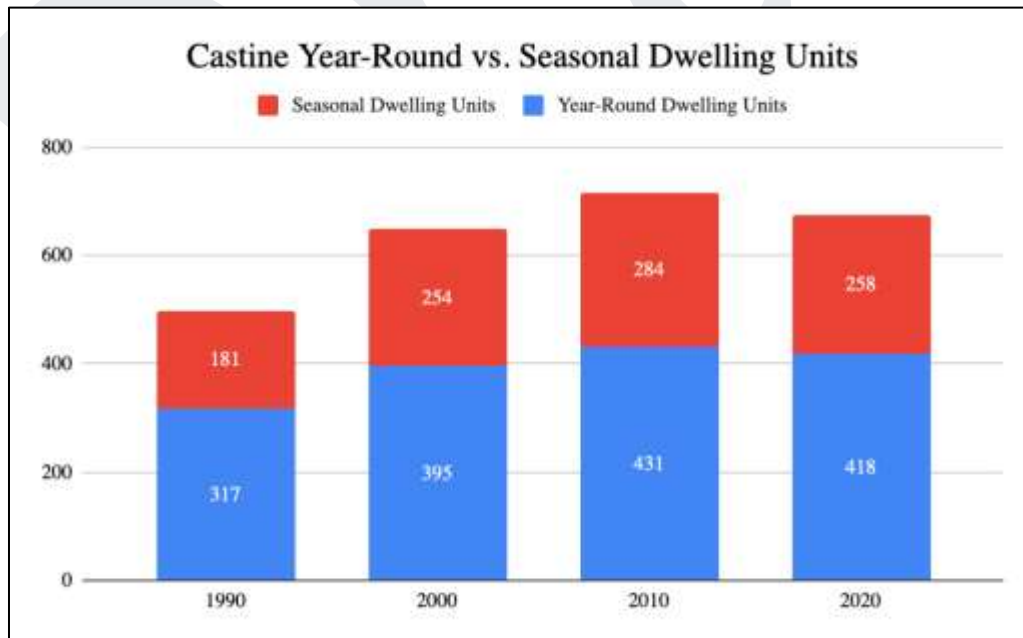
Table C-1: Housing Stock

	2000	2010	2020	% Chg '00-'10	% Chg '10-'20
Total Housing Units	649	704	676	8.5%	-4.0%
Occupied	372	380	347	2.2%	-8.7%
Percent of Total	57.3%	54.0%	51.3%	-5.8%	-5.0%
HC % of Total	64.4%	60.3%	62.2%	-6.4%	3.2%
Vacant	277	324	329	17.0%	1.5%
Percent of Total	42.7%	46.0%	48.7%	7.8%	5.9%
HC % of Total	31.4%	39.7%	37.8%	26.4%	-4.8%

Source: US Decennial Census

As seen in Figure C - 2 below, seasonal housing units account for an estimated 38% of the residences in Castine. In Hancock County as a whole, seasonal housing accounts for an estimated 34% of total housing units. Castine does have a significant student population, and many seasonal homes are rented to students during the school year. The ratio of seasonal to year-round housing in Castine is worth watching as a continued rise in seasonal housing, combined with the aging population, could lead to a shift in the weight the community gives to education and other programs and facilities desired by year-round residents.

Figure C-2: Castine Year-Round vs Seasonal Housing Units



Source: US Decennial Census

5.3. Tenure

Tenure refers to the financial arrangement under which someone lives in a home or apartment—generally as a renter or an owner. In both Castine and Hancock County, renter occupied housing is a relatively small

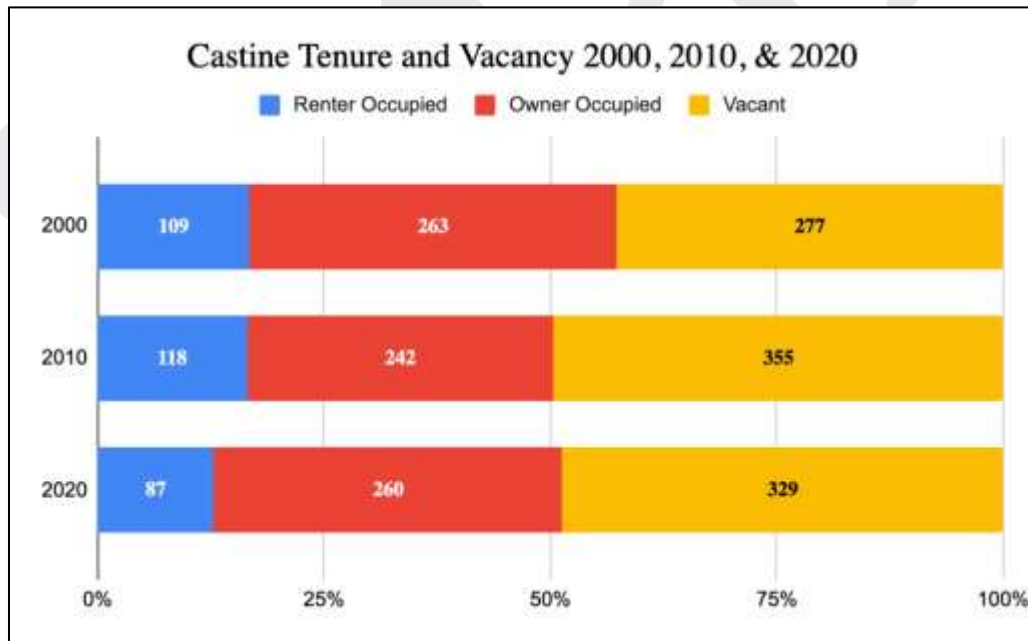
percentage of the total housing units. The percentage of owner-occupied dwelling units in Castine is less than that for Hancock County. Correspondingly, there is more vacant housing in Castine than in the County. As told in the graphics above, a majority of the vacant housing in Castine is seasonal.

Table C-2: Tenure and Vacancy

	2000	2010	2020
Renter Occupied	109	118	87
% of Total	16.8%	16.5%	12.9%
HC % of Total	15.7%	14.2%	15.6%
Owner Occupied	263	242	260
% of Total	40.5%	33.8%	46.5%
HC % of Total	48.8%	45.0%	74.9%
Vacant	277	355	329
% of Total	42.7%	49.7%	48.7%
HC % of Total	35.6%	40.8%	37.8%
Total Housing Units	649	715	676

Source: US Decennial Census

Figure C-3: Tenure and Vacancy



Source: US Decennial Census 2000; 2010; and 2020

5.4. Housing Unit Type

Castine’s relatively low number of renter occupied housing units corresponds with the low number of duplex and other multifamily type units discussed below. A potential challenge for Castine and other similar

communities in Maine is how to increase multifamily housing in order to provide more options for affordability.

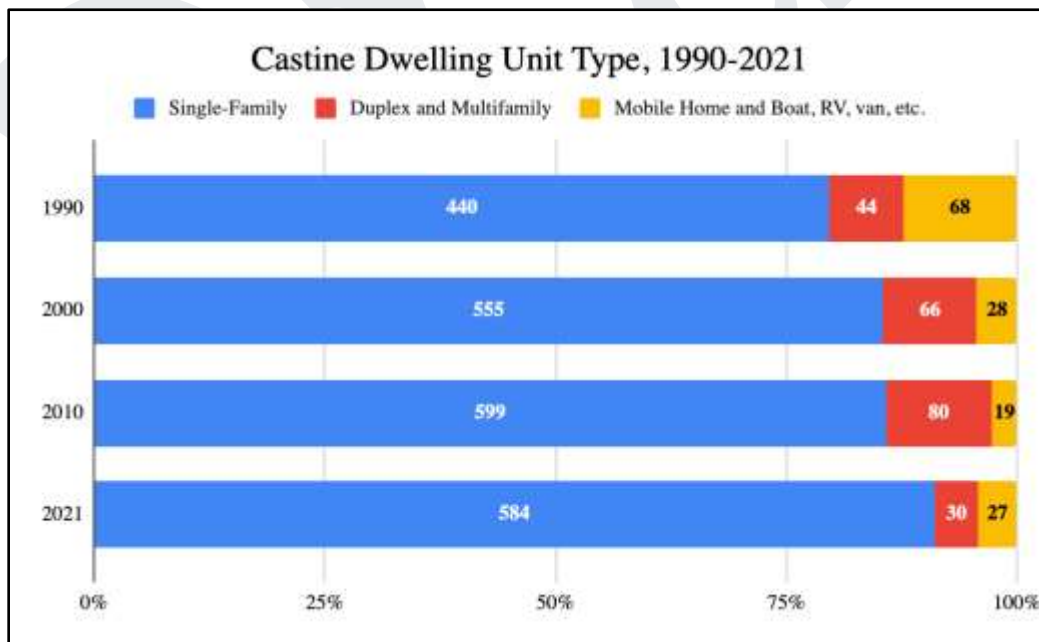
Most of the residential dwelling units in Castine are single-family homes. The rest are multifamily dwelling units (4.6%), and mobile homes (4.2%). Castine has a larger percentage of single-family homes than Hancock County. The 2021 estimate of 30 duplex/multifamily units appears to be low, so the number of duplex/multifamily dwelling units should be reviewed as future Census data becomes available.

Table C-3: Changes in Dwelling Unit Type, 1990-2021

Dwelling Unit Type	1990	2000	2010	2021	% Change '00 - '21
Single-Family	440	555	599	584	5.2%
% of Total in Castine	79.7%	85.5%	83.7%	90.3%	
% of Total in HC		81.8%	81.9%	81.8%	
Duplex and Multifamily	44	66	80	30	-54.5%
% of Total in Castine	8.0%	10.2%	11%	4.6%	
% of Total - HC		8.7%	8.1%	11.7%	
Mobile Home and Boat, RV, van, etc. *	68	28	19	27	-3.6%
% of Total in Castine	12.3%	4.3%	3%	4.2%	
% of Total - HC	9.5%	8.6%	6.5%		
Total Units	552	649	715	647	-0.3%

Source: US Decennial Census and 2021 ACS 5-Year Estimates

Figure C-4: Dwelling Unit Types

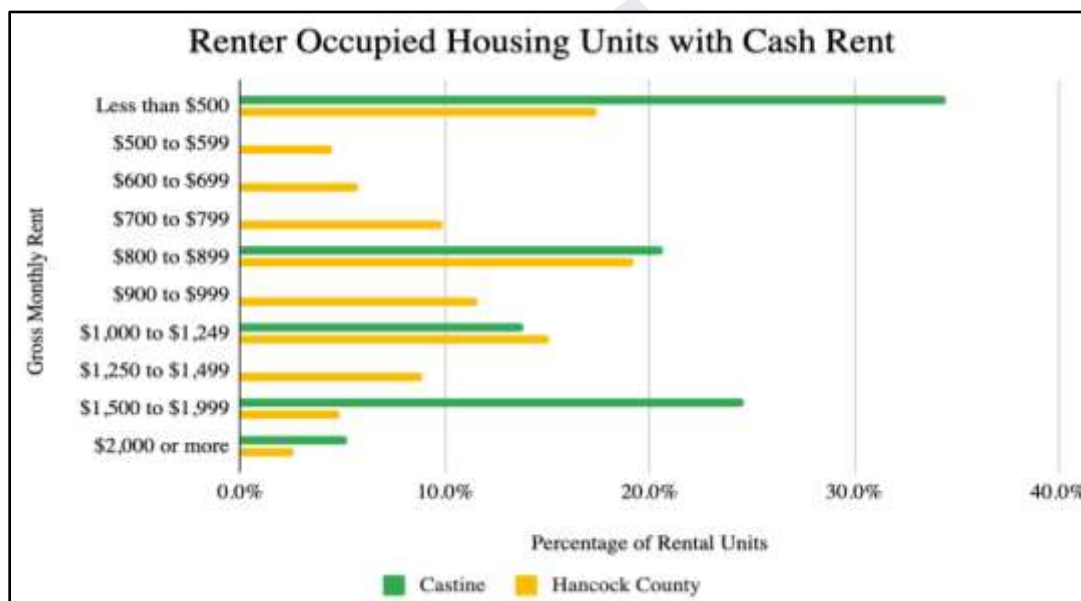


Source: US Decennial Census and 2021 ACS 5-Year Estimates

5.5. Affordability

Housing affordability refers to both rental and homeownership tenure. In terms of rental affordability, Castine’s median gross rent in 2021 was \$871, which was similar to the \$865 for Hancock County as a whole. Of the 70 renter occupied housing units in Castine in, 57 were paid for in cash rent. 35% had a gross monthly rent of less than \$500, while 30% had a gross rent between \$1,500 and \$2,500. Figure C - 5 breaks down gross monthly rent by percentage of rental units for both Castine and Hancock County.

Figure C-5: Renter Occupied Husing Units with Cash Rent



Source: 2021 ACS 5-Year Estimates

Households are considered cost burdened when they spend 30% or more of household income on housing costs, which include rent, mortgage and other housing needs. Most renters in Castine were not considered cost burdened in 2021, according to ACS estimates; all renter-occupied households paying cash rent with an income of \$35,000 or greater were spending less than 30% of household income on gross rent. Six of the nine cost burdened households were earning an income of less than \$20,000, and the other three had a household income of less than \$35,000.

In terms of home ownership affordability, the affordability calculator is based on the ratio of median home prices to area median household income. A ratio of 1 or above indicates affordability. In 2022, the median home price in Castine was \$667,405. The income needed to afford a home of this price is \$201,722, according to Maine Housing formulas, but in Castine, the 2022 median income was considerably less—\$72,115. For the people living in Castine, almost 90% could not afford a median price home.

Housing affordability is one of the great challenges in Maine and the nation, as well as locally in Castine. The consequences of unaffordable housing have long-term negative effects that contribute to population decline, cultural homogeneity, and ultimately economic stagnation. When young families and those in lower income brackets are unable to attain safe and decent housing, the effects can lead to tangible problems such as decline in educational quality because of difficulties attracting skilled teachers, shortage of laborers, and increased travel times to shops, amenities, and services.

Table C-4: Home Ownership Affordability, 2022

Affordability Index*	Median Home Price	Median Income	Income Needed to Afford Median Home Price - Annual	Home Price Affordable to Median Income	Households Unable to Afford Median Home (%)	Unattainable Home Sold (%)	Unattainable Homes Sold
0.36	\$667,450	\$72,115	\$201,722	\$238,611	87.3%	93.3%	14

Source: *Maine State Housing*

5.6. Accessible, Affordable & Senior/Assisted Living Facility Need Projections

Given the limited number of multifamily homes in Castine and the projected aging of the population, new options for senior citizen housing may be needed. It may be possible to meet some of these needs through social services such as “aging in place” that make possible the delivery of home-based services. Some of these services are available to Castine residents through At Home Downeast, a member based, volunteer supported program designed to provide residents of the nine-town Peninsula community with essential services that can enable them to continue to live independently in their homes as they age.

There are presently no town-sponsored programs for first-time home-buyers and households with limited income. Some towns have created committees to explore options such as housing land trusts that create opportunities for first-time homebuyers to acquire homes at below-market rates. These ventures involve deed restrictions to ensure the units remain affordable when they are resold.

5.7. Local Regulations and Affordable Housing Policies

Local land-use regulations focus on shorelands, wetlands and include local ordinances for minimum lot sizes and setbacks. There are no local regulations that directly encourage or discourage the development of affordable housing. Due to Castine’s relatively high market costs for home ownership, this lack of affordable-housing policies could contribute to population loss over the medium-term, despite recent upticks in regional and local home purchases. First-time home buyers and median-income earners would tend to be priced out of the market and are mostly incapable of affording a house in town. Local affordable-housing policies could address this issue, along with measures to promote sustainable growth and incorporate affordable housing options within any new development.

“An Act to Implement the Recommendations of the Commission to Increase Housing Opportunities in Maine by Studying Zoning and Land Use Restrictions,” generally referred to by its legislative tracking name of LD 2003, became law on April 27, 2022 designed to remove unnecessary regulatory barriers to housing production in Maine while also encouraging the development of new affordable housing units. The law creates an automatic density bonus for developments that meet the following requirements:

- Be approved on or after a municipality’s LD 2003 implementation date;
- Designate more than 51% of the units in the developments as affordable;
- Be in a designated growth area as defined by Maine law or served by public water and sewer or a comparable system;
- Be in an area in which multifamily dwellings are allowed;
- Meet shoreland zoning requirements, meet minimum lot sizes if using subsurface waste disposal, and prove that water and sewer capacity is adequate for the development.

If eligibility requirements are met, the number of units allowed will be 2.5 times greater than the number allowed for a development that is not designated as affordable. Off-street parking requirements are also amended.

The Town received funds from the Department of Economic and Community Development (DECD) to assist in bringing its land use ordinances into compliance with LD 2003. As of the writing of this plan, ordinances are in the process of being reviewed by an attorney with the use of these funds.

5.8. Student Housing

Castine faces a somewhat unique challenge in regard to pressures on housing from Maine Maritime Academy. The school’s available housing falls short of total students by about 300 students annually. Many students live in off-campus housing, primarily in Castine.

5.9. Short-Term Rentals

The rapid increase in short-term rentals (usually defined as rentals with terms less than 30 days) facilitated by online rental channels has been a challenge for many Maine communities. While they provide a new source of income to those who can rent some or all of their homes, they can put pressure and constraints on the year-round housing stock.

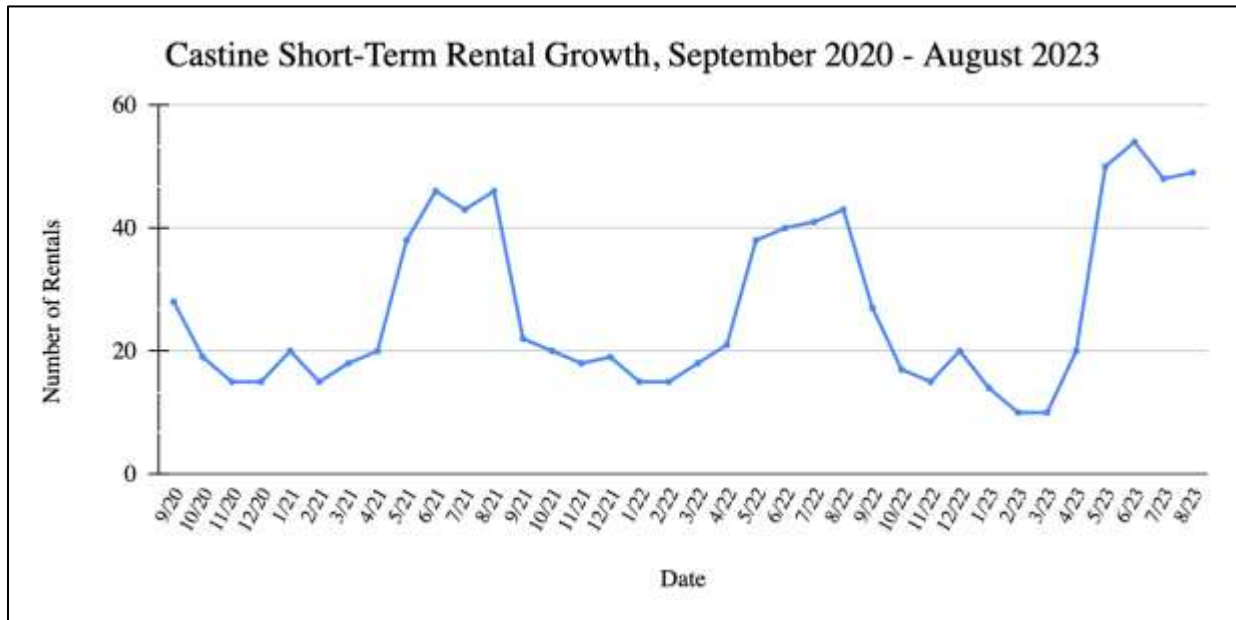
There were 47 active short-term rentals in Castine at the end of September 2023, with an average of 7.5 guests per rental. The number of short-term rentals fell a little as a result of the pandemic but has increased steadily since 2021.

Table C-5: Short-Terms Rentals

Active Rentals	47	
Entire Home Rentals	100%	
Average Number of Guests	7.5	
Average Daily Rate	\$419	Average Daily Rate (ADR) is the average booked nightly rate + cleaning fees for all booked days over the last year.
Occupancy Rate	66%	The number of booked days divided by the total number of days available for rent over the past 12 months. Properties with no reservations are excluded. This occupancy rate figure represents the median over the past 12 months.
Average Revenue	\$100,400	The median yearly revenue (nightly rate + cleaning fees) earned over the past 12 months. This revenue figure represents the median over the past 12 months and does not include taxes, service fees, or additional guest fees.
Airbnb Listings	59%	
Vrbo Listings	24%	
Listed on Both Airbnb and Vrbo	16%	

Source: AirDNA Marketminder, accessed 3 October, 2023.

Figure C-6: Short-Term Rental Growth, September 2020 - August 2023



Source: AirDNA Marketminder, accessed 3 October, 2023.

5.10. Substandard Housing

There were an estimated 30 homes in 2022 that lacked complete kitchen facilities and 30 (possibly the same 30) that lacked complete plumbing facilities. Substandard housing does not appear to be a significant issue.

Table C-6: Substandard Housing

Substandard Housing	Castine	Hancock County	Maine
Lacking complete kitchen facilities	30	164	3,248
Lacking complete plumbing facilities	30	200	5,371

Source: Maine State Economist

6. Goals & Objectives

GOAL: Encourage and promote adequate housing to support the community's and the region's economic development.			
Objective	Strategy	Timeframe	Suggested Responsibility
Organize a Housing Committee.	Seek volunteers among the Town's community leadership.	2024	Select Board
Enact land use regulations that encourage the development of workforce and affordable housing.	Amend ordinances to comply with LD2003 and reduce barriers to development, including decreasing lot sizes, amending setbacks, and allowing for accessory dwelling units in all zones where single-family homes are allowed.	2024	Planning Board
	Amend ordinances to encourage cluster housing Off-Neck and provide incentives to promote affordable and workforce housing.	2024-2025	Planning Board
	Designate the current mobile home park as a growth area pursuant to 30-A M.R.S.A. 4358(3) (M) and 30-A M.R.S.A (2)	2024-2025	Planning Board
Incentivize the creation of long-term, attainable, rental housing.	Update the current Rental Housing Ordinance to include definitions for short-term, long-term, and seasonal rentals.	2024	Planning Board, Select Board
	Expand the current rental registration program to identify properties utilized for short-term, long-term, and seasonal rentals.	2024	Planning Board, Select Board
Identify opportunities for regional collaboration.	Participate in regional coalitions, programs, grants, and projects.	2025-2030	Select Board
Collaboration with MMA to improve the coordination of student housing.	Work with MMA to identify strategies for creating additional student housing on and off campus through public-private partnerships.	2024-2030	Select Board, Planning Board, Housing Committee
	Create a communications strategy to establish relationships between MMA, students, landlords, and the town.	2024-2030	Select Board, Planning Board, Housing Committee
Adopt more stringent building codes (eg. International Residential Code) and apply proper enforcement	Enact more stringent code for residential construction permits.	2024-2025	Planning Board, Code Enforcement Officer
	Develop a Rental ordinance covering the safety of both long- and short-term rentals	2024	Planning Board
Support the development of senior housing	Amend ordinances to allow for age-restricted housing development.	2025-2028	Planning Board
	Identify potential senior/retirement home sites for development.	2025-2028	Planning Board

Chapter D: Transportation

1. Purpose

The transportation system and mobility are some of the most important factors that influence a community's economic well-being and support (or negatively impact) the health and cohesion of its population. The transportation system, including parking, is also one of the costliest infrastructural elements a town must maintain. This section will discuss and analyze the major transportation issues facing Castine. Specifically, it will;

- A. Identify and profile Castine's roadway and transportation systems in terms of extent, condition, and use;
- B. Assess the adequacy of those systems in handling current use demands;
- C. Consider whether transportation improvements will be needed to adequately accommodate the demands generated by projected increases in development within Castine and Hancock County;
- D. Account for areas where sustainable transportation alternatives and long-term cost savings in infrastructure management may exist.

2. Key Findings & Issues

The Town of Castine is responsible for the care and maintenance of approximately 9.5 miles of the 18.8 total miles of roadway we use. The Maine Department of Transportation (MaineDOT) is responsible for the care and maintenance of the remaining 9.3 miles. Two key issues are vehicles traveling at excessive speeds on State Route 166 and State Route 166A and limited parking in the historic downtown. Castine has several major road projects, outlined in the Master Plan, that will begin soon. The impacts of climate change and sea level rise will continue to affect the roadway crossing the British Canal and Wadsworth Cove Road at the beach. An increase in the use of Electric Vehicles necessitates the installation of several EV charging stations throughout Castine. Finally, as Maine seeks to promote higher population density and improve both walkability and bicycle access; the maintenance of sidewalks On-Neck for continued off street access to schools and shopping, and the creation of a multi-purpose trail system Off-Neck are important considerations.

3. Key Findings & Issues from Previous Plans

Traffic flows on some State roads in Town more than doubled between 1979 and 2003. These flows are likely to continue to increase. Parking remains a problem in the Village and sidewalk conditions have continued to deteriorate. Many Town roads were in very poor condition.

4. Public Opinion Survey Results

The majority of survey respondents believe that public transportation in Castine needs improvement; less than 1% noted public transportation as either excellent or good. Over 40% also believe that pedestrian sidewalks need improvement, while roughly 35% stated they were adequate. Summer traffic and parking conditions in Castine received mixed results, as did maintenance of town roads. Off-road trails and snow removal, in contrast, were generally rated as adequate or better.

5. Conditions and Trends

5.1. Road Mileage and Classification

Roads are classified into two major categories, administrative and functional. Administrative defines a road in terms of what party or entity is responsible for maintenance. For example, a state highway is defined as a “State Road”, whereas a residential street in a town not on a State Route, is a “Townway”, and a private lane or road is maintained by either the property owner or a homeowner association. The functional classification of roads divides roads into three classifications based on geometric design parameters such as width, speed, and traffic volume capability referred to as Level of Service (LoS). The three functional classifications are:

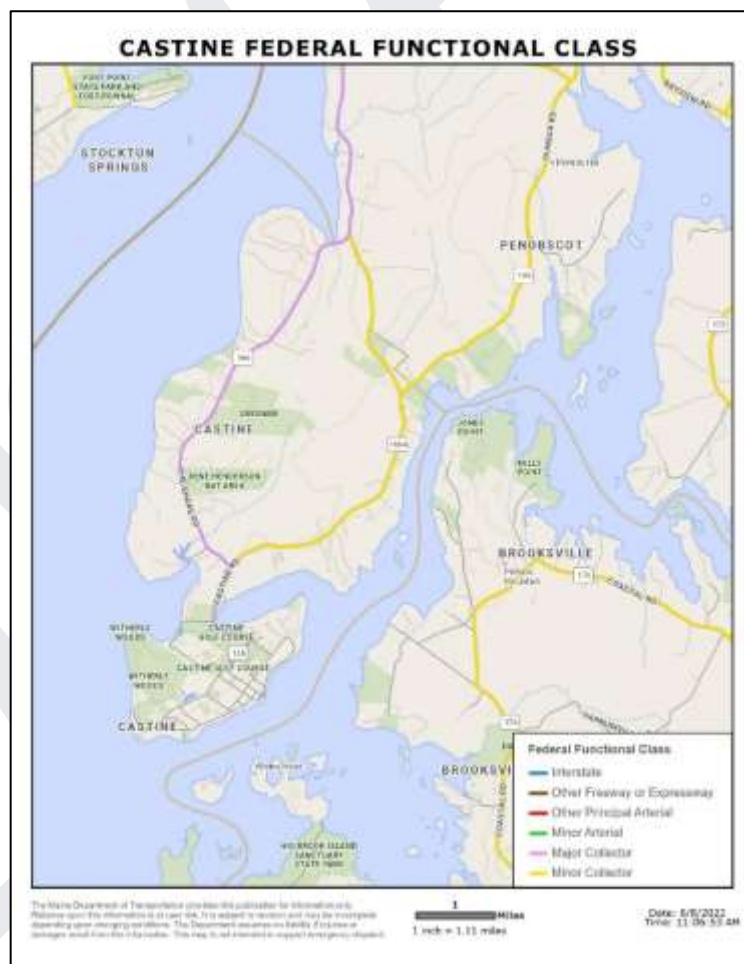
Arterials: Arterial roads are a system of connected highways throughout the State that serve arterial or through traffic. There are no arterials in Castine.

Collectors: Collectors serve as feeder routes connecting local service roads to the State arterial system. The State is responsible for maintaining Castine’s 9.53 miles of collectors, which include Routes 166, 166A, and 199. The Town is responsible for winter maintenance of Routes 166 and 199; the State is responsible for winter maintenance of Route 166A.

Local: Local roads include all other public roads not included in the State classification system. Most roads in Castine are classified as local roads. The Town currently maintains local roads, and based on the State system, roads that serve primarily as local service roads, which provide access to adjacent land.

MaineDOT classifies all 7.66 miles of Castine’s Town roads as local. About 40 years ago the State shifted responsibility for local roads to the Town.

Private Roads: Private roads are defined as roads that serve three or more dwellings. Roads serving two or fewer dwellings are defined as driveways. There are approximately three miles of privately owned roads in Castine.



5.2. Highway Corridor Priority

MaineDOT also categorizes roads using a Highways Asset Management methodology to provide a fair, structured framework to prioritize programs and projects. There are two parts—the Highway Corridor Priority (HCP) and the Customer Service Level (CSL). The first part of the method, the **Highway Corridor Priority (HCP)**, categorizes Maine’s highway assets into six levels of priorities:

Priority 1 Roads: Key arterial highways, not found in Castine.

Priority 2 Roads: High-priority, non-NHS arterials, not found in Castine.

Priority 3 Roads: Remaining arterials and high-volume major collector highways, not found in Castine.

Priority 4 Roads: Remainder of the major and minor collector highways, and state aid system, in which road responsibilities are shared between the state and municipalities. Route 166 and 166A fall into this category.

Priority 5 Roads: Local roads that are the year-round responsibility of Castine.



5.3. Customer Service Levels

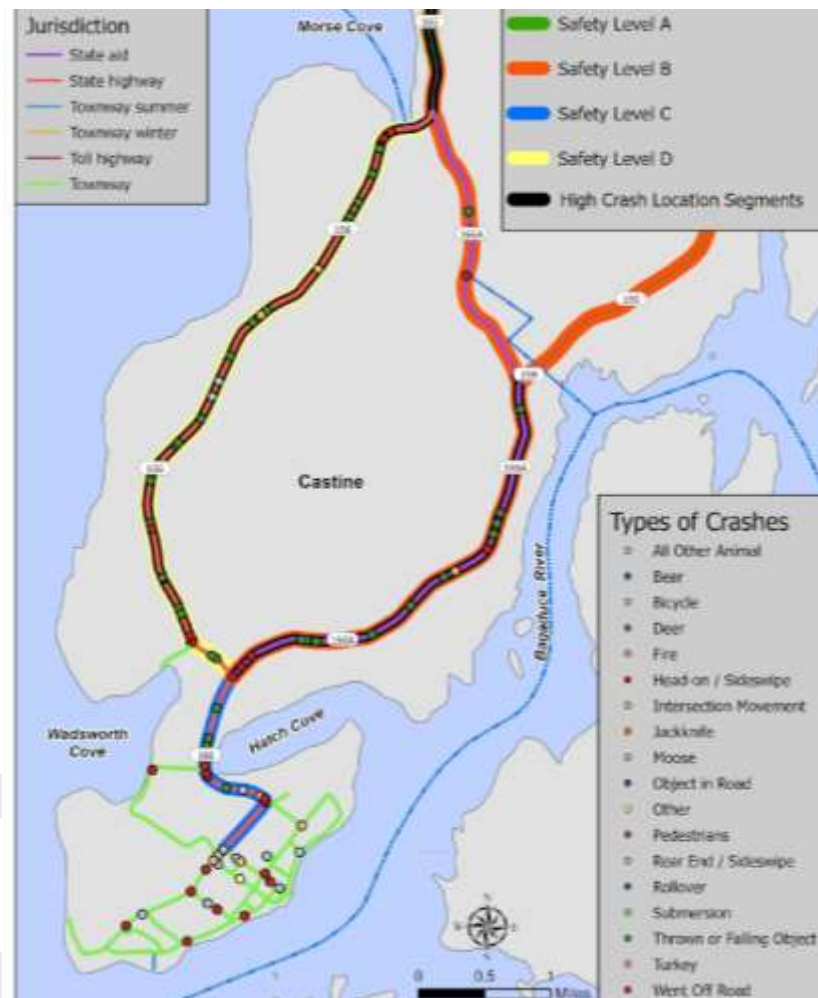
The second part of the method is determining the **Customer Service Level (CSL)** that measures MaineDOT managed highway assets (Priority 1-5) in three areas. The CSL uses customer-focused engineering measures to track road (1) Safety, (2) Condition, and (3) Serviceability, and grades them similarly to a report card (A – F).

5.3.1. Safety

The first part of MaineDOT’s Customer Service Level evaluation is Safety. The factors that go into the Safety evaluation are crash history, paved roadway width, pavement rutting, and bridge reliability.

Figure D - 1 below shows crash locations in Castine and roadway safety levels. The crash depictions represent crash locations from 2003 to 2022. Many of the crashes on Route 166 and Route 166A are with animals—primarily deer. Going off the road was also common. On-neck crashes included more intersection-related conflicts.

Figure D-1: Crashes and Safety Levels



Source: MaineDOT

One of the ways transportation engineers evaluate roadway safety is by looking at **High Crash Locations (HCLs)** both by intersection (node) and section (link). HCL's are ranked by their critical rate factor (CRF), which measures the extent to which a given road segment has more accidents than comparable road segments, and the severity of those accidents. Castine's HCLs are State Route 166 and State Route 166A, which both have higher speed limits than other townway roads. These roads serve as connectors between Castine and both Bangor and Bucksport. The quality of road banking and pavement width contribute to the safety ratings on Route 166 and 166A. This could also contribute to increased crashes and pose challenges to pedestrian and cyclist safety.

Table D-1: High Crash Locations

Road Name	Begin Node	End Node	Total Crashes	Percent Injury	Fatalities	Injuries	CRF
SR 166	23369	23572	20	15.0%	0	3	1.05
SR 166A	23571	23790	25	16.0%	0	4	1.99

Source: MaineDOT Public Map Viewer and MaineDOT Crash Query Tool

5.3.2. Condition

The second part of MaineDOT’s Customer Service Level evaluation is Condition. This assessment is based on ride quality, pavement condition, roadway strength, and bridge conditions. Castine’s principal collector roadways, Route 166 is classified by MaineDOT as being in Condition A, while Route 166A is classified as being in Condition B.

5.3.3. Service

The third part of MaineDOT’s Customer Service Level evaluation is Service. This assessment is based on whether a roadway segment is posted during spring thaw to protect longevity, the weight load restrictions of any bridges, and degree of congestion/delay with specific consideration for peak summer months due to the potential impact on tourism. In terms of Customer Service Levels, Route 166 has an overall service level grade of A, while Route 166A has a grade of C.

5.4. Traffic Flow

The highest average annual daily traffic count (AADT) for Castine in 2017 was 1,920 vehicles per day (see Table D – 2) on the stretch of Route 166 southwest of Route 166A (Castine Road-South Junction). On the one hand, this was a 60% increase since 1979, and on the other, it represents a relatively low volume of less than 3 cars per minute even when using 12 hours for a day and not 24. Traffic volumes vary considerably by season.

Table D-2: Average Annual Daily Traffic, 1979-2017

Location	1979	1988	2001	2003	2014	2017
Battle Ave (Northeast of Perkins St)	-	-	-	-	230	310
Battle Ave (Southwest of Perkins St)	-	-	-	-	260	-
Battle Ave (Southwest of Pleasant St)	-	-	-	-	740	950
Battle Ave (Northeast of Wadsworth Cove Rd)	-	-	-	1,490	-	-
Court St (Northeast of Pleasant St)	-	-	-	-	320	280
Court St (Northeast of State St)	-	-	-	-	360	360
Court St (Southwest of Pleasant St)	-	-	-	-	230	220
Court St (Southwest of State St)	-	-	-	-	600	570
Court St (Northeast of Main St)	-	-	-	1,060	-	-
Dyer Ln (Southeast of Court St)	-	-	-	-	250	-
Main St (Northwest of Court St)	-	-	-	1,740	1,080	1,100
Main St (Northwest of Water St)	-	-	-	-	1,320	1,060
Perkins St (East of Tarratine St)	-	-	-	-	-	380
Perkins St (Northeast of Pleasant St)	-	-	-	-	260	210
Perkins St (Southeast of Battle Ave)	-	-	-	-	190	-
Perkins St (West of Tarratine St)	-	-	-	-	480	410
Pleasant St (Northwest of Court St)	-	-	-	-	380	390
Pleasant St (Southeast of Court St)	-	-	-	-	340	360
Rte. 166 (Battle Ave) (Southwest of State St)	-	-	-	-	1,420	1,540
Rte. 166 (Castine Rd) (Northwest of State St)	-	-	-	-	1,820	-
Rte. 166 (Southwest of Rte. 166A Castine Rd--South Junction)	1,201	-	-	-	1,880	1,920
Rte. 166 (North of Rte. 166A--Northern Junction)	654	1,240	1,420	1,420	-	-
Rte. 166 (North of Rte. 199)	213	-	-	-	-	-

Location	1979	1988	2001	2003	2014	2017
Rte. 166 (East of Rte. 199)	378	-	820	860	-	-
Rte. 166 (The Shore Rd) (Southwest of Rte. 166A--North Junction)	-	-	-	-	930	1,230
Rte. 166A (Castine Rd) (Southeast of Rte. 166--North Junction)	-	-	-	-	-	290
Rte. 166A (Northeast of Rte. 166--South Junction)	684		1,230	1,220	970	840
State St (Southeast of Rte. 166 Battle Ave)	-	-	-	-	610	670
Water St (Northeast of Main St)	-	-	-	810	470	-

Source: 2010 Comprehensive Plan and MaineDOT Public Map Viewer

5.5. Master Plan for Long-Term Infrastructure Improvements

In 2009, Castine commissioned Olver Associates to take a comprehensive look at the Town's infrastructure needs. This resulted in a master plan that described deficiencies in the Town's road, drainage, sewer, and water infrastructure, as well as suggested priorities for phasing and preliminary cost estimates. In terms of transportation facilities, the report summarized the conditions as follows:

One-third of the village's roadways are presently in poor condition with severe pavement deterioration, cracking and rutting. About 10% of the roads are in very poor condition which implies that their pavement structure and roadbed is at or near complete structural failure. This is, in large part, due to inadequate gravel base below many roads combined with poor drainage systems.

A map from the Master Plan showing Olver Associates' suggested priorities for improvements is shown in Figure D - 2 below.

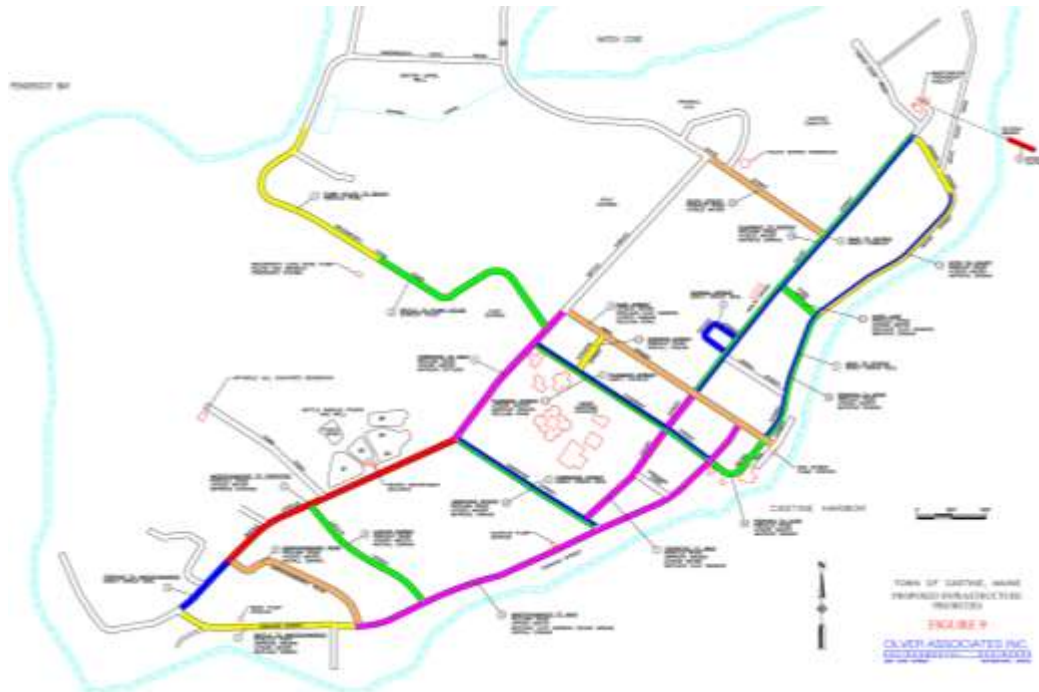
Castine has made a series of investments to address the deficiencies detailed in the Master Plan, and by FY17 the Town had completed Phase Two of its implementation plan. For several years, the Town then focused on various infrastructure projects based on safety assessments by the Public Works Department, such as paving sections of Madockawando and Perkins Streets, with an understanding that the next major infrastructure phase was scheduled to begin in 2028. By 2020 it became apparent that a faster pace of investment was going to be needed, and the Town allocated more money and accomplished the following:

- 1,580 linear feet of new asphalt overlay was emplaced in 2020 and more was planned for 2021.
- To improve surface drainage in targeted areas, the Town renovated 8 stormwater catch basins while also contracting ditch and shoulder maintenance for 10% of the Castine road network. The ditching and shoulder maintenance equated to approximately 4,070 linear feet of the town-maintained roads.
- Crack sealing for another 7,920 linear feet of roadway, which equates to 20.4% of the public way.

In total for 2020, Castine conducted maintenance or emplaced new overlay on approximately 34.4% of the Castine road network with an expectation of duplicating this effort in the coming year. The Town will attempt to get back on track with the master infrastructure plan by contracting to develop the engineering designs for Phase 2.5 of the Town's master infrastructure plan, however priorities have changed due to needed resources on the waterfront. Phase 2.5 was intended to encompass the complete rebuilding of western Court Street from Pleasant Street to Tarratine, including water, sewer, roadway, and storm water drainage improvements. Major

work on western Court Street will be delayed until the late 2020s when there will be more capacity for borrowing. As a result, western Court Street will be paved in 2024 without major subsurface improvements.

Figure D-2: Proposed Infrastructure Priorities from the 2009 Master Plan



5.6. Pedestrian and Bicycle Facility Conditions and Connections

Castine is addressing a number of deficiencies in its pedestrian and bicycle facilities through its infrastructure master plan implementation process.

While not comprehensive, the assessment depicted in Figure D - 3 provides an insight into the kinds of pedestrian and bicycle improvements that are needed on-neck.

These observations were made during an assessment of this route on June 2, 2017:

- The Sea St. sidewalk beyond Green St. (A) is narrowed and crowded by vegetation.
- There is no designated pedestrian way along Sea St. between Maine St. and Pleasant St. (B)
- There is no sidewalk or painted shoulder on Perkins St. and Dressers Ln. (C)
- The Perkins St. sidewalk between Dressers Ln and Tarratine St. (D) is in poor condition.
- There is no crosswalk at the intersection of Perkins St. and Tarratine St. (E), and broken pavement in this area creates a pedestrian hazard.
- There is no sidewalk on Tarratine St. (F)
- There is no sidewalk or painted shoulder on Battle Ave. between Tarratine St. and Main St. (G)
- There is no crosswalk at the intersection of Battle Ave. and Maine St. (H)

Figure D-3: Bicycle/Pedestrian Route Assessment, 2017



In terms of potential on and off-road connections that would provide bicycle and pedestrian connections to neighborhoods, schools, waterfronts, and other activity centers, the main opportunity would be to improve the bicycle facilities on Route 166 and Route 166A to provide better bicycle access to Castine Village. This could be done over time by the Town getting involved in any future MaineDOT paving or reconstruction projects involving these collector roadways. The Town potentially would still have a match cost for the additional project work, but it would be considerably less than if the Town had to bear the full cost of new bicycle facilities.

There is no room in the Village for any off-road bicycle and pedestrian connections. However, there are hiking trails on the various parcels of conservation land.

In terms of the on-neck village area, Castine can be considered a walkable and a bikeable town. Distances between destinations are not far, and, other than during peak summer hours, traffic volumes and speeds are relatively low. This isn't to say that improvements are not needed, and more is expected to be accomplished through upcoming projects implementing the Town's infrastructure plans.

Off-neck, consideration should be given to better addressing the needs of bicyclists and pedestrians on Route 166 and Route 166A. If a comprehensive approach to improving these collector roadways is not financially feasible, taking an opportunistic approach as discussed above to include pedestrian and/or bicycle facility improvements in any future MaineDOT projects involving segments of these roads may be possible.

Additionally, Castine should evaluate the current sidewalk maintenance system and explore potential enhancements. As of now, adjacent property owners are responsible for clearing sidewalks, and in 2020 residents voted against fining property owners for not clearing sidewalks and against the town purchasing equipment to clear select sidewalks. Examination of the efficiency and effectiveness of the approach may lead to further improvements. Considering alternative solutions should be explored.

5.7. Major Traffic Generators

The major concentrated source of vehicular and pedestrian traffic is Maine Maritime Academy, the campus and its satellite facilities, such as the waterfront complex and playing fields. The overall harbor area is another generator of traffic, particularly in the months when most boating takes place. Peak traffic generally occurs during daytime hours unless there is a special event in the evening.

5.8. Road Policies and Standards

Castine has a Town Way Entrance and Excavation Ordinance that regulates entrance cuts and excavations in the public right-of-way. In addition, there are performance standards for driveways and walkways in its Zoning Ordinance and street design and construction standards in its Subdivision Ordinance. The latter refers to the Town's Roadway and Infrastructure Specifications and Ordinance and governs private as well as public roads.

5.9. Municipal Parking Areas

Castine provides public parking lots at such places as the Town Dock, Emerson Hall, and Witherle Woods. The largest of these is the Town Dock with approximately 54 parking spaces. There is additional on-street parking, but most on-neck streets are not wide enough to permit parking on both sides and still allow for two-way traffic. Finding space for additional public parking in high demand areas is a challenge in this mature, densely built village.

5.10. Airports, Rail, and Bus Transportation

Castine is served by the Bangor International Airport, which has regularly scheduled passenger air service to various locations on the east coast. There also is limited passenger service from the Hancock County Airport in Trenton, which is more heavily used during seasonal months.

Castine has never had rail service. The nearest freight rail service is in Bucksport.

Castine does not have a daily bus service. Limited service is provided by the Washington/ Hancock Community Agency for income-eligible clients referred to it by the Maine Department of Human Services. Downeast Transportation provides service from Blue Hill to Bucksport, Ellsworth, and Bangor, but not to or from Castine. Bagaduce Area Health Resources is a volunteer-run organization that provides transportation services to individuals unable to drive to medical appointments and to other basic needs. In addition, Concord Coach Lines and Greyhound Lines offer service to several mid-coast communities along Route 1.

5.11. Marine and Rail Terminals and Boat Transportation Facilities

There are no marine or rail terminals in Castine. However, MMA has docks and waterfront facilities, and, as described in the Marine Resources chapter, there is a boat launch and wharves for private boats at the Town Dock as well as facilities for the Castine Cruises boat tour company. There is no public ferry service operating from Castine.

5.12. Electric Vehicle Infrastructure

The only electric charging station in Castine is located at the Castine Inn and is Tesla-specific and not publicly accessible. As the number of electric vehicles (EVs) and plug-in hybrid electric vehicles (PHEVs) grows, demand will increase for charging infrastructure in Hancock County and the surrounding region.

As part of the Community Resilience Partnership (CRP), Castine identified the installation of EV charging stations as a short-term priority. To accommodate the growing demand, the town should encourage private charging stations and consider a revenue-generating fast charge system (Level 3) in a convenient location. Providing publicly accessible electric vehicle charging stations at a cost for the consumer can help Castine stay ahead of the curve and support the transition to electric transportation.

6. Analyses

6.1. Community Transportation Concerns

The main concerns in Castine about transportation include poor roadway pavement and drainage conditions, poor condition or lack of sidewalks, and inadequate parking. All of these have been partially addressed by the implementation of two phases of the Master Plan for Long Term Infrastructure Improvements and other annual road projects. Additional improvements will be programmed through an upcoming Phase 2.5 of the master plan and through the improvements previously scheduled to be implemented as part of Phase 3 in 2028.

6.2. Regional Transportation Concerns

Regionally, a lack of public transportation on the peninsula is a concern. One regional opportunity for possible consideration would be creating a bike route from Route 1 in Orland down Route 166 to the Castine waterfront. Various improvements of the kind discussed above would need to be implemented in order to make the ride safe and usable for casual as well as expert bicyclists.

6.3. Road Conflicts

Sometimes there are conflicts caused by multiple road uses, such as a major state or U.S. route that passes through the community or its downtown and serves as a local service road as well. This is true in Castine only to the extent that the only two roads leading through the off-neck portion of town to the on-neck village are collector roadways that thus have higher speeds than is typical for local roads—even though they in fact are the local roads for the off-neck area. This is a potential safety concern for pedestrians and bicyclists. Given that any request to MaineDOT for a speed study to try to reduce the posted speed limit on Route 166 and Route 166A is just as likely to result in an increase in the speed limit, the only way to reduce speeds—if such is desired—is to physically alter the road geometrics through lane narrowing or other means so that motorists will naturally want to drive more slowly.

6.4. Sidewalks

Sidewalks are important for connecting residential areas with schools, neighborhood shopping areas, and other daily destinations. As discussed above, sidewalks have been a significant concern for Castine in the past. The 2010 Comprehensive Plan noted that:

Overall, the condition of sidewalks in Castine is poor and many are unsafe. Pavements are frequently so uneven that baby strollers and wheelchairs cannot use them. The sidewalks are not plowed in the winter and the Town does not own a sidewalk plow. This means that frequently people must walk in the street. There are no sidewalks at all connecting portions of the MMA campus to the harbor area. Castine does not have a comprehensive sidewalk plan. This issue may have to be revisited in the future. Surfacing sidewalks with less costly materials could reduce costs.

This issue has been revisited in the form of the Town's Master Plan for Long Term Infrastructure Improvements and in its Main Street improvement project. Some additional sidewalk improvements are being discussed as the master plan continues to be implemented.

6.5. Relevance of State and Regional Transportation Plans

The State has a number of transportation plans that may have relevance for Castine. Under development at the time of this writing, the Long-Range Transportation Plan Update 2050 “will convey MaineDOT’s vision for a multimodal transportation system that not only provides for safe and efficient travel throughout the state, but also supports a high quality of life and economic opportunity in all of Maine’s villages and communities.”¹

Also underway is an update of the Maine Strategic Transit Plan 2025. MaineDOT is interested in looking at new models for providing public transportation more efficiently and effectively in Maine’s rural areas—like Castine.

MaineDOT is also creating a Statewide Active Transportation Plan 2050 that, importantly for Castine, will include an assessment of priority 3 and 4 state highway corridors—like Route 166 and Route 166A—for potential shoulder enhancements. Castine will want to stay in close touch with MaineDOT officials and make sure that any public input opportunities are well publicized in the community.

In terms of regional transportation efforts, A Climate to Thrive has an Electric Vehicle Charging Station Grant Program to support the installation of Level 2 public stations in Hancock County. An older (2000) but still relevant plan is the Region Two Transportation Advisory Committee’s “Report of the Bicycle Pedestrian Subcommittee.” It recommends paving the shoulders of Route 166 and Route 166A as suggested in previous sections of this chapter above. Similarly, the Down East Sunrise Trail plan for a multi-use corridor connecting eastern Maine and the East Coast Greenway is what the Route 166 bicycle trail recommended above would want to connect with in Orland.

6.6. Budgeting for Road Maintenance and Improvements

As mentioned previously, relative to the serious problem of aging infrastructure, the Town completed Phase 2 of its Master Infrastructure Plan in the 2016-2017 period and is working on engineering designs for Phase 2.5.

¹ MaineDOT Long-Range Transportation Plan Update 2050, <https://www.maine.gov/mdot/longrangeplan/>, accessed June 22, 2022.

In the meantime, the Selectboard has increased its annual capital infrastructure spending from a previous average of \$39,000/year to a new normal of \$100,000/year, much of it for roads.

The Roads Maintenance line item in the 2022 budget was \$52,920 and the Winter Roads Contract was \$80,952.

6.7. Parking Issues and Standards

As discussed above, Castine has had insufficient parking between mid-August and November 1st in the village downtown area because of the overlap in the tourist season and the school year. This is due primarily to the town being fully built out in a pattern and density typical of the 1700s and 1800s. As such, the charm of the village is also the cause of its parking problem. Castine is continuing to discuss methods of addressing parking issues.

Parking problems in Castine are most evident in the On-Neck area. Most streets are too narrow for parking on both sides while maintaining two-way traffic. This issue is exacerbated during winter months when snowplowing further narrows streets, and in the summer when the Town Dock parking lot becomes crowded. The Town enforces a three-hour parking limit at the Town Dock, and employees are asked to avoid parking there during the summer months, although this is difficult for the Town to enforce. Overnight parking is allowed in the parking lot with alternating spots between November 1st and April 30th. The Town employs a parking enforcement officer to address parking violations. The absence of parking setbacks from corners poses a risk for fire trucks navigating turns on the neck, especially during times of snow or when the downtown area is congested. Enforcing setbacks from corners could further strain off-street parking.

It is clear that it is important to uniformly apply off-street parking requirements, review them periodically, and adjust as needed. Additionally, promoting alternative transportation modes like public transit, carpooling, biking, and walking can help reduce the reliance on personal vehicles and alleviate parking demand.

6.8. Transit Services

As described in the section on conditions and trends, Castine is not served by public transportation, but there are some ride services through area organizations providing health and senior services depending in some cases on income eligibility. In the future Castine may want to work with Downeast Transportation to see if its fixed route public bus service could be expanded to include Castine.

6.9. Land-Side and Water-Side Transportation Facilities

As a coastal community with a well-protected harbor, Castine has both land- and water-side transportation facilities. These include the public boat launch and parking facilities at the Town Dock, associated piers and docks, facilities for a boat tour company, and the adjacent naval buildings and piers for MMA. With the Maine State Ferry Terminal not far away in Rockland, there does not appear to be an immediate need to try to provide ferry services in Castine. And, without much opportunity for industrial land-side development or for connecting rail service, making improvements for a marine terminal is not warranted. At present, it appears that the need for Castine's waterfront transportation facilities is primarily for maintenance and not for expansion.

6.10. Local Access Management

Access management represents an effort to increase safety and reduce congestion by limiting the number of exits and entrances onto primary roadways. Access management is most relevant for Route 166 and Route 166A.

In terms of traffic permitting, the Town has a standard in its Site Plan Ordinance relative to preventing congestion and preserving safety. It also has a Traffic Ordinance that establishes parking restrictions, speed limits, traffic control, and enforcement provisions for the community.

6.11. Road Design Support for Castine's Desired Development Pattern

Castine's On-Neck development has been well-established over the course of more than two centuries. As such, Castine's local road design standards support the desired development pattern by requiring sidewalks, crosswalks, proper drainage, and other features that enhance a village center.

Off-Neck, there is a prohibition on spaghetti lots (long, narrow lots that create multiple entrances off the roads that serve them), and cluster development is allowed in order to allow subdivisions that preserve natural resources by allowing smaller house lots—and shorter subdivision roads.

6.12. Subdivision Roads

Castine is fortunate in that there has not been a lot of subdivision activity compared with other parts of the state. Given the town's topography, road and parcel layout, and other factors, it is difficult to imagine master planning groups of lots in the off-neck rural residential areas to be able to require subdividers to adhere to a planned local street network. In addition, the Planning Board could require the preservation of rights-of-way from the ends of subdivision roads to the nearest part of adjacent property, but residents who have lived on dead-end roads are likely to object strenuously if an adjacent lot is subdivided and the Planning Board requires a road connection to the first subdivision, using the preserved right-of-way, after the residents have been living there for some time. Subdividers taking advantage of the ability to do cluster developments probably represents the best opportunity for achieving compact and efficient subdivision designs.

7. Goals & Objectives

GOAL: Ensure that a safe, convenient, well-maintained, economically feasible, transportation system with diverse options, is available to all residents.			
Objective	Strategy	Timeframe	Suggested Responsibility
To prioritize community and regional needs associated with safe, efficient, and optimal uses of transportation systems	Review and maintain or amend local ordinances to address or avoid conflict with: <ul style="list-style-type: none"> a. Policy objectives of the Sensible Transportation Policy Act, b. State access management regulations, c. State traffic permitting regulations for large developments if necessary. 	2024 and Ongoing	Town Manager, Select Board, Planning Board
	Address issues of poor sight lines, narrow roads, and excessive speed through: <ul style="list-style-type: none"> • Permitting, • Improved signage, • Collaboration with Hancock County Sheriff’s Department and MDOT. 	2024 and Ongoing	Town Manager, Select Board
	Review and amend ordinance standards for subdivisions and public or private roads, as appropriate, to foster transportation efficient growth patterns and provide for future street and transit connections.	2024-2025	Town Manager, Select Board, Planning Board
	Investigate creating infrastructure to support a public ferry from Castine to Searsport and/or Belfast.	2024-2026	Town Manager, Select Board
To safely and efficiently preserve or improve the transportation system.	Review and update the Master Plan for town-controlled roads, bridges, and associated infrastructure.	2024 and ongoing	Town Manager, Select Board
	Renovate and upgrade western Court Street.	2024-2026	Town Manager, Select Board
	Replace guardrails on Water Street.	2024-2025	Town Manager, Select Board
Promote public health, protect natural and cultural resources, and enhance livability by managing land use in ways that maximize the efficiency of the transportation system and minimize increases in miles.	Collaborate with local land trusts, conservation organizations, and property owners to identify potential locations for conservation easements, trail networks, and connectors.	2024 and ongoing	Town Manager, Select Board
	Work with MDOT and HCPC to integrate Castine into the region’s expanding transit hub and associated options at Acadia Gateway.	2024 and ongoing	Town Manager, Select Board
Meet the diverse transportation needs of residents (including children, the elderly and the	Reconvene the Sidewalk Committee to complete an assessment of current sidewalk conditions and recommend improvements.	2024	Town Manager, Select Board

disabled) seasonal residents, and tourists by providing a safe, efficient, and adequate transportation network for all types of users.	Source appropriate funding and grants to support non-motorized transportation in Castine.	2024 and Ongoing	Town Manager, Select Board
	Install public EV Charging Stations.	2024 - 2025	Town Manager, Select Board
	Investigate the need to install pedestrian signage and/or lighting to enhance pedestrian visibility and safety.	2024-2025	Town Manager, Select Board
	Work with Downeast Community Partners, MDOT/Moving Maine Working Group, and others to identify mobility options and providers for residents with limited mobility.	2024 and Ongoing	Town Manager, Select Board
Consider the impacts of climate change on future construction and maintenance priorities related to transportation infrastructure.	Conduct a vulnerability assessment for state and town-maintained roads, bridges, and culverts in partnership with the State, Hancock County, and neighboring towns.	2025-2027	Town Manager, Select Board
To promote fiscal prudence by maximizing the efficiency of the state or state-aid highway network.	Initiate or actively participate in regional and state transportation efforts.	Ongoing	Town Manager, Select Board

Chapter E: Public Facilities

1. Purpose

The adequacy of a community's public facilities is important for the quality of life of its residents as well as for their safety and economic prosperity. This chapter provides an understanding and analysis of current conditions for Castine and potential future needs and issues. Specifically, the chapter aims to:

- A. Identify and describe Castine's public facilities and services; and
- B. Assess the adequacy of these services to handle current and projected demands.

2. Key Findings & Issues

Replacing and improving the Town's aging infrastructure and maintaining an adequate water supply appear to be two of the main public facilities challenges for Castine. In terms of the former, Castine has made significant investments in an ongoing public infrastructure program and is proceeding to continue with additional project phases. Relative to water supply, actions like putting the water and wastewater programs under the management of an outside firm that specializes in these areas have been beneficial. Also positive was obtaining permission to recharge one of the Town wells to be ready for drought periods. The Town is also looking at the state of its public buildings and, as a result, is proceeding to consider alternatives for a new fire station. The Adams School will need capital upgrades within the next 3-5 years. In general, Castine is on track with continuing to provide good quality public facilities and services for its citizens.

3. Key Findings & Issues from Previous Plans

The authors of the 2010 Comprehensive Plan stated that the Town continued to face infrastructure deficiencies, especially in its road, sewer, water, and storm drainage systems. The system for recycling was in some doubt due to an upcoming contract renegotiation. Emerson Hall was said to need a capital improvement plan for renovation and restoration. Improved water distribution to the fire hydrants on-neck was needed as was an additional dry hydrant off-neck. A possible need was cited for part-time paid staff if the numbers of volunteers could not be increased for the fire department and ambulance corps. Finally, the following were stated to be core facilities and services and needed to be supported as such: the school, post office, library, health center, town hall, fire department, and ambulance corps.

4. Public Opinion Survey Results

Survey respondents were asked for their opinion on many of the Town's public facilities and services. The library (92.3%), Town office customer service (88%), elementary school education (84.7%) and Town office facilities (84.7%) received the highest percentage of "excellent" or "good" responses. Road maintenance of Town roads (32%), fire department facilities (34.2%) and recreational facilities (29.4%) received the highest "needs improvement" response rate.

5. Town Government

5.1. Current Conditions

Castine has a town meeting form of government and is managed by a three person Selectboard. In addition to the Selectboard members, the staff include: Town Manager, Town Clerk/Registrar of Voters, Finance Officer/Tax Collector/Treasurer, Superintendent of Schools, Librarian, Fire Chief and two Assistant Fire Chiefs, Code Enforcement Officer, Town Manager, Local Plumbing Inspector, Alternate Code Enforcement Officer/Local Plumbing Inspector, Harbor Master, Utility Superintendent for the Wastewater Facility, Superintendent for the Water Department, Utility Operator, Animal Control Officer, Health Officer, and Traffic Enforcement Officer.

5.2. Current and Future Adequacy

Castine has its share of challenges and is working to meet them. When training and licensing requirements became too difficult, the Town switched in the 2017-2018 period to using an outside firm, with national experience, to operate its water and wastewater facilities. After several years of operating in this manner, the new procedure has proven to be successful.

In terms of the serious problem of aging infrastructure, the Town completed Phase 2 of its Master Infrastructure Plan in the 2016-2017 period and has recently been awarded a contract for the engineering designs for Phase 2.5. In the meantime, the Selectboard has increased its annual capital infrastructure spending from a previous average of \$39,000/year to a new normal of \$100,000/year.

In the other main area of facilities management, the Town leaders have also paid attention to the needs of its public buildings. They commissioned an inventory, inspection, and predictive analysis of the Town's buildings, and, based on its results, are developing alternatives for addressing the inadequacies of the current fire station. Figure E - 1 below identifies the Town's public facilities and infrastructure.

In general, the leadership in Castine is knowledgeable and experienced in identifying infrastructure and facility needs and is making short-, medium-, and long-term plans and programs for addressing them.

Figure E-1: Public Facilities and Infrastructure



6. Solid Waste Disposal and Recycling

6.1. Current Conditions

Solid waste services are provided by the Town's Transfer Station, which is located on a 63-acre site on the Shore Road. The Town provides curbside pickup for both recyclables and non-recyclable solid waste (regular garbage) with different plastic bags for each. Residents can also take their bags or other items to the Transfer Station. Stickers must be purchased for the bags. Other types of solid waste accepted at the Transfer Station are household universal waste (e.g., electronics), organic waste like wood and yard waste, and larger items, such as appliances, tires, and construction debris.

In 2022 the community generated approximately 208 tons of regular solid waste, 309 tons of construction and demolition debris, 49 tons of single-sort recycling materials, and 32 tons of scrap metal.

6.2. Current and Future Adequacy

Changes in the global recycling market and other factors have created the necessity for greater attention to the Town's recycling program. In recent years Castine, like other Maine communities, has begun to be charged double for recycling loads that are contaminated (i.e., exceed a set percentage of materials that are not eligible for recycling). As such, Town officials are trying to educate the citizens about proper recycling procedures.

7. Fire Protection

7.1. Current Conditions

The Castine Fire Department is a volunteer organization whose members are paid expenses for responding to calls. Additional stipends are paid to the Fire Chief and two Assistant Fire Chiefs. The volunteers consist of local residents and, when school is in session, MMA students.

7.1.1. Facilities

The Castine Fire House is located at 13 Court Street. It is constructed of cinder blocks with a second story of wood. It was built in 1960 and originally was designed to house two vehicles. There is an operations room and office as well as a training center on the second floor.



Castine Fire Rescue Dept. on Facebook

7.1.2. Staffing

As with many smaller communities across the country, Castine has the challenge of a decrease in its pool of volunteer fire and rescue personnel due to the aging of the population, increased requirements for training, and general lifestyle attitudes. The problem is more pronounced in the summer when MMA students are on training cruises or are taking vacations.

7.1.3. Calls for Service

Calls for service data are contained in the table below. There has been a moderate increase in fire calls and large increases in EMS calls and in training hours. Community Paramedicine visits had to be suspended due to COVID-19, and, in general, total calls for service have decreased due to the pandemic.

Table E-1: Fire Department Calls for Service

Year	Fire Calls	EMS First Responder Calls	Rescue/Hazardous Condition	False Alarm & False Calls	Drills & Non-Emergency Patient Assists	Community Paramedicine Visits	Total
2005	4	10	11	12			37
2006	10	13	15	11			49
2007	13	12	17	9			51
2008	2	9	7	7			25
*							
2016	6	75	15	29	21	45	191
2017	5	48	8	20	13	12	106
2018	5	97	19	14	13	22	170
2019	8	90	14	12	6	16	146

Year	Fire Calls	EMS First Responder Calls	Rescue/ Hazardous Condition	False Alarm & False Calls	Drills & Non-Emergency Patient Assists	Community Paramedicine Visits	Total
2020	16	61	16	13	14	**	106
2021	13	51	30	16	22	**	133
2022	16	61	24	18	9	**	128
* Break in data							
** Suspended due to pandemic							

Source: Annual Town Reports and 2010 Comprehensive Plan

7.1.4. Equipment

In 2020, with the help of a FEMA grant, the Department was able to replace its 37 year old T-1 Freightliner Tank Truck, an essential apparatus for supplying water for active fires, especially in the more rural, off-neck areas of town. The Department also operates Brush-1 (2011), an electric UTV used for gaining access into the woods.

The current inventory of vehicles is shown in the table below:

Table E-2: Fire Department Vehicles, 2023

Type of Vehicle	Year	Condition	Age	Planned Replacement
Pumper - Engine 5 - Freightliner FL80, 1250 tank/1250 gpm pump	1995	Fair to Poor	29	2026
Light Rescue - Chevy 12000 GVW 4WD	2001	Poor to Bad	23	2025
Pumper - Engine 6 - Central States, 1250 tank/1250 gpm pump	2003	Fair	21	2028
EMS - Squad 1 - Chevy Tahoe EMS Fly Car	2009	Poor to Bad	15	2027
Tanker - Tanker 1 - Midwest Fire, 3000 tank/1000 gpm pump	2020	Good	4	2040

7.2. Current and Future Adequacy

A facilities management study of Castine’s public buildings in 2020 found the current fire station has outlived its useful life, is undersized, and is jeopardizing the Town’s high fire insurance rating. A goal of this plan is modernizing the Town’s fire and emergency services facility by selecting the location for and building a new fire station.

In terms of the water system for firefighting, the new water system in Main Street as part of the completion of the Phase 2 infrastructure project is credited with the Department’s ability to save the Innkeepers House from a fire. Additional improvements to the water system are included in the upcoming Phase 2.5 project.

8. Law Enforcement

8.1. Current Conditions

The Hancock County Sheriff’s Office has limited resources. Due to the Town’s location at the end of a peninsula, their response times tend to be slow. Castine has a Traffic Enforcement Officer to assist with traffic and parking issues.

8.2. Current and Future Adequacy

According to Maine State Police records, the crime rate in Hancock County in 2021 was 22.87 per 1,000 county residents. While this was less than the State average of 32.44 and considerably less than the national average (approximately 47 per 1,000 people), there still were concerning statistics in the County, such as 39 violent crimes committed. Over time, it may be that there will be pressure for additional law enforcement services in Castine.

9. Emergency Medical Services

9.1. Current Conditions

Ambulance coverage for Castine was provided for 35 years by the Town’s Bagaduce Ambulance Service, but in 2012 it ceased operations due to the staffing challenges faced by volunteer fire and rescue crews across Maine. The private ambulance service already serving towns on the Blue Hill peninsula, Peninsula Ambulance Corps, took over as the provider of Castine’s EMS services.

As is evident in the table below, ambulance calls for service climbed substantially through 2019 but then declined due to the pandemic.

Table E-3: Peninsula Ambulance Corps Calls for Service

Year	# of Calls to Castine
2016	53
2017	59
2018	99
2019	111
2020	71
2021	84
2022	71

Source: Annual Town Reports

9.2. Current and Future Adequacy

The various ambulance services operating in Hancock County include Northern Light Medical Transport, Ellsworth Fire Department, Peninsula Ambulance Service, Bucksport’s municipally operated service, Schoodic EMS, the service provided by Bar Harbor, Southwest Harbor, and Mount Desert, and Memorial Ambulance Service.

As of 2021, the Hancock County Commissioners have been investigating the possibility of starting a new regional ambulance service.

According to an article in the Ellsworth American:

The Maine Rural Health Action Network’s report lays out challenges facing rural EMS. As rural hospitals close and medical services become increasingly centralized in urban areas, first responders become all the more important to the communities they serve. In Maine, the more remote the

setting, the more likely are patients who call 911 to be treated in place rather than taken to a hospital. In addition to growing non-emergency use, preventable emergencies are increasing, likely because primary care is harder to access. Patients may have to be transported longer distances to receive the degree of care they need.

Meanwhile, volunteer rosters are down, and paid positions are going unfilled. It is a physically demanding and emotionally draining line of work.²

Since initial consideration there has been no additional action. It is apparent, therefore, that EMS services in Castine and the rest of the County are inadequate and are in need of a more unified regional approach. Legislation passed in 2022 to establish EMS as an essential service in Maine, and additionally, this established a commission to study EMS in the State; this commission identified a need for \$70 million in funding per year for the next five years to support transporting EMS services in Maine.

10. Health Facilities

10.1. Current Conditions

Health facilities in the area are listed in Table E - 4 below. There is one medical facility, Northern Light Primary Care, present in Castine.

Table E-4: Health Facilities

Health Facility	Location	Distance from Emerson Hall	Emergency Room/Medicine
Northern Light Primary Care Clinic	Castine	0.3 miles	No
Northern Light Primary Care Clinic	Blue Hill	18 miles	No
Northern Light Blue Hill Memorial Hospital	Blue Hill	18 miles	Yes
Northern Light Maine Coast Memorial Hospital	Ellsworth	32 miles	Yes
Northern Light Primary Care Clinic	Stonington	34 miles	No
Northern Light Eastern Maine Medical Center	Bangor	37 miles	Yes
Saint Joseph Hospital	Bangor	37 miles	Yes
MDI Hospital	Bar Harbor	52 miles	Yes

Source: Google Maps, Northern Light Health

10.2. Current and Future Adequacy

While Castine is fortunate to have a medical clinic close to the center of the village, the nearest hospital is 18 miles away. Ambulance service is a concern, as discussed above. Given the rising costs and labor shortages of rural emergency medical services in Maine, regional efforts to improve these services are needed.

² “Regional Ambulance Service,” The Ellsworth American, 12/10/2021, <https://www.ellsworthamerican.com/opinions/regional-ambulance-service/>, accessed 12/28/2021.

11. Education

11.1. Current Conditions

The Adams School provides K-8 education. The facility has six classrooms and an enrollment of 49 students in the FY22 school year. There were 16 teachers and support staff for that period. The Adams School physical structure is in need of a strategic 3–5-year plan for capital improvements. In addition, the playground is sub-par, and a renovation plan is being prepared but will need additional funding.

Most of Castine’s high school students attend George Stevens Academy in Blue Hill, but some go to other high schools in the area.

Table E-5: School Enrollment

	Pre-K	K	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	Total	PreK-8	9-12
FY07		3	8	7	8	3	11	4	7	4	9	7	8	6	85	55	30
FY08		3	3	8	7	8	4	11	4	7	4	9	7	8	83	55	28
FY09		8	2	4	7	8	8	5	11	4	7	4	9	7	84	57	27
*																	
FY17	0	5	12	3	4	7	10	5	9	7	3	4	5	7	81	62	19
FY18	3	1	4	10	3	3	6	6	6	9	6	4	6	5	72	51	21
FY19	5	2	1	4	8	4	3	7	6	6	6	6	4	3	65	46	19
FY20	6	8	2	3	7	7	5	4	5	6	4	6	6	5	74	53	21
FY21	5	8	2	3	7	6	5	4	5	6	7	3	6	7	74	51	23
FY22	5		7	7	5	5	7	5	5	3	N/A	N/A	N/A	N/A	76.5	49	27.5

* Break in Data

Source: 2010 Comprehensive Plan and Annual Town Reports

11.2. Current and Future Adequacy

The on-going challenge in doing so is that it is fiscally inefficient to operate a small facility and to have a high teacher per student ratio. It will be important in coming years to continue to stress the primary role the Adams School plays in maintaining the fabric of the community as well as in educating the next generation.

Fundraising has begun for the construction of a new playground for the Adam’s School.

12. Public Works

12.1. Current Conditions

The Town Manager is responsible for the supervision of a small public works staff. The staff conducts all routine maintenance, such as mowing, snow plowing, minor road repair, sidewalks, storm drains, and responding to emergencies. Major construction and repair projects, as well as some snow plowing, are done on a contractual basis.

12.2. Current and Future Adequacy

State road budgets have been insufficient for adequately maintaining State roads in Castine. As such, in addition to funding the various phases of the Public Infrastructure Program, the Town has increased its annual allocation of funds for road paving projects as well as for repairing and maintaining other infrastructure.

As mentioned previously, relative to the serious problem of aging infrastructure, the Town completed Phase 2 of its Master Infrastructure Plan in the 2016-2017 period and has been awarded a contract for the engineering designs for Phase 2.5. The COVID-19 Pandemic did delay projects outlined in the Master Infrastructure Plan. In the meantime, the Selectboard has increased its annual capital infrastructure spending from a previous average of \$39,000/year to a new normal of \$100,000/year.

13. Water and Wastewater Departments

13.1. Current Conditions

As mentioned above, when training and licensing requirements became too onerous, the Town switched in the 2017-2018 period to using an outside firm, Olver Associates, to operate its water and wastewater facilities. That experiment was successful, and after two years the Olver contract was renewed.

Property owners not connected to the Town sewer system maintain their own in-ground sewage disposal systems. Maintenance includes periodic septic tank pumping by companies that dispose of the septic waste at State licensed waste disposal facilities.

13.2. Current and Future Adequacy

Water supply has been an ongoing issue for Castine. In 2019, Castine received approval from the Maine Center for Disease Control Drinking Water Program to artificially recharge the Town's Battle Avenue Well #1. It is anticipated that this action will significantly improve Castine's water security during periods of drought.

14. Library

14.1. Current Conditions

Castine's Witherle Memorial Library began as a social library in 1801. In 1855, Castine was the first community in Maine to establish a public library supported by public funds. The Town provides approximately half of the library's administration and operation; the other half comes from an investment fund. The library also serves as the Adams School library.

14.2. Current and Future Adequacy

Providing services during the pandemic was a challenge for the Library, and one that they appear to have met successfully. For example, the staff has implemented virtual meetings, upgraded their website, and they have developed a "Library of Things" for loaning out items other than just books and DVDs.

15. Regulation of Development

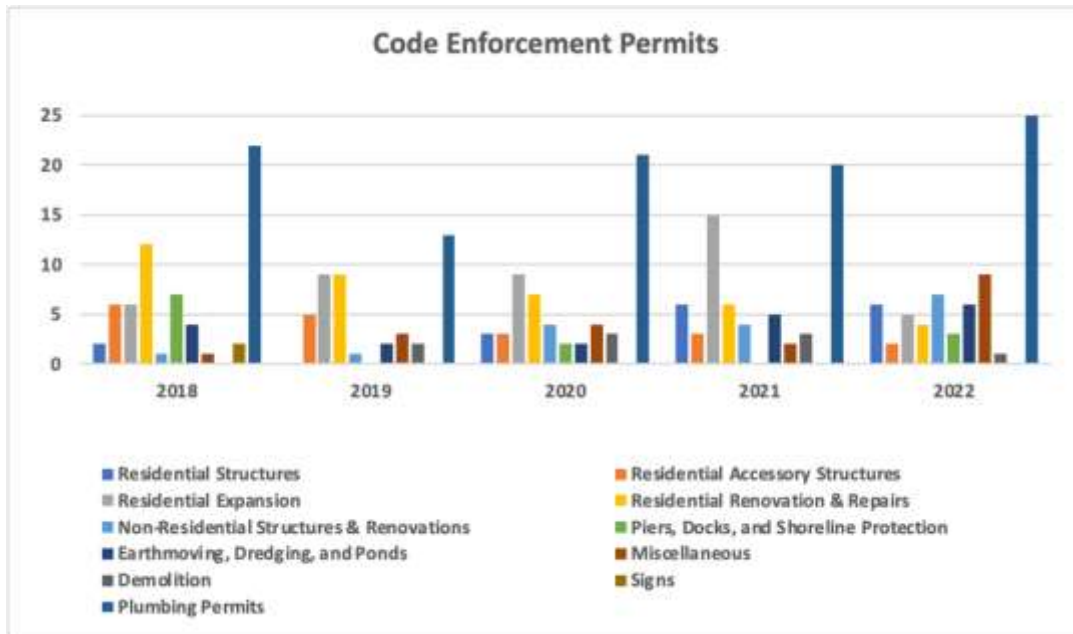
15.1. Current Conditions

Building and development in Castine is regulated by Code Enforcement (e.g., building permits and shoreland zoning permits), the Planning Board (e.g., site plan approvals), the Board of Appeals (e.g., variances), and the Historic Preservation Commission (for construction and renovations in the Historic District). The table below provides a look at Castine development activity in recent years:

Table E-6: Permits, Approvals, and Certificates

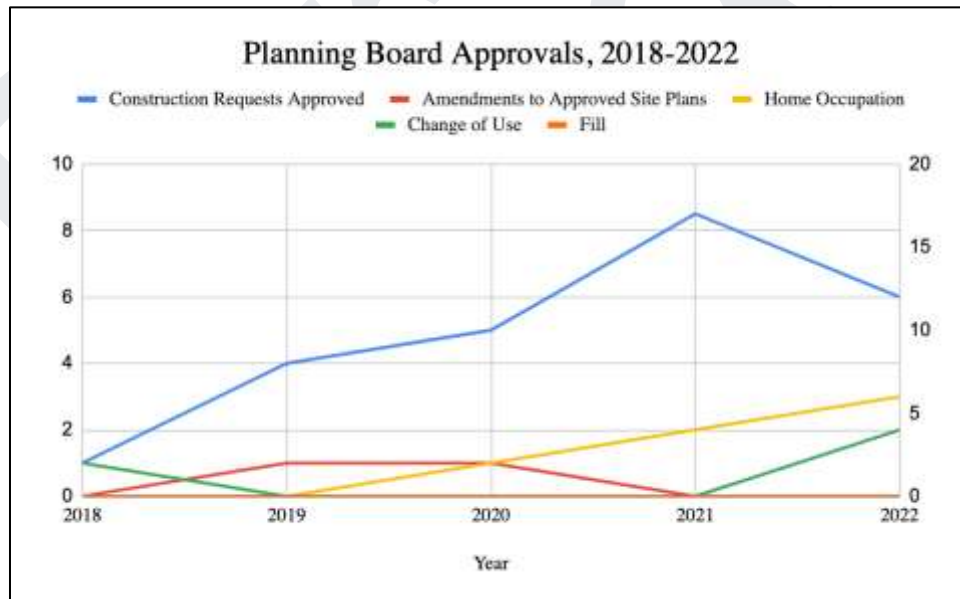
	2018	2019	2020	2021	2022
Code Enforcement					
Residential Structures	2	0	3	6	6
Residential Accessory Structures	6	5	3	3	2
Residential Expansion	6	9	9	15	5
Residential Renovation & Repairs	12	9	7	6	4
Non-Residential Structures & Renovations	1	1	4	4	7
Piers, Docks, and Shoreline Protection	7	0	2	0	3
Earthmoving, Dredging, and Ponds	4	2	2	5	6
Miscellaneous	1	3	4	2	9
Demolition	0	2	3	3	1
Signs	2	0	0	0	0
Plumbing Permits	22	13	21	20	25
Total	63	44	58	64	68
Planning Board					
Construction Requests Approved	2	8	10	17	12
Amendments to Approved Site Plans	0	1	1	0	0
Home Occupation	0	0	1	2	3
Change of Use	1	0	0	0	2
Fill	0	0	0	0	0
Total	3	9	12	19	17
Board of Appeals					
Variances and Other Rulings	0	0	1	0	2
Historic Preservation Commission					
Historic Preservation Certificates Approved	2	2	2	2	2

Figure E-2: Development Permits and Approvals



Source: Annual Town Reports

Figure E-3: Planning Board Approvals



Source: Annual Town Reports

15.2. Current and Future Adequacy

One area that may need more attention in the future is the regulation of short-term rentals (STRs) in the context of LD 2003, which allows for the construction of up to four dwelling units on qualified lots and allows accessory dwelling units (ADUs) to be constructed on the same lot as a single-family home. The practice of

building or converting extra dwelling units into STRs for the purpose of additional income is becoming more common and is worth monitoring should Castine residents increase participation in this practice.

16. Castine Cemetery

16.1. Current Conditions

The Castine Cemetery is located on a 13-acre site at the north end of Court Street. The Selectboard appoints a seven-member Cemetery Association Board. There also is a nine director Castine Cemetery Association. As of January 22, 2023, the Find a Grave website listed 3,395 memorials in the cemetery.

16.2. Current and Future Adequacy

The Town and the Cemetery Association Board will need to continue to pay attention to the repair and maintenance of the cemetery roads, grounds, and older tombstones.

17. Energy Facilities

17.1. Current Conditions

The only distributed energy in Castine is electricity supplied by Central Maine Power Company. The majority of homes are heated with oil; others are heated with propane, electricity, or wood.

17.2. Current and Future Adequacy

Castine should coordinate with MMA to arrange negotiated and pooled purchase plans. The Town is considering costs, funding opportunities and locations for future solar installations at several town-owned properties. The Town and MMA should also consider all alternative energy sources, including tidal generated energy and wind power.

17. Telecommunications and Broadband

17.3. Current Conditions

Castine is served by a fiber-based Broadband Internet system built by Fidium (of Consolidated Communications), made possible by a multi-million-dollar federal grant awarded to the State in 2022.

17.4. Current and Future Adequacy

The current telecommunications infrastructure is expected to meet all foreseeable future needs.

18. Goals & Objectives

GOAL: Maintain, improve, and modernize Castine’s public facilities.			
Objective	Strategy	Timeframe	Suggested Responsibility
To efficiently meet identified public facility and service needs.	Restructure existing dock facilities to ensure boater safety.	2024	Town Manager, Select Board, Harbor Committee
	Improve Sea Street Pump Station: Replace 50-year-old pump station (as part of preparation for TSSOM)	2024	Town Manager, Select Board
	Transportation: Fund and repair Western Court Street	2026	Town Manager, Select Board
	Repair guard rails on Water Street by incrementally repairing of sections as part of operating budget	Ongoing	Town Manager
	Improve playground at Adams School	2024	School Board, Select Board
Provide public facilities and services in a manner that promotes and supports growth and development in identified growth areas.	Select Location and Build New Fire Station to maintain top tier insurance status and level of service.	2025	Town Manager, Planning Board, Select Board
	Collaborate with MMA to make appropriate changes for the arrival of Training Ship State of Maine (TSSOM)	2024	Town Manager, Select Board, Harbor Committee, MMA
	Promote access to stable and sustained secondary education through participation in regional/peninsula wide contingency planning for secondary education	2024	School Board, Select Board
	Provide support for improved medical care through collaboration with the hospital board in expanding services.	2024-2026	Select Board
	Increase municipal use of solar energy through Community Solar Projects.	2026	Town Manager, Select Board
	Investigate funding opportunities to provide municipal-owned and operated community-wide recreational facilities and services	2024	Select Board
	Improve and expand facilities at the transfer station to enable new and growing services.	Ongoing	Town Manager, Select Board

Chapter F: Fiscal Capacity

1. Purpose

This section presents information on Castine's ability to pay for the services it provides its residents and businesses. It also looks ahead to how the Town will pay for its long-term infrastructure needs. Specifically, this chapter will:

- A. Examine trends in such fiscal areas as valuation, taxes, expenditures, and capital projects funding.
- B. Evaluate the Town's ability to borrow to pay for capital investments.
- C. Identify anticipated capital investment needs and anticipated funding mechanisms.

2. Key Findings & Issues

The steady increase in Castine's total valuation paused and even declined for a few years after the 2008 recession, but it is showing gains since 2020. Since then, State valuation has increased approximately 10% to \$302 million in 2022. Taxes and program revenues are the largest source of income for the town. In order to address its infrastructure and other capital project needs, Castine maintains an extensive number of reserve accounts with a total amount of \$1,150,061 in the Capital Projects Fund for FY22.

3. Key Findings & Issues from Previous Plans

Between 1995 and 2008 the Town's total valuation increased at an inflation adjusted rate of 134.4% while the inflation adjusted total tax assessments increased by 44.1%. Nearly all tax revenues come from land and buildings. There is very little reported taxable personal property such as machinery and equipment.

Castine has used its valuation growth to fund a significantly higher level of services than comparable towns and has kept its tax rate relatively stable by limiting its investment in infrastructure.

The accumulated deferred work on roads and water, sewer, and drainage systems will strain the fiscal capacity of the Town going forward and require higher taxes, reduced services, new sources of income, or a combination of all of the above.

4. Public Opinion Survey Results

Approximately three-fourths of respondents believe that the taxes in Castine are fair. Roughly 15% stated that they are too high. When asked if residents feel that they get good value for their property taxes over 60% said yes.

5. Conditions and Trends

5.1. Valuation and Tax Assessment

The Town's ability to raise taxes depends largely on the total value of all property in the community. Tax commitment is the amount needed to fund the budget based on the tax rate chosen each year. As can be seen in the table and chart below, the town's total valuation experienced a steady rise until the start of the Great

Recession in 2008, at which point it leveled out and actually declined somewhat up to 2020. There has been an upward trend in the years after 2020.

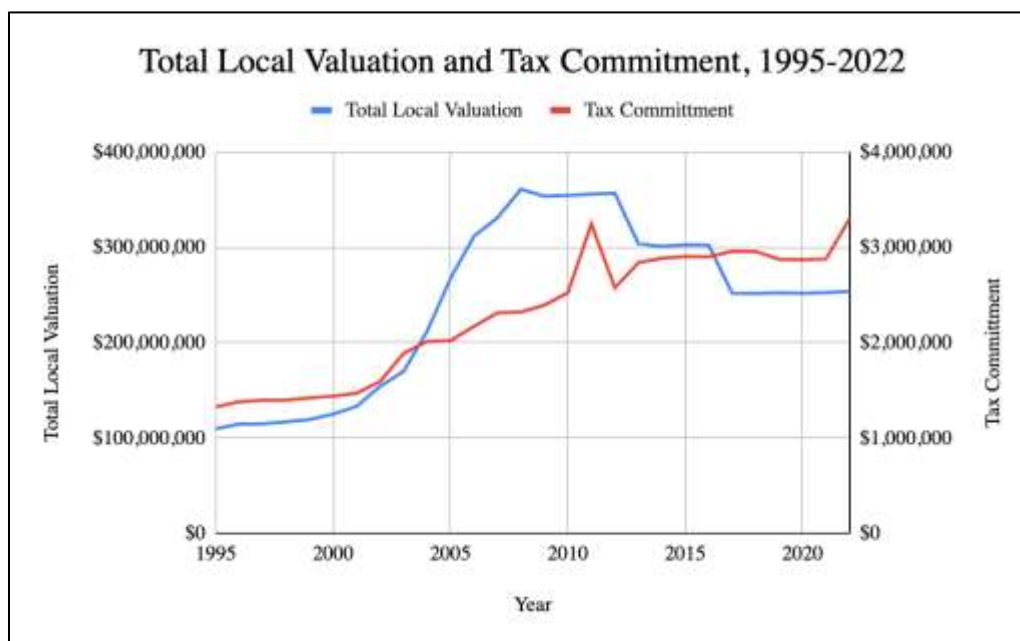
The Town's tax-raising effort, expressed by the tax commitment, declined to take advantage of the rising valuations in the years around 2004 through 2010, but after that, the tax commitment caught up and exceeded the rise in valuations, due primarily to the need to address infrastructure issues.

Table F-1: State and Local Valuation, Tax Commitment, and Tax Rate, 1995-2022

Year	State Valuation	Total Local Valuation	Tax Commitment	Tax Rate
1995	Not Available	\$109,700,000	\$1,325,102	0.01208
1996	Not Available	\$114,650,000	\$1,380,291	0.01204
1997	Not Available	\$114,950,000	\$1,395,953	0.01214
1998	Not Available	\$116,950,000	\$1,398,224	0.01196
1999	Not Available	\$119,350,000	\$1,418,704	0.01189
2000	Not Available	\$125,050,000	\$1,438,552	0.0115
2001	Not Available	\$133,150,000	\$1,468,873	0.01103
2002	Not Available	\$154,150,000	\$1,592,273	0.01033
2003	Not Available	\$169,700,000	\$1,886,639	0.01112
2004	\$211,750,000	\$211,750,000	\$2,011,010	0.0095
2005	\$267,400,000	\$267,400,000	\$2,020,578	0.00756
2006	\$311,700,000	\$311,700,000	\$2,171,427	0.00697
2007	\$331,000,000	\$331,000,000	\$2,312,018	0.00698
2008	\$360,850,000	\$360,850,000	\$2,321,204	0.00643
2009	\$381,050,000	\$353,417,030	\$2,393,352	0.00675
2010	\$405,350,000	\$354,314,420	\$2,523,578	0.0071
2011	\$373,700,000	\$355,645,700	\$3,245,851	0.0091
2012	\$356,800,000	\$356,539,600	\$2,574,517	0.0072
2013	\$351,500,000	\$303,763,200	\$2,836,582	0.0093
2014	\$324,600,000	\$300,842,800	\$2,884,598	0.00955
2015	\$301,450,000	\$302,539,700	\$2,902,014	0.00955
2016	\$291,100,000	\$302,138,700	\$2,898,261	0.00955
2017	\$301,600,000	\$251,809,700	\$2,958,764	0.01175
2018	\$287,100,000	\$251,506,400	\$2,955,200	0.01175
2019	\$263,100,000	\$252,092,500	\$2,873,855	0.0114
2020	\$274,650,000	\$251,709,500	\$2,869,488	0.0114
2021	\$293,600,000	\$252,353,800	\$2,876,833	0.0114
2022	\$302,100,000	\$253,667,340	\$3,297,675	0.013

Source: Maine Revenue Services, 2010 Comprehensive Plan

Figure F-1: Local Valuation and Tax Commitment, 1995-2022



Source: Maine Revenue Services, 2010 Comprehensive Plan

5.2. Tax Base and Revenue Sources

Taxable personal property is only 4% of Castine’s total local valuation—most of the valuation is in land and buildings. This is true for most of the neighboring towns as well. Castine’s total valuation is less than those of Blue Hill and Brooksville but is larger than those for Orland and Penobscot.

One of the factors limiting Castine’s ability to raise funds is the rather large amount of property that is tax exempt or has a reduced assessment due to conservation easements and/or participation in the open space, farmland, or tree growth preferential tax programs. Town-wide, approximately 12% of property is tax-exempt, while on-neck the figure is closer to 40%. In addition, Castine does not have any tax increment financing districts (TIFs) by which to raise funds for broad economic development and other purposes.

Table F-2: Summary of Municipal Valuation by Type, Castine Area, 2022

Town	Land	Buildings	Land & Buildings	Total Personal Property	Total Real & Personal Property
Castine	\$153,260,090	\$99,431,850	\$252,691,940	\$975,400	\$253,667,340
Blue Hill	\$364,239,100	\$288,982,940	\$653,222,040	\$615,400	\$653,837,440
Brooksville	\$238,344,540	\$150,063,700	\$388,408,240	\$166,200	\$388,574,440
Orland	\$146,455,490	\$184,088,860	\$330,544,350	\$4,808,843	\$335,353,193
Penobscot	\$101,273,600	\$88,844,300	\$190,117,900	\$80,900	\$190,198,800
Hancock Co.	\$7,567,628,058	\$6,557,783,146	\$14,125,411,204	\$153,733,680	\$14,279,144,884

Source: 2022 Municipal Valuation Return Statistical Summary, Maine Revenue Services

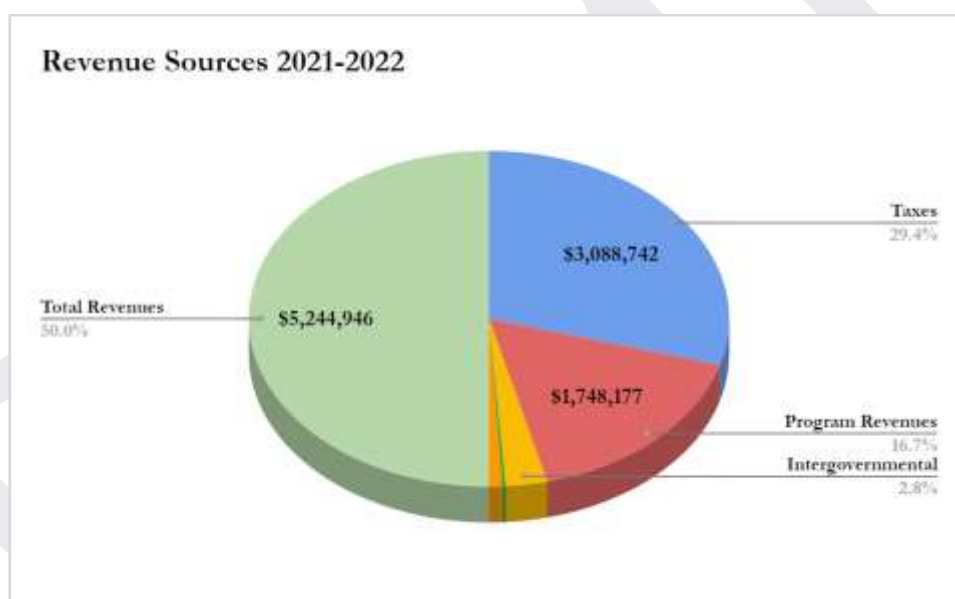
5.3. Municipal Revenues and Expenditures

As seen in Table F - 3 and Figure F - 2 below, most of Castine’s revenue comes from taxes (58.8%), followed by program revenues (33.3%), intergovernmental (5%), investment income (0.4%), and other local sources (1.7%). Some of the larger, non-property tax line-item revenue sources in FY22 were:

- Excise taxes (\$158,821)
- Maine Maritime Academy Support (\$149,669)
- Municipal Fees, Licenses, and Permits (\$101,996)

Overall, Castine is very dependent on property taxes to fund local government operations, including the Adams School.

Figure F-2: Revenue Sources, 2021-2022



As discussed above, taxes and program revenues make up the bulk of the Town’s revenues. In terms of expenses, education accounts for 34.4% of the total municipal expenditures followed by spending on water and sewer systems (19.3%). There was little increase in taxes raised over the 2016 to 2022 period, although there were increases in the other revenue and expense categories.

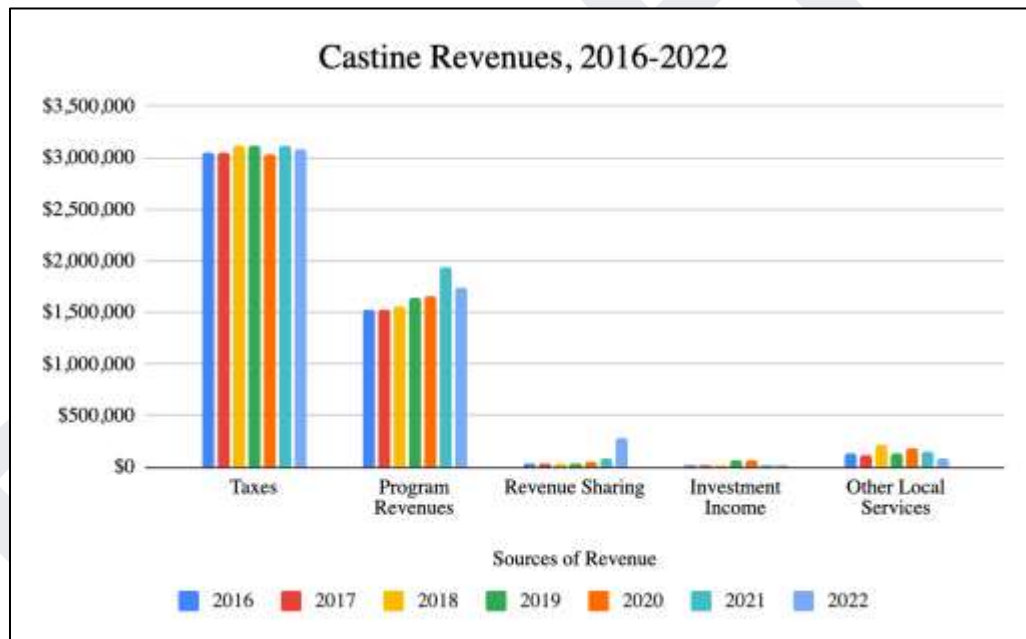
Table F-3: Revenues and Expenses, 2016-2022

	2016	2017	2018	2019	2020	2021	2022
Revenues:							
Taxes	\$3,046,555	\$3,049,093	\$3,112,713	\$3,115,624	\$3,029,738	\$3,111,998	\$3,088,742
Program Revenues	\$1,533,434	\$1,525,874	\$1,564,349	\$1,637,823	\$1,663,226	\$1,941,076	\$1,748,177
Revenue Sharing	\$30,432	\$30,889	\$31,579	\$30,588	\$52,017	\$78,177	\$291,199
Investment Income	\$21,686	\$16,384	\$25,302	\$60,718	\$60,792	\$15,608	\$25,319
Other Local Services	\$135,857	\$119,039	\$214,587	\$134,350	\$186,823	\$146,483	\$91,509
Total	\$4,767,964	\$4,741,279	\$4,948,530	\$4,979,103	\$4,992,596	\$5,293,283	\$5,244,946
Expenses:							
General Government	\$399,888	\$398,443	\$434,915	\$428,554	\$361,039	\$451,632	\$499,437

	2016	2017	2018	2019	2020	2021	2022
Public Safety	\$516,707	\$501,030	\$541,287	\$550,485	\$539,265	\$609,605	\$593,587
Public Works	\$365,575	\$364,024	\$381,596	431,319	\$385,003	\$386,601	\$459,948
Library	\$181,834	\$190,184	\$200,495	\$224,737	\$219,334	\$225,283	\$284,719
Education	\$1,385,217	\$1,263,219	\$1,366,498	\$1,471,639	\$1,463,240	\$1,409,951	\$1,625,791
Unclassified	\$76,786	\$82,329	\$107,382	\$84,021	\$136,202	\$70,213	\$116,985
Assessments & Debt Service	\$269,363	\$262,934	\$244,127	\$234,399	\$256,780	\$221,462	\$235,746
Water & Sewer Systems	<u>\$823,975</u>	<u>\$899,527</u>	<u>\$934,925</u>	<u>\$929,414</u>	<u>\$910,067</u>	<u>\$903,694</u>	<u>\$915,311</u>
Total	\$4,019,345	\$3,961,692	\$4,211,225	\$4,354,568	\$4,270,931	\$4,278,441	\$4,731,524

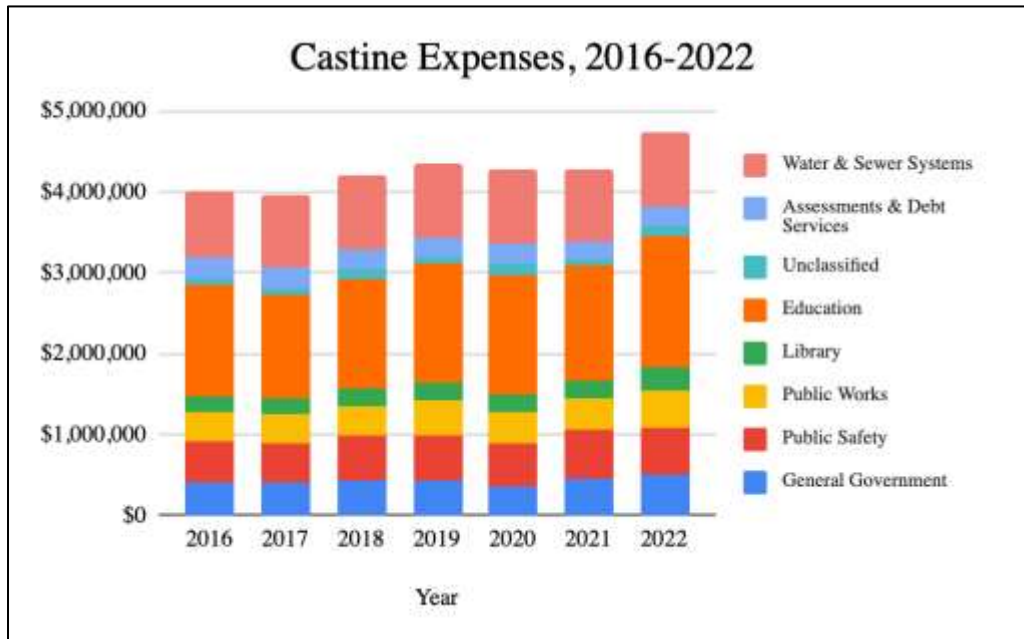
Source: Annual Town Reports

Figure F-3: Castine Revenue, 2016-2022



Source: Annual Town Reports

Figure F-4: Castine Expenses, 2016-2022



Source: Annual Town Reports

Table F-4: Maine State School Subsidies

Year	State Subsidy	Castine Education Budget	State % of Total
FY17	\$44,226	\$1,445,431	3.1%
FY18	\$55,419	\$1,469,110	3.8%
FY19	\$51,634	\$1,459,436	3.5%
FY20	\$50,164	\$1,427,961	3.5%
FY21	\$82,670	\$1,483,375	5.6%
FY22	\$70,813	\$1,482,657	4.8%

Source: Annual Town Reports and Maine Department of Education

The State of Maine passed P.L. 2005, Chapter 2 (effective June 29, 2005) known as LD 1 as a measure to make increases in municipal revenues transparent to voters. The State sets a limit on revenue increases each year, which can be overridden at the Annual Town Meeting. Since its enactment, the Town has voted to exceed the LD 1 spending limitations in order to meet service levels desired by the residents and businesses and to be able to make necessary capital investments and infrastructure improvements.

5.4. Debt Service Levels

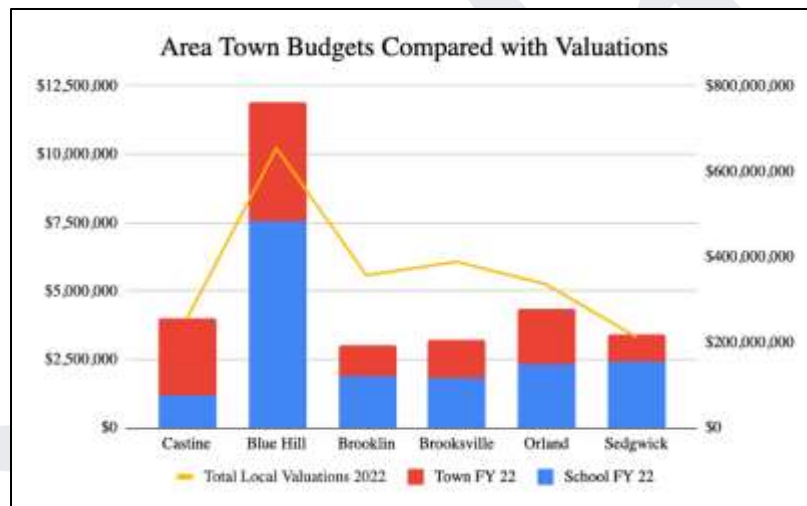
The table below shows how Castine’s municipal budget compares with that of similar towns. When relating budgets with valuation and population, it appears that Castine’s appropriations are commensurate with its total local valuation and population, while towns like Brooklin and Brooksville are keeping their budgets lower than their neighbors’ relative to their valuations.

Table F-5: Summary of Area Town’s FY22 Municipal and School Budgets

	School	Town	Total
Castine	\$1,175,228	\$2,819,250	\$3,994,478
Blue Hill	\$7,568,383	\$4,326,844	\$11,895,227
Brooklin	\$1,885,038	\$1,135,869	\$3,020,907
Brooksville	\$1,818,760	\$1,370,064	\$3,188,824
Orland	\$2,311,301	\$2,053,626	\$4,364,927
Sedgwick	\$2,405,731	\$1,001,569	\$3,407,299

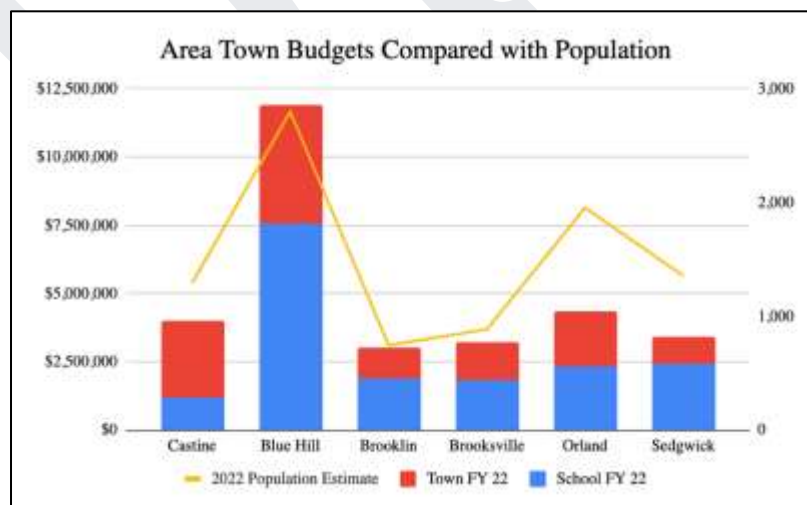
Source: Annual Town Audits

Figure F-5: Area Town Budgets Compared with Total Local Valuations



Source: Annual Town Reports

Figure F-6: Area Town Budgets Compared with 2022 Population Estimates



Source: Annual Town Reports

5.5. Funding for Capital Items

The means by which Castine funds its capital items is through a combination of reserve funds, bonding, and other methods. Table F - 6 below shows the division of the Town’s fund balances into the general fund, capital projects fund, and trust funds. In FY21, the amount of money committed for capital projects was \$1,150,061. Castine also has a number of trust fund accounts, the largest of which by far contained \$6,461,200 restricted for use by the Witherle Library. In terms of bonding, Section 5.6 below looks at the Town’s debt compared with statutory limits. In 2021, Castine carried a debt load of approximately seven million dollars.

Table F-6: Castine Fund Balances FY16 – FY22

	FY16	FY17	FY18	FY19	FY20	FY21	FY22
General Fund	\$2,526,495	\$2,848,629	\$3,267,799	\$3,587,302	\$3,738,336	\$4,047,825	\$3,785,857
Capital Projects Fund	\$1,188,313	\$1,007,299	\$1,092,898	\$1,137,700	\$1,202,502	\$1,230,200	\$1,150,061
Trust Funds	<u>\$5,741,447</u>	<u>\$5,989,992</u>	<u>\$6,160,720</u>	<u>\$6,784,604</u>	\$6,644,691	\$7,775,524	\$7,185,754
Total Fund Balances	\$9,456,255	\$9,845,920	\$10,521,418	\$11,509,606	\$11,585,529	\$13,053,549	\$12,121,672

Source: Annual Town Reports`

Table F – 7 below shows the many reserve accounts Castine maintains to fund various capital projects. Reserve accounts are a sensible tool for reducing the fiscal impact of paying for big ticket items by saving for the items over a period of years.

Table F-7: Capital Projects Funds, FY16 – FY22

Accounts	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Fire Vehicles	\$120,000	\$130,000	\$140,000	\$150,000	\$160,000	\$139,919	\$147,919
Fire Department Capital	\$1,587	\$6,398	\$6,398	\$8,267	\$7,056	\$10,306	\$10,206
Fire Rescue Building	\$ -	\$10,000	\$30,000	\$50,000	\$68,152	\$87,982	\$97,543
Fire Paramedic	\$ -	\$ -	\$500	\$500	\$4,500	\$4,500	\$3,821
Fire Tanker	\$ -	\$ -	\$ -	\$ -	\$4,842	\$-	\$-
Public Works Vehicle	\$103,689	\$127,539	\$175,889	\$185,889	\$195,889	\$205,889	\$179,631
Roadway Improvements	\$685,367	\$537,456	\$568,563	\$564,422	\$499,332	\$528,732	\$445,255
Emerson Hall	\$40,182	\$11,860	\$14,328	\$13,682	\$12,708	\$10,635	\$15,600
Building Roof	\$23,416	\$24,844	\$26,844	\$28,844	\$30,844	\$31,344	\$31,844
Recreation	\$3,362	\$3,373	\$3,398	\$3,398	\$3,398	\$3,398	\$3,398
Elm Tree Planting	\$1,518	\$1,518	\$2,518	\$2,518	\$965	\$1,965	\$2,080
Elm Tree Preservation	\$36,318	\$26,999	\$ -	-\$46	\$8,285	\$470	\$6,863
Fireworks Fund	\$3,250	\$2,201	\$2,391	\$2,941	\$2,674	\$8,077	\$5,077
Friends & Neighbors	\$916	\$916	\$681	\$681	\$681	\$681	\$681
Pump Out	\$1,332	\$1,388	\$1,388	\$491	\$1	\$1,183	\$643
Town Property Survey	\$4,865	\$4,865	\$4,865	\$4,865	\$4,865	\$4,865	\$4,865
Harbor Master Boat	\$13,686	\$14,936	\$15,936	\$16,936	\$17,936	\$18,536	\$19,136
Hardware Software	\$5,493	\$5,873	\$7,021	\$7,589	\$8,899	\$9,282	\$10,252
Harbor Improvements	\$3,921	\$23,421	\$18,296	\$33,568	\$46,315	\$21,590	\$14,999
Mooring Field Maintenance	\$2,000	\$2,750	\$3,500	\$4,250	\$5,000	\$5,750	\$6,500
Comprehensive Plan	\$8,867	\$8,867	\$8,867	\$8,867	\$8,867	\$8,867	(\$3,082)
Economic Development	\$8,919	\$6,211	\$2,539	\$2,435	\$1	\$21	\$161

Accounts	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Library Capital	\$11,053	\$6,053	\$4,353	\$4,353	\$3,768	\$3,768	\$5,899
Library Maintenance	\$5,000	\$12,300	\$17,300	\$12,290	\$12,225	\$5,212	(\$128)
Grant Lib-Lyle Book Fund	\$2,525	\$2,525	\$2,531	\$1,771	\$1,771	\$1,971	\$1,971
Library Minerva	\$9,660	\$9,660	\$9,660	\$9,660	\$9,660	\$9,660	\$9,660
Library Book Fund	\$8,495	\$11,316	\$10,452	\$6,243	\$11,253	\$14,440	\$17,983
Library Summer Food	\$228	\$3,162	\$570	\$570	\$570	\$570	\$570
Farmer's Market Grant	\$904	\$1,304	\$1,659	\$1,030	\$1,575	\$1,575	\$1,660
One Hancock Fuel	\$378	\$378	\$1,070	\$1,070	\$1,070	\$1,070	\$1,070
Road Infrastructure	\$75,584	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Back Shore Pond	\$ -	\$ -	\$ -	\$ -	\$6,800	\$11,952	\$18,141
Public Works Facility	\$2,070	\$2,070	\$2,070	\$ -	\$ -	\$11,000	\$16,000
Sewer Projects	\$1,137	\$1,137	\$1,137	\$1,137	\$1,137	\$1,137	\$1,137
Dock Restrooms	\$1,159	\$1,159	\$1,159	\$1,159	\$1,159	\$1,159	\$1,159
Life Pak	\$ -	\$2,888	\$1,766	\$644	\$ -	\$ -	\$ -
Employment Advertising	\$ -	\$500	\$1,000	\$1,500	\$2,000	\$2,500	\$3,000
Historic Grants	\$1,435	\$1,435	\$ -	\$67	\$67	\$67	\$67
Fort George	\$ -	\$ -	\$ -	\$ -	\$3,000	\$2,720	\$3,600
Street Lights - LED	\$ -	\$ -	\$ -	\$ -	\$2,864	\$4,864	\$8,964
Castine's 200th Celebration	\$ -	\$ -	\$ -	\$ -	\$52,165	\$52,235	\$40,235
Clock Maintenance	\$ -	\$ -	\$4,250	\$6,109	\$209	\$309	\$409
Total	\$1,188,316	\$1,007,299	\$1,092,898	\$1,137,700	\$1,202,503	\$1,230,200	\$1,150,061

Source: Annual Town Reports

5.6. Debt Limit

Castine's total local debt load is well under the statutory limit of 7.5% even without removing debt associated with school, storm, and sanitary purposes as allowed by Maine law. It also is well below the Maine Bond Bank's overall suggested limit of 15% of state valuation.

Table F-8: Castine's Debt Compared with the Statutory Debt Limit, 2016 - 2021

	2016	2017	2018	2019	2020	2021
Total Local Debt	\$2,845,857	\$2,608,310	\$9,633,739	\$8,863,712	\$8,085,077	\$7,296,665
State Valuation	\$291,100,000	\$301,600,000	\$287,100,000	\$263,100,000	\$274,650,000	\$293,600,000
Percent Debt of Valuation	1.0%	0.9%	3.4%	3.4%	2.9%	2.5%
Statutory Debt Limit	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%

Note: The statutory debt limit is exclusive of debt incurred for school purposes, for storm or sanitary sewer purposes, for energy facility purposes or for municipal airport purposes.

Source: Annual Town Reports and M.R.S.A. Title 30-A, Ch. 223, Sec. 5702.

5.7. Capital Investment Plan

Castine's Capital Investment Plan (CIP) is a summary of major, planned expenditures over the next ten years. Capital expenditures are defined as items with a useful life of at least five years that cost at least \$10,000 and include both recurring expenditures, such as road repairs, one-time expenditures such as major renovations. They are distinct from operational expenditures such as fuel, minor repairs to buildings, and salaries. Table F – 10 summarizes the recommended major capital expenditures Castine should undertake in the next ten years.

The Select Board will make final recommendations on funding each year at Town Meeting, which are then subject to approval by vote of the Town.

All of the recommended expenditures are shown in 2024 dollars and are subject to inflation. The renovation of western Court Street and the new fire station are the largest investments.

Table F-9: Capital Investments Plan

Project	Anticipated Cost	Year	Source of Funding
Town Solar Projects: Spring Street Pump, Waste Treatment Roof, Emerson Hall, Battle Ave Water	\$400,000	2024-2026	Mixed Grants and Capital
Misc. Emerson Hall Improvements	\$200,000	2026-2028	Operational Budget
Utility Building at Transfer Station	\$24,000	2024	Operational Budget
Sheet Piling at Town Dock	\$4,200,000	2027	Mixed Grants and Capital
Town Dock Improvements	\$1,000,000	2025-2030	Grants and Capital
Sea Street Pump Station	\$2,300,000	2024-2025	Congressional Directed Spending: \$1,760,000 Sewer Rate Increase: \$500,000
Adams School Improvements	\$300,000	2025-2028	Mixed Grants, operational Budgets and/or Surplus
New Fire Station	\$5,000,000	2025	Capital
Renovate Western Court Street	\$5,400,000	2027	Grants and Capital
Repair Guard Rails on Water Street	\$50,000	2024-2028, Incremental	Operational Budget
Improve Sidewalks	\$480,000	2024-2032, Incremental	Operational Budget
Bicycle and Pedestrian Improvements	\$300,000	2025-2027	Grants
Speculative Placeholder for Out Years	\$4,000,000	2028-2030	Capital

6. Analyses and Policies

6.1. Identification of Funding for Future Capital Investments

Funding for Castine’s future capital projects will be generated through a combination of general and excise taxation, sewer and water user fees, matching state grants, the MaineDOT Urban/Rural Initiatives Program (URIP), and bonding. The Anticipated Capital Expenditures table above shows anticipated timing and sources of funds, although the actual amount will depend on budgetary circumstances in any given year.

6.2. Borrowing Capacity Sufficiency

In order to continue to address its infrastructure improvement needs, Castine likely will need to take on new debt as it gradually pays off its older long-term obligations. Fortunately, as discussed in the Debt Limit section above, Castine is well below the statutory limit for debt compared with the Town’s state valuation. In effect, the limit to Castine’s borrowing is tax tolerance relative to annual debt service and not the statutory debt limit.

6.3. Participating/Exploring Sharing Capital Investments with Neighboring Communities

Castine has recently begun to investigate the idea of sharing capital improvements with neighboring communities. No agreements or plans have been completed at this time.

7. Goals & Objectives

GOAL: Advance the health, safety, and welfare of Castine by ensuring the provision of government services in a fiscally responsible manner.			
Objective	Strategies	Timeframe	Suggested Responsibility
Reduce tax burdens by staying within LD 1 limits	Remain within LD1 revenue limitations unless Town voters specifically approve otherwise	Ongoing	Select Board, Town Manager
Finance existing and future facilities and services in a cost-effective manner.	Explore further sharing of services with nearby towns	Ongoing	Select Board, Town Manager
	Maintain current reserves funds and develop new funds for anticipated purchases.	Ongoing	Select Board, Town Manager
	Seek alternative funding sources such as grants whenever possible	Ongoing	Select Board, Town Manager
Explore Opportunities to work with neighboring communities to plan for and finance shared or adjacent capital investments to increase cost savings and efficiencies	Work with area groups to identify and receive funds whenever possible	Ongoing	Select Board, Town Manager

Chapter G: Recreation

1. Purpose

A community's quality of life is an important factor for most people when choosing a place to live, and as such is often related to the growth and development of a town or area. This section contains an inventory of current recreation and health facilities and an analysis of how these may be affected by future change and growth.

Specifically, this section will:

- A. Describe current recreational and health resources in Castine;
- B. Assess the current and future adequacy of these resources; and
- C. Predict whether the availability of open spaces for public access and recreation will be threatened by future growth and development.

2. Key Findings & Issues

In general, recreational activities in Castine exist and have for some time been based on informal relationships with third party organizations (Maine Maritime Academy) and volunteer-based programs through local non-profit entities. Very few programs are wholly supported by town resources and therefore subject to the whims and financial stability of other third parties and non-profits. Additionally, there is an increasing need for a multi-use facility to service the growing youth and aging population and key findings from the Town survey.

3. Key Findings & Issues from Previous Plans

The 2010 comprehensive plan found that the State's minimum recreation standards were met through a combination of Town and MMA facilities, land protected by conservation easements or direct ownership by conservation land trusts, and Recreation Committee activities. It noted that the Recreation Committee relies on funding from the Town budget, user fees, and donations.

The plan cited two issues pertaining to recreation facilities. The first was a lack of MMA students to serve as lifeguards and as recreational facility attendants for Adams School children and the community. The second was the absence of showers, laundry facilities, or a marine waste pump-out station for Castine Harbor boaters.

4. Public Opinion Survey Results

According to survey results, most Castine residents (82.6%) would like to see or most like to see recreation development in the next 10 years. Also, the majority (70.3%) feel that the development of recreation facilities and spaces is appropriate anywhere in the Town. Over 90% of survey respondents either agree or strongly agree that it is important to protect recreational waterfront access, inland recreational open space and scenic views. The majority of respondents also feel that public landings/access to saltwater, public parks/green spaces, and recreational facilities are adequate or better.

Just over 70% of respondents stated that youth services/activities are either excellent, good or adequate, while approximately 64% stated that senior citizen services need improvement.

5. Current Recreation and Health Resources

5.1. Recreation Resources and Facilities

Castine has a mixture of public, private, and conservation land trust recreation facilities that are summarized in Table G-1 and that are partially depicted in the map in Figure G-1. Municipal recreation activities are coordinated by the Town’s Recreation Committee, whose members are appointed by the Select Board. This board meets periodically and organizes a small number of activities throughout the year. They also provide volunteer support for holiday activities like the 4th of July parade and the annual Easter Egg Hunt. The recreation committee is volunteer based and has not identified key metrics that will serve people of all ages in Castine. In addition to recreation available within Castine, there are more opportunities within driving distance; however, given that there are no regulation home fields for youth sports, many recreational activities are a great distance. As with many of the other parts of this Plan, what happens regionally is as important as what is being provided locally. (See Figure G-2.)

Figure G-1: Selected Recreational Facilities



Table G-1: Castine Recreation Resources and Facilities

Facility	Acres	Owner	Condition	Facilities/Activities
Adams School	0.9	Town	Fair	Playground
Castine Historical Society	0.3	Private	Good	Meeting facilities / Museum
Castine Yacht Club	0.2	Private	Good	Dock, sail boats

Facility	Acres	Owner	Condition	Facilities/Activities
Castine Golf Club	28	Private	Good	Golf
Castine Kayak	0	Private	Good	Kayaking and water exploration
Eaton’s Boatyard	1.0	Private	Good	Moorings, dock, fuel, showers, rest rooms
Emerson Hall	0.5	Town	Good	Meeting facilities, theater
Fort George	7	State	Fair	Picnic area/Soccer Field/Baseball Diamond
Fort Griffith	1	Town	NA	Picnic area
Fort Madison	3.8	Town	Good	Picnic area, historical center
Maine Maritime Academy	38.5	State	Good	Field house, gym, pool, weights, aerobics, meeting facility
Rene Henderson Natural Area	90	TCT*	Good	Trails, ice pond skating area
Tai Chi	0.1	Private	Good	Private lessons located at Town Church
Town Beach and Tidal Pond	2	Town	Good	Beach, picnic area
Town Common	1.6	Town	Good	Green
Town Dock	1	Town	Fair	Boat ramp, dock
Wilson Museum	4.5	Private	Good	Meeting facilities
Witherle Woods	182.8	MCHT*	Good	Trails

*TCT = The Conservation Trust of Brooksville, Castine, and Penobscot. MCHT = Maine Coast Heritage Trust.

Source: Maine Department of Conservation, Bureau of Parks and Lands, and Town Records

Fort George (7 acres) is located at the top of the hill on Battle Avenue. This site has a playing field large enough for softball and Little League baseball. The site is also used for social events. It is owned by the State and maintained by the town and is in fair condition. The Adams School uses Fort George as a soccer field; however, the dimensions are not fit for competition size, and use of the facilities as a soccer field is inconsistent with its historical use. Preservationist groups would like Fort George to be used only for historical purposes.

In April 2023, a bill (LD 791) was passed by the House to apply one-time General Fund appropriations to be granted to the Town to fund the ongoing maintenance, preservation and promotion of Fort George. The appropriation committee has not funded the bill at this time.

Fort Madison (3.8 acres) overlooks the entrance to Penobscot Bay. Located on Perkins Street, it has magnificent views of the Brooksville shore, Islesboro, and even North Haven. It is used for picnics, weddings, and outings. The remaining earthworks make an excellent play area for children, and the sea breezes provide good winds for kite flying. The site is well maintained.

Fort Griffith (1-acre) is a site on Wadsworth Cove Road with views of Wadsworth Cove and the British canal.

Adams School Playground (0.9 acres) is in the center of town on School Street across from the Town Common. Swings and other play equipment including a climbing gym are available year-round. The playground is in fair to poor condition, and there is currently a committee afoot looking to renovate the public space. Funding for this project is being evaluated.

The Town Common (1.6 acres) is located on Court Street opposite the Adams school. It is used as an extension of the school playground and provides a site for Town band concerts and celebrations such as the Independence Day parade and concert. It is also the site of several historical markers and monuments. It is well-maintained.

The Town Beach, located at the Backshore on Wadsworth Cove Road, includes an area of about two acres. The beach itself has 600 feet of water frontage with a breadth averaging 35 feet at high tide. In addition to being used for swimming, it is a good place from which to launch small boats, kayaks, canoes, and windsurfers. People often gather there for cookouts in the evening. Across Wadsworth Cove Road from the Town Beach is the tidal pond, which provides an additional recreation site. Both the beach and the pond are swim-at-your-own-risk facilities. The town expects users of both facilities to pick up after themselves.

Emerson Hall is the only indoor facility owned by the Town. Although used primarily for municipal functions, it is available for special events such as Halloween parties, theater productions, and concerts. It is also used for aerobic exercise sessions and as an extension of Adams School facilities.

The Town Dock (1-acre) is a site that provides facilities for kayaks, small boats, schooners, and small cruise ships visiting the town. Restroom facilities, public boat ramp and 54 parking spaces are available for boaters and visitors to the town. Wastewater pump-out service is available for use at the boater's own risk, at no cost, during the summer. The 2010 plan suggested facilities additions to the Town dock. Some of those were made, yet showers were not added, and the bathrooms were not winterized, which impacts year round businesses and economic viability.

The large size of Castine Harbor, in comparison to other harbors in the Penobscot Bay region, is the main reason Castine does not suffer from massive congestion on the water. As mentioned in the Marine Resources chapter, on heavy marine traffic days the Town dock is barely adequate for boating and harbor activity. This facility offers access to Castine Harbor and the Bagaduce River. Also mentioned is the possibility of creating a harbor plan to help manage access from this point.

MMA makes all of its indoor athletic facilities open to the public for a fee during most of the year. These include a 25-yard, competition size swimming pool, three basketball courts (convertible to four tennis courts and one basketball court, three racquetball courts and various pickleball courts). There are also two well-equipped weight training rooms and one aerobics room. Some of the MMA facilities are regularly used by the Adams School physical education program. During the winter town residents use the pool and weight training equipment. Swimming lessons, aerobic exercise classes, along with other activities have been offered to the public upon request and the availability of instructors, but in the recent past (5 years) those have not been available.

MMA recreational facilities are often not available during MMA vacation periods because of a lack of students to work as lifeguards and recreational facility attendants. Since many of these facilities are regularly used by the Adams School athletic program, this can be an inconvenience.

MMA's Delano auditorium, as well as the lecture rooms in Leavitt Hall and the Bath Iron Works Center for Advanced Technology are available for lectures, meetings, and movies at no charge on a space available basis.

5.2. Private Recreation Facilities

The Castine Golf Club (71 acres) is privately-owned but open to the public for fees and limited usage. It has a 9-hole golf course and four clay tennis courts. Associated with the Golf Club, the Castine Yacht Club is situated on Water Street at the foot of Dyer Lane. The use of this facility is limited to members, guests, or visiting

yachtsmen. Non-members can pay for sailing lessons for youth and adults. For a small fee, visitors may use the showers as well as Yacht Club mooring and overnight docking facilities. Of the members at the Castine Golf Club 18% are full-time residents and more than 80% are seasonal.

Eaton's Boatyard provides boat repair services, boat storage, showers, restrooms, fuel and docking, and mooring facilities for residents and visitors.

The Wilson Museum is a complex of six buildings including the museum building, the Eleanor Doudiet house, blacksmith shop, hearse house, the John Perkins House, and a recently acquired home used primarily for offices and lecture rooms open to the public.

In addition to the Abbott School building, the Castine Historical Society also includes a home used for offices and lecture rooms. The Hatch Community Youth Fund, founded in 2012, provides Castine, Penobscot, and Brooksville youth with limited funded access to year-round recreational activities.

5.3. Conservation Areas

In addition to numerous smaller parcels, two large areas are owned by conservation land trusts. Maine Coast Heritage Trust owns over 182 acres of the Witherle Woods, which are accessible by numerous trails and carriage paths. The Conservation Trust of Brooksville, Castine and Penobscot owns the 90-acre Rene Henderson Natural Area providing numerous trails for year-round use as well as a skating pond in the winter.

Other conservation areas include Greenbie Natural Area (Blue Hill Heritage Trust), Hatch Cove Preserve (Blue Hill Heritage Trust), Lampson Preserve (Maine Coast Heritage Trust), and Lower Negro Island³ (Maine Coast Heritage Trust).

These natural areas are rich in natural vegetation and local wildlife for tourists and residents to enjoy on a year-round basis. Ownership by conservation land trusts, or their use of easements, ensures public access to otherwise privately restricted parcels.

5.4. Regional Recreation Resources

As is evident from the map in Figure G-2 below, there are a wealth of recreation and fitness opportunities in the Blue Hill Peninsula area. Some of these include the gym space and recreation programs provided by area schools, the many nature preserves, and hiking trails provided by the Maine Coast Heritage Trust and other land trusts, and the several community centers, the Blue Hill YMCA in particular.

Recreation facilities in the area that appear to be lacking are more gym space and amenities that do not require a lot of space, such as indoor climbing facilities. With the aging population, a therapy pool would be appreciated

³ Town residents voted in 2021 to change the name, a decision that will be considered by the U.S. Board of Geographic Names.

by many. In terms of programming, there may be an opportunity to increase the coordination for youth programs between the schools and organizations like the YMCA.

Figure G-2: Selected Regional Recreation Facilities



5.5. Recreational Programs and Services Provided by the Recreation Committee

A seven-member Recreation Committee, appointed by the Board of Selectmen, sponsors or coordinates several activities. Limits on public funding require the Committee to charge user fees for some of the following activities:

- Pee Wee Basketball and Soccer
- Little League
- Co-Sponsor of free sailing instruction week
- Special ski events
- Easter festivities
- July 4th festivities
- Halloween festivities
- Christmas tree lighting festivities

6. Open Spaces

6.1. Inventory of Open Spaces

The map of conserved lands below contains parcels in federal, state, municipal and non-profit ownership with easements:

Figure G-3: Conserved Open Space



Source: Maine Conserved Lands. Natural Areas Program

6.2. Potential Threats and Impacts to Open Spaces

Castine and other communities in the region, like many others in Maine, are fortunate to have active land trust organizations that have successfully conserved and protected large amounts of open space and provided an opportunity for the public to enjoy these natural areas with extensive hiking trails and scenic views. Castine does not have any fresh or saltwater bodies that are determined locally to have inadequate public access. While this provides future protection for public access with regards to hiking, biking, and cross-country skiing, hunting is still only permitted on private lands or where designated acceptable by the State. Changes in land ownership, whether for private use or development could impact this important aspect of Maine life. Preserving access to what is considered the commons could be promoted through such means as conservation subdivision methods and development regulations.

7. Adequacy of Castine’s Recreational and Health Resources

There are a number of organizations that have metrics by which to gauge whether a community is providing sufficient recreation facilities for its residents. Table G – 2 has data for the median number of people per recreation facility compiled by the National Recreation and Park Association. **It is not as helpful for towns with very small populations.** Therefore, a column has been added to the table to show whether the facility is available regionally.

Castine does offer more recreation and fitness opportunities than typically available for a small community, however, the majority of these opportunities are dependent on third party organizations and volunteer-based programs. There appears to be a need for greater support and control from the Town in regards to recreational opportunities for all ages.

Regionally, to summarize from the discussion above, examples of needed recreational facilities include, for example, more gym space, a therapy pool, and an indoor climbing facility. There also is an opportunity for expanding the coordination in youth recreation programming between schools and community centers. In terms of needed health care services, improved and expanded ambulance services with additional and better trained staff is a priority for the region.

Table G-2: Outdoor and Indoor Recreation Facilities—Population per Facility

Type of Facility	Median # of Residents per Facility (Population of Jurisdiction < 20,000)	Facility Provided in Castine	Facility Provided Regionally
Playgrounds	2,132	Yes	Yes
Basketball courts	4,051	Yes	Yes
Tennis courts (outdoor)	2,748	Yes	Yes
Diamond fields: baseball – youth	3,000	Yes	Yes
Rectangular fields: multipurpose	3,895	Yes	Yes
Diamond fields: softball – adult	5,663	No	Yes
Dog parks	11,148	No	Yes
Diamond fields: softball – youth	5,447	Yes	Yes
Swimming pools (outdoor)	8,591	No	No
Swimming area (tidal pool)	--	Yes	Yes
Diamond fields: baseball – adult	7,989	No	?

Type of Facility	Median # of Residents per Facility (Population of Jurisdiction < 20,000)	Facility Provided in Castine	Facility Provided Regionally
Rectangular fields: soccer – youth	3,433	Yes	Yes
Community gardens	9,001	No	Yes
Tot lots	6,194	No	Yes
Multiuse courts: basketball, volleyball	6,200	Yes	Yes
Rectangular fields: soccer – adult	7,541	No	No
Skate parks	11,000	No	No
Rectangular fields: football	7,917	Yes	Yes
Multipurpose synthetic fields	13,200	No	No
Ice rinks (outdoors)	10,000	Yes	Yes
Rectangular fields: lacrosse	7,051	Yes	Yes
Overlay fields	4,385	No	No
Rectangular fields: field hockey	Insufficient data	Yes	Yes
Miles of trails	3 miles	~7 miles	Many
Recreation centers	9,800	Yes (MMA)	Yes
Community centers	9,045	No	Yes
Senior centers	12,304	No	Yes
Performance amphitheaters	11,000	No	No
Nature centers	11,704	Yes	Yes
Stadiums	9,126	Yes	Yes
Ice rinks	7,911	No	Yes
Teen centers	12,044	No	No
Arenas	7,102	No	No

Source: 2021 NRPA Agency Performance Review, National Recreation and Park Association

7.1. Local Issues

There is a need for safer pedestrian and bicycle access. Specifically, local roads could be more suitable for biking and walking, and there could be greater connectivity for these activities. The Town is also in need of improved recreational programming for senior citizens and improved access for all abilities in natural areas.

7.2. Regional Issues

As discussed above, the provision of a wide range of recreation and fitness-related facilities and services can only be accomplished regionally. Some of the issues that have been identified include a need for additional gym space; a need for facilities serving the aging population, such as a therapy pool; a need for facilities that only require minimal amounts of space, such as a climbing facility; and a potentially expanding the coordination of youth programs between the regional schools and community centers.

8. Goals & Objectives

GOAL: Increase sustainability and feasibility of Castine’s Recreational opportunities			
Objective	Strategy	Timeframe	Suggested Responsibility
Maintain and upgrade existing recreational facilities as necessary to meet current and future needs.	Develop a recreation plan and investigate funding opportunities for expanding municipal-owned and operated recreational facilities and services.	Ongoing	Select Board, Implementation Committee
	Increase funding for the care and maintenance of the Backshore Recreation Area.	2025	Select Board
	Formalize the recreation committee and investigate opportunities for adding a paid coordinator for the purpose of offering stable programs geared to pre-set age groups.	2024	Select Board
	Provide educational materials regarding the benefits and protections for landowners allowing public recreational access of their property.	2024	Select Board, Town Manager, Recreation Committee
Maintain public access to major water bodies.	Continue to maintain public access to the town dock and the Backshore recreation area.	Ongoing	Town Manager, Select Board, Harbor Committee
Preserve open space for recreational uses as appropriate.	Continue to support the MCHT and BHHT. Work with MCHT and BHHT to expand trail offerings to include a walking trail from Fort George to the backshore.	2024 and Ongoing	Town Manager, Select Board
	Investigate recreational uses for town owned properties (ex. Battle Avenue and Spring Street)	2024 and Ongoing	Town Manager, Select Board

Chapter H: Marine Resources

1. Purpose

An understanding of marine resources is an essential element of a comprehensive plan for any coastal community in Maine. It is particularly important for Castine where many residents depend on the harbor and its facilities for recreation. This section will:

- A. Describes Castine's coastal marine resource areas, facilities, and water-dependent uses;
- B. Assesses the adequacy of existing facilities and public access points to handle current and projected use demands; and
- C. Assesses the effectiveness of existing measures to protect and preserve coastal marine resource areas and water-dependent uses.

2. Key Findings and Issues

Castine Harbor is an underutilized resource that has the potential to contribute more to the local economy. Developing a Harbor Plan would enable the Town to seek grant funds for improvements to harbor facilities.

Castine has several coastal areas with the potential for shellfish harvesting that either are limited or restricted due to high bacteria counts. The Town should continue its work of reducing groundwater infiltration and stormwater flows from sewer lines serving the wastewater treatment facility in order to reduce combined sewer overflows into the ocean.

Commercial fishing is not a significant activity in Castine. There is a potential for aquaculture, but care would need to be taken to not interfere with other marine activity.

There are a variety of public coastal access locations in Castine that include both Town facilities, such as the Town Dock floats and boat launch and Backshore Beach, as well as nature preserves like the Lampson and Hatch Cove Preserves. In addition to several private facilities with moorings, there is a seasonal public mooring area off the municipal pier with a smaller mooring field stretching westerly to Fort Madison.

Going forward, regional cooperation to address water quality and other marine resource issues will be important given that the scope of these matters is beyond the means of any one community to address.

3. Key Findings and Issues from Previous Plans

Castine's 2010 Comprehensive Plan noted that the Town's harbor is used primarily for recreation and MMA training purposes. There wasn't a waiting list for moorings, and it was felt that the harbor facilities generally were adequate. However, there were parking congestion problems at the Town dock parking lot.

Commercial activity consisted of a limited number of harvesters of lobsters, sea grass, and marine worms. Shell fishing had been curtailed due to red tide and other forms of pollution.

Through a non-profit organization, MMA created a Tidal Energy Demonstration and Evaluation Center (TEDEC) to test the potential of various devices that might have merit in commercial development of energy

from tidal currents. It was felt that the Town should monitor this project to ensure it was positive for all stakeholders and didn't exacerbate waterfront parking congestion.

4. Public Opinion Survey Results

Survey data shows the vast majority of respondents (over 89%) support the protection of marine resources such as working waterfronts, streams and rivers, coastal land, wetlands, and lakes and ponds.

Over 60% of respondents rated public landings/access to saltwater as “good” or “excellent.” Opinions vary on the quality of waterfront facilities and public access to freshwater.

40% of respondents felt that it is appropriate to develop marine resources anywhere in the Town, while over 32% felt the on-neck portion of Castine is the appropriate location for their development.

5. Marine Resources

5.1. Shellfish

Soft shell clams are one of Maine's largest fisheries and have been harvested in the state for over 10,000 years.⁴ It takes approximately three to four years for clams to grow to legal size for harvest.

Soft shelled clams are regulated by the Maine Department of Marine Resources (DMR) and most coastal towns through a co-management system. Castine does not have local regulations for shellfish harvesting.

As seen in the Marine Resources map below, there are various places along Castine's waterfront where shellfish can be found—mostly several types of clams but also blue mussels in a couple of areas.



Source: *The Maine Shellfish Handbook*

However, as indicated, there are several areas where the harvesting of clams is “Conditionally Approved” (CA), “Restricted” (R), or “Prohibited” under DMR's Shellfish Growing Area Classification Program—a part of the National Shellfish Sanitation Program (NSSP). This program is primarily concerned with two types of contamination: 1) disease-causing microorganisms, like bacteria and viruses, associated with sewage pollution, and 2) marine biotoxins associated with harmful algal blooms, like “red tide.”

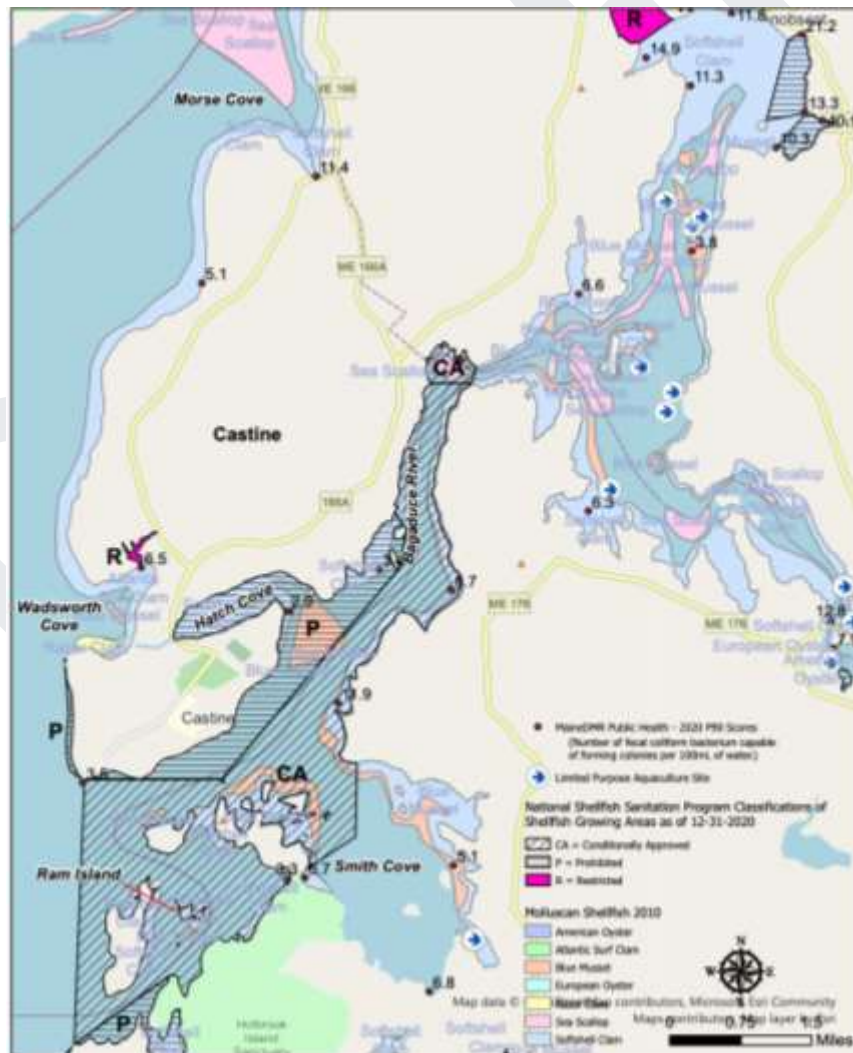
In 2021, the small area of the Bagaduce River adjacent to Penobscot was closed for harvesting from May 1 through October 31 (a conditional approval) while an area of the river to the south was approved with this condition: “This area will close during a malfunction/CSO at the Castine Wastewater Treatment Plant.” CSO

⁴ “Soft-Shell Clams (Essok; *Mya Arenaria*),” The Mudflat, <https://themudflat.org/shellfish-in-maine/#:~:text=Soft%20shell%20clams%20support%20one%20of%20the%20largest,harvest.%20The%20harvest%20size%20is%20minimum%20%20inches>, accessed 27 October, 2021.

stands for “combined sewer overflow” and refers to storm events in which the Town’s wastewater treatment facility can’t handle the additional flows coming from stormwater runoff going into the Town’s combined sanitary and stormwater pipes and must divert the combined effluent into the ocean. The periodic closing of clam flats due to the limited capacity of Castine’s wastewater collection and treatment system underscores the need to separate the Town’s sanitary and stormwater pipes in order to prevent combined sewer overflows.

Much of the rest of the eastern Castine waterfront was prohibited for shellfish harvesting. Clamming was also prohibited along the western shore of lower Castine and restricted in the Bog Brook coastal wetland. (In a restricted area, shellfish can be marketed only after first being cleansed of contaminants by being “relayed” to an approved growing area or “depurated” to a facility with sterile seawater.)

Figure H-1: Marine Resources



5.2. Worms and Sea Grass

Marine bloodworms and sandworms are dug commercially in Castine’s mud flats, particularly in Morse Cove, Wadsworth Cove, and Hatch Cove. Most of the commercial harvesting occurs in Hatch Cove. There is an active market for worms as sport-fishing bait. Sea grass is also harvested in Hatch Cove.

5.3. Fish

Species found in the greater Castine area include herring, striped bass, harbor pollack, mackerel, flounder, rock crab and occasionally bluefish. Dogfish (sand sharks) and the American eel are also frequently found. There are small brook trout in many of Castine's streams.

5.4. Other Marine Life

Harbor seals are a common sight sunning on the ledges in the Bagaduce, in Smith Cove and off Ram Island. Porpoises are spotted in the outer bay. The Bagaduce River is one of the few breeding areas for the horseshoe crab in this part of Maine.

5.5. Aquaculture

Aquaculture is the farming of aquatic organisms such as fish, shellfish, and plants. It can refer to both marine and freshwater species and includes land-based as well as ocean production. Regulation of aquaculture in Maine comes under the Maine Department of Marine Resources (DMR). Aquaculture has been present in Maine waters since the 1800s, but the first issuance of a DMR lease of state-owned waters to a private interest for aquaculture was in 1973.

According to DMR records, as yet there have been no aquaculture leases in Castine, and none are under review. However, increased pressure and limitations on lobster and scallop commercial fisheries could increase interest and investment in the future. Parts of the Bagaduce River have good potential for aquaculture. Care must be taken that any potential development does not affect access of shoreland owners or interfere with navigation or other designated current uses such as mooring and anchorage areas.

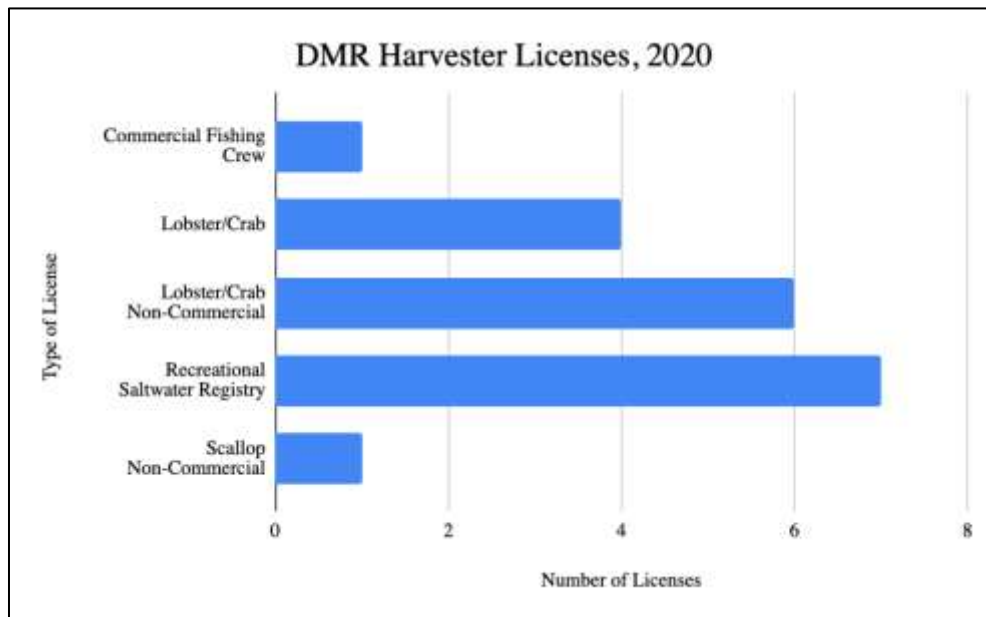
6. Commercial Fishing

DMR has recorded an increase in lobster traps fished by Castine residents. Although there has been an increase in trap tags issued over the past several years, there has been a decline in traps actually fished.

The licenses shown below are those sold by DMR to Castine residents. These include residents who may fish out of town but do not include non-residents who fish in Castine. The figures in the table, therefore, may understate the full use of Castine's harbors.

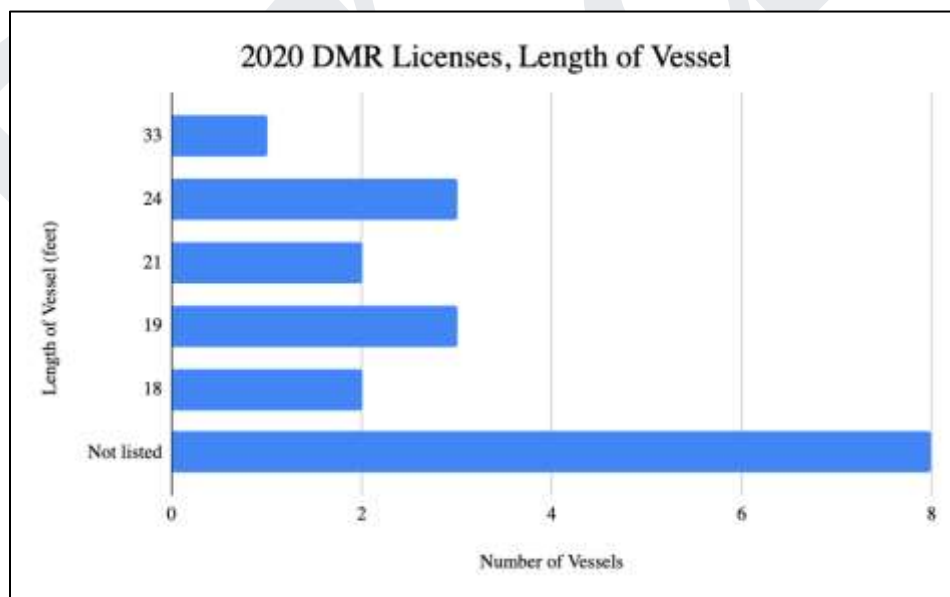
As seen in the table below, commercial fishing is not a significant activity in Castine:

Figure H-2: Commercial Marine Fishing Licenses Issued to Castine Residents in 2020



In terms of vessel size, of those that are known, most of the boats for which DMR issued commercial fishing licenses in 2020 were in the 19-24 foot range (see Figure H3 below).

Figure H-3: Commercial Marine Fishing Licenses Issued to Castine Residents in 2020



7. Public Access Points

7.1. Publicly Owned Access Points

In Maine, rights for accessing the shoreline generally are as follows:

- Private property owners usually own the shore down to the low water mark

- The state or town may own shoreline areas, including beaches
- The public has certain rights to use the shoreline, even where a private owner holds legal title.



Source: Public Shoreline Access in Maine: A Citizen’s Guide to Ocean and Coastal Law, 2016.

As seen in the map below, Castine has several places where people can access the shore. At the foot of Main Street there are the Castine Municipal Piers (Town Dock) and a concrete launching ramp. The facility occupies 0.65 acres of land with approximately 240 feet of shore frontage and 18,000 square feet of paved parking area. Two wooden piers project approximately 45 feet into the harbor with 240 feet of float space and 60 feet of dingy floats. Access to the floats is provided by two ramps, one to each section of the floats. The launching ramp is narrow and there are no floats along its sides.

Figure H-4: Castine Public Waterfront Access



A municipal beach—Backshore Beach—is on the westerly side of Castine and consists of a strip of land 600 feet in length along the shore of Wadsworth Cove. The facility is a general recreation area used for picnics, swimming, and boating. Canoes and kayaks can be launched from this site.

Dyce Head Lighthouse, which was re-activated by the U.S. Coast Guard in 2008, is at the western tip of the Castine peninsula and consists of a three-acre parcel with approximately 400 feet of shorefront on Penobscot Bay. There is a public path to the shore, and the property provides a scenic overlook and picnic area, if no boat launching facilities.

Fort Madison, on the southerly side of the peninsula, is approximately 3.75 acres with some 420 feet of shore frontage on Castine Harbor. It also is used as a scenic overlook and picnic area.

The public also has access to the British Canal, Holbrook Island (which is part of the Holbrook Island Sanctuary State Park), the Blue Hill Heritage Trust Preserve at Hatch Cove, and the Maine Coast Heritage Trust Preserves of Ram Island, Lower Negro Island, Witherle Woods, and Lampson Preserve (see map above).

7.2. Privately Owned Access Points

The Dennett's Wharf shorefront seasonal restaurant near the Town Dock has a large wooden pier and approximately 100 feet of front float space.

Eaton's Boatyard, directly northeast of Dennett's Wharf, is a marina that offers fuel, water, showers, rest rooms, power, marine repairs, and boat hauling. It has approximately 500 feet of front float space.

The Castine Yacht Club is on the harbor shore about 300 yards northeast of Eaton's Boatyard and consists of a 200-foot wooden pier with approximately 150 feet of front float space.

The Dennett's Wharf shorefront seasonal restaurant near the Town Dock has a large wooden pier and approximately 100 feet of front float space.

Eaton's Boatyard, directly northeast of Dennett's Wharf, is a marina that offers fuel, water, showers, rest rooms, power, marine repairs, and boat hauling. It has approximately 500 feet of front float space.

The Castine Yacht Club is on the harbor shore about 300 yards northeast of Eaton's Boatyard and consists of a 200-foot wooden pier with approximately 150 feet of front float space.

7.3. Adequacy of Access

On heavy marine traffic days, the Town dock is barely adequate for boating and harbor activity.

In addition to coastal access, Castine has many scenic resources along its shoreline. Section five of the Recreation chapter details resources, facilities and conserved lands within proximity of and along the shore. Additional scenic areas in Castine are listed in the Natural Resources chapter.

8. Coastal Water-Dependent Uses

Water-dependent uses are those that require direct access to coastal waters and cannot be located away from those waters. Existing coastal water-dependent uses in Castine include:

- a. Seasonal private and commercial fishing of lobsters, crabs, clams, mussels, sea urchins, and scallops
- b. Seasonal commercial tour boats (e.g., Castine Cruises)
- c. Marina, boat storage and repair (Eaton's Boat Yard)
- d. Institutional users, specifically MMA (Castine Harbor is the home port of MMA's training vessels)
- e. Recreational users (Castine Harbor is the home port of over 200 recreational private sail and power boats and is visited each year by several hundred private yachts)
- f. Small commercial passenger vessels, including small cruise ships.

In terms of potential coastal water dependent use, Castine has several sites in that they are sheltered, have five feet of water within 150 feet of the shore at low water, and do not have steep slopes. However, these sites are located Off-Neck, are privately owned, and have poor road access. There are no plans at present to encourage their development.

9. Harbor and Mooring Facilities and Other Marine Resources

9.1. Harbor Facilities

Castine Harbor consists of a main channel approximately two miles long measured from the CH Bell buoy at the channel entrance to Trott's Ledge at Can buoy #3, located where the Bagaduce River enters the harbor. The channel width averages 500 yards. The narrowest part of the channel is 1,000 yards southwest of Can #3 where the red Nun buoy #2 marks the ledge Middle Ground and the channel is approximately 400 yards wide. Channel depth in Castine Harbor is significant, averaging 68 feet at low water and 77 feet at high water. Accordingly, dredging of the channel has never been necessary. Dredging near the Town docks has been done infrequently and is done in coordination with dredging by MMA near its docks. Castine Harbor is used largely on a seasonal basis with only a few fishing vessels using the port during the winter. The majority of boat traffic over the summer months is from recreational craft. Other users include MMA's fleet, passenger schooners, occasional tour boats and private, low-volume fishermen.

The large size of Castine Harbor, in comparison to other harbors in the Penobscot Bay region, is the main reason Castine does not suffer from massive congestion on the water. The congestion is mainly at the access points. Access often is difficult during the summer when the Town dock and parking lot are filled to capacity.

Castine has a Waterfront Ordinance to set standards for use of the mooring area, public landings, boat ramp, harbor channels, and other related properties in Castine waters. It also deals with the safe operation of vessels within Castine Harbor and grants authority to the Harbor Master to enforce the ordinance.

The harbor and town dock as valuable and underutilized resources. Development of this resource is critical for the economic growth of Castine and will require a major expansion of the facilities including docks, wharves, floats, guest moorings, and launch services.

Taking into account the importance of Castine as a sea port in its early history, it is reasonable to consider the harbor as a valuable and underutilized resource. Development of this resource would aid in the economic growth of the Town. It would require a major expansion of the facilities, including docks, wharves, floats, guest moorings, and launch services. Undertaking a harbor plan, as recommended in the 2010 Comprehensive Plan,

would be a first step toward designing and costing out the necessary improvements so as to be able to apply for grants and secure other necessary funding.

9.2. Mooring Facilities

The municipal harbor mooring area is west of channel buoy Nun #2 and covers an area approximately 1,000 yards in length from the municipal pier northeasterly along the shore of the Castine peninsula. Within this main mooring area there are approximately 200 seasonal moorings. Presently, there is no waiting list for moorings.

A secondary mooring field extends westerly from the end of MMA's waterfront facility, along the southerly shore of the Castine peninsula as far as Fort Madison. There are about 30 seasonal moorings in this area. There is limited room for additional moorings within easy reach of the public access points without encroaching into the navigation channels. There are other private seasonal moorings scattered along the shore of Castine extending easterly from Trott's Ledge along the shore of Castine within the waters of the Bagaduce River to Grindal's Eddy and northerly along the shore of Castine within the waters of the Penobscot River from Wadsworth Cove to Morse Cove.

9.3. Other Marine Resources

Hatch Cove is on the northeasterly side of the Castine peninsula and is 1,500 yards long and 400 yards wide. The entrance to the cove is approximately 1,000 yards northwest of Can #3. It is shallow and drains virtually empty into mud flats at low water. Depth at high water is five to twenty feet.

Wadsworth Cove is on the northwesterly side of the Castine peninsula. It is approximately 1,300 yards wide and 700 yards deep from the entrance. Water depth ranges from 12 feet at high water to less than one foot at low water. Wadsworth Cove is deeper than Hatch Cove and is also tidal. Approximately half the area of the cove drains dry at low water exposing a mix of boulders, gravel, sand and mud flats.

The British Canal is a man-made saltwater estuary beginning at the west end of Hatch Cove and running approximately 400 yards westerly. The canal is approximately 10 feet wide and five feet deep. The canal and the surrounding floodplain consist of a saltwater marsh directly affected by tidal action and freshwater runoff. At one time, the canal extended another 200 yards westerly to Wadsworth Cove. However, in the 1930s the west end of the canal was cut off to make a saltwater pond.

Morse Cove is located at the northerly end of Castine approximately 3.5 miles northeast of Wadsworth Cove on the Penobscot River. It is approximately 1,000 yards in length and 500 yards in width. One half of Morse Cove is located in the town of Penobscot. Water depth is 13 feet at high water and drains to mud flats at low water.

10. Effectiveness of Existing Measures to Preserve Marine Resources

As discussed above and depicted on the Marine Resources maps, Castine has a number of areas in which shellfish harvesting is either limited or prohibited due to high bacteria counts. The Town may want to do research to identify the causes for these high counts. To the extent that they are related to stormwater runoff, the Town should review its Shoreland Zoning regulations related to erosion and sediment control and its Site Plan ordinance relative to factors like impervious surface limits.

Otherwise, Castine’s marine resources are adequately protected by local, state, and federal standards for environmental protection and land use regulation.

11. Regional Marine Resource Issues

Castine shares East Penobscot Bay and the surrounding waters with other coastal and island communities. Whenever possible, therefore, the Town should participate in and support regional efforts to address issues related to fishing, water quality, and public coastal access.

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12. Goals & Objectives

GOAL: Protect Castine’s Marine Resources and improve access for residents, visitors, businesses, and tourists.			
Objective	Strategies	Timeframe	Suggested Responsibility
Protect, maintain, and when warranted, improve marine habitat and water quality.	Encourage owners of marine businesses (ie. Eaton’s Boatyard) to participate in clean marine/boatyard programs.	Ongoing	Harbor Committee, Town Manager, Select Board
	Contact MDMR to determine if opening shell fishing areas is appropriate and if so, pursue seeding operations.	2024-2025	Select Board, Town Manager
	Engage in early and ongoing communication with any entity proposing marine development, including, but not limited to tidal and wind energy, aquaculture and commercial waterfront development.	2024 and Ongoing	Town Manager, Select Board, Harbor Committee
	Review and update ordinances to ensure water quality is protected in marine watersheds through standards that consider storm water runoff, extent of impervious surfaces, and other non-point sources of pollution.	2024	Harbor Committee, Town Manager, Select Board
	Promote strict enforcement of existing and new town ordinances that affect marine water quality.	Ongoing	Harbor Master, Harbor Committee, Town Manager, Select Board
	Engage in strict enforcement of municipal, state, and federal regulations regarding overboard discharges from all vessels including but not limited to commercial vessels, recreational vessels, and MMA vessels.	Ongoing	Harbor Master, Harbor Committee, Town Manager, Select Board
	Engage in strict enforcement of regulations regarding overboard discharges from residences both in Castine and adjoining towns that share Castine’s marina resources.	Ongoing	Harbor Master, Harbor Committee, Town Manager, Select Board
	Engage in strict enforcement of the Shoreland Protection Ordinance.	Ongoing	Code Enforcement Officer, Town Manager, Select Board
Foster water dependent land uses and balance them with other	Create and implement a plan to increase access to waterfront facilities and make accessible to visiting boaters, windjammers, and cruise ships, including	2024-2025	Harbor Committee, Town Manager, Select Board

complementary land uses	but not limited to increased dock area, moorings, slips, water, electricity, launch service, laundry facilities, showers, and restrooms.		
Maintain, and where possible, improve harbor management and facilities.	Create and implement a local harbor management plan.	2024	Harbor Committee, Town Manager, Select Board
	Seek out Harbor Improvement Grants for funding improvements	2024 and Ongoing	Harbor Committee, Town Manager, Select Board
Protect, maintain, and improve visual and physical public access to Castine’s marine resources for all uses including fishing, recreation, and tourism.	Identify needs for additional recreational and commercial access including parking, boat launches, docking space, fishing piers, and swimming access at both the Town Dock and Backshore Recreation Area	2024-2027	Harbor Committee, Town Manager, Select Board
	Provide information about the Working Waterfront Access Pilot Program and current use taxation program to owners of waterfront land used to provide access to or support the conduct of commercial fishing activities.	2024 and Ongoing	Harbor Committee, Town Manager, Select Board

Goal: Protect Castine’s marine resources and improve access for residents, visitors, businesses, and tourists.			
Objective	Strategies	Timeframe	Suggested Responsibility
Protect, maintain, and when warranted, improve marine habitat and water quality.	Encourage owners of marine businesses (ie. Eaton’s Boatyard) to participate in clean marine/boatyard programs.	Ongoing	Harbor Committee, Town Manager, Select Board
	Shellfish Restoration: Contact MDMR to determine if opening shellfishing areas is appropriate and if so pursue seeding operations.	2024-2025	Select Board, Town Manager
	Engage in early and ongoing communication with any entity proposing marine development, including, but not limited to tidal and wind energy, aquaculture and commercial waterfront development.	2024 and ongoing	Town Manager, Select Board, Harbor Committee
	Review and update ordinances to ensure water quality is protected in marine watersheds through standards that consider storm water runoff, extent of impervious surfaces, and other non-point sources of pollution.	2024	Harbor Committee, Town Manager, Select Board
	Promote strict enforcement of existing and new town ordinances that affect marine water quality.	Ongoing	Harbor Master, Harbor Committee, Town Manager, Select Board

Goal: Protect Castine’s marine resources and improve access for residents, visitors, businesses, and tourists.			
	Engage in strict enforcement of municipal, state, and federal regulations regarding overboard discharges from all vessels including but not limited to commercial vessels, recreational vessels, and MMA vessels.	Ongoing	Harbor Master, Harbor Committee, Town Manager, Select Board ^{TM, SB}
	Engage in strict enforcement of regulations regarding overboard discharges from residences both in Castine and adjoining towns that share Castine’s marina resources.	Ongoing	Harbor Master, Harbor Committee, Town Manager, Select Board
	Engage in strict enforcement of the Shoreland Protection Ordinance.	Ongoing	Code Enforcement Officer, Town Manager, Select Board
Foster water dependent land uses and balance them with other complementary land uses	Create and implement a plan to increase access to waterfront facilities more accessible to visiting boaters, windjammers, and cruise ships, including but not limited to increased dock area, moorings, slips, water, electricity, launch service, laundry facilities, showers, and restrooms.	2024-2025	Harbor Committee, Town Manager, Select Board
Maintain, and where possible, improve harbor management and facilities.	Create and implement a local harbor management plan.	2024	Harbor Committee, Town Manager, Select Board

Goal: Protect Castine’s marine resources and improve access for residents, visitors, businesses, and tourists.			
	Seek out Harbor Improvement Grants for funding improvements	2024 and ongoing	Harbor Committee, Town Manager, Select Board
Protect, maintain, and improve visual and physical public access to Castine’s marine resources for all uses including fishing, recreation, and tourism.	Identify needs for additional recreational and commercial access including parking, boat launches, docking space, fishing piers, and swimming access at both the Town Dock and Backshore Recreation Area	2024-2027	Harbor Committee, Town Manager, Select Board
	Provide information about the Working Waterfront Access Pilot Program and current use taxation program to owners of waterfront land used to provide access to or support the conduct of commercial fishing activities.	2024 and ongoing	Harbor Committee, Town Manager, Select Board

Chapter I: Water Resources

1. Purpose

This section presents an overview of Castine’s water resources, which are essential to protect the town’s drinking water. Specifically, this chapter:

- A. Describes the characteristics, uses, and quality of Castine’s significant water resources;
- B. Predicts and considers potential negative impacts to water quality caused by future growth and development; and
- C. Assesses the effectiveness of existing measures to protect and preserve these resources.

2. Key Findings & Issues

Castine's inland surface waters are relatively few, small, and free from impairment. They are protected by Shoreland Zoning provisions in the Zoning Ordinance as well as by other ordinances and provisions that regulate building and development in Castine. Some of the marine waters around Castine, however, are impaired, which has led to restrictions on shellfish harvesting in a few areas.

In terms of public water supply, wells are located in built-up areas of the community, and the Water Department does not have ownership of enough of the land around the wells to prevent concern over future contamination. However, the Town has supplemented the Maine Drinking Water Program's rules with its own Source Water Protection Ordinance to regulate land use activities in the groundwater recharge areas of the wells in order to maintain their water quality.

3. Key Findings & Issues from Previous Plans

There have been improvements to the municipal water supply system since the 1995 Plan was prepared. A major improvement was the installation of a state approved surface water filtration system that uses the Battle Avenue ponds to enhance water delivery capacity during drought periods. The Town has also worked to remove the remaining overboard discharges, but the saltwater quality is affected by upstream discharges from other towns.

4. Public Opinion Survey Results

Drinking water quality and quantity and sewer systems rated high on the list of concerns of the respondents. There was also significant attention to the cost of water in Castine that is driven by the small number of water and sewer system customers.

Highlights of the survey include 98% support for the protection of aquifers for drinking water. Rating the current level of services in Castine was measured in two ways. 85% of respondents rated the water and sewer services as Excellent, Good, or Adequate. 82% responded that in terms of Community Life, the availability and quality of Castine's potable water was Excellent, Good, or Adequate.

Anecdotal comments in the survey generally supported efforts to maintain the quality of our drinking water and to manage costs as effectively as we are able. One comment specifically requested that we look into testing for unregulated chemicals. This request grows from the recent attention to PFAS but might also include other chemicals in the future. This is discussed further in Section 6.3 Maine Drinking Water Program.

5. Surface Water Resources

5.1. Lakes, Ponds, Rivers, and Streams

Castine has very limited surface and freshwater resources. As seen in Figure I-1 below, there are approximately 43 acres of surface water (ponds) in the Town as calculated from National Hydrogeography Map data. These water bodies include various fire ponds, the Ice Pond off Route 166A, Dunc's Meadow off Route 166, the public water system ponds and inland wetlands.

Figure I-1: Castine Ponds and Streams



As shown in Figure I-1 and

, several of Castine’s streams are named, but for the most part the ponds are unnamed and have been arbitrarily numbered for the size table in Figure I-1.

Castine’s two freshwater wetland areas are Dunc’s Meadow and the headwaters of Bog Brook in the Square. See the Water Resources and Riparian Habitats map (Figure J - 2) and the Wetlands Characterization map (Figure J - 7) in the Natural Resources chapter. Freshwater wetlands are defined as those areas commonly referred to as swamps, bogs or marshes that are inundated or saturated by surface or groundwater. This inundation occurs at a frequency and for a period sufficient to support a prevalence of wetland vegetation typically adapted for life in saturated soils. Wetlands larger than 10 acres (designated wetlands) are subject to the Shoreland Zoning setback standards. Wetlands from 0.1 to 10 acres in size are subject to regulation by the Maine Department of Environmental Protection (DEP) under the Natural Resources Protection Act (NRPA).

Castine’s coastal wetland areas are the British Canal area and the Bagaduce and Penobscot shorelines. NRPA defines coastal wetlands as tidal or sub-tidal land. They are identified by the presence of salt-tolerant wetland plants or the presence of a tidal debris line, and include mudflats, beaches and salt marsh. Coastal wetlands serve

as nurseries and food sources for fish and shellfish, providing wintering areas for waterfowl and staging areas for migratory shorebirds. They protect coastlines from erosion and provide open space for recreation and fishing. All coastal wetlands are protected by NRPA, regardless of size, but it is also important to protect the upland areas draining into coastal areas.

5.2. Watershed Boundaries

Castine's watersheds are relatively small. They all drain into the Penobscot Bay, either directly or via the Bagaduce River. The watershed boundaries are shown on the map in Figure I-2 below.

5.3. State Water Quality Classification

DEP classifies the state's surface waters according to assigned water quality goals and sets uses and water quality criteria for each class. If classification standards are not met, the Water Quality Classification program directs the State to improve the quality to meet standards. The classification system includes four classes for freshwater rivers and streams, three classes for marine waters, and one class for lakes and ponds.

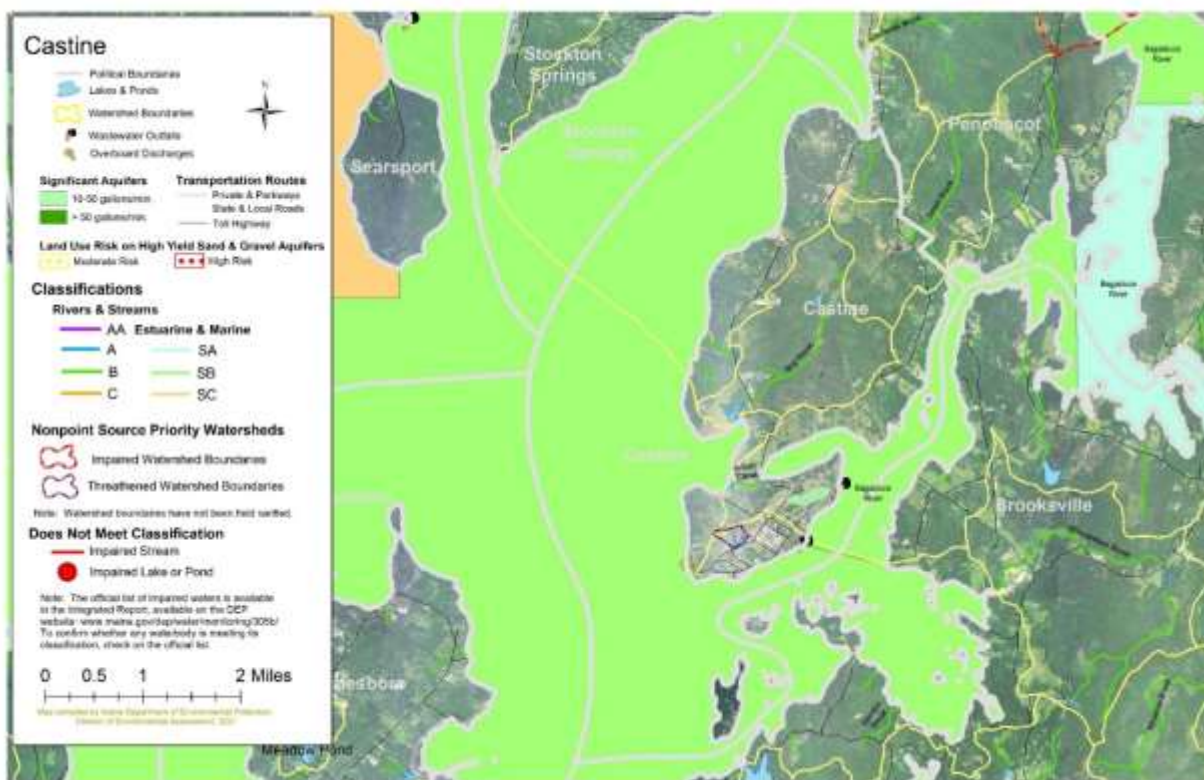
Water quality impaired streams, rivers, and lakes are those that do not meet the water quality criteria for their classification. It is evident from Figure I-2 below that Castine does not have any impaired streams or ponds—they all “meet class.”

A discussion of impairments of estuarine and marine waters, which are not included in the DEP-provided map, is contained in subsection 5.6 below.

5.4. Wastewater Outfalls and Overboard Discharges

As shown on the map in Figure I2 (and on the Public Facilities and Infrastructure map in Chapter E), there are two wastewater outfalls in Castine, both of which discharge into the Bagaduce River. There also is an overboard discharge (OBD) near Dice Head on a residential property with a license for 300 gallons per day of secondary treated sanitary wastewater from a four-bedroom, single-family dwelling on a seasonal basis. This is the last of what formerly had been five such OBDs in Castine, and DEP will continue to be making efforts over time to induce the owners to replace the OBD with a septic system. Wastewater outfalls and overboard discharges are “point sources” of pollution and are discussed further below.

Figure I-2: Castine Water Resources



5.5. Significant Aquifers

As seen in the Castine Water Resources map above, Castine has a significant 10-50 gallons per minute aquifer in the northeast portion of the Neck. In addition, the watershed containing the Town's water supply ponds is classified with "Threatened Watershed Boundaries" reflecting the heightened need to protect the water quality of these water resources.

5.6. Impaired Marine Waters

As discussed in the Marine Resources chapter, and as depicted in that chapter's Marine Resources map (Figure H1), the waters surrounding Castine display a range of water quality that leads to a corresponding range of regulation of such uses as shellfish harvesting. There is additional tabular data about the quality of Castine's estuarine and marine waters in the DEP's *Final Draft of the 2018/2020/2022 Integrated Water Quality Monitoring and Assessment Report Appendices*.

As discussed in the Marine Resources chapter, the water quality of the waters around Castine are such that some areas are approved for shellfish harvesting or other designated uses, some are conditionally approved, some are restricted, and some are prohibited. One area, Wadsworth Cove, is restricted for shellfish harvesting based on bacteria only and requires a TMDL (Total Maximum Daily Load). Information about TMDL is as follows:

The Maine Statewide Bacteria TMDL (Total Maximum Daily Load) is designed to support action to reduce public health risk from waterborne disease-causing organisms. Specific types of non-

pathogenic bacteria are used as indicator organisms, or surrogates, for these pathogens in water. Waterborne pathogens (bacteria, viruses, etc.) enter surface waters from a variety of sources, including human sewage and the feces of warm-blooded wildlife. These pathogens can pose a risk to human health due to gastrointestinal illness through different exposure routes, including contact with and ingestion of recreational waters, ingestion of drinking water, and consumption of filter-feeding shellfish (clams, mussels, etc.).

While detailed marine waters attainment information is contained in the Marine Resources chapter, Figure I – 3 below shows that the highest concentrations of bacteria are further up the Bagaduce River from Castine, in Penobscot, and in the mouth of the Penobscot River.

Figure I-3: DMR Legal Notice Areas 2009 – Highest Fecal Coliform



5.7. Invasive Aquatic Plants

According to the DEP, invasive aquatic species are introducing exotic flora and fauna that displace native plant and animal communities. Infestations result in habitat disruption, loss of property values, diminished water quality, reduced fishing and water recreation opportunities, and significant expense for mitigating the environmental costs. There are eleven invasive aquatic species identified in Maine law as illegal to import, sell, and transport.

Castine is shown to not have any invasive aquatic plants at this time (This may only mean that none of Castine's water bodies are large enough to have been monitored.) The closest infested waterbody on DEP's list is Alamoosook Lake, with variable leaf milfoil, in Orland.

5.8. Watersheds of Lakes Most at Risk from Development, and Urban Impaired Streams

In connection with its regulation of developments requiring either a Stormwater permit or a Site Location of Development permit, the DEP maintains a list of direct watersheds of lakes most at risk from new development and also of urban impaired streams. Castine, not having lakes, and not being urban, does not have any water bodies that are on these lists.

5.9. Nonpoint Source Priority Watersheds

The DEP also maintains a list to encourage communities to take action to restore or protect waters impaired or threatened primarily by polluted runoff. The list also helps prioritize DEP nonpoint source water pollution control efforts and grant funds. The Battle Avenue Ponds are on the Threatened Lakes Priority List due to their being part of the public water system. However, Castine does not have any streams on the DEP lists of impaired or threatened streams, nor does Castine have any marine waters on the lists of impaired or threatened marine waters.

6. Drinking Water

6.1. Groundwater

Castine has two sources of groundwater. One is a sand and gravel aquifer located on the eastern side of On-Neck. See Figure I2. The second source is from bedrock wells, which supply the rest of Town both On-Neck and Off-Neck.

Ground water is defined as subsurface water found in the saturated soils and water-bearing bedrock of the earth's surface. Its upper level, which rises and falls seasonally, is called the water table. A bedrock aquifer is a rock formation that contains recoverable volumes of ground water. All ground water is important to a community as a source of drinking water. Aquifers are especially important and are especially vulnerable to pollution from surface and subsurface sites.

The Maine Geological Survey data published in 1981 indicated that wells in the sand and gravel aquifer had a combined yield of about 20 gallons per minute (GPM). Since 1981, more detailed water supply studies have been done. The 2007 studies indicate the five bedrock wells serving the municipal water system yield between 40 GPM and 70 GPM. The rest of the Town depends on individual bedrock wells for its water. There has been no comprehensive analysis conducted on the status of private wells On-Neck or Off-Neck.

6.2. Public Water Systems

Data from the Maine Drinking Water Program indicates there are two public water systems in Castine: the Castine Water Department system On-Neck and the Hancock Village Mobile Home Park system Off-Neck. Public water systems are defined as those that serve a given number of the general public even if they are not publicly owned. They may be as large as the Castine Water Department system or as small as one serving a

restaurant. These systems are subject to both State regulations and reporting requirements and to Castine's Source Water Protection Ordinance.

6.3. Maine Drinking Water Program

As is evident from the map of Castine Public Wells (Figure I - 5), public wells in Castine are governed by two different sets of source water protection regulations: those of the Maine Drinking Water Program, and the Town's Source Water Protection Ordinance. The Source Water Protection Areas (green and red), the Surface Water Intake Direct Watershed, and the Public Drinking Supply Buffers shown on the map are associated with the Maine Drinking Water Program (MDWP). This program's regulations are contained in the *Rules Relating to Drinking Water, 10-144 Code of Maine Regulations*. MDWP defines a Source Water Protection Area as the area that contributes recharge water to a surface water intake or public water supply well. Pursuant to the rules cited above, operators of public water supply systems must be notified of land use applications that could affect the source water protection area. This allows the operators to participate in the municipal decision-making process and helps reduce the risk of contamination to public water supplies. The rules also contain such regulations as where a public well can be sited, wellhead protection area mapping for the assessment of contamination threats, and the reporting of any spills within well protection areas.

The Maine Drinking Water Program also manages the Maine Source Water Assessment Program. This involves completing an assessment of the risk of contamination for each public water supply source and publishing the results for the benefit of the operators of each system and their customers. See Table I - 2 below for the risk assessments for Castine's public wells (generated in 2003).

According to the data in Table I - 2, taken from the *Final Source Assessment Report of the Maine Source Water Assessment Program*, the Hancock Village Mobile Home Park well and several of the Town's public wells are rated High for Future Risk of Acute Contamination (contaminants that can cause consumer illness immediately after consumption, like pathogens or nitrates). This rating was based on a finding of no legal land control by the water authority, or control status is unknown, of the property within 150 feet of the well. In addition, all of the wells are rated High for Future Risk of Chronic Contamination (contaminants that pose a health risk if consumed even at very low doses over many years). This again relates to Castine not having legal control of all the entire wellhead protection area.

The issue of risk from chronic contamination raises the PFAS question. PFAS is a harmful set of manmade chemicals that do not break down in the environment and can cause medical issues like some cancers if consumed in sufficient quantities. With the signing of LD 129 on June 21, 2021, all community public water systems and non-transient, non-community schools and daycares are required to sample finished water for PFAS before December 31, 2022. An interim standard of 20 ppt for six PFAS chemicals (alone or in combination) is in effect. According to the Castine Water Department's 2021 Annual Consumer Confidence Report, a PFAS level of 2.1 ppt was found during a 9/8/21 water test—substantially below the State's standard—and 0 ppt was found in a 10/26/21 test. It is likely that the source of the first positive was the result of errant sampling procedures that introduced contamination to the sample. Three subsequent town samples and four private samples as of this writing were all negative. Training and more stringent sampling methods have been implemented since that initial result. The town is closely monitoring the results of future tests in order to ensure that the presumed clean water result continues to be valid. While having public water supply

wells in built-up areas like on the Castine neck is problematic in some ways, as far as PFAS is concerned, at least it has meant that there have been no land applications of wastewater treatment plant sludge or septage in Castine—one of the current sources of PFAS contamination of high concern. As of this writing, the state has asked us to begin testing treated sewer effluent for PFAS and the town is voluntarily undertaking testing of the incoming raw sewage to help improve our understanding of our situation.

6.4. Castine Source Water Protection Ordinance

Referring again to the Castine Public Wells map below (Figure I - 5), the other Source Water Protection Area(s) are those from the *Castine Source Water Protection Ordinance*. This ordinance, adopted by the Town in 2009, establishes the Source Water Protection Area (SWPA) and regulates activities within that area that may jeopardize the quality or quantity of the supply of public drinking water. Some activities, like residential pesticide or fertilizer application by a third-party licensed applicator, are allowed in parts of the SWPA with a permit from the Town. Other activities, like underground petroleum or chemical storage tanks are prohibited. The ordinance also sets out performance standards for allowed and permitted activities.

6.5. Water Supply

In addition to needing to protect the quality of Castine’s drinking water, there also is a concern over supply. Water supply has been an ongoing issue for Castine. In 2019, Castine received approval from the Maine Center for Disease Control Drinking Water Program to artificially recharge the Town’s Battle Avenue Well #1. It is anticipated that this action will significantly improve Castine’s water security during periods of drought.

Table I-1: Risk Assessments for Castine Water Department Wells

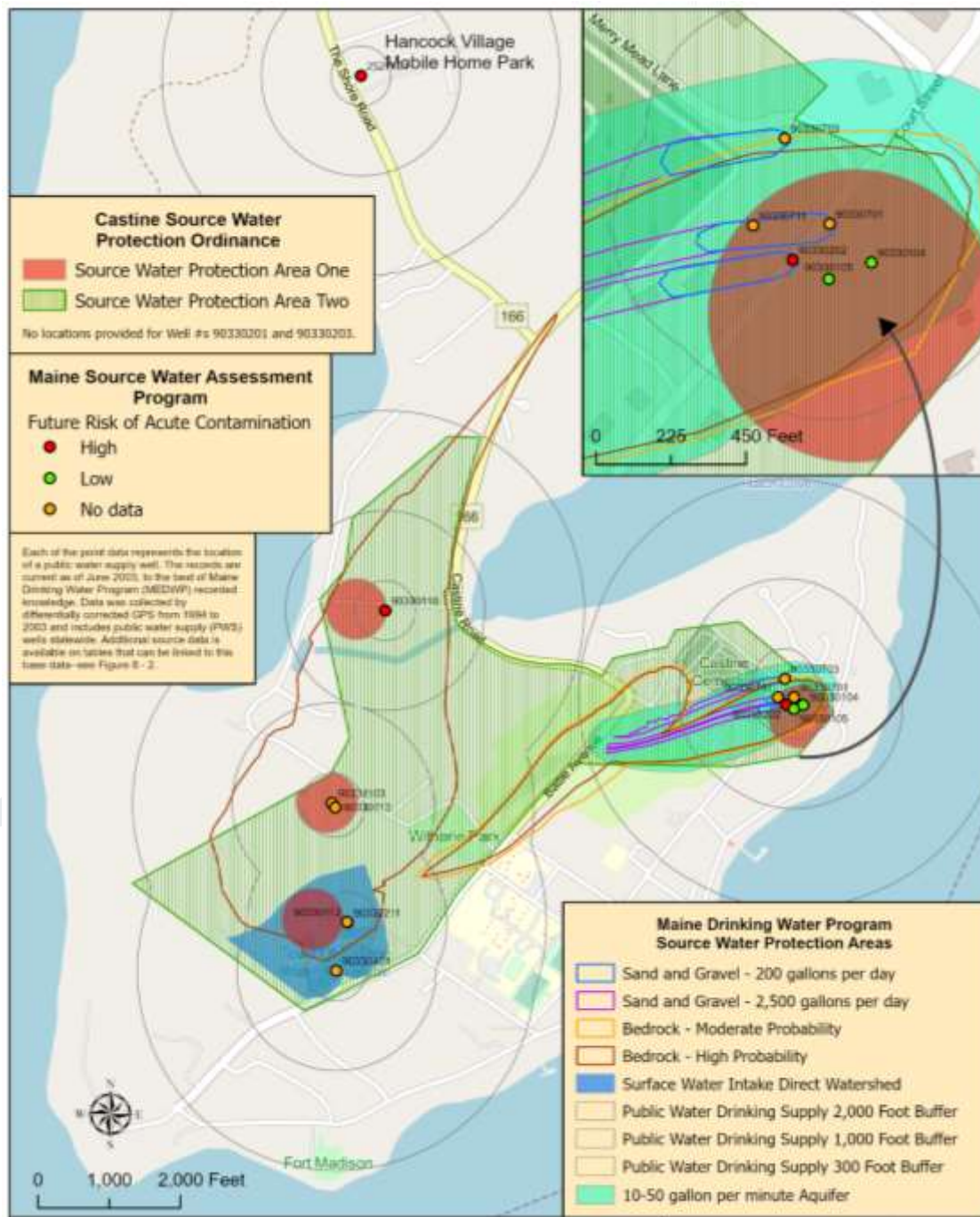
Date	2003	2003	2003	2003	2003	2003	2003	2003	2003
Well ID #	2527101	90330104	90330105	90330110	90330201	90330202	90330203	90330206	90330211
Well type	Bedrock	Bedrock	Bedrock	Bedrock	Gravel	Gravel	Gravel	Gravel	Gravel
Existing Risk of Contamination based on Well Type and Site Geology	Moderate	Moderate	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Moderate
Existing Risk of Acute Contamination	Low	Low	Low	Low	Low	Moderate	Low	Low	Low
Future Risk of Acute Contamination	High	Low	Low	High	Low	High	Low	High	High
Existing Risk of Chronic Contamination	Moderate	Moderate	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Moderate
Future Risk of Chronic Contamination	High	High	High	High	High	High	High	High	High

Source: Maine Drinking Water Program

Figure I-4: Water Wells



Figure I-5: Public Wells



7. Point Source Pollution

As discussed above, and as shown on the map in I2 (and on the Public Facilities and Infrastructure map in Chapter E), there are two wastewater outfalls in Castine, both of which discharge into the Bagaduce River. There also is an overboard discharge (OBD) near Dice Head on a residential property with a license for 300 gallons per day of secondary treated sanitary wastewater from a four-bedroom, single-family dwelling on a

seasonal basis. This is the last of what formerly had been five such OBDs in Castine, and DEP will continue to be making efforts over time to get the owners to replace the OBD with a septic system.

The Town's primary wastewater outfall is a discharge pipe from the wastewater treatment plant into the Bagaduce River. According to the Town's 2009-2010 Annual Report, while the effluent from the plant is in full compliance with state and federal laws, the discharge pipe is not. At present the outfall ends on the beach at the low water mark, which is a violation of both separation from human activity and minimum dilution standards. This deficiency is addressed in the Town's Master Infrastructure Improvement Plan. The Town has been implementing various phases of the Infrastructure Plan over the past several years and is continuing to make progress in meeting its infrastructure improvement objectives, including those associated with its wastewater collection and treatment systems.

8. Nonpoint Sources of Pollution

As discussed in the Impaired Marine Waters section above, as well as in the Marine Resources chapter, the water quality of the waters around Castine is such that some areas are approved for shellfish harvesting or other designated uses, some are conditionally approved, some are restricted, and some are prohibited. One area, Wadsworth Cove, is restricted for shellfish harvesting based on bacteria only and requires a TMDL (Total Maximum Daily Load).

While a substantial portion of the pollution in the waters off Castine comes from further up the Bagaduce River, Castine for its part has been working to reduce the use of fertilizers and pesticides in its extensive source water protection areas. It also had done studies in conjunction with the DEP to better understand the causes for some of the marine water impairments. Additional studies of this sort are needed to further reduce the town's nonpoint sources of pollution.

9. Protection of Groundwater, Surface Water, and Recharge Areas

As discussed above, Castine's public water wells are located in built-up areas and face threats of both acute and chronic contamination. In order to protect the wells and their recharge areas, the Town added to the State's Drinking Water Program's regulations with a more restrictive Source Water Protection Ordinance of its own. It also has worked to increase the stored water capacity of its system as a hedge against drought.

Relative to the protection of surface waters, Castine has a number of ordinances that set standards and requirements for building and development, and it has a Shoreland Ordinance that is in compliance with State shoreland zoning requirements. This includes Resource Protection Overlay Zones that prevent most development around several water bodies.

10. Best Management Practices

Castine's public works crews and contractors use best management practices to protect water resources in their daily operations. This includes:

- Protecting salt and sand storage from the weather in order to limit stormwater contamination.
- Cleaning culverts and replacing a number of them as part of the Master Infrastructure Improvement Plan.

- Conducting street sweeping annually the first week of May.
- Maintaining clean operations at the Town's Transfer Facility.

11. Opportunities to Promote Water Resource Protection

As discussed in the Natural Resources chapter, Castine is part of the Bagaduce River Focus Area. The other communities in this Beginning with Habitat program are Penobscot, Sedgwick, and Brooksville. Given both the high ecological value of the Bagaduce River estuary and the documented nonpoint source contamination that is affecting it, it appears that it would be feasible for Castine to work with the other towns in the Focus Area to obtain a grant to study how to better protect Bagaduce River water quality.

12. Goals & Objectives

GOAL: To protect Castine’s water resources and plan for future needs.			
Objective	Strategy	Timeframe	Suggested Responsibility
Protect significant water resources from pollution and improve water quality where needed.	This is a continuation of current policy as reflected in the source water protection ordinance.	Ongoing	Planning Board, Utility Board
	Provide educational materials at appropriate locations regarding invasive aquatic species.	Ongoing	Select Board, Implementation Committee
	Participate in local and regional efforts to monitor, protect, and improve water quality.	Ongoing	Select Board, Implementation
	Encourage landowners to protect water quality. Provide local contact information at the municipal office for water quality best management practices.	2024	Select Board, Town Manager
Improve Source Water Protection Ordinance.	Update ordinances to reflect things learned in the last 10 years through the ordinance review process. Define and implement Zone IIA to protect the Spring Street (sand aquifer) wells.	2024	Utility Board, Town Manager, Planning Board
	Update source water protection zones to reflect facilities no longer in use (Round House, etc).	2024	Utility Board, Town Manager, Planning Board
	Maintain aquifer and wellhead recharge protection mechanisms.	Ongoing	Utility Board, Town Manager, Planning Board
Reduce non-point source pollution and manage stormwater runoff.	Continue to ensure local ordinances are consistent with State law.	2024 and Ongoing	Planning Board Town Manager
Protect public water systems.	Continue to require that subdivision and site plan review applicants identify any public water supply source water protection area in their submission materials to the Planning Board and to notify the operators of these systems of their plans for the property.	Ongoing	Planning Board Town Manager
	Continue to protect water resources in growth areas while promoting, as possible, more intensive development in those areas.	Ongoing	Planning Board Town Manager

	Continue to monitor saltwater intrusion and sea level projections.	Ongoing	Castine Water Department
Improve public sewer and water systems infrastructure.	Minimize pollution discharges through the upgrade of existing public sewer systems and wastewater treatment facilities.	Ongoing.	Utility Board Town Manager
Ensure cyber security	Include Water and Sewer Systems in the Town’s IT Security Improvement Programs	Ongoing	Town Manager

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Chapter J: Natural Resources

1. Purpose

This chapter provides analyses and a detailed overview of the town's vital natural resources, and addresses issues related to wildlife, fish habitats, and other important ecological systems. Development on or near these vital resources could imbalance the natural systems and negatively affect many quality-of-life issues such as: clean drinking water, protection from flooding, and clean air. Specifically, this chapter will:

- A. Describe Castine's critical natural and scenic resources.
- B. Assess the effectiveness of existing efforts to protect and preserve these resources.
- C. Predict future impacts to these resources by growth and development.

2. Key Findings & Issues

Castine has a wealth of natural resources and has taken significant steps to protect them through regulatory means, such as its Shoreland Zoning Resource Protection Overlay Districts and the Water Service Protection Ordinance, as well as through the voluntary conservation efforts of its landowners as assisted by the Blue Hill Heritage Trust and the Maine Coast Heritage Trust. There is no endangered or threatened animal species in Castine, but a species of special concern, per the Maine Natural Areas Program, the Eastern Ribbon Snake, is found across the bay in Searsport. In terms of plant habitat, the Mountain-laurel, also a species of special concern, does grow in Castine in the Dice Head area. In the future, Castine's ongoing conservation efforts may include looking at ways to prevent further fragmentation of its large habitat blocks.

3. Key Findings & Issues from Previous Plans

Castine has a diversity of natural resources, particularly along its shore and on its islands. These include ecologically valuable waterfowl and wading bird areas and three officially identified bald eagle nesting sites. The Town also hosts many bird and marine species whose populations are in decline nationally.

Since 1995, several steps toward protecting the Town's natural and scenic resources have been taken. The Town has instituted several land use ordinance measures that minimize the impact of development on environmentally sensitive land. In addition, land protected by direct ownership or easement by conservation land trusts has increased by 82.9% since 1995 providing public access to these treasured natural and scenic resources. Because of these existing efforts to protect and preserve Castine's natural and scenic resources, further protection and conservation measures are not nearly as great a concern now as they were in 1995.

4. Public Opinion Survey Results

When surveyed about the importance of protecting various natural resources in Castine, respondents largely favored protection across all categories. Approval rates ranged from 90% for wetlands to 96% for streams and rivers.

5. Summary of Habitats and Critical Natural Resources

Castine's major natural resources are discussed below. The natural resources topic overlaps with other chapters in this comprehensive plan. For additional information, see also the chapters on Marine Resources, Water Resources, and Agriculture & Forest Resources.

Figure J-1: Castine Constraints



5.1. Topography

Slope is the level of rise or fall in feet for a given horizontal distance expressed as a percentage. For example, a 10% slope means that for every 100 feet in distance, the rise or fall in height is ten feet.

Elevations range from sea level to 220 feet just west of Fort George. While steep slopes are common On-Neck, the majority of land Off-Neck is relatively level, with a slope of only zero to eight percent. Slopes of 8% to 15% are seen on the southern end of the peninsula. Slopes of 15% to 25% are common on the northern side of the peninsula and along much of the coastline of the Bagaduce River and Hatch Cove. Slopes greater than 25% are located primarily on the western side of the peninsula.

In general, slopes of 0% to 8% are rated good to fair for development while those between 8% and 15% are fair for these uses and those greater than 15% are rated poor for development. Areas with steep slopes are more difficult to develop. Construction in such areas may cause erosion. Water supply problems can be more prevalent and emergency vehicle access on steep driveways and roads is difficult. Figure J - 1 identifies elevation and other natural development constraints.

5.2. Surficial Geology

The last Ice Age left surficial deposits, the parent material of soils, on the area's bedrock. There are five distinct surficial deposits along this part of the Maine coast: till, ice contact deposits, alluvial deposits, organic accumulations, and marine sediment. Till deposits, composed of boulders, sand, silt and clay are the dominant cover material found in Castine.

The deposits in swamps, bogs and salt marshes are a mixture of decayed organic matter and silt. Such areas, unsuitable for agriculture, often serve as important wildlife habitats. Marine sediment is composed of sand, silt and clay. Marine sediment, super-imposed on the bedrock and glacial deposits, can be found throughout the region in areas less than 300 feet above sea level. Characteristically, these areas are poorly drained.

5.3. Bedrock Geology

The bedrock underlying most of Castine consists of metamorphosed volcanic rock, with the exception of several small areas of metamorphosed sedimentary rocks located in the southern portion of Town. Castine is one of the few places in New England that has proven reserves of copper ore. The reserves have been estimated to be between 50 to 1,000 tons and occur in the form of massive sulfides such as pyrite and chalcopyrite. Glaciers sculpted the bedrock into irregular knobs and depressions and in many areas the bedrock is exposed at the surface.

5.4. Land Cover

There are six major cover types in Castine: softwoods, hardwoods, mixed woods, agricultural lands, old fields and scrub areas.

A softwood forest is defined as forested lands with softwoods comprising 75 percent of the overstory. They include pines, cedars, spruce, and firs. Witherle Woods, the largest undeveloped softwood area of Town where red spruce predominated, was hit by a microburst in 2007. Close to 130 acres of Witherle Woods received some level of forestry work following the destruction of the 2007 microburst. The other softwood areas are the eastern and southern portions of the center of the Square and Wilson Point on the Penobscot River.

A hardwood forest is defined as forested land with hardwoods comprising 75 percent of the overstory. Hardwood include oak, maple, hickory, elm, ash, and beech. There are some hardwoods in Witherle Woods. The area along the Bagaduce River and Hatch Cove consists of hardwoods, agricultural land, and old fields.

A mixed wood forest is defined as forested lands with neither hardwoods nor softwoods comprising over 75 percent of the overstory. Small areas of mixed wood forests can be found on the peninsula. Within the northern and western portions of the Square there is mixed wood forest. The banks of the Penobscot River consist of equal portions of softwoods and hardwoods.

Old fields are agricultural land that has reverted to natural vegetation. They are scattered over much of the area north of the British Canal.

5.5. Wetlands

Wetlands are one of the most critical natural resources. They often serve as aquifer recharge areas, allowing underground water supplies to be recharged. They also are critical wildlife and bird habitats. Wetlands are an important part of nature's drainage system since they hold stormwater. Areas that have experienced extensive filling of wetlands often face increased flooding problems. Wetlands are also important as breeding areas for waterfowl and habitat for other wildlife.

Various kinds of wetlands are shown on the Wetlands Characterization map (Figure J - 8). As can be seen from the map, the largest wetland (129 acres) in Castine is: in the central portion of the off-neck area, is in the Forested or Forested/Shrub-scrub category and is drained by Bog Brook. It is important for finfish habitat, plant and animal habitat, and for runoff and erosion control. In addition, the Castine Constraints map (Figure J - 1) shows that large sections of Castine contain hydric soils. While not all hydric soils are wetlands, their presence does indicate that a large portion of the town's land area is wetlands.

5.6. Wildlife Habitats Generally

The term habitat refers to the resources in an area that support the survival and reproduction of a species. These include physical factors like soil, moisture, and temperature range as well as the availability of food and the absence of predators. Every species has particular habitat requirements; some are able to thrive in a wide variety of environmental conditions while others require a limited set of specific factors to survive. Terrestrial habitat types include, among others, forests and grasslands; freshwater habitat types include, for example, wetlands, streams, and ponds; and marine habitat types include salt marshes, shoreland areas, and the open sea.

Wildlife inhabits most areas of Castine, including the Village. The kinds of wildlife supported include:

1. **Big Game.** White tail deer are common in Castine. According to the Beginning with Habitat Program established by the Maine Department of Inland Fisheries and Wildlife (MDIFW), there is a deer wintering area on Bog Brook (see Figure J - 4). Black bears and moose have been spotted throughout the Town.
2. **Small Game.** Small game species found in Castine include ruffed grouse, pheasant, snowshoe hare, red and gray squirrel, fisher, red fox, bobcat, lynx, and various species of rabbit. Silver foxes were once raised commercially in Castine and an occasional one has been seen running wild.
3. **Furbearers.** Dune's Meadow serves as prime habitat for beavers. The Square's swampy interior provides habitats for beaver, muskrat, otter, raccoon, and mink.
4. **Migrating Game Birds.** Woodcock and jacksnipe are fairly common. Areas of the Bagaduce River are important way stops for migrating game birds.
5. **Waterfowl.** The dabbling ducks in the area include black ducks, wood ducks and green and blue winged teals. The diving ducks include ring-necked ducks, greater scaups, golden eyes, and buffleheads. Common eiders, white winged scoters, old squaws, surf scoters, and common scoters are also found. Common loons fish both the Bagaduce and Penobscot Rivers.

6. Large segments of the Castine coastline, including Wadsworth Cove and Hatch Cove, are coastal waterfowl and wading bird habitats. These are important breeding, wading and staging areas. As such, they are subject to State regulation under the Natural Resources Protection Act (NRPA). This act sets standards to protect key natural features such as certain wildlife habitats, wetlands, and other water bodies from adverse impacts of development. In addition, a large population of black ducks and numbers of migrating waterfowl find refuge in the Bagaduce and Penobscot Rivers.
7. MDIFW rates the marsh in the center of the square as a high value waterfowl and wading bird habitat. This designation includes nesting and feeding areas. This habitat is not threatened by development because the Town has protected it in the Shoreland Zoning Ordinance with Resource Protection Overlay Districts.
8. Non-Game Birds. Most of the small birds common to Maine can be found in Castine. The larger sea birds, gulls, cormorants, and great blue heron are present, as are many smaller sea and littoral birds such as terns, guillemots, and yellow legs. Various owls, including the Bat-red Owl and the Great Horned Owl, have been seen in the Town.
9. Non-Game Mammals. Woodchuck, weasel, porcupine, and skunk are firmly established throughout Castine. MDIFW has identified seal haul-out sites on Holbrook and Ram Islands and along the Bagaduce River. Coyotes have become more common and are seen fairly often Off-Neck.

5.6.1. Important Wildlife Habitat - Rare and Endangered Wildlife

MDIFW is charged with carrying out the mission of the Maine Endangered Species Act of 1975 to conserve all wildlife populations and ecosystems. “Endangered species” are a species of fish or wildlife that has been determined to be in danger of extinction throughout all or a significant portion of its range. “Threatened species” are a species of fish or wildlife that has been determined as likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

There are no rare, threatened, or endangered species in Castine, according to the Beginning with Habitat data. However, there is Eastern Ribbon Snake habitat in neighboring Searsport. Ribbon snakes are small, thin, and semi-aquatic with longitudinally striped bodies that roost in shoreside shrubs. The Eastern Ribbon Snake is a “species of special concern” per the Maine Natural Areas Program. This means that they do not meet the criteria of an endangered or threatened species but are particularly vulnerable, and could easily become an endangered, threatened, or extirpated species due to restricted distribution, low or declining numbers, specialized habitat needs or limits, or other factors. Special concern species are established by policy, not by regulation, and are used for planning and informational purposes; they do not have the legal weight of endangered and threatened species.

Bald eagles and ospreys are often seen in Castine. According to previous Beginning with Habitat data, there are three bald eagle nesting areas in Town; two of these are on Ram Island and one is on Holbrook Island. Eagle nests are particularly sensitive to disruption during the nesting season, which lasts from the beginning of February through August. Bald eagles were removed from the Maine Endangered Species list in 2009 but remain a species of special concern.

It should be noted that Castine's 2010 Comprehensive Plan contained a list of species under the heading of "Priority Trust Species." This was a U.S. Fish & Wildlife system that appears to have been replaced by the current endangered and threatened categorization methods. It does not appear in the current Beginning with Habitat data.

5.7. Fisheries Habitats

The smaller examples of marine life are found along the shores of the Penobscot River, the Bagaduce River, Smith Cove, Hatch Cove, and the Wadsworth Cove-British Canal area. Larger fish, crustaceans, and mammals thrive in Castine's deeper waters.

5.8. Plant Habitats Generally

Castine's major plant habitats are:

1. On-Neck. Over 300 American elm trees, some of which are over two hundred years old, grace the streets of Castine. However, in recent years, approximately 15 percent of them have been lost, either to the microburst of 2007 or to Dutch elm disease.
2. The Islands. Ram Island consists of two islands connected by a sand bar with typical island plants. Holbrook Island, owned and maintained by the State as a park, is a magnificent island that was once a private farmstead. It has open fields and wooded areas with a mixture of many domestic and native plants.
3. Wadsworth Cove-British Canal. This whole area, including roadsides, supports many wildflowers.
4. Hatch Cove. The cove is a superb example of a salt-water wetland. Abundant edible beach plants grow here as well as typical grasses and sedges.
5. Witherle Woods. Witherle Woods is the common name for a large part of the forested headland and shoreline stretching around the northwest end of the peninsula from Dyce's Head Lighthouse to Wadsworth Cove.
6. Center of the Square. The swamp and wetlands at the center of the Square are habitats for unique plants adapted to the soil conditions of such places and are some of Castine's least spoiled natural areas. Most of this area is protected by resource protection zones.

5.9. Important Plant Habitat

The Maine Natural Areas Program (MNAP) maintains a list of native plant species in Maine that are highly vulnerable to loss, including species determined to be endangered, threatened, and of special concern. Species on this list are found in a very small number of sites in the state and may require unique habitat for survival. The one plant species of concern in Castine is the Mountain-laurel (*kalmia latifolia*) whose habitat location is shown in Figure J - 4. The mountain-laurel favors rocky or gravelly woods and clearings, or sometimes swamps. It is a moderate-sized, branched shrub with evergreen leaves. It is a species of special concern, which, as discussed above for the eastern ribbon snake, means that it does not meet the criteria of an endangered or threatened

species but is particularly vulnerable, and could easily become, an endangered, threatened, or extirpated species due to restricted distribution, low or declining numbers, specialized habitat needs or limits, or other factors.

5.10. Natural Communities

The Maine Natural Areas Program (MNAP) has classified 104 different natural community types that collectively cover Maine's landscape. These include habitats like floodplain forests, coastal bogs, and alpine summits, among many others. MNAP has ranked each type according to its rarity on a scale of 1 (rare) through 5 (common). There are no MNAP Natural Communities located in Castine according to Beginning with Habitat (BwH) map data, but other BwH information provided for this plan included fact sheets on Dune Grassland (sand dunes with beach grass and/or other vegetation), Salt-hay Saltmarsh (tidal marshes with expanses of saltmeadow cordgrass, smooth cordgrass, and/or black-grass), and Spruce-Pine Woodland (mixed canopy woodland in which red spruce and/or white pine is always present). Holbrook Island is mentioned as having Spruce-Pine Woodland.

5.11. Focus Areas

Similar to, but perhaps a bit broader than, MNAP's natural community list, the Beginning with Habitat program (see below) maintains a list of natural areas that are of statewide ecological significance that contain unusually rich concentrations of at-risk species and habitats. These areas support: rare plants, animals, and natural communities; high quality common natural communities; significant wildlife habitats; and their interactions with large blocks of undeveloped habitat.

Figure J-2: Bagaduce River Focus Area



Source: *Beginning with Habitat Focus Areas of Statewide Significance*

As seen in Figure J – 2 above, Castine is part of the Bagaduce River Focus Area. According to the Beginning with Habitat fact sheet, this area is significant because:

The Bagaduce River is one of only a few places in Maine where horseshoe crabs are known to breed. And although the river is only about 12 miles long, it is one of the most productive estuaries in Maine

because of its narrow constriction and broad coves. The tidal fluctuations within its protected waterways provide excellent conditions for a productive shellfishery. The intertidal flats beyond the Narrows include more than 1000 acres of habitat for soft-shell clams, marine worms, and other invertebrates. Waterfowl and wading birds flock here for the more than 2700 acres of available habitat, critical for feeding, breeding, and resting during migration.

The purpose of the mapping of a BwH Focus Area is to help build regional awareness and draw attention to the exceptional natural landscape conditions that result in a convergence of multiple resource occurrences. It is hoped that this will lead to local, regional, private, and non-profit conservation initiatives.

6. Beginning with Habitat

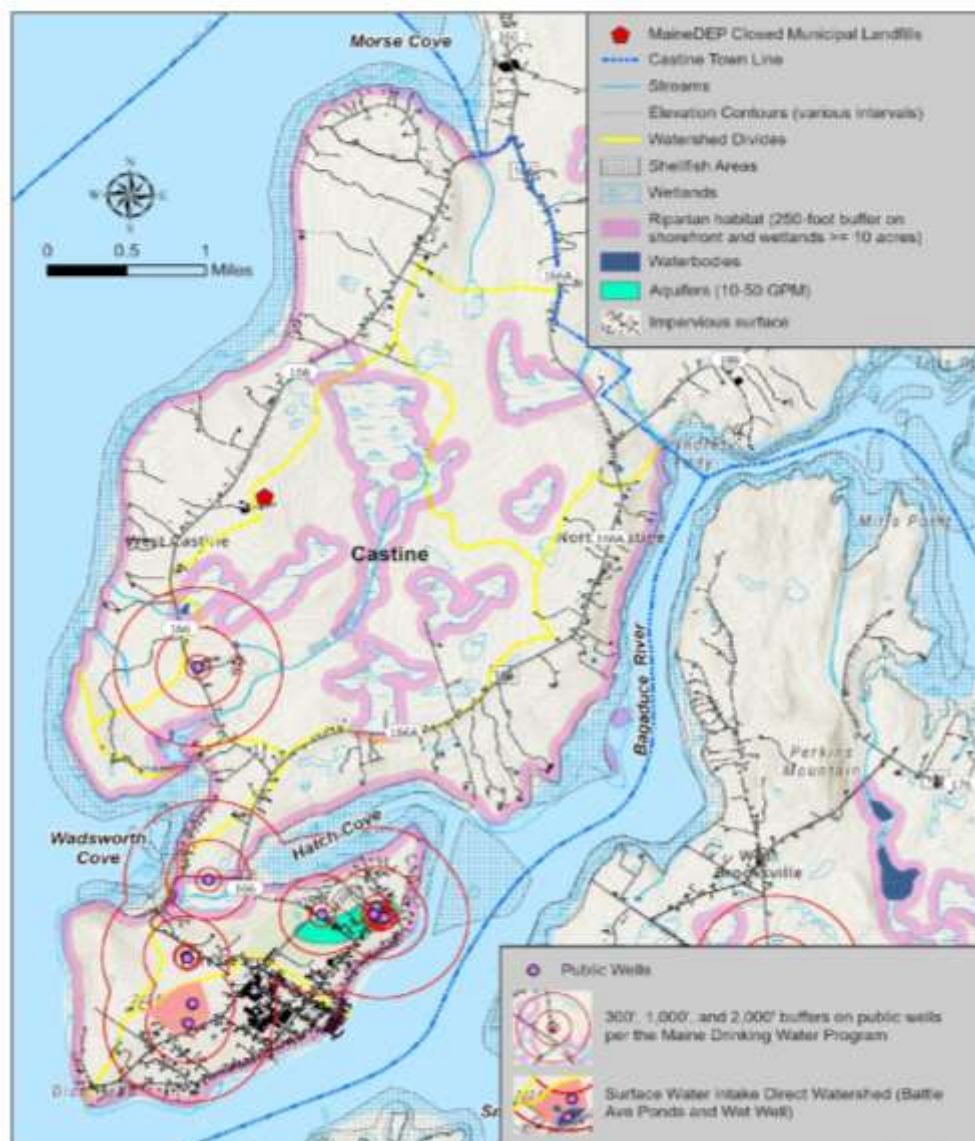
6.1. About the Beginning with Habitat Program

The maps in this chapter were created using data from Maine's Beginning with Habitat program (BwH). This program brings together public agencies and private conservation organizations to consolidate information on wildlife and habitat from all over the state. It also develops tools for communities to incorporate conservation into land use planning. Habitat partners include Maine Audubon, Maine Coast Heritage Trust, The Nature Conservancy in Maine, Maine Department of Agriculture, Conservation and Forestry, Maine Department of Inland Fisheries and Wildlife, Maine Department of Transportation, Small Woodland Owners Association of Maine, and the U.S. Fish and Wildlife Service.

6.2. Water Resources and Riparian Habitats

The Water Resources and Riparian Habitats map (Figure J - 3) depicts surface water features and associated shoreline habitats, drainage areas, wells that supply drinking water, vernal pools (none mapped in Castine), and commercially important coastal shellfish beds. Castine was not shown to have significant waters that continue to support native eastern brook trout. What does stand out are the public drinking wells and a 10-50 gallon per minute aquifer that are in fairly close proximity to developed areas. In addition to taking steps to improve water security during drought, as noted in the Public Facilities and Infrastructure chapter, Castine has adopted a Water Service Protection Ordinance and needs to continue to be very aware of preserving the water quality of its public wells.

Figure J-3: Water Resources and Riparian Habitats

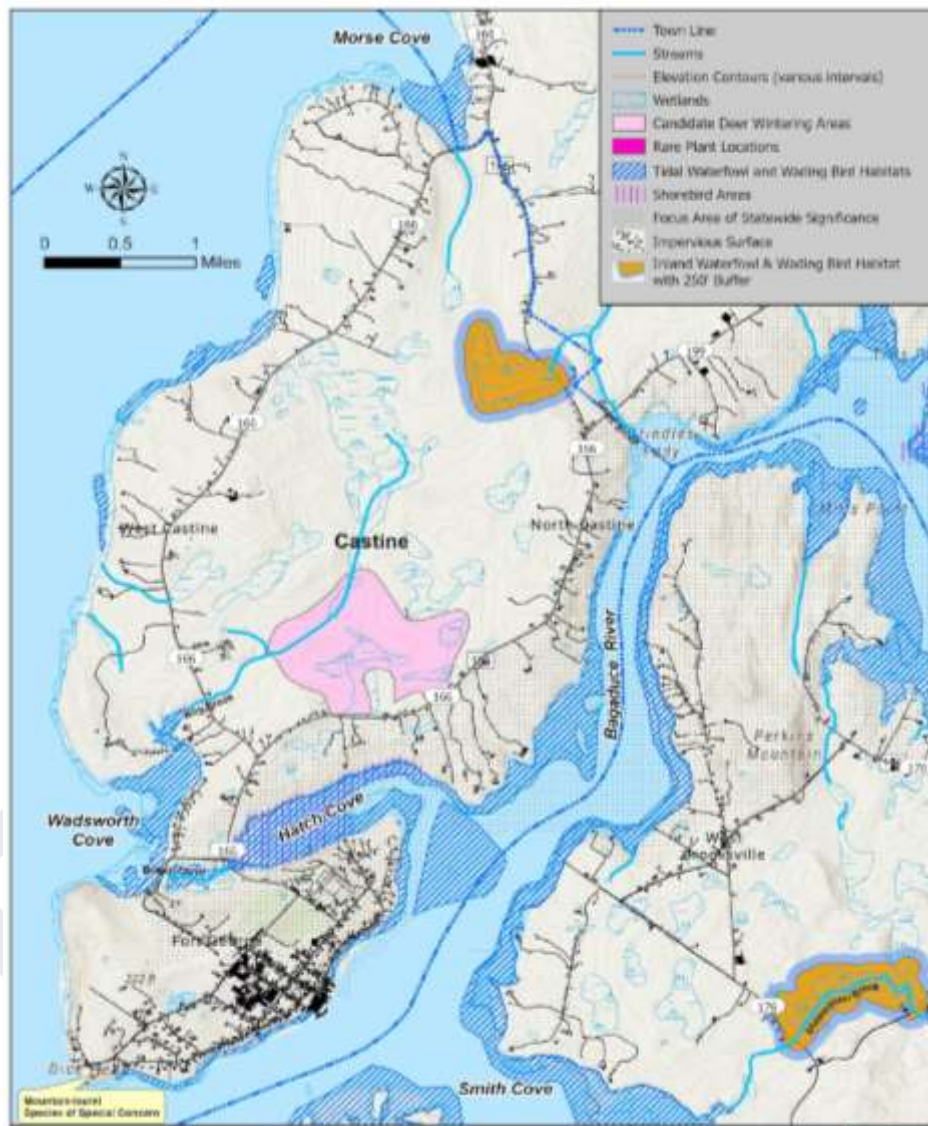


6.3. High Value Plant and Animal Habitats

The High Value Plant and Animal Habitats map (Figure J - 4) includes known locations of rare species and habitats as provided by Maine’s principal natural resource agencies. These features include rare, threatened, endangered, or declining plant and animal species, significant habitats, and rare and exemplary natural communities.

As discussed above, the Eastern Ribbon Snake habitat in neighboring Searsport is a “species of special concern” per the Maine Natural Areas Program, and the one plant species of special concern in Castine is the Mountain-laurel (*kalmia latifolia*). Castine is shown to have a relatively large size deer wintering area and a significant wildlife habitat for inland waterfowl and wading birds.

Figure J-4: High Value Plant and Animal Habitats



6.4. Undeveloped Habitat Blocks and Connections

The Undeveloped Habitat Blocks & Connections and Conservation Areas map (Figure J - 5) highlights large areas of undeveloped land and marks probable habitat connections. In addition, the boundaries of protected lands are shown. The importance of the map is that it shows the best opportunities to conserve a broad network of intact habitats. Total size is listed for any intact blocks greater than one hundred acres in size.

Castine is fortunate to still have several large tracts of undeveloped land. If development pressure increases and/or if state and federal environmental regulations weaken, the Town may want to consider additional efforts—regulatory, appeals for voluntary conservation, etc.—to try to preserve large undeveloped holdings. For example, requiring subdivisions to cluster homes on smaller lots so as to leave undeveloped open space is one method that can reduce the fragmentation of habitat blocks.

Figure J-5: Undeveloped Habitat Blocks & Connectors and Conserved Lands



6.5. Stream Barriers

Streams are important habitats for fish, birds, insects, reptiles, mammals, and amphibians, but in some cases, where a road crosses a stream, the bridge or culvert is incorrectly sized, placed, or damaged and does not enable wildlife to freely pass under them. Examples of such barriers are shown in Figure J - 6 below.

Figure J-6: Stream Barrier Examples



Source: Maine Stream Crossings

The Fish Passage Barriers map in Figure J - 6 indicates that there is one stream barrier in Castine. It is:

Site #	Crossing Type	Crossing Class	Survey Date	Stream	Road
50565	Culvert	Barrier	10/15/2014	British Canal	Rt. 166

Figure J-7: Fish Passage Barriers



6.6. Wetlands Characterization

The Wetlands Characterization map (Figure J - 8) depicts wetlands that have been evaluated and prioritized based on six different ecological functions:

1. Runoff/flood-flow alteration
2. Erosion control/sediment retention

3. Finfish habitat
4. Shellfish habitat
5. Plant and animal habitat
6. Other/cultural/educational uses

Each wetland on the map is coded by the specific ecological function that it provides. This information can help identify wetlands in need of conservation or greater local protection.

Figure J-8: Wetland Characterization



6.7. Co-Occurrence

The last of the maps with data from Beginning with Habitat, Figure J - 9, represents the concentration of selected environmental asset data layers overlaid on the landscape. Its purpose is to highlight a given area's relative conservation values as an aid in planning. It offers a generalized and subjective view and should be considered as a starting point for discussion. The layers on this map include buffer zones around water features,

important natural communities, listed plant and animal species, and areas of undeveloped land. Some of the layers were weighted by the environmental agencies participating in Beginning with Habitat based on rarity, size, or other qualitative features. The- darker green the area, the higher its score as a valuable natural resource area.

Figure J-9: Co-Occurrence



7. Scenic Resources

Protected scenic resources include Dyce’s Head Lighthouse, Keeper’s House, and the surrounding Town acreage. There also are many scenic views from the water.

In 2010, a scenic inventory in Hancock and Washington counties was conducted by the Hancock County Planning Commission and Washington County Council of Governments. Sites identified in Castine include Battle Island, Castine Village, Wadsworth Cove, and Hatch Cove.

8. Assessment of Threats to Castine’s Critical Natural Resources

Castine has taken a number of steps to protect its natural resources. It has adopted Shoreland Zoning to protect its coastal waterfront and several of its streams and wetlands. This includes a number of Resource Protection Overlay Districts that protect the most fragile areas from development.

A significant amount of land in Castine is protected in fee or by easement by land trusts. The amount of conserved land has grown from approximately 134.5 acres in 1995 to 732.6 acres in 2022—a 445% increase. In addition to conserving natural resources, many of these lands also provide valuable public access opportunities.

Future conservation efforts may want to include research to see if there are other voluntary and regulatory tools that could help in keeping the community’s larger habitat blocks from becoming fragmented and would otherwise protect its significant scenic and natural resources.

Table J-1: Summary of Conservation Land 1995 – 2022

Project	Parcel Name	Interest	Acquisition Year	Acreage		
				1995	2009	2022
Land Protected by the Blue Hill Heritage Trust						
Dune's Meadow		Fee	2014	0.0	31.6	31.3
Greenbie		Easement	1993	43.0	68.0	71.7
Hatch Cove Preserve		Fee	2014	0.0	31.2	32.0
Meadow Farm	Wiswall	Easement	1989	14.5	14.5	16.4
Schumaker	Neck Hill	Fee	2014	7.0	7.0	4.9
<i>Subtotal</i>						156.3
Land Protected by the Maine Coast Heritage Trust						
Bagaduce River	Wilson	Easement	2017	0.0	0.0	3.7
Battle Avenue Field, Castine Field, and Tarratine St.	Battle Avenue Field	Fee	2007	4.5	4.5	4.4
Brownell	Brownell	Easement	2008	0.0	10.2	11.4
Castine Golf Course	Castine Golf Course	Easement	1996	0.0	71.0	73.2
Hatch Family Forest		Easement	2015	0.0	0.0	56.5
Lower Negro Island		Fee	2014	0.0	2.2	3.9
Mayo Point		Easement		6.7	6.7	6.8
Ram Island		Fee	2014	5.0	5.0	7.2
Rene Henderson Nat Area		Fee	2014	90.0	90.0	110.0
Starr and Virginia Lampson Preserve	Lampson Preserve	Fee	1998	0.0	21.0	22.3
Turner Point	Turner Point	Easement	2014	*	*	32.6
Turner Point Shores		Easement	2015	*	*	14.9
Wadsworth Cove	Wadsworth Cove	Fee	ND	ND	ND	0.1
Witherle Woods	Dices's Head Natural Area, Frederick Foote Natural Area, Perkins Lot, and Hatch Natural Area	Fee	2006	134.5	182.8	229.4
<i>Subtotal</i>						576.3
Total Protected Acres						732.6

* The 2010 plan contained: Turner Point (Turner Point Trust) 55 acres and Turner Point (Rutine Trust) 30 acres.

Source: Castine 2010 Comprehensive Plan and Maine Office of GIS

9. Measures to Protect Critical and Important Natural Resources

Castine updated its Zoning Ordinance in 2020 and its Shoreland Zoning Ordinance in 2013. The Shoreland Zoning Ordinance is consistent with all state requirements. It has Site Plan Review (as part of the Zoning Ordinance), a Floodplain Ordinance, an Historic Preservation Ordinance, Subdivision Ordinance, and Water Service Protection Ordinance. Accompanied by state and federal regulations, the Town thus has a more or less complete regulatory framework for protecting its critical and important natural resources.

Combined with the significant progress in voluntary land conservation assisted by the area's land trusts, Castine's measures for natural resource protection appear to be on a good trajectory.

10. Regional Cooperation to Protect Shared Critical Natural Resources

As a peninsula, Castine only adjoins Penobscot on the land. Castine may want to solicit comments from Penobscot if there were a major subdivision or other land development activity adjacent to the town line that could affect a rare natural resource. Similarly, the Planning Board could ask for an opportunity to comment on large-scale development proposals in either adjoining town. This would allow an opportunity for a more thorough assessment of potentially adverse impacts on natural resources.

In addition, there is an opportunity to work with the other communities along the Bagaduce River and with the Hancock County Planning Commission in protecting the important habitat areas in the Bagaduce River Focus Area as described above.

11. Goals & Objectives

Goal: Protect and preserve Castine’s natural resources and address threats from Climate Change.			
Objective	Strategy	Timeframe	Responsible Party
Protect Off-Neck natural wildlife habitat.	Continuation of Current Policy	Ongoing	Select Board, Planning Board, Town Manager
Protect fragile areas of the Castine shoreline.	Continuation of Current Policy	Ongoing	Select Board, Planning Board, Town Manager
	Ensure that land use ordinances comply with state law.	Ongoing	Planning Board
Protect critical habitat from development.	Continuation of Current Policy through Land Use Ordinances that include the identification of key natural features and proposed mitigations during the permit process.	Ongoing	Planning Board
	Pursue public/private partnerships to protect critical and natural habitat through purchase of land or easements from willing sellers.	Ongoing	Planning Board
	Integrate Maine Beginning with Habitat Program information maps as a part of the Planning Board review process	Ongoing	Planning Board
Make information available about applicable State and Federal regulations	Post in Town Hall and on Town Website	Ongoing	Select Board
Collaborate regionally to protect natural resources.	Participate with neighboring towns and regional efforts regarding shared natural resources	Ongoing	Select Board
Educate landowners about critical natural resources.	Distribute or make available information to those living near critical or important natural resources about current use tax programs and applicable local, state, or federal regulations.	2024 and Ongoing	Planning Board, Select Board, Town Manager

Chapter K: Agriculture and Forestry

1. Purpose

This section presents an analysis overview of Castine's Agricultural and Forest Resources, particularly land available for natural resource utilization and ecosystem services (the various benefits to humans from the natural environment, such as drinkable water, productive soils and farmlands, timber lands, etc.). Specifically, this section will:

- A. Describe the extent of Castine's farming and forest land;
- B. Predict potential future threats to viability by growth and development;
- C. Assess the effectiveness of current protective measures to preserve important available lands for farming and forestry production.

2. Key Findings & Issues

In 2018, only 3% of the total land area of Castine was enrolled in the Farmland Protection preferential property tax program or was being commercially harvested. As such, farming and forestry continue to play a small part in Castine's economy. However, the community supports agriculture through its support of the local farm off neck, Blue Angel food security program, and Castine continues to strive to preserve its exceptional collection of elm trees. The development of Tilt and Timber's productive 8-acre CSA farm has been a welcomed addition to the town. More funds will be needed for this fight as at present only 75 of the town's 300 elm trees are able to be included in the Tree Committee's fungicide program.

Castine has only a limited amount of acreage held under the State's Farm and Open Space Act. The Town does have more acreage protected under the Tree Growth Taxation Act, which allows owners of forested parcels meeting certain conditions to have their property assessed as forest land rather than for its potential development value.

Although there are no direct measures in the Castine land use ordinances that protect farm and forest land, given the rate of projected development and the significant amount of land protected by direct ownership or easement by conservation land trusts, there is no immediate threat to farm and forest land in Castine, however, the post-pandemic residential development has begun to encroach on lands that were previously forested or reside on agriculturally important soils.

3. Key Findings & Issues from Previous Plans

Ensuring preservation of elm trees is important to maintaining the overall rural character of Castine. These trees have proven vulnerable to damage from storms, disease, and lack of proper pruning. Sources of funding for the care of the Town's over 300 elm trees need to be secured. There is very limited commercial forest activity in Town. There were only 237 acres reported harvested in the most recent ten-year period. Farming is even more limited; 136 acres were held under the farmland taxation program in 2008.

4. Public Opinion Survey Results

The public of Castine seems highly interested in seeing further agricultural and forestry developments in the future, with 72% of respondents replying in this vein. The responses regarding the placement of new agricultural development ranged, showing that support did not depend on precise placement. In regard to protecting existing forested lands, 95% of respondents voted that they agreed it was important to protect these spaces. This is the great challenge facing Castine.

There were equal or greater proponents among the town's voters that would hope to see other forms of development. Items like housing growth and economic development (which showed the highest levels of support) only serve to threaten the opportunities for local forestry or agricultural businesses. Lands that would otherwise be developed to support single family homes or that show potential for off-neck economic development may also be home to important and productive soils.

5. Conditions and Trends

5.1. Agricultural Resources

Castine has approximately 650 acres of prime agricultural soils and 1,070 acres of farmland soils of statewide importance. Prime agricultural soils are soils that have the potential to have the highest agricultural yields, even if they are not necessarily farmed. Much of the previously farmed land is now developed. The soils of statewide importance category refer to soils that have a more modest potential yield. Agricultural soils account for about 34% of the Town's total land area of 4,998 acres.

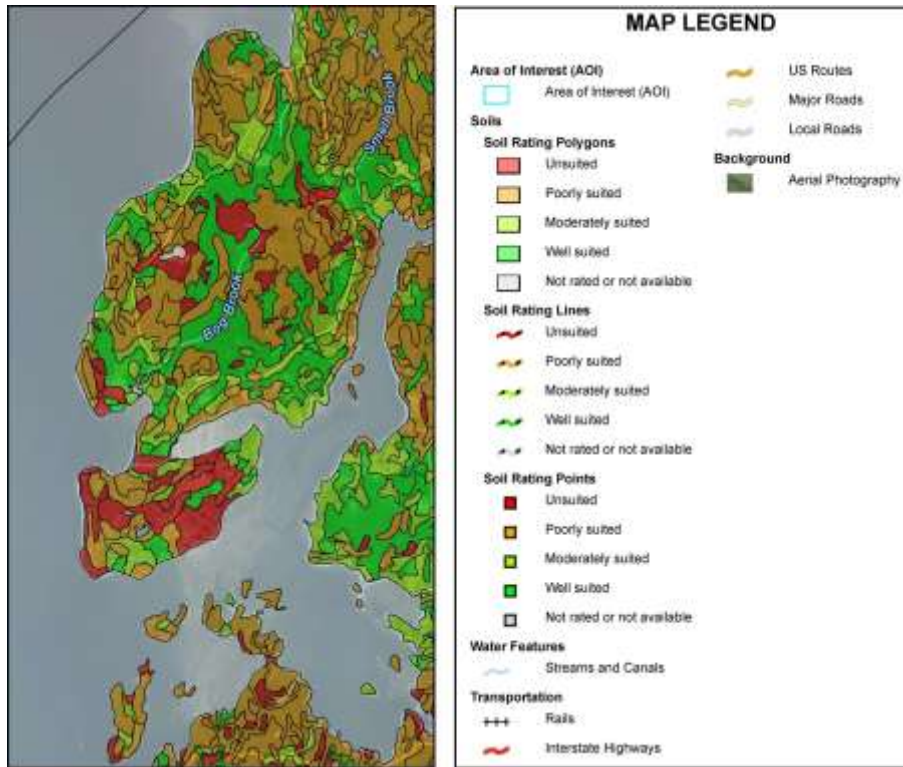
Figure K-1: Agricultural Soils



Source: USDA, MEGIS, Maine DACF

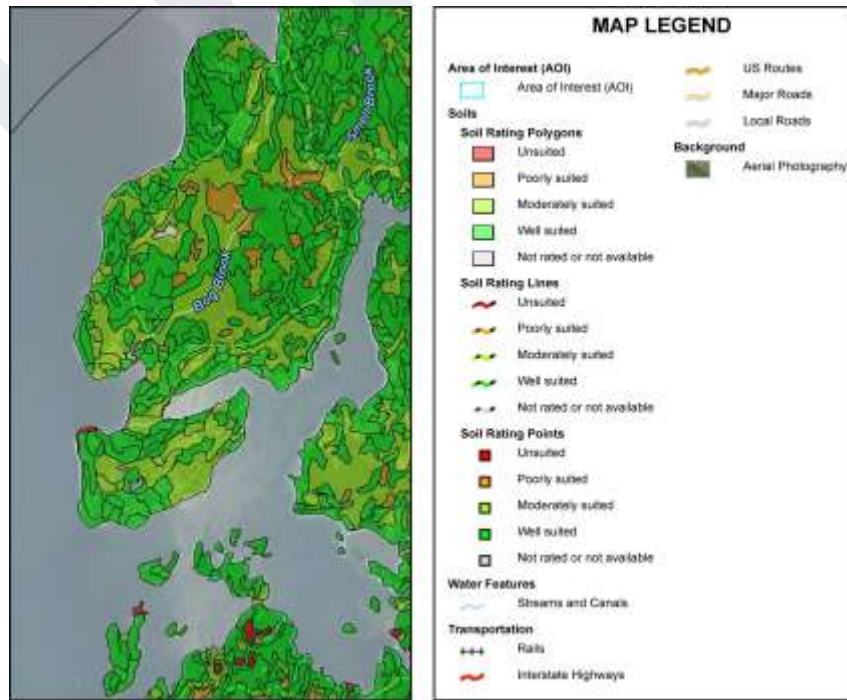
In addition to the map above of high-quality agricultural soils, Figure K-2 and Figure K-3 show the potential of soils in Castine for mechanical planting and hand planting.

Figure K-2: Soil Suitability for Mechanical Planting



Source: USDA Web Soil Survey

Figure K-3: Soil Suitability for Hand Planting



Source: USDA Web Soil Survey

Another way to estimate current amounts of agricultural land is through the acreage of land held under the Farm and Open Space Act. This act allows farmland owners property tax breaks for parcels over five contiguous acres if they meet certain conditions, such as minimum farm-derived income. Normally, qualifying farmers with a long-term commitment to farming would participate in this program. As seen below, there are six farms with a total of 145 acres enrolled in the Farm and Open Space program:

Table K-1: Farm and Open Space Taxation Parcels 1996 – 2022

Year	Farmland		Open Space	
	# of Parcels	Acres	# of Parcels	Acres
1996	0	0	3	12
1997	0	0	3	12
1998	0	0	6	49
1999	0	0	6	49
2000	0	0	N/A	N/A
2001	0	0	7	74
2002	2	91	8	75
2003	2	91	13	253
2004	2	91	13	253
2005	2	91	11	202
2006	2	91	11	202
2007	3	136	11	202
2008	3	136	11	202
2009	3	136	11	202
2010	3	136	12	212
2011	3	103	11	205
2012	3	136	12	212
2013	3	103	11	205
2014	3	103	13	226
2015	3	136	14	255
2016	3	103	13	214
2017	3	103	14	199
2018	7	145	13	199
2019	7	145	15	205
2020	7	145	15	205
2021	6	145	14	205
2022	6	145	14	205

Source: Maine Revenue Services

5.2. Forest Resources

One source of information on Castine's forest resources is data on land held under the Tree Growth Taxation Act. This classification is similar to the Farm and Open Space Act in that owners of forested parcels meeting certain conditions can have their property assessed as forest land rather than for its potential development value. As of 2021, there were 15 parcels in Castine totaling 513 acres that were enrolled in the Tree Growth program:

Table K-2: Tree Growth Parcels, 1996 – 2022

Year	# of Parcels	Soft-Wood Acres	Mixed-Wood Acres	Hard-Wood Acres	Total Acres
1996	14	338	289	40	667
1997	14	338	289	40	667
1998	14	338	248	112	698
1999	13	227	112	126	465
2000	14	281	99	148	528
2001	15	312	115	144	571
2002	17	288	171	147	606
2003	16	289	155	147	591
2004	19	289	171	148	608
2005	17	165	144	111	420
2006	19	184	158	114	456
2007	20	308	169	131	608
2008	17	302	160	106	568
2009	17	302	160	106	568
2010	17	302	163	110	575
2011	16	305	154	115	574
2012	18	317	212	95	624
2013	18	317	193	95	605
2014	18	317	193	95	605
2015	17	277	132	114	523
2016	17	277	151	95	523
2017	17	277	132	114	523
2018	16	267	132	114	513
2019	15	267	132	114	513
2020	15	267	133	113	513
2021	14	267	133	113	513
2022	15	254	155	102	511

Source: Maine Revenue Services

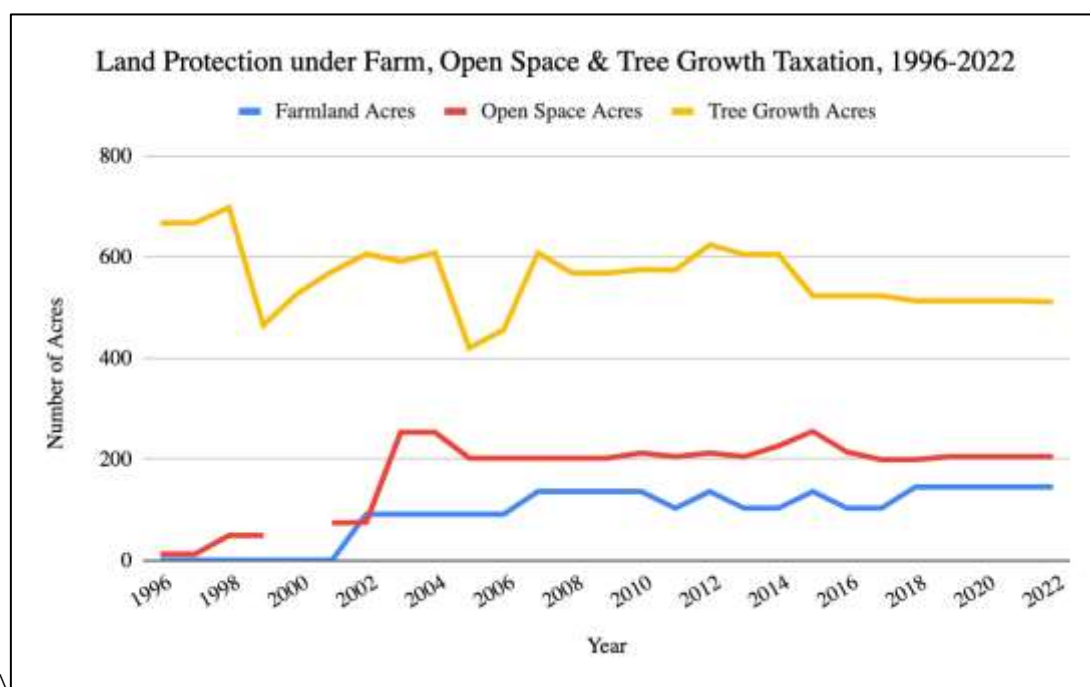
Table K-3 below summarizes the various forms of land protected by State preferential taxation programs:

Table K-3: Summary of Farm, Open Space, and Tree Growth Taxation Parcels

Year	Farmland Acres	Open Space Acres	Tree Growth Acres
1996	0	12	667
1997	0	12	667
1998	0	49	698
1999	0	49	465
2000	0	N/A	528
2001	0	74	571
2002	91	75	606
2003	91	253	591
2004	91	253	608
2005	91	202	420
2006	91	202	456
2007	136	202	608
2008	136	202	568
2009	136	202	568
2010	136	212	575
2011	103	205	574
2012	136	212	624
2013	103	205	605
2014	103	226	605
2015	136	255	523
2016	103	214	523
2017	103	199	523
2018	145	199	513
2019	145	205	513
2020	145	205	513
2021	145	205	513
2022	145	205	511

Source: Maine Revenue Services

Figure K-4: Land Protection under Farm, Open Space and Tree Growth Taxation 1996-2021



Source: Maine Revenue Services

Timber harvesting trends are shown in Table K-4 below. These data represent timber harvests that are subject to State reporting. In 2018, 98 acres were harvested, slightly more than the 24-year average of 78 acres per year. These figures indicate that commercial forestry is quite limited in Castine and plays only a minor role in the town’s economy.

Table K-4: Timber Harvesting Trends, 1994 - 2018

Year	Selection Harvest (acres)	Shelterwood Harvest (acres)	Clearcut Harvest (acres)	Total Harvest (acres)	Change of Land Use (acres)	# Of Active Notifications
1994-1998	169	0	11	180	18	8
1999	16	0	0	16	0	6
2000	6	0	0	6	0	6
2001	5	0	0	5	4	4
2002	7	0	0	7	0	4
2003	8	0	0	8	0	4
2004	8	0	0	8	1	7
2005	70	20	0	90	0	5
2006	11	0	0	11	0	7
2007	147	0	0	147	0	12
2008	266	0	0	266	0	16
2009	227	0	0	227	0	11
2010	40	0	0	40	6	8
2011	65	0	0	65	0	9

Year	Selection Harvest (acres)	Shelterwood Harvest (acres)	Clearcut Harvest (acres)	Total Harvest (acres)	Change of Land Use (acres)	# Of Active Notifications
2012	25	5	0	30	0	3
2013	52	0	0	52	0	4
2014	12	0	0	12	0	6
2015	1	0	0	1	0	6
2016	286	0	0	286	0	14
2017	78	0	0	78	0	12
2018	8	90	0	98	0	14
Total	1,507	115	11	1,633	29	166
Average	72	5	1	78	1	8

Source: Maine Forest Service

6. Analysis of Agricultural and Forest Resources in Castine

6.1. Importance of Agriculture and Forestry to the Town

While Castine has some 1,700 acres of prime or significant agricultural soils, there are only 145 acres enrolled in the Farmland Protection program. Similarly, on average there are only about 80 acres of timber harvested each year. This shows that while agriculture and forestry is not negligible in Castine, they are not major activities.

6.2. Castine's Steps to Protect Productive Farming and Forestry Lands

Although the farm, open space, and tree growth preferential property tax programs offer some protection to Castine's farms and woodlots, there is no guarantee that land will not be withdrawn from these classifications and sold for development. The tax penalties for withdrawing land often outweigh the profits realized from land development.

While there are no direct measures in the Town's land use ordinances to safeguard farm and forest land, there are several measures that contribute to their protection. Town ordinances include shoreland zoning standards for timber harvesting and standards for the retention of natural beauty and the preservation of open space. These ordinances are supplemented by a significant amount of land that is protected by conservation land trust ownership or easements.

The Town also has an Elm Tree Ordinance to protect elm and significant streetscape trees. The health of the trees is monitored by the Town's Tree Committee and such trees may not be cut down without the written approval of the Tree Committee. Elm trees not located in the public tree area are the responsibility of the property owner and the costs associated with maintenance and, if necessary, removal and disposal are borne by the property owner and not the Town.

The Town has an active elm tree care program with taxpayer funds allocated in each year's budget to pruning and treating the over 300 elm trees On-Neck. The amount needed for treatment, pruning and removal of dead or diseased elm trees has increased dramatically in recent years. With large infrastructure projects competing for

taxpayer funding, the Town may need to seek a combination of taxpayer and private funding for the care of the elm trees in the future.

There are over 60 elm trees located on property owned by MMA. Historically, MMA has paid for pruning, treatment against Dutch elm disease, and removal of dead or diseased elm trees on its property. In order to achieve cost savings, the Town and MMA have agreed to coordinate pruning, treatments against Dutch elm disease, and removal of dead or diseased elm trees located on their respective properties.

In 2020 the Tree Committee established a three-year program using fungicide treatment in a renewed effort to protect the town's significant streetscape elms. The inoculation lasts for three years and then the trees need to be treated again. Due to funding limits, only 75 of the 300 elms are being treated. The Tree Committee also has a limited tree planting program.



Source: The Washington Post Magazine Spring Travel Issue, March 10, 2022

6.3. Level of Use of Current Use Tax Laws

As discussed above, in 2020 there were 863 acres of land in Castine enrolled in one of the current use tax law programs. This represents 17% of the total land area of Castine (4,998 acres). As such, it appears that Castine landowners know about the preferential tax programs and that a reasonable, if not substantial, number of them are using the programs.

There are additional Federal (NRCS) programs (ACPE, EQIP, HFRP, etc.) that are not currently being utilized to their full extent within the boundaries of Castine. Further education of tax beneficial or incentive programs could lead to further the protections and benefits available to the town's people.

6.4. Effect of Proximity of Incompatible Uses on Farming and Logging Operations

Although it seems unfair, farms and commercial forests often are negatively impacted by the complaints of owners of homes built adjacent to or near the farms and woodlots that were already there. This appears to have had a small but cumulative effect over the years in Castine. Current land use regulations combined with the relatively small number of farming and logging operations have reduced the level of this problem.

6.5. Sale of Large Tracts of Agricultural or Forest Lands

Given the relatively small amount of land in Castine that is being farmed or forested, there does not appear to be the potential for substantial impact on the community from the sale of farms or industrial forest land.

6.6. Support for Community Forestry and Agriculture

Castine is supportive of forestry and agriculture. Since 2009, the Castine Farmer's Market on the Common has been providing local produce, baked goods, and prepared foods from a variety of local farmers and food producers. Blue Angels has helped battle food insecurity by partnering with local farms to make sure residents can rely on locally sourced produce, the new Tilt and Timber CSA farm has been met with overwhelming support. In addition, the Town accommodates the Maine Coast Heritage Trust's large Witherle Woods resource in the southern part of the Neck.

6.7. Woodland Under Management

Some communities have a town forest or manage other woodlands. There does not appear to be a need for this in Castine as the town benefits from green spaces like Witherle Woods that are conserved and managed by local land trusts. However, as discussed above, the Town does take an active role in protecting its exceptional elm tree resource.

7. Goals & Objectives

GOAL: Preserve Castine’s agricultural and forested land for production and benefit to future generations and promote increased local agricultural activity to ensure food security and sovereignty.			
Objective	Strategy	Timeframe	Suggested Responsibility
Continue and expand current Elm tree protection program.	Continue to seek Project Canopy grants from the State.	Ongoing	Elm Tree Committee, Select Board
	Continue to recommend taxpayer support for the trees in the Town budget and continue to encourage private donations to fund tree care.	Ongoing	Elm Tree Committee, Select Board
	Continue to work with MMA to ensure that elm trees on MMA property are monitored for disease.	Ongoing	Elm Tree Committee, Select Board
Safeguard lands identified as prime farmland or capable of supporting commercial forestry.	Ensure that land use ordinances include: A. Right to farm and manage forest provisions that exempt farm and forest activities in rural areas from certain noise and other nuisance standards provided that these exemptions are necessary for farm and forest operations; B. Liquidation harvesting provisions that meet the requirements of Title 30A MRSA §4404 (20); and C. Provisions ensuring that farm and forested-related uses such as food stands and small-scale sawmills are permitted in areas designated as rural.	Immediate and Ongoing	Planning Board
	Consult with the Maine Forest Service District staff when developing any land use regulations pertaining to forest management practices.	Immediate and Ongoing	Planning Board
	Consult with Soil and Water Conservation District staff when developing regulations pertaining to agricultural management practices.	Immediate and Ongoing	Planning Board
Support farming and forestry and encourage their economic viability.	Advocate for the expansion of the allocation of USDA funds to support and encourage Castine farmers.	Immediate and Ongoing	Town Manager, Select Board, Implementation Committee
	Encourage owners of productive farm and forest land to enroll in current taxation programs.	Immediate and Ongoing	Town Manager, Select Board, Implementation Committee

Chapter L: History and Archaeology

1. Purpose

Historic and archaeological resources are vital elements of a community's identity. A comprehensive plan must identify important historical and archaeological resources not only for the sake of the historical record, but also to preserve their present-day value to the town's identity and character and to encourage tourism. Specifically, this chapter will:

- A. Present a brief history of Castine and the region;
- B. Describe historical and archaeological resources;
- C. Assess threats to these resources; and
- D. Assess the effectiveness of existing measures to protect and preserve these resources.

2. Key Findings & Issues

Castine has a rich history that is important and valuable to the identity of the community. The town has two districts and 23 properties on the National Register of Historic Places and has created an on-neck historic zoning overlay district. The Maine Historic Preservation Commission has identified 52 archaeological sites in Castine.

Castine has become a Local Certified Government. This designation allows Castine to preserve structures that reflect the community's heritage, access a network of local, state, and federal preservation groups, be eligible for grants to assist local preservation programs, receive technical support and training from the state office, and promote pride in Castine's history.

The regulations that Castine has put in place to protect historic and archaeological resources, that would be considered strong in a community with a less compelling past, may need to be expanded to provide better protection against the loss of historic buildings or features. This could include revisiting the extent of the historic zoning overlay district.

One possibility for securing more funds for historic preservation may be the creation of a tax increment financing (TIF) district in which one of the allowed uses for the TIF funds would be the alteration, remodeling, repair, or reconstruction of existing buildings, structures, and fixtures to preserve and enhance Castine's historic resources.

3. Key Findings & Issues from Previous Plans

Since 1995 more properties of historic and prehistoric interest have been identified. Castine has seven listings on the National Register of Historic Places. Castine also has a number of historic and prehistoric archaeological sites. The Historic Preservation Ordinance protects buildings and sites within the historic district. In November 2008, Castine voters again rejected a referendum proposal to expand the historic district.

4. Public Opinion Survey Results

The responses to the two survey questions that touched on historical and archaeological resources indicate that the residents of Castine have a strong affinity for these resources.

Approximately 98% of those surveyed either strongly agree (79.2%) or agree (18%) that historical and archaeological resources should be protected, while approximately 82% of respondents indicated that cultural and historic offerings are either excellent (48.2%) or good (33%).

5. Historical Inventory

5.1. History of Castine

Castine's geographic location on Penobscot Bay, at the mouths of the Penobscot and Bagaduce Rivers, was the primary factor in the settlement and development of the Town. Recent excavations in the Castine area show archaeological evidence as far back as 1000 B.C. Relics and shell heaps believed to be from the people of the Abnaki Indian Nation have been found in Castine and show that the peninsula was a frequent camping ground for this nomadic tribe.

The first permanent European settlement was established by the French in the early 1630s, known at various times as Majabigwaduce, Pentagoet, Penobscot, and Castine. The combination of its geographic location and a large, safe, deep-water harbor ensured the continued development of the Town. Here the governments of the Netherlands, France, and England vied for control of the northeastern portion of the North American continent with its rich reserves of fish, fur, and lumber. The excellent fisheries at Castine were documented as early as 1670, but fur trading was the staple of the area's economy during the early settlement period.

When the British finally gained control of the American colonies, land grants were made available to loyal subjects and the population of the area began to increase rapidly. The Castine peninsula was strategic because of its location near the vast forests of Maine. During the Revolutionary War, in an attempt to take control of Castine from the British, the Americans suffered one of their greatest naval defeats during the Penobscot Expedition.

From the end of the Revolution until the eve of the Civil War, the population of Castine continued to grow, based on fishing, farming, and shipbuilding. The income produced resulted in the construction of many of the Town's fine dwellings; however, the 1850s were the last prosperous decade in Castine's 19th century history. The removal of the county seat to Ellsworth in 1838, followed by the closure of the Customs House and the removal of the fishing bounty paid by the Federal government, combined with the Panic of 1857 and the Civil War, converged to undermine the Town's economy.

The rediscovery of Castine as a resort community in the late 1800s and early 1900s likely saved the Town from a serious economic crisis. From 1940 until the late 1980s the population increased because of the establishment of MMA and the desire of many retirees to live in the relative peace and beauty of Castine.

In more recent history, Castine weathered the national economic downturn in the first decade of the 21st Century though many small businesses have disappeared from our Main Street. The Covid Pandemic, however, brought a surprising uptick in home sales and added several younger families to the community. This combined

with increased domestic tourism, the expanded offerings of the Wilson Museum and Castine Historical Society, a renewed interest (state and local) in the proper management and potential utilization of Fort George as a historical treasure, and the creation of new historical tours through Castine History Partners and The Castine Touring Company, has brought new energy to the community as we look to shape the future of Castine.

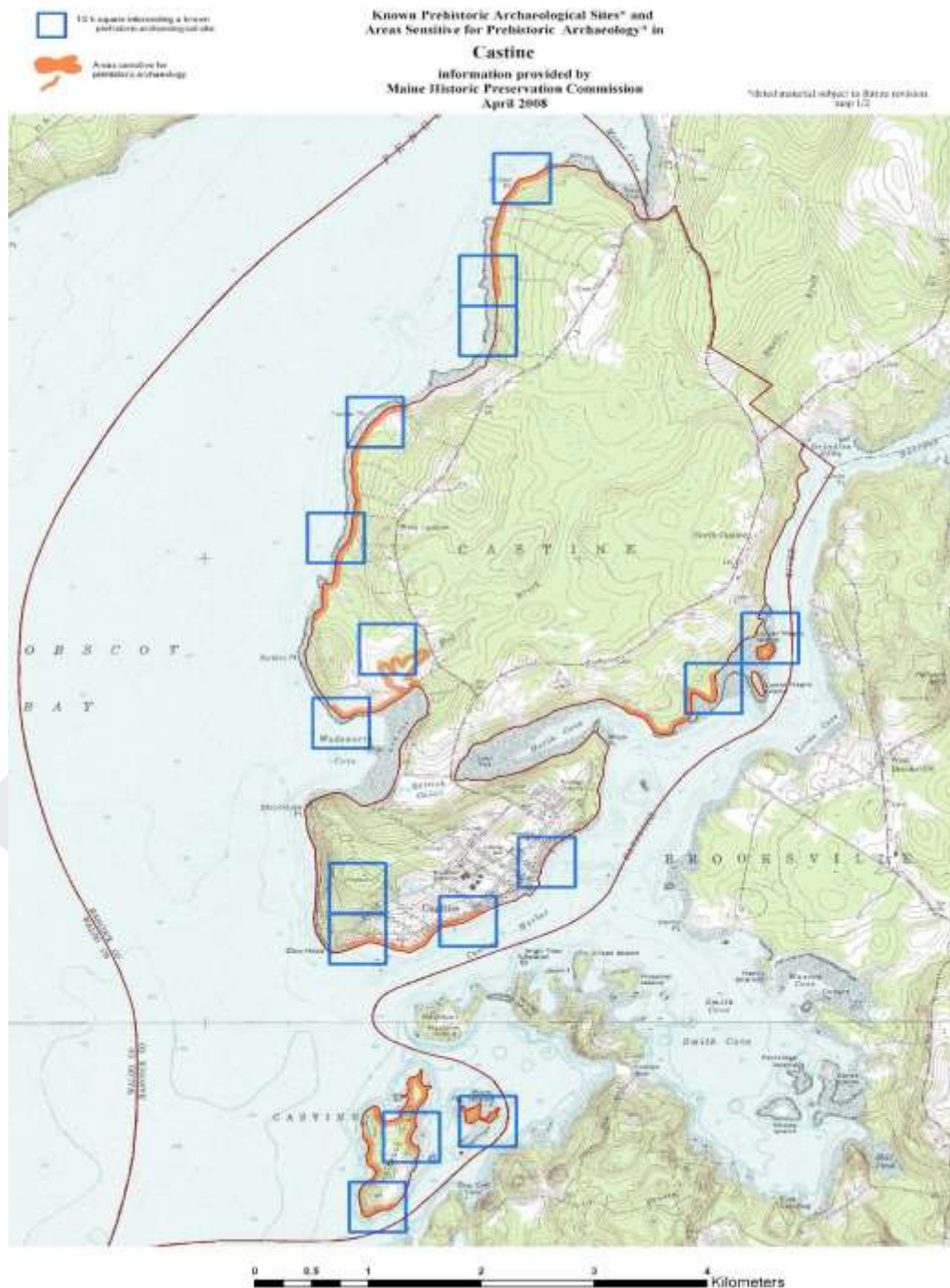
5.2. Prehistoric Archaeological Sites

Prehistoric archaeological sites are those of Native Americans prior to European arrival. Prehistoric sites include campsites or village locations, rock quarries and stone tool workshops, and petroglyphs or rock carvings. The prehistoric archaeological site sensitivity map below (Figure L-1), from the Maine Historic Preservation Commission, is based on the current understanding of Native American settlement patterns (known site locations and professionally surveyed areas) within the portion of the state where Castine is located. Most commonly, prehistoric archaeological sites are located within 50 meters of canoe-navigable water, on relatively well-drained, level landforms. Some of the most ancient sites (> 10,000 years old) are located on sandy soils within 200 meters of small (not canoe-navigable) streams.

There are sixteen sites are known, most of which are shell middens located along the coastal zone or on Islands. Known site numbers are 41.4-41.7, 41.11-41.16, 41.19, and 41.24-41.26, 41.71 and 41.79. Site 41.79 is on Maine Coast Heritage Trust land on a hilltop away from the water. The sites need intensive surveys for National Register nomination.⁵

⁵ Arthur Spiess, Maine Historic Preservation Commission

Figure L-1: Known and Potential Prehistoric Archaeological Sites in Castine



6. Historic Archaeological Sites

Historic archaeological sites are mostly European-American, after written historic records began to be created around 1600 A.D. Historic archaeological sites may include cellar holes from houses, foundations for farm buildings, mills, wharves and boat yards, and near-shore shipwrecks. Historic archaeological sites can be

predicted most often by a review of historic records, maps, and deeds. Often, settlement focused on transportation corridors, first rivers, and then roads as they were built. Archaeological sites from the first wave of European settlement in any town are likely to be significant (i.e., National Register eligible).

The map of Known and Potential Historic Archaeological Sites in Castine (Figure 8 – 2) shows known archaeological site locations as ½ km squares, ½ km squares intersecting a known historic archaeological site with an estimated location, and areas sensitive for historic archaeology. According to the Maine Historic Preservation Commission, the ½ km scale is a compromise, providing some location information but not allowing someone who might want to damage a site to walk exactly to the location.

The standard of what makes an archaeological site worthy of preservation will normally be eligibility for, or listing in, the National Register of Historic Places. Because the National Register program accommodates sites of national, state, and local significance, it can include local values. Unfortunately, due to physical damage to a site and/or recent site age, some sites are not significant.

As of March 2021, 52 historic archaeological sites have been documented for the Castine. (Note that site numbers 39, 41 and 54 have yet to be assigned.)

Table L-1: Historic Archaeological Sites in Castine

Site Name	Site #	Site Type	Periods of Significance	National Register Status	Location
Norumbegue Fort	ME 084-001	military, fort	1619 (1555)	undetermined	Location Unknown
Penobscot Trading Post	ME 084-002	trading post	1629-1635	undetermined	Location Known
Fort Pentagoet	ME 084-003	military, fort and trading post	1635-1674	National Historic Landmark	Location Known
Fort George	ME 084-004	military, fort	1779, 1814 - 1815	National Register	Location Known
Fort Castine/Porter/Madison	ME 084-005	military, fort	1811- 1815, 1863	undetermined	Location Known
unnamed vessel	ME 084-006	wreck, vessel	1612	undetermined	Location Unknown
Wescott's Battery	ME 084-007	military, battery	1779	undetermined	Location Known
St. Castin's Habitation	ME 084-008	trading post	c.1671 - c. 1701	undetermined	Location Known
Wood's Point	ME 084-009	domestic	c.1750	undetermined	Location Known
John Perkins House	ME 084-010	domestic	Late 18th - early 19th cent.	undetermined	Location Known
Juliet	ME 084-011	wreck, schooner	1869	undetermined	Location Unknown
St. Helena	ME 084-012	wreck, transport	1783	undetermined	Location Known
Lovell's Redoubt	ME 084-013	military, redoubt	July-August 1779	undetermined	Location Known
Blockhouse #1	ME 084-014	military, blockhouse	1814-1815 and perhaps later	undetermined	Location Known
Furieuse Battery No. 1.	ME 084-015	military, battery	1814-1815	undetermined	Location Known
Furieuse Battery No. 2.	ME 084-016	military, battery	1814-1815	undetermined	Location Known
Sherbrooke Battery	ME 084-017	military, battery	1814-1815	undetermined	Location Known
Gosselin Battery	ME 084-018	military, battery	1814-1815	undetermined	Location Known
Griffith Battery	ME 084-019	military, battery	1814-1815	undetermined	Location Known
Seaman's Redoubt	ME 084-020	military, redoubt	1779	undetermined	Location Known
Penobscot Battery	ME 084-021	military, battery	1814-1815	undetermined	Location Known
Half Moon Battery	ME 084-022	military, battery	1779, 1814-15	undetermined	Location Known
Old Breastwork	ME 084-023	military, breastwork	1779, 1814-15	undetermined	Location Known
Furieuse Battery Barracks	ME 084-024	military, barracks	1815 +	undetermined	Location Known

Site Name	Site #	Site Type	Periods of Significance	National Register Status	Location
Northeast Point Musketry Breastwork	ME 084-025	military, breastwork	c. 1780?, 1814-15	undetermined	Location Known
Bridge Musquetry Redoubt	ME 084-026	military, redoubt	1815	undetermined	Location Known
Bridge Guard House	ME 084-027	military, guard house	1815	undetermined	Location Known
Blockhouse # 2	ME 084-028	military, blockhouse	1815	undetermined	Location Known
British Canal	ME 084-029	military, canal	1814-1815	undetermined	Location Known
Rope Walks Barracks	ME 084-030	rope walk and military, barracks	1779? 1814 -1815	undetermined	Location Known
Anti-Shipping Battery	ME 084-031	military, battery	1779	undetermined	Location Known
Isthmus Abatis Line	ME 084-032	military, abatis line	1814-1815	undetermined	Location Known
Artillery Road	ME 084-033	military, road	1815	undetermined	Location Known
Bakeman Iberian Pots	ME 084-034	artifact find, ceramic	Probably early 19th century	undetermined	Location Known
Moore's Hill	ME 084-035	military, landmark	July 28, 1779	undetermined	Location Known
Rebel Redoubt (K)	ME 084-036	military, redoubt	July-August 1779	undetermined	Location Unknown
Rebel Battery of 2 field pieces (Q)	ME 084-037	military, battery	July-August 1779	undetermined	Location Known
Lovell's East Battery	ME 084-038	military, battery	July-August 1779	undetermined	Location Known
Rebel Battery unfinish'd (N)	ME 084-040	military, battery	July-August 1779	undetermined	Location Unknown
Moses Perkins Homestead	ME 084-042	farmstead	c. 1790 to c. 1830	undetermined	Location Known
Wardwell Gravel Pit	ME 084-043	borrow pit, gravel	late 19th-early to mid-20th century	undetermined	Location Known
Wardwell Sand Pit	ME 084-044	borrow pit, sand	early 20th century?	undetermined	Location Known
Witherle Gravel Pit	ME 084-045	borrow pit, gravel	probably active between c. 1889 and 1909	undetermined	Location Known
British Fleche	ME 084-046	military, redoubt	July-August 1779	undetermined	Location Known
Witherle Woods Charcoal Clamp	ME 084-047	charcoal clamp	early 19th century?		Location Known
Witherle Woods "Gun" platform	ME 084-048	structure, unidentified	late 18th or early 19th century		Location Known
Witherle Woods Bomb Cluster	ME 084-049	military, battlefield	Penobscot Expedition, July-August 1779	undetermined	Location Known
Witherle's Observation Tower	ME 084-050	tower, observation	after 1869 and before 1904	undetermined	Location Known
Castine Water Co. Reservoir	ME 084-051	reservoir	built c. 1904	undetermined	Location Known
Witherle Park	ME 084-052	resort, park	about 1869 to present	undetermined	Location Known
Trask Rock	ME 084-053	military, landmark	event of July 28, 1779, and 19th century tourist stop	undetermined	Location Known
Hosmer Ledge Pot Find	ME 084-055	artifact find, ceramic	Probably 17th century	undetermined	Location Known

Although a number of archaeological investigations have been conducted on specific sites in Castine, no town-wide surveys for historic archaeological sites have been conducted to date. Future archaeological surveys should focus on the identification of potentially significant resources associated with the town's agricultural,

residential, military and maritime heritage, particularly those associated with the earliest Euro-American (French and English) settlement in the 17th and 18th centuries.⁶

Figure L-2: Known and Potential Historic Archaeological Sites in Castine



⁶ Leith Smith, Maine Historic Preservation Commission

7. Historic Properties

Castine is rich in history and has a growing list of properties on the National Register of Historic Places. The properties shown in Table L - 2 below come from the Maine Historic Preservation Commission via two sources: an inventory sheet provided for this Plan, and a public map viewer hosted on-line by MaineDOT.

Table L-2: Castine Districts and Properties in the National Register of Historic Places

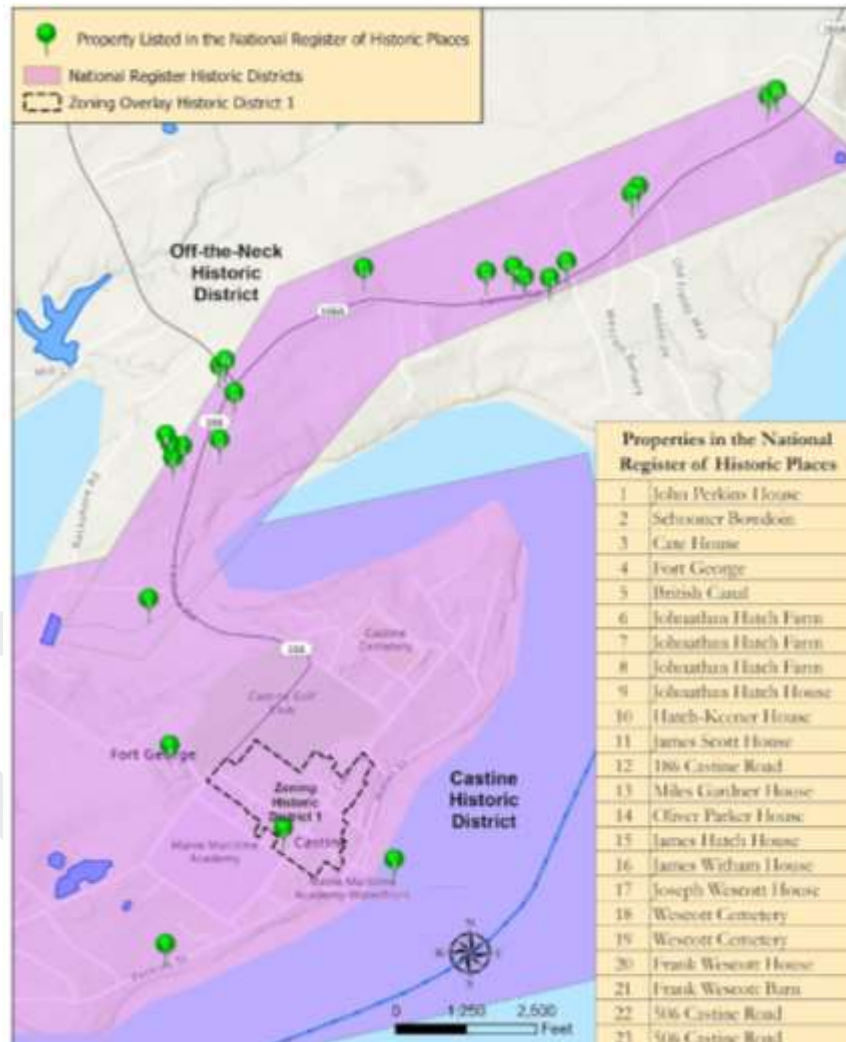
	Maine Historic Preservation Commission Inventory	MaineDOT Public Map Viewer
Castine Historic District	✓	
Off-The-Neck Historic District	✓	
John Perkins House	✓	
Schooner Bowdoin	✓	
Cate House	✓	
Fort George	✓	
British Canal		✓
Johnathan Hatch Farm		✓
Johnathan Hatch Farm		✓
Johnathan Hatch Farm		✓
Johnathan Hatch House		✓
Hatch-Keener House		✓
James Scott House		✓
186 Castine Road		✓
Miles Gardner House		✓
Oliver Parker House		✓
James Hatch House		✓
James Witham House		✓
Joseph Wescott House		✓
Wescott Cemetery		✓
Wescott Cemetery		✓
Frank Wescott House		✓
Frank Wescott Barn		✓
506 Castine Road		✓
506 Castine Road		✓

In addition to the listings above on the National Register, there are many other properties of historic interest. These include, but are not limited to:

- Dyce's Head Lighthouse (in operation 1828-1933; restored to operation by the U.S. Coast Guard in 2008), the oldest lighthouse in the upper Penobscot Bay area.
- At least ten private cemeteries.
- The U.S. Post Office Building, the oldest building still in continuous use as a post office in the United States.
- The Unitarian-Universalist Church, built as a Meeting House in the 1790s, is the oldest building in continuous use as a church east of the Penobscot River.

- The Old Salt Building, at the Sea Street end of the Brick Block.
- The Brick Block (1786).
- Emerson Hall, a gift to the people of Castine based on an annuity from Charles Emerson (1901).
- The Abbott and Adams school buildings.

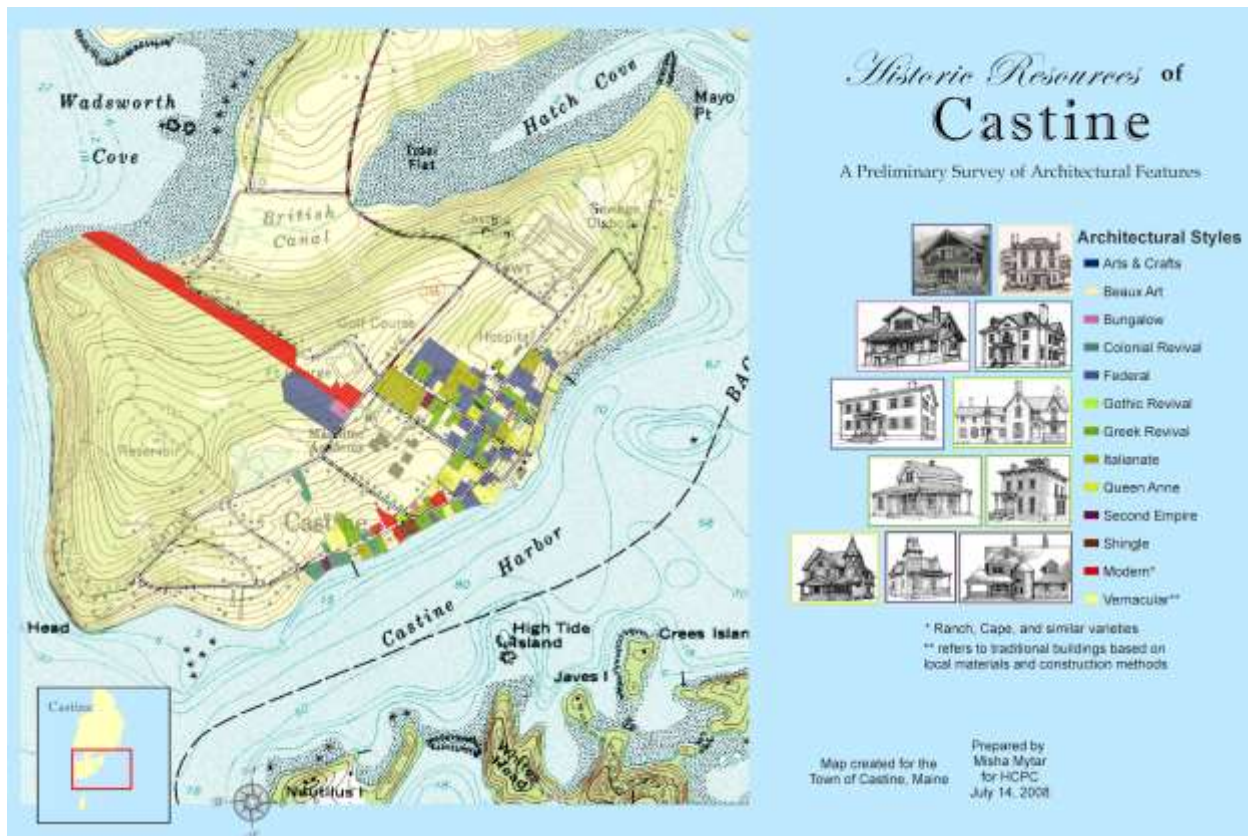
Figure L-3: Castine Districts and Properties in the National Register of Historic Places



7.1. Historic Preservation Survey and Mapping

The Hancock County Planning Commission (HCPC) hosts a website that was created by the Castine Historic Preservation Commission with support from the Maine Office of Historic Preservation and HCPC (<https://www.hcpcme.org/castine/history/index.html>). It contains an extensive list of historical properties (not just ones on the National Register) as well as interactive maps of Castine’s Historic Architecture and Castine’s Historic Signs. The site also has a set of historic maps, such as the one in Figure L - 4 below, and a map with locations and descriptions of historic buildings and properties.

Figure -L-4: Preliminary Architectural Survey



7.2. Historic Properties and Climate Change

The future of historic properties is sometimes overlooked in the process of planning for the effects of climate change, yet they are also subject to the effects of erosion, high water, intense storms, high winds, and wildfire. Much like parks, schools or town buildings, a community's historic properties help create and sustain a unique sense of place. The historic materials or settings of historic properties may require specialized planning that is sensitive to the historic significance of the property. One such property is St. Castin's Habitation. This archaeological and historic site is threatened by sea level rise, erosion, and increased precipitation patterns. Castine can work with the Blue Hill Heritage trust to ensure protection of this site.

The Maine Historic Preservation Commission has created a webpage to assist entities throughout the state with planning for the effects of climate change on historic properties and cultural resources through the processes of identification, adaptation, resiliency, and mitigation. The website includes toolkits, Maine-specific research, and links to resources from preservation partners, planners and governmental organizations. The site is located at: <http://www.maine.gov/mhpc/programs/protection-and-community-resources/climate-change>.

7.3. Threats to Historic Resources

Although Castine has created a Historic Preservation Commission, the extent of the historic zoning overlay district in which it exercises its authority is rather constrained. As seen in Figure L - 3, only one of Castine's 21 properties on the National Register is located in Historic District 1. This shows that there are many historic

properties throughout Castine, and it raises a concern that the renovations of historic buildings outside of the overlay zone may not be done in an historically sensitive manner (not to mention the threat of demolition). The general lack of private and public funds to maintain historic properties and finance appropriate renovations is also an issue.

8. Analyses of Historic & Archaeological Resources

8.1. Historic Patterns of Settlement

Historic patterns of settlement are still evident in Castine. This is apparent in the long-standing pattern of the village streets and parcels, in the town's orientation to the sea and the Penobscot and Bagaduce Rivers, and in its inland connections. It is also seen in the numerous historic properties and in the historic districts of both the Town and the National Registry of Historic Places.

8.2. Existing Protective Measures for Historic and Archaeological Resources

The Historic Preservation Ordinance protects Castine's historic resources within the historic zoning overlay district. Pursuant to the Historic Preservation Ordinance, the Historic Preservation Commission reviews alterations, relocation, and demolition of properties under its jurisdiction. The Commission also reviews new construction and improvement projects in the historic district.

The Historic Preservation Commission has recognized threats to the historic resources of the Town by demolition or changes to the historic architectural identity of important properties. The chronic shortage of funds makes the maintenance of public sites more difficult. For example, the Town's cemeteries have needed restoration work. There also is a concern that new development could alter a historic streetscape or an unmapped archaeological site. Continuing efforts have been attempted, thus far unsuccessfully, to expand the historic district.

8.2.1. Site Plan Review and Subdivision Ordinances

The Site Plan provisions of Castine's Zoning Ordinance require applicants proposing development in areas that may contain historic or archaeological resources to provide evidence, and to demonstrate, that adequate provision has been made to avoid unreasonable adverse effects on the scenic or natural beauty of the area, including historic sites and archaeological resources. The performance standards for archaeological or historic sites, per Article 5, Section 6.2, are:

Any proposed land use activity that may disturb an archaeological or historic site as defined in the Castine Historic Preservation Ordinance, or which is listed or which has been nominated for listing on the National Register of Historic Places in accordance with the procedures established by Federal Law shall require Site Plan approval. In such case the application for Site Plan approval shall attach comments in writing from the Maine Historic Preservation Commission concerning the proposed activity, and the Planning Board shall hold a Public Hearing prior to taking any action with respect to the application. The recommendations of the Maine Historic Preservation Commission shall be considered by the Planning Board in granting any approvals. The applicant shall be responsible for obtaining the written comments of the Maine Historic Preservation Commission. If the site is located

within a designated district under the Castine Historic Preservation Ordinance and the application is approved by the Planning Board, a condition of such approval shall be that the applicant must obtain a Certificate of Appropriateness from the Castine Historic Preservation Commission before any permit is issued.

In order to obtain a Certificate of Appropriateness from the Castine Historic Preservation Commission, an applicant must provide such information as:

- A drawing or drawings showing design and location of any proposed alteration or new construction that the Commission may require. As it is used here, drawings shall mean plans and exterior elevations drawn to scale, with sufficient detail to show the architectural design, materials and visual textures of the exterior of the building(s), and including samples of materials. Drawing(s) are not required to be professionally prepared, but shall be clear, complete and specific.
- Photographs of the building(s) involved and of adjacent buildings.
- A site plan indicating improvements affecting appearance, such as fences and walls, walks, terraces, accessory buildings, lights, signs and other elements.

In addition, the Planning Board has the option of requiring an applicant to provide additional information, such as a survey to determine whether a property that is not on the National Register and is not in Historic District 1 may contain archaeological or historic resources.

In terms of Castine's Subdivision Ordinance, it is required that the final plan include the location of any open space, scenic views, historical or archaeological sites to be preserved and a description of proposed improvements and their future management. In addition, unless granted a waiver by the Planning Board, a subdivision applicant must provide an archaeological survey by a state-certified archaeologist of properties identified by the Maine Historic Preservation Commission or the Castine Comprehensive Plan as containing historical or archaeological sites.

8.3. Preserving Castine's Historic Resources

In the past, such historic resources as the Town's cemeteries have fallen into some disrepair. Given that historic resources support tourism and are an economic driver for the Town, Castine may want to explore the possibility of establishing a tax increment financing (TIF) district in which one of the allowed uses for the TIF funds would be the alteration, remodeling, repair, or reconstruction of existing buildings, structures, and fixtures to preserve and enhance Castine's historic resources.

Castine can continue to work with elected officials to identify and strengthen funding from the state for other important historical treasures such as forts. Fort George is the best-preserved example of an earthen works Revolutionary Era fortification still standing in North America. The fort is currently owned and underfunded by the state. Castine can work with the state to ensure fair and consistent funding and in turn provide a safe and well interpreted historical site for visitors.

9. Goals & Objectives

GOAL: To protect to the greatest extent possible and improve Castine’s significant historic and archaeological resources.			
Objective	Strategy	Timeframe	Suggested Responsibility
Take appropriate measures to protect known historic and prehistoric archaeological sites through local land use ordinances including, when applicable, modified site design, construction timing and extent of excavation.	Review and amend land use ordinance.	2024 -2025	Castine Historic Preservation Commission, Planning Board
	Undergo a 5-year ordinance review process to keep ordinances relevant and make necessary revisions.	2024, 2029	Castine Historic Preservation Commission, Planning Board
Adopt or amend land use ordinances to require Planning Board and CEO to incorporate maps and information provided by the Maine Historic Commission and the Castine Historic Commission into the review process	Review and amend land use ordinances.	2024	Planning Board, Code Enforcement Officer
	Review and update maps and applications and other relevant information annually	Annually	Castine Historic Preservation Commission
Work with Hancock County Historic Preservation and Maine State Historic Preservation Commission to assess the need for a new comprehensive survey of Castine’s historic and archaeological resources.	Utilize the State Historic Preservation’s Heritage for the Future: Maine’s Statewide Historic Preservation Plan.	2024-2027	Castine Historic Preservation Commission
Protect historic and archaeological sites from threats of climate change (erosion, sea level rise, increased storm surge, and increased precipitation events)	Identify sites that are threatened by climate change and create a mitigation plan for each site.	2024 and Ongoing	Castine Historic Preservation Commission
	Create plans and guidelines to help property owners plan for and mitigate climate change threats and hold public engagements to educate the public.	2024 - 2030	Castine Historic Preservation Commission
	Create guidelines for sustainable building materials to be used to protect historic structures.	2024-2030	Castine Historic Preservation Commission

Chapter M: Climate Change

1. Purpose

Climate change, due primarily to the warming of the earth's atmosphere from the build-up of CO₂ and other gasses from the burning of fossil fuels, will negatively affect humans and non-humans in a variety of aspects. Knowing that climate change is happening and that it has the potential to create serious issues, municipalities have begun to examine both what role they can play in slowing the increase in greenhouse gasses (mitigation) and in investing in infrastructure and other improvements necessary to cope with the effects of increased temperatures, rainfall, and other climate change related phenomena (adaptation). Specifically, this chapter will:

- A. Examine data in Maine related to changes in temperature, precipitation, sea level rise and coastal flooding, drought, and wildfire;
- B. Analyze the potential effect of climate change on transportation, stormwater infrastructure, natural resources, and other systems in Castine; and
- C. Make recommendations for actions to adapt to and mitigate coming climate change impacts.

2. Key Findings & Issues

Climate change is expected to create issues for Castine related to sea level rise, flooding, increased extreme precipitation events, periods of severe drought, increased temperatures, wildfires, and changes in water temperature and ocean chemistry. In addition to learning more about and addressing these issues, Castine officials and citizens have an opportunity to consider ways in which they, as a community, can help to mitigate climate change.

3. Key Findings & Issues from Previous Plans

The 2010 plan did not include a climate chapter.

4. Public Opinion Survey Results

When asked to what extent they have observed various natural hazards at their property—some of which are related to climate change—the respondents in the public opinion survey conducted for this plan generally indicated they had been minimally or only somewhat affected. However, a large majority favor protecting such features as drinking water aquifers (86.8% strongly agree) and coastal land (81.3% agree).

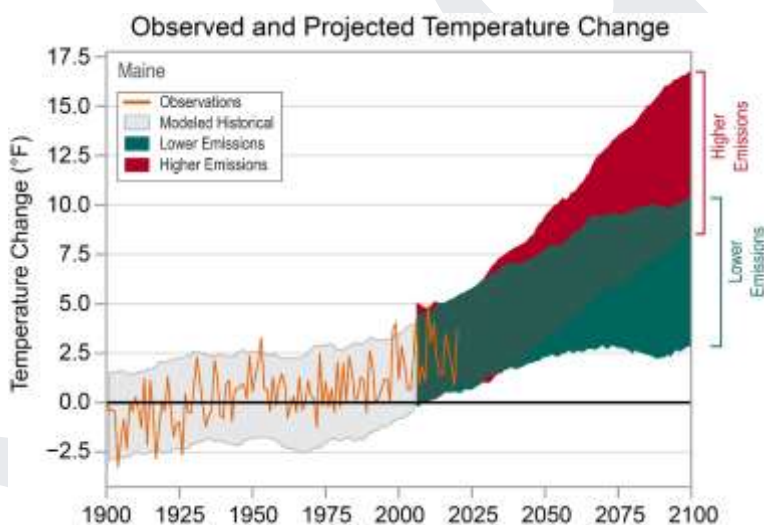
Responses from public outreach, through the survey and events, indicate that Castine residents are concerned about the impacts of climate change including sea level rise, drought, and extreme weather events. Survey respondents are interested in seeing a proactive plan to mitigate impacts, protect natural resources, and protect our vulnerable populations. These residents have also indicated interest in a community solar project.

5. Conditions and Trends

5.1. Temperature

Temperatures in Maine have risen almost 3.5°F since the beginning of the 20th century (see Figure M1).⁷ In the graph the projected changes for 2006-2100 are from global climate models for two possible futures: one in which green house gas emissions continue to increase (higher emissions) and another in which greenhouse gas emissions increase at a slower rate (lower emissions). The orange line are the observed temperatures and the shaded area indicates the range of annual temperatures from the set of models.

Figure M-1: Observed and Projected Temperature Change in Maine



The number of very cold nights in winter has been below average since the late 1990s, but the number of hot summer days has not increased. To an extent, therefore, there has been more winter warming than summer warming. As an example, on Damariscotta Lake, the average ice-out date during the mid-20th century was mid-to late April; it now is early April. The growing season has also lengthened.

Note that by 2050 the mid-point of the temperature range for Maine under the lower emissions model is approximately 2 degrees higher than the 2022 mid-point and almost 5 degrees higher under the higher emissions model.

5.2. Precipitation

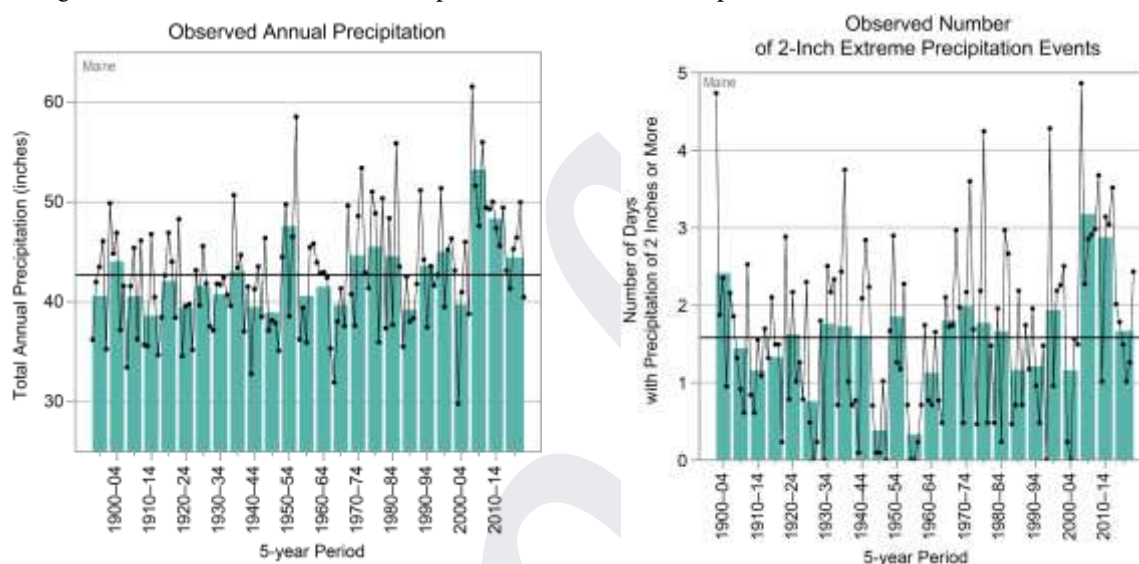
Total annual precipitation in Maine reached an historically high multi-year average during the 2005-2009 period (Figure M2).⁸ In the graphs below, the dots show annual values while the bars depict averages over 5-year

⁷ State Climate Summaries 2022, NOAA National Centers for Environmental Information, Maine, p.1, <https://statesummaries.ncics.org/chapter/me/>, accessed August 30, 2022.

⁸ Ibid., p. 2.

periods (the last bar is a 6-year average). The bold horizontal black line shows the average over the 1900-2010 period.

Figure M-2: Observed Annual Precipitation and 2-Inch Precipitation Events in Maine

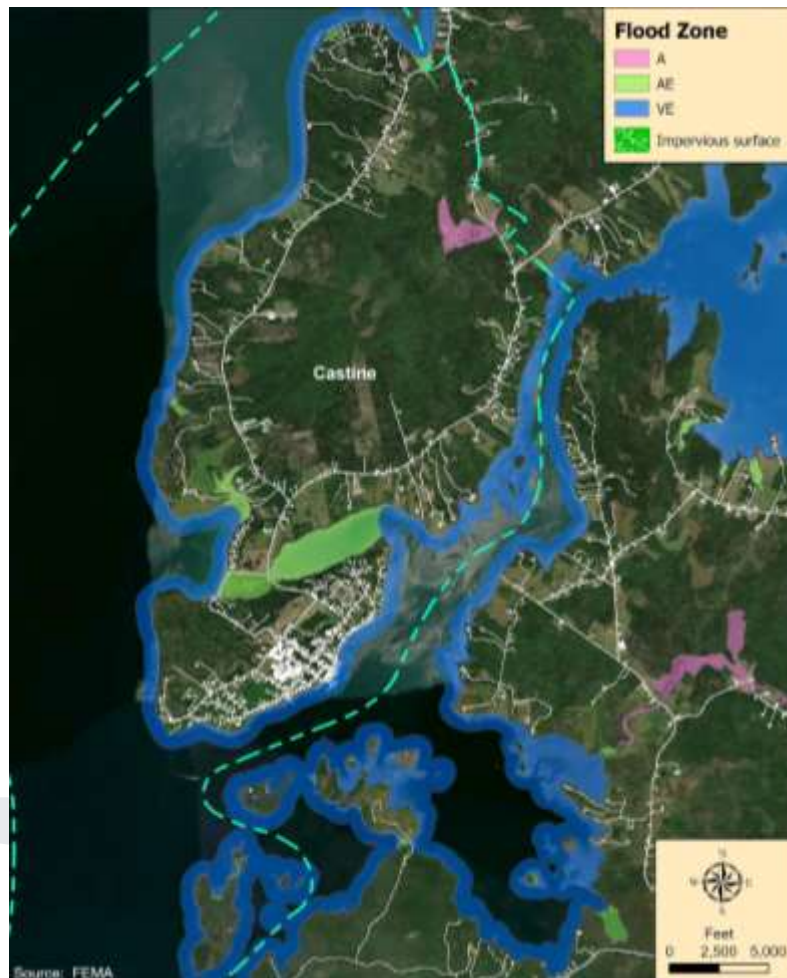


The annual number of two-inch extreme precipitation events has varied over the indicated period, but the 10-year interval from 2005 to 2014 had a record number (nearly double the long-term average), similar to the rest of the northeastern United States. At the county-level, Hancock County had a 30% increase in the magnitude of 24-hour, 100-year precipitation events from 1961 to 2008. In general, the increase was highest in the coastal counties in Maine.

5.3. Coastal Flooding

Prior to considering anticipated sea level rise associated with climate change, it is useful to review flood data based on current ocean water levels. The map below shows the 100-year flood zones from the FEMA Flood Insurance Rate Maps (FIRM) data. These show the predicted extent (elevation) of inundation from storms that have a one percent chance of occurrence. The A and AE zones both show areas with a 1% chance of flooding (the AE includes base flood elevations on the FIRM maps). The VE zone, which is the most prevalent one along the Castine coast, has the additional hazard of damage by storm waves. It is commonly called the “velocity” zone.

Figure M-3: FEMA 100-Year Flood Zones



Although much of the topography along Castine's coast is such that there is little flooding from 100-year flood events, there are several areas of concern. As seen in Figure M – 3 above, these primarily include the land along the British Canal, the pond/wetland adjacent to Rt. 166A between Rt. 166 and Rt. 199, and the Town Dock waterfront area. Bog Brook between Rt. 166 and Wadsworth Cove also experiences substantial flooding but is not a built-up area.

In addition to the FIRM maps, FEMA has a Risk Map Program to further assist communities in evaluating and planning for flood events. The map in Figure M4 shows the risk of flooding in Castine in general to be low or very low with no locations, according to FEMA, at risk of significant erosion.

Figure M-4: FEMA Flood Risk Map

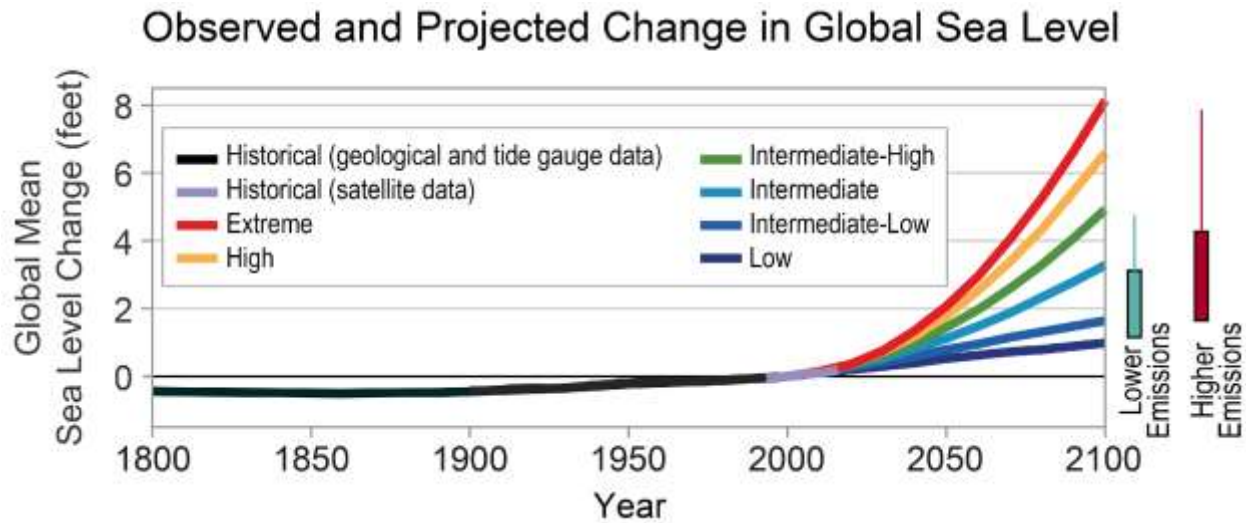


Another way to evaluate risk from flooding in Castine is to look at the results of a FEMA-performed “Hazus” analysis, which accounts for newly modeled areas in the Flood Risk Project and newly modeled depths for certain flood events. This analysis determined that the estimated potential losses in Castine from a 100-year flood event, for total building and contents losses, to be \$2,500,000. Note that the National Flood Insurance Program (NFIP) policy coverage for Castine properties includes 9 policies totaling approximately \$1,624,300.

5.4. Sea Level Rise

Since 1900, global average sea level has risen by about 7 to 8 inches. It is projected to rise another 1–8 feet, with a likely range of 1–4 feet, by 2100 as a result of both past and future emissions of greenhouse gases.⁹ (See Figure M5 below). Greater rises along the Maine coast are possible.

Figure M-5: Global Sea Level Change Scenarios



Source: NOAA National Centers for Environmental Information

Sea level rise is addressed in a 2020 report by the Maine Climate Council’s Scientific and Technical Subcommittee— “Scientific Assessment of Climate Change and Its Effects in Maine.” This report is part of the 2020 Maine Climate Action Plan. A key recommendation is that the Climate Council prepare to manage for 3.0 feet of relative sea level rise by 2050, and 8.8 feet of sea level rise by the year 2100.¹⁰ The map below shows the areas along Castine’s coast that would be impacted by rises in sea level of 3.9 and 8.8 feet. It appears that quite a few sections of Castine’s coast would be affected by a 3.9-foot rise and that many of these areas would be further inundated by 8.8 feet of sea level rise.

⁹ Ibid., p. 3.

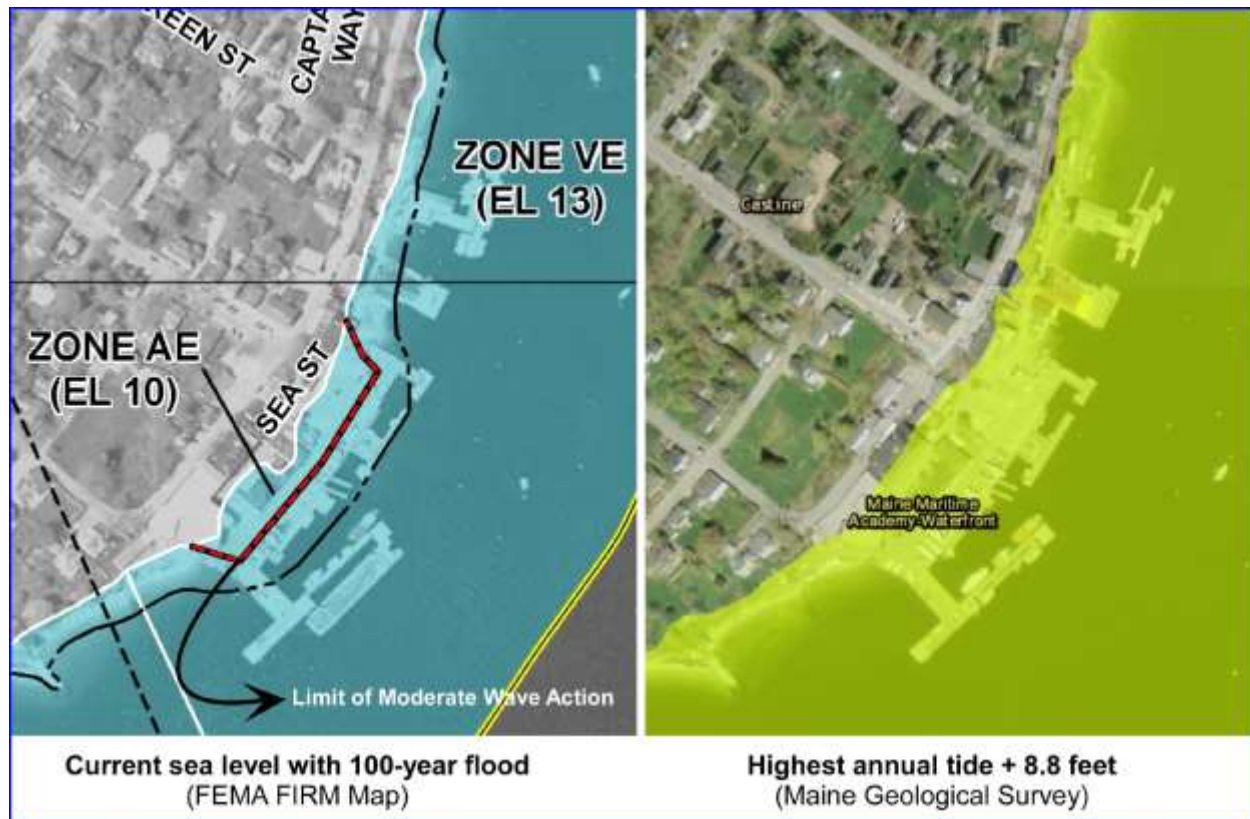
¹⁰ Maine Climate Council Scientific and Technical Committee, “Scientific Assessment of Climate Change and Its Effects in Maine, 2020, p. 11. The report recommends committing to manage for 1.5’ by 2050 and 3.9’ by 2100.

Figure M-6: Castine Sea Level Rise



One question to consider is how sea level rise will compare with present day flood events. Figure M 7 below compares the extent of a 100-year flood in the Town Dock waterfront area with a projected 88.8-foot sea level rise. The answer seems to be that an 8.8-foot sea level rise — the height recommended as a management target to prepare for by the Scientific Technical Subcommittee — will not go much further inland in this area. The difference, of course, is that a 100-year flood is supposed to only have a 1% chance of occurrence and to have a short duration, while sea level rise means being underwater all the time. In other parts of Castine, such as along Bog Brook, the extent of the projected sea level rise beyond the floodplain is more dramatic.

Figure M-7: 100-Year Flood Compared with 8.8 Foot Sea Level Rise



5.5. Drought and Wildfire

In addition to a greater number of extreme precipitation events, Maine has been experiencing more short-term dry periods, with extreme drought occurring in 2002, 2016, 2020 and 2022. Drought conditions in 2020 contributed to more than 900 wildfires, the most Maine has seen in a decade.¹¹

As seen in Figure J - 5 in the Natural Resources chapter, there are approximately 2,240 acres of undeveloped habitat blocks in Castine. These are mostly forested and represent a significant wildfire danger, with risk to life and property, under severe drought conditions. This danger is exacerbated by the difficulty Castine, and many other communities have been having in maintaining their volunteer fire departments. If needed, other communities' fire companies can be called for assistance, but if there are multiple wildfires in the region at the same time, Castine may not have the capacity to respond adequately.

5.6. Water Temperature and Ocean Chemistry

A potential economic impact to Castine from climate change is the result of changing water temperatures and ocean chemistry. As the Gulf of Maine warms, so will the waters around Castine. The warming water temperatures result in decreased populations of *Calanus finmarchicus*, a species of zooplankton and an essential

¹¹ Ibid., p. 2.

food source for larval lobster. Other events include “seawater heat waves” that cause shellfish closures, and also could result in local species extinction as lobsters would not survive in the warmer water temperatures.

6. Analyses

6.1. Transportation

Transportation infrastructure is at risk from such effects of climate change as high precipitation events and sea level rise. This includes marine-related facilities (e.g., piers, docks, wharves, landings) as well as land-side infrastructure (e.g., roads, bridges, culverts).

Figure M-8: Route 166 Culvert and Overtopping of Wadsworth Cove Road and Route 166



Source: NOAA Sea Level Rise Viewer, <https://coast.noaa.gov/slr/>

There are two areas in Castine where it appears that roads are in danger of being overtopped by sea level rise (see figures above showing 9-foot sea level rise). The first feature of concern is the culvert that allows a stream to empty into Morse Cove under the Shore Road. The Town should work with MaineDOT to determine whether the culvert will need to be upgraded in order to accommodate the coming sea level rise as well the increased stormwater flows from high precipitation events.

The second area of concern is the British Canal area as it appears from the sea level rise projection maps that significant portions of Wadsworth Cove Road and Route 166 will be underwater with a sea level rise of 8.8 feet (the height recommended by the Maine Climate Council to prepare for by 2100). Here again, Castine officials will want to work with its regional partners, such as the Hancock County Planning Commission, and MaineDOT to determine what will need to be done to ensure continued road access between the northern and southern parts of Castine.

In addition to the Shore Road culvert mentioned above, there is another large culvert that allows Bog Brook to pass beneath Route 166. While the sea level rise maps show water rising along Bog Brook as it approaches Rt. 166, they do not show water overtopping the road. Nevertheless, it may be prudent to check the engineering data for this culvert also to make sure it is sized and elevated appropriately.

Table M-1: Large Culverts in Castine

Culvert #	Route	Stream	Length (ft)	Width (ft)	Depth (ft)	Type	Condition
LG_CUL-46757	166	Unknown	32	65	4	Dry Stone	Good
LG_CUL-46687	166	Bog Brook	80	60	12	Other	Good

Source: MaineDOT Public Map Viewer

In terms of marine-related transportation, the central waterfront area with the Town Dock, the Maine Maritime wharf, and various buildings and roads is projected to be underwater with 8.8-feet of sea level rise. Addressing this challenge will be a major project for Castine in the years ahead. It is not too soon to begin doing the engineering and planning studies needed to select a preferred alternative, find out what the project costs will be, and to start reserving, raising, and seeking the necessary funds. The Maine Coastal Program is a good source of grant funds for addressing the need to make Castine's working waterfront resilient to sea level rise.

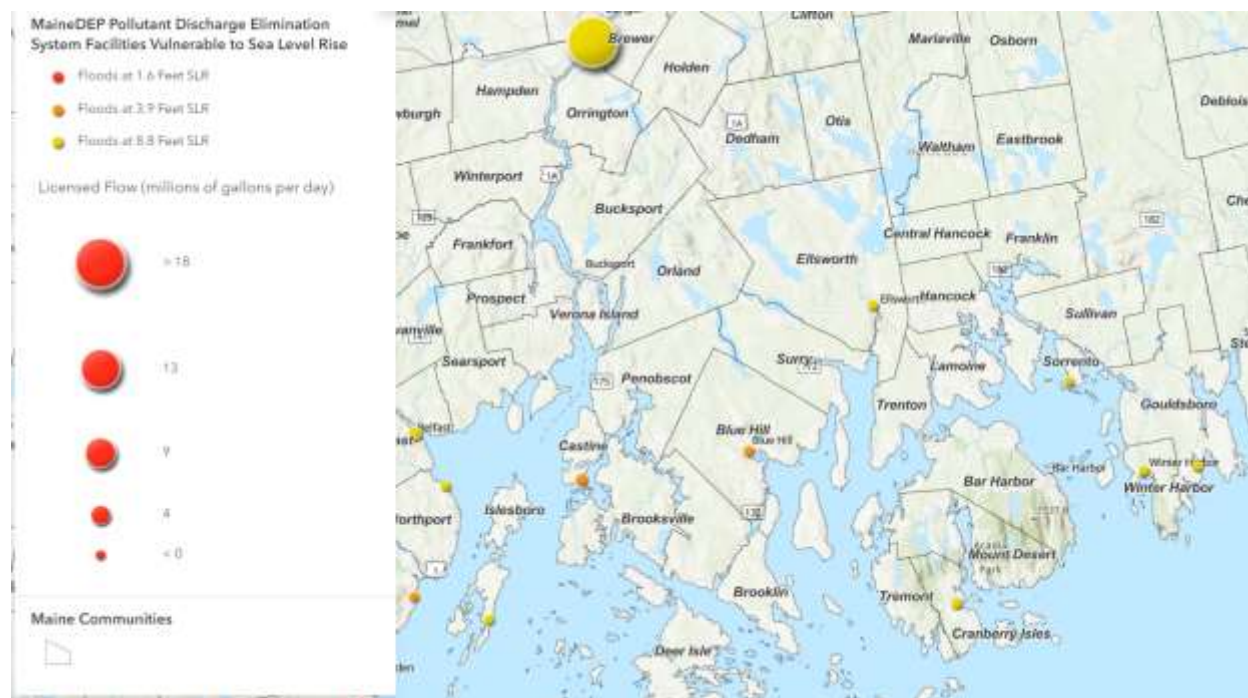
6.2. Wastewater and Drinking Water

Public wastewater facilities can be susceptible to the effects of climate change if a treatment plant is located close to the sea. Public drinking water systems can be vulnerable if they rely on wells that could fail in times of severe drought. According to the predicted sea level rise maps, the Castine wastewater treatment facility does not appear to be in danger of higher water levels. However, in the parts of town without public sewers, there may be a few cases where septic systems close to the coast will need to be moved to higher ground.

In terms of Castine's drinking water, the public water system for the village On-Neck has been an ongoing challenge in terms of water supply and water quality. This challenge will likely increase due to longer periods of drought and increased saltwater intrusion into some of the wells. The Town has hired Olver Associates to manage its water utility and has commissioned studies to investigate additional sources of water and improvements to the water treatment systems. This investment in ongoing professional engineering assistance is worthwhile and will continue to be needed as the effects of climate change proceed.

Elsewhere in Castine, and similar to the septic systems, a few private wells near the ocean may need to be relocated to avoid saltwater intrusion.

Figure M-9: Pollutant Discharge Elimination Systems Facilities Vulnerable to Sea Level Rise



Source: Maine Climate Impact Dashboard

6.3. Stormwater

Stormwater infrastructure, such as road and driveway culverts, need to be sized to handle the larger volumes of water expected from extreme precipitation events. Castine has done engineering studies to identify needed improvements to its Village stormwater system and has been in the process of making upgrades. However, the studies were based on meeting a 25-year storm event standard,¹² and this may not be sufficient given the increase in extreme precipitation events as discussed above. It would be prudent for the Town to investigate whether the stormwater system should be designed for larger rainstorms and to upgrade its long-term master plan based on the higher standard.

6.4. Agriculture and Forestry

Although there isn't a great deal of agriculture and forestry in Castine, the increased variability in precipitation expected from climate change, as well as increased temperatures, may make it necessary to assess the potential impact in general on small farms and woodlots in the town. It may be that farmers will need to switch to hardier varieties or types of crops that will be better able to withstand a wider range of environmental conditions. In addition, the threat of forest fires will become more of an issue for woodlot owners.

¹² Master Plan for Long Term Infrastructure Improvements in Castine Village, Olver Associates, September, 2009, p. 1.

6.5. Natural Resources

The various manifestations of climate change create a need to assess its direct and indirect impacts on existing plant and animal species in Castine. Fortunately, there are regional, state, and nonprofit partners with whom Castine citizens and officials can coordinate in undertaking such an assessment. In general, as discussed in the Natural Resources chapter, the stresses on plants and animals associated with climate change makes the need to maintain habitat connectivity that much more important.

6.6. Development Management

Given the expectation of increased sea level, greater flooding, and other impacts related to climate change, it is important to prevent new development from locating in areas of risk from natural hazards. As has been shown, Castine has a topography that rises relatively quickly from sea level along most of its coast. Nevertheless, the Town should review its Shoreland Zoning, flood plain, site plan, subdivision, and other land use regulations to ensure new developments are located appropriately. There may also be a need to require clear areas around new buildings in forested areas given the increased risk of wildfires.

6.7. Mitigation

Most of the discussion above has dealt with adaptation and how to become a more resilient community in the face of increased risk of natural hazards. There is another side of the coin, which is the role Castine and its citizens can play in helping to mitigate climate change. This primarily involves reducing greenhouse gas emissions. Some of the actions that various municipalities in Maine have taken along these lines have been to develop climate action plans, install solar arrays on landfills and on municipal buildings, replace aging municipal vehicles with electric cars, improve facilities for walking and biking, offer rebates for heat pumps to lower income households, etc. In addition, citizens can modify their behavior as they become more aware of the need to slow global warming and the build-up of carbon dioxide and other greenhouse gases in our atmosphere.

7. Goals & Objectives

GOAL: Adapt to Climate Change and Mitigate its Negative Impacts on Castine			
Objective	Strategy	Timeframe	Suggested Responsibility
Stay abreast of current studies, legislative changes, and funding opportunities.	Create a Climate Change/Sea Level Rise Committee	Immediate and Ongoing	Select Board, Town Manager, HCPC
Determine Castine’s infrastructure resilience improvement needs in more detail.	Undertake a climate change vulnerability assessment.	Immediate	Climate Change Committee, Select Board, Town Manager
	Incorporate future costs needed to increase infrastructure resilience work (Town Dock & Backshore) into Castine’s capital improvement fund.	Immediate and Ongoing	Select Board, Town Manager
	Consider an increase of Castine’s National Flood Insurance Policy.	2024-2025	Select Board
Ensure that vulnerable groups can cope with climate change impacts.	Identify vulnerable populations and provide them with relevant climate change information.	2024-2025	Climate Change Committee, Town Manager, Select Board
	Develop plans for extreme weather events. Review the vulnerability of emergency access and evacuation to extreme weather events.	2025	Climate Change Committee, Town Manager, Select Board
Expand regional cooperation through Hancock County Emergency Management, Peninsula Tomorrow, and peninsula fire departments.	Meet and plan with HCPC, HEMA, Peninsula Tomorrow and regional emergency responders.	Ongoing	Climate Change Committee, Castine Fire Department
Equip Castine residents with alternative forms of energy.	Plan for and build a community solar project on town land.	2024	Climate Change Committee, Town Manager, Select Board, HCPC
Stay abreast of Maine Climate Council recommendations and flood map updates	Review Climate Council updates and keep current on recommendations. Regularly update flood maps and risk assessments.	Immediate and ongoing	Climate Change Committee

Chapter N: Current Land Use

1. Purpose

This section discusses current land use patterns in Castine. An understanding of land use trends is particularly important in determining Castine's ability to absorb future growth. Specifically, this section:

- A. Summarizes the breakdown of developed and undeveloped land in terms of estimated acreage and location;
- B. Explores the potential for new development in the next ten years and Castine's capacity to absorb the growth; and
- C. Suggests measures Castine may want to consider for managing its residential and non-residential growth.

2. Key Findings & Issues

Castine is a unique coastal Maine community with both an Off-Neck rural area and an On-Neck village. It has a variety of residential, service, education, and commercial land uses.

In addition to a small amount of land On-Neck, there are approximately 2,656 acres of land available Off-Neck that could be developed or further developed. An additional 513 acres could be deducted from this total for Farmland, Open Space, and Tree Growth current use taxation acres, although some of those acres are also in wetlands and the Resource Protection district, and they in any case can be developed if the owner is willing to incur the tax penalty.

Erring on the high side, if one assumes a 15% residential growth rate for the next ten years and that most of this new development will occur Off-Neck, it would result in approximately 100 new dwelling units requiring a total of approximately 200 acres of land. There is ample land available in Castine to accommodate this new development.

Castine has a large, 1,726 acre undeveloped habitat block in the center of the Off-Neck part of town. This important resource is in danger of being broken up over time by gradual, uncoordinated subdivision development. Adopting a mandatory cluster subdivision provision that would require new subdivisions to preserve a certain amount of open space by clustering homes on smaller lots, as well as developing an open space master plan for the subdivision open spaces to conform to, would help preserve this important habitat block.

3. Key Findings & Issues from Previous Plans

Castine has managed to preserve its balance of development between an attractive village and a relatively undeveloped rural area. Since 1995, 291 additional acres have been protected by conservation land trust ownership or easements, which is indicative of the commitment made by individuals and groups to preserve key natural areas in Town. This increase resulted in a reduction in taxable lands and the revenue they might produce in the future.

While a slow rate of growth is projected to continue, the Town faces challenges in maintaining its current balance. As discussed in Chapter E, the infrastructure is aging and faces some serious deficiencies.

It will be challenging to ensure that the Town's zoning allows the construction of housing that is affordable by those of all income levels, that reflects the Town's needs and that is compatible with its infrastructure.

There has been no new commercial development; on the contrary, some commercial properties have been converted to residential and other non-commercial uses. In order to attract businesses, the Town will need to increase the acreage that is available for commercial activity.

Parking continues to be a particular concern in the Village and may require review and amendment of zoning ordinance parking requirements.

Finally, there is a need to improve collaboration between the Town and MMA regarding the future needs of both entities.

4. Public Opinion Survey Results

Respondents were asked to choose locations in Castine that they felt are most appropriate for various land uses. Some of the takeaways from the responses are as follows:

- A strong majority do not want heavy industry anywhere (80.2%).
- A strong majority feel single-family residential can go anywhere (75.4%); a strong majority also feel multifamily residential can be allowed (81.6%), but there wasn't a clear consensus on where in Castine apartments or other multifamily residential should be permitted. Many respondents felt mobile home parks should be allowed nowhere (57.9%) or off-neck (39.1%)
- Lodging facilities had a high level of acceptance (98.5%), with most respondents feeling they made the most sense in the On-Neck and Village areas. There also was a strong acceptance for seasonal rentals (93.3%), but fewer people thought they should be On-Neck or in the Village.

When asked in a different question what types of development they would like to see, the strongest desire by the respondents was for more restaurants (63.4%).

5. Existing Land Use Conditions and Trends

5.1. Existing Land Uses and Acreages

Figures N - 1 and N - 2 below show existing land uses On-Neck and Townwide in Castine:

Figure N-1: Castine On-Neck Land Use Map

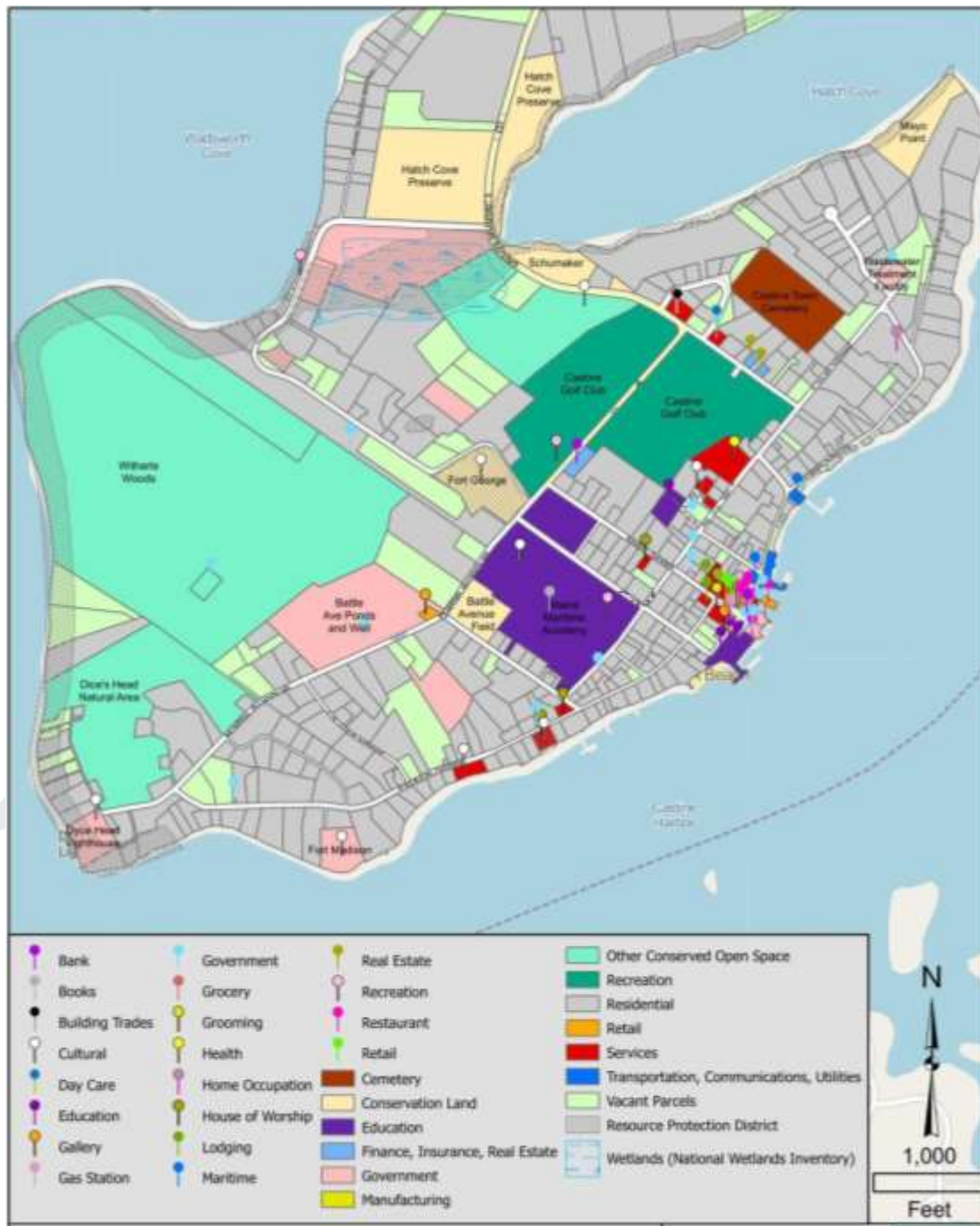


Figure N-2: Castine Town-Wide Land Use Map



In the maps above, the parcels are color-coded by general land use categories while the pins depict buildings or parts of buildings according to somewhat more specific uses. In addition, wetlands and the Shoreland Zoning Resource Protection District are included as overlays to aid in evaluating Castine’s remaining development potential.

In terms of the area of the different land uses in Castine, Table N – 2 below shows the parcel acreages, including public roads and islands but not including the ocean area within Castine’s jurisdiction.

Table N-1: Existing Land Use Acreages

Land Use	Square Feet	Acres	Percent
Cemetery	465,717	10.7	0.2%
Conservation Land	22,708,034	521.3	10.5%
Education	1,480,392	34.0	0.7%
Finance, Insurance, Real Estate	62,466	1.4	0.0%
Government	5,129,545	117.8	2.4%
Manufacturing	2,852	0.1	0.0%
Other Conserved Open Space	9,261,172	212.6	4.3%
Public Roads	5,750,869	132.0	2.7%
Recreation	2,330,183	53.5	1.1%
Residential	104,976,625	2,409.9	48.5%
Retail	149,759	3.4	0.1%
Services	961,710	22.1	0.4%
Transportation, Communications, Utilities	57,708	1.3	0.0%
Undeveloped Parcels	<u>63,302,114</u>	<u>1,453.2</u>	<u>29.2%</u>
Subtotal	216,639,145	4,973.4	100.0%

Source: Google Maps, OpenStreetMap, CAI Technologies

5.2. Amount of Land Available for Future Development

Evaluating the amount of land remaining in Castine that is available for future development is an exercise in adding up undeveloped land (except where protected for conservation) and “surplus” land in improved lots and then deducting for development constraints. While there are a number of vacant parcels On-Neck, as well as some On-Neck improved parcels with “surplus land” exceeding their zoning district’s minimum lot size (and thus having potential for additional development), this acreage is relatively small when compared to Castine’s Off-Neck area. As such, the focus for determining Castine’s remaining development potential was on the Off-Neck area.

According to the calculations below, there are approximately 2,656 acres of land available Off-Neck that could be developed or further developed. An additional 861 acres could be deducted from this total for combined Farmland, Open Space, and Tree Growth current use taxation acres, although some of those acres are also in wetlands and the Resource Protection District, and they in any case can be developed if the owner is willing to incur the tax penalty.

It also is important to note that there are a variety of other potential development constraints that can only be evaluated on a lot-by-lot basis. These include such factors as sufficiency of street frontage, soil conditions, well water availability and proximity of wells to septic fields, etc. Therefore, the actual amount of land available in Castine for future development is less than the amount shown in Table N - 2. Nevertheless, it is clear in general that there is a considerable amount of land left in Castine that has the potential to be developed in the years to come.

Table N-2: Off-Neck Development Potential

	Square Feet	Acres
Off-Neck vacant parcels	59,827,978	1,373

	Square Feet	Acres
Minus Resource Protection District	2,474,973	57
Minus Wetlands	9,530,791	<u>219</u>
Developable Off-Neck vacant parcels		1,098
Off-Neck residential parcels > 170,000 sq. ft.	82,503,917	1,894
Minus 85,000 sq. ft. per parcel (95 parcels)	8,075,000	185
Minus Resource Protection District	2,071,297	48
Minus Wetlands	4,473,018	<u>103</u>
Developable "Surplus" land in Off-Neck residential parcels		1,558
Total Off-Neck Developable Land		2,656

Source: CAI Technologies, Castine 2013 Zoning Map; MaineOGIS for National Wetlands Inventory data (WETCHAR).

5.3. Land Use Patterns

The following is a brief overview of the land use patterns in the various parts of Castine. Specific issues facing each part of Town are identified.

5.3.1. On-Neck

The most densely populated portion of Castine is the Village area of On-Neck. Unlike many coastal Maine villages, it has retained most of its historic character. The proximity of the houses to each other, the lack of through highway traffic and commercial development make it a pedestrian friendly place. In recent years some new sidewalks have been constructed but more are needed.

The infrastructure problems discussed in the Transportation chapter and in the chapter on Public Facilities and Services are a major challenge facing On-Neck. While some of the problems with the public water and sewer systems have been addressed, the limited capacity of these systems remains a significant constraint to growth. Parking is a particular concern.

Perhaps the primary challenge is the presence of a major state institution, MMA. Development by MMA affects the entire Town including water supplies, sewage disposal, and parking.

5.3.2. Off-Neck

The entire Off-Neck area is zoned rural with a roughly two-acre (85,000 sq. ft.) minimum lot size. Since the interior of Off-Neck is not served by roads, most of the homes are along or immediately adjacent to Routes 166 and 166A. While new homes have been built in recent years, Off-Neck has so far retained its rural character.

5.3.3. Shoreland and Islands

Castine has approximately 15 miles of mainland shoreline including the shoreline of the Bagaduce River (including Hatch Cove and Castine Harbor) and the shoreline of Penobscot Bay (including Wadsworth Cove and Morse Cove). As discussed in the Natural Resources chapter, the Town has adopted State shoreland zoning standards requiring that coastal shorefront structures normally have a 75-foot setback from the water. Castine's zoning ordinance also establishes a 250-foot setback in the Resource Protection overlay district from east of Dyce's Head to Wadsworth Cove.

Castine has about 1.2 miles of island shoreland. The major islands are:

- Ram Island, located across from Castine harbor between the Brooksville harbor and the eastern end of Holbrook Island, is owned by The Conservation Trust of Brooksville, Castine and Penobscot (now the Blue Hill Heritage Trust).
- Holbrook Island, located close to Ram Island and across from Brooksville, is owned by the State.
- Sheep Island, located in Smith Cove close to the Brooksville shore, is privately owned.
- Upper Negro Island, located in the Bagaduce River, is privately-owned.
- Lower Negro Island, located south of Upper Negro Island in the Bagaduce River, is owned by the Blue Hill Heritage Trust.

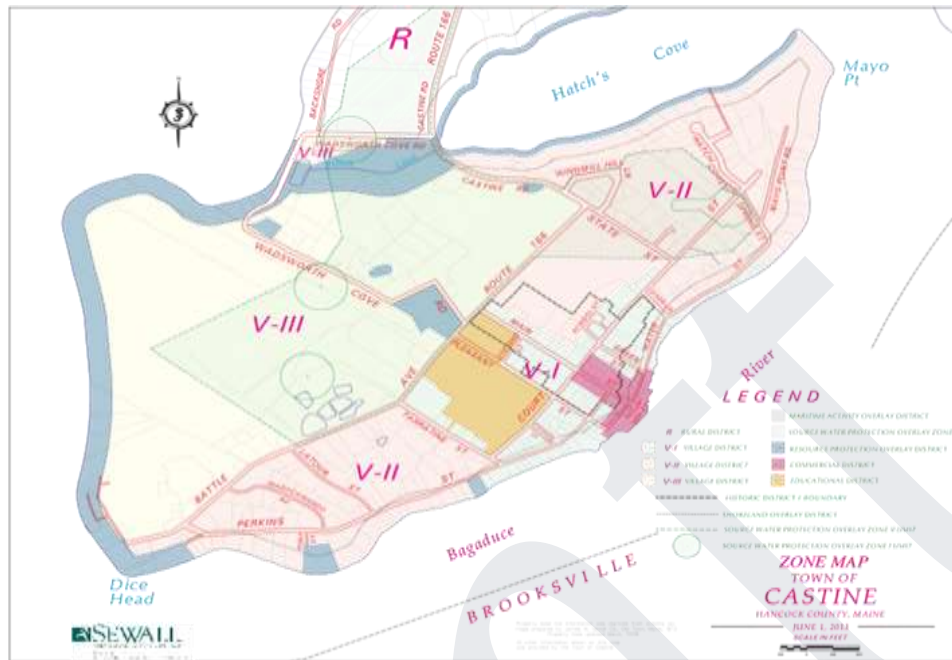
5.4. Current Lot Dimension Standards

The primary lot dimension standards for Castine, as contained in its Zoning Ordinance, are shown in Table N - 3 below, followed by the Castine zoning maps. Some setbacks and other minimums are situational or have additional requirements that are specified on pages 34 and 35 of the Zoning Ordinance.

Table N-3: Castine Lot Dimension Table from Zoning Ordinance

Dimension	Zoning District					
	R	V-I	V-II	V-III	MA & C	E
Minimum lot area (sq. ft.)	85,000	8,250	20,000	85,000	7,500	N/A
Minimum lot width (ft.)	200	90	100	200	85	N/A
Setbacks (ft.)						
Front yard	30	10	15	20	10	15
Rear yard	30	10	15	20	10	15
Side yard	30	10	15	20	10	15
Minimum Shore Frontage (ft.)	200	100	150	200	100	N/A
Maximum percent lot coverage (%)	20	50	30	20	65	60
Structure height (ft.)	35	35	35	35	35	50

Figure N-3: Castine On-Neck Zoning Map



Source: Town of Castine

Figure N-4: Castine Town-Wide Zoning Map



Source: Town of Castine

Additionally, LD 2003 establishes a minimum lot size of 190 square feet for accessory dwellings units (ADUs) and allows them, conditionally, to be developed on the same lot as a single-family home. Individual municipalities will have the ability to establish a maximum ADU lot size. ADUs are exempt from zoning density requirements, but the dimensional requirements of a single-family home still apply unless the Town determines otherwise.

Overall, LD 2003 is intended to increase the production of housing in Maine. It would override Castine's minimum lot size requirement, and it has the potential to accelerate residential development in Castine. It also has the potential to spur the development of affordable housing in the Town's growth area. It will be important to monitor the implementation and any changes to this law in the years ahead.

5.5. Development within the Last Ten Years

There has been relatively little development activity in Castine in the last ten years. As discussed in the Housing chapter, residential units increased by 4% from the year 2000 to 2020. In the last six years the average number of new homes built has been an average of 2.5 per year while new non-residential structures averaged 2.3 per year. Most of the residential development has been in the Off-Neck portion of Castine while the majority of non-residential building has been On-Neck.

5.6. Existing Land Use Regulations and Land Use Management Tools

Castine has enacted a number of ordinances over the years to regulate development and manage growth. These include:

- Zoning Ordinance (amended 7/14/2020)
- Site Plan Review (article in the Zoning Ordinance)
- Subdivision Ordinance (amended 9/2/2013)
- Shoreland Zoning (article in the Zoning Ordinance)
- Rental Housing Ordinance (6/2/2018)
- Floodplain Ordinance (5/14/2016)
- Historic Preservation Ordinance (3/27/2010)
- Source Water Protection Ordinance (4/4/2009)
- Water Service Protection Ordinance (5/13/2017)
- Waterfront Ordinance (5/13/2017)
- Comprehensive Plan (11/2/2010)

For a small town, Castine has a relatively extensive and sophisticated set of land use related ordinances.

5.7. Projected Land Acreage Needed for Development

Given the various countervailing factors affecting land development, such as urban flight on the one hand and mortgage rate increases on the other, it is difficult to estimate the amount of new development that will occur in coming years. In terms of housing, new units increased by 17.6% from 1990 to 2000 while the increase from 2000 to 2017 (the most recent year for which reliable data is available) was only 2.3%. Erring on the high side, if one assumes a 15% residential growth rate for the next ten years and that most of this new development will occur Off-Neck, it will result in approximately 100 new dwelling units, each requiring the R zone's minimum

lot size of 85,000 sq. ft., for a total of 8,500,000 sq. ft. or approximately 200 acres of land. As shown in subsection b. above, there is much more land available in Castine than would be needed to accommodate this new development.

6. Analyses

6.1. Consistency with the Community Vision

Most of the development in Castine is occurring lot by lot and not in subdivisions or planned developments. Based on responses in the comprehensive plan survey, growth in Castine appears to be occurring gradually enough that there aren't requests for growth limits or other new land use regulations. A large majority of the citizens want to protect resources like drinking water aquifers and coastal land, but there isn't an indication that people want more regulation than the relatively extensive land use related regulations currently on the books. In this sense, it can be said that development in Castine has been consistent with the community's vision.

6.2. Measures to Ensure Development Fits with the Community Vision

In thinking about what more Castine could do to ensure future development fits with the community vision, it is worth looking again at the Undeveloped Habitat Blocks map in the Natural Resources chapter (Figure J4). This map makes clear that Castine has a large, 1,726 acre undeveloped habitat block in the center of the Off-Neck part of town. This important resource is in danger of being broken up over time by gradual, uncoordinated subdivision development. Adopting a mandatory cluster subdivision provision that would require new subdivisions to preserve a certain amount of open space by clustering homes on smaller lots and developing an open space master plan for the subdivision open spaces to conform to, would help preserve this important habitat block.

6.3. Land Use Regulation Administrative Capacity

Related to managing its land use regulations, Castine has a Planning Board, Board of Appeals, and Historic Preservation Commission. The Town Manager serves as the Code Enforcement Officer, and there is a Local Plumbing Inspector. These resources appear to be sufficient for the foreseeable future. If this turns out not to be the case, it may be possible to work out an arrangement with a nearby town to share a staff person (such as a part-time Assistant Code Enforcement Officer).

6.4. Floodplain Regulations

Castine adopted a comprehensive and up-to-date Floodplain Ordinance in 2016 that is consistent with state and federal standards. The Town participates in the National Flood Insurance Program (NFIP); the current effective date of its Flood Insurance Rate Maps is 7/20/2016. As discussed above, flooding has not been a major concern in Castine, although there are a few waterfront locations, including the Town Dock area, that will see the effects of sea level rise in coming years.

Chapter O: Future Land Use

1. Purpose

This section discusses likely future land use patterns in Castine. An understanding of land use trends is particularly important in determining Castine's ability to manage future growth. Specifically, this chapter:

- A. Attempts to predict growth scenarios for the town;
- B. Identifies land areas suitable and unsuitable for potential growth over the next ten years;
- C. Describes options for growth management; and
- D. Provides a set of steps that can be taken to engage residents in the growth management process.

2. Key Findings and Issues

Although Castine has experienced minimal fluctuations in population and land use during the past few decades, there is good reason to believe that during the next decade the Town will experience a growth in population. There is, therefore, a need to find ways in which the Town can accommodate increased population while maintaining its rural nature.

Increased population is likely to include the following impacts:

- Increased housing prices, which will reduce the availability of affordable housing;
- Change seasonal dwellings to "three-season" or year-round residences;
- Increase the expectations for municipal services, and thus increase taxes;
- Degrade the rural qualities that are preferred by a large majority of residents; and
- Create tensions in situations where land uses are incompatible with surrounding abutters.

Castine will do well to institute a whole-community planning effort -- information-gathering, discussion and prioritization, involving all residents -- to address probable future land use issues soon, rather than wait for population pressure to create a critical situation. The Town can draw upon the experience of community members, as well as on examples of other communities that have accommodated reasonable, slow growth while preserving their rural nature.

Because many towns in Maine will probably face similar impacts from increased population, it is likely that both the state and non-governmental organizations will increase the availability of technical assistance to help communities address increasingly complex land-use issues.

3. Key Findings & Issues from Previous Plans

The 2010 Plan sought to preserve current land use patterns while allowing ample opportunity for future growth. The major issues noted in the 2010 plan include:

- the need for affordable housing
- the need for senior housing that is located on neck; and
- increasing acreage available to be used for commercial activity.

The 2010 plan sought to address those issues through four measures:

1. Support of the development of affordable housing:
 - a) Continue to allow accessory and duplex apartment units in all districts where allowed by State law without any increase to density requirements over those required for single family homes.
 - b) Continue to allow multifamily units where currently allowed if these units provided off street parking, met State life and safety codes, and were buffered from surrounding properties.
 - c) Continue to allow cluster developments.
 - d) Continue to allow mobile homes and mobile home parks Off-Neck.
2. Zoning ordinance standards:
 - a) Increase the appeal of subdivisions by strengthening subdivision development standards.
 - b) Increase the appeal of mobile home parks and ensure the preservation of open space and a rural appearance by strengthening mobile home park standards.
3. Support the development of On- Neck senior housing:
 - a) Provide senior housing that is located close to Castine Community Health Services and other town services.
4. Promote Off-Neck commercial growth: promote attraction of new businesses by studying current needs to identify potential commercial development.

4. Public Opinion Survey Results

Survey results indicate strong support for affordable housing in Castine, with a preference for single-family homes, senior living facilities, and multifamily housing, though there's opposition to mobile home parks and a desire for development outside the Village area. About 75% of respondents are open to single-family homes being built anywhere in town, with significant support also for senior care facilities and multifamily apartments. Additionally, the survey reveals a high demand for more year-round services and commercial development, particularly in the areas of dining, lodging, and healthcare, while showing resistance to gas stations and heavy industry.

5. Land Identified with Potential for Development

6. Land Use Patterns

6.1. Overview:

Castine has avoided the sprawl and strip development that characterizes many Maine communities. One of Castine's strengths as a community is the on-going relationship between the more densely developed On-Neck and rural Off-Neck. Growth On-Neck, however, is severely constrained by the lack of developable land left, and the limited capacity of the public water and sewer system. This means that more growth will be attracted Off-Neck.

6.2. The Coastline:

Despite projected sea level rise, the demand for buildable residential land along the coast of Maine, including Castine, likely will increase, although landowners who are aware of the impacts of climate change affecting their properties and who have the financial means will be seeking higher ground.

The Shoreland Zone is defined in State statute as the land within 250' (measured horizontally) from the normal high-water line of any great pond, river, wetland, or the coast. Towns may enact stricter standards than the State minimums for shoreland protection, and also designate which districts/areas will fall under resource protection. Castine's Shoreland Environmental Protection Ordinance adheres to the State minimum standards. However, as development continues within the shoreland area, Castine may want to consider updating the local ordinance to go beyond the State minimums to protect the coastline and coastal waters from, for example, construction-related overland flow or other pollution. Presumably, as the coastline recedes, the 250-foot zone will migrate inland, subjecting new areas to the state-mandated Shoreland protections.

6.3. On-Neck

The village of Castine, on-neck, is pedestrian friendly. Incentivizing planned development, both housing and economic, can both protect and enhance this pedestrian nature, while aligning with the State's move toward increasing population density and walkability.

Densification of development also means more concerns for water supply and sewage disposal. Castine has made strides over the past decade to overcome potential water supply deficits and should continue to plan for increased population.

Zoning could be used to strengthen and stabilize the health of the commercial district. The return of first floor retail to buildings in the commercial district could free up space for more year-round business that could help to make Castine a more sustainable year-round community.

Zoning and planning to protect and revitalize the waterfront might also be advisable to help retain the charming seaside nature of the village.

6.4. Off-Neck

As noted in the Current Land Use chapter, the preponderance of Castine's buildable acreage is located off-neck. The majority of survey respondents indicated that they would prefer development such as multifamily housing units, subdivisions and recreational facilities to be built off-neck.

The rural character of the off-neck area can be maintained and enhanced with the addition of more working farms. Farms could also be important components of that sustainable year-round community.

7. Future Land Use Plan

The survey results highlight strong support among Castine residents for various types of residential and commercial development, and a desire for development outside of the village area. Four locations have been

identified as suitable for development: On-Neck, Western Off-Neck, Central Off-Neck, and near Wilson's Point.

7.1. Growth Areas

7.1.1. On-Neck

On-Neck has been developed diversely with residential, commercial, and public properties. There are many historic homes, as well as public facilities and services such as the Town Office, municipal water and sewer systems, fire department, Post Office, Maine Maritime Academy and the Adams School, and Castine's community health services. Designating On-Neck as a growth area is consistent with historic development. This On-Neck Growth Area extends up Castine Road and along the Shore Road to Bog Brook for consistency with the State's designation of growth areas as an area identified in the most recent Decennial Census as a census-designated place.

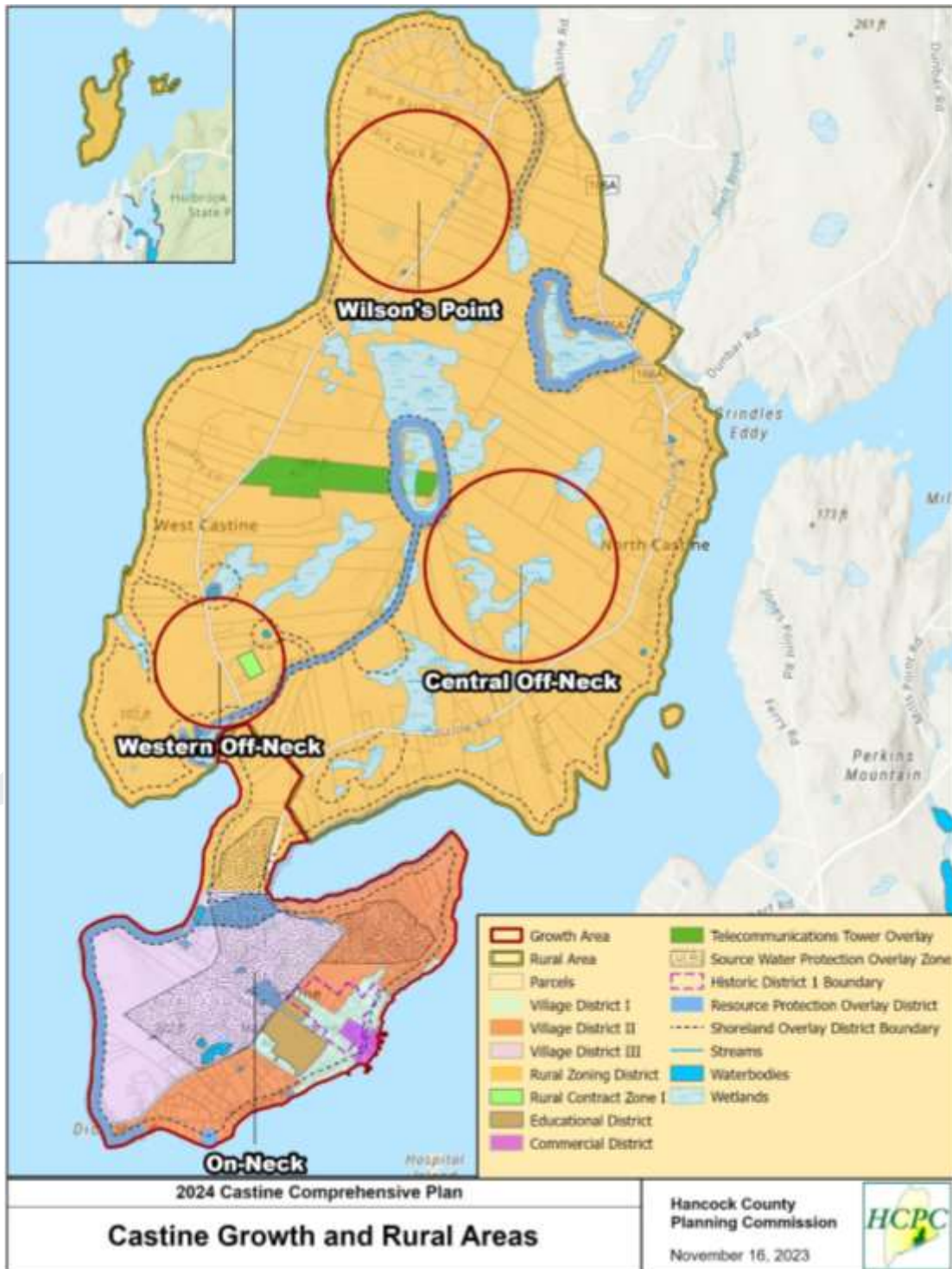
As discussed in previous sections, the limited availability of space for new development and the capacity of the water and sewer systems means that On-Neck is severely limited in its ability to absorb more growth and realistically additional growth areas are needed to accommodate projected residential growth.

7.1.2. Off-Neck Growth Areas

Off-Neck is currently entirely zoned as rural intended for low density development. The Plan recommends that Off-Neck remains predominately rural with cluster development encouraged in the three identified Off-Neck Growth Areas. The **Wilson's Point Growth Area** and **Central Off-Neck Growth Area** are designated as growth areas due to the availability of large undeveloped lots. Encouraging cluster development will help to retain the rural appearance of Off-Neck while also allowing for ample opportunities for growth. The purpose of a cluster development is to allow for the creation of open space, provide for housing growth, recreation opportunities or protect important natural features from the adverse impacts of development.

The **Western Off-Neck Growth Area** provides additional affordable housing opportunities. The Growth Area builds on existing land uses and desired development as there is currently a mobile home park along Simpson Road and Bowden Road.

Figure O-1: Future Land Use Map



7.2. Land Unsuitable for Development

Solid conditions and other potential constraints as shown in Figure O – 1 and Figure O – 2 must be taken into consideration in permitting land development. For example, Castine has a number of very wet (“hydric”) soil areas, flood hazard areas along the coast, and environmentally conserved areas where development is prohibited or limited.

Figure O-2: Development Constraints



8. Goals and Objectives

GOAL: Castine will encourage new development while maintaining its rural small-town character and pristine environment.			
Objective	Strategy	Timeframe	Suggested Responsibility
Encourage moderate population growth with a focus on workforce-age and school age demographic through the support of locations, types, scales and intensities of land uses desired by residents and support of the financial commitment necessary to provide needed infrastructure in growth areas.	Assign responsibilities for implementing the Future Land Use Plan.	2024-2030	Select Board, Implementation Committee
	Include anticipated municipal capital investments necessary to support proposed land uses in the Capital Investment Plan.	Ongoing	Select Board, Town Manager, Implementation Committee
	Review zoning practices to: <ul style="list-style-type: none"> Clearly define the desired scale, intensity and location of future development. Maintain fair permitting practices and explore streamlining permitting practices in growth areas. Define protective measures for critical natural resources. 	2024	Select Board, Planning Board, Implementation Committee
	Direct a minimum of 75% of new municipal growth-related capital investments into designated growth areas identified in the Future Land Use Plan.	Ongoing	Select Board, Town Manager, Implementation Committee
	Annually evaluate implementation of the plan	2025 and Ongoing	Implementation Committee
	Track all new development in the community by type and location.	2024-2030	Select Board, Planning Board, Implementation Committee, HCPC
	Identify and establish high density zone (s)	2024-2026	Planning Board, Implementation Committee
	Review large scale development opportunities in line with current town character.	Ongoing	Planning Board
	Review lot size requirements in the context of LD 2003.	2024	Planning Board
	Amend zoning ordinances to encourage cluster housing development Off-Neck.	2026	Planning Board, Implementation Committee
	Promote and collaborate with community partners encouraging youth recreation	2024 and Ongoing	Implementation Committee

GOAL: Castine will encourage new development while maintaining its rural small-town character and pristine environment.			
	opportunities through building additional recreational facilities for all residents.		
Coordinate Castine’s land use strategies with local and regional planning efforts.	Participate in regional programs, grants, and projects, to ensure sufficient, affordable housing options.	Ongoing	Select Board, Planning Board, Implementation Committee, Regional Partners, or HCPC
Promote Castine as a year-round residence	Create incentive programs to encourage year-round businesses in both the service and non-service sectors.	2024-2030	Select Board, Planning Board, Implementation Committee
	Engage local development/tourism agencies for support, in collaboration with Castine Merchants.	2024-2030	Select Board, Planning Board, Implementation Committee
Provide accessible support and facilities for Castine’s senior population.	Review and support age-in-place strategies. Support investment for applicable facilities and housing typologies.	2024 and Ongoing	Select Board, Planning Board, Implementation Committee
	Promote age-in-place policies through coordination with regional partners such as Healthy Acadia, At Home Downeast, and/or other nonprofits.	2024 and Ongoing	Select Board, Planning Board, Implementation Committee
	Identify potential senior/retirement housing sites for development with priority assigned to transportation, safety, and medical needs.	2024 and Ongoing	Select Board, Planning Board, Implementation Committee
	Identify all private, state, and federal resources to aid such housing initiatives.	2024 and Ongoing	Select Board, Planning Board, Implementation Committee
Work with MMA to create additional student housing within the educational district.	Developing a program to coordinate student housing MMA, line of communications between landlords and MMA staff.	2024 - 2030	Planning Board and MMA
	Investigate public-private partnerships for the development of a student housing complex.	2024 - 2030	Planning Board and MMA
Adopt more stringent building codes (eg. International	Enact more stringent code for residential construction permits.	2024 - 2025	Planning Board, Town Manager, and Code Enforcement Officer

GOAL: Castine will encourage new development while maintaining its rural small-town character and pristine environment.			
Residential Code) and apply proper enforcement.	Provide the CEO officer with tools, training and support necessary to enforce land use regulations and ensure that the CEO is certified in accordance with 30-A M.R.S.A. 4451	Ongoing	Planning Board, Town Manager, and Code Enforcement Officer
	Develop a Rental Ordinance that clearly defines and enhances the safety of both long and short-term rentals.	2024 - 2025	Planning Board, Town Manager, and Code Enforcement Officer
Improve commercial offerings at the waterfront and protect critical waterfront areas.	Work with MMA, the Merchant’s Association, Castine Community Partners and other stakeholders to create a vision for an expanded waterfront	2024-2030	Select Board, Planning Board, and Harbor Committee
Protect Habitats from Development	Review and update Land Use Ordinances that include the identification of key natural features and proposed mitigations during the permitting process.	2024 - 2026	Planning Board
Protect farmland and rural areas and incentivize farms.	Introduce provisions that exempt farm and forest activities in rural areas from certain noise and other nuisance standards provided that these exemptions are necessary for farm and forest operations.	2024 - 2026	Planning Board
	Introduce provisions ensuring that farm and forested-related uses such as food stands, and small-scale sawmills are permitted in areas designated as rural.	2024 - 2026	Planning Board

Chapter P: Implementation and Evaluation

Implementing the Castine Comprehensive Plan, the work of taking it from policy statement to reality, is the responsibility of the Implementation Committee, Selectboard, Planning Board, and Town Manager; as well as other boards, associations, committees, and the residents of Castine.

This chapter serves as a framework for future action on major policy topics, and as a guide for the Implementation Committee, Selectboard, Planning Board, Town Manager and all residents.

Implementation Committee

The Implementation Committee will be comprised of at least five (5) members of the Castine community. At least two (2) members of the Comprehensive Plan Committee, one (1) member of the Selectboard, one (1) member of the Planning Board, and the Town Manager.

One or two Committee member(s) will preside over a subcommittee dedicated to one of three (3) categories:

Societal – Population, Economy, Housing, Recreation, and Historic and Archaeological Resources

Infrastructure – Public Facilities, Fiscal Capacity, Capital Investment Plan, Transportation, and Marine Resources

Nature/Environment - Agriculture and Forest Resources, Water Resources, Natural Resources, and Climate Change

Each subcommittee will:

- Identify the key actions or issues to be addressed from each chapter in their category.
- Develop a plan for what needs to be done in terms of land use and zoning changes, capital improvements, new standing committee development etc. for each action.
- Identify who (Planning Board, Selectboard, Town Manager, Consultants, etc.) will be required to complete each action.
- Develop a timeline for the completion of each action.
- Outline the steps required for the completion of each action including procurement of funds, people, space, equipment, other actions that must happen first etc.
- Prioritize in what order each action needs to be addressed (immediately, in the next three years, or over the ten-year timeframe).
- Present a copy of their action plan and timeline to the Implementation Committee, the Selectboard and the Town Manager.

Because some actions will require immediate attention, some will be ongoing, and others will be placed later in the timeline a representative of the Implementation Plan will be required to provide the Selectboard with a quarterly progress review.

Evaluation

To ensure the Comprehensive Plan remains effective and responsive to the evolving needs of Castine, the Implementation Committee will conduct an annual evaluation to be included in the Annual Town Report.

This evaluation will assess, at minimum, the following:

- The degree to which future land use plan strategies have been implemented;
- Percent of municipal growth-related capital investments in growth areas;
- Location and amount of new development in relation to community's designated growth areas, rural areas, and transition areas;
- Amount of critical natural resource, critical rural, and critical waterfront areas protected through acquisition, easements, or other measures;
- Any other goals and objectives as determined by the Implementation Committee.

Chapter Q: Regional Coordination

Each chapter in Castine’s Comprehensive Plan identifies regional coordination challenges and opportunities pertinent to the chapter topic. These are either located within a subsection labeled Regional Issues or embedded within the Goals and Objectives subsection. This section summarizes the most important areas of ongoing and recommended regional cooperation.

Federal & State Government:

Castine interacts with federal, state, and regional governments and agencies in a variety of ways in the daily operations of the town. These include statutory requirements, grants, programs, and services. The Town maintains a relationship with the State on fisheries and water quality issues, consulting with the Department of Marine Resources (DMR) and the Maine Department of Environmental Protection (DEP). On transportation issues, Castine consults with Maine Department of Transportation (MeDOT). The State Police provide policing and protection to the town as well. Economic development and support on State and Federal grants and funds is coordinated with Maine’s Department of Economic and Community Development (DECD), particularly for Community Development Block Grants (CDBG). Maine Can’t Wait and the Governor’s Office of Policy, Innovation & Future (GOPIF) provides guidance for climate change planning. Disaster planning and relief is coordinated through the Federal Emergency Management Agency (FEMA) and Maine Emergency Management Agency (MEMA).

County & Local Government:

Hancock County provides essential services through the Sherriff’s Office and Hancock County Emergency Management Agency.

Castine closely coordinates with neighboring towns including, Sedgwick, Brooklin, Penobscot, Blue Hill, Deer Isle and Stonington on various issues such mutual aid for Fire and Emergency Response, recreational programming, broadband development, and other important economic activities. Castine also participates in Peninsula Tomorrow to address climate change at a regional scale. Castine covers the tuition for its high school aged students at George Stevens Academy in Blue Hill, Bucksport High School in Bucksport, or other regional high schools and our elementary school is a member of Union 93. AtHome Downeast, based in Blue Hill, provides services to Castine’s seniors and persons dealing with mobility issues and chronic illnesses.

Other Coordination with Regional Partners:

Castine is a member of Hancock County Planning Commission (HCPC) and works with HCPC to address issues related to Household Hazardous Waste Collection, economic development via Community Development Block Grant technical assistance, climate change resiliency technical assistance and various planning assistance. This provides the town with a central location for regional coordination and integration with planning efforts by other towns in Hancock County, the Downeast Region and throughout the State of Maine.

Chapter R: Community Engagement Summary

Beginning July 2021, the Comprehensive Committee held bi-monthly meetings, one as a work session, and one as a public meeting. These meetings were noticed on a section of the Town website dedicated to the comprehensive planning process, as well as the Town Calendar. Also included on this Comprehensive Plan webpage was a section outlining our mission and objectives, links to pertinent press stories and a link to the public survey while it was live.

Comprehensive Plan Open House - October 23, 2021 Held in Maine Maritime Academy's field house, the community was invited to an open house where they offered initial ideas for improvement and thoughts on current areas of strength in Castine. Feedback was offered on large poster boards; comments were collected, and the Committee used this feedback to begin individual work on subject areas.

Public Survey The public survey was made available January 2022 - April of 2022 through the Town website and advertised in the *Castine Patriot*, through town and community social media and a mailing sent to the entire real estate tax roll (resident and non-resident) and registered voters. The results of the survey have been used to inform this plan. 284 residents responded to this survey.

Town Hall Meetings to present Pillar Content In October 2022, May 2023 and June 2023 we offered initial findings in each of our pillars: Environmental, Infrastructure and Societal. These were made available online and in person. Between 20 and 60 people joined each session. Their findings were reported in the *Castine Patriot*. The Committee has also presented to the Castine Select Board in various meetings.

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