



Orland Comprehensive Plan 2022

Orland Comprehensive Plan Committee

Adopted: December 1, 2022

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We are grateful to the many residents of Orland who participated in and provided guidance in shaping this plan.

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Introduction

The Orland Comprehensive Plan Committee, comprised of citizen volunteers, held its first meeting in March 2016 with the mission to update the 1998 Plan. Our effort has not been without challenges, some to be expected, and others not expected, such as the pandemic. Through all, it has been an effort of dedication and determination by its members with the cooperation and assistance from our elected and appointed Town officers, and aided by the technical and logistical assistance of the Hancock County Planning Commission (HCPC).

Throughout this document your understanding will be enhanced by the methodology the committee used. The status of each sector of the Town's municipal government has been described in the 14 Inventory and Analysis chapters based upon interviews with Town departments, data from State agencies, the U.S. Census Bureau, the Public Survey of 2016, and the greatly valued input gathered at the four neighborhood Vision Meetings of 2017. From all this information the Committee then crafted the goals and objectives for Orland's future designed to maintain Orland's desired rural character.

Throughout the process, the Committee has held a firm belief that in order for this Plan to achieve success the Plan must be regularly reviewed. It must be kept alive in the hands and minds of not just our Selectmen and other Town boards, but in all of us who care about the Town in which we live. The implementation of the Goals and Objectives will require significant citizen participation. We believe that this Plan must be more than just a means to grant monies or state and federal funding. Among the numerous goals and objectives for each of the 14 chapters are suggestions for designees or committees to assist the Selectmen with a particular objective. Each one presents an opportunity for you to get involved at a grassroots level in an area of particular interest, whether it's historical, environmental, recreational, or municipal management issues.

With your participation we can maintain the best of Orland's character and encourage Orland to develop in ways that inspire current residents to remain, invite visitors seeking a more relaxed lifestyle to settle, and offer future generations a town they are proud to call home.

Vision Statement

The Plan contained in this document is a guide by which our home – Orland, will remain a viable, inviting place to live. While the people of Orland have clearly indicated they want to retain Orland’s diverse and beautiful rural character and protect its historical, archeological, and many natural resources, they also want a viable economy. These, sometimes, conflicting goals will require the leadership and involvement of town officials. But, the Plan’s ultimate success will depend on the participation of *all Orland’s citizens*. Our Town needs your interest, your help, your knowledge and life’s experience. Importantly, the plan provides the means for you to get involved.

Town officials, primarily the Board of Selectmen, have the ability and duty to delegate to committees of volunteer citizens and appropriate professional entities in order to achieve the goals described in each chapter. As the Town addresses each goal - or several goals at a time, changes to the Plan may periodically be required. Controversy may arise over priorities, and conflicting interests, and finding the monies needed to achieve them. That’s where the Plan’s flexibility becomes a powerful tool – *it encourages democratic participation*.

Achieving its goals is *the goal of the Plan*.

The Plan’s Guiding Principles

1. Citizen engagement & participation
2. Responsibly managed development in line with community goals and objectives
3. Maintenance of Orland's rural and historical character
4. Keeping the plan updated and accessible for the public and Board of Selectmen to utilize.

Chapter A: Population

1. Purpose

An understanding of population trends is essential to planning for Orland's future. Most of the chapters and the recommendations of this plan are dependent upon or strongly influenced by the size and composition of Orland's current and projected population. This chapter contains the most recent demographic data available for Orland, including the 2000 and 2010 US Census and the 2018 *American Community Survey (ACS) 5 – Year Estimates*. These data sources do include margins of error, with ACS data having the largest. The Committee provides the valuable local knowledge to account for any discrepancies that may exist between reported and actual data. In addition, at the time of writing, COVID-19 and other influencing factors have resulted in major population movements within the United States resulting in a significant increase in the rural population in Maine. This section aims to:

- a) Describe Orland's population trends;
- b) Discuss how these recent trends compare and vary with regional trends in Hancock County and the State; and
- c) Review likely future population trends.

State Goal: None.

2. Key Findings & Issues from the 1998 Plan

Orland's year-round population increased by about 26% in the 1970s and at a 10% rate during the 1980s. Preliminary estimates for the 1990s indicated a 15% rate of growth. The estimated 1994 population was 1,909 and the Town was projected to have a population of 2,224 by the year 2005.

While the Town as a whole grew, the school-aged portion of population decreased between 1970 and 1990. The fastest growing age group was those 65 years and over. The next fastest were those between the ages of 45 and 64. The Town was attracting more persons of retirement and pre-retirement ages.

3. Key Findings & Issues for Current Plan

Orland's year-round population growth rate has slowed. It increased by 4.3%, 98 persons between 2000 and 2010 and then decreased by 3%, 68 persons between 2010 and 2018. Since 2000 the population did increase by 1.4% or 30 persons. However, the growth rate is trending slower than the 18.4% rate for the 1990-2000 period. Current population projections predict that Orland's population will decrease from 2,225 persons in 2010 to 2,114 in 2022 and 1,967 in 2032. Hancock County as a whole is projected to lose population. It must be emphasized that this trend may reverse as recent national events have resulted in a rapid in-migration of residents from other states.

The population is getting older. The most pronounced demographic changes are in the under 5, the 5-17 age group and 45-64 and 65 plus age groups. Since 2000, the under 5 age group decreased by 55%, the 5-17 decreased by 35%, and the 18-44 group had a 26% decrease during the period of 2000-2018. The older age groups increased dramatically, with 45-64 increasing by 26% and the 65 plus cohort increasing by 108% in the nearly twenty-year span since 2000.

4. Public Opinion Survey Results

The public opinion survey addresses the issue of Orland's population tangentially, not directly. The concern over retaining and /or increasing the population can be, however, discerned through the responses to questions relating to housing, the economy, and indeed, to all the chapters except *Current Land Use* and *Future Land Use* for which the survey was not applicable.

In other words, 'we just know' by Orland resident's responses that they don't see their town as withering away as some Maine communities have. Their answers fully indicate that they want to see the Town's population grow and prosper but in a methodical, thoughtful way that preserves Orland's rural character and conserves its natural resources and beauty.

To that end, review the survey results of all the chapters from the above vantage point and you will know Orland has a bright future.

5. Population Analysis

Historic population trends and future projections are shown in Table A - 1. The 1998 plan projected a year-round population of 2,224 for 2005. The reported US Census population for 2010 was 2,225, which is nearly the same population projected for 2005. The data in Table A - 1 show that Orland's year-round population will decrease by 5% between 2010 and 2022. A 7% decrease is projected between 2022 and 2032.

Projections for Hancock County show a decrease of 2.8% between 2010 and 2022 and 5.3% between 2020 and 2032 (see Table A - 2). Orland is projected to lose population at a faster rate than the county. The projections are derived in part from the recent historical growth trends. They should be reviewed periodically since they are subject to error and trends, as noted earlier, and may change.

The median age is increasing. The median age in Orland was 35.5 years in 1990, compared to 40.3 years in 2000, and 45.4 years in 2010 and further increased to 51 by 2018. The median age for the county increased from 35.8 years in 1990 to 40.7 in 2000 and 45.2 in 2010 and then 49.8 in 2018. Orland has a slightly higher median age than the county.

Table A - 1: Orland Year-Round Population Change 1940-2010 and Projections through 2030

Year	Population	Ten-year change (%)
1940	1,051	-----
1950	1,155	9.9%
1960	1,195	3.5%
1970	1,307	9.4%
1980	1,645	25.9%
1990	1805	9.7%
2000	2,134	18.2%
2010	2,225	4.3%
2022 (projected)	2,114	-5.0%
2032 (projected)	1,967	-7.0%

SOURCE: U.S. Census 2000, 1998 Comp Plan, and State Office of Policy and Management for projections

Table A - 2: Hancock County Year-Round Population Change 1940-2010 and Projections through 2030

Year	Population	Ten-year change (%)
1940	32,388	5.3%
1950	32,083	-0.9%
1960	30,812	-4.0%
1970	34,505	12.0%
1980	41,781	21.1%
1990	46,948	12.4%
2000	51,791	10.3%
2010	54,418	5.1%
2022 (projected)	53,242	-2.2%
2032 (projected)	50,562	-5.3%

SOURCE: U.S. Census and State Office of Policy and Management for projections

The changes by age groups between 2000, 2010 and 2018 for the Town and the county are shown in Tables A - 3 and A - 4 respectively. Orland has aged more rapidly than the county. The decreases for under 5, 5-17 and 18-44 were 55%, 36% and 26% respectively compared to decreases for the county of 5.3, 21.4 and 14.9%, respectively. On the other hand, the 45 – 64 and 65 plus age groups grew significantly compared to the county, with increases of 26.2% and 108% for Orland, compared to 22.2 and 53.3% for Hancock County.

By 2018 the Under 5 age group accounted for 2.4% of the total population in Orland, which is much lower than Hancock County's 4.3%. The 5-17 age group was comparably close at 12.6% to 13% for the county. Also similar are the 18-44 age group, with 25% of the total population in Orland and 28.2% for Hancock County being within that age range. It will be important to re-assess the younger age groups in the near future, relying on school enrollment data as many schools in rural Maine are reporting small increases in school age populations, both for in school instruction and homeschooling registration as new residents move to Maine from other States.

Table A - 3: Change in Age Groups in Orland, 2000-2010-2018

Population	2000 Number (Percent of Total)	2010 Number (Percent of Total)	2018 Number (Percent of Total)	Change 2000- 2010	Change 2010 - 2018	Percent Change 2000- 2018
Under 5 years	114 (5.4%)	112 (5%)	51 (2.4%)	(2) (-1.8%)	(61) (-54.5%)	-55%
5 to 17 years	409 (19.2%)	274 (12.3%)	260 (12.6%)	(135) (-33%)	(14) (-5.1%)	-36.4%
18 to 44 years	744 (35%)	633 (28.4%)	549 (25%)	(111) (-14.9%)	(62) (-13.2%)	-26.3%
45 to 64 years	600 (28.2%)	857 (38.5%)	757 (35%)	257 (42.8%)	100 (12.8%)	26.2%
65 and over	260 (12.2%)	349 (15.7%)	540 (25%)	89 (34.2%)	191 (54.7%)	108%
Total	2,127	2,225	2,157	98 3.2	-68 (-3.0)	1.4%

SOURCE: U.S. Census, 2018 American Community Survey 5 – Year Estimates

Table A - 4: Change in Age Groups in Hancock County, 2000-2010-2018

Population	2000	2010	2018	Change 2000-2010	Change 2010 - 2018	Percent Change 2000 - 2018
Under 5 years	2,516	2,603	2,383	87	(220)	5.3%
Percent of total	4.8%	4.7%	4.3%			
5 to 17 years	9,027	7,374	7,099	(1,653)	(248)	-21.4%
Percent of total	17.4%	14.2%	13%			
18 to 44 years	18,074	16,154	15,384	(1,920)	(761)	-14.9%
Percent of total	34.8%	29.6%	28.2%			
45 to 64 years	13,889	18,350	16,969	4,461	(1,381)	22.2%
Percent of total	26.8%	33.7%	31.1%			
65 and over	8,285	9,937	12,706	1,652	2,769	53.9%
Percent of total	15.9%	18.2%	23.3%			
Total	51,791	54,418	54,541			

SOURCE: U.S. Census, 2018 American Community Survey 5 – Year Estimates

Socio-economic data compiled by the Maine Office of Policy and Management show contrasts between Orland and Hancock County. For example, 20.7% of Orland residents aged 25 years and older in 2000 had a bachelor's degree or higher compared to a 27.13% rate for the county. The growth rate for Orland had increased less than a point to 21.1% by 2010, while the county's rate was 30.10%, an increase just under three percentage points. Educational attainment increased at a slower rate in Orland than the county.

American Community Survey (ACS) data show that 7.1% of Orland residents in 2010 were below the poverty level, compared to 11.5% of the county. Census data indicate that Orland had an 11.2% poverty rate for individuals in 2000 compared to a 10.2% rate for the county with a further decrease to 9.2% by 2018. These data indicate that the poverty rate in Orland is decreasing. It should be noted that the 2018 ACS data are based on a sample and have a larger margin of error compared with the 2000 and 2010 Decennial Census.

There are also contrasts in median household income (MHI). The 2000 U.S. Census listed the MHI in Orland as \$39,345 compared to \$35,811 for Hancock County. For 2018, the data report that the Town's MHI was \$53,728 compared to \$51,933 for the county.

Table A – 5 (following page) shows the breakdown of income by households. About 6.2% of households in Orland have incomes under \$10,000 compared to a 6.4% rate for the county. The most common income range (24.1%) in Orland is between \$50,000 and \$74,999. The next largest income group in Orland is \$35,000-\$49,999 with 20.8% of households compared to 15.2% county-wide.

Table A - 5: Breakdown of Annual Household Income by Group

Income Group	Number	Percent	Number	Percent
	Orland - 2018		Hancock County - 2018	
Less than \$10,000	61	6.2%	1,510	6.4%
\$10,000-\$14,999	31	3.1%	1,439	6.1%
\$15,000-\$24,999	53	5.5%	2,265	9.6%
\$25,000-\$34,999	90	9.4%	2,279	9.7%
\$35,000-\$49,999	200	20.8%	3,585	15.2%
\$50,000-\$74,999	231	24.1%	4,528	19.2%
\$75,000-\$99,999	1476	15.4%	3,119	13.2%
\$100,000-\$149,999	122	12.7%	2,831	12.0%
\$150,000-\$199,000	10	1.1%	968	4.1%
\$200,000 or more	16	1.7%	1,062	4.5%
Total Households	961	100%	23,579	100%

SOURCE: 2018 American Community Survey 5 – Year Estimates

Household sizes decreased in both the Town and the County. The 1998 plan projected an average of 2.65 persons per household by 2005. As shown on Table A - 6, the actual size was 2.42 in 2000, and 2.25 in 2010, with a further decrease to 2.22 in 2018. Household sizes consistently were above the county average until 2018.

Table A - 6: Change in Household Size, Orland and Hancock County

	1980	1990	2000	2010	2018
Orland	2.77	2.65	2.42	2.25	2.22
Hancock County	2.62	2.48	2.31	2.20	2.34

Source: U.S. Census, 2018 American Community Survey 5 – Year Estimates

Orland was 98.3% white in 2010, unchanged from 2000. Hancock County decreased in majority population, with 97.6% white in 2000 to a 97.1% rate in 2010 and further in 2018 to 95.9% white.

6. Seasonal Population

The Orland Comprehensive Planning Committee has identified a significant seasonal population that is not recorded in available statistical data. This population is also not just a summer population; fall hunting season also brings in significant seasonal residents. It will be worth investigating the number of seasonal residents that choose Orland as their full-time residence as a result of larger national factors related to COVID-19, western wildfires and changes in attitudes towards rural areas. Second homes are discussed in the Housing chapter, see Table C – 1. There is also an increase in traffic flows. Traffic data are discussed in the Transportation chapter.

7. 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 projections will be developed and, hopefully, will result in more accurate predictions than were possible in 2018. At the time of writing, many unforeseeable factors are impacting migration patterns throughout the United States. These include climate change induced wildfires in

California and Colorado, years long mega droughts in much of the western United States, the COVID-19 Global Pandemic and civil unrest in some urban areas. All of these have prompted many people to re-evaluate city living and the west coast. Recent real estate turnover and prices indicate many of these people are moving to rural Maine. To predict how Orland's population will change in the future, it will be necessary on an ongoing basis to review updated school enrollment figures as well as permits for new structures.

8. Goals & Objectives

Based upon the U.S. census based American Community Survey extrapolations for 2017 Orland is facing the negative prospect of an aging and declining population. Such a scenario is central, as it is to most rural Maine communities, to the question of whether Orland remains viable. What are our options; do nothing or try to do something? If we do nothing, then we are leaving our Town vulnerable to possible economic and social stagnation along with a declining tax base. The positive course is to try reversing this scenario with a concerted community effort to encourage *in-migration* to stabilize and then perhaps increasing the population in an orderly way.

The theme of the following goals and objectives is to make Orland attractive not only visually but organizationally by having a plan for growth that retains its small-town atmosphere.

Goal 1: Retain current population and attract new residents.

Objective A: Create a welcoming atmosphere for both Orland residents and visitors with a focus on enhancing the core Town area.

Strategies:

- I. Form a volunteer committee to review, assess feasibility of implementing the *Village & Waterfront Plan* goals as recommended by that plan.
- II. Continue to plan and enhance Town recognition events such as Orland River Day.

Responsibility & Time frame: Selectmen or designee(s). Within 2 years of Plan adoption.

Objective B: Promote Orland's economic, residential, natural, recreational and educational attractions.

Strategies:

- I. Design an informational campaign to promote Orland's assets in coordination with Downeast Acadia Regional Tourism (DART) and Maine Office of Tourism (MOT).

Responsibility & Time Frame: Selectmen or Designee(s), DART. Within 2 years of Plan adoption.

Objective C: Identify suitable areas for population growth.

Strategies:

- I. Use all available documents - assessor's maps, hydrologic, topographic and soil charts.
- II. Study Orland's historic growth and traffic patterns to determine all suitable areas for development to accommodate population growth.

Responsibility & Time Frame: Planning Board. Within 2 years of Plan adoption.

Chapter B: Economy

1. Introduction & Purpose

An understanding of the economy is essential to comprehensive planning. Providing stable, well-paying jobs is necessary in retaining people of all ages in our Town. It is important to identify economic trends to use in formulating economic development strategies for the future sustainability and growth of Orland and the region. This section aims to:

- a) Describe employment trends in Orland;
- b) Describe the local and regional economy, and;
- c) Discuss likely future economic activity.

State Goal: Promote an economic climate that increases job opportunities and overall economic well-being.

2. Key Findings & Issues from the 1998 Plan

Orland's economy was strongly linked to the regional economy. More than 27% of Orland's labor force were employed in the manufacturing sector, and approximately 19% were employed in the retail sector. As seen in Orland's commuting patterns, the majority of these manufacturing jobs were provided by the former Champion International paper mill in Bucksport, while the majority of retail jobs are located in Ellsworth. While Orland's unemployment rate rises significantly during the winter months, it shows greater seasonal stability than the economy of Hancock County as a whole. Other major sources of employment for Orland residents include the Maine Maritime Academy, the Orland School District, Craig Brook Fish Hatchery, Robert Wardwell and Sons, Robert Wardwell Construction and Trucking, and seasonally, G.M. Allen and Sons. Although Orland has consistently maintained a higher median income and lower unemployment rate than Hancock County, economic conditions in Orland have moved closer to the Hancock County average since 1992.

3. Key Findings & Issues for Current Plan

Manufacturing employment was already declining before the closing of the Verso Mill. Overall employment increased by 13% between 1990 and 2014. By contrast, county-wide employment increased by 7.9%. Only 15% of the Orland labor force works in Orland. The largest job losses were in manufacturing. The biggest increase was in retail trade.

Since the 1998 Comprehensive Plan, the Orland School is no longer an employer as it has closed. Present day major employers now include Freshwater Stone, US Fish & Wildlife Service, Hancock County Transportation Collaborative (Formerly First Student Transportation), Hammond Lumber (Formerly EBS), Maine Maritime Academy, Orland Community Center, H.O.M.E. Inc., and Robert Wardwell & Sons. Positions have also been added to the Town staff.

4. Public Opinion Survey Results

The survey results relating to the economy showed considerable but cautious support for economic initiatives that would make Orland's future economically viable. On that note 79.3% would support an

ordinance that would direct economic development to “appropriate” areas. Seventy% favored light manufacturing. Heavy industry development received only 48% support and that only in designated areas: 40% opposed all heavy industry anywhere in town.

Overall, there was a substantial 66.5% that supported increasing job opportunities. And instituting high speed internet received 58% approval; that can be reasonably expected to increase as the general public becomes more aware of the importance of the internet to economic growth in Maine’s rural areas.

5. Analysis

One major change is the closing of the Bucksport Verso mill in 2014. As a result, 51 Orland residents lost their jobs. Table B - 1 shows changes in employment by industry between 2000 and 2018. Overall, employment decreased by 1.1% compared to a 15.3% increase for the county. Some data predates the closing of the Verso Mill. In Orland, the largest numeric decrease (131 jobs) was in manufacturing. This is consistent with county-wide trends (Table B-2), where manufacturing also accounted for the largest number of jobs lost. There were also losses in wholesale trade (27 jobs or 67.%). The biggest increase (108 jobs) was in retail trade sector. Other expanding sectors in Orland include, Professional and Scientific (39 jobs), Public Administration (55 jobs), Finance (20 jobs) and Agricultural, Forestry and Fisheries (51 jobs). While manufacturing and construction jobs follow regional trends, Hancock County experienced larger increases in the following sectors: Arts and Entertainment; Education, and Other Professional Services. Other contrasting regional data show job losses in Public Administration, Information and stagnant Retail sector job growth.

Table B - 1: Change in Employment by Industry, Orland Residents 2000-2018

Sector	2000	2010	2018	Change 2000-2018	Percent change 2000-2018
Agriculture, Forestry, & Fisheries	17	0	68	51	300.0%
Construction	136	147	59	-77	-56.6%
Manufacturing	181	184	58	-123	-68.0%
Wholesale Trade	31	6	4	-27	-87.1%
Retail Trade	123	112	213	108	73.2%
Transportation, Warehousing and Utilities	38	50	14	-24	-63.2%
Information	17	26	49	32	188.2%
Finance, Insurance & Real Estate	23	43	43	20	87.0%
Professional, Scientific, Management, Administrative & Waste Management Services	47	23	81	34	72.3%
Educational, Health and Social Services	257	356	243	-14	-5.4%
Arts, Entertainment, Recreation, Accommodation and Food Services	62	68	59	-3	-4.8%
Other services (except Public Administration)	50	79	25	-25	-50.0%
Public Administration	49	20	104	55	112.2%
Total	1,031	1,114	1,020	-11	-1.1%

SOURCE: US Decennial Census 2000, 2010, ACS 2018 – 5 Year Estimates

Table B - 2: Change in Employment by Industry, Hancock County Residents 2000-2018

Sector	2000	2010	2019	Change 2000-2019	Percent Change 2000 - 2019
Agriculture, Forestry, & Fisheries	1,315	1,342	1,569	254	19.3%
Construction	2,524	2,999	1,831	-693	-27.5%
Manufacturing	2,369	2,177	1,041	-1,328	-56.1%
Wholesale Trade	575	414	684	109	19.0%
Retail Trade	3,057	3,430	3,070	13	0.4%
Transportation, Warehousing & Utilities	883	919	1,112	229	25.9%
Information	644	627	235	-409	-63.5%
Finance, Insurance & Real Estate	1,191	1,385	1,816	625	52.5%
Professional, Scientific, Management, Administrative & Waste Management Services	2,005	2,781	3,647	1,642	81.9%
Educational, Health & Social Services	5,544	7,325	8,523	2,974	53.7%
Arts, Entertainment, Recreation, Accommodation & Food Services	2,252	2,388	2,778	526	23.4%
Other Services (except Public Administration)	1,672	1,413	1,864	192	11.5%
Public Administration	1,003	975	929	-74	-7.4%
Total	25,034	27,995	29,559	4,525	18.1%

SOURCE: US Decennial Census 2000, 2010, ACS 2019 – 5 Year Estimates

Self-employment rates in Orland increased from 13.2% in 2000 and to 24.5% in 2014. The county self-employment rate increased from 15.9% to 21.9%. Table B - 3 shows commuting patterns for Orland residents per American Community Survey (ACS) data. Only 15.4% of the Orland labor force worked in Orland. About 18.2% worked in Bucksport (before the Mill closing). Other common destinations included Bangor, Ellsworth, Castine, and Trenton.

Table B - 3: Commuting Destination Orland Residents

Destination	Number	Percent
Orland	160	15.4%
Bucksport	190	18.2%
Castine	45	4.3%
Blue Hill	40	3.8%
Ellsworth	115	11.0%
Penobscot	30	2.9%
Trenton	85	8.2%
Bangor	175	16.8%
Belfast	40	3.8%
Other Destinations	163	15.6%
Total	1042	100.0%

Source: 2018 ACS – 5 Year Estimates

Table B - 4: Commuting Destination Orland Workers

Place of Residence	Number	Percent
Orland	160	
Penobscot County	18	6.3%
Waldo County	34	12.0%
Bucksport	25	8.8%
Verona Island	0	0.0%
Castine	0	0.0%
Ellsworth	25	8.8%
Penobscot Town	10	3.5%
From other locations	12	4.2%
Total	1,042	100.0%

Source: 2018 ACS 5 – Year Estimates

About 73% of residents drove to work alone in 2010 compared to 82% in 2000. About 20% in 2010 used carpools compared to 10% in 2000. There was no change in the percentage of Orland residents who worked at home; about 4% worked at home in both 2000 and 2010.

Table B - 5: Annual Average Employment Trends, 2013 – 2019, Orland, County & State

Year		Employment Number	Unemployed Number	Unemployment Rate in Percent
2013	Orland	1,248	115	8.9%
	County	27,728	2,373	7.9%
	State	658,522	46,893	6.6%
2014	Orland	1,237	89	6.7%
	County	27,760	2,012	6.8%
	State	657,188	39,125	5.6%
2015	Orland	1,228	100	7.5%
	County	27,438	1,617	5.6%
	State	655,259	29,984	4.4%
2016	Orland	1,242	59	4.5%
	County	27,816	1,312	4.5%
	State	664,838	26,145	3.8%
2017	Orland	1,249	51	3.9%
	County	28,147	1,150	3.9%
	State	673,003	23,545	3.4%
2018	Orland	1,251	44	3.4%
	County	28,147	1,074	3.7%
	State	673,150	22,529	3.2%
2019	Orland	1,239	41	3.2%
	County	28,064	1,0252	3.5%
	State	671,759	20,980	3.0%

Source: Maine Department of Labor Center for Workforce Research & Information

Unemployment has continually declined in Orland and as of 2015 been on par with Hancock County or less. Orland still has higher unemployment rates when compared with the State on average.

Regional changes may have a significant impact on Orland's economy. While the closing of the Verso Mill in Bucksport contributed to significant job losses in Orland, recent economic activity in Bucksport is projected to bring jobs back to the region. Maine Maritime Academy's campus expansion to downtown

Bucksport, along with the potential of an aquaculture project in Bucksport, may have positive net benefits for the region and Orland residents as well.

6. Economic Development

Orland does not have defined priorities for economic development. These priorities are also not reflected in regional economic development plans.

i. Village Economic Status

Businesses in Orland's village have struggled in recent years. There are no lodging establishments left, the antiques store (the historic roots of which was as The Masonic Hall) by the bridge was sold with an uncertain prospect at the time for a future permanent commercial entity. The general store diagonally across the street at the corner of Fish Point Rd. closed and the building next to it was sold. Traffic speed is a prevalent problem as is the lack of parking and safe pedestrian and bicycle travel lanes. However, there are signs of positive activity.

A particular bright spot has been the development of the Community Center, the former Orland school, as an economic asset by both design and good management. It has housed several small businesses of various types, and provided a thriving public gymnasium, and also serves as Orland's polling station and Town meeting venue.

The new owner of the former antiques store has opened a Yoga studio there and may have additional plans. The Orland Market (the General Store) has also been sold and the new owner plans to renovate the upstairs apartments with a view to renting to MMA students; there are no firm plans for the first-floor retail space yet.

ii. Tourism

Tourism is important, but the impact or benefit is not fully known. Local accommodations include three campgrounds, one inn, and one motel/cabins, and several privately-owned short-term rentals. The Great Pond Mountain Conservation Trust also attracts tourists to the community. The Town supports tourism through membership in the Bucksport Bay Area Chamber of Commerce, promotion of Orland River Day, and encouragement of private businesses.

iii. Employment Development Prospects

Statistical and anecdotal information suggests home occupations and self-employment are also on the rise but are difficult to quantify. They play a role in providing services and developing a sense of place in the community.

The Town-wide survey indicates a desire for designated areas for commercial/industrial development. There are presently no such areas. If "appropriate areas" are supposed to have public utilities, there are very limited opportunities. There are no performance standards other than the Site Plan Review Ordinance and Shoreland Zoning Ordinance. Businesses may establish and operate under the Site Plan Ordinance, but that ordinance does not have zoning standards indicating where they may locate.

Public services, including sewer, water, broadband access or three-phase power, are addressed in the Public Facilities and Services Chapter. Due to the limited access to public sewer along a short portion of Route 46, Route 1, and the village area, and lack of broadband connectivity, economic development is limited.

Local or regional economic development incentives, such as TIF districts, are not under consideration at this time.

Orland has potential economic growth assets in our village area, several lakes and rivers, Great Pond Mountain Wildlands, Craig Brook National Fish Hatchery and Museum, and historic sites.

7. Goals & Objectives

Broadly speaking Orland's current economic state is relatively healthy with many small home-based businesses, a healthy allotment of commercial enterprises and one industrial operation. It also has strong tourism potential with its abundant natural and recreational attractions. In addition, its central location to larger, economically important communities connected by a good state highway system lends to its economic potential.

Orland seeks to build upon this core of economic strengths to both expand employment opportunities and retain as much capital as possible. A key tool in accomplishing this goal is acquiring access to an affordable and reliable Broadband Internet system enabling Orland to keep pace with changing economic conditions and opportunities.

Survey results indicate a public readiness for a planned economic expansion that would not threaten Orland's small town rural atmosphere. There was strong support (79.3 %) for an ordinance directing development to appropriate areas. As to types of development 70% supported light manufacturing with even heavy manufacturing being supported by 48%.

Goal 1: Actively pursue community initiatives that encourage a strong, mixed economy.

Objective A: Research the most feasible way(s) to enhance a mixed economy.

Strategies:

- I. Review, revise and create when necessary best land-use ordinances that encourage a sound mixed economy.
- II. Based upon current geographically related information, such as topography, hydrology, and soil type charts, identify and designate specific areas for potential commercial development including what are now the limited access portions of Route 1, while preserving scenic views.

Responsibility & Time Frame for I & II: Planning Board, Hancock County Planning Commission (HCPC) and/or designee(s). Within 2 years of Plan adoption.

Objective B: Access the most feasible resources for enhancing an enduring mixed economy (Community Development Block Grants referred to as CDBG, United States Department of Agriculture – Rural Development Loans also known as USDA-RD, etc.)

Strategies:

- I. Utilize the latest technology and related regional efforts in conjunction with all available federal, state, grant, and local financial resources to establish an affordable and reliable Broadband system.

- II. Work with available resources such as Downeast Acadia Regional Tourism (DART) to promote tourist attractions including the waterfront, conservation lands and historic sites.
- III. Access available funding sources such as CDBG, USDA-RD, and other applicable federal, state and private funds to support and expand current businesses and promote new business opportunities.

Responsibility & Time Frame: Selectmen, HCPC and/or designee(s). Within 2 years of Plan adoption.

Chapter C: Housing

1. Introduction & 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 Orland's housing stock in terms of types and number of units created;
- b) Discuss housing affordability; and
- c) Project future housing needs.

State Goal: To encourage and promote affordable, decent housing opportunities for all Maine citizens.

2. Key Findings & Issues from the 1998 Plan

The number of homes in Orland increased by about 50% between 1970 and 1990. While there was about a 33% increase in year-round homes, the number of second homes nearly doubled. As of 1990, there were 1,068 dwellings in Orland (732 year-round and 336 seasonal). Another 155 year-round homes were expected by the year 2005.

Most homes in 1990 (88%) were owner-occupied rather than rented. Rents in Orland were below the county average, 33% of renters were paying less than \$250 in 1990. Housing conditions in Orland had improved dramatically although there were still some units lacking basic amenities such as complete plumbing.

3. Key Findings and Issues for Current Plan

Between 1990 and 2010, the number of dwellings in Orland increased by 402 units or nearly 37%. This was faster than the county rate, which was just under 33%. About one-third of the homes in Orland are seasonal. The number of year-round units is increasing faster than the year-round population. Between 2000 and 2010 the population and associated year-round occupied housing units increased by 4.3 and 10.9% respectively. A contributing factor could be due to decreasing household size. Orland could experience more home construction despite a decrease in population.

According to the Maine State Housing Authority (MHA) in 2019 housing in Orland is the second most affordable, with an affordability index of 1.5 just behind Sullivan's 1.56. This is compared to Hancock County at 0.9. This index is a ratio of the selling price at median income to median home value for a town. Any number greater than 1 is affordable to median income home buyers. The median sales price for a single-family home in Orland in 2019 was \$147,050 compared to \$229,500 for Hancock County. Most people in Orland live in single-family homes. There were only 56 duplex or multi-family units in town in 2019.

4. Public Opinion Survey Results

Housing availability to the lower income general populace is a national concern; Orland's residents are no different, especially regarding those most vulnerable due to affordability reasons and/or being a senior citizen. Affordability is described as a household of four with a family income of \$49,999 or less being able to expend up to 30% of their income for housing. As shown in Table A - 5 (see Population Chapter)

there are 961 households in Orland and 435 of them have incomes of less than \$50,000 – or 45% (for Hancock County it is 11,078 or 47%).

There were four types of housing listed in question 1 as to whether the Town should encourage them – multi-family, affordable, apartments, and senior and retirement. Only 27.9% favored multi-family, and 33.1% for apartments. But 75% supported senior and retirement housing and 57.7% affordable housing. When broken down into the categories of rental and affordability (question 2) - 52.7% supported more rental housing, 75.2% favored affordable housing.

There is some dissonance appearing when comparing results between preferences for where developments should take place (survey question 3), an ordinance that would control development location (question 4), and support of resource conservation (questions 5 & 6). Sixty four% favored residential development anywhere in town and 76% were opposed to any mobile home parks. But, 79% supported an ordinance that would direct development to appropriate areas. The dissonance? Building residences anywhere in town would lend itself to contributing to sprawl, which would negate efforts to protect Orland's resources and the desire to maintain its rural character. The Committee addresses this in the Future Land Use chapter.

5. Recent Housing Trends & Analysis

The number of dwelling units (vacant and occupied) in Orland increased by 37.6% (402 units) between 1990 and 2010 (see Table C - 1). This is faster than the county rate of 32.7%. The data in Table C - 1 show trends for year-round and seasonal dwellings. In 2010 about two-thirds of the homes in Orland were year-round. While the number of year-round homes increased from 670 in 1990 to 976 in 2010, the growth rate was slower (10.9%) for the 2000-2010 period than the 31.3% rate for the previous decade.

Table C - 1: Change in Dwelling Units Orland and Hancock County: 1990 - 2000 - 2010

Year	1990	2000	2010	Percent change 1990-2000	Percent change 2000-2010	Percent change 1990-2010
ORLAND						
Year Round Occupied	670	880	976	31.3%	10.9%	45.6%
Percent of Total	62.7%	70.2%	66.4%			
Vacant (not Seasonal)	62	53	94	14.5%	43.6%	51.6%
Percent of Total	5.8%	4.2%	6.4%			
Vacant (Seasonal)	336	320	400	-4.7%	25.0%	19.0%
Percent of Total	31.4%	25.5%	27.2%			
Total Orland	1,068	1,253	1,470	17.3%	21.7%	37.6%
HANCOCK COUNTY						
Year Round Occupied	18,342	21,864	24,221	19.2%	10.8%	32.1%
Percent of Total	60.3%	64.4%	60.3%			
Vacant (not Seasonal)	2,368	1,409	2,829	40.5%	59.9%	19.5%
Percent of Total	7.8%	4.2%	7.0%			
Vacant (Seasonal)	10,136	10,672	13,134	5.3%	23.1%	29.6%
Percent of Total	33.3%	31.4%	32.7%			
Total County	30,396	33,945	40,184	11.6%	15.5%	32.2%

Source: U.S. Census, 2019 ACS 5 – Year Estimates

The number of seasonal homes decreased by 4.7% in the 1990s, but increased by 25% between 2000 and 2010. Seasonal homes increased at a much faster rate than year-round homes between 2000 and 2010.

These changes are not necessarily due to new construction or demolition. A summer home may be converted to year-round use. Similarly, a year-round home may be converted to seasonal use. The U.S. Census data on seasonal homes is subject to error. The Census is taken during mud season when some camp roads are not accessible. Also, some year-round residents may be on vacation and have their home counted as vacant or seasonal.

Orland's year-round housing stock is increasing faster than the population. Table C -1 shows a 31.3% increase for year-round occupied homes between 1990 and 2000, while the population increased by 18.2%. Between 2000 and 2010, population and year-round occupied units increased by 4.3 and 10.9% respectively.

This disparity is due in part to decreasing average household sizes. U.S. Census data show in 1990 the average household size of 2.65 persons. The average for 2000 was 2.42 and by 2010 there were 2.25 persons per household. One reason household sizes are decreasing is fewer children in town. American Community Survey data estimate that 21.4% of Orland households between 2010 and 2014 had children 18 years or younger. This is slightly less than the 23.2% rate for the county.

One implication of smaller household sizes is that new homes may continue to be built in Orland even though the population is projected to decrease. At least some of these homes are likely to be seasonally occupied.

i. Housing Types and Occupancy

Most Orland residents live in their own houses. Single family homes accounted for about 83% of the dwelling units in 2010 (see Table C - 2). Only one mobile home was added to the housing stock between 2000 and 2010. The data show that the number of duplex and multi-family units decreased from 48 to 41. It should be noted that the 2010 data are based on American Community Survey data with a margin of error rate of between 1.5% and 3%.

Table C - 2: Change in Dwelling Unit Types (Occupied and Vacant) Orland: 2000 & 2010

Total Dwellings	2000		2010		2000- 2010
	Number	Percent of Total	Number	Percent of Total	Percent Change
Single Family	1,064	84.9%	1,309	88.3%	23.00%
Duplex/Multi-family	48	3.8%	41	2.7%	-14.06%
Mobile Homes	131	10.4%	132	8.9%	0.01%
Boat, RV, Van	10	0.8%	0	0%	----
Total Units	1,253		1,482		18.03%

Source: U.S. Census and American Community Survey (ACS) (2009-2013 average)

About 14% of the occupied dwellings in Orland in 2010 were rental units compared to a 24% rate county-wide (see Table C - 4). There was no change in the number of rental units between 2000 and 2010. The number of owner-occupied units increased by nearly 12%.

*Table C - 3 & Table C - 4: Estimated Tenure of Occupied Year-Round Housing 2000-2010**Orland & Hancock County (does not include vacant units)*

Table C - 3	2000		2010		2000 - 2010
ORLAND	Number	Percent of Total	Number	Percent of Total	Percent Change
Renter-Occupied	137	15.6%	137	14.2%	0.0%
Owner-Occupied	743	84.4%	830	85.8%	11.7%
Total Occupied Units	880	100.0%	967	100.0%	9.9%
Table C - 4	2000		2010		2000- 2010
HANCOCK COUNTY	Number	Percent of Total	Number	Percent of Total	Percent Change
Renter Occupied	5,314	24.3%	5,596	24.0%	5.3%
Owner-Occupied	16,550	75.7%	17,704	76.0%	7.0%
Total Occupied Units	21,864	100.0%	23,300	100.0%	6.5%

*Source: U.S. Census 2000, ACS, 2010**Table C - 5: The Number of Houses Built Within Certain Historical Time Periods*

Time Period	Number of Dwellings
1700-1900	94
1901-1950	127
1951-1975	250
1976-1990	376
1991-1995	125
1996-2000	106
2001-2005	134
2006-2010	103
2011-2020	101
Total	1,416

Table C – 5 shows a thumbnail sketch of the number of houses built (and still existing) within set time periods in Orland’s history. It will provide a basis for a more thorough accounting of historically significant dwellings and, by extension, any significant buildings in Orland. An effort to gather such information could play an important role in a future public enhancement project, say, in the Village.

ii. Affordability

Orland’s median household income (MHI) in 2019 was \$63,009; MHI in Hancock County was \$57,231. Housing in Orland is more affordable than in Hancock County as a whole. According to data from the Maine State Housing Authority (MSHA), the 2019 median home price (MHP) for a single-family home in Orland was \$147,050. This is less than the median home price of \$229,500 for Hancock County. Recent national events have impacted home sale prices throughout Maine, with a sudden increase in the turn-over rate and sales prices throughout Maine. This data will need to be reviewed within a year to see how it may have changed as a result of domestic issues in the United States in 2020.

An Orland home price of \$220,404 is affordable to the MHI of \$63,009. But, a minimum income of \$42,039 (84% of MHI) would be needed to purchase the median priced home of \$147,050, at no more than 30% of income. MSHA uses an affordability index to estimate if a household earning the median household income can afford to buy the median-priced home. An index less than 1.00 indicates the area is generally unaffordable. Orland’s affordability index had dropped to 1.19 from 1.54 in 2015 and then returned to 1.5 by 2019. And this is still higher (more affordable) than the 0.90 index for Hancock

County. Bucksport also had an index of 1.19 in previous years but had decreased to 0.92 by 2019. There were only 5 Hancock County towns with an index of at least 1.00 in 2019.

MSHA's 2019 data indicate that 30.6% (299 households) of Orland's 978 households would be unable to afford the median priced home, which is up from 26.5% (268 households) in 2015. This compares to 55.0% of households unable to afford a MPH in Hancock County, up from 51.5% in 2015. Data from the 2010-2014 ACS indicate the median value of an owner-occupied unit in Orland was \$176,600, which was less than the \$194,100 median for the county.

Due to the small number of rental units, there are limited data on rental costs for Orland. County-wide, the rental affordability index for 2020 was .56, down from .68 in 2016. The county median monthly rent in 2020 for a two-bedroom unit, including utilities, was \$1,379, up from \$1027 in 2015. Median gross rent in Orland for 2020 was \$838.00, a significant increase since 2015, when it was \$689.00. This figure should also be revisited due to increased rental demand throughout the county. While the median rent is still lower than the county in general, the median income for renters is also generally lower. This factor is compounded by an increasingly tight apartment supply throughout Hancock County.

iii. Seasonal Units

The number of conversions is unknown without a building permit ordinance or a personal onsite visit, which probably would have to be done by an assessor. Maine Housing reports 527 units as vacant seasonal in 2017. This figure will need further local investigation.

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

Given the very limited number of multi-family homes in Orland and the projected aging of the population, new options for senior citizen housing will be needed. It may be possible to meet some of these needs through social services such as "aging in place" that involves delivering home-based services. Given the very limited area of town served by public sewer, building a high volume of multi-family units is not likely to be cost-effective. At least some of those needing assisted living or other special housing services would probably have to seek housing out of town.

There are presently no Town-sponsored programs for younger households with limited income. Some towns have created committees to explore options such as a housing land trust that create opportunities for first-time home-buyers at below market rates. These ventures involve enforcing restrictions to assure the units remain affordable when they are resold.

v. Substandard Housing & Other Housing Issues

The number of substandard Orland housing units, listed as 8 by the 2010 U.S. Census, is misleading. Some locally based evidence appears to indicate a significantly larger number of housing units that are not officially listed as substandard but have serious insulation, heating, and structural issues.

First, the Town assessors have records of the *approximate* accounting of homes without insulation (29.6%) and with minimal insulation (8.73%). It must be cautioned that these numbers do not separate year-round homes from summer camps and the Assessor's office does not include the 154 mobile type homes in these figures.

Then there is *circumstantial* evidence that may be used as an indicator of the problem. According to the U.S. Census Bureau, the number of Orland households living at or below the 2017 federal poverty level of \$17,820 is 9% (90 households). But, if the approximate 180 households (about 18%) with incomes of 150% of poverty (\$26,730) or less are factored in, then it stands to reason that a greater number of homes

than the official 8 listed *may* be less-than-standard in terms of energy efficiency and structural sufficiency.

Another source of evidence is the Downeast Community Partners (DCP) organization (formerly the Washington Hancock Community Agency), which participates in the weatherization of homes. Based on their statistics since 2012 there have been 49 approved applications per year for assistance by Orland residents. An average of 60% of the homes approved have serious structural deficiencies that negate the benefits of weatherization until corrected. Funding shortages prevent immediate correction. The DCP approvals are good for one year thus an unknown number of applications are repeated. The MSHA estimates that 75% of eligible Maine households *do not* apply for assistance.

Statistics from H.O.M.E. Inc., located in Orland, indicate another source of potential circumstantial evidence for determining the extent of substandard housing in Orland. While servicing many communities across the state upon referral including our neighboring towns, there are enough Orland households in need of food and housing assistance to lend weight to a future investigation of Orland's housing situation.

In 2018 some of the Orland household statistics from H.O.M.E. show the many poverty-related issues it addresses such as the following:

- Emergency overnight shelter - 7
- Food Services (food and toiletry boxes) - 101 (The request for food assistance has increased since 2016 threefold to over 100 families though the number of Orland residents is unknown).
- Emergency Food Boxes (distributed outside of food bank hours) - 21
- Coat and winter clothing requests - 70

More directly related to the housing situation are the following:

- Residents with pipe freezes beyond repair - 2
- Residents in shelter because home in disrepair with no heat - 1
- A family of 5 had to move out of trailer with substandard insulation and came looking for a home
- Single woman in her 60's living in house with no running water

In conclusion, there is enough evidence both on file and circumstantial to justify determining the extent of substandard housing and devise possible solutions by a citizens group acting under this Comprehensive Plan.

The US Census Bureau's American Community Survey (ACS) data indicates that there are only 4 dwellings (0.4% of year-round occupied units) that lack complete plumbing. This is less than the 1.9% rate for the county.

vi. Local Regulations & Workforce Housing

Orland presently has no town-wide zoning. There are no other regulations that either encourage or discourage the development of affordable workforce housing. While Orland presently remains an affordable option in Hancock County, this trend may not continue and could further compound population loss and discourage young families and persons at or below the median income from buying a home in

Orland. The Town could consider local regulations or programs to encourage quality affordable workforce housing to attract new residents in the future.

6. Goals & Objectives

The survey and the public meeting workshops indicated strong support (75%) for senior and retirement housing, and first-time home buying opportunities (75%). There was moderately strong support (57.7%) for affordable housing. Building a home anywhere received 63% support. Notably, state regulations under the Growth Management Act require that 10% of developable land be available for workforce housing and public housing. The need for a town policy to address its housing needs is clearly supported by the public.

Not covered in either the survey or the public meetings was substandard housing and their need for greater energy efficient weatherization. Committee research indicates that there is compelling evidence to justify a concerted research effort of this issue.

Goal 1: Create opportunities to meet Orland's current and future housing needs that maintain the Town's open space and small-town character.

Objective A: Encourage opportunities that will allow senior residents to remain local.

Strategies:

- I. Promote age-in-place policies through coordination with regional partners such as Healthy Acadia and/or other nonprofits.
- II. Identify potential senior/retirement housing sites for development with priority assigned to transportation, safety, and medical needs.
- III. Identify all private, state and federal resources to aid such housing initiatives.

Responsibility & Time Frame: Selectmen or designee(s). Within 2 years of Plan adoption.

Objective B: Facilitate development of affordable housing including rental and ownership options.

Strategies:

- I. Seek to achieve at least 10% of new residential development to meet the state definition for affordable housing from 2020 to 2030. [affordable as defined in Inventory and Analysis]
- II. Review and maintain current growth management and land use ordinances and amend as needed to support affordable housing development.
- III. Encourage mixed uses (small stores, home businesses) in residential areas.
- IV. Identify and distribute information related to all potential private, federal and state financial resources to aid those in need of such housing.

Responsibility & Time Frame: Selectmen, Planning Board, or designee(s). Within 2 years of Plan adoption.

Goal 2: Help Orland residents find resources to support weatherization and other energy efficient upgrades and home improvements.

Objective: Ensure that access to technical assistance is available through the Town Office, and social media.

Strategies:

- I. Direct residents to available resources such as 211 Maine and HCPC (both via internet and by phone)

Responsibility & Time Frame: Selectmen or designee(s). Within two years of Plan adoption.

Chapter D: Transportation and Mobility

1. Introduction & Purpose

Transportation systems influence more than just travel times and access to regional destinations. Often they are the limiting factor, along with geology, to future growth and development in a town. The transportation system is also one of the largest infrastructure costs for a town in terms of construction, maintenance and planning. This section will discuss and analyze major transportation issues facing Orland. Specifically, it will:

- a) Discuss the extent, use, condition and capacity of Orland's transportation systems;
- b) Assess the adequacy of these systems to handle current and projected demands; and
- c) Account for areas where sustainable transportation alternatives and long-term cost savings in infrastructure management may exist.

State Goal: To plan for, finance and develop an efficient transportation system and services to accommodate anticipated growth and economic development.

2. Key Findings & Issues from the 1998 Plan

In 1998, the Orland comprehensive planning committee was giving consideration to increased traffic volumes in the area, and safety concerns at hazardous intersections along Route 1, including Upper Falls Road, Leaches Point Road, Route 15, Back Ridge Road, and Fish Hatchery Road. There was also concern about continued commercial development along the major highways in town, and the potential traffic-related problems. The Town's bridges were deemed to be in good condition at the time, with the exception of the Castine Road bridge in the village, which has since been replaced.

3. Key Findings & Issues for Current Plan

Orland's selectmen report that approximately 10% of the calls they receive through the Town Office relate to Transportation and Roads issues such as culverts, roadside mowing, and snowplowing damage to mailboxes. There is no multi-year plan for road maintenance and improvement even though this was recommended in the 1998 plan.

Another major transportation concern is safe bicycle and pedestrian access. The recently completed *Orland Village and Waterfront Plan* outlines steps to increase bike/pedestrian safety in the village area.

The lack of mass transit services available to residents is equally significant. While inexpensive, and often free, bus, van, and volunteer driver services exist for senior citizens of Orland, they appear to be underused at this time. This may be due to lack of public awareness, convenience of scheduling, eligibility requirements or availability of family or friends to assist.

4. Public Opinion Survey Results

A number of transportation-related questions were included in the comprehensive plan citizen survey. Among the relevant responses, 64.8% of respondents found snow removal and sanding on Orland's roads to be adequate. Road maintenance and the Narramissic River boat launch received the highest percentage

of “needs improvement” responses, with 34.1% and 20.3%, respectively. Road maintenance had one of the highest percentages of respondents indicating support of improvement through tax increases; 24.3%. More than 32% responded that public transportation needs improvement, with over 20% in support of a tax increase to do so. Among the top five priorities for services and improvements in the Village with support of increased taxes was an improved hand-carry boat launch (42.8%). Individual comments provided by survey respondents indicated a need for better maintenance, snow removal, and enforcement of posted road restrictions on back roads, and enhanced focus on bicycle and pedestrian safety.

Several survey respondents indicated a need for maintenance of secondary roads in town. Municipal officials were separately surveyed for specific recommendations. A summary of town roads identified for maintenance by selected individuals with specific expertise, including the Town’s Selectmen, Road Commissioner and Orland Fire Department will be addressed in Goals and Objectives for the Comprehensive Plan. Visibility, culverts, road surfaces, snow accumulation, signage to slow traffic, parking for carpooling were identified as needing attention.

5. Orland’s Roads

Roads are classified by two major categories, administrative and functional. Administrative classification defines a road based on what party or entity is responsible for maintenance. For example, a state highway is defined as a State Road, where a residential street in a town not on a State Route, is a town way, 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. The three functional classifications are:

1. **Arterials** - Roads that connect major settlements and are designed for high-speed travel with limited access points. Route 1 or Route 95 are examples of arterial roads.
2. **Collectors** - Roads that support traffic within a town or group of small towns or disconnected neighborhoods. They are designed to accommodate moderate speeds, 35-45 mph and a moderate traffic volume. Route 46 is an example of a collector road.
3. **Local** - Roads that are lightly traveled and comprise the network between residential areas and residential areas and downtowns. They are often narrower than the previous two road types and accommodate speeds under 35 mph. All roads within Orland Village are classified as local roads.

i. Road Conditions, Traffic Volume & Areas of Concern

According to MaineDOT there are 51.19 miles of public roads (state and town maintained) in Orland. This total mileage breaks down into the following functional classifications:

- 29.75 miles of Local roads
- 9.22 miles of Major/Urban Collector roads
- 2.64 miles of Minor Collector roads
- 0 miles of Minor Arterial roads
- 9.58 miles of Principal Arterial roads

Records of E911 roads, which include privately-maintained local and private roads, indicate a total of 92.73 miles of roads in Orland. [See later section for complete E911 Orland Road list.]

Table D - 1: Orland Roads and Mileage

MaineDOT #	Local	Arterial	Collector	Local	Total
0001X	Acadia Hwy (Rte 1)	9.58	0	0	9.58
0015X	Front Ridge Rd (Route 15)	0	3.1	0	3.1
0166X	Castine Rd (Rte 166)	0	5.98	0	5.98
0046X	Route 46	0	0.14	0	0.14
0176X	Surry Rd (Rte 176)	0	1.91	0	1.91
00391	Gilpin Rd	0	0.73	2.35	3.08
00389	Back Ridge Rd	0	0	2.84	2.84
00323	Bald Mountain Rd	0	0	1.24	1.24
00388	Cedar Swamp Rd	0	0	0.92	0.92
01814	Church St	0	0	0.07	0.07
01651	Cross Rd	0	0	0.17	0.17
01650	Dark Mountain Rd	0	0	0.27	0.27
00324	Dodge Hill Rd	0	0	0.72	0.72
01460	Dunbars Rd	0	0	0.04	0.04
01484	Eastmans Rd	0	0	0.36	0.36
003760	Fish Point Rd	0	0	0.24	0.24
01454	Gray Meadow Rd	0	0	1.28	1.28
00399	Gross Point Rd	0	0	1.19	1.19
00353	Happytown Rd	0	0	1.71	1.71
00630, 00385	Hatchery Rd	0	0	1.70	1.70
00319	Johnson Rd	0	0	0.97	0.97
00401	Leaches Point Rd	0	0	2.95	2.95
00317	Lower Falls Rd	0	0	1.12	1.12
01486	Mama Bear Rd	0	0	0.28	0.28
00321	Mark Ginn Rd	0	0	0.82	0.82
01323	Narramissic Dr	0	0	0.59	0.59
00398	Oak Hill Rd	0	0	0.6	0.6
01329	Old County Rd	0	0	0.32	0.32
003245	Old Rte 1 at Front Ridge Rd (Rte 15)	0	0	0.59	0.59
003759	Parsonage Rd	0	0	0.05	0.05
01650	Schoolhouse Rd	0	0	0.53	0.53
00328	Soper Rd	0	0	0.58	0.58
01650	Upper Falls Rd	0	0	1.77	1.77
01453	Wardwell Rd	0	0	0.27	0.27
00322	Winkumpaugh Rd	0	0	3.21	3.21
	Total	9.58	11.86	29.75	51.19

Source: Maine Department of Transportation **Note: Includes secondary and town-maintained local roads on E911 list, no private roads, road names corrected to match E911 road list.**

The Town of Orland lists 146 roads as state, town or privately maintained. Seventy-six% (104) of the roads are private, 21% (31) are maintained by the Town and 3% (4) are maintained by Maine DOT. For the size of Orland's limited budget, the condition of Orland's roads is typical of most rural towns in Maine. Orland's Road Commissioner receives no salary, but handles all contracted maintenance work for

the Town through his self-owned business, Wardwell Construction. A limited number of contracts are put out to bid for roadside mowing, asphalt, salt, sand. Ninety-eight% of the work is performed by local businesses. Road improvement projects are prioritized based on the Road Commissioner's recommendation following any storm damage. Road improvement projects are reviewed annually prior to the Town meeting, and voted on via the normal town budget process. Orland's annual appropriation for road maintenance and improvement is approximately \$325,000. A key to prioritizing work is keeping in mind the public safety of our residents.

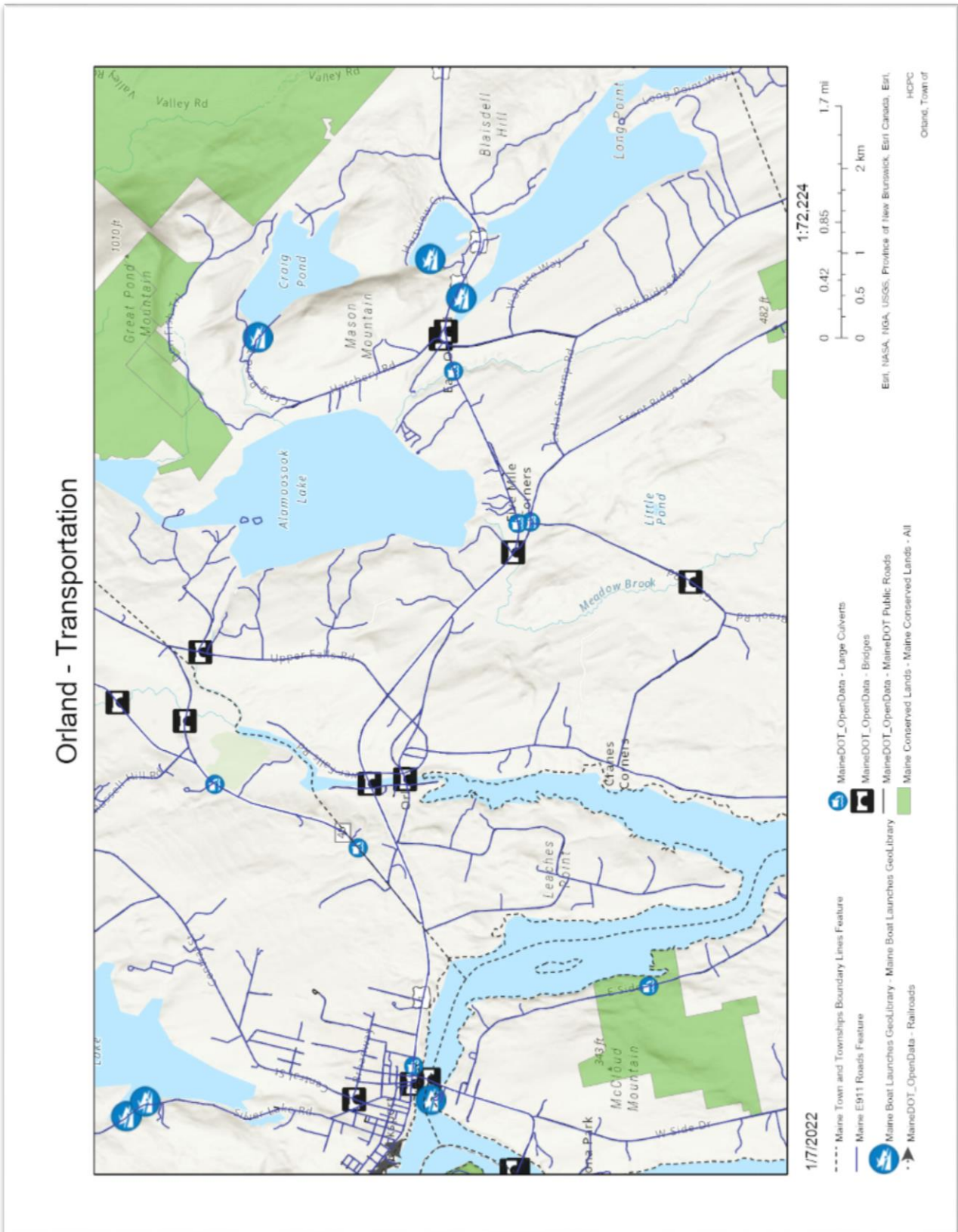
Orland is home to heavily traveled highways and a network of secondary roads. Traffic count data collected every three years by MaineDOT indicate that while some roads are experiencing an ongoing increase in traffic volume, such as Route 176, many saw a peak in volume in the early 2000s that has since been gradually declining.

Table D - 2: Traffic Volumes

Location	2008	2011	2014	2017
A. Acadia Hwy (Rte 1) east of Toddy Dam Rd	4,600	n/a	n/a	5,400
B. Route 176 southeast of Acadia Hwy (Rte 1)	570	580	690	540
C. Route 166 south of Dark Mtn Rd	2,220	2,180	2,140	1,860
D. Upper Falls Rd east of Acadia Hwy (Rte 1)	1,750	1,830	1,780	1,880
E. Acadia Hwy (Rte 1) at Bucksport town line	9,490	9,420	8,960	13,320
F. Castine Rd north of Gilpin Rd	2,220	2,180	2,140	2,340
G. Mast Hill Rd at Bucksport town line	1,680	1,600	1,460	1,334
H. Acadia Hwy (Rte 1) east of Front Ridge Rd	5,340	5,860	5,920	5,720
I. Route 15 south of Acadia Hwy (Rte 1)	3,510	3,800	3,640	3,600

Source: Maine Department of Transportation

Map D - 1: Orland Transportation System



ii. High Crash Locations

High crash locations (HCL's) both by intersection and section are another way to identify traffic problems. 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.

OCPC note: Intersections and road sections of concern that don't meet the CRF criteria include:

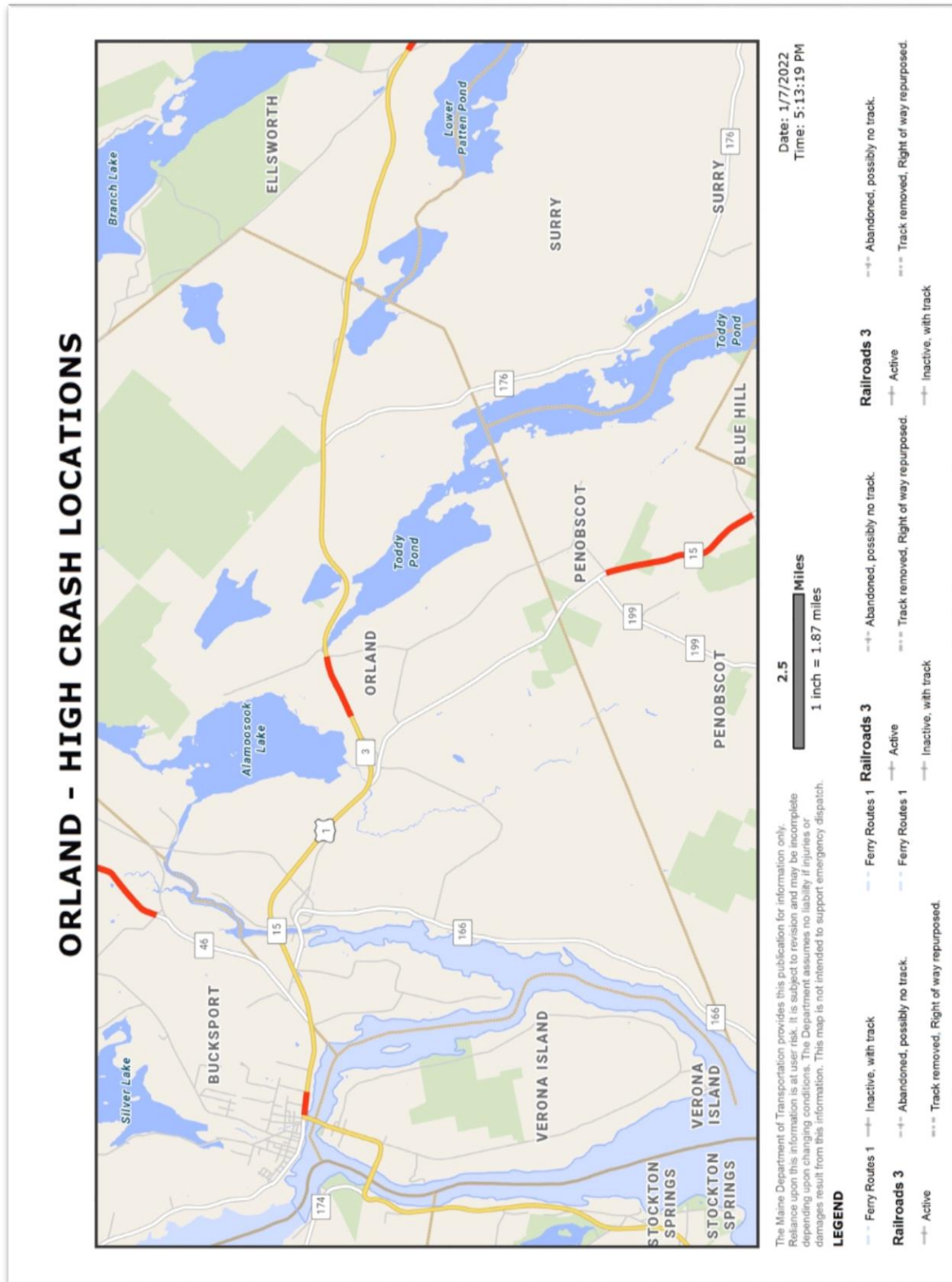
- Intersection of Acadia Highway and Schoolhouse Road;
- Upper Falls Road and section of Acadia Highway from Dunbars Road to Back Ridge Road;
- Hatchery Road; and
- A section of Acadia Highway from Gray Meadow Road to Front Ridge Road (heading towards Ellsworth).

Table D - 3: High Crash Locations 2018 – 2020

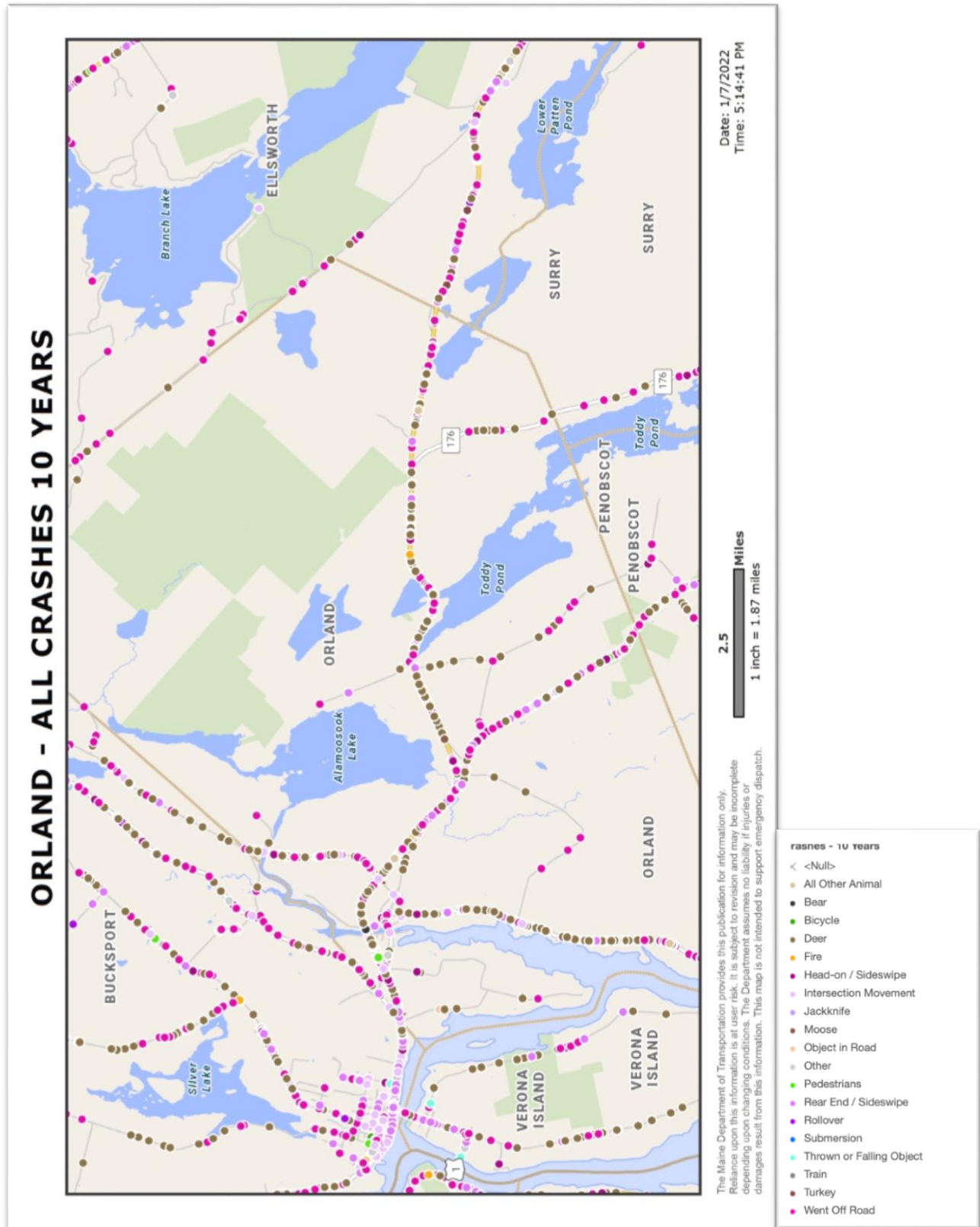
Road Name & Location	Begin Node	End Node	Total Crashes	Percent Injury	Fatalities	Injuries	CRF [Critical Rate Factor]
Acadia Highway (US Route 1 - Dunbars Rd to Back Ridge Rd)	24053	24054	15	13.3	0	1	1.44
Acadia Highway (US Route 1 – Front Ridge Rd to Dunbars Rd Connecting Lane)	24052	23849	9	44.4	0	4	1.02
Castine Rd (From Gilpin Rd to Dark Mountain Rd)	23576	23577	16	12.5	0	2	1.17
Castine Rd (Gilpin Rd to Penobscot Town Line)	23574	23576	28	N/A	N/A	N/A	1.16

Source: Maine Department of Transportation

Map D - 2: High Crash Locations



Map D - 3: All Crashes 10 Years



iii. Parking

The Town of Orland maintains the following municipal parking areas:

- Parking along Naramissic Drive along the river in the Village: approximately 15 unlined spaces
- Orland Town Office on School House Rd: approximately 20 regular spaces plus 2 handicapped-accessible spaces
- Orland Community Center on School House Rd: 40-50 spaces.

The Orland Town Office and Orland Community Center are within walking distance of each other and the parking lots connect, so each can serve as overflow parking for the other.

Parking is limited in the village area, and the need for expanded parking options has been identified. Orland's parking ordinance outlines year-round and weather-restricted on-street parking with provisions for enforcement/fines. These restrictions do not discourage village development, but do limit overnight parking options from November-April, given the few off-street parking spaces available.

6. Pedestrian & Bicycle Infrastructure

Orland roads do not invite walking. The only sidewalk is on the Castine Road bridge in the Village. It runs the length of the bridge and does not connect any destinations. There are no schools or centralized shopping areas in Orland; gas and service stations, convenience stores and hardware stores are located along Acadia Highway. While Acadia Highway offers wide shoulders, the speed of traffic discourages pedestrians.

Since 2016 both U.S. Bicycle Route 1 and the East Coast Greenway are posted routes through Orland. However, there are no bike lanes or shoulders except for along Acadia Highway. Along other roads, shoulders, if they exist, are often narrow or unpaved and bicyclists' safety is of major concern. At this time, no designated bike lanes or facilities exist to provide linkages between the parks, businesses, and community center in the village area.

The lack of sidewalks and bicycle facilities is considered to be a concern, and has been identified by the community as a deficiency in the *Orland Village and Waterfront Plan*. At public meetings of the Village and Waterfront Committee, there was significant interest expressed among some residents in working with MaineDOT to implement elements of their Complete Streets Policy, and to accommodate bicycle and pedestrian traffic safely, especially in the village area.

While both the subdivision ordinance and site plan ordinances include sections addressing pedestrian and bicycle safety it appears that inviting increased pedestrian or bicycle traffic has not been given a priority.

7. Public Transportation and Mobility Issues

Transit options are limited, and this is a concern for the senior population of Orland. City Cab Connection provides a private taxi service. Bus, van, and volunteer driver services exist for senior citizens of Orland, and are often free. They appear to be underused at this time. This may be due to lack of public awareness, convenience of scheduling, eligibility requirements or availability of family or friends to assist. Surveying residents at neighborhood meetings might better assess the need for such services.

Agencies providing services include: Friends in Action, Downeast Transportation, Downeast Community Partners (formerly WHCA). [Details are included later in this chapter]. There are no multi-modal transportation terminals or hubs in Orland. There is no rail or air service. Although, Orland is a coastal community with tidal waters of the Penobscot River as a western boundary, there is no public harbor, nor do any coastal boat transportation facilities exist. A public marina with parking is maintained in neighboring Bucksport, and a public boat launch with limited parking is maintained by the state on Verona Island. There is no ferry service. Refer to the *Village and Waterfront Plan* for a description of access to the Narramissic River above the Orland dam for private boating. The status of the Town's waterfront is also discussed in the Marine Resources chapter.

As a coastal community it will be important for the Town to address the potential effect of extreme weather events on our Town's road infrastructure.

8. Traffic Generators and Local Transportation Issues

i. Major Traffic Generators

Orland has several businesses that generate traffic, including:

- CBNFH-Hatchery Rd & Acadia Highway.
- Mountain View Variety & East Orland Post Office Acadia Highway
- Big Apple Store & Shell gas station – Acadia Highway & Route 15
- HOME Co-op – School House Road & Acadia Highway
- Freshwater Stone – Upper Falls Road & Acadia Highway
- Orland Community Center & Orland Town Office – Schoolhouse Road
- Orland Post Office-Castine Road
- Orland Solid Waste Transfer Station-180 Gray Meadow Road

Businesses at the Intersection of Route 46 and Acadia Highway (Route 1):

- Tradewinds Variety Plus & CITGO gas station
- Crosby's Drive-In/ Carrier's Mainely Lobster/Snowman's Grocery
- Rob's Hardware
- Hammond Lumber

ii. Multiple Road Use Concerns

Castine Road is a busy state road, serving as the main conductor of tourist and college traffic from U.S. Route 1 to Castine. Traffic along Castine Road often travels at a high rate of speed, despite flashing speed beacons in the Village area, and has few areas of paved shoulder sufficient to provide safe biking/walking. In addition, traffic to Ellsworth, Blue Hill and Bucksport all pass through Orland along Routes 1, 3 & 15. Along Gray Meadow Road is the Town's sand pit and Orland Transfer Station inviting increased car & truck traffic. Along Surry Road is a contractor's site with gravel and stone piles with limited heavy truck traffic.

iii. Road & Bridge Conditions

MaineDOT has included several Orland projects in its 2017-2018-2019 Workplan: maintenance of the Moosehorn Stream Bridge on Bald Mountain Road (2017), drainage maintenance and ditching along

Gilpin Road (2017), guardrail installation and replacement in various locations (2018-9), light capital paving on Surry Rd/Rte 176 and Front Ridge Road (2018), and mill and fill work on Acadia Highway/Route 1 for about four miles north of Verona Island town line (2018-19).

A table listing MaineDOT's bridge inventory for Orland is provided below. The inventory indicates that several bridges are in less than satisfactory condition. Note that a 3-sided box culvert, open bottom, Stream-Smart design has been installed at the north end of Happy Town Road at Winkumpaugh Brook in the fall of 2017 by Wardwell Construction (contract awarded by Road Commissioner) in collaboration with HCSWCD. The Moosehorn Stream bridge on Bald Mountain Road is scheduled to be replaced in October 2017.

(2021 addition) The Hatchery Road bridge over Toddy Stream beside the Toddy Pond dam and fishway is at risk of collapse. It measures 19.5 +/- feet less than the required 20 feet for MaineDOT to add to their work order. The bridge is essential to the Town's watershed as Toddy Stream flows beneath it and into Alamoosook Lake. The fishway at the dam is an important consideration; it provides passage to alewives from Orland River to spawning grounds in Toddy Pond. The likelihood of increasing extreme weather events prioritizes this bridge for immediate repair.



Figure D - 1: Image of Bridge over Toddy Stream



Figure D - 2: Toddy Pond Dam



Figure D - 3: Bridge Substructure at Toddy Pond Dam .

Table D - 4: Orland Bridges and Conditions in 2017

DOT Bridge #	Name	Built	Location	Owner	Deck Cond.	Super-structure condition	Sub-structure condition	Culvert condition	Channel condition	Avg. Daily Traffic
448	Meadow Brook	1975	Gilpin Rd	Town	N/A	N/A	N/A	5 - Moderate to major deterioration	7 - Bank protection needs minor repairs	427
2536	Meadow Brook	1964	Acadia Hwy	DOT	N/A	N/A	N/A	5 - Moderate to major deterioration	6 - Bank slump. widespread minor damage	9,444
2632	Orland River	2009	Castine Rd	DOT	EC	EC	EC	N/A	9 - No noticeable deficiencies	2,180
2861	Toddy Pond	1964	Acadia Hwy	DOT	N/A	N/A	N/A	6 - Deterioration or initial disintegration	7 - Bank protection needs minor repairs	5,794
3153	Upper Falls	2003	Upper Falls Rd	DOT	N/A	N/A	N/A	6 - Deterioration or initial disintegration	7 - Bank protection needs minor repairs	961
5205	Toddy Pond No. 2	1926	Hatchery Rd	Town	4 – Poor condition advanced deterioration	PC	FC	*Local observations report structural concerns and risk of failure.	7 - Bank protection needs minor repairs	373
5494	Moosehorn Creek	1951 Reconstructed 1975	Bald Mountain Rd	DOT	SC	SC	PC	N/A	6 - Bank slump. widespread minor damage	291
5892	Narramissic	1961	Acadia Hwy	DOT	EC	SC	SC	N/A	7 - Bank protection needs minor repairs	8,056

Source: **MaineDOT** Condition Codes: EC=Excellent SC= Satisfactory FC= Fair, PC= Poor Condition

OCPC NOTE: 2632 ORLAND RIVER ACTUALLY NARRAMISSIC RIVER; 5494 MOOSEHORN STREAM NOT CREEK

Road Construction and Access Management

Both the Subdivision and Site Plan Review Ordinances have road design standards that support the desired land use pattern. For more information, see the Current Land Use chapter and

- www.orlandme.org/documents/subdivision_ordinance.pdf and
- www.orlandme.org/documents/Site%20Plan%20Review%20Ordinance,%202014.pdf

The Subdivision Ordinance encourages road designers to anticipate future expansion. Subdivision designers are encouraged, where possible, to provide for “street connections to adjoining lots of similar existing or potential use within ... [Orland’s defined] growth areas” to “enable the public to travel between two existing or potential uses... without need to travel upon a public street.” There are also limited provisions for bicycle and pedestrian safety in both the Subdivision and the Site Plan Review Ordinances.

Orland does not require permits for street openings. Property owners are referred to the Road Commissioner for direction on placement of driveways and culverts on town-maintained roads. MaineDOT handles all permitting for state-maintained roads. It is expected that those who maintain private roads will use best management practices to minimize erosion and storm water runoff. Roads in

lake watersheds should follow phosphorous loading standards. This issue is also addressed in the Water Resources chapter. Following a 2014 Alamoosook Watershed Survey, a federal 319 grant was awarded to implement projects for roads and private property according to the Alamoosook Watershed Protection Plan through the year 2018. Hancock County Soil and Water Conservation District, MaineDEP, Alamoosook Lake Association, Craig Brook National Fish Hatchery, and Great Pond Mountain Conservation Trust are working together to engage the public and address road problems with significant impact on lakes and rivers. Toddy Pond Association & HCSWCD completed a similar grant in 2016.

iv. **Public Electric Vehicle (EV) Charging Stations**

As of March, 2021 there are only level 2 charging stations at Tradewinds, 19 Duck Cove Road in Orland (24/7 free) and at 124 Main Street in Bucksport (24/7 free, 4 hours max).

9. Regional Transportation & Mobility Issues

i. **State and Regional Transportation Plans as They Relate to Orland**

As noted in Section 7 above, several Orland projects are included in the MaineDOT 2017-2018-2019 Workplan. There is also a need for transit options, which is in alignment with the **MaineDOT Strategic Transit Plan**.

ii. **From MaineDOT Strategic Transit Plan 2025:**

“The purpose of the project is to prepare a 10-year comprehensive transit plan for the period 2015 - 2025 that will assist MaineDOT in prioritizing service improvements...The plan will be a holistic approach to evaluating surface passenger transportation initiatives, programs and funding sources...The plan will have a particular focus on Maine’s aging population and will assess and make recommendations to meet elderly transportation needs statewide. In addition, the plan will make recommendations on best practices for transit planning and funding strategies.”

The 2010 Downeast Coastal Corridor Multi-Modal Management Plan analyzes the major east-west connections crossing Hancock County, southern Washington County and a portion of Penobscot County as a group. Included in this broad corridor are Route 1 from Bucksport to Calais, Route 9 from Bangor to Calais, the Calais Branch Railway from Bangor to Calais as well as major collector highways that serve as connectors and short-cuts. It provides an overview of transportation needs for the broader region. Goals relevant to Orland include addressing deferred maintenance and road improvements, and long-term planning to address the transportation needs of an aging population.

The 2006 Penobscot Narrows Study: Passenger Transportation Options focuses on the immediate Bucksport-Verona Island-Orland-Prospect area. Its recommendations include the overall integration of pedestrian and bicycle facilities in the region, specifically mentioning widened road shoulders along Routes 15 and 175 (now 166) in Orland, and expanded public transit options, including a seasonal fixed-route shuttle bus service between locations in Orland and Bucksport.

A List of Roads from E911 Program: Total Road Mileage: 92.71

Data Source: Maine Public Utilities Commission and Maine Emergency Services Communications Bureau.

Roads are classified as determined by MAF/TIGER feature class code:

- **Secondary:** Secondary roads are main arteries, usually in the U.S. Highway, State Highway or County Highway system. These roads have one or more lanes of traffic in each direction, may or may not be divided, and usually have at-grade intersections with many other roads and driveways. They often have both a local name and a route number.
- **Local:** Generally, a paved non-arterial street, road, or byway that usually has a single lane of traffic in each direction. Roads in this feature class may be privately or publicly maintained. Scenic Park roads would be included in this feature class, as would (depending on the region of the country) some unpaved roads. *[OCPC Note: Many of these “local” roads in Orland are unpaved and privately maintained].*
- **Private:** A road within private property that is privately maintained for service, extractive, or other purposes. These roads are often unnamed.

Table D - 5: Orland Local and Private Roads in E911 Database

Orland Roads (Secondary)	miles	Orland Roads (Secondary)	miles	Orland Roads (Secondary)	miles
Acadia Hwy	9.38	Castine Rd	5.96	Duck Cove Rd	0.81
Front Ridge Rd	3.08	Surry Rd (TOWN)	1.87		
				Total	21.1
Orland Roads (Local)	miles	Orland Roads (Local)	miles	Orland Roads (Local)	miles
Alder Rd	0.31	Ames Rd	0.22	Back Ridge Rd	2.79
Bald Mountain Rd	3.68	Bay View Dr	0.15	Bear Rock Ln	0.32
Beechwood Ln	0.59	Belgian Pl	0.07	Birch Hts	0.21
Boynton Ln	0.05	Briar Brook Rd	0.68	Bridges Way	0.50
Brookside Rd	0.07	Carrier Ln	0.34	Castaway Dr	0.12
Cedar Swamp Rd	0.91	Charlie Star Ln	0.69	Chickadee Ln	0.37
Chipmunk Trl	0.14	Church St	0.08	Conary Way	0.94
Cottage Ln	0.22	Craig Pond Trl	0.98	Cross Rd	0.17
Dance Hall Rd	0.16	Dark Mountain Rd	0.26	Dennis Rd	0.53
Dodge Hill Rd	0.69	Don Fish Trl	2.53	Dunbars Rd	0.64
E Toddy Way	0.54	Eagle Rd	0.26		
Earth Plz	0.17	Eastmans Rd	0.36	Ebens Trl	1.40
Elijah Ln	0.25	Evergreen Way	0.25	Fernwood Ln	0.14
Fish Point Rd	0.25	Fox Run Rd	0.13	Freilino Way	0.19
Georges Rd	0.33	Gilpin Rd	3.08	Glory Dr	0.22
Gray Meadow Rd	1.27	Gross Point Rd	1.18	Gully Brook Ln	0.12
Happytown Rd	3.23	Harriman Rd	0.22	Hartview Cir	0.71
Hatchery Rd	1.46	Highland Trl	0.69	Hopkins Rd	0.17
Hummingbird Cir	0.23	Johnson Rd	0.94	Keener Point Ln	0.61
Lady Slipper Trl	0.28	Lakeview Ln	0.13	Laughing Loon Hts	0.22
Leaches Point Rd	2.91	Lilac Rd	0.44	Long Point Way	1.01
Loon Way	0.21	Lower Falls Rd	1.08	Mama Bear Rd	0.35
Mandala Way	1.48	Mark Ginn Rd	0.81	Mayflower Ln	0.60
Meadow Brook Ln	0.62	Meigs Trl	0.17	Millstream Ln	0.48
Moonraker Way	0.44	Morningside Ln	1.16	Mushrall Ln	0.18
Narramissic Dr	0.55	Neil Way	0.16	Oak Hill Rd	0.61
Old County Rd	0.31	Owl Trl	0.49	Parsonage St	0.07
Patten Pond Pl	0.32	Peaceful Valley Ln	0.63	Pine Cone Ln	0.15
Pojananchuck Way	0.14	Pond Shore Way	0.93	Powers Drive Ln	0.80
Randall Ln	0.79	Raven Rd	0.11	Red Paint Ln	0.09
Rivers Edge Ln	0.46	Rocky Pond Hts	1.02	Sand Pit Way	0.07
School House Rd	0.51	Shaughnessy Cir	0.31	Short Point Way	0.12
Skyhawk Way	0.10	Snowman Rd	0.17	Soper Rd	1.18
Spencer Ln	0.10	Sprucewood Ln	0.17	Starlight Way	0.63

Stone Hill Way	0.24	Strawberry Rd	0.18	Sunrise Way	0.12
Sweet Fern Way	0.26	Tall Pines Rd	0.18	Thibs Dr	0.12
Tide Watch Dr	0.18	Toddy Dam Rd	0.11	Town Line Way	0.25
Upper Falls Rd	1.74	Violette Way	0.95	Walker Hts	0.72
Wardwell Rd	0.27	Wedge Hts	1.20	WildwoodLn	0.14
Winkumpugh Rd	0.83	Wood Duck Ln	0.15	Woods Rd	0.82
				Total	69.83
Orland Roads (Private)	miles	Orland Roads (Private)	miles	Orland Roads (Private)	miles
Bakers Is	0.20	Bemis Dr	0.20	Boulder Way	0.20
Braleys Niche	0.14	Clearwater Rd	0.16	Conary Way	0.19
Easy St	0.46	Facteau Dr	0.13	French Is	0.17
Gott Brook Hts	0.15	Heritage Ln	0.16	Hillside Rd	0.27
Lakeside Way	0.03	Mad Hunter Rdg	0.17	Mountain Vw	0.82
Nancy Field Rd	0.30	Narrows Way	0.05	Old Boot Rd	0.30
Our Camp Rd	0.19	Powell Dr	0.10	Roundabout Way	0.57
Stubbs Ln	0.14	Towering Hts	0.72	Vista Dr	0.27
				Total	6.09

10. Climate Change Impacts and Emerging Trends

Climate change is increasingly at the forefront of transportation planning concerns, particularly where sea level rise and extreme weather events are projected to damage and undermine many roads in coastal Maine. MaineDOT is interested in working with towns to make the transportation system resilient to future climate change. Many towns are forming sea level rise and climate change committees. These committees often evaluate the climate change impacts and potential scenarios that could impact town-maintained roads. Planning for increased road safety, aging-in-place, and climate resilience at the same time can help integrate multiple objectives into projects when funding is sought.

Various technological advances also offer new opportunities to complement existing transportation systems. These include vehicle automation and electrification, consolidation of vehicle ownership and the proliferation of ride-sharing services, all of which are facilitated by 5G cellular access and expanded broadband internet. All these factors will influence future transportation needs and possibilities, and therefore planning.

11. Goals & Objectives

Orland aims to encourage a transportation system that will enhance the mobility of local residents and visitors and will provide for the safe, efficient, and cost-effective movement of goods, services, and people within and through the Town. The improvement and development of infrastructure, facilities and services will be needed to accommodate any anticipated growth and economic development in our region. Since 2016 both U.S. Bicycle Route 1 and the East Coast Greenway are posted routes through Orland emphasizing the need for enhanced safety measures for bicyclists with the development of the village in mind. Additionally, of critical importance is the anticipation of extreme weather events and how they might affect Orland's transportation infrastructure.

The following goals, objectives and implementation strategies have come from Orland residents during the 2016 Public Opinion Surveys, 2018 Neighborhood Vision meetings, the Transportation and Roads subcommittee interviews with the Road Commissioner, Town Selectmen, Orland Fire Department and a sampling of area contractors, as well as input from the OCPC.

GOAL 1: Enhance Bicycle and Pedestrian Safety, Access and Comfort

Objective A: Alert motorists to pedestrian and bicycle traffic.

Strategies:

- I. Install Rapid Rectangular Flashing Beacons (RRFB) and pedestrian warning signage from MaineDOT.
- II. Implement MaineDOT approved interventions available through Bicycle Coalition of Maine.

Responsibility & Time frame: Selectmen, Road Commissioner, HCPC, MaineDOT (Active Transportation Planner). Within 3 years of Plan adoption.

Objective B. Review projects planned by the MaineDOT for state roads passing through Orland to ensure local concerns are reflected in the final plan, in coordination with adjoining towns.

Strategies:

- I. Provide targeted local input to HCPC and Maine DOT
<https://www.maine.gov/mdot/projects/workplan/>.

Responsibility & Time frame: Selectmen & Road Commissioner. Annually.

Objective C. Participate in local and regional efforts and encourage legislative efforts to develop multi-modes of transportation including public transit, ride-sharing, bicycle paths, pedestrian trails, especially with attention to the needs of an aging population.

Strategies:

- I. Periodically survey Orland's residents for transportation needs/concerns.
- II. Publicize and partner with existing resources for low-income and seniors to increase usage.

Responsibility & Time frame: Selectmen or Designee, HCPC. Within 2 years of Plan adoption.

Objective D. Conduct a bicycle and pedestrian safety study to identify appropriate locations and treatments such as advisory lanes, and or enhanced shoulders to achieve the above goal.

Strategies:

- I. Consult policies in reference list above, consult with HCPC and MaineDOT, review options.

Responsibility & Time frame: Selectmen or Designee. Within 3 years of Plan adoption.

GOAL 2: Improve Road Maintenance Management

Objective A: Develop and publish a multi-year Road Maintenance/Repair plan for the Town.

Strategies:

- I. Initiate new procedure with the Road Commissioner; plan to be posted and accessible on Town website.

Responsibility & Time frame: Selectmen, Road Commissioner, Town Clerk. Within 1 year of Plan adoption.

Objective B. Verify that the MaineDOT record of town road mileage and road names are accurate and match the E911 list.

Strategies:

- I. Consult with HCPC and MaineDOT for data clarification of tables listed in the Comprehensive Plan.

Responsibility & Time frame: Selectmen and Orland Fire Department (OFD). Within 1 year of Plan adoption.

Objective C. Continue to use best management practices (BMPs) for town roads and provide access to BMPs to property owners on privately maintained roads. [Note: BMPs are normally employed on public roads. In the shoreland zone BMPs are required by the Department of Environmental Protection (DEP)]

Strategies:

- I. Consult with HCPC and Hancock Soil and Water Conservation District (HCSWCD) for resources on soil erosion prevention, culvert replacement, gravel road maintenance. Reach out to Orland's private road associations. Apply for federal 319 grants when available.

Responsibility & Time frame: Selectmen assisted by HCPC & HCSWCD. Within 1 year of plan adoption.

Objective D. Review use of road salt and sand mix, it's retrieval for repurposing and the environmental safety of products.

Strategies:

- I. Consult with Road Commissioner and HCSWCD.

Responsibility & Time frame: Selectmen. Within 2 years of Plan adoption.

GOAL 3: Improve Maintenance of Orland's Roads and Bridges

Objective A: Establish responsibility for the Hatchery Road bridge over Toddy Stream beside the Toddy Pond dam and fishway.

Strategies:

- I. Consult with HCPC and MaineDOT. Request procedural advice from Orland's state legislators. Research grant options if necessary.

Responsibility & Time frame: Selectmen. Immediately after Plan adoption.

Objective B. Install street signs that include "Block Numbers" at intersections of major roads to assist emergency responders in locating residences/businesses.

Strategies:

- I. Consult with OFD, HCPC, MaineDOT. Evaluate expense and responsibility for installation.

Responsibility & Time frame: Selectmen and Road Commissioner. Within 1 year of Plan adoption.

Objective C. Encourage the improvement of emergency access on private roads.

Strategies:

- I. Make BMPs for private gravel road maintenance available to property owners and road associations with recommendations for improved access such as adequate width for emergency vehicles, tree trimming for visibility, reflective road-side house numbers for E911 responders, winter plowing. Note when seasonal camps are converted to year-round, upgrades to roads are often necessary.

Responsibility & Time frame: Selectmen, OFD. Within 3 years of Plan adoption.

Objective D. Review safety of the intersection at School House Road and Acadia Highway and any other critical intersections.

Strategies:

- I. Monitor MaineDOT accident data. (While MDOT data does not warrant a rotary as of 2019, the safety at this intersection is still a concern and options for correction may need to be revisited in the future).

Responsibility & Time frame: Selectmen. Annually post Plan adoption.

Goal 4: Plan for eventual increase in Electric Vehicle (EV) use by both residents and tourists

Objective A: Consider the addition of a fast charge system (Level 3), that could produce revenue for the Town, located at a convenient place such as the Orland Community Center where drivers could visit the businesses within the Center while charging their vehicle. As of August 2022, there are only level-2 charging stations at Tradewinds 19 Duck Cove Rd. in Orland (24/7 free), at 124 Main St. in Bucksport (24/7 free, 4 hours max), two at the Bucksport Public Dock parking lot (24/7 retail). An Orland charging station may not be economically feasible for Orland in the immediate future due to current grant matching requirements, but is noted here for future consideration.

Strategies:

- I. Research demand projections with HCPC and Internet sites such as EVgo fast charging <https://www.evgo.com/> and regional planning.

Responsibility & Time frame: Selectmen. Within 5 years of Plan adoption.

Figure D - 4: Example of EV Go Charging Station



Additional References for Recommendations:

Orland Village and Waterfront Plan for the Town of Orland

<https://townoforland.org/wp-content/uploads/2020/10/Orland-Waterfront-Plan-2017.pdf>

Maine Climate Council

Sensible Transportation Policy Act [Title 23]

<http://www.mainelegislature.org/legis/statutes/23/title23sec73.html>

MaineDOT's Strategic Transit Plan 2025

<https://www.maine.gov/mdot/planning/docs/FinalStrategicPlan.pdf>

MaineDOT's Complete Streets Policy

<https://www.maine.gov/mdot/completestreets/>

2010 Downeast Coastal Corridor Multi-Modal Management Plan (2014)

<http://www.hcpcme.org/transportation/needs/decoastal/DowneastCoastalCMP123014.pdf>

[recommends long-term planning to address the transportation needs of an aging population]

2006 Penobscot Narrows Study: Passenger Transportation Options (focuses on the immediate Bucksport-Verona Island-Orland-Prospect area)

<https://www.hcpcme.org/transportation/penobscotnarrows/pennarrows102606.pdf>

Chapter E: Public Facilities and Services

1. Purpose

Thorough understanding of a town's public services is necessary to determine any current constraints to growth and development. A plan should assess how changing demographics and development trends will affect the demand for town services and assess their adequacy. A plan should also identify needed capital improvements.

State Goal: To plan for, finance and develop an efficient system of public facilities and services to accommodate anticipated growth and economic development.

2. Key Findings & Issues from 1998 Plan

Orland is a rural town with relatively few public facilities and services. The fire station needs some minor repairs and more substantial improvements are needed to the school building. The Town Office has several major deficiencies.

3. Key Findings & Issues for Current Plan

The Orland K-8 school is closed and the Town is now part of RSU 25. The Town Office has been replaced. The Fire Department has a shortage of day-time volunteers. The fire station does not meet current standards. Solid waste disposal and recycling will be managed locally through new facilities on Gray Meadow Road. The Town has also taken possession of the Narramissic River Dam in the Village.

4. Public Opinion Survey Results

There was mixed response to the Public Survey question of increasing the number of Selectmen from three to five. The majority of respondents deemed the current ambulance and EMS programs adequate, and were not in favor of spending more tax money. The majority of respondents to survey question #8 deemed the current policing programs also as adequate, and were not in favor of spending more tax money. Regarding survey question #7 dealing with "Road Maintenance" and "Snow Removal and Sanding", the majority of respondents said these programs are adequate and would not favor more taxes to improve or expand services.

5. Analysis & Conditions

i. Overall Adequacy of Services and Facilities

This is discussed in Section 5, paragraphs 2-17 following.

ii. Sharing of Services with Neighboring Towns

Educational services are provided by Regional School Unit 25, which also serves Prospect, Bucksport, and Verona Island. The fire department has mutual aid arrangements with neighboring towns. There is further discussion of shared services in following sub-sections. The Bucksport sewer system serves the Orland village area.

iii. Public Sewer System

A. An Overview of Current conditions

Portions of the Orland village area are served by the Bucksport sewer system. Average daily flows for the entire system range from 250,000 to 400,000 gallons per day (gpd). The treatment plant currently has a rated capacity of 460,000 gpd. Orland's contracted allotment is 29,500 gpd.

B. Consistency of Sewer Service Area Extension Policy with the Future Land Use Plan

The Town sewer ordinance requires that all newly constructed and replacement systems connect to the system. About 65% of the service area is presently developed. This means that there is an opportunity for further construction within the current service area. However, no expansions to the service area are planned.

C. Stormwater Management

Runoff from stormwater is known to cause erosion problems and also carry harmful pollutants via watersheds to sensitive water bodies and wetlands. Stormwater standards in Orland's Shoreland Zoning, Site Plan Review and Subdivision Ordinances are the only local standards addressing runoff. The Federal Clean Water Act and Maine DEP "Best Management Practices" regulations also govern most of the stormwater issues arising from industrial and commercial development. In rural areas outside of the Shoreland Zone there is no oversight for development of residential and accessory uses and structures.

D. Septage Disposal

Commercial haulers dispose of septage (the residue pumped from septic tanks) to various licensed sites out of town. The nearby septic system sludge treatment facilities include Berry Septic Services dewatering facility in the Heritage Park in Bucksport and Evergreen Recycling composting facility on the Upper Long Pond Road in Bucksport. The compost facility also treats sewer sludge from the Bucksport Treatment Plant and local Maine providers. No out of state sewage is processed IAW their Maine DEP permit. The Town of Bucksport has a sludge storage facility and land application permit adjacent to the Evergreen Recycling compost facility, currently all sludge is transferred to Evergreen Recycling. Both of these facilities are located within the Narramissic River watershed.

iv. Education

A. Current Conditions-Facilities

The former Orland Consolidated K-8 school is now closed and Orland is a member of Regional School Unit (RSU)#25. The other towns in the RSU are Bucksport, Prospect, and Verona Island. Orland continues to offer school choice for its secondary students in grades 9-12. Orland families can also opt to home school their children following guidelines established by the State Department of Education. 2017 and 2018 enrollment information for Orland school-aged students is summarized below in Table E - 1. The enrollment for Orland school-aged students in 2017 was 213 and in 2018 it was 231. The RSU owns four school buildings, a central office, athletic fields, and two storage facilities. These facilities are in Bucksport. The current 2018 enrollment, capacity, and number of regular classrooms in each school is summarized in Table E - 2. All schools in the RSU have ample excess capacity.

Table E - 1: Orland School Age Children Enrollments 2017 & 2018

School or Location	2017		2018	
Total RSU	213		236	
Jewett School (preK, K)	25		36	
Miles Lane School (1-4)	61		61	
Bucksport Middle School (5-8)	69		75	
Bucksport High School (9-12)	58		64	
Other - noted with enrollment	Belfast	2	Belfast	1
			Bangor Reg. Day Program	1
	Ellsworth	1	Ellsworth	3
	George Stevens Academy	13	George Stevens Academy	14
	John Bapst	1	John Bapst	2
	New Hampshire	1	Kent’s Hill	1
Home Schooled and other (not included in RSU enrollment noted in row one)		42	6	
SOURCE: RSU25				

Table E - 2: Capacity & Current Enrollment of Schools Serving Orland

School	Grades served	Fall 2018 enrollment	Rated capacity	Number of Classrooms
G. H. Jewett	Pre-k & K	133	200	10
Miles Lane	1-4	267	340	16
Bucksport Middle School	5-8	322	380	14
Bucksport High School	9-12	384	420	21
Reach School, Inc. (2016 figures)	7-12	17-20	none	3
Total enrollment		1,106		
SOURCE: RSU 25				

B. Staffing and Enrollment Trends

Regional School Unit 25 has about 185 faculty and staff serving approximately 1,100 students from the member towns. The school unit provides programming from Pre-Kindergarten through grade 12. The programming meets the operating requirements of Maine law and Bucksport High School is fully accredited by New England Association of Schools and Colleges. The PK-12 curriculum offers a full range of services to students including special education, gifted and talented programming, advanced placement courses at the high school, and dual enrollment courses that allow students to earn college credit while at Bucksport High School.

The High School has articulation agreements with the University of Southern Maine, University of Maine at Fort Kent, University of Maine at Augusta, and Eastern Maine Community College through the Hancock County Technical Center (HCTC). These agreements allow BHS students to access courses approved by the colleges and taught at BHS for reduced rates. Currently there are twelve courses approved for dual enrollment. In addition, Bucksport High School participates in a program that allows students to access an engineering class offered through Maine Maritime Academy.

RSU 25 houses a welding program, which is a satellite program for HCTC. The program serves students across Hancock County. Students have the opportunity to access this program for two years and have the potential to earn multiple national welding certifications. There is also an adult education program that

provides services to adults for high school completion, work force training, literacy acquisition, higher education distance learning opportunities, and general interest courses.

Enrollment trends are shown in Table E -3. There have been minor fluctuations and these are projected into the short-term future. Over the longer term, the projected increase in the median age in Orland could mean more substantial decreases in enrollment.

Table E - 3: Historical and Projected Enrollment Trends: Orland and other RSU Towns

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017 Proj	2018 Proj	2019 Proj	2020 Proj	2021 Proj
Towns/Grades													
Orland K-8	147	153	179	179	179	178	171	148	140	143	146	149	149
Orland 9-12	70	49	64	64	55	62	54	63	65	63	65	67	65
Orland Total	217	202	243	243	234	240	225	211	205	206	211	216	214
Other RSU Towns K-8	597	579	593	593	562	555	541	613	572	538	533	536	522
Other RSU Towns 9-12	301	283	265	265	236	225	237	231	243	272	266	277	279
Other RSU Towns Total	898	862	858	858	780	780	778	844	815	810	799	813	801
Overall Total	1115	1064	1101	1101	1032	1020	1003	1055	1020	1016	1010	1029	1015

SOURCE: RSU 25. Data are for fall enrollment

C. Childcare and Early Learning Programs

The Bay School in Blue Hill, Maine offers Waldorf programs for children 18 months to 6 years old. There are three child care centers in the area that serve Orland families: The Bucksport Early Care and Education Center administered by Child and Family Opportunities, the Bucksport Area Child Care Center, and H.O.M.E, Inc. A link from the State's Department of Health and Human Services identified four licensed home-based child care providers in the Orland area. In Castine, the Community Childhood Learning Place is under construction and will provide another licensed center for Orland families.

D. Future Needs

The RSU has a detailed capital improvement program. Its focus is on maintenance and the needs of current students rather than accommodating additional students. As mentioned in the Population chapter, current projections anticipate an overall decrease in population and an increase in the median age. This means that one challenge will be maintaining the current range of services if the student population decreases.

The excess capacity means there is space for new programs aimed at older segments of the population and vocational training. Local employers report a shortage of trained cooks and people with background in hospitality services. The RSU coordinates its vocational programs with Hancock County Technical Center in Ellsworth and United Technologies Center in Bangor.

v. Police Protection

There is no municipal police department in Orland. The Hancock County Sheriff's Office and the Maine State Police provide protection services. The two departments coordinate their patrol services by sharing the calls and coverage. The regional communications center in Ellsworth consults an assignment schedule when an emergency call is received and the call is dispatched either to the Sheriff's Deputy or State

Trooper assigned to the area. Calls for service are shown in Table E - 3. Total calls decreased from 931 in 2012 to 719 in 2016. There are no plans to change current service arrangements.

Table E - 4: Police Calls for Service in Orland

Agency	2012	2013	2014	2015	2016	2017	2018
State Police	390	334	317	207	345	300	314
Sheriff	541	486	535	539	374	417	523*
Total	931	820	852	746	719	717	837
SOURCE: Maine State Police and Hancock County Sheriff.							
*2018 Sheriff: Increase in call							

vi. Fire Protection

Fire protection is provided by the Orland Fire Department (OFD), a 30 +/- member, all-volunteer department. There are no paid staff; the fire chief receives a stipend. The department has mutual aid arrangements with all fire departments in Hancock County and surrounding areas.

A. Staffing

Of the current 29 volunteers, only 11 are certified for interior firefighting. Normally only 3-5 persons are available on any given day, making it difficult to comply with the National Fire Protection Association (NFPA) requirement that interior firefighting have a minimum five-person crew: Two teams of two firefighters each, with one team inside and one ready to enter, and one member to operate pumps. Since most towns have a shortage of available personnel during the work day, fire protection, at times, is barely adequate.

OFD previously dispatched by Bucksport Public Safety now contracts with Hancock County Regional Communications Center. This move will realize a major cost savings, greatly improve radio coverage and paging capability throughout town and the region, and provide single point dispatching. It also improves mutual aid response with the towns of Surry and Penobscot being toned out at the same time as OFD.

OFD meets most training requirements through in-house training. This is supplemented by fire academy sessions.

B. Facilities

The Orland Fire Station is located on School House Road. The first floor (including truck bays) is about 3,000 square-feet and second floor is about 1,300 square-feet. Individual rooms are listed in Table E - 5.

Table E - 5: Fire Department Rooms

Description of room/purpose	Approximate sq. footage
Training Room	1,300 sf
Locker rooms (2 each)	130 sf (each)
Office	100 sf
Bunk Room	120 sf
Day Room	500 sf
Dispatch Office	208 sf
SOURCE: Orland Fire Department	

The station building consists of one heated vehicle storage bay accessed by three overhead doors. This area is too small and does not provide adequate room for storage and maintenance of fire fighting vehicles and equipment. Ceilings are not high enough to allow personnel to stand up in the back of trucks as required by NFPA. The existing overhead doors are not high enough and do not allow for easy entry and egress of vehicles. In addition, the overhead door thresholds are subject to frost heaves which further reduces safe passage of trucks. There is no wash bay, making it very difficult to maintain the cleanliness of vehicles and equipment. Storage of other vital equipment is also a problem. The rescue boat and other items are currently stored in small unheated accessory buildings.

The poor condition of this facility cannot be understated. Major deficiencies include leaks in the roofs and walls around the foundation. Standing water outside occasionally rises above the thresholds of the doors. The floor drains do not work properly due to poor lot drainage. It is not uncommon for the floor drains and electrical conduits to bring water into the building. As much as 3" of standing water has been found in areas where personnel are required to stand to plug in vehicles and equipment. Poor drainage and site grading are contributing factors in frost acting against proper functioning of doors and windows, especially overhead doors. Some doors and windows won't close or lock properly due to the building racking during windy conditions. A recent heavy rain event caused an estimated \$8,000 damage to floors.

The building also is poorly insulated. Doors and windows are not energy efficient. It is evident this facility does not meet many codes and standards including the Maine Uniform Building and Electrical Code (MUBEC) and National Fire Protection Association (NFPA).

C. Vehicles and Equipment

The vehicle inventory is shown in Table E - 6. As noted, one of the vehicles is no longer suitable for current needs. It is important to keep both vehicles and equipment up to date with NFPA standards and compatible with what mutual aid partners use.

Table E - 6: Inventory of Fire Department Vehicles, 2018

Make	Year	Type	Condition	Tank Capacity	Pump GPM	Service Life
* Pierce/ International	1999	Pumper	Fair - Good	1,000	1,250	8
KME/Ford	2009	Pumper	Very Good	1,000	1,250	17
Metalfab/ International	1987	Brush Truck/ Pumper	Fair	500	750	5+
** Transtech/ International	1994	Tanker	Good	2,000		8
Ford F550	2012	Rescue/ Mini Pumper	Excellent	300	300	15-18
Achilles RHIB		Rescue boat	Very Good	16 foot	25 hp	10
* Frame has corrosion and may need to be replaced sooner						
** Vehicle in good condition, but no longer adequate for current needs.						
SOURCE: Orland Fire Department						

NFPA requires turnout gear be replaced on a regular basis and be suitable for current conditions. The OFD is proactive in its efforts to acquire additional protective clothing for firefighters. There has been

found to be a risk of cancer from wearing contaminated clothing. A second set of turnout gear would allow fire fighters to wash turnout gear between calls without reducing department readiness. 15 sets of new turnout gear were ordered in early 2018. Currently many of the SCBA bottles (Self Contained Breathing Apparatus) are reaching the end of their service life. The units cost about \$800 each. The department has spent \$4,800 to order new bottles and will continue to try to replace a few at a time as their budget allows. Unexpected repairs to two trucks recently cost \$5,000.

D. Level of Service Provided

The average response time to a call is ten minutes. It may take up to 15-20 minutes in poor weather conditions to reach the most remote part of town. Most privately owned and maintained secondary and camp roads are too narrow for large apparatus. This greatly reduces response effectiveness and the ability to bring in adequate equipment for interior firefighting.

Calls for service are summarized in Table E - 7. The number of calls has fluctuated. There is no discernible pattern. At some point, the department may need branch stations in East Orland and in the Happytown Road area.

Table E - 7: Fire Department assistance calls

Year	2018	2017	2016	2015	2014	2013	2012	2011	2010
Calls	72	94	100	83	87	103	112	85	80
<i>SOURCE: Orland Fire Department</i>									

vii. Water Supply

Dry hydrants are in poor condition throughout the Town, and there are very few fire ponds. The only consistent water supplies are located at Toddy Pond Dam, Alamoosook Dam, and Narramissic River. Rising salt levels in the Narramissic River are making that supply in the Village more difficult for modern fire equipment to use. Additional dry hydrants or fire ponds are needed in North Orland, and along the Front Ridge and Back Ridge Roads. Low water levels in most streams are a problem in dry weather.

viii. Ambulance and Rescue Service

The Bucksport Fire Department provides contractual ambulance and rescue services to Orland. It is funded by fees for service and municipal appropriations. The service presently has five-full time and fifteen paid call EMT's. Depending on the day, between one and ten EMT's are available during daytime hours, which is not sufficient. The department is researching the potential of having additional full time and/or per diem staffing.

Training related problems include the cost of courses and the number of hours required for certification. For example, the cost of the basic EMT course is approximately \$1,000 and requires 150 training hours. The advanced EMT cost is \$2,000 and 300 training hours. Paramedic training costs \$5,000 and requires three semesters of training. These costs do not include or take into account members pay for hours spent in training. Once licensed, EMT's are required to have 25-50 hours of additional training per year in order to maintain their licenses.

ix. Solid Waste Management

In a departure from the regional scope and aspect of this plan, Orland voted to discontinue sharing solid waste disposal services with Bucksport, and construct and operate its own transfer station and recycling facility. The station is open on Wednesdays, Saturdays, and Sundays as of 2021. There are two part-time paid employees.

x. Telecommunications and Energy Infrastructure

A. Telecommunications

Internet accessibility in Orland is served by various high speed internet providers, principally Consolidated Communications for DSL connections and Spectrum (Time Warner) Cable. While fiber optic service is available in Orland, access to the service remains tied to the “last mile” financing quandary. The “last mile” refers to the portion of the telecommunications network chain that physically reaches the end-user’s premises. This last connection can be quite expensive. There are 3 cell towers located on Upper Falls Road, Front Ridge Road, and Acadia Highway.

WERU community radio (89.9 FM) operates from its studios in East Orland, broadcasting from Blue Hill Mountain, providing an independent, noncommercial, diversity of music and educational and public affairs programming with an emphasis on local people, issues and cultures to the Downeast and Midcoast Maine area.

B. Energy Infrastructure

Electrical power is provided by Central Maine Power and EMERA Maine.

xi. Health Care Facilities and Social Services

Table E - 8: Health Care Facilities and Social Services

Facilities	Services	Location	Information
Bucksport Regional Health Center	Family Medicine, Dental Services, Behavioral Health, and a full-service Laboratory	110 Broadway, Bucksport	
Northern Light Blue Hill Hospital	24 Hr. Emergency Department, Family Medicine, Inpatient and Outpatient Services, LiveSafe, and Physician offices	57 Water St., Blue Hill	Family Medicine locations: Blue Hill, Castine, Stonington; LiveSafe is a medical alert emergency service, Physician offices: General Surgery, Orthopedics, Cardiology, Urology, and Women’s Health
Northern Light Maine Coast Hospital	24 Hr. Emergency Center, Family Medicine, Inpatient and Outpatient Services, Physician Offices, Intensive Care Unit, Breast Clinic, Maternity and Nursery Services, Maine Coast Women’s Care-OB/GYN Midwifery, Rehabilitation Services, Mary Dow Center for Cancer Care, Hospice and Palliative Care, Community-based Clinics	50 Union St., Ellsworth	Hospice in collaboration with Hospice of Hancock County and CHCS; Clinic locations: Ellsworth Family Practice, SW Harbor Medical Center, and Eleanor Dixon Widener Memorial Clinic in Gouldsboro

Facilities	Services	Location	Information
Orland Town Office	General Assistance and Emergency Heating Assistance	25 School House Rd., Orland	Resources available based on State of Maine guidelines and only a stop-gap service
H.O.M.E.	Food Pantry and Soup Kitchen, Child Care Center, Garage for Auto Repairs, Lumber Mill for Building Supplies	90 School House Rd., Orland	
Emmaus	Homeless Shelter, Food Pantry, Clothing, Electric Assistance	51 Main St., Ellsworth	
Bucksport Community Concerns	Food Pantry and Emergency Heating Assistance	Elm Street Congregational Church, 31 Elm St., Bucksport	
Bucksport Senior Center	Residents 55+ of the Bucksport area, scheduled recreational and social activities.	125 Broadway, Bucksport	
Eastern Area on Aging	Information, educational, and referral services for seniors, adults with disabilities, and caregivers; EZ Fix - minor home repairs and cleaning services; Furry Friends Foodbank; Nutrition services and noon-time meal; and transportation services	450 Essex St., Bangor	United Way Partnership agency
Downeast Community Partners and Child and Family Opportunities	Support services for children and families, Heating and Electric Assistance, Transportation, Section 8 Rental Assistance, Home Repair and Weatherization	248 Bucksport Rd., Ellsworth	DCP and CFO were combined as agencies in 2017
Community Health and Counseling Services	Home Health, Mental Health, and Hospice care for adults, children, and families	52 Christian Ridge Rd., Ellsworth	
Downeast Horizons	Support services for adults and children with developmental disabilities	77 Union St., Ellsworth	Residential homes for adults
VNA Hancock County Home Care and Hospice	Nursing Care and Hospice	441 Main St., Suite 2, Ellsworth	EMHS member
Jed Prouty	Assisted Living	52 Main St., Bucksport	
Parker Ridge	Assisted Living	63 Parker Ridge Ln., Blue Hill	
Bay View Manor DLTC Health Care	Assisted Living	45 W. Main St., Searsport	
The Commons at Tall Pines	Skilled Nursing, Assisted Living	24 Martin Ln., Belfast	North Country Healthcare facility
Harbor Hill Genesis Health Care	Assisted Living	2 Footbridge Rd., Belfast	
Gardner Commons	Senior Housing	67 Elm St., Bucksport	
Seaport Village Healthcare	Assisted Living, Skilled Nursing and Rehabilitation	19 General Moore Way, Ellsworth	First Atlantic Healthcare
Cortland Rehabilitation and Living Center	Skilled Nursing and Rehabilitation, Long-Term and Residential Care	42 Bucksport Rd., Ellsworth	North Country Healthcare facility

xii. Town Office

A. Facilities

The Town Office is a 3,500-square foot facility that was built in 2006. It has a main lobby and offices for the Town Clerk, Assessor, Code Enforcement Officer and Treasurer. Other rooms include the Board of Selectmen's meeting room and small meeting room for boards and committees. Heavily attended meetings are held at the adjacent Orland Community Center conference room. Elections and Town Meetings are held in the gymnasium. The center is discussed further in the Recreation chapter. The Town Office also has restrooms, kitchenette, and furnace and storage areas. There is also a back-up generator for emergency power.

B. Staffing

The current roster of municipal employees and officials is shown in Table E - 9. There was mixed response to the Public Survey question of increasing the number of Selectmen from three to five.

C. Current and Future Adequacy

Table E - 9: Orland Town Officials and Employees

Position	Full/Part Time	Appointed/Elected	Compensation	Number of Positions
Selectmen	Part Time	Elected	Stipend	3
Town Clerk Tax Collector Registrar of Voters	Full Time	Appointed	Salary	1
Deputy Town Clerk General Assistance Officer	Full Time	Appointed	Hourly	1
Treasurer	Part Time	Appointed	Hourly	1
Tax Assessor	Part Time	Elected	Hourly	3
Code Enforcement Officer Plumbing Inspector Health Officer	Part Time	Appointed	Stipend Hourly	1
Animal Control Officer	Part Time	Appointed	Stipend	1
Road Commissioner	Part Time	Elected	None	1
Community Center Manager	Full Time	Appointed	Salary	1
Community Center Assistant	Part Time	Appointed	Hourly	2
Transfer Station	Part time	Appointed	Hourly	2
SOURCE: Orland Town Office				

xiii. Public Works

There is no Public Works Department. All work is done on a contractual basis.

xiv. Narramissic River Dam

The Town of Orland took possession of the Village Dam at the head of tide on the Narramissic River in 2011, and formed a committee to work with former owner Verso paper mill to get the dam in good condition prior to town ownership, and to gather information to help the Town decide the dam's future. The Dam Committee commissioned the Orland Village Dam Alternatives Feasibility Study, done by Stantec Consulting Services and completed in 2013 (with some follow-up).

Expected lifespan of timber crib dams is 30 years. The concrete and timber crib dam, built in the 1930s to provide water to the Bucksport mill, was significantly repaired in 1985 at a cost of \$83,845, then substantially reconstructed in 1994 for \$94,000, after damage from a storm surge. Verso paid those costs, and also did minor repairs after turning the dam over to the Town. The State classifies this dam as a “Low Hazard Potential Dam” where failure or errors in operation result in no probable loss of human life and low economic and environmental losses.

The dam has two Alaska steep pass fishways. According to the study, “the longer fishway provides potentially suitable conditions for upstream fish passage approximately 50% of the tidal cycle and the shorter fishway...for approximately 33% of the tidal cycle.” This is not considered sufficient by fisheries managers.

Visual inspection by Stantec showed the dam in “good” condition. The primary concern identified was fill added upstream of the spillway, which can expose the timbers to drying and cause more rapid decay. The study also noted that the dam is overtopped by higher monthly tides and storm surges. In 2013, Maine Geologic Survey predicted a 2-ft rise in sea level over the next 100 years. Three feet is now a mid-range estimate.

Stantec studied five alternatives for the dam, with the Dam Committee rejecting dam rehabilitation and new fishway construction as too expensive, and a nature-like fishway as being unworkable for the site. Presented with the option of dam removal in June 2016, Orland residents chose to keep the dam as is. Major concerns cited were appearance of the Village without the dam and mercury deposits identified just downstream in the Orland River by the Penobscot River Mercury Study (2013).

The Dam Committee gave a list of recommendations to the Board of Selectmen in August, 2016, including:

- Periodic inspections and a plan of preventative maintenance;
- Regulating water flow from Alamoosook Lake to prevent stranding of juvenile alewives at the dam;
- Addressing Town liabilities for upstream bridge failure (in the event of dam failure) and potential loss of endangered species;
- Upgrading fish passage to allow better passage of alewives and other species at all tide levels;
- Setting aside funds for proper maintenance. Stantec recommended \$7,500/year. The committee recommended a reserve fund for major repairs and liability issues with a yearly contribution of \$10,000 - \$30,000 until a sufficient reserve is accumulated. The Town Meeting appropriates funds annually.

In addition to owning the Village Dam, the Town may find itself future owner of the Alamoosook and Toddy Pond dams, should the current owner of the Bucksport mill property decide to divest itself of these holdings.

Bucksport Mill LLC currently (2018) holds certain water rights in the Narramissic River, Toddy Pond, Alamoosook Lake and Silver Lake. The company maintains and operates Toddy Pond Dam, Alamoosook Dam, and Silver Lake Dam and coordinates Emergency Action Plans for those dams.

xv. Street Tree Program

There are currently no such programs in effect. However, some interest has been shown in participating in+ Maine Project Canopy.

6. Goals & Objectives

Goal 1: Establish a Stormwater Management Plan

Objective A: Maintain both healthy watersheds and groundwater as a safe source of potable water and surface waters as a safe source of aquatic habitat and recreational use.

Strategies:

- I. Periodically Assess EPA and DEP evolving standards and revise ordinances to control overburden and contamination of surface waters, groundwater and watersheds.
- II. Consult with local Lake Associations (Alamoosook Lake, Craig Pond, and Toddy Pond) which conduct water quality monitoring, invasive plant surveys, and courtesy boat inspections.

Responsibility and Timeframe: Planning Board with assistance of DEP, HCPC and HCSWCD. Immediate and ongoing.

Goal 2: [Sewage Disposal] Prevent ground and surface water contamination by effective management of public sewer facilities and private septic waste systems.

Objective A: Inspect failing subsurface waste water disposal (septic) systems, sewage waste disposal and processing sites, including sludge processing (composting) and land application facilities.

Strategies:

- I. Maintain a current inventory of all sewage disposal sites, sludge processing and land application facilities within Orland and watersheds affecting Orland waters.
- II. Assess watershed areas (land/water sampling) for presence of “forever” chemicals.

Responsibility and Time Frame: Planning Board with assistance of sources such as DEP, USDA Soil Conservation Service, and HCPC. Immediate and ongoing.

Objective B: Protect local shorelines and riparian areas from septic leaks and discharge.

Strategies:

- I. Work with local partners, lake associations and property owners to educate in shoreline and riparian area issues, including septic leaks and water quality issues.

Responsibility and Time Frame: Code Enforcement Officer, HCSWCD, or designee. Immediate and ongoing.

Objective C: Provide and maintain sewer service and connections to the Bucksport municipal sewer system.

Strategies:

- I. Review Bucksport expansion plans.
- II. Annually assess Orland connections with respect to allowed capacity.
- III. Encourage residential and small business development within the existing sewer district to reduce subsurface impact.

Responsibility & Time Frame: Selectmen, Planning Board, Code Enforcement Officer. Immediate and ongoing.

Goal 3: [Fire Protection] Provide safe and adequate facilities for fire, rescue and emergency services.

Objective A: Replace existing substandard fire station per recommendation by Fire Department Building Committee

Strategies:

- I. Perform professional assessment of the current station with cost estimate to upgrade or replace. (completed 2021)
- II. Assess funding sources and tax burden.
- III. Prepare a comprehensive project plan.
- IV. Appoint local committee to develop a plan with oversight of an architect or engineer.

Responsibility & Time Frame: Selectmen. Immediate and ongoing.

Objective B: Maintain an inventory of vehicles and equipment that meet National Fire Prevention Association (NFPA) standards.

Strategies:

- I. Provide the Board of Selectmen with a current list of all vehicles, accessory equipment and personnel equipment with current life expectancy, along with a replacement plan which includes current anticipated replacement costs and proposed funding sources.

Responsibility & Time Frame: Orland Fire Department (OFD). Annually for inclusion in the Annual Town Report.

Objective C: Utilize reliable and effective dispatch services for fire, rescue and other emergency personnel.

Strategies:

- I. Effective and reliable dispatch services are currently provided by Hancock County Dispatch.

Responsibility & Time Frame: OFD. Annually or as required.

Objective D: Provide fire, rescue and other emergency response personnel with training and certification that meets NFPA standards.

Strategies:

- I. Budget for and ensure initial and refresher training for all personnel consistent with NFPA standards through a combination of in-house contributions, municipal financial assistance and grant monies.

Responsibility & Time Frame: OFD. Annually or as required to meet training standards.

Objective E: Ensure there is adequate water supply for fighting fires in all areas of Orland.

Strategies:

- I. Research a cost-effective sustainable water resource system for all areas considered deficient for fighting fires.
- II. Develop a plan.

Responsibility & Time Frame: Selectmen, OFD. Immediate and ongoing.

Goal 4: [Telecommunications] Expand access to high-speed internet throughout Orland.

Objective A: Encourage and support efforts to provide expanded access to high-speed internet throughout town.

Strategies:

- I. Connect with regional broadband committees and recruit Orland citizens to participate in the one that best meets Orland's needs.
- II. Encourage legislative initiatives at state and federal levels.
- III. Access available funding.
- IV. Provide state and federal Senator and Representative contact information to citizens via the Town Website and Town Report for advocacy.

Responsibility & Time Frame: Selectmen and citizen designees. Immediate and ongoing.

Goal 5: [Town Operations] Enhance Town functions for the benefit of Orland citizens

Objective A: Provide improved meeting space for Town Meetings, Public Hearings and Elections.

Strategies:

- I. Seek municipal and grant funds to:
 - 1) Provide enhanced internet connectivity in the Community Center gymnasium that will accommodate audio/visual displays including teleconferencing (i.e. Zoom).
 - 2) Continue to improve heating, air conditioning and air filtration in gymnasium. (Heat pumps installed 2019)
 - 3) Improve acoustics in the gymnasium.

Responsibility & Time Frame: Selectmen, Property Manager and/or designee. Immediate and ongoing.

Objective B: Provide improved information flow from Town Office to citizens.

Strategies:

- I. Establish Selectmen Meeting Rules of Procedure that include:
 - 1) the requirement to establish and publish agendas for all meetings and
 - 2) Publish all Selectmen meeting agendas in advance and post approved meeting minutes on the Town website and for public viewing in the Town Office and Community Center in a timely manner.

Responsibility & Time Frame: Selectmen via instruction to the Town Office Staff. Immediate and ongoing.

Goal 6: [Education] As an RSU#25 member, make sure that RSU#25 has the educational facilities and services that benefit Orland youth and residents, while recognizing the limitations of the Town budget.

Objective A: Support the maintenance or development of RSU#25 physical structures and equipment that is required by State Essential Programs and Services (EPS) or identified Orland citizens.

Strategies:

- I. Continue to advocate for Orland's needs within the RSU#25 budget hearing process, as it pertains to the capital improvement plan.

Responsibility & Time Frame: Orland Representatives on the RSU #25 School Board, Selectmen during annual RSU#25 budget development and hearing process. Annually.

Objective B: Support RSU#25 educational programming that is required by State EPS or identified by Orland citizens.

Strategies:

- I. Maintain a working knowledge of State EPS.
- II. Identify grant or other public non-taxation related monies to support the RSU's educational services/programs.

Responsibility & Time Frame: Orland Representatives on the RSU #25 School Board, Board of Selectmen during annual RSU#25 budget development and hearing process, Orland citizens. Ongoing annually through coordination with Orland School Committee members.

7. Additional Public Service Observations

Police Protection (Survey question #8):

- There is no municipal police department. Police protection is currently provided by the Hancock County Sheriff's Department and the Maine State Police.

Ambulance:

- There is no municipal ambulance service. Service is currently provided by Bucksport Ambulance.

Solid Waste:

- Orland did not have its own transfer station when the survey was taken.
- Bucksport was used by most Orland citizens. Concerns and many negative comments over the staff attitude at Bucksport have been cancelled by creation of Orland Transfer Station.
- The new Orland transfer station is operating very well.
- Recycling: Market driven and unprofitable; recycling is down statewide and nationwide. No interest in the survey for tax increases to enhance recycling.

Public Works:

- There was no survey question dealing specifically with Public Works or Road Commissioner.

Dams (Orland Village, Alamoosook Lake and Toddy Pond):

- No survey questions dealt specifically with Orland dams.
- Under survey questions #7 and #27 there were questions and comments concerning ownership.
- Goals and Objectives should be addressed in Water, Marine and/or Natural Resources.

Tree Program:

- No survey questions dealt specifically with a tree program.
- Survey question #22 dealt with Great Pond Mountain Wildlands and mentioned it is enrolled in the State Tree Growth Program.
- No citizen comments about trees or tree programs.
- If deemed absolutely necessary, Goals and Objectives should be addressed in Forestry and/or Natural Resources.

Chapter F: Recreation and Health

1. Purpose

This chapter describes recreational resources in Orland and assesses their current and future adequacy. It also assesses the availability of open space areas for public recreation and how public access could be threatened by future growth and development. This chapter specifically will:

- a) Describe current health and recreational resources in Orland;
- b) Assess the current future adequacy of these resources; and
- c) Consider how future availability of open spaces, areas for public recreation and access will be threatened by future growth and development

State Goal: To promote and protect the availability of outdoor recreation opportunities for all Maine citizens, including access to surface waters.

2. Key Findings & Issues from the 1998 Plan

Orland has limited recreational facilities in town and relatively few organized youth and adult recreational programs. Parking is a problem at the various boat launching facilities. Orland's wealth of natural resources provides many additional recreational opportunities to residents. The Town also participates in Bucksport's recreation program.

The Town's protected open space is also limited. The only known preserved open space is owned by the Nature Conservancy along Toddy Pond. It will be difficult for the Town to address these deficiencies given the many other demands on the tax base.

3. Key Findings & Issues for Current Plan

The opening of the Orland Community Center has expanded recreational services. The lands protected by the Great Pond Mountain Conservation Trust and USFWS assure access to hiking and other outdoor activities. Public access to surface water could be improved. There is no access at all to some ponds and parking is limited at other sites. Access to the Narramissic River has been improved with paved parking provided by the Town in front of the Methodist Church on Narramissic Drive near a hand boat launch.

4. Public Opinion Survey Results

While the public opinion survey showed a majority of residents were satisfied with the Orland Community Center and were opposed to tax increases to improve or expand services, the Narramissic River boat launch was a recreational service that received a high percentage of "needs improvement" responses. The conservation of resources related to recreational opportunities also received overwhelming support including wildlife habitat, significant wetlands, fish habitat and fish passage.

When asked to choose top five priorities for services and improvements in Orland Village and whether they would support them with increased taxes, a walking path along the Narramissic River was top on the list with over 60% supporting increased taxes. Other top recreational priorities with support with taxes

hovering on either side of 50% were a public park by the dam site, wildlife watching opportunities and an improved hand-carry boat launch.

The top eight priorities for desirable recreational activities included canoe/kayak or walk-in access to freshwater, community gardens, public sliding hills, saltwater access, playgrounds, single-track mountain bike trails, and back-country or tent camping. A vast majority (74.1%) are in favor of walking trails being developed at the Orland Community Center. The majority of respondents believe that the Great Pond Mountain Wildlands is an asset to Orland.

5. Current Recreation & Health Resources

i. Overview

Recreation services are provided by the Orland Youth Recreation Committee and the Bucksport YMCA (operated by Downeast Family YMCA in Ellsworth). These are supplemented by school-based programs provided by RSU 25. The Craig Brook National Fish Hatchery and Great Pond Mountain Conservation Trust also offer facilities and programs. These are discussed below.

ii. Public Recreation Facilities

The primary town-owned facility is the Orland Community and Fitness Center (formerly Orland Consolidated School) which encompasses about 13 acres. Facilities inside the Community Center include a gymnasium and a fitness center consisting of six rooms with free weights, weight machines and a full range of exercise equipment. These facilities are in very good to excellent condition.

Outside facilities include three ball fields, which accommodate baseball, softball and soccer. The fields are in fair condition. It is anticipated that the fields will need reconstruction and/or resurfacing in the near future. There is also a children's playground made possible by community fund raising efforts. The playground is in new condition. Additions to the playground are planned. The newest addition is a dog park.

The federally owned Craig Brook National Fish Hatchery offers a Visitor Center and amphitheater open to the public year-round with educational displays and salmon viewing. The conference room, amphitheater and Visitor Center are used by home-school groups, state and federal agencies and local nonprofits for meeting and event space. There are also picnic areas and boat launches on both Alamoosook Lake and Craig Pond, as well as several miles of nature trails.

Great Pond Mountain Conservation Trust's (GPMCT) Wildlands' property attracts thousands of visitors each year. The Wildlands encompasses 4,500+ acres and provides low-impact recreational opportunities for individuals and groups as well as offering organized recreational activities. The Wildlands includes the popular Stuart Gross Trail up Great Pond Mountain.

There is a full access boat launch at Toddy Pond on Route 1. The parking lot may become congested or overflow during the summer tourist season or winter ice fishing events. Limited access boat launch sites are located in the village on the Narramissic. These sites will only accommodate watercraft that can be launched by hand. See Table F-1.

iii. Activities

The Orland Community and Fitness Center basketball court (gymnasium) is used year-round for a host of activities and functions. These include various cardio-fitness classes and workout programs such as Yoga,

basketball, pickle ball, volleyball, and Seniors in Motion. The Fitness Center's weight rooms and exercise equipment rooms are used by groups and individuals. Membership fees are charged.

During warmer weather there are multiple organized and unorganized groups using the outdoor facilities. Several schools use the grounds for soccer and cross-country meets. The Orland Youth Recreation Committee sponsors soccer, T-ball and basketball.

Orland River Day is a town celebration normally held each year on the last Saturday in June (rain or shine) - complete with a parade, food, crafts, environmental information booths, a "Downeast" raft race, the Alewife Run Paddle, and many other activities. Cancelled in 2020 due to COVID it is being tried the weekend after Labor Day to attract more school-aged youth.

Great Pond Mountain Conservation Trust (GPMCT) offers outdoor activities, such as hiking, bird watching, Christmas tree cutting, trail runs, campfire sing-a-longs and more in the Wildlands and/or at the fish hatchery for all ages.

iv. Public Access to Surface Waters

Public access sites are summarized in Table F - 1. The Fish Hatchery's parking areas at both Alamoosook Lake and Craig Pond overflow on hot summer weekends, and are also busy during ice fishing season. There are erosion problems at the picnic areas at both sites, though a recent 319 grant has enabled the Fish Hatchery to work with Hancock County Soil and Water Conservation Service to repair some problem spots. There is no public access to Rocky and Patten Ponds. (For more information on the Town's freshwater resources, see the Water Resources chapter.)

There are no state-owned public access points in Orland to the Orland and Narramissic Rivers. There is a public boat launch on Verona Island. Due to tidal currents, distance, and the lack of a portage site at the Orland Village Dam, the Verona Island launch site is of limited use for casual boaters from Orland. (For more information on access points to the two rivers, see the *Orland Village and Waterfront Plan*).

There are also some informal access points. One is a presently unmaintained portage site at the Alamoosook Lake dam. There are also several places in the village area to put in a small craft. Some informal access sites may be restricted as ownership changes.

Table F - 1: Summary of Public Access Points to Surface Water in Orland

Water Body	Type of Facility	Description & Adequacy	Courtesy Boat Inspections
Alamoosook Lake	Trailer ramp, picnic area, restroom	On Craig Brook National Fish Hatchery property. Launch area has build-up of gravel, which limits its use by larger craft.	Last weekend of June thru Labor Day, 6 days a week: Tue-Thu: 8am-1pm, Fri-Sun: 8am-4pm
Craig Pond	Trailer ramp, picnic area, restroom	On Craig Brook National Fish Hatchery property, parking overflows during hot summer weekends	Weekends Memorial Day thru Labor Day
Heart Pond	Hand-carry access	Owned by Maine DIF&W. Difficult access, little signage and trash problems.	None
Hothole Pond	Hand-carry access	Paddle access to Hothole Pond from roadside hand-carry launch on Moosehorn Stream on Bald Mtn. Road. Ease of access and erosion control problems	None

Water Body	Type of Facility	Description & Adequacy	Courtesy Boat Inspections
Upper Patten Pond	No public access		None
Rocky Pond	No public access		None
Toddy Pond	Trailer ramp, picnic area, restroom, parking	Owned, maintained by State	Memorial Day weekend thru Labor Day: 6am-6pm Fri- Sun. 6am-3pm Mon-Thurs.
Narramissic River	Hand-carry access	Sites across from the Orland Methodist Church, and next to the pumping station on Fish Point Road allow for hand-carry access	None

Source: Orland Comprehensive Plan Committee, Maine DACF

v. Open Space

The major areas of preserved open space are listed in Table F - 2. The largest parcel is the 4,500+ acre Great Pond Mountain Wildlands owned by Great Pond Mountain Conservation Trust (GPMCT). The Trust maintains about 26 miles of trails, including the popular Stuart Gross Trail up Great Pond Mountain. Some are footpaths but most are open to multiple uses, including walking, snowmobiling, horseback riding, bicycling. Hunting and fishing are allowed. The Wildlands also includes two rustic campsites and picnic areas, and hosts public hikes and programs year-round. Scout troops, Trot Clubs, re-enactors, primitive skills groups and many more organizations use the land each year. GPMCT may continue to acquire Wildlands-adjacent lands suitable for recreation, wildlife habitat and sustainable timber harvest as they become available. GPMCT estimates that it has about 6,500 visitors a year to the Wildlands, not including the popular Stuart Gross Trail up Great Pond Mountain, which likely sees in excess of 20,000 visitors annually.

The Craig Brook National Fish Hatchery property, owned by US Fish & Wildlife Service, is 135 acres. The hatchery itself has about 5,000 visitors a year, not including the thousands of swimmers, hikers, picnickers and boaters using the beaches, trails and boat launches. GPMCT and USFWS properties combined account for about 16% of the Town's total land area of 29,332 acres. This figure does not include other conserved lands such as boat launches at Toddy and Heart Ponds, and includes a 72-acre conservation easement held by GPMCT off the Mama Bear Road, which is privately owned (though not posted against hunting or hiking).

There are also places on private property that are used for hunting and fishing. There are no formal arrangements for access, and ownership could change. Out of respect for landowner privacy, this plan does not identify any such sites.

Table F - 2: Conserved Open Space, Orland

Description	Acreage	Ownership
Great Pond Mountain Wildlands	4,500+	Great Pond Mtn. Conservation Trust
Craig Brook National Fish Hatchery	135	U.S. Fish & Wildlife Service
Conservation easement held by GPMCT	72	Private
Total Preserved Land (percent of total town land area of 29,335 acres)	4,707+ acres (16 %)	

Source: Orland Comprehensive Plan Committee, Maine DACF

Recreational Trails

As mentioned above, there are trails on both GPMCT and Hatchery properties. These trails connect with ITS 107, part of the International Snowmobile Trail System (ITS). The Bucksport Family Snowmobile Club marks and maintains ITS 107 and other local trails in town, including those crossing ice on Alamoosook Lake and Craig Pond.

While Orland has a wealth of trails for a number of uses, it lacks public trails designed specifically for single track mountain biking and ATV riding. The nearest public places for these sports include the Kiske lot in Dedham for mountain biking, and the Sunrise Trail in Ellsworth for ATV's. Residents have also indicated they would like safer trails for walking and biking in the downtown area. For more information on trails, see the *Village and Waterfront Plan* and the Transportation chapter of this Comprehensive Plan.

vi. Current & Future Adequacy

Recreational facilities and services face several challenges. Though Orland is blessed with more public access to the outdoors than most towns, there are problems with overcrowding with the existing access points at the Hatchery property on Alamoosook Lake, at Craig Pond and also Toddy Pond off Route 1.

Table F - 3: Guidelines for Recreation and Park Services (Recommended State Standards)

Service	Does Orland Have?
Administration	Yes
Arts & Crafts Programs	No
Auditorium	No (Yes in RSU 25 Bucksport)
Community Recreation Area: 12 – 25 acres	No (Yes if include GPMCT property)
Community-Wide Special Events	Yes
Evening Adult Education	In RSU 25 Bucksport
Finance	Yes
Gym or Large Multipurpose Room	Yes
Horseshoe Courts	No
Ice Skating	No
Ice Skating Rink	No
Leadership	Yes
Minimum \$6/capita for part-time program	Yes
Multi-Purpose Field	Yes
Parks & Recreation Board	No
Playgrounds	Yes
Public Facilities – Indoor	Yes
Public Facilities Including School – Outdoor Facilities	Yes
Public Library	No (Yes in Bucksport, Ellsworth, Blue Hill)
Public Programs	Yes
School Facilities Available for Public Use	No (Yes in RSU 25 Bucksport)
Senior Citizen Club	Yes
Shuffle Board	No
Skateboard Park / BMX/ Pump Track Facility	No
Skiing Instruction	No
Softball/Little League Diamond	Yes
Summer Recreation Director	Yes
Summer Swim Instructor	No
Supervised Playground	No
Swim Instruction	No
Tennis Courts	No

Source: Orland Comprehensive Plan Committee, Maine DACF

6. Goals & Objectives

Orland desires to provide an adequate range of recreational programs and activities for all age groups within the limits set by competing municipal budget priorities.

Goal 1: Develop a long-range recreation program that not only ensures continuity of the availability of current activities but also looks to expand recreational opportunities for all ages and considers various funding sources other than local property taxes.

Objective A: Offer the opportunity for a wide variety of activities for all ages and abilities.

Objective B: Enhance the recreational fields at the Orland Community Center to accommodate various uses such as adult softball, youth softball, baseball (including Little League), and soccer.

Objective C: Expand recreational activities to include outdoor pickleball, volleyball, basketball and horseshoes, etc.

Strategies:

- I. Re-establish and expand an active Volunteer Recreation Committee.

Responsibility & Time frame: Property Manager or designee and Selectmen or designee. Within 2 years of Plan adoption.

Goal 2: Foster community engagement and support for Orland and the region's diverse natural recreational areas and facilities.

Objective A: Coordinate with local organizations such as Great Pond Mountain Conservation Trust, Craig Brook National Fish Hatchery and neighboring towns to maximize advertisement/publicity of recreational activities offered.

Objective B: Coordinate with local organizations such as Great Pond Mountain Conservation Trust, Craig Brook National Fish Hatchery and neighboring towns to ascertain how Orland can support their endeavors.

Objective C: Ascertain the feasibility of creating additional forest/walking trails that would connect to existing trails in Orland and neighboring towns.

Strategies:

- I. Recruit local residents who have expressed an interest in collaborating with neighboring towns, pertinent local organizations and state agencies to research the objectives and make specific recommendations to the Board of Selectmen.

Responsibility & Time frame: Selectmen or designee. Within 2 years of Plan adoption.

Chapter G: Marine Resources

1. Purpose

It is important that a Comprehensive Plan provides a thorough analysis of marine resources. Specifically, this chapter:

- a) Describes Orland'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.

State Goal: To protect the State's marine resources industry, ports and harbors from incompatible development and to promote access to the shore for commercial fishermen and the public.

2. Key Findings and Issues from 1998 Plan

Orland has relatively limited marine resources when compared to many coastal Hancock County towns. This is due in part to its location on a tidal river rather than on the open ocean. While there are a limited number of commercial fishermen and marine worm diggers in town, there are no official records of shellfish harvesting for at least 20 years. Poor marine water quality due to high levels of fecal coliform (per the DMR) is one factor that would limit any shellfish harvests. Marine-related facilities are very limited. There are no public boat launching ramps on salt water. The Orland River channel is relatively shallow and is limited to small craft.

3. Key Findings & Issues for Current Plan

Marine resources play a limited economic role in Orland. Those who work in the fishing sector generally work out of town. The poor water quality and lack of deep-water access limit its likelihood for expansion of its marine resource potential. The Alewife harvest below the dam in the village is a traditional activity and a point of local pride. Orland is one of the few towns in the state that maintains a right to harvest alewives. The Town maintains the license and a Fish Committee is elected to ensure compliance and maintain the fishway. The money paid by the contractor goes into a fund to maintain the village dam and fishway. The waterfront has the potential to be developed as a recreational asset. A hazardous mercury deposit in the tidal Orland River was a factor in the Town's 2016 vote to keep the village dam.

4. Public Opinion Survey

Question 5 of the Public Opinion Poll addresses Marine resources in three areas. Our river waterfront below the dam in Orland Village is tidal, sea level is rising, and when our wood timber dam fails, we will have some form of marine habitat and salt marsh wetlands, another mile or two upstream. 85% of our survey supports wetland preservation and 75% of the people surveyed support fish habitat and passage. Sea run fish currently migrate up the Orland and Narramissic river, while shell fishing is currently prohibited due to mercury contamination, that will eventually subside. 74% of respondents supported undeveloped shore frontage; we have several miles of marine frontage stretching from Leaches Point to the Orland Dam and down to the Town of Penobscot. Finally, 79% of respondents want to maintain scenic views. While views of the river and Orland are limited from the land, the view of Orland is

magnificent, almost pristine, when viewed from a boat in the river; for that we should thank Maine's Shoreland Zoning Ordinance and the Town's enforcement of it.

5. Marine Resource Inventory

i. Fishing/Marine Resource Capacity

Fishing and related marine resource activities play a limited role in Orland's economy. According to the Maine Department of Marine Resources, there were 25 marine licenses issued in 2019 (see Table G -1). These licenses are based on residency, not where the person fishes. Although no firm data are available, the combination of limited public access, the shallowness of the river, and poor water quality mean that most licensees fish elsewhere. A Spring Alewife and Elver harvest takes place on the East Bank of the Orland River below the village dam.

Table G - 1: Marine Licenses, Orland Residents

Type	2016	Spring 2019 Update
Commercial fishing (crew)	0	0
Commercial fishing (single)	1	0
Commercial Shellfish, (CS)	2	2
Recreational Saltwater Fishing (SWRO)	0	1
Elver 1 Fyke Nets (E-1)	1	1
Elver-dip net crew (EOC)	1	1
Green Crab	0	0
Lobster/crab non-commercial (LNC)	5	5
Lobster/crab class 1 (LC1)	3	3
Lobster/crab class 2 (LC2)	2	2
Lobster/crab class 3	0	0
Lobster/crab over age 70 (LCO)	1	1
Lobster/crab Apprentice (LA)	2	2
Lobster/Crab Student (LCS)	1	1
Marine worm dealer (MWD)	5	5
Scallop Non Commercial	0	0
Seaweed Supplier (SWS)	1	1
Total	25	25

Source: Maine Department of Marine Resources

ii. Water Quality

Due to mercury contamination from the former HoltraChem chlor-alkali plant in Orrington, the Penobscot Bay from Stockton Springs north is permanently closed for harvesting lobster and crabs. There is no record of major sources of pollution originating from Orland. [See Natural Resources and Water Resources chapters for more discussion of mercury concentrations in the Orland and Narramissic Rivers]

iii. Public Access

Public access to salt water is discussed at length in the *Village & Waterfront Plan*. In brief, there is limited access via hand-carry sites, limited parking, and no trailer launch sites on salt water. Orland is one of only two coastal towns in Down East Maine, that does not have a public boat launch to salt water; Perry in Washington County is the other.

iv. Future Plans

As mentioned above, the Town prepared a detailed plan for the village and waterfront. This would increase opportunities for recreation and tourism. Orland has potential to capitalize on its beauty, wildlife, and forested shoreline. Its marine resources, while of limited economic value by themselves, contribute to the overall character of the Town and are a matter of civic pride. A public salt water launch site is recommended in the *Village & Waterfront Plan*.

The Orland Village Dam Alternatives Feasibility Study (2013) found that taking no action to remove or replace the Village dam would allow for “adverse impacts to fisheries resources” in the Narramissic, due to the “poor performance of the Orland Village Dam fishpass” and conditions in the impoundment that are suited for introduced non-native fish. As a result, the Dam Committee recommended that the fishway be improved or replaced, in order to maintain a healthy alewife population and allow other species to pass the dam.

The 2013 Dam Alternatives Feasibility Study recommended that \$15-20,000 per year be set aside for repair and eventual replacement of the Village Dam. The Town currently sets aside \$5-10,000 on the budget. It was also recommended that the fishway be improved or replaced in order to maintain a healthy alewife population.

6. Regional Marine Resource Issues

Orland shares its marine resources with other communities. It thus may want to address issues such as water quality and public access cooperatively with these towns. In addition, climate change and extreme weather events, such as storm surges, tidal inundation and daytime nuisance flooding will increasingly impact Orland’s shorelines and the Town will need to coordinate its neighbors to implement The Governors’ Climate Council’s policies from *Maine Can’t Wait*, that includes recommendations and guidelines for coastal areas and marine fisheries.

7. Goals & Objectives

In order to ensure Orland is a healthy community in which to live, work, and recreate, Orland must protect, preserve, restore and provide access to its marine resources.

Goal 1: Minimize threats to marine water quality.

Objective A: Work with DEP to monitor pollution in the Orland River and East Channel of the Penobscot River.

Objective B: Ensure that new development, road and driveway culverts, homes, and agriculture do not contribute to contaminating stormwater runoff.

Objective C: Work with the Town of Bucksport to ensure that the village sanitary sewer and pumping station are well maintained.

Objective D: Monitor, coordinate and communicate information concerning mercury contamination below the dam and the efforts to contain and abate. (See Orland Dam Report on Town Website for details on contamination from Mallinckrodt facility, aka, HoltraChem site, in Orrington).

Strategies:

- I. DEP continues to monitor pollution. Code Enforcement Officer (CEO) continues to ensure no septic system discharge into Orland River, Gilpin Stream, or East Channel of Penobscot River and property owners comply with the Shoreland Zoning Ordinance, Subdivision Ordinance and Site Plan Review Ordinance. Planning Board and Selectmen continue to educate citizenry and listen to property owners' concerns.
- II. Selectmen reconsider value of building permit implementation. Also see Stormwater Management Plan and Sewage Disposal in Public Facilities and Services Goals and Objectives.

Responsibility & Time Frame: Selectmen, Planning Board, CEO, Road Commissioner, OFD, and property owners. Immediate and ongoing.

Goal 2: Maintain, enhance, and expand emergency responder and public access to salt water. Orland is one of just two Maine tidal towns between the Penobscot River and Passamaquoddy Bay that does not have an accessible/public saltwater boat launch site.

Objective A: Maintain access to commercial saltwater fishery.

Objective B: Identify emergency responder and public salt water access sites with boat launching opportunities and nearby parking areas.

Strategies:

- I. Orland Fish Committee continues working with DMR to ensure fishery compliance and oversight of commercial Alewife operation, facility, and road maintenance past the dam.
- II. Fish Committee, OFD, and proposed Recreation Committee review benefits of a boat launch site below the dam on the east side of the Orland River and consider possible state, federal, and private funding sources.

Responsibility & Timeframe: OFD, Fish Committee, Selectmen, ad hoc committee if created, and Recreation Committee if reinstituted. Immediate and ongoing.

Chapter H: Water Resources

1. Purpose

Orland's water resources provide the Town with drinking water, recreation and to a limited extent, transportation. An understanding of all water resources is essential for a town's habitation and viability. This section specifically aims to:

- a) Describe the characteristics, uses, and quality of Orland's significant water resources;
- b) Predict whether the quantity or quality of significant water resources will be threatened by impacts of future growth and development; and
- c) Assess the effectiveness of existing measures to protect and preserve significant water resources.

State Goal: Describe the characteristics and current use of Orland's significant freshwater resources and their potential for future use and preservation.

2. Key Findings and Issues from 1998 Plan

The water quality of Orland's lakes and ponds was considered average with the exception of Craig Pond, which was considered outstanding. The biggest threat to water quality was from phosphorous loading due to yard and road runoff. Vulnerability to point pollution from septic systems was reduced by regulation from the Clean Water Act beginning in 1974 and the installation of a sanitary sewer in the village in the 1990's that's connected to Bucksport's Sewage Processing Plant. Point pollution from the Craig Brook National Fish Hatchery was not considered in the report. The threats to water quality were considered pond by pond and not viewed as a threat to the Narramissic Watershed which includes 90% of Orland.

Orland, then and now, depends on wells and surface water extraction for drinking water and household use. Most wells are drilled in bedrock and the water from Orland's aquifers was considered adequate for domestic use. Threats to groundwater from leaking underground storage tanks was considered minimal because the remaining eight tanks in use were all installed after 1982 and comply with existing Maine DEP and U.S. EPA standards.

3. Key Findings & Issues from Current Plan

There have been significant changes in Orland since the last Comprehensive Plan was completed in 1998 which, impact water resources. These changes include: Great Pond Mountain Conservation Trust created the Great Pond Mountain Wildlands in 2005; the Orland Consolidated School closed in 2011; the bridge in Orland Village on Castine Rd/SR166 was rebuilt in 2013; VERSO, formerly the Champion Paper Mill, gave the dam on the Narramissic River to the Town in 2014; the citizens of Orland voted to retain and maintain the dam on the Narramissic River in 2016; the US Hwy 1 Bridge across the Narramissic River was repaired and widened by Maine DOT in 2016; no water has been withdrawn on a regular basis from the pump house at the foot of Alamoosook Lake to Silver Lake since the mill closed at the end of 2014; and the *Village and Waterfront Plan*, (See Town website) was completed by Orland citizens and the Hancock County Planning Commission, HCPC, in 2017.

Due to increased consideration for fish passage and the *Village and Waterfront Plan*, more people in Orland are thinking comprehensively about the Narramissic Watershed and not regarding it as merely a collection of individual lakes and ponds.

4. Public Opinion Survey Results

In the Orland Comprehensive Plan Survey Results, 85-90% respondents supported conservation of aquifers/drinking water sources, significant wetlands, and fish habitat and passage. Twenty-eight% of respondents said drinking water quality was a problem.

Citizens ranked Orland's 6 top assets as: 1. Quiet Rural Character, 2. Proximity to nearby towns, 3. Great Pond Mountain Wildlands, 4. Seven Healthy Lakes, 5. Craig Brook National Fish Hatchery, and 6. The Narramissic River.

5. Surface Water Resources

i. Fresh Water Bodies and Watersheds

There are twelve great ponds, naturally occurring lakes of ten acres or more or man-made lakes of thirty acres or more, whose watersheds include at least a portion of Orland. These lakes are described in Table H -1. The watersheds of Craig, Heart and Little Ponds lie entirely within Orland. The other watersheds are shared with adjoining towns. In the case of Long Pond, however, only 2.2% of the watershed lies within Orland and the pond itself lies entirely outside of town.

The Maine Department of Environmental Protection rates lakes in terms of their water quality and degree of phosphorus loading. Phosphorus is one of the key factors affecting water quality. While phosphorus is a naturally occurring phenomenon, man-made operations such as timber harvesting, and road and home construction increase the amount of phosphorus in a watershed. Phosphorus washes into water bodies, causing algae to multiply, oxygen levels to fall, fish to die, and water to turn green. A developed area can send as much as ten times the amount of phosphorus into a lake as a forested area. Since phosphorus can originate anywhere in a watershed, shore land zoning alone does not protect a lake from excessive phosphorus loading.

The water quality categories shown in Table H – 1 are based on the water bodies' vulnerability to phosphorus levels. This rating is derived from many variables such as frequency of the flushing of the lake water, population growth and land development rates within the watershed. As seen, only Craig Pond is rated "outstanding," which means that it has exceptional water quality. Branch Lake has "good" water quality, which is better than average.

The remaining ponds are either "moderate/sensitive" or "moderate/stable." Lakes that are "moderate/sensitive" have a high potential for phosphorus recycling from lake bottom sediments while those ranked as "stable" have water quality that is not declining under present phosphorus loading. Table H- 1 has a complete definition of these and other lake status qualities. Particular attention should be paid to lakes in the "sensitive" category.

The "F" factor shown in Table H - 1 is the MDEP phosphorus coefficient for Orland's share of a given watershed. For Heart Pond, for example, MDEP estimates that 6.90 pounds generated from the watershed per year would result in a one part per billion (ppb) increase in phosphorus in the pond. By contrast, the less vulnerable Alamoosook Lake could handle 107.78 pounds per year before a comparable increase in phosphorus is achieved.

The phosphorus coefficient is not a measure of water quality, but rather an indicator of the pond's capacity to accept phosphorus based on the acreage of the watershed. This coefficient can be used as a

planning guide for setting development standards for a given watershed. These standards do not necessarily restrict development, but rather require that certain mitigating measures be undertaken to minimize phosphorus run-off. Specific examples of such standards are discussed in Section H.7.

Table H - 1: Characteristics of Major Ponds and Lakes Orland

	Direct Drainage Area (acres in Orland)	% of total DDA	Lake Status Quality	F (lbs/ppb/yr)	Other Towns in Watershed
Alamoosook Lake	9,901	75.8	Mod/Stable	107.8	Orland, Bucksport, Penobscot
Branch Lake	1,423	9.5	Good	22.71	Orland, Dedham, Ellsworth
Craig Pond	595	100.0	Outstanding	13.40	Orland
Heart Pond	546	100.0	Mod/Sensitive	6.90	Orland
Hothole Pond	5,512	92.6	Mod/Sensitive	33.69	Orland, Bucksport
Jesse Bog	254	71.3	Mod/Sensitive	1.80	Orland, Ellsworth
Little Pond	84	100.0	Mod/Sensitive	0.70	Orland
Long Pond	266	2.2	Mod/Sensitive	2.13	Orland, Bucksport, Dedham, Holden
Lower Patten Pond	79	1.6	Mod/Stable	1.16	Orland, Ellsworth, Surry
Rocky Pond	1,109	97.6	Mod/Sensitive	11.20	Orland, Ellsworth
Toddy Pond	2,399	21.8	Mod/Stable	36.49	Orland, Blue Hill, Penobscot, Surry
Upper Patten Pond	2,260	58.0	Mod/Sensitive	21.80	Orland, Ellsworth, Surry

Lake status quality refers to the lake's ability to accept additional phosphorus. The following categories are used:

- Outstanding: Exceptional water quality
- Good: Greater than average water quality
- Moderate/Stable: Average water quality, not declining under present phosphorus loading
- Moderate/Sensitive: Average water quality, but high potential for phosphorus recycling from lake bottom sediments
- Poor/Restorable: Lake supports algal bloom - restorable
- Poor/Low Priority: Lake supports algal bloom, but restoration appears infeasible

Source: Maine DEP, Lakes Division

Another water quality concern that we face locally and across Maine is the growing threat and prevention of invasive aquatic species. Invasive aquatic species are exotic flora and fauna that are introduced to a habitat and 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 infestation. There are eleven invasive aquatic plant species identified in Maine law as illegal to import, sell, and transport. Some Maine lakes west and south of Hancock County are faced with the challenge of mitigating infestations. Fortunately, the majority of Maine's lakes are free from invasive plants. Maine DEP has analyzed the risk factors for 3,000 lakes over 10 acres in area. These risk factors include boat access, population, proximity to interstate or state highways, connection to an infested water body, habitat (amount of sunlight reaching lake bottom), and sinuosity of shoreline (number of coves). A low-risk factor does not mean a lake is

invulnerable nor does a high-risk factor predict eventual infestation. See Table H- 2 for list and description of risk factors for Orland's lakes and Ponds.

Until 2022 no lakes or ponds in Hancock County were known to be infested. Invasive plant species have been removed from out-of-state boat trailers by courtesy boat inspectors at a boat launch within Orland's watershed in recent years. Courtesy Boat Inspection programs are vital to prevention, as is the education of boat owners to clean, drain and dry before transporting their boat to another lake or pond. Courtesy Boat Inspection is conducted at the public boat launches at Branch Lake, Craig Pond, and Toddy Pond and on Alamoosook Lake. [See Recreation chapter Table F - 1 and Maine DEP website; www.maine.gov/dep/water/invasives]

In February 2022, Lake Stewards of Maine (LSM) notified the Alamoosook Lake Association that an aquatic plant sample submitted for DNA analysis identified the plant as invasive variable water-milfoil. The Alamoosook Invasive Milfoil Response Team soon formed with members representing Maine DEP, LSM, Alamoosook All Clear Team and Courtesy Boat Inspection program, Hancock County Soil & Water Conservation District, Hancock County Lakes Association and other supporting associations and agencies. The group has been meeting regularly since February to coordinate a robust response: alerting area towns; providing outreach, training and technical support to the public; and organizing/overseeing a comprehensive survey of the lake. Additional sampling of the aquatic plants of concern in 2022 has revealed some anomalies with concern to the original and subsequent DNA results. Further investigation of this matter is ongoing.

Table H - 2: Lake or Pond (larger than 10 acres)

	Midas No.	Infested by Invasive Aquatic Species	Risk Factor	Lake or Pond (larger than 10 acres)	Midas No.	Infested by Invasive Aquatic Species	Risk Factor
Hothole Pond	4334	N	27	Upper Patten Pond	4342	N	
Heart Pond	4338	N	32	Toddy Pond	4340	N	54
Craig Pond	4332	N	47	Rocky Pond	4330	N	27
Branch Lake	4328	N	51	Lower Patten Pond	4344	N	49
Alamoosook Lake	4336	N (under investigation 2022)	52	Long Pond	4316	N	28
Maine DEP Bureau of Water Quality, Lake Vulnerability to Invasive Aquatic Plants. Risk Scores: 11-29 Low 30-49 Moderate 50-58 High							

Streams are especially vulnerable to impacts from land use change, and ultimately influence the quality of water in great ponds and the nearshore tidal environment. This section should also include strategies protective of streams and riparian buffers associated with streams. This is especially important in towns such as Orland where rich native brook trout fisheries still persist.

Table H - 3: Orland Rivers, Streams and Brooks

Rivers	Flow pattern	Trout Species
Dead River		
Narramissic River		
Orland River		
Penobscot River	East branch between Orland and Verona Island	
Streams	Flow pattern	Species
Hothole Stream	Into Moosehorn Stream, Into Dead River	
Moosehorn Stream	From Long Pond to Dead River	
Toddy Stream	From Toddy Pond Dam to Alamoosook Lake	
Brooks	Flow pattern	Species
Atkinson Brook	Into Hothole Pond	Brook Trout
Craig Pond Brook	From Craig Pond to Alamoosook Lake	
Gold Brook	Into Hothole Stream	
Gott Brook	Into Branch Lake	Brook Trout
Gulch Brook	Into Alamoosook Lake	Brook and Brown Trout
Heart Brook	From Heart Pond to Toddy Pond	Brook Trout
Hothole Brook	Into Hothole Pond	
Meadow Brook	Into Alamoosook Lake	Brook Trout
Stubbs Brook	From Williams Pond to Whites Brook	
Thompson Brook	Into Upper Patten Pond	
Whites Brook	Into Narramissic River	

ii. Marine Water Quality

The MDEP classifies all surface water in Maine. These classifications set the standards allowed for discharges of pollutants. The majority of waters in the state, including most adjacent to Orland, are classified "SB," which is the second highest classification. Per MDEP standards, habitats in these waters "shall be characterized as unimpaired." No discharges that would cause closure of open shellfish areas are permitted. Dissolved oxygen contents are set at 85%.

Those Orland waters bordering Verona Island, however, are presently classified "SC," the third highest classification for salt waters. Discharges to such waters may cause some changes to estuarine and marine life provided that the receiving waters are of sufficient quality to support all indigenous species and maintain the structure and function of the resident biologic community. The dissolved oxygen content of Class SC waters is set at 70%.

iii. Threats to Surface Water Resources

There are two types of pollution that threaten surface water: point and non-point. Point pollution is attributable to a specific source such as a pipe discharging into a stream. Non-point pollution comes from a general source such as agricultural runoff or storm water runoff that carries oil spilled on a road into a stream.

Since Orland is a rural-residential town, a significant threat to water resources comes from failing septic systems. Water quality has been improved by the installation of a public sewer in the Orland village area. The Bucksport sewer sludge holding area and Evergreen Recycling (on Upper Long Pond Road

Bucksport) process sludge. Their location in the Narramissic Watershed poses no threat to water quality as long as they are compliant with State DEP regulations.

An unusual situation exists in the Lower Narramissic River where tidal flow and storm surge from downstream in the Orland River may present a bigger problem than runoff. In the Narramissic River, just above the Village Dam, sediment mercury (Hg) concentrations were 305 ng/g dw (*nanograms per gram dry weight*), 10 times higher than normal background for coastal rivers, and decreased upstream by the culvert bridge at Upper Falls Road to 69 ng/g dw, over two times higher than background. The pattern of mercury in the Narramissic suggests that mercury moved upstream from the Orland River, when the dam was breached, in disrepair, or over-topped by high tides or storm surge. The decrease in mercury levels upstream from the dam indicates that historically the dam functioned to slow or block mercury migration up the Narramissic River, given that sediment mercury concentrations in the Orland River, downstream of the dam, exceed 1,000 ng/g dw at multiple locations. The mercury concentrations in the Narramissic are unlikely to be toxic to benthic (sedimentary) organisms near the Upper Falls Road, but may be toxic in the immediate vicinity of the Orland Village Dam. Remediation designed to reduce mercury contamination in the Orland River was proposed in Phase III of the Penobscot Mercury Study. (See Hg Final Report, 15 March 2016, Baseline Survey of Surface Sediment Total Mercury Concentrations, Narramissic River Maine, submitted by Dianne Kopec, PhD, Consulting Biologist, in the appendix to the *Orland Village Dam Alternatives Feasibility Study*).

A long-term threat is poorly planned development in the watershed or extensive timber harvesting; the Great Pond Mountain Wildlands has done a lot to mitigate the latter in the Alamoosook Lake/Hothole Pond Watersheds. Comprehensive state standards for septic systems enacted in 2019, shore land zoning enforcement and active lake associations, especially at Alamoosook Lake and Toddy Pond, are reducing surface water pollution in Orland.

With the closing of the Bucksport Verso paper mill at the end of 2014, the summer drawdown of Alamoosook Lake and Toddy Pond has been reduced significantly. The water rights currently owned by Bucksport Mill LLC include the Narramissic River, Toddy Pond, Alamoosook Lake and Silver Lake. The Friends of Silver Lake include the upper Narramissic Watershed as a potential source of water due to the pumping station and pipeline that lead from the Alamoosook Dam. What happens with those water rights if sold to another entity could have a big impact on the quality of life in the Town of Orland.

6. Assessment & Adequacy of Existing Efforts to Protect Orland's Water Resources

As mentioned in the Housing chapter, the majority of Orland residents depend on individual wells for their water supply. Areas that normally yield large quantities of water to wells are called sand and gravel aquifers. There are several aquifer areas in Orland that are shown on Map 1. The yield from these aquifers, according to the Maine Geological Survey (MGS), is at least 50 gallons per minute (gpm). Normally, a well yielding about 1 gpm is considered sufficient for domestic use. Higher-yielding aquifers are possible sources for a public water supply. Given the low-density population in Orland, it is unlikely that any would be developed as a public water source in the foreseeable future.

Most wells in Orland are drilled in bedrock. According to the 1979 *Orland Land Use Data Base: A Summary*, wells drilled in bedrock usually yield from 15 to 100 gpm. Most bedrock wells reported by the MGS have yields of between 15 and 25 gpm. One, however, had a yield of between 65 and 75 gpm. The Land Use Data Base reported that wells in one bedrock area near East Orland village had yields as

high as 225 gpm. It must be stressed that while sand and gravel aquifers normally have relatively high yields of water, yields from bedrock areas are far less predictable.

i. Ground Water Quality

The DEP has rated Orland's ground water as GW-A. This is the highest DEP classification and it applies to all ground water in the state unless specifically noted otherwise. DEP standards mandate that these waters be of such quality that they can be used for public water supplies. They shall, per DEP standards, be free of radioactive matter or any matter that affects their taste or odor. The only problems with ground water quality noted in the 2016 Data Base were in the Leaches Point area where there were some complaints about high iron content. Arsenic may also be a problem in some areas.

ii. Threats to Ground Water

Non-point sources are a potential threat to ground water. Since it takes much longer for ground water to cleanse itself than surface water, it is very important to avoid contaminating ground water. While it is very costly to restore a lake or stream, the cost of cleaning up ground water is usually prohibitive if it can be redeemed at all.

One potential threat to ground water is leaking underground storage tanks (or **L.U.S.T.**). The DEP maintains records of major tanks and former tank sites in town. Its records do **not** include tanks used to store oil for private dwellings, even though these are now also subject to DEP regulation. There are only five tanks in use. They are located at the Big Apple (2), Maine DOT facility on Gilpin Rd, Mountain View Variety/Dysarts, and Trade Winds. The rest have been removed. The tanks in service meet all current DEP standards and thus pose little threat to water quality. Tank data, past and present can be found at www.maine.gov/cgi_bin/dep/tanksmart/index.cgi.

7. Regional Issues

One major regional issue is cooperative protection of lake watersheds. Orland may want to approach surrounding towns with whom it shares major watersheds to discuss coordinating protection measures. One of the Town's aquifers is shared with Penobscot. Here again, a cooperative approach to protection may be considered. Since the Penobscot portion of the aquifer is in a remote area, no immediate development pressure is anticipated.

The Narramissic River Watershed includes Phillips Lake in Dedham and its feeder stream through Holden, Long Pond and Jacob Buck Pond in Bucksport, and drainage from Surry, Blue Hill and Penobscot into Toddy Pond. Six towns drain into Orland's watershed. The Alamoosook Lake and Toddy Pond Associations are good examples of watershed conservation. Coordination with the Hancock County Soil and Water Conservation District and all contributors to Orland's Narramissic Watershed on a periodic basis merits consideration by the Orland Community.

8. Goals & Objectives

GOAL 1: To maintain and improve the quality of Orland's freshwater lakes, streams, and groundwater, and protect life and property from flooding.

Objective A: Minimize threats to wetlands, streams, ponds, lakes, and the Narramissic River watershed, including non-point source pollution, development impact, and associated habitat loss.

Strategies: Ensure that the Town Land Use Ordinances comply with Maine DEP Shoreland Zoning and Maine DOT regulatory guidance. See also Public Facilities and Services Goals and Objectives, Stormwater Management Plan.

- I. Ensure that the Road Commissioner is informed of any runoff, culvert, or drainage problems.
- II. Continue and support Courtesy Boat Inspections (CBI) at public launch sites and post information on prevention of aquatic invasive species and surface runoff on Town Website.
- III. Implement an annual Narramissic Healthy Watershed meeting to exchange information on fish, plant, wildlife, water conditions and challenges in the interconnected ponds, lakes, and streams of the seven-town watershed, Orland, Penobscot, Blue Hill, Surry, Ellsworth, Dedham, and Bucksport.
- IV. Pursue funding availability from Hancock County Soil and Water District (HCSWCD) and other sources for implementation.

Responsibility & Time frame: Ad-hoc Committee of concerned citizens, Lake Associations, Fish Committee, Planning Board, Code Enforcement Officer and Selectmen. Within 2 years of Plan adoption, ongoing.

Objective B: Prevent Leaking Underground Storage Tanks (L.U.S.T.)

Strategies:

- I. Ensure Orland continues to comply with Maine DEP Guidance.
- II. Report suspected violations to the code enforcement officer.

Responsibility & Time Frame: Planning Board, Code Enforcement Officer and DEO. Immediate and ongoing.

Objective C: Protect Ground Water quality: There is no public water system in Orland. The sewer system serving the municipal buildings and Orland Village is connected to the Bucksport sewage treatment facility, however throughout the town, most families rely on septic systems for household waste disposal.

Strategies:

- I. Comply with Maine septic, plumbing, and L.U.S.T. codes. A building permit for new construction is required within the shoreland zone but nowhere else in the community. A Town-wide building permit will help protect the watershed and ground water supply by ensuring conformance with local state rules and national public health guidelines.

Responsibility & Time Frame: Selectmen, Residents. Immediate and ongoing.

Objective D: Protect Ground Water Quantity: Orland's drinking water is provided by wells and springs. Surface water and aquifers have normally met local needs. Large scale commercial/industrial extraction are not regulated.

Strategies:

- I. Define and control high volume ground water extraction.

Responsibility & Time Frame: Ad-hoc Committee, Planning Board, Selectmen, HCPC. Immediate and ongoing

Objective E: Reduce impact of flooding along the Narramissic River and Orland River below the dam, also called Flood Plain Protection.

Strategies:

- I. Using the latest FEMA Flood Plain maps, the Town Assessor can advise residents that are susceptible to flooding, should take precautions, and consider purchasing FEMA flood insurance and/or moving.

Responsibility & Time Frame: Residents, Planning Board, Town Assessor, Selectmen. Immediate and ongoing.

Chapter I: Natural Resources

1. Purpose

Orland's natural resources provide critical wildlife and fisheries habitat, are an essential part of Orland's rural character and help to sustain its quality of life—all of which makes Orland a special place to live and work. Natural resource conservation and thoughtful ordinances can ensure development occurs in appropriate areas, and that poorly-planned development in environmentally fragile areas does not become costly to the entire town—causing, for example, flooding or pollution of an important aquifer. Development on or near these vital resources could unbalance 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:

- a) Describes Orland's critical natural and scenic resources;
- b) Assesses the effectiveness of existing efforts to protect and preserve these resources;
- c) Predicts future impacts to these resources by growth and development.

State Goal: To protect the State's other critical resources including without limitation, wetlands, wildlife and fisheries habitat, sand dunes, shore land scenic vistas, and unique natural areas.

2. Key Findings and Issues from 1998 Plan

Orland has many natural resources. On the one hand there is the varied landscape of lakes, river valleys, ridges, and low hills all providing a source of recreation and many scenic views. On the other hand, is its wildlife. There are several high value waterfowl and wading bird habitats in town. Game species such as the white tail deer, black bear, and moose can be found in upland areas. And according to state records, there is one bald eagle nest.

While there are no immediate threats to Orland's natural resources, there are few measures in place to protect them. It is notable that 71% of survey respondents said they favored measures in place to protect open space and wildlife habitat and 62% supported protection of scenic views. The first citizen workshop identified several natural resources as "community assets" including Great Pond Mountain, fisheries, and wildlife resources.

3. Key Findings & Issues from Current Plan

Orland is still rich with scenic and natural resources, which were cited in both the citizen meetings held in 2018 and by a significant number of respondents in the 2016 survey as being among Orland's biggest assets. Great Pond Mountain Conservation Trust has permanently conserved 4,500+ acres within the municipality since 2005. The Town's methods for protecting natural resources are found in the following current ordinances: Shoreland Zoning, Site Plan Review, Sub-division, Wind Power, Wireless Communication Tower.

Survey respondents overwhelmingly supported conservation of natural resources, including 90.1% for protection of drinking water aquifers, 84.4% for protecting fish habitat and fish passage, 86.9% for important wildlife habitat, 84.7% for wetlands, and 78.8% for protecting scenic views. Two closely related opinions showed strong support for ordinances designed to achieve that end: 75% favored a land use ordinance to support conservation and 79.3% for development to be located in designated areas.

Over 50% supported conservation easements purchased by the Town or land trust. Overall, this represents a significant increase over 1998's 71% who favored such measures. Access to these natural resources such as boat ramps, walking/hiking/running paths and canoe/kayak launching sites received on average 56% support.

Whether protecting Orland's natural resources by ordinance is necessary is discussed in the Housing Chapter (III.C: Key Findings. and III.D: Analysis). It is noted that Orland's population is predicted to decline from the current 2225 to less than 2000 by 2034; its household size has decreased from 2.42 in 2000 to 2.25 in 2010. Because even the occupants of smaller households need housing, Orland could face an increase in housing units. While future development cannot be predicted with certainty, an increasing demand for housing land could place its natural resources at risk if protective zoning ordinances are non-existent.

4. Public Opinion Survey Results

Question 5 of the Public Opinion Survey concerned conservation including five areas related to Natural Resources. Of those responding, a strong majority supported the conservation of fish habitat and fish passage (84%), important wildlife habitat (87%), significant wetlands (85%), and undeveloped shore frontage (74%), and scenic views (79%). 88% of responders chose to answer the follow-up Question 6 that asked preferred method to accomplish conservation measures. 75% favored a land use ordinance, 69% favored voluntary conservation easement or purchase by a land trust, 55% favored voluntary conservation easement or purchase by the Town. 40% favored voluntary conservation easement or purchase by the state.

5. Summary of Critical Natural Resources

Orland is blessed with a diverse natural landscape and rich natural resources. It's a hilly country with granite ridges, high hills and a mountain topping out at 1,028 ft., towering over eight clean lakes and ponds, trout-filled streams, wetlands and beaver meadows. Add productive farms and blueberry fields and large forested areas, and Orland supplies excellent habitat for ducks and deer, black bears and bobcats, and Maine's trademark animal, the moose. Herons and ducks ply the shallow mudflats on the Orland River, and migratory fish ascend the Narramissic River to find spawning grounds.

Orland's natural resources are critically important to its human residents and visitors too, providing rural character, scenic beauty, clean water, recreation and an economic benefit, as visitors come to enjoy lakes and ponds and conserved lands year-round.

Beginning with Habitat (BwH), Maine Department of Inland Fisheries and Wildlife (DIFW) and the Maine Natural Areas Program (MNAP) have provided maps and information as tools for planning development in town while conserving significant and high value plant and animal habitats and natural communities. To support plant and animal populations, high value habitat must exist in large enough blocks, and seasonal habitats must have connecting corridors so animals such as trout and deer can migrate from one area to another.

Beginning with Habitat provides five maps on its website featuring Orland's natural resources:

<https://www.maine.gov/ifw/fishwildlife/wildlife/beginning-with-habitat/maps/index.html>.

Maps available include: 1. Water Resources & Riparian Habitats; 2. High Value Plant & Animal Habitats; 3. Undeveloped Habitat Blocks; 4. Wetlands Characterization; 5. Natural Resource Co-Occurrence.

Beginning with Habitat (BwH) is a collaborative program of federal, state and local agencies and non-

governmental organizations, and offers a habitat-based approach to conserving wildlife and plant habitat. The goal of the BwH program is to help local decision makers create a vision for their community, to design a landscape, and to develop a plan that provides habitat for all species and balances future development with conservation.

While there are no Focus Areas of Statewide Significance in Orland as designated by Beginning with Habitat, Great Pond Mountain Conservation Trust (the land trust for northwestern Hancock County) has identified two locally significant focus areas here. In 2012/2013, GPMCT hired Ecologist Janet McMahon to identify and evaluate areas in the towns of Bucksport, Orland, Verona Island and Dedham that: 1. Provide large, undeveloped blocks of forest, important wildlife habitat and wildlife corridors; 2. Include a number of important natural resource values, from undeveloped shorelines, to aquifers, to productive farms, to snowmobile and hiking trails. In short, these are the largest wild and scenic areas left in these towns. GPMCT has narrative descriptions and maps of these areas available for municipal and regional planners to use.

Table I - 1: Orland Focus Areas, GPMCT

Focus Area Name	Acreage (Approximate)	Key Features
Great Pond Mountain Wildlands area	9,580 acres 4,630 acres are conserved	•Great Pond Mountain, a defining landmark in central Hancock County and a key recreational and scenic area •Undeveloped and pristine Hothole Pond and adjacent wetland, which is the largest significant waterfowl/wading bird habitat in N.W. Hancock County •Scenic, lightly developed Craig Pond, with public access, beach, and exceptional cold water fishery •High value brook trout and other fish habitat in streams and ponds •Concentration of prehistoric archaeological sites
Meadow Brook area	4,820 acres 186 farmland acres partially inside the focus area are conserved by Blue Hill Heritage Trust (BHHT)	•Core part of a 10,440-acre un-fragmented habitat block (partly in Penobscot), which is second largest in N.W. Hancock Co. •Intact headwater stream network •Two large, significant waterfowl/wading bird habitats •Remote, undeveloped Little Pond •Connects to two Blue Hill Heritage Trust (BHHT) focus areas

i. Rare Plants and Natural Areas

The Maine Natural Areas Program (MNAP) has mapped areas of Rare or Exemplary Natural Communities and Rare Plant locations in Orland, based on field surveys and aerial photos. These areas are featured on BwH maps.

According to MNAP, a number of Orland's mountains and higher hilltops support the Town's one Rare and Exemplary Natural Community: the Low-Elevation Bald (also known as Three-toothed Cinquefoil – Blueberry Low Summit Bald). A rank of S3 means it's rare and vulnerable to loss in Maine. These balds support a mosaic of blueberry, lichens and other low shrubs and plants and are found on bald hilltops (usually 600-1,500' in elevation) mostly near the coast, from Mid-Coast to Downeast. It's the typical habitat of the rare plant smooth sandwort (*Minuartia glabra*, Special Concern), also with a State rank of S3.

Smooth sandwort has been documented to occur in Low Elevation Bald habitat on Great Pond, Mason, Hothole and Flying Moose Mountains, but probably occurs on other similar hilltops as well. Some of these sites are protected as part of the Great Pond Mountain Wildlands; others are privately owned. These

hilltop sites tend to have good views, and heavy foot or vehicle traffic can damage these plants (though a small amount of disturbance seems to encourage them). This plant is one of Special Concern in Maine—meaning it’s rare, but not threatened or endangered.

Orland’s other rare plant is Acadian quillwort (*Isoetes acadiensis*), known to occur at the SE end of Alamoosook Lake, near where Gulch and Mill Brooks empty in. According to an MNAP fact sheet, this plant is known in only three Maine towns, and has a rank of S2—imperiled in Maine because of its rarity. This rather inconspicuous plant has a dense rosette of narrow leaves and grows rooted in the gravelly bottom of the lake.

ii. Rare Animals and Wildlife Habitats

Significant Wildlife Habitats in Orland have been mapped by DIFW and are protected under Maine’s Natural Resources Protection Act. They include habitats for rare, threatened or endangered species and inland and tidal waterfowl and wading bird habitats. Maine’s Natural Resources Protection Act requires a permit for most land use activities that involve working in, or disturbing soil within or adjacent to identified significant habitat. As of 2015, Orland had no state-documented occurrences of significant vernal pools, candidate deer wintering areas or shorebird staging areas—but this does not mean that no such areas exist in town. As of 2015, there were also no “Essential Wildlife Habitats” occurring in Orland for endangered or threatened species. See BwH maps for details.

Rare animals documented in Orland by MDIFW include the bald eagle and a freshwater mussel called the tidewater mucket.

Bald eagles have recovered in Maine and are no longer threatened, endangered, or a species of special concern; nest sites are currently regulated by the US Fish and Wildlife Service under the Bald and Golden Eagle Recovery Act. From one known nesting site on the Eastern Channel in 1998, we now have up to six nest sites documented in Orland. The USFWS bald eagle map tool showed three nest locations on Toddy Pond near Route 1, one on Alamoosook Lake and one in the Great Pond Mtn. Wildlands in 2013. They all were not likely in use. Since then, a second nest has been attempted on Alamoosook, and some nests have been destroyed by weather. Bald eagles are vulnerable to disturbance during the fledgling stage, and young birds who fall from the nest are often injured or go hungry. DIFW recommends staying at least 330 feet (100m) from an active eagle nest when walking, biking, paddling, boating, snowmobiling, camping, fishing or hunting during the breeding season, if your activity will be visible or audible from the nest. Construction or logging should remain 660 feet away.

The Tidewater Mucket (*Leptodea ochracea*), a state-threatened species with a rank of S2, occurs in Alamoosook Lake. It is a declining species throughout its range from Nova Scotia to Georgia, and exists in three Maine watersheds, including the Penobscot. Freshwater Mussels often have one or more specific fish hosts for part of their life cycle; recent studies indicate this mussel uses White Perch as a host, and possibly Banded Killifish and Alewife (Kneeland 2006, Wick 2006).

A Great Blue Heron rookery, also a declining species of special concern, has been documented in a wetland off the Front Ridge Road (Route 15).

In 2017, DIFW added bats to its list of endangered or special concern species. A number of these bats may summer in Orland or migrate through. Long-eared Bats have been seen wintering in Orland.

Bird Species of Greatest Conservation Need which may occur in Orland include those in the table below. Maine is conducting a Breeding Bird Atlas from 2018-2022 which will identify which species are truly breeding in our area.

Table I - 2: Bird Species of Greatest Conservation Need

HABITAT / Bird Species		
FRESHWATER PONDS & WETLANDS		
American Bittern	Common Loon	Pied-billed Grebe
American Black Duck	Great Blue Heron	
American Woodcock	Marsh Wren	
RIVERS & COASTAL WETLANDS		
Common Eider	Sanderling	
Greater Yellowlegs	Semipalmated Sandpiper	
Willet	Solitary Sandpiper	
FIELDS, FARMS & MARSHES		
Barn Swallow	Field Sparrow	Horned Lark
Chimney Swift	Vesper Sparrow	Eastern Meadowlark
Eastern Kingbird	Bobolink	Common Nighthawk
CONIFEROUS WOODLAND		
Bay-breasted Warbler	Red Crossbill	Black-billed Cuckoo
Blackburnian Warbler	Cape May Warbler	
Purple Finch	Black-throated Green Warbler	
DECIDUOUS WOODLAND		
Barred Owl	Great-crested Flycatcher	Yellow-bellied Sapsucker
Baltimore Oriole	Rose-breasted Grosbeak	Scarlet Tanager
Black & White Warbler	Northern Parula Warbler	Black-throated Blue Warbler
Blue-gray Gnatcatcher	Chestnut-sided Warbler	Wood Thrush
Eastern Towhee	Northern Flicker	Canada Warbler
Brown Thrasher	Veery	

Table revised by Christine West, Asst. Regional Wildlife Biologist, MDIFW, 2022

Some of these birds, such as the Bobolink, are grassland species, which are disappearing along with farmland and could be encouraged by careful management of hayfields for later cuttings. Others, such as the Blackburnian Warbler, need larger trees and high canopy for nesting, and will return to forests managed for longer harvest rotations. Other birds of special interest include the Whippoorwill and Indigo Bunting.

Orland has thousands of acres of freshwater wetlands, especially around Hothole Pond/Hothole Brook and in the Meadow Brook drainage (south of Gilpin Road). These areas provide state-documented (MDIFW) Inland Waterfowl and Wading Bird Habitat for ducks, herons, rails, osprey and many other birds. Other state-significant wetland areas occur along the Dead River (Hellbottom Swamp) and Alamoosook Lake, Gulch Brook (south of Cedar Swamp Road), along the Narramissic River and east of the Castine Road, where some of the brooks drain Penobscot's Great Heath. These wetlands are often created by beavers, and are home to muskrats, mink, otters, turtles, moose and other mammals. These areas also hold and filter stormwater runoff and recharge aquifers.

Tidal waterfowl and wading bird habitat is documented along the shores of the Orland River, where ducks, geese, sandpipers, gulls and other birds feed on small creatures exposed on tidal mudflats. For

example, in 2012, the mudflat located just below the Orland Village Dam was documented as high-value Tidal Wading Bird and Waterfowl Habitat.

There are no state-significant vernal pools documented in Orland, but the Great Pond Mountain Wildlands contains several small ones, and GPMCT also holds a conservation easement on 72 acres between Mama Bear Road and Rocky Pond that contains a complex of vernal pools, one that could possibly qualify as state-significant. A large vernal pool also exists on the gravel isthmus on the east shore of Alamoosook Lake. Vernal pools are small, woodland breeding ponds used by Spotted Salamanders, Wood Frogs, Fairy Shrimp and other creatures each spring. They have no inlets or outlets, do not host fish, and usually dry out in the summer. They are vulnerable to destruction by development or heavy logging.

BwH also documents Deer Wintering Areas (places where heavy tree cover and forage encourages deer to “yard up” in winter), but these areas change every year due to logging and weather disturbances. As of 2019 there were no significant deer wintering areas documented in Orland.

iii. Fishery Resources

Maine is one of the last strongholds in the US for native Eastern Brook Trout (*Salvelinus fontinalis*), and Orland is fortunate to have a number of lakes, ponds and streams with brook trout populations. While some are stocked (Narramissic River and Craig Pond), others have wholly native wild runs (Hothole Brook and tributaries in the Wildlands). According to DIFW, the Alamoosook sub-watershed ranks highly for wild brook trout habitat. With its connection to the sea, Orland also has the potential to host sea-run Brook Trout.

According to DIFW, the best streams in Orland for Brook Trout include: Hothole Brook and tributaries, Hothole Stream, Gold Brook, Gott Brook, Atkinson Brook, Thompson Brook, Gulch Brook (also Brown Trout), Meadow Brook, and a Heart Pond tributary. Smaller tributaries are important cold water refugia and spawning habitat, while bigger streams are used seasonally. *See Table H – 3 in Water Resources.*

Brook Trout are a high-priority Species of Greatest Conservation Need (SGCN) in Maine’s State Wildlife Action Plan - Comprehensive Wildlife Conservation Strategy (Maine CWCS). Some of the biggest threats to Brook Trout in Maine include: competition with illegally introduced species like Smallmouth Bass or baitfish; degradation of habitat by development and agricultural runoff; and warming water temperatures due to climate change. Conserving cold, headwater streams and streamside habitat, preventing illegal stocking of bait and sportfish and improving fish passage between streams and lakes will help trout survive long-term.

“Fish Species of Greatest Conservation Need” which may be found in Orland waters (or where habitat exists, but is difficult to access due to the Village Dam) are:

Table I - 3: Fish Species of Greatest Conservation Need

Anadromous (born in freshwater, migrates to saltwater)		
Alewife	Atlantic Salmon	Rainbow Smelt
Sea Lamprey	Sea-run Brook Trout	Atlantic Sturgeon
Short-nosed Sturgeon	Blueback Herring	Striped Bass
American Shad		
Catadromous (born in saltwater, migrates to freshwater)		
American Eel		

Freshwater		
Brook Trout	Wild Lake Trout (Togue)	
Estuarine (Narramissic River)		
Atlantic Tomcod		

Biologist Greg Burr of DIFW reported that the most high-value lakes and ponds for fish in Orland as of 2016 are:

- Heart Pond – Splake (stocked), Togue (lake trout), Brook Trout
- Craig Pond – Salmon, Togue, Brook Trout (stocked)
- Alamoosook – Bass, Perch
- Toddy Pond – Togue, bass, Landlocked Salmon (stocked), Brown Trout (stocked), Splake (stocked)

According to the Maine Dept. of Marine Resources (documented in 2012, during the Orland Village Dam study), the Narramissic River watershed includes Critical Habitat for Atlantic Salmon. While there is no active Atlantic Salmon restoration program on the Orland/Narramissic River, there was a confirmed report of an adult sea-run salmon caught in the river below the Alamoosook Dam in December, 2010. The fish may have been trying to return to Craig Brook National Fish Hatchery. Besides Atlantic Salmon, the Narramissic is an important migration route for Alewives and Blueback Herring and American Eels, and there are anecdotal reports of Sturgeon being sighted in the river in recent years, having come over the dam at higher tides.

iv. Threats to Fishery Resources

The Maine Stream Connectivity Work Group and Maine Office of GIS have created the Maine Stream Habitat Viewer, which shows the results of recent surveys of dams and road crossings across Maine. In Orland, the following results are available for public roads:

Table I - 4: Barriers to Fish Passage in Orland, 2017

Potential Barriers		
Atkinson Brook at Bald Mountain Road	Alamoosook Lake Dam	Rte. 1 at Toddy Pond - Heart Brook
Toddy Pond Dam	Rte. 1 at Gulch Brook	Cedar Swamp Rd. - Gulch Brook
Orland Village Dam		
Complete Barriers		
Gilpin Road at Meadow Brook (to Little Pond)	Castine Rd. at two unnamed brooks (Great Heath drainage)	

According to the DIFW, improperly sized and installed culverts are a problem, particularly on smaller streams. These impede movement of fish and freshwater invertebrates, fragmenting watersheds and causing local extinction of some species. Funding is now available to help towns evaluate crossings and replace bad culverts with more fish-friendly and longer-lasting solutions.

Other major threats are introduced fish. Pike and Muskellunge are being illegally stocked around the state. As of 2016, they had not crossed the Penobscot River, but DIFW biologists expect them to. Largemouth and Smallmouth Bass are in Toddy Pond and Alamoosook Lake. Largemouths are more active, aggressive feeders year-round and tend to occupy shallower habitats and compete with the natives. These bass put a lot of pressure on native fish such as Brook Trout.

Maintaining a healthy fishery brings major economic benefits to the Town of Orland. In a 2015 DIFW study, aerial flights on several selected days, winter and summer, counted anglers on Orland's ponds. It was estimated each angler spent \$47/trip. The winter of 2015 was very cold and snowy, which may have had a negative impact on number of people fishing; in other years these numbers are likely higher. Total spending on fishing for 2015 is estimated at \$149,554.

Table I - 5: Anglers on Orland lakes & ponds, 2015

LAKE / POND	NUMBER OF ANGLERS	ESTIMATED SPENDING
WINTER		
Toddy Pond	843	\$39,621
Craig Pond	684	\$32,148
Heart Pond	82	\$3,854
Alamoosook Lake	No winter count	
SUMMER		
Toddy Pond	1058	\$49,726
Craig Pond	216	\$10,152
Heart Pond	16	\$752
Alamoosook Lake	283	\$13,301

v. *Scenic Resources*

Orland has many scenic views. The combination of hills, lakes, river valleys and blueberry fields assures a rich variety of views. Such views are an integral part of the town's rural character.

Some of the significant scenic views in Orland are:

1. Orland United Methodist Church and Narramissic River from Route 1; pastoral views of a traditional New England church on a tree-lined Narramissic Drive and along-side picturesque Orland River.
2. Blueberry fields and Billy Goat Hill from Route 1 just north of Upper Falls Road intersection, traveling either direction, but especially north.
3. Toddy Pond heading north on Route 1.
4. Great Pond Mountain heading north on Route 1 as the mountain "disappears" and views from summit (GPMCT).
5. Dodge Hill and Whites Mountain: Looking at: comforting, untouched views from Bald Mountain Road (for locals) of mixed forest and granite ledges.

Looking from: Panoramic views to the north, south and west as far as and including Penobscot Narrows Bridge.

1. Flying Moose Mountain, views from summit (GPMCT)
2. Flag Hill, views from summit (GPMCT)
3. Hothole Mountain, views from summit
4. Oak Hill, views from summit (GPMCT)
5. Condon Hill; views from including Penobscot Narrows Bridge
6. Mead Mountain, views from summit (GPMCT)

vi. *Natural Resource Co-occurrence*

The Maine Natural Areas Program Beginning with Habitat Program provides every town in Maine with maps with useful information for prioritizing areas for development and areas for conservation. Development and conservation choices require informed judgements and very often require trade-offs. The Natural Resource Co-occurrence Map is a summary tool that overlays many of the considerations addressed in this chapter. The net effect is a shaded map that highlights areas that appear to hold a larger combination of important natural resources in darker tones of green and areas that may be more suitable for development in lighter shades. The Co-occurrence Map is advisory rather than regulatory. Full-size maps are posted to the Town of Orland Website.

Selected Resource Layers and Assigned Values

Geographic Information System (GIS) software provides a ready means to help identify areas of high resource cooccurrence. The selected data layers of interest are assigned a relative weight, or value, and then overlaid on one another. The values are then summed, classified, and symbolized, revealing the concentration of attributes in a given landscape. (Some of the layers listed may not apply to, or be present on, the area represented by this map.)

Rare and Exemplary Natural Communities

- S1 (Critically Imperiled). Value of 4
- S2 (Imperiled). Value of 4
- S3 (Rare). Value of 3
- S4 and S5 with A or B viability (Exemplary). Value of 3

Rare Plants

- S1 (Endangered). Value of 3
- S1S2 - S2 (Threatened). Value of 2
- S2S3 - S3 (Special Concern). Value of 1

Listed Animals

- Endangered Species (with buffer). Value of 3
- Threatened Species (with buffer). Value of 2
- Species of Special Concern (with buffer). Value of 1

Significant Wildlife Habitats

- Shorebird Habitat. Value of 3
- Seabird Nesting Islands. Value of 3
- Essential Wildlife Habitat. Value of 3
- Wading Bird and Waterfowl Habitats (inland and tidal). Value of 2
- Deer Wintering Areas. Value of 1
- Significant Vernal Pools (with 500' buffer). Value of 1
- Atlantic Salmon Habitat. Value of 2
- Heritage Brook Trout Waters. Value of 2
- Shellfish Beds. Value of 1

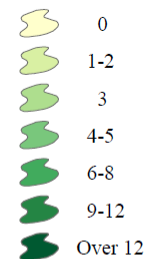
Riparian Zones and Water Resources

- Tidal waters 250' buffer. Value of 2
- Great Ponds 250' buffer. Value of 1
- Rivers 250' buffer. Value of 1
- Streams 75' buffer. Value of 1
- Wetlands greater than 10 acres plus 250' buffer. Value of 1
- Wetlands less than 10 acres plus 75' buffer. Value of 1
- Groundwater Aquifers. Value of 1

Undeveloped Habitat Blocks

- Areas over 1200 acres. Value of 3
- Areas of 600 to 1200 acres. Value of 2
- Areas of 200 to 600 acres. Value of 1

Sum of Attribute Values



Focus Areas

Focus Areas of Statewide Ecological Significance (note: not present in all regions)

Focus Areas of Statewide Ecological Significance have been designated based on an unusually rich convergence of rare plant and animal occurrences, high value habitat, and relatively intact natural landscapes (the combined elements of Beginning with Habitat Maps 1-3). Focus area boundaries were drawn by MNAF and MDIFW biologists, generally following drainage divides and/or major fragmenting features such as roads. Focus Areas are intended to draw attention to these truly special places in hopes of building awareness and garnering support for land conservation by landowners, municipalities, and local land trusts. For descriptions of specific Focus Areas, consult the Beginning with Habitat notebook or the following website: <http://www.maine.gov/dacf/mnap/focusarea/index.htm>

[illegible]

6. Threats to the Community's Critical Natural Resources

Threats to Orland's Natural & Scenic Resources not mentioned above include:

- Mercury pollution—Mercury hotspots located by the Penobscot River Mercury Study (completed in 2013) in the Orland River just below the Village Dam are leading to increasing mercury contamination above the dam, according to work done in 2015 (for the *Orland Village Dam Alternatives Feasibility Study*) by Dianne Kopec. The Mercury Study documented contamination in the lower Penobscot River watershed in Black Ducks, Red-winged Blackbirds, smelts and other species. (See Hg Final Report, 15 March 2016, Baseline Survey of Surface Sediment Total Mercury Concentrations, Narramissic River Maine. Submitted by Dianne Kopec, PhD, Consulting Biologist, in the appendix to the *Orland Village Dam Alternatives Feasibility Study*).
- Dams—Orland's three dams all have fish passage, but it is not sufficient to pass all species of fish wishing to use it. In particular, the Orland Village Dam's fish ladder has been inadequate to pass anything but Alewives, and those only at higher tides. According to Maine DMR, they have only counted the number of acres of Alamoosook Lake habitat when calculating the number of Alewives required to pass the Village Dam—despite the fact that Alewives can reach Toddy Pond, Hothole Pond and beyond Orland's borders in the watershed. This may be leading to over-fishing in the watershed and under-population.
- Sprawl and second home development and roads lead to fragmentation of forest habitat, loss of wildlife corridors, more bridges and culverts, and more deer/car collisions.
- Poor logging practices have led to even-aged, low-quality forests (of diseased Beech) that support fewer bird and mammal species and produce less food; poorly built or damaged roads that cause soil runoff into brooks; and destruction of deer yards and vernal pools.
- Degraded camp roads, culverts and road crossings lead to siltation of fish habitat in streams and lakes, and phosphorus pollution that creates algae blooms. More frequent, heavier storms are exacerbating this problem.
- Craig Brook National Fish Hatchery is a point source of phosphorus pollution in Alamoosook Lake, and cannot at this time meet the newer state requirements for phosphorus discharge. Because the lake has normally flushed up to seven times a year, however, it hasn't been subject to algal blooms. This may change if summer temperatures rise and rainfall decreases.
- "Cultivated cropland, managed hay and blueberry fields, houses and lawns abutting lakes and streams contribute to nutrient loading if not adequately buffered. The impacts of pesticides and herbicides on ground and surface water are relatively well-understood. The herbicide hexazinone (Velpar) is widely used on commercial blueberry land in the region. Voluntary best management practices (BMPs) exist for hexazinone that recommend buffer widths, unsuitable terrain, calibration rates, and suitable spraying conditions." (McMahon Study, 2013)
- "Sand and gravel mining is an expanding industry in the region. The number of pits has increased markedly in the past decade, particularly over aquifers bordering Moosehorn Stream, Long Pond, and Meadow Brook. Development and road building in area towns appear to be fueling this increase. Most towns do not have effective mining and reclamation ordinances that can be easily enforced." (McMahon Study, 2013)

- Loons, waterfowl and eagles continue to be poisoned by lead sinkers and shot in local ponds and lakes.

7. Regulatory and non-regulatory measures the community has taken to protect critical habitat and important natural resources

The Town of Orland has generally protected critical habitat and natural resources through shoreland zoning and ordinances such as the Shoreland Zoning Ordinance, Site Plan Review Ordinance, Subdivision Ordinance and Wind Power Ordinance.

The Town's *Site Plan Review Ordinance* includes language protecting environmentally sensitive areas and natural drainages and requires appropriate measures to protect listed resources. The ordinance also requires stormwater management and erosion control, and has language designed to protect groundwater and surface water.

The *Subdivision Ordinance*, in its section entitled "Retention of Open Spaces and Natural or Historic Features", requires:

1. If any portion of the subdivision is located within an area designated by the Comprehensive Plan as open space or greenbelt, that portion shall be reserved for open space preservation.
2. If any portion of the subdivision is located within an area designated as a unique natural area by the Comprehensive Plan or the Maine Natural Areas Program the plan shall indicate appropriate measures for the preservation of the values which qualify the site for such designation.

The *Subdivision Ordinance* also makes provision for protection of significant wildlife habitat, and for land to be set aside for recreation and open space when deemed necessary.

The *Wind Power Ordinance* also requires protection of wildlife habitat and listed Scenic Resources, and erosion control.

The Town has no conservation commission or open space committee. It owns small parcels of public land in the form of parks, land around the Village Dam donated by Verso Corporation (last owner/operator of the Bucksport paper mill prior to 2014 sale), a hand-carry launch on the Narramissic River and fields and woods around Orland Community Center. Residents have many acres in Tree Growth and Open Space (see Forests and Ag).

Conserved lands in Orland are the Great Pond Mountain Wildlands (4,500 + acres) owned by GPMCT, Craig Brook National Fish Hatchery (135 acres) owned by US Fish & Wildlife Service, and 74 acres of private land under conservation easement (Linscott) with GPMCT. Blue Hill Heritage Trust holds three farmland conservation easements on the Front Ridge Road in Orland totaling 186 acres. The state owns boat launches on Toddy and Heart Ponds. The boat launches and picnic areas on Alamoosook Lake and Craig Pond are owned by Craig Brook National Fish Hatchery.

8. Regional Issues

Orland has a number of opportunities to partner with local and regional groups for natural resource protection. Great Pond Mountain Conservation Trust conserves land, water and wildlife habitat in the

region, and can partner to help raise funds and implement land and water conservation and public land and water access improvements, as well as other natural resource enhancement projects. Department of Inland Fisheries and Wildlife (DIFW) suggests, for example, that towns partner with land trusts or other such organizations to buy riparian rights along brooks and rivers so anglers have public access to fish in their favorite spots.

There are several active lake associations in Orland, including Alamoosook Lake Association (ALA), Toddy Pond Association (TPA), and Craig Pond Association (CPA), affiliated with Maine Lakes and Lake Stewards of Maine. TPA and CPA currently have both paid and volunteer courtesy boat inspectors to check boats for invasive plants; ALA began a courtesy boat inspection program in summer 2019 with the help of a conservation grant. TPA and ALA have Invasive Plant Patrols conducting native and invasive plant surveys. All three associations have volunteer certified water quality monitors collecting data on water clarity and dissolved oxygen levels for Lake Stewards of Maine. TPA and ALA have worked with Hancock County Soil and Water Conservation District (HCSWCD) to conduct watershed surveys and receive DEP 319 grants to reduce runoff pollution from private and public properties and roads. Significant projects were undertaken on Alamoosook Lake (ending 2018) and Toddy Pond (ending 2016) through federal Department of Environmental Protection (DEP 319) grants, administered by HCSWCD. ALA and TPA have worked together since 2014 to prepare for Bucksport Mill LLC's uncertain future sale of the lakes' dams and water rights, and the potential ramifications if sold. The associations, while not representing all property owners on their respective lakes, have worked with the Bucksport mill owners in the past to ensure that the Lake Level Management Plan is being followed for the safety of shoreline property owners, protection of habitat for fish and wildlife, public access for recreation, and the reduction of soil erosion. By doing so they ensure that Maine laws and regulations are being followed.

Craig Brook National Fish Hatchery has a wealth of data on Alamoosook Lake and Craig Pond, and their Maine Fish & Wildlife Resource Conservation Office is a resource for fish habitat enhancement and dam/culvert removal and repair. US Fish & Wildlife Service's Ecological Services office also located at Craig Brook in 2016.

The Nature Conservancy, NOAA Fisheries Service, Hancock County Soil & Water Conservation District, Project SHARE, USFWS, DEP, DIFW and Maine Audubon have all been involved in recent projects in Orland, from the Orland Village Dam Study to replacement of culverts in the Wildlands, to a new bridge on the Happytown Road and a StreamSmart program at Alamoosook Lakeside Inn.

Bucksmills Rod & Gun Club has worked with DIFW to improve stocking in local ponds and hand out trash bags to Craig Pond anglers; and worked with GPMCT to offer hunting opportunities in the Wildlands, and public programs.

i. Local shoreland zone standards vs. neighboring communities and state guidelines

Orland last adopted a revised Shoreland Zoning Ordinance approved by the DEP Commission in April 2009. New guidelines which comply with the most recent state standards were approved and adopted at Town Meeting June 12, 2019.

Toddy Pond has frontage in neighboring Penobscot, Blue Hill, and Surry and Upper Patten Pond in both Surry and Ellsworth. Dead River, Narramissic River and Penobscot River's Eastern Channel have some Bucksport frontage, and Orland is across the Eastern Channel from Verona Island.

According to Code Enforcement Officer Luke Chiavelli, abutting towns use the same standards we do, and many have not updated their ordinances yet, either.

Table I - 6: Tools for Conserving Natural Areas in Orland

1) Conservation Easements are voluntary legal agreements that allow landowners to place permanent restrictions on the amount and type of future development and other uses on all or part of the property they own. Some easements reduce the property tax burden of owners. 2) Concept Plans are land use plans initiated by the landowner and reviewed by the Maine Department of Conservation. They may include permanent commitments to conservation in specific areas in exchange for variances in land-use regulations in other areas. 3) Corporate Conservation Initiatives are voluntary efforts by landowners such as timber companies to identify and protect areas of unique ecological, scenic, recreational, or historic importance. Since the landowner designs the conservation plan, this is a flexible way to protect the resource while pursuing business objectives and enhancing the corporate image. 4) Certified Timberlands are evaluated by independent companies and certified as being managed and harvested on an environmentally sensitive and sustainable basis. These techniques are designed to increase long-term profitability of their timberlands. 5) Resource Plans are negotiated agreements that define standards for timber harvesting, road building, and development and are customized to protect wildlife habitat and recreational opportunities. 6) Managed Recreation maintained by the landowner or a service contract, builds upon Maine's tradition of public access to private lands in the Northern Forest. Facing increased recreational use and demands, some Maine landowners charge visitors for access to their lands and roads. The proceeds fund the landowners' costs in providing recreational access to lakes and remote campsites.
<i>From Hitchcox, Susan: "What Conservation Looks Like in Maine – Tools To Build a Future For Our Woods, Waters, and Wildlife" Maine Audubon society, 2001. See also "Beginning with Habitat; Conserving Maine's Natural Landscape for Plants, Animals and People", MDIFW, 2012.</i>

9. Goals & Objectives

Goal 1: Protect Orland's natural resources in order to preserve its overall quality of life and rural economy, ensuring a future for natural habitat and outdoor recreation.

Objective A: Strengthen infrastructure specifically through culvert restoration to improve fish passage and mitigate soil erosion, prevent storm water overflow especially in light of increasing extreme weather events.

Strategies:

- I. Work with Hancock County Soil and Water Conservation District (HCSWCD), HCPC, Project Share, Nature Conservancy, NOAA, GPMCT to identify projects and grants and best practices.

Responsibility & Time Frame: Selectmen or designee and Road Commissioner. Within 2 years of Plan adoption.

Objective B: Protect Orland’s scenic views identified in this chapter.

Strategies:

- I. Update pertinent ordinances and develop a land use ordinance to require non-residential or multi-unit residential developments to identify critical natural resources or scenic views listed in this chapter and take appropriate measures to mitigate any negative impact.

Responsibility & Time frame: Selectmen and Planning Board. Within 2 years of Plan adoption.

Objective C: With the support of Maine Department of Agriculture, Conservation, and Forestry’s Department of Inland Fisheries and Wildlife & Maine Natural Areas Program (MNAP)/ Beginning with Habitat, continue the inventory of Orland’s plant and wildlife features for public education.

Strategies:

- I. Contact and coordinate with local conservation organizations including GPMCT, Maine Audubon, and local Lake Associations.

Responsibility & Time frame: Selectmen or designee. Within 2 years of Plan adoption to initiate, ongoing.

Objective D: Implement town-wide education on the whys and ways to conserve and protect our natural resources; identify properties with significant habitats and connect landowners with available resources.

Strategies:

- I. Consult with conservation organizations to help with educational platforms such as brochures, Town website identifying possible plans and key resources [Conservation Easements, Maine Farmland Trust, Open Space Tax Reduction, Tree Growth Program Tax Reduction, Beginning with Habitat (BwH) maps and data]. Coordinate with Forestry conservation goals.

Responsibility & Time frame: Selectmen or designee. Within 3 years of Plan adoption.

Objective E: Ensure that areas with concentrations of wetland, valuable wildlife habitat and other rare natural features are designated as rural areas in Orland’s Current Land Use Plan and encourage development in established historic Village areas.

Strategies:

- I. Review and expand Orland’s Shoreland Zoning Ordinance, Site Plan Review Ordinance, and Subdivision Ordinance, section 12 subsection 3 [Impact on Natural Beauty, Aesthetics,] and develop a Land Use ordinance.
- II. Consult with BwH for crafting local land use tools that enhance current protections for the town’s important plant and animal habitats.

Responsibility & Time frame: Selectmen or designee and Planning Board. Within 2 years of Plan adoption.

Objective F: Coordinate Orland's land protection priorities with neighboring towns through Great Pond Mountain Conservation Trust's priorities for mutual understanding and goals.

Strategies:

- I. Hold annual meetings to share developments and plans.

Responsibility & Time frame: Liaison from Selectmen or Planning Board and Executive Director of GPMCT. Within 1 year of Plan adoption, ongoing.

Objective G: Monitor developments with Alamoosook and Toddy dam ownership and maintenance [Bucksport Generation LLC] since the Town and lake associations are included as stakeholders in the Orland watershed conservation and the Emergency Action Plan in case of dam breach in light of increasing extreme weather events.

Strategies:

- I. Consult with Bucksport Generation LLC management and the Board of Directors for Alamoosook and Toddy Pond Associations [note —Emergency Responders (county and local) town officials, utilities, and lake association leadership last met in 2021 to review emergency response protocol]

Responsibility & Time frame: Selectmen and OFD. Within 1 year of Plan adoption, annually.

Objective H: Offer space in the Town Annual Report for the local Land Trust (GPMCT) and Lake Associations (Alamoosook Lake, Toddy Pond and Craig Pond Associations) to summarize their past and planned activities.

Strategies:

- I. Send invitation to these organizations to submit.

Responsibility & Time frame: Selectmen and Town Clerk. At time of Plan adoption, annually.

Chapter J: Agricultural, Forest and Open Space Resources

1. Purpose

A comprehensive plan needs to address the extent of Orland's agricultural and forestry resources. Any planning needs to show if the viability of either of these resources will be impacted by poorly managed community growth or development and if existing measures will continue to protect and preserve the important agricultural and forestry resources in Orland. Specifically, this section will:

- a) Describe the extent of Orland's farms and forest lands;
- b) Predict whether the viability of these resources will be threatened by the impacts of growth and development; and
- c) Assess the effectiveness of existing measures to protect and preserve important farm and forest resources.

State Goal: To safeguard the State's agricultural and forest resources from development which threatens those resources.

2. Key Findings & Issues from 1998 Plan

The public opinion survey and community workshops in the late 1990s revealed that the majority of respondents favored development of measures to protect farmland and forest land. A management issue with Orland's agricultural resources is that open agricultural fields are attractive for development because less site preparation is required. Development is not seen as such a management issue with Orland's forest lands but clear cutting or other poor forestry management practices are and the impacts of these can affect other aspects of the natural ecosystem including the watershed. One indicator of forest resources and management is the voluntary enrollment in the State's Tree Growth program which saw a decline in use through the 1990s possibly because of more restrictive but improved management and harvest plans required. Outside of State-run Tree Growth and farmland reduced taxation programs, Orland has no management measures in place to protect agricultural or forestry resources.

3. Key Findings & Issues for Current Plan

Local non-profit land trusts are now filling a niche role in helping to conserve land use for agriculture and forest land. Blue Hill Heritage Trust (BHHT) has worked with some local agricultural land owners to conserve 186 acres of Orland farmland on the Front Ridge Road. While no parcels of land were enrolled in the Farm and Open Space Program as of the 1998 Comprehensive Plan, according to the Tax Assessors there were five parcels enrolled in Farmland tax status, totaling 204 acres. Great Pond Mountain Conservation Trust (GPMCT) now owns and manages the 4,500+ acres Wildlands in East Orland for sustainable forestry, including Christmas trees. GPMCT also worked with a landowner on a 72-acre conservation easement in East Orland near Rocky Pond that allows for forestry use. Over the past 10 years there has been a net increase of 14 parcels enrolled in Tree Growth and 1 parcel in Open Space.

4. Public Opinion Survey Results

The Public Opinion Survey that the committee created in 2016 resulted in the following responses: 79% of respondents support development in appropriate or designated areas, 80% of respondents support conservation of agricultural land (up 21% from the prior plan survey from 20 years ago) and 75% support

conservation of working forest land (up 10% from prior plan survey), 68-74% of respondents support conservation through land-use ordinance, voluntary easements, or land trust acquisitions, and 17% of respondents see access to locally harvested food as an issue in Orland.

5. Agricultural Resources

Orland has relatively little agricultural land. According to the 1979 *Land Use Data Base* from the U.S. Geological Survey (USGS), there were only 504 acres in agricultural production, which represented about 1.5% of all land in the town. About 88% of this farmland was used for blueberries, which are still the major crop. As of 1997, the United States Department of Agriculture (USDA) for Hancock County records show that there are 30 farms in Orland that participate in USDA-sponsored programs. This figure for the total number of farms in town could be low since there may be other farms that don't participate in the programs. Beef animals and horses with their hay fields and pastures comprise most of the farmland not used for blueberries.

The U.S. Natural Resources Conservation Service (NRCS) has an estimate of prime agricultural soils. This estimate is based on the suitability of soils for farmland, rather than their actual use. The rating is derived from factors such as types of soils, drainage, and the absence of rocks. Some of these parcels may be farmed. Similarly, some farms in Orland may not be on prime agricultural soils.

NRCS records show that there are 4,800 acres of prime agricultural soils in Orland. This represents about 15% of Orland's approximately 32,930 acres of land area. As seen in Table J - 1, some of these soils are considered prime only if they are drained and others only if they are irrigated.

Table J - 1: Prime Agricultural Soils in Orland

Category	Acreage	Percent of Total Land Area
Farmland	1,276	3.9 %
Prime Areas (If Drained)	3,146	9.5 %
Prime Areas (If Irrigated)	375	1.1 %
TOTAL	4,800	14.5%

Source: USDA Soil Survey Web Viewer – 2021

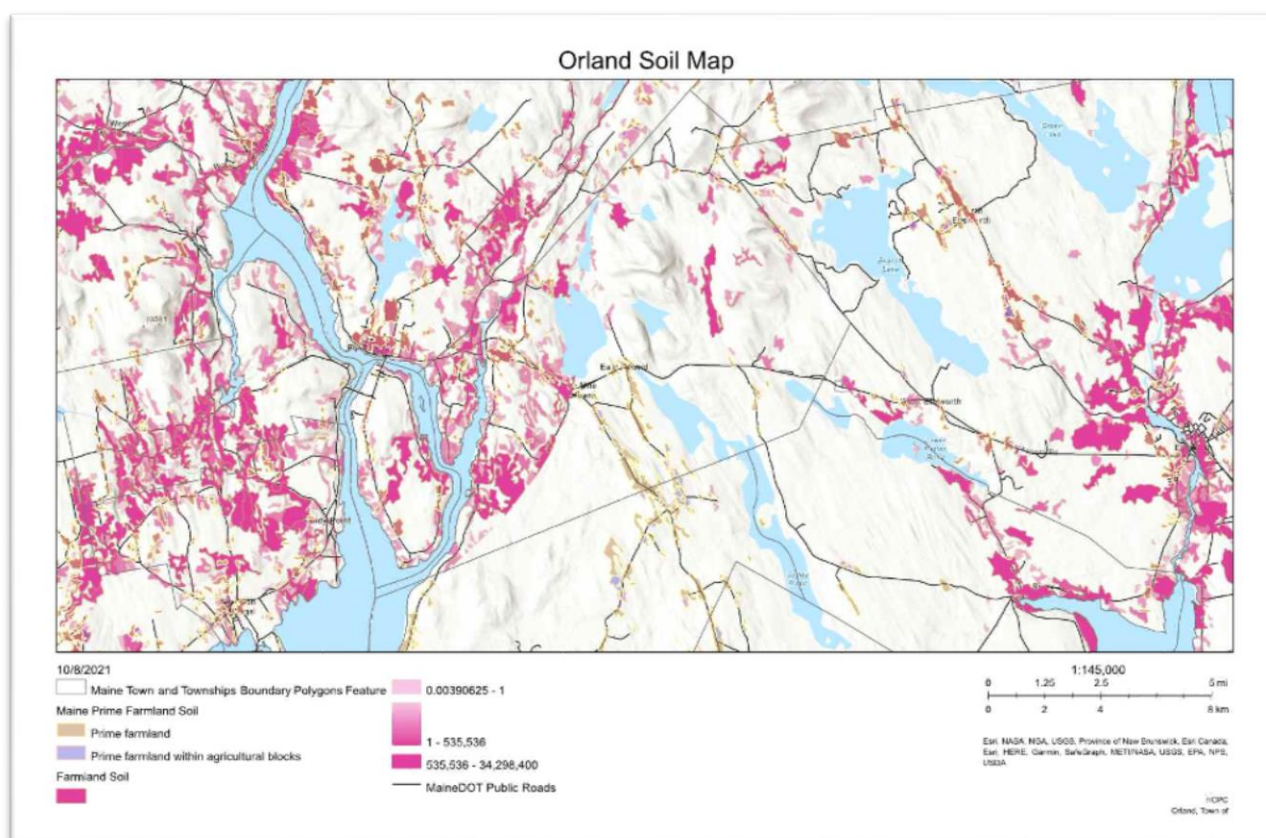
Prime farmland soils in Orland exist mainly along the Front Ridge (Route 15) and Back Ridge Roads, around the Village/Upper Falls Road area, and along Bald Mountain Rd. in North Orland. Soils of statewide importance are mainly found deposited in the town's southwest quadrant, from Alamoosook Lake south throughout the Meadow Brook Watershed, west to the Narramissic River, on Leaches Point, and between Upper and Lower Falls Roads.

Blue Hill Heritage Trust has conserved 186 acres of Orland farmland on the Front Ridge Road near the Penobscot Town line, in three conservation easements. Their Route 15 Farmland Corridor Focus Area along Route 15 includes a vein of rich farmland extending from Blue Hill through Penobscot all the way to Route 1 in Orland.

According to the Tax Assessors, as of April 1, 2020 there were five parcels enrolled in Farmland tax status, totaling 204.23 acres. There were no lands enrolled in this program as of the last Comprehensive Plan in 1998.

Anecdotal information notes that farming in Northwest Hancock County is slowly growing, with more young people starting farms or expanding from a homestead to a farm. These farms are often small scale, organic, mixed farms, growing some vegetables and/or a few animals. These farms are also at a little larger scale than a homestead and many are not able to make a full living at it, but their farms contribute to the rural fabric of the area. Making \$1,000 or more per year from farm products qualifies these properties as a farm to be able to use tax reductions under the Farm and Open Space Act.

Map J - 1: Agricultural Soils of Orland, Maine



Map J - 1 shows the various soils of agricultural importance as determined by Maine Geologic Survey. The map documents prime farmland soil, further prime farmland soil in designated agricultural parcels and then farmland soil of statewide significance. The difference between the classifications is that prime farmland soil is defined by characteristics of having excellent soil pH, little to no depth to water table, and the ability to produce an abundance of crop varieties for economic purposes. Farmland soil of statewide significance is often found adjacent to prime farmland soil, however, they require various soil treatments to yield economically viable crops. This is unlike prime farmland soil, which does not require fertilization and irrigation to produce crop yields. See *Determining Prime Farmland Soils and Soils of Statewide Importance for Siting Solar Projects in Maine*, Maine Department of Agriculture and Forestry, May 2020 for further resources. The map furthermore shows relative areas based upon the level of transparency for the farmland soil of statewide significance.

See the following list of Orland farms listed on the Get Real/Get Maine website or are otherwise searchable online.

- Cotton Hill Farm, Upper Falls Road - miniature horses, Australian shepherds and shelties
- Fairy House Farm, Front Ridge Road - organic pastured pork, poultry and lambs. CSA offers whole and half pigs or lambs and whole chickens. Seasonally wild-foraged foods and mushrooms. Charcuterie, candies and confections, and a fresh flower CSA June to September. Fairy House Farm's Hot Dogs
- Gramps Farm, Front Ridge Road - Fresh or frozen wild blueberries and blueberry, strawberry, and cranberry fruit leathers.
- Happytown Farm, Happytown Road - MOFGA certified organically grown vegetables, cut flowers, maple syrup, and lamb.
- H.O.M.E. Co-op, Schoolhouse Road - Non-profit cooperative with organic gardens growing a variety of vegetables, flowers and herbs, baked goods, jams and pickles.
- Mandala Farm, St. Francis Community, Mandala Way - Norwegian fjord horses, cashmere goats, chickens, sheep, miniature horses, peacocks, cats, dogs, a Christian burro, organic gardens, and wood harvesting.
- Mountain View Farm, Back Ridge Road - An 80-acre diversified farm including a working horse farm offering boarding, training and an on-site farrier, livestock from chickens to beef cattle, and a large organic vegetable garden. Produces up to 25,000 bales of hay harvested from fields all over Hancock County.
- Nancy Place Homestead, Bald Mountain Road - a small, off-grid permaculture homestead and farm with a small pick-your-own blueberry field, farm stand and eco-lodging.
- A Wee Bit Farm, Bald Mountain Road - Scottish Highland Cattle raised onsite and at several satellite farms around the state. Sells ground steak, smoked pork, pot roasts, hot dogs, lamb, veal, and pork.

i. Analyses for Farmland

Blueberry growers large and small own and manage thousands of acres of blueberry fields and surrounding forest land in Orland. GM Allen & Sons, Allen's Blueberry Freezer and Allen's Property Trust, for instance, own a combined total of 1,950 acres. Changes in blueberry farming or the industry could have a large impact here if large tracts of land change hands or the land is poorly managed or developed. This could lead to erosion and runoff into local streams, loss of wildlife habitat and iconic scenery, and land being subdivided and posted against open use. The same issue exists for prime farmland in Orland, with its potential development into small pieces for housing and loss to regrowth of forest. Blueberry farming like all types of farming is subject to climatic change in weather that can cause plant disease, drought, and early frost resulting in low harvest years or improved mechanical harvesting that sometimes can lead to over-production. Erratic market conditions could lead to land use issues as mentioned above.

Tax Assessors are not aware of problems such as proximity of new homes or other incompatible uses affecting normal farming operations. Some subdivisions in town have clauses that disallow farm animals, which has caused conflicts with neighbors.

Orland has no community gardens or farmers' market. The nearest markets are in the surrounding towns of Bucksport, Ellsworth, and Blue Hill. Orland may not be able to support its own farmers' market, but farm Community-Supported Agriculture (CSA) in the Town is supported locally by residents from Orland and surrounding towns.

Of the various types of farms, there are niches such as small-scale dairy, pick-your-own berries, and nursery/greenhouse operations that are lacking in town and could be supported. "I think this area of Maine is very supportive of local agriculture," said Paul Volkhausen of Happytown Farm. "People bring their kids to the farm, and they're aware of the benefits of having farms."

The Town does not currently take regulatory and/or non-regulatory steps as of this Comprehensive Plan to protect productive farming land, however as noted in the Key Findings and Resource sections above, some farm land owners have worked with local land trusts to put conservation easements on farm land in Orland that will keep the land use for agricultural purposes in perpetuity. The Maine Farmland Trust, a statewide non-profit organization also is an available resource assisting with farm conservation easements and helping connect new farmers to available farm land through leases and/or purchases. Additionally, the “Is Your Town Farm Friendly?” checklist offers many good tips on encouraging farmland and farmers.

6. Forestry Resources

Forest is the primary land use cover in Orland. The *2016 Land Cover Data Base* (NLCD) from the USGS, and Multi-Resolution Land Characteristics Consortium (MRLC) calculated that 84% of the land in the Town was forested based upon the use of remote sensing. The forests are a mix of temperate deciduous and northern coniferous trees. Broad-leafed deciduous trees: maple, oak, elm, and beech are found together with northern coniferous trees: spruce, fir, pine and larch. Abandoned fields, forest fires, and timber harvesting have combined with the process of succession to produce diverse forests of mixed age.

Data on land held under the Tree Growth Taxation Act can be a source of information on Orland’s forest resources. This classification is similar to the Farm and Open Space Act in that owner of forested parcels meeting certain conditions may have their property assessed as forest land rather than for its potential developed value. The owner of 20 or more acres must manage the parcel according to a commercial forest management and harvest plan. Tree growth acreage has increased from 56 parcels containing 7,417 acres in 1995 (reported in the 1998 Plan) to 84 parcels containing 8,012 acres in 2020. A good part of that increase is due to the local land trust’s conservation of 4,500+ acres of land (with 2,140 acres in the Tree Growth Program as of 2020).

Great Pond Mountain Conservation Trust (GPMCT) owns and manages the 4,500+ acres Wildlands in East Orland for sustainable forestry, including Christmas trees, and is currently working with USDA’s NRCS on Environmental Quality Incentives Program (EQIP) contracts for pre-commercial thinning to improve the forest composition, as the area was heavily harvested in the 1990s by prior landowners. GPMCT’s also holds a 72-acre conservation easement in Orland near Rocky Pond that also allows for forestry use.

Table J - 2: Tree Growth Parcels 2005-2020

Year	# of Parcels	Softwood Acres	Mixedwood Acres	Hardwood Acres	Total Acres	Acres 1 st Classified	Parcels Withdrawn
2005	63	3,224	2,237	3,073	8,533		0
2006	66	3,208	2,552	3,528	9,288	829	3
2007	71	3,215	2,541	3,527	9,283		2
2008	68	3,217	2,534	3,478	9,229		0
2009	69	3,191	2,638	3,640	9,468		1
2010	70	3,078	2,870	3,540	9,488		2
2011	77	3,176	3,134	3,592	9,902		0
2012	76	3,251	3,226	3,503	9,980	189	0
2013	83	3,283	3,374	3,646	10,303	186	0
2014	81	3,212	3,447	3,656	10,314		0
2015	81	3,212	3,343	3,656	10,210		0

Year	# of Parcels	Softwood Acres	Mixedwood Acres	Hardwood Acres	Total Acres	Acres 1 st Classified	Parcels Withdrawn
2016	81	2,045	4,443	3,913	10,401		0
2017	82	2,045	4,443	3,913	10,401		0
2018	87	1,993	4,590	3,889	10,472	84	2
2019	86	1,990.8	4,592.06	3,893.75	10,476.61	0	0
2020	84	1,937.20	3,410.75	2,664.35	8,012.3	0	1

Source: Municipal Valuation Return Statistical Summary, Maine Bureau of Taxation Property Tax Division

Table J - 3: Summary of Timber Harvest Information for the Town of Orland

YEAR	Selection harvest, acres	Shelterwood harvest, acres	Clearcut harvest, acres	Total Harvest, acres	Change of land use, acres	Number of active Notifications
1991-1992	343	6.0	0	349	0	4
1993-1994	150	0.0	0	150	0	4
1995	200	80.0	2	282	2	6
1996	112	9.0	4	125	1	6
1997	1,118	30.0	33	1,181	0	11
1998	644	229.0	61	934	62	22
1999	1,060	23.0	12	1,095	6	47
2000	2,948	48.0	11	3,007	0	46
2001	733	5.0	0	738	0	34
2002	475	4.0	0	479	0	28
2003	1,149	10.0	0	1,159	0	42
2004	582	23.0	71	676	3	41
2005	424	6.0	0	430	5	40
2006	499	20.0	0	519	0	27
2007	504	100.0	0	604	75	28
2008	835	10.0	0	845	20	32
2009	528	3.0	5	536	0	34
2010	845	20.0	0	865	1	33
2011	701	14.5	28	743.5	0	37
2012	419.0	18.0	0	437.0	0	28
2013	286.0	178.5	0	464.5	6	26
2014	198.9	16.5	0	215.4	0	26
2015	271.0	39.0	5	315.0	0	25
2016	399.5	175.0	30	604.5	15	28
2017	394.0	90.0	0	484.0	0	20
Total	15,818.4	1157.5	262	17,237.9	196	675
Average	633.0	46.0	10	690.0	8	27

Source: Data compiled from Year End Landowner Reports to Maine Forest Service. (From 2019 data set provided). Department of Agriculture, Conservation and Forestry - Maine Forest Service.

i. Analyses for Forest Land

The Town does not currently take regulatory and/or non-regulatory steps as of this Comprehensive Plan to protect forestry lands. However, the local land trust, GPMCT, manages 4,500+ acres in East Orland, much of it for sustainable forestry and maintains a 72-acre conservation easement on land allowing forestry as mentioned in the Resources section above.

Forest land owners are taking advantage of the state's current use tax laws. As of 2020, there were 84 parcels enrolled in Tree Growth, totaling 8,012 acres (including 2,140 acres in GPMCT's Wildlands with an additional 2,500 acres also being managed for tree growth but not currently in the program). Since 1995 there has been a net increase of 28 parcels enrolled in Tree Growth and 1 parcel enrolled in Open Space.

In Hancock County, the market for wood products is decreasing due to mill closures, and state and federal cost-share programs are decreasing as well. Many people, including the local land trust, use USDA's NRCS programs such as EQIP to help fund forestry activities such as pre-commercial thinning to improve forest composition.

Forest diseases and invasive pests are likely to increase because of the change in weather patterns and climate. While diseased Beech (*Nectria*) is a problem in many local woodlots and not on a State quarantine list yet, the Maine Department of Agriculture, Conservation and Forestry (ME DACF) has put many towns and counties (and in some cases the entire State) under quarantines for the following diseases and invasive pests, which are causing harm and have the potential to destroy forest health: Emerald Ash Borer, (detected in Aroostook, Cumberland and York Counties), Hemlock Woolly Adelgid (known populations scattered in Maine coastal regions), Pine Shoot Beetle, Gypsy Moth, White Pine Blister Rust, and European Larch Canker. For more information: www.maine.gov/dacf/mfs/forest_health/.

Managing woodlots for forest health, using the Maine Forest Service's Best Management Practices (BMPs), and heeding quarantines are part of the solution to these problems. According to one local forester, many Orland clients apply for NRCS cost-sharing and enroll in the Tree Farm System—an attractive program because landowners get a free visit from a forester every five years.

The community does not currently have town or public woodlands under management. There is a small parcel (about 1 acre) behind the Community Center and another larger parcel (about 24 acres) between Gray Meadow Road and Rt. 1, around the transfer station that might have potential to be developed or managed as tree resources and teaching tools.

7. Open Space in Orland

The Farm and Open Space Act mentioned previously provides for open space classification, which can be used to protect forested and other areas. There are no minimum parcel size requirements or income metrics. However, the property must meet conditions of providing a public benefit. There is a long list of such public benefits that help to qualify a parcel: see Table J – 4. The amount of the tax benefit depends on how the land is classified: *“Ordinary” open space, Public Access, Permanently Protected, Forever Wild, or Managed Forest*. Public Access results in the greatest tax benefit to the landowner, but it is important to understand that not all parcels in the open space program permit public access. If a tax benefit has been granted, there are financial penalties for withdrawing the land from the program.

Table J - 4: Public Benefit Criteria for Open Space

• The importance of the land by virtue of its size or uniqueness in the vicinity or proximity to extensive development or comprising an entire landscape feature • The likelihood that development of the land would contribute to degradation of the scenic, natural, historic or archaeological character of the area • The opportunity of the general public to appreciate significant scenic values of the land • The opportunity for regular and substantial use of the land by the general public for recreational or educational use • The importance of the land in preserving a local or regional landscape or resource that attracts tourism or commerce to the area • The likelihood that the preservation of the land as undeveloped open space will provide economic benefit to the town by limiting municipal expenditures required to service development • Whether the land is included in an area designated as open space land or resource protection land on a comprehensive plan or in a zoning ordinance or on a zoning map as finally adopted • The existence of a conservation easement, other legally enforceable restriction, or ownership by a nonprofit entity committed to conservation of the property that will permanently preserve the land in its natural, scenic or open character • The proximity of other private or public conservation lands protected by permanent easement or ownership by governmental or nonprofit entities committed to conservation of the property • The likelihood that protection of the land will contribute to the ecological viability of a local, state or national park, nature preserve, wildlife refuge, wilderness area or similar protected area • The existence on the land of habitat for rare, endangered or threatened species of animals, fish or plants, or of a high-quality example of a terrestrial or aquatic community • The consistency of the proposed open space use with public programs for scenic preservation, wildlife preservation, historic preservation, game management or recreation in the region • The identification of the land or of outstanding natural resources on the land by a legislatively mandated program, on the state, local or federal level, as particular areas, parcels, land types or natural resources for protection • Whether the land contains historic or archaeological resources listed in the National Register of Historic Places or is determined eligible for such a listing by the Maine Historic Preservation Commission, either in its own right or as contributing to the significance of an adjacent historic or archaeological resource listed, or eligible to be listed, in the National Register of Historic Places • Whether there is a written management agreement between the landowner and the department of Inland Fisheries and Wildlife or the Department of Agriculture, Conservation and Forestry • Whether the land is maintained in accordance with criteria that are adopted under local ordinance that provide for preserving the integrity of historically important structures or conserving a scenic view
<i>Source: Maine Revenue Services, Property Tax Division, 2017</i>

8. Adequacy of Existing Measures to Protect Farmland, Forest Land and Open Space

There are other measures that could be applied to increase protection of agricultural and forested lands. Some of these measures have implications for the ability of landowners to optimize their personal use of the land, which is a longstanding local tradition not easily set aside. Such measures include designated farming districts, and development restrictions on prime soil areas. A more realistic approach includes convincing landowners of the importance of conserving their best farm and forestland for the future; working with conservation groups on easements; and increased housing density on non-farm soils through creative development approaches. (See Chapter C – Housing.)

9. Regional Issues

Orland, along with all neighboring towns, faces a threat from climate change and invasive plant and animal species. All towns will need to coordinate to protect vital forest habitats and canopy covers so as not to create large habitat gaps that ultimately undermine the wider biodiversity of the region. Protection of farmland is also a regional issue, likely to become more important for local food security than is currently widely understood.

Recently, an initiative has commenced to quantify and enhance the atmospheric carbon dioxide reduction potential of Maine forestland and open space. This effort is being spearheaded by the Governor's Task Force on the Creation of a Forest Carbon Program. In a draft report issued August 25, 2021, the Task Force examined the potential for increased enrollment in the tree growth and open space programs through increasing the tax benefit of doing so. One very interesting and important concept in this draft report is a recommendation for the State to help towns make up the lost revenue when land is placed in these programs.

10. Goals & Objectives

Goal 1: Establish an on-going program for Orland to preserve its agricultural and forest resources. Specific policies include these objectives:

Objective A: Support land-owners/farmers to preserve properties identified as having high agricultural value according to soil maps and data available.

Objective B: Designate identified commercially active agricultural areas as rural in Orland's proposed future land use plan.

Strategies:

- I. Accomplish through updates to the Shoreland Zoning Ordinance, Subdivision Ordinance and Site Plan Review Ordinance and any future land use ordinances in consultation with Hancock County Soil and Water Conservation District staff if pertaining to agricultural management practices.

Responsibility & Time frame: Selectmen, Planning Board. Within 3 years of plan adoption.

Objective C: Encourage farmers and landowners to access current tax programs under the Farm and Open Space Tax Program.

Strategies:

- I. List information and link to Maine Revenue Services Current Land Use Program on Town website and make available brochures with updated information in Town Office.

Responsibility & Time frame: Selectmen or designee working with Town Clerk. Within 3 years of Plan adoption.

Objective D: Refer interested landowners/farmers to various non-profit land conservation groups such as Maine Farmland Trust to whom they could voluntarily sell or donate conservation easements to restrict their land to agricultural uses.

Strategies:

- I. List links of non-profit land (and farm) conservation organization websites on Town website and make available their information/contact brochures in Town Office.
- II. Notify landowners/farmers via email or postal mail of available information concerning conservation located on Town website and in Town Office.

Responsibility & Time frame: Selectmen or designee, Town Clerk. Within 3 years of Plan adoption.

Objective E: Promote involvement of farmers and residents with locally grown food ventures and programs through information on Community Supported Agriculture (CSA) shares, locations of local farmers' markets, etc.

Strategies:

- I. List links of local farms and farmers' markets on Town website and place brochures or created information sheet in Town Office.

Responsibility & Time frame: Selectmen or designee and Town Clerk. Within 3 years of Plan adoption, update every 2 to 3 years.

Objective F: Identify major concentrations of forest land using land cover maps that fall within the Tree Growth Program, Conservation and Open Space and designate as rural as proposed in Orland's Future Land Use Chapter.

Strategies:

- I. Accomplish through updates to the Shoreland Zoning Ordinance, Subdivision Ordinance and Site Plan Review Ordinance and any future land use ordinances in consultation with Maine Forest Service district forester if updated pertaining to forest management practices as required by 12 M.R.S.A Section 8869.

Responsibility & Time frame: Selectmen and Planning Board. Within 3 years of Plan adoption.

Objective G: Assure adequate enforcement of Shoreland Zoning and Access Management Regulations as they pertain to state timber harvesting standards.

Strategies:

- I. The Planning Board and Code Enforcement Officer (CEO) should monitor timber harvesting practices yearly. If significant problems remain after five years, they should recommend that a timber harvesting ordinance be adopted. This ordinance could follow state standards but require local notice to Town Office of harvesting when state notification is needed.

Responsibility & Time frame: Planning Board and CEO. Within 5 years of Plan adoption.

Objective H: Encourage owners of forested land to use the current tax program for land under Tree Growth program.

Strategies:

- I. List information and link to maine.gov website on Town website and carry updated information brochure in Town Office.

Responsibility & Time frame: Selectmen or designee and Town Clerk. Within 3 years of Plan adoption.

Objective I: Inform owners of forested land of the latest in Best Management Practices for forestry, wildlife habitat, erosion prevention, and invasive pests and plants.

Strategies:

- I. List specific website information and links on the Town website and make available educational brochures for applicable programs/resources, such as Maine Forest Service, Maine Natural Areas Program, UMaine Cooperative Extension Hancock County, and HCSWCD.

Responsibility & Time frame: Selectmen or designee and Town Clerk. Within 3 years of Plan adoption.

Objective J: Support conservation of agricultural and forest lands with educational opportunities for all ages, especially youth, regarding the health of such land and threats to their integrity.

Strategies:

- I. Collaborate with local and regional conservation organizations, government agencies, and other experts and volunteers on educational programs regarding the health of agriculture and forest lands and threats to their integrity.
- II. List information and links to local and regional non-profit conservation organizations and government agency resources on Town website and carry any updated brochures of information in Town Office.
- III. Evaluate and assess need and capacity to create additional programs through plans presented by individuals and/or ad hoc groups.

Responsibility & Time frame: Selectmen or designee as needed and Town Clerk. Within 3 years of Plan adoption and ongoing.

Objective K: Seek out and evaluate Town needs and capacities for grants and programs that promote importance of farming, agricultural land, trees and forest health management.

Strategies:

- I. Evaluate Town needs and capacities for grants such as Project Canopy from the Maine Forest Service and programs such as Tree City USA from the Arbor Day Foundation and other available municipal funding through plans presented by individuals and/or ad-hoc groups.

Responsibility & Time frame: Selectmen or designee as needed. Within 3 years of Plan adoption, ongoing.

Chapter K: Historical & Archaeological Resources

1. Purpose

A comprehensive plan should identify critical historic and archaeological resources that warrant protection. These resources are important not only for their role in Orland's history, but also for their present-day value. Historic buildings and sites add to the town's quality of life, and their presence helps maintain property values. Specifically, this section will:

- a) Provide a brief history of settlement (including indigenous presence) and industry in Orland.
- b) Describe Orland's historic 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 from 1998 Plan

State records list 34 pre-European contact sites in Orland. These include Indigenous Peoples burial grounds and shellfish middens. While permanent European settlement of the Orland area started in the 1760's, there are no official state records of any historic sites or buildings. The Town may want to consider encouraging a survey to help establish such a record.

3. Key Findings & Issues for Current Plan

State records list 34 pre-European contact sites in Orland. These include Indigenous Peoples burial grounds and shellfish middens. While permanent European settlement of the Orland area started in the 1760's, there are no official state records of any historic sites or buildings. While many historic homes and buildings have been destroyed, an inventory of remaining historic sites including structures and landscapes would be beneficial for future preservation consideration.

4. Public Opinion Survey Results

Only one survey question dealt with historic resources and 75.2% of respondents supported conservation of historically significant buildings and sites. Community workshop comments reflected similar views.

5. History of Orland

Recognizing Orland's significance for both the early ancestors of the Penobscot people and European settlers will help today's residents of Orland understand the historic and archaeological richness held within our town's borders.

According to archaeological research indigenous peoples came to the shores of lakes and rivers in this area in the late Archaic period, 3600 years ago. They came for seasonal fish migrations, operated fish weirs, dug for clams, hunted deer, moose and bear. Evidence of their settlement and burial sites are recorded within the Narramissic watershed. Based on technological and culture changes, archaeologists suggest that the ancestors of the modern Wabanaki inhabited this area 2,000-3,000 years ago.

A 2015 map developed by the Cultural and Historic Preservation Department of the Penobscot Nation, “This is How We Name Our Lands” identifies three significant places within Orland with Penobscot language names. One is nàlamess meaning ‘chasm’ which refers to the steep slopes on either side of the Narramissic River perhaps at the site of the Lower Falls/Orland Village dam, nalamessihtek as river in a chasm (Narramissic River) and álemossak (Alamoosook Lake) meaning dogs. This meaning given by Penobscot historians differs from ‘place of many fishes’ previously cited from Fannie Hardy Eckstorm’s *Indian Place Names of the Penobscot Valley and the Maine Coast*.

Early European exploration of the Penobscot Bay area began in the early 1600s, but major settlement in the area didn’t begin until after 1763 and the signing of the Treaty of Paris when land captured from the French was annexed to the Massachusetts Bay Province. The earliest European occupations were fur trading (primarily the French) and coastal fishing (English). Among the earliest settlers to the area were soldiers discharged from Fort Pownal, built in 1759 on the west side of Penobscot Bay in present-day Stockton Springs. More settlers came as a result of the land grant administered by the Massachusetts General Court in 1762 which created six townships each six miles square, lying between the Union River to the east and Penobscot Bay to the west. The six townships were (1) Bucksport; (2) Orland; (3) Penobscot; (4) Sedgwick; (5) Blue Hill and (6) Surry. However, it was not until 1800 that Orland was incorporated as a town.

Throughout the 1800s primary occupations included farming, fishing and fish processing, and boat building. Additionally, the timber industry played a major role and sawmills were built where there was access to water power. The first sawmill was built at Lower Falls in 1774. By 1870, most of the trees in the once virgin forest of Orland had been cut, leaving only second growth trees for future harvesting.

Numerous brickyards employed many men in Orland, tapping local deposits of marine clay. The bricks were used locally as well as exported. Granite quarrying also began in the late 1800s, but by the early 1900s the industry on the coast declined due to loss of markets and competition from other sources. At least one shingle mill was in operation in the early 1900s where Meadow Brook flows into Alamoosook Lake.

The remains of at least two of three charcoal kilns lie in proximity to Oak Hill and Sabriny Hill in East Orland. A number of industries including Katahdin Iron Works in Piscataquis County were consumers of charcoal and the demand for charcoal from these kilns was high during the mid to late 1800s.

Decline in economic opportunities in the late 1860s can be attributed to changes in modes of transportation especially railroads and steamships. The town’s population began to diminish after reaching a peak of 1,787 people in 1860.

The new forms of transportation, however, made the area more accessible to summer vacationers. Although the first summer vacationers came to the area as early as 1880, they did not appreciably affect the out-migration that was in progress. They did, however, supply an important, if seasonal, source of employment for many people living in towns on the Blue Hill Peninsula at a time when the economic base of the area was eroding. The widespread use of cars and trucks that began in the 1940s replaced the use of steamboats, changing the direction of trade from over water to Rockland, Camden and other coastal communities to over land to Bangor, Bucksport and Ellsworth.

In 1930, the Maine Seaboard Paper Company began operations at its mill in Bucksport. It is probable that this major employer was responsible for stemming the out-migration in Orland that began in 1860. The mill contributed significantly to the increases in population until before the final closure of the last mill owner, VERSO. The mill also required larger dams and water rights to provide supply for mill’s

paper processing needs and these dams of historic significance still control the water levels in Orland's watershed today.

i. Archaeological and Historic Resources:

A. Maine Historic Preservation Commission (MHPC) Recognized Sites

MHPC's database lists 34 pre-contact sites in Orland (those predating European settlement). Based on artifacts found seven of these sites were identified as Moorehead phase (Late Archaic 4,000-3,000 years ago, formerly labelled "red paint"), five are Susquehanna tradition (late Archaic), two of the Ceramic period (2800-500 years ago) and 20 of unknown age. The MHPC 2015 Map marking "Known Archaeological Sites and Areas Sensitive for Native American Archaeology in Orland" identifies the general areas of these archaeological sites, the majority of which are in the shoreland zones of the Narramissic River and Alamoosook Lake. Additional sites and sensitive areas are located along the shores of Dead River, Hothole Pond, Craig Pond, Heart Pond, Toddy Pond, Toddy Stream, and Meadow Brook.

Moorehead archaeological reports from 1912 describe falls two to three meters in height in existence prior to the construction of the Orland Village dam. The location was important for "Aboriginal" fishing parties, based on the discovery of tools at the site. The Penobscot people built weirs at the falls and fish caught included shad, salmon and alewives.

MHPC records list no historic buildings and structures. According to the MHPC, no professional survey for historic sites has been conducted to date in Orland. Any future fieldwork could focus on sites related to the earliest European settlement of the town, beginning in the 1760s. The MHPC also suggests that there be an above-ground survey of resources to identify those properties that may be eligible for nomination to the National Register of Historic Places.

B. Locally Recognized Sites

Dams:

Three dams within the Narramissic watershed still operating today hold historic significance: the Orland Village Dam, Alamoosook Dam and Toddy Dam. Smaller dams in the watershed were constructed originally to power sawmills. Over time as dam sizes increased, they altered water levels significantly. The rising water changed the landscape and shape of water bodies, and reduced access to archaeological sites. The fishways connected to these dams play an important mitigating role in preserving fish migration, particularly the alewife from the Penobscot Bay and Orland River.

The Orland Village dam was rebuilt in 1994 when an earlier dam built in 1930 by the Maine Seaboard Paper Company suffered severe damage during a tidal surge event. Originally there were natural ledges upon which early colonial settlers constructed a dam in the late 1700s. This dam had locks to allow boats to pass through and a sluice to direct water to a sawmill. Historical records show a dam in Orland/Plantation 2 that was destroyed by the British as part of the "Penobscot Expedition" during the revolutionary war in 1779.

The dam separates the tidal Orland River from the Narramissic River. It was acquired by the Town of Orland in 2010 when Verso Corporation considered abandoning the dam. In 2016, after an exhaustive study of alternatives including dam removal, dam and fishway rehabilitation or modification, and retention of existing conditions, the majority of citizens voted to keep the dam and fishway with no change. Those in favor of maintaining the dam and freshwater impoundment highlighted the scenic vista

of historic Orland Village along the Narramissic, the freshwater habitat provided for fish and wildlife, recreational opportunities, and the existence of mercury below the dam. The dam and fishway are operated and maintained by the Town, with funds appropriated annually, and additional funds budgeted for the Orland Village Dam Reserve on an annual basis.

The present day Alamoosook and Toddy Dams were built in 1929-1930 by Seaboard paper Mill which also purchased the water rights. Subsequent owners of the Toddy and Alamoosook Dams have operated and repaired the dams as needed, according to the guidelines of the Lake Level Management Plan which was developed in 1997 and most recently revised in 2015.

Historic Homes

Orland has many un-inventoried historic homes. Of the few that are described in *Best Remembered: Orland, Maine 1800 – 2000*, one has since burned down.

The known age of Orland's dwellings spans from the 1700s to 2020. Without an accurate inventory, only percentages within wide date ranges provide us with a vague idea of historic relevance. According to a 2020 Assessor's analysis, 6.66% of dwellings were built between 1700 and 1900, 8.95% between 1901 and 1951.

Other Historic Buildings include:



Ice House (1896), only remaining structure of original Craig Brook National Fish Hatchery, the first salmon hatchery in the United States, started in 1871 by Maine, Massachusetts, and Connecticut, designated a federal hatchery in 1989.



Village Schoolhouse, c. 1840. One of two remaining from original 14 Orland Schools.



Orland Historical Society, Former Town Hall, moved from original foundation.

ii. Historic Sites:

Cemeteries: An important part of Orland's history lies in the 20 cemeteries and private burial grounds documented by Nancy Wasson in two spiral bound volumes, published as a set in 2014. The cemeteries' locations are described and gravestones inventoried for names, birth and death dates, additional engravings and condition.

Three charcoal kiln sites located near Oak and Sabriny Hills. Two remain largely intact and the third is now in ruins. The history of these sites deserves further investigation.

Around Alamoosook Lake are sites of 1900s summer camps for youth including Camp Sparta, Alamoosook Island Camp, and Camp Beech Wood. They are described in *Alamoosook: The Lake, The People, The Stories*. Oral history reports describe Charles Lindbergh landing on the lake to deliver

and/or pick up one of his children from the summer camp on French's Island over the course of several summers. Another summer camp for boys, Flying Moose Lodge opened on Craig Pond in 1921, ran summer programs each summer with a hiatus during WWII up until 2017.

iii. Historic Documents and Artifacts:

Historic documents including photographs held in the Orland Historical Society collection will need to be inventoried and digitized for historic preservation.

The Atlantic Salmon Heritage Museum located in the CBNFH Visitor Center houses a collection of Atlantic salmon angling memorabilia from New England, Canada and England. It is the only museum of its kind in the United States. The Friends of CBNFH began the collection in the late 1990s in the historic Atkins' ice house.

Best Remembered: Orland, Maine 1800-2000, History and Recollected Stories to Celebrate our Bicentennial, published April 2000 by the Town of Orland in celebration of this town's Bicentennial Birthday will soon be digitized and available online on the Town of Orland's website.

Penobscot Nation Cultural & Historic Preservation Department. (c2015) *This is How We Name Our Lands* (Bilingual map). Indian Island, Maine. This map, dedicated to the people of Penobscot Nation, identifies areas of significance to the Penobscot Nation's history, including Alamoosook Lake. The map is available from the Penobscot Nation Cultural & Historic Preservation Department and the Maine Historical Society Store in Portland.

iv. Threats to Orland's Historic and Archaeological Resources

Without adequate information about Orland's historic resources, there is the danger that sites, artifacts (including documents) or other historical information could be destroyed or lost unintentionally. This could occur through new development such as a subdivision or renovation of an existing building. Operation of dams on Town water bodies and rising sea levels also threaten these resources within the shoreland zone.

v. Assessment of Current Protection Measures

Orland presently offers minimal protection to its historical resources. As mentioned above, none are listed on the National Register of Historic Places. Orland could take a number of steps to increase protection of its historical resources. The Town's Subdivision Ordinance could be amended to require that an in-depth archaeological survey be performed if it is suspected that the site may be of historic value. It may be possible to negotiate with the developer to change the layout of the site to protect the area of archaeological interest. For example, building footprints could be moved to another portion of the parcel.

Local groups, such as the Orland Historical Society, may want to contact the MHPC for information on how to conduct a survey of historic sites and properties. This would be an important step towards informing Orland residents about the town's historic resources.

Technology will help document and preserve archaeological & historic resources for future generations.

References for Historic and Archaeological Resources:

Ames, Penny Jo and Bray, Sharon (Eds.) (2000) *Best Remembered: Orland, Maine 1800 – 2000: History and Recollected Stories to Celebrate our Bicentennial*. Ellsworth, ME: Downeast Graphics. [More resources –stories and photographs at the Orland Historical Society Museum].

Colby's Atlas of Hancock County, Maine, 1881 (2020). Coastwise Geographic Edition. Jane Crosen, ed. Penobscot, ME: Maine Mapmaker/Waterbird Press. Ellsworth, ME.

Maine Historic Preservation Commission. (2015). *Known Archaeological Sites and Areas Sensitive for Native American Archaeology in Orland* [map]. [Areas sensitive for Native American, pre-European, archaeology, subject to future revision]

A History of the Orland River and its Fisheries. 2015 draft compiled by Catherine Schmitt, Maine Sea Grant College Program, University of Maine. catherine.schmitt@maine.edu. <https://seagrant.umaine.edu/wp-content/uploads/sites/467/2019/05/Fisheries-History-of-the-Orland-River.pdf>

Moorehead, Warren K. (1922). *A Report on the Archaeology of Maine: Being a Narrative of Explorations in that State, 1912-1920 Together with Work at Lake Champlain, 1917*. Andover, MA: The Andover Press, Andover. [Includes descriptions, maps, illustrations of historic and archaeological sites in Orland]

Orland Through the Years: Views and Memories of Orland, Maine (circa 1800-2000). DVD (2001). Orland, ME: Shutter Images. [Bicentennial compilation of historic photos: Orland Village; Early Orland Dam Showing Lock in Use; River Below the Dam; Leaches Point Fish Drying Yard, Transporting Salmon from Verona Weirs, East Orland Scenes, Various Orland Homes, Family Groups & Individuals, Schools, Churches & Grange Halls; Men Working; Activities for Pleasure & Recreation; Scenic Places.]

Penobscot Nation Cultural & Historic Preservation Department. (2015) *This is How We Name Our Lands* (Bilingual map). Indian Island, Maine. [Dedicated to the people of Penobscot Nation] Map and companion *Gazetteer: English to Penobscot* are available from the Penobscot Nation Cultural & Historic Preservation Department and the Maine Historical Society Store in Portland.

Schmitt, Catherine, compiler (2015). *A History of the Orland River and its Fisheries* (Draft). Orono, ME: Maine Sea Grant College Program University of Maine. <https://seagrant.umaine.edu/wp-content/uploads/sites/467/2019/05/Fisheries-History-of-the-Orland-River.pdf>

Town of Orland. (n.d.). History of Orland and Orland Dam Report. Retrieved from <https://townoforland.org>

Van Leer, Susan and Davis, Anne Buck (Eds.) (2012) *Alamoosook: The Lake, The People, The Stories*. My Publisher.

Wasson, Nancy. (2013 in public domain) *Orland Cemeteries: Book One*. (copy at Orland Town Office)

Wasson, Nancy. (2014 in public domain) *Orland Cemeteries: Oak Grove and Private Burial Grounds: Book Two*. (copy at Orland Town Office)

6. Goals & Objectives

With recognition that Orland's history and archaeology are woven into the fabric of our community and guide our future development, this plan recommends pursuing goals to preserve the heritage of Orland.

Participants at community workshops and 75% of surveyed Orland residents expressed interest in preserving and conserving historically significant buildings and sites in the town.

Goal 1: Preserve and increase protection of remaining historic and archaeological resources in Orland

Objective A: Revise the Subdivision Ordinance to include archaeological sites in Section 12.3 of the ordinance.

Strategies:

- I. Review map of archaeological sites and recommended protocol for preservation with Maine Historic Preservation Commission (MHPC) to identify sensitive areas.
- II. Propose amending the ordinance; specifically to give the Planning Board the right to require an in-depth professional archaeological survey of sites with recorded or suspected archaeological significance.

Responsibility & Time Frame: Selectmen and Planning Board. Within 1 year of Plan adoption.

Objective B: Form an ad-hoc committee to support Orland Historical Society.

Strategies:

- I. Advertise on Town website and local media to invite community members with interest in historic preservation to join.

Responsibility & Time Frame: Selectmen or designee and Members of the Historical Society. Within 1 year of Plan adoption.

Objective C: Identify and inventory historic homes, buildings, sites and landscapes remaining in Orland.

Strategies:

- I. Meet with members of the Orland Historic Society to access their records of historic homes and buildings, review DVD *Orland Through Years* and *Best Remembered: Orland, Maine 1800-2000*.
- II. Work with the MHPC to conduct an above-ground survey of resources to identify those properties that may be eligible for nomination to the National Register of Historic Places.
- III. Interview elder residents to identify and record more history of these historic resources.

Responsibility & Time Frame: Ad-hoc committee including members of the Orland Historical Society. As soon as feasible after Plan adoption.

Objective D: Preserve Orland's historic documents (photographs, newsletters, manuscripts, etc.) housed at the Orland Historical Society.

Strategies:

- I. Research grant opportunities through Maine Humanities Council for digitizing archival material. <https://mainehumanities.org/program/grants-program/> and/or Island Institute for hiring an Island Fellow to assist with implementation strategies for this objective.
- II. Assess current inventory of documents on display and in storage at the Orland Historical Society and at the Town Office as well as the needs of the Historical Society.
- III. Identify locations of items to digitize.
- IV. Reach out to community members for any additional archival material worthy of preservation.

- V. Complete inventory.
- VI. Develop a plan for and estimate cost of digitizing significant historic documents on exhibit and in storage at the Orland Historical Society and Town Office for grant application.

Responsibility & Time Frame: Ad-hoc committee. Begin process within 1 year of Plan adoption; ongoing.

Objective E: Make accessible key bicentennial and other publications of significance to Orland History to include: *Best Remembered: Orland, Maine 1800-2000: History and Recollected Stories to Celebrate our Bicentennial*; *Orland Cemeteries Book One* and *Orland Cemeteries: Oak Grove and Private Burial Grounds Book Two*; and the DVD *Orland Through Years*:

Strategies:

- I. With permission granted by the Town of Orland and Nancy Wasson, primary strategy will be to find funding for digitizing and postings/links provided on the Town website. [note digitizing of *Best Remembered* would best be done using original at Downeast Graphics, Ellsworth, ME]

Responsibility & Time Frame: Ad-hoc Committee, Historical Society, and Selectmen. Within 2 years of Plan adoption.

Goal 2: Expand on the recorded history of Orland

Objective A: Record interviews (audio and/or video) with Orland elders to acknowledge their reminiscences, stories, historical knowledge....

Strategies:

- I. Research grant opportunities through Maine Humanities Council for video recording and editing. <https://mainehumanities.org/program/grants-program/>
- II. Discuss project with Northeast Historic Film staff to develop a production plan.
- III. Identify Orland elders who'd like to participate.
- IV. Identify a project coordinator.

Responsibility & Time frame: Ad-hoc committee and Selectmen. ASAP after Plan adoption before more treasured people leave us.

Objective B: Identify significant resources or areas of interest worthy of further research/investigation such as early interactions of settlers with indigenous peoples, the Wabanaki's historic relationship to Orland, first women settlers and women's work, charcoal kilns located on Oak and Sabriny hills, and Orland's cemeteries.

Strategies:

- I. Invite community members to participate and contribute.

Responsibility & Time frame: Ad-hoc Committee and Designee, Orland Historical Society. Ongoing.

Chapter L: Fiscal Capacity

1. Purpose

Rural communities face multiple challenges to their ability to provide services and remain fiscally solvent. The burden of services often falls on residents as taxpayers - which impacts residents on fixed incomes such as social security and retirement payments more significantly than others. This section will examine the fiscal trends of the Town and specifically;

- a) Summarize Orland's current fiscal conditions;
- b) Discuss recent revenue and expenditure patterns; and
- c) Address Orland's capacity to finance capital expenditures for the next ten years.

State Goal: To plan for, finance and develop an efficient system of public facilities and services to accommodate anticipated growth and economic development.

2. Key Findings & Issues from 1998 Plan

The tax base is primarily residential and undeveloped land. State records show that Orland has no industrial valuation and just over one% of the valuation is due to taxable personal property. Only 4% of the valuation is tax-exempt.

Property tax assessments had increased rapidly in Orland. Between 1990 and 1995, tax spending increased at an after-inflation rate of 25%. The largest increases had been school spending (an after-inflation rate of 77% in ten years). State education subsidies had increased at about half the rate of town school spending. The Town faced further capital expenses include addressing the municipal building's needs, repairs to the school and further upgrading of the fire department's equipment.

3. Key Findings & Issues for Current Plan

Property taxes assessments have increased steadily since 2014. Orland, like most towns in Maine, has experienced increases in the past 10 years in education, road maintenance, waste management, and administration. The 2021 legislature finally funded the State education subsidies to the 55% voted on back in 2004 which might help ease some education costs for the Town within our RSU. The largest upcoming capital expense for Orland will be a much-needed new fire department building with possible help from State matching funds and grants.

4. Public Opinion Survey Results

Based on 217 surveys returned, there was less than 30% who would support improving or expanding any town services through increased local taxes. However, there did seem to be majority support for increasing local taxes for some improvements in the village (62% for river walking path, 52% for commercial businesses and shops, 58% public park by the dam site). Comments from the Neighborhood Visioning Sessions stated that residents love that Orland is affordable and want it to stay that way, and there was concern about possible development.

5. Inventory & Analysis

Any future capital investments would be funded through the Town Capital Reserve Account (\$269,645 in 2020), Bond Bank financing, bank financing, or the Town Unassigned Fund Balance (\$1,717,452 in 2020; goal is to maintain 30% of expenditures and not less than 17% in this balance). The community has sufficient borrowing capacity if it chooses to borrow to pay for capital investments.

While there are fewer opportunities to share major capital investment expenses due to large town areas and distances between towns, there are some shared services in our rural community (school facilities, recreation, protection, etc.):

- a) Regional School Unit (RSU) buildings and facilities located in Bucksport, and Orland Community Center ball field are taxpayer expenses and shared among the towns.
- b) The RSU Information Technology (IT) department services Orland Town Office IT needs.
- c) Orland is contracted with Bucksport for waste water treatment connecting the village area.
- d) Ambulance service is contracted with the Bucksport Fire Department.
- e) Orland contracts with Hancock County Dispatch for police protection, County Sheriff.

i. Conditions and Trends

Table L - 1: Town of Orland, ME - Revenues & Expenses: January 2011 - June 2020

Revenue Account	2011	*1/2012-6/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	10 yr % Incr/Decr
Tax Rev. & Exempt Reimburse	2,717,557	1,036,360	2,814,248	2,877,973	2,857,250	2,832,449	2,832,289	2,890,040	3,072,192	3,258,197	20%
State Road Assistance	36,564	18,282	36,564	35,748	32,784	33,124	32,972	33,496	33,208	33,860	-7%
Excise Taxes	388,632	211,317	369,939	405,704	407,314	447,423	485,134	525,595	513,431	485,257	25%
State Revenue Sharing	93,974	55,324	131,603	81,760	81,222	80,749	73,946	78,018	79,439	117,877	25%
Tree Growth Reimbursement			29,090	28,771	29,350	30,864	28,173	30,055	30,032	30,906	100%
Licenses, Permits, & Fees	17,680	12,415	16,205	16,192	15,583	15,966	16,503	14,619	15,339	17,678	0%
Community Center Rentals				8,015	45,474	81,987	80,447	84,887	104,349	94,530	100%
Sale of Alewives	5,649	7,497		7,553	6,566	6,984	7,810	7,929	14,730	8,130	44%
Other Revenues	180,039	18,688	36,869	44,730	50,840	423,821	46,107	46,836	118,991	70,316	variable
Total Revenues	3,440,095	1,359,883	3,434,518	3,506,446	3,526,383	3,953,367	3,603,381	3,711,475	3,981,711	4,116,751	
Expense Account											
Administration	178,035	88,928	170,017	181,681	226,262	252,299	273,676	302,179	322,467	347,687	95%
Health & Sanitation	92,314	36,126	92,028	52,219	104,528	112,258	115,152	132,864	94,640	120,527	31%
General Assistance	3,093	2,933	1,192	7,829	-7	171	587	210	496	936	-70%
Education	2,178,269	1,069,041	2,105,785	2,136,969	2,222,871	2,136,845	2,144,892	2,194,850	2,421,968	2,457,680	13%
Protection	101,662	49,671	90,209	78,555	105,559	113,364	104,639	104,849	101,853	106,697	5%
Highways	579,943	215,693	533,147	601,304	527,261	479,602	694,241	698,053	743,349	845,108	46%
Recreation	12,624	3,441	16,764	13,819	11,264	11,756	21,396	13,209	9,180	8,322	-34%
Community Center			23,454	11,189	97,650	126,781	97,010	95,477	110,808	110,305	100%
County Tax	93,382		93,742	90,698	88,561	91,687	94,886	95,287	100,625	106,730	14%
Fish Weir/Village Dam			3,654	1,202	189	190	2,193	273	197	411	100%
Capital Projects/Reserve	50,128	201	38,998	50,000	50,000	50,000	50,000	70,000	60,000	50,000	0%
Cemeteries/Parks	5,409	1,512	5,379	4,929	1,430	1,803	112	1,544	2,683	1,394	-74%
Total Expenses	3,294,859	1,467,546	3,174,369	3,225,465	3,435,568	3,376,756	3,598,784	3,707,251	3,965,583	4,154,403	

Source: Town of Orland Treasurer

*In 2012 the Town of Orland converted from calendar year to fiscal year, July through June.

A. Revenue and Expenditures

Of note in the last 10 years, Orland started receiving about \$30,000/year in Tree Growth Reimbursement and rental income from the Community Center. After merging with the Bucksport school system to form RSU 25 in 2009, the Town converted the Orland School building into a Community Center for businesses, recreation, and meeting and event space with rentals starting in 2013. Though smaller in dollar amount, a large increase in the Sale of Alewives occurring mostly from 2018 to 2019 was due to a much larger catch of river herring in the Orland River and increase in price due to recent bait shortages. The Other Revenue account for the Town is a variable amount and tends to stay under \$10,000. For this plan table, additional revenue line-item amounts were added to the Other Revenue line. The highlights for Other Revenue include: Interest & Fees on Taxes – remaining in the \$25,000-\$30,000/year range; Investment Earnings - increasing over 50% from 2018 (\$11,747) to 2019 (\$25,420) due to increased interest rate and additional investments in Certificates of Deposit; one-time or variable revenue such as Sale of Tax Acquired Property of \$103,522 in 2011, one-time State Retirement Revenue of \$374,818 in 2015/16, and the recent, one-time receipt of Municipal Review Committee Proceeds of \$61,685 in 2018/19 as a reimbursement of funds for leaving that committee to create the Town's own Transfer Station in 2018.

Administration expenses include all office expenses and all wages, insurances, wage taxes, and benefits. In the past 10 years, the significant increase of 95%, can largely be attributed to increased wages and roughly the equivalent of 2.5 positions (1 full time and 4 part time people) for Properties Management, a large portion which is to manage the new Community Center which opened in May 2013, and roughly the equivalent of almost 1 position (2 part time people) for the Transfer Station which opened in July 2018. Health & Sanitation has increased in the past 10 years due to rises in waste management disposal & recycling regionally and nationwide; the overall increase would be more if the wages, insurance, and taxes for the Transfer Station Attendant(s) were included in the Sanitation expense instead of in Administration expense. Highways expense increased due to snowplow contract increases, cost of salt increases, additional salt and sand purchased, and damage due to severe weather conditions. The Community Center expense is somewhat offset by the Community Center Rentals revenue, and does not reflect the cost of wages, insurance and taxes for the Properties Management positions which are located in Administration expense.

Orland will need to make several capital expenditures in the next few years particularly with major repairs and maintenance or a new building. The Community Center roof is scheduled to be replaced in 3 phases from 2022-2026, and its parking lot repaved and paid for over 3 years by 2025. Per an already paid for engineering assessment, the Town's aging Fire Station will need to be replaced or heavily repaired with help from state matching funds and grants. Additionally, the Transfer Station will need some equipment such as a compact trailer and a Bob Cat tractor that will also be spread out over 5 years. Other capital items to be considered in the future are located in the Transportation, Public Facilities or other chapter Goals & Objectives in this Plan. A table of estimates of known expenditures to be brought before the Orland citizens and projected timelines is located below in item number 6.

B. Funding Capital Items

Any future capital investments would be funded through the Town Capital Reserve Account (\$269,645 in 2020), Bond Bank financing, bank financing, state matching funds or grants, or the Town Unassigned Fund Balance (\$1,717,452 in 2020).

C. Valuation and Tax Assessment

Table L - 2: State Equalized Valuation and Property Tax Assessment Trends

	Valuation		Property Tax Assessment		
Year	Current Dollars	Adjusted to 2020 \$	Current Dollars	Adjusted to 2020 \$	Local mil rate
2010	255,750,000	300,811,590	2,986,382	3,512,564	15.60
2011	245,450,000	280,390,450	2,661,063	3,039,872	14.00
2012	237,150,000	266,273,050	2,791,896	3,134,753	14.35
2013	226,600,000	250,663,170	2,777,364	3,072,299	14.20
2014	217,700,000	239,009,960	2,811,487	3,086,695	14.00
2015	220,400,000	240,221,790	2,779,583	3,029,566	13.70
2016	226,250,000	241,585,920	2,780,814	2,969,306	13.70
2017	222,000,000	232,151,570	2,856,202	2,986,810	13.95
2018	227,200,000	233,136,090	3,085,122	3,165,727	14.65
2019	237,200,000	237,959,670	3,278,353	3,288,852	15.50
2020	250,600,000	250,600,000	3,249,212	3,249,212	15.30
Eleven Year Change	-2.01%	-16.69%	8.80%	-7.50%	

Source: Maine Valuation Return Statistical Summary

Factors that affect the State Valuation (and therefore the housing market) are the following: interest rates, economic growth, number of households, availability of mortgages, supply of housing, and new construction, just to name a few. State Valuation is based on the 18 months prior to the year (for example, the 2010 State Valuation represents the full equalized value of all taxable property as of April 1, 2008). For the 2010 State Valuation, the market was on a high note as this was right before the sub-prime loan debacle, Great Recession, and the housing market crash. The trend continues to go down until 2016, as the market starts to recover into 2018. In 2017, the valuation is affected by the Homestead Exemption that went from \$10,000 to \$15,000; the State only reimburses 50%, so 50% of that value is lost in taxable value. The revaluation that was started in 2018 was completed in 2020, and future trends will be difficult to predict due to the COVID-19 pandemic causing uncertainty in many aspects that affect State Valuation for several years to come.

D. Municipal Debt

The local debt as of June 30, 2020 for Orland is \$41,873. This includes a copier lease with US Bank at 5.48%, \$6,429 ending 2024, and the sewer utility program from the Maine Municipal Bond Bank at .1%, \$35,444 ending 2023. The shared debt as of June 30, 2020 is \$1,795,276 consisting of Orland's portion of the RSU #25 construction bonds debt, \$1,254,268 ending in 2035, and Orland's share of the Bucksport Treatment Plant for in-town utility connection of \$541,008 ending in 2045.

Orland 2020 total debt of \$1,837,149 falls well below the statutory debt limit for all types of debt which is 15% of the municipality's last full state valuation of \$37,590,000.

i. Policies

The Town does not have any written policies to finance existing and future facilities and services, to explore grants available to assist in the funding of capital investments within the community, or to reduce Maine's tax burden by staying within LD 1 spending limitations, but handles them on an as needed basis.

ii. Strategies for working with neighboring communities and sharing financing

(see under **4. Analyses**)

iii. Capital Investment Plan

A Capital Investment Plan (CIP) is a summary of major, planned capital expenditures over a given period of years. It is a statement of Orland's intended expenditures for major capital items such as a new fire station, community center additions, and public access improvements. Orland has defined a capital expenditure as any item costing at least \$10,000 and having a useful life expectancy of at least one year. Such expenditures are distinct from operation expenditures such as salaries, heating costs, and regular maintenance.

A CIP is not a binding document. Its primary use is to allow the Town to anticipate when major expenditures will occur and schedule those expenditures so they don't all occur at once. For example, property tax burden could be lower in a given year if certain expenditures could be postponed to another year. While the CIP can be used by the Orland Selectmen and budget committee in planning the annual budget, the final say on all appropriations remains with the citizens voting at Town meeting.

Table L - 3: Orland Capital Investment Plan

Summary of Proposed Capital Projects, 2022-2027*							
	2022	2023	2024	2025	2026	2027	Method of Financing
Community Ctr parking lot repaved	\$20,000	\$10,000		\$30,000			1, 3
Community Ctr roof replacemt-3 phases	\$34,000		\$34,000		\$34,000		1, 3
Transfer Station - Equip Replacement	\$10,000		\$10,000		\$10,000		1
Replace or repair Fire Station		\$3,500,000					1, 2, 3, 4, 5, 6
Town Office roof				\$8,000			1,3
TOTAL:	\$64,000	\$3,510,000	\$44,000	\$38,000	\$44,000	\$0	

*NOTE: This list of expenditures is non-binding and all items require voter approval at Town Meeting.

Key to Cost Estimates/Financing:

1. Local revenues
2. Local or low-interest loan, matching grant monies, if available
3. Capital reserve
4. State funds with local match, cost and date not presently known
5. May be supplemented by state matching grants for specific project, if such monies are available
6. State grant monies should cover this expenditure, the actual date would be contingent upon state funding priorities
7. Cost not presently known

Any future capital investments would be funded through the Town Capital Reserve Account (\$269,645 in 2020), Bond Bank financing, bank financing, state fund matches or grants, or the Town Unassigned Fund Balance (\$1,717,452 in 2020).

6. Goals & Objectives

The Town desires to promote long-range fiscal planning and avoid unnecessary increases in property taxes on a limited tax base. Specific fiscal policies are divided into three categories: development review, alternative funding sources, and fiscal planning.

Goal 1: Review of any development is necessary to ascertain volume and location of development due to the direct effect on the costs of providing municipal services.

Objective A: Discourage major residential subdivision that would create excessive demands for Town services while generating relatively little tax revenue.

Objective B: Encourage phased approval of major subdivisions that may place substantial burdens on Town services. This may involve approving a portion of lots in a given year so that the Town has time to expand services in an orderly manner.

Objective C: Require fiscal impact statements be prepared for those subdivisions that may create a major strain on Town finances.

Strategies:

- I. Accomplish through Subdivision Ordinance updates.

Responsibility & Time frame: Selectmen and/or Planning Board. Within 3 years of Plan adoption and ongoing.

Goal 2: Develop alternative funding sources other than property tax, which is used to pay for most of the municipal service costs.

Objective A: Consider the use of impact fees to pay for appropriate costs specifically attributable to new development.

Strategies:

- I. Accomplish through existing ordinance updates, which could include impact fees.

Responsibility & Time frame: Planning Board at the direction of Selectmen. Within 3 years of plan adoption and ongoing.

Objective B: Consider charging user fees for certain Town services if proven equitable for all parties involved.

Strategies:

- I. Determine user fees on a case-by-case basis.

Responsibility/Time frame: Selectmen and Town departments on case-by-case basis.

Objective C: Actively seek local, county, state and federal and other grants to pay for at least a portion of the cost of new capital facilities. Such projects should be listed in the capital investment plan.

Strategies:

- I. Identify grant funding sources from local, state, or national organizations and or government bodies.

Responsibility & Time frame: Selectmen and/or designee, Town departments. Ongoing.

Goal 3: Maintain long-range fiscal planning and coordination of expenditures as one way to minimize increases in municipal government costs.

Objective A: Explore options for shared municipal services with neighboring towns. In some cases this may mean reviewing existing shared service agreements.

Strategies:

- I. Contact counterparts in adjoining towns to discuss possible arrangements or review existing ones.

Responsibility & Time frame: Selectmen. Annual or bi-annual basis.

Objective B: Maintain a Capital Investment Plan (CIP) that would be revised annually or bi-annually. The CIP would be an advisory document which would summarize planned major capital expenditures in Orland over a 6-year period. The final approval on all expenditures would remain with the voters at the Town Meeting.

Strategies:

- I. A current 6-year CIP is included in this Fiscal Capacity chapter.

Responsibility & Time frame: Selectmen inquire of Town Departments, Boards, and committees. Annual or bi-annual basis to update the CIP.

Objective C: Continue to use capital reserve accounts so that funds can be accumulated for anticipated capital expenditures and for the local funding match for various local, county, state, federal or other grants.

Strategies:

- I. Capital reserve accounts are determined during town budgeting process and approved by voters at annual Town Meeting.

Responsibility & Time frame: Selectmen in conjunction with Town Treasurer. Annually.

Chapter M: Current Land Use

1. Purpose

Knowing Orland's land use patterns of the past two decades is central to constructing a comprehensive plan because they incorporate the facets of each of the chapters in the plan. Like using our personal life's experience to responsibly shape our positive future activities, accurately identifying Orland's past and current land use patterns will enable the creation of a practical *future land use plan*.

This section aims to:

- a) Summarize the breakdown of developed and undeveloped land in terms of estimated acreage and location;
- b) Discuss major changes in Orland's land-use patterns and how such changes may impact future land uses; and
- c) Identify land area suitable and sustainable for the likely growth over the next ten years.

2. Key Findings & Issues from 1998

Orland has nearly 28,332 acres of vacant land or approximately 96% of its total land area. About half of the total land area has soils that either have low potential or very low potential for low-density development. There is still, however, ample vacant land with soils well suited for development. Orland thus has an opportunity to grow while still retaining its rural character. About 4800 acres have prime agricultural soil. At present, Orland offers no management protection of its agricultural resources.

Given a projected relatively slow growth rate over the next ten years just under 400 additional acres is likely to be converted to developed uses by 2008. The challenge Orland faces is thus not the volume of new development but how and where it will occur. Specifically, Orland will need to address how it wishes to deal with additional commercial development, conversion of farmland to other uses and the nature of new residential development.

3. Key Findings & Issues for Current Plan

Orland's total square mileage is 52.87 of which 47.04 is land and 5.83 is water bodies in the form of rivers, lakes, ponds and streams. At 640 acres per square mile the total acreage is 33,836.8, of which the land totals 30,105.6 acres and water bodies total 3731.2 acres.

As noted in the Agriculture and Forest Resources chapter, in 1998 the forest acreage in the state tree growth program was decreasing. Today 82 parcels totaling 10,401 acres are enrolled in the program including 4630 conserved acres of Great Pond Mountain Conservation Trust lands (GPMCT). Five parcels were enrolled in farmland tax status (260 acres as of April 1, 2016 with Blue Hill Heritage Trust responsible for having conserved another 186 acres of farmland along Front Ridge Road. It is notable that the Route 15 corridor contains most of the prime agricultural soil in Hancock County but just 2.3% of all the County's soils.

4. Public Opinion Survey

Asked to identify Orland's greatest assets, 78.1% cited the town's quiet rural character, 71.6% the GPMCT Wildlands and 70.7% the seven healthy lakes. Its central proximity to Bangor, Ellsworth, Belfast and the Blue Hill Peninsula was cited favorably by 72.1%

Respondents were strongly supportive of conserving nine varieties of natural and historical resources in percentages from 75.4% to 90.1%. The list ranged from "Agricultural land" to "Working forest land, and included "Historically significant buildings and sites". For example, 90.1% supported conserving drinking water aquifers, 86.9% important wildlife habitat, 84.7% significant wetlands. The smallest percentage, 75.4%, supported conservation of "Undeveloped shore frontage". Interestingly, 74.7% supported protection of all the entities on that list by ordinance with 68.6% supporting "Voluntary conservation easement or purchase by a land trust" and 55.2% supporting a "Voluntary conservation easement or purchase by the Town". This appears to be at least a greater inclination toward protection via ordinances than a response to a similar question (#7) in 1998.

In general, 79.3% of the respondents are in favor of an ordinance designating certain appropriate areas for development (Question #4) compared to 19% in 1998. And 63.9% favored residential development to be "Anywhere in town" (59% in 1998) with much smaller percentages (23% or less) favoring this option for all categories of development. As to whether "the Town" should take measures to encourage certain types of housing (Question #1) 75% supported "senior or retirement housing" and 57.7% favored "Affordable housing".

While 33% or less favored "multi-family and apartment housing", 52.7% favored encouraging "Affordable rental opportunities (Question #2), and 75.2% said "yes" to encouraging "First time buying opportunities", which can be linked to affordable housing.

i. Neighborhood Visioning Sessions - Comments Re: Land Use

There were four public Neighborhood Visioning Sessions held at which participants raised similar concerns to those covered in the survey; they also identified other important realities. The responses to "What we love about Orland" included affordability, open spaces, scenic views, and overall beauty. Protecting and nurturing these assets are aligned with the majority of the survey responses.

Participants also raised concerns about housing encroaching on and replacing valuable farmland; supporting family farms as part of Orland's legacy was identified as a need. Closely related was the desire not to lose Orland's rural character. Concern over the growth of homelessness was also expressed.

5. Current Land Use

Orland is still a predominantly rural town with 30,106 acres of actual land and approximately 1416 year-round and seasonal residences according to Tax Assessor analysis. Given that many homes are built on larger lots, the average of one acre per residence is used since there could be further subdivisions of the larger lots. Using one acre per dwelling, approximately 4.7% is in residential usage – an increase of just over 1% since 1998. Another standard is used for each of the other categories.

Public and Semi-Public land represents the *actual* acreage owned by each entity. Commercial and Industrial entities represent the amount of actual acreage *needed* within each category in order to maintain their intended function and not necessarily the entire parcel acreage upon which they are located.

Home-based businesses – approximately 66 – are not included since their acreage is already counted in 'Residential' usage. All other land in town is considered undeveloped including land held in tree growth, farm, and open space taxation since this land is not considered permanently restricted from development.

Definition Notes:

1. Commercial usage: Any non-home-based activity carried out for pecuniary gain.
2. Public usage: The tax-exempt acreage under public ownership (town, state, federal).
3. Semi-public usage: Tax exempt acreage owned by churches, non-profits, or benevolent entities.
4. Industrial usage: Land used for industrial purposes, i.e., manufacturing a product.

Table M - 1: Existing Land Use – 2019

Category	One Acre Per Building	Percent of Land Area
Year Round Residential		
Single Family	882	.029
Mobile Homes	178	.006
Multi Family	15	.001
TOTAL YEAR ROUND	1,075	.04
Seasonal Residential		
Single Family	337	.01
Mobile Homes	4	.0001
TOTAL SEASONAL	341	.01
TOTAL RESIDENTIAL	1,416	
	A net gain of 384 from 1998 1,032	
Other land uses		
Commercial	132 ac	.004
Public (Actual acreage)	215 ac	(64.77 Municipal + 134 U.S. National Fish Hatchery + 15.94 State of Maine) .007
Semi-Public	44 ac	.001
Industrial	18 ac	.0001
TOTAL OTHER LAND USES	409 ac	.01
TOTAL DEVELOPED LAND	1825 ac	.01
UNDEVELOPED LAND	28281 ac	.94
TOTAL LAND AREA	30,106 ac	100.00%

Sources: Assessor's analysis from residential tax records, Comp. Plan. Committee survey of Tax Maps, Satellite images, and Existing Businesses survey. Assessor's analysis shows other building types as follows: Commercial - 68, Public - 11, Semi-Public - 6, Industrial - 4.

Based upon mapping numbers by the Assessor's office in Table M - 2 below, there has been a net gain of tax parcels with buildings between 2005 and 2019. Earlier numbers in Table M - 3 from 1998 to 2005 were unattainable.

Table M - 2: Tax Parcels with Buildings

Year	Parcels With Buildings	Land Only Parcels
2005	1330	751
2019	1454	629
Total	+124	-122

Source: Assessors Office Mapping and Planning Board Records

Table M - 3 : Status of Approved Subdivision Lots

Year	Subdivisions Approved	Lots Approved	Lots Built
1990 -1997	4	12	9
1998 - 2018	11	?	?

Source: Assessors Office Mapping and Planning Board Records

i. Land Use Patterns

Land use patterns in a town evolve over the years. Since the 1998 comprehensive plan there have been positive changes such as the formation of the Wildlands property owned by the GPMCT. Thus far there have not been any outstanding influences that have tended to diminish the town's rural character nor its potential for orderly growth in a significant way. Those goals, supported in the 1998 plan, remain important to the public as indicated in the 2016 survey. Most importantly, with proper planning and enlistment of public support, they are doable. The committee has tried to identify both potential and existing problems and incorporated them in its analysis.

ii. Orland's Water Resources

There are 12 great ponds whose watersheds lie within at least a portion of Orland. Craig, Heart, and Little Ponds have watersheds that lie entirely within Orland's boundaries. Of the twelve bodies of water, six are located entirely within Orland's boundaries and substantial portions of two others lie within Orland. The two that do not are Upper Patten Pond and Toddy Pond.

Upper Patten Pond is the distinct western segment of the larger Patten Pond. Upper Patten Pond is located just south of Route 1 near the Ellsworth line. The northern section of Toddy Pond, essentially an elongated man-made pond, is located in south central Orland. The middle and southern portions lie within the towns of Penobscot, Surry and Blue Hill.

The locations of the remaining six bodies of water are as follows: Alamoosook Lake is in west central Orland, Heart Pond central, Craig Pond north central, Rocky Pond far northeast central next to Ellsworth, Hothole Pond far north central and Little Pond southwest Orland east of Gilpin Road.

All these water bodies receive protection directly from the Shoreland Zoning Ordinance and some protection indirectly from other ordinances such as the Subdivision Ordinance because they all refer to some protection of the environmental surroundings and wildlife habitat as part of their "Purpose".

A long-term threat to water quality is poorly planned development in watershed areas and excessive timber harvesting. Fortunately, the latter threat has been greatly mitigated by the purchase of *The Wildlands* area in the Alamoosook Lake, Hothole Pond, and Craig Pond watersheds by the GPMCT.

Potentially problematic is that Bucksport Mill LLC, under the corporate umbrella of American Iron and Metal (AIM) purchasers of the Verso paper mill property, not only retains ownership of the water rights in the watershed involving Toddy Pond, Alamoosook Lake and Silver Lake and the Narramissic River but also the dams on these waterbodies except for the Orland Village dam. If those rights were sold, it could negatively affect the quality of life for Orland and that of the other stakeholder towns that border Toddy Pond. This suggests a need to work with neighboring towns to protect our joint quality of life.

To properly address the safeguarding of these resources recognition is needed that *there is little resource protection zoning outside of the shoreland areas*. We have only the subdivision review zoning - which offers little phosphorous overloading protection - and the state mandated shoreland zoning.

iii. Major Orland Highways

Routes 1 & 3 (Bucksport Road)

There have been relatively few changes in development since 1998 along the Orland portion of Route 1 & 3, which extends from where State Route 46 intersects with Route 1 & 3 next to Hammond Lumber (formerly EBS Lumber) to just west of the Chicken Barn book and antiques store in Ellsworth just over the town line. One of the few changes is the addition of the Tradewinds convenience store in the angle formed by State Route 46 and Route 1 & 3.

From that intersection to roughly Gray Meadow Road it is under MaineDOT Access Control designation as is the portion from Route 176 (Surry Rd.) to the Orland/Ellsworth line. This means that if additional access points are requested approval has to be obtained from MaineDOT.

Moving east a few hundred feet beyond the Big Apple store there is Pen Bay Marine Services on the north side. Just beyond that on the north side is a post 1998 subdivision. Another small post 1998 subdivision is located on the south side bordering the northern tip of Toddy Pond and just beyond the Pine Shore Motel and across from radio station WERU. Except for an Antique/gift shop on the north side, from there to the Orland/Ellsworth town line there are mostly areas of either forest or commercial blueberry fields.

Three of the four “Gates” to the GPMCT Wildlands can be reached via roads off Route 1. One of these gates, the South Gate, is on the north side of the highway just before the Surry Road (SR176). The general appearance of Route 1 from SR 46 to the Ellsworth line remains rural and free of the over commercialized development seen elsewhere on that highway. There are also scenic spots along the stretch; one is from the Rte. 1 bridge over the Narramissic River where a traveler sees a lovely New England village to the south and a bucolic river to the north all enhanced throughout the year by the seasonal changes to the landscape.

As noted in the 1998 plan, however, increased (and unregulated) development may mean traffic congestion and a loss of rural character. Preserving that rural character is an ideal the public has strongly and consistently supported since 1998.

Route 15 (Front Ridge Road)

Along the entire length of the Route 15 corridor from Blue Hill to Route 1 in Orland lies most of the prime agricultural soil in Hancock County - a mere 2.3% of all the county's soil according to the Natural Resources Council of Maine including farmland of statewide importance. As of 2016 there were Orland parcels totaling 260 acres enrolled in Farmland tax status; there were none enrolled in 1998. One major farming operation on the highway is Allen's Blueberry plant. The rest are smaller operations. Notably, the prime farmland also runs northward from Route 15 along most of Back Ridge Road. It is the only road that connects Route 15 to Route 1 between Blue Hill and the junction of Routes 15 and 1 at the Big Apple store.

Importantly for the future of this agricultural corridor, two factors are favorable for its conservation: 1) Eighty% of survey respondents favored conservation of agricultural land, 2) There has been relatively little development along the corridor. But, Route 15 is the main connecting highway to Blue Hill and Deer Isle from Route 1 & 3 and Orland. At some point in the future the corridor may face pressure to develop if the region becomes a more attractive place to live.

Route 166 (Castine Road)

As noted in the 1998 Plan, there has been development along the Castine Road, but as of 2018 there were no approved subdivisions. This had been a concern in 1998. The residences are not spaced closely together as in a suburban complex except closer to Orland's village. There are some open areas remaining on both sides, with the west side (Penobscot River side) having a few that offer scenic views of the Penobscot River as it begins to broaden out to the sea.

Immediately along the river a soils map shows soils that range from "very low potential" to "low potential" for development. Closer to the Town of Penobscot line there is a narrow irregular shaped band that has "medium potential". For a much larger and mostly undeveloped region to the east of the road the soils are rated low to very low for development as is much of Orland. Most of the areas with soil potential for "high" development tend to lie in the southeast central region on both sides of Toddy Pond and bordering the Town of Penobscot.

Another related factor that may constrain development is that along the entire Orland stretch of Route 166 the soils are rated *highly erodible* for slopes greater than 15% and for less than 15%. The one element that could induce some development is that there is the potential for sand and gravel aquifers.

In recent years excessive traffic speed has emerged as a serious problem along the entire road but particularly through Orland Village. For those who live, work, or are vacationing in that southernmost part of Hancock County, the Castine Road is the major connecting link.

iv. Recreation/Conservation Areas

Great Pond Mountain Conservation Trust's Wildlands

The Wildlands area totals 4,645.2 acres according to a report sent to the OCPC by Executive Director Landon Fake (2/26/20), which also indicated the Trust's interest in expanding by acquiring properties appropriate for conservation. They are currently attempting to protect the Hothole Stream and its tributaries and restore the wildlife habitat and trout fishery that existed before the late 1990's. He noted that aggressive tree harvesting by abutting landowners jeopardizes this effort by not using 'Best Management Practices'. The Wildlands has become an important local and regional source of recreation along with habitat and wildlife protection and enhancement.

v. Water Bodies

Orland's freshwater bodies are in good condition with none rated poorly. This elevates the importance of protecting them not only for their ecological and quality of life importance, but for recreational and economic purposes. The entire stretch of the Narramissic-Orland River from Upper Falls Rd. to below the dam has potential for recreation in addition to that cited in the Village Waterfront plan.

vi. Hunting

Orland retains, as it did in 1998, a large amount of undeveloped land at 28,281 acres. Even with considerations like owner permission, this large amount offers adequate to good hunting possibilities as recreation.

Conclusion

Protecting and enhancing these areas of recreation and conservation is an important piece of Orland's future both economically and in quality of life. That may necessitate reviewing and, where necessary,

strengthening or even adding Town ordinances so the proper tools are available to accomplish the goals indicated by the public survey

vii. Residential and Commercial Development & Recent Changes

As of 2019 Orland is rated by the Maine Housing Authority as having the second most affordable housing in Hancock County with an affordability index of 1.50. The index is the ratio of Home Price Affordable at Median Income to Median Home Price. An index of *less than one* means the area is generally unaffordable. For the past 10 years Orland has been consistently rated well over 1.00. Given its attractiveness as a central location to larger, commercially important communities in addition to its natural and recreational resources, Orland certainly has the potential for growth. But, for the same reasons, its continued housing affordability cannot be taken for granted due to a recent, still unclear pattern of unexpected in-migration to Maine. Ways by which Orland may have to address a possible increased growth rate and development while maintaining its cherished characteristics is discussed in section “L” below.

The land’s potential for future commercial and residential development can be *roughly* assessed in Table M - 4 data below. However, soils alone are not a determinate of development suitability but a starting point. As previously noted, Orland’s drinking water resources are more than adequate for low to moderate growth rate.

Table M - 4: Orland’s Generalized Soil Potential Ratings for Low-Density Development

Category	Estimated Acreage	Percent
Very low potential	7,814	27%
Low Potential	7,994	27%
Medium Potential	8,398	29%
High Potential	5,116	17%
Very High Potential	0%	0%
Total Land Area Acres	29,332	100%
<i>Sources: Natural Resources Conservation Service and the Main Office of GIS</i>		

Note: Generalized soils surveys are considered accurate for parcels greater than 5 acres. A detailed soil survey is needed whenever assessing for site-specific problems on smaller parcels. Orland is covered by three general soil types as indicated on the color-coded General Soils Map #5 from the Planning Board files. There are many minor soil combinations within each coded area that can modify characteristics of the general soils.

viii. Orland Village

The *Village & Waterfront Plan* was completed in 2017 and lays out goals, objectives and strategies. The planning committee based its recommendations upon a thorough study of the Village’s assets and negatives. Their conclusions are summarized as follows:

1. Waterfront Access

From in-person interviews and survey responses the Narramissic River is a source of enjoyment to many local residents. The attractions range from fishing, boating, and watching for wildlife drawn to the river. The annual “Orland River Day” has become a popular community event.

Issues:

- a) Boating access is limited to either an informal approach over privately owned waterfront property or some Town owned property along Narramissic Drive.
- b) There is no formal reinforced boat launching facility constructed on the Town owned waterfront.
- c) The space between Narramissic Drive and the water is limited as is parking.
- d) Public access to the site of the dam off Fish Point Rd. is discouraged.

The public has indicated they want greater access and listed their preferences in the following order:

- a) A walking path along the Narramissic River
- b) A public park by the dam site
- c) Wildlife watching opportunities
- d) An improved hand-carry boat launch

More than half indicated they'd support a walking path by the river and a public park by the dam site through increased taxes as did 33% who supported a trailered boat launch. Additional waterfront parcels may become available but would need a town supported plan to acquire them. There are several state and federal agencies and possibly a land trust partnership that could serve as possible financial means for acquisition.

2. Bicycle and Pedestrian Safety

Providing for a safe environment for pedestrians and bicyclists in the village area is important. It reduces the need for vehicle navigation thereby traffic load and parking demand. Bicycle and pedestrian friendly towns stimulate economic development. The issues are:

- a) There is only one sidewalk, which spans only the Castine Road bridge over the river.
 - i. Through traffic to and from Castine tends toward speeds incompatible with the old village layout.
- b) Road shoulders in most of the Village are too narrow.

There are state and private agencies that could be utilized for planning safer biking and pedestrian usage.

3. Conclusion:

The *Village and Waterfront Plan*, if implemented, could make the Village an economic magnet by its potential to both attract visitors as a place to live, or our young people to remain. For some, it may lead to starting a business. Importantly, the Plan emphasizes forming a "Village Enhancement Group" to implement goals and strategies.

ix. Projected Residential, Commercial, and Industrial Development

1. Background

Residential - Residential buildings have increased by approximately 384 since 1998. Most of these are located outside of what the 1998 Future land Use Map designated as the "Village District". The majority of new construction has occurred along the existing highway system, the exception being those on lake and pond access roads and in the fifteen approved subdivisions.

As of 2019 Orland's population projection based upon the 2010 U.S. census still shows a continuing decline (6%) from 2157 in 2021 to 2028 in 2036. Hancock County shows a decline from 54,588 in 2021 to 54,152 in 2036. The 2020 Census shows a decline of only one person in Orland from 2,225 to 2,224, which at this early juncture does not necessarily negate the previous population projections; the same holds true for Hancock County. The entire projection for the state for that time period remains nearly stagnant with an increase of only 2038 from 1,335,260 to 1,337,568. (Source: Maine Dept. of Administrative and Financial Services – Economist).

Notably, these figures are constructed by an algorithmic formula with a margin of error and are not predictive of influences that might crop up to reverse these projections. Currently, we may be facing such an influence as indicated by increased in-migration from other states inferred in part by sharply rising real estate prices and sales between October 2019 and October 2020.

Commercial - Commercial activity has been relatively stable. There has been the addition of one more convenience store (Tradewinds), Ellsworth Building Supply (EBS) was bought out by Hammond Lumber, and a few village businesses have closed. Key businesses in the 1998 plan's designated industrial district (the Route 1 & 3, Route 46, Wardwell Road triangle) remain, though the seven acre Eastman's Garage parcel is for sale as commercial property. In 2021 Sandy's Saloon, a restaurant and social event establishment was constructed on the eastern point of the industrial triangle where Wardwell Road and Route 1 & 3 intersect. In the same year, Fox Forestry opened for business in a new location on Acadia Highway as Fox Holdings, LLC selling forestry equipment and services. As previously cited, the Community Center hosts rents space to as many as fourteen small businesses.

The motives for the above noted (thus far small) in-migration are not yet adequately defined. They may range from escaping the coronavirus pandemic, or hoping to enjoy Maine's quality of life assets and relative uncrowdedness. Whatever the impetus, in-migration is increasing and to ignore it as a potential influence in Orland will be at our peril when the need to plan for the future is considered.

A spillover into our immediate region, while not a certainty, is not an unreasonable expectation. We have already seen growing interest in greater Bucksport by those off-put by the increased costs of living in the Belfast area. Orland is in many ways the epitome of what out-of-staters and open-spacers envision when they think of small-town rural Maine.

Industrial – The industrial picture also remains the same. Freshwater Stone and Wardwell and Sons operate year-round. GM Allen and Sons operate seasonally from its Route 15 warehouse. As with population projections, Orland's centrality to important commercial centers, and its natural and physical resources, industrial uses may change.

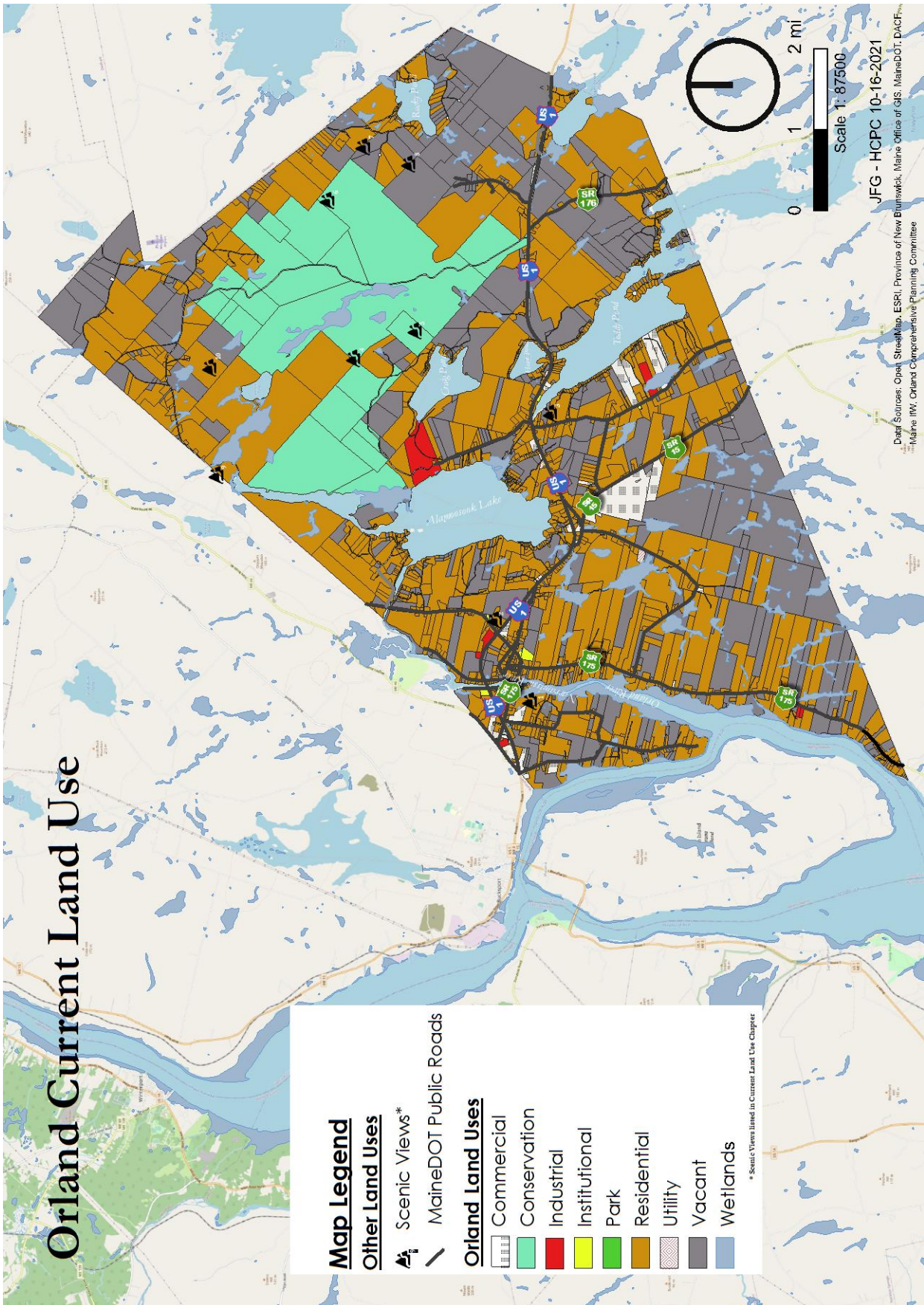
2. Planning Future Residential and Commercial Development

Overview - The people of Orland can and do take pride in their sense of community and place, no matter their chosen profession, including retirees. This positive outlook was displayed in both the 2016 survey and visioning sessions. They clearly indicated a desire to conserve as much as possible of their Town's treasured resources including its lakes, ponds, farm and forest lands and the Village itself. But, constructing a workable plan must result from a cooperative venture between the planners and the Town's residents. That will necessarily entail borrowing and adapting the best ideas and experiences found in planning literature and from innovative ideas that will arise from Orland's people.

Residential & Commercial Development: Balancing Growth and Rural Quality of Life
Guiding Sustainable Development in Orland

- a) Create a Village specific ordinance based in part upon the *Village & Waterfront Plan* to aid and guide residential and unobtrusive commercial development in and around the Village that would both maintain its historical small-town Maine/ New England character and attractiveness and help prevent a suburban type sprawl by encouraging people to live in its compact area.
- b) Develop an ordinance to encourage farmers in the Front Ridge Road and Back Ridge Road farming corridor and owners of large forest tracts to voluntarily join in land preservation plans such as conservation easements, selling development rights, or agreeing to only allow one residential cluster development per X amount of acreage owned (Example: 200 acres owned then one cluster type development of 10 houses concentrated on a 20 acre parcel).
- c) Create an ordinance to encourage a *Rural by Design*-like development plan.
- d) Create an ordinance to guide the design and setting requirements of future commercial buildings in the existing “Industrial Districts” and in locations as may be decided are appropriate to an area.
- e) Establish a permanent independent, unpaid Comprehensive Plan Town Board that will propose Plan priorities and propose modifications when necessary to the approved Comprehensive Plan. The Board would also have the authority to review and approve any volunteer citizen proposal to fulfill any aspects of the Plan, provide necessary oversight and guidance to ensure the proposals are in compliance with the Plan’s intent. The intent of this Board is to keep the Plan relevant to any challenges faced by the community.

Map M - 1: Orland Current Land Use (Following Page)



6. Goals & Objectives

Clearly, over the past 23 years since the 1998 Comprehensive Plan was accepted, Orland residents have not changed in their desire for Orland to retain its rural, small-town character and its natural and historical treasures.

Since 1998 we have become increasingly aware of the fragility of our earthly surroundings and our quality of life here. Whether it's the climate, water quality, native vegetation and animals, shore land, farmland, our historical heritage sites, or the irreplaceable archeological legacy of the peoples that inhabited the land before Europeans settled here – our local portion of the earth called Orland needs our constant, caring help to be what we want it to be.

Goal 1: Ensure that relevant components of the Comprehensive Plan and land use goals are implemented when feasible.

Objective A: Organize and collaborate on priorities identified in the Comprehensive Plan, based on current Town needs and citizen input for implementation of goals and objectives, to keep our Comprehensive Plan continually relevant and ensure that the Comprehensive Plan is consulted regularly before decisions are made or ordinances or policies are revised or new ones adopted.

Strategies:

- I. Establish an advisory oversight committee called the Comprehensive Plan Implementation Advisory Committee appointed by the Board of Selectmen (BOS) with staggered 2 - 3 year terms. In addition, there would be two non-voting advisors – one Selectman and one Planning Board member.

Responsibilities and Duties:

1. Meet quarterly and more if necessary.
2. Review and advise resident proposals to act upon the Plan's G & O's.
3. Review draft proposals for presentation to the BOS for a final approval.
4. Publicize and encourage public attendance and comment at meetings.
5. File annual reports to the BOS and for the Annual Town Report.
6. Survey citizens periodically and track probable updates timeline for a future Comprehensive Plan revision.

Responsibility & Time frame: Selectmen or designee(s), ongoing.

Goal 2: Identify land areas best suited for particular uses based upon needs and community's vision for Orland's character.

Objective A: Establish locations best suited for particular usage such as residential, industrial and commercial.

Strategies:

- I. Determine the locations and capacities for each type of usage based on future land use map and other maps within this Comprehensive Plan.
- II. Assess how each individual use would impact Orland's small town rural character and protect our documented resources.

Responsibility & Time frame: Selectmen or designee(s). Within 2 years of Plan adoption.

Goal 3: Review the Subdivision Ordinance to ensure that it permits alternative/conservation subdivision proposals or plans.

Objective A: Avoid or minimize the chance of “sprawl”.

Strategies:

- I. Consult with the Hancock County Planning Commission to study and propose housing development design configurations that would interface optimally with Orland’s goals of preserving its small town rural character and its documented resources.
- II. Update Subdivision Ordinance if needed.

Responsibility & Time frame: Selectmen or designee(s), Planning Board. Within 2 years of Plan adoption.

Goal 4: Establish and appoint members to the Village and Waterfront Committee as recommended by the *Village & Waterfront Plan*.

Objective A: Recognize the Village and its waterfront as one of the keys to Orland’s economic growth.

Strategies:

- I. Follow the goals, objectives and strategies recommended in the *Village & Waterfront Plan*.

Responsibility & Time frame: Selectmen or designee(s). Within 2 years of Plan adoption.

Chapter N: Future Land Use

1. Purpose

In Maine we are blessed with an abundance of space. To date, there is enough land to hold us. How long this will remain the case should be a question that residents think about as our cities, towns and villages deal with changing times in the United States. This Future Land Use Plan proposes a pattern of growth that aligns with local priorities and desires, such as retaining the quiet rural character of Orland, and factors in environmental constraints of the land itself. This plan allows for future residential and commercial development, while not placing undue burdens on taxpayers and the local environment. Specifically, this section will:

- a) Estimate the total land area required for future growth;
- b) Propose future development scenarios for Orland; and
- c) Identify which areas of Orland are best suited for development, and which areas should remain rural.

2. Land Area Identified with Potential for Development

A total area of 400 acres is conservatively projected for new residential development from the Current Land Use chapter. This is development that may occur over the period between 2020 - 2030. Orland's soil quality ratings, as it pertains to construction, has 3,146 acres of suitable soil conditions. In many cases, the soil types that are best suited for construction are also those that are defined as having important agricultural qualities. While the rate of growth is projected to be relatively slow, soil conditions remain an important factor in determining where to locate future development.

3. Orland's Proposed Future Development Plan

There will likely be little changes in development patterns in Orland. The shoreline and major transportation routes will continue to attract more development than the large interior of the peninsula that is home to Orland. This future proposed development plan, as seen in the Proposed Land Use Map, is merely a suggestion as to how Orland should grow in the next ten years. This plan has no legal binding or regulatory impact on landowners. Should the Town choose to revise or adopt new land use ordinances, they will be based upon the recommendations within this plan. Remember, any changes to land use ordinances require a Town vote, which is separate from a Town vote to adopt a Comprehensive Plan. This plan is a guiding document and has no legal authority. Towns need comprehensive plans to access federal, state and private funding to support infrastructure improvements and economic development, and also help guide decisions based upon a democratic process of public input and engagement. The following is a detailed guideline for development in Orland.

A) The Historic Village and Waterfront District

Incentivizing development near or within the historic Village will minimize suburban-style sprawl and also reduce costs on the municipality in providing essential services further from population centers. Furthermore, it will increase the density required for certain business types such as cafes, diners, yoga studios, etc., and provide greater small town life social interaction. To this end, encouraging mixed-use developments would be well suited to this area, with residential, retail and non-industrial commercial activities – keeping with the historic context of vibrant downtowns and community centers.

B) The Coast, Rivers and Lakes

Orland adheres to the State minimums of the Shoreland Zoning Ordinance. This area attracts residential development due to its proximity to the water. Continued development within the shorelines and riparian areas of Orland, along with extreme weather events, will impact the coastal environment and vital habitats. Erosion, non-point source pollution, overland flow, run-off pollution and decreased access by the public to the shoreline and vital intertidal regions, are all associated with heavy development along the coast. For specific areas of ecological importance, the Town should consider increasing Shoreland Zoning requirements beyond the State minimums and assessing what areas are vital to protect.

C) Industrial/Commercial Area

Orland does not have what is called Euclidean Zoning, which designates certain land uses and development patterns to specific areas to avoid negative impacts on human health by industrial activities, and also provide the sense of community that comes with residential neighborhoods. Aside from the restrictions in the Site Plan Review Ordinance and Shoreland Zoning Ordinance, any commercial or industrial activity can occur anywhere within Orland. Building permits are required for commercial and industrial activities and neighboring properties affected by the proposed development are notified by mail and may bring concerns before the Planning Board. All State standards are followed in the permit application review process.

D) Resource Protection District

The majority of Orland's sensitive habitats and land areas currently falls under the State of Maine's Shoreland Zoning Ordinance, which Orland is required to adhere to and also enforce. This plan suggests the Town adopt Limited Residential (LR) zones along the shorelines (such as the shoreline of Alamoosook Lake) where residential development has already occurred and change certain areas designated LR to Resource Protection (RP) following properties that have since moved into conservation easement status since the 1998 Comprehensive Plan. This would require notifying Maine DEP and residents of an intent to change the Shoreland Zoning Map, and then holding a Town vote. These changes would ensure vital shorelands and riparian habitats are further protected, while not limiting residential growth in areas where growth is already occurring.

4. Growth & Rural Areas

A comprehensive plan must identify growth and rural areas as locations where the majority of future development may occur and what areas are to be conserved. Orland's growth areas are identified based upon their existing land use patterns of higher density, proximity to services, neighborhood character, and the transportation system. These areas are kept within a certain dimension to foster increased density and reduce impacts on the environment and cost burden on the municipality, via tax payers, in extending services further from population areas.

The justification for selecting these areas is not only based upon mitigating impacts on tax-payers and the environment, but also economic as well. Randall Arendt, a landscape architect and planner, has researched the landscape patterns of small New England villages and provided modern development plans for historically based subdivision designs. The result is a development pattern that is denser, and closer to existing areas of habitation and development, but also has higher resale values. Many persons are seeking rural Maine for retirement homes as well. The pattern of development associated with *Rural by Design* is

also more supportive to residents staying at home longer. Humans are social creatures and this type of development fosters social interaction and community health.

Figure N - 1: Rural by Design vs Conventional Subdivision

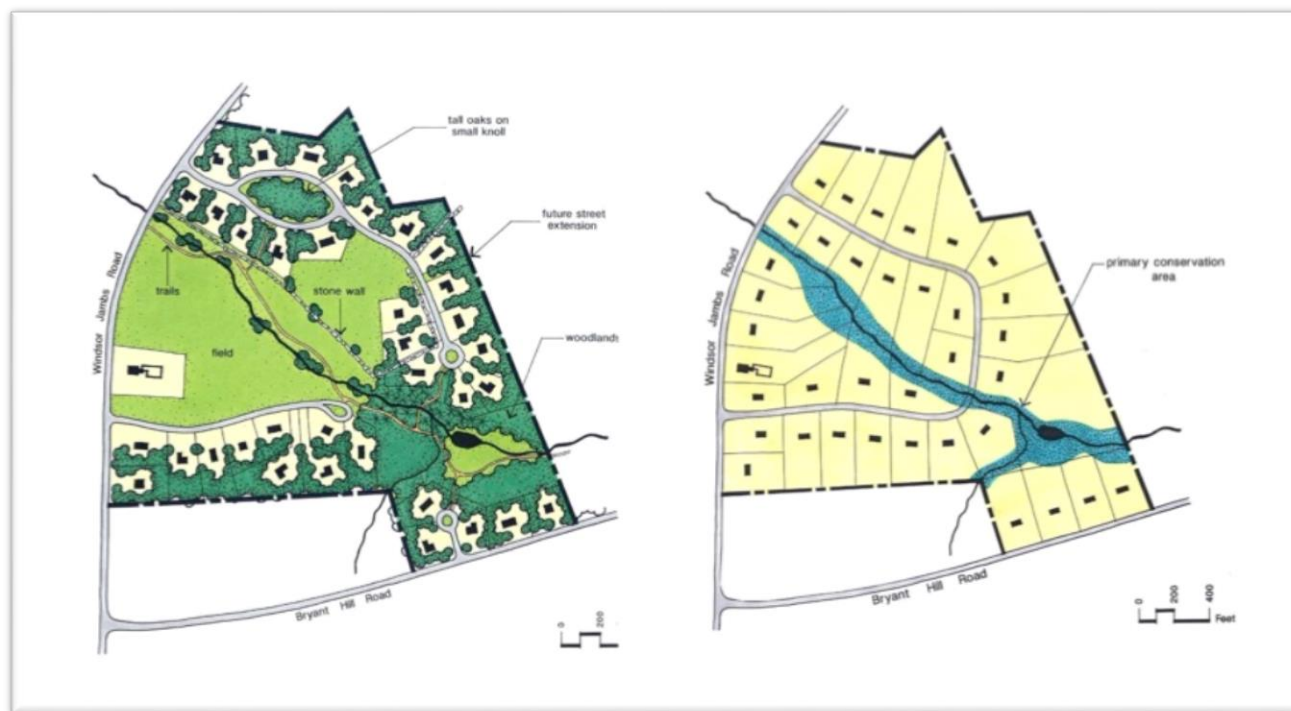


Image Source: University of Connecticut, Stonewall Initiative – Description, (L) Rural by Design example, (R) Conventional Sub-Division.

Both the 1998 Comprehensive Plan public opinion survey and the 2016 public opinion survey showed a majority of residents favored retaining Orland’s rural character. The development patterns that result from *Rural by Design* are more in keeping with public preference. Conventional subdivisions, whether planned or arising over time one property at a time, do not align with the public’s vision for future development. The example on the left in Figure N – 1, accomplishes two goals, allowing for maximum development, while maintaining the majority’s desire to protect what they value about Orland – a rural town. The example on the right reflects the types of suburban sprawl associated with larger cities.

Description of Proposed Growth Areas:

This Comprehensive Plan proposes three growth areas located at Orland’s Historic Village and Waterfront, Leaches Point and State Route 15 corridor. These locations are chosen based upon a methodology that factors their respective sizes, site conditions such as soil, proximity to transportation and municipal services and density.

The three growth areas contain nearly 2,650 acres of developable land. There are currently over 100 structures located within these areas, which would leave 2,550 acres, based upon the 1998 Comprehensive Plan analysis. The analysis also makes a conservative estimate that of the total land area, 3,416 acres would be suitable for development. This exceeds the 400 acres needed over the next decade, however, it would allow for development pressures to be limited on sensitive areas of town. Furthermore,

due to advances in site preparation and building technology, these limiting factors may not be as constricting as in previous decades.

5. Measures to Distinguish Growth and Rural Areas

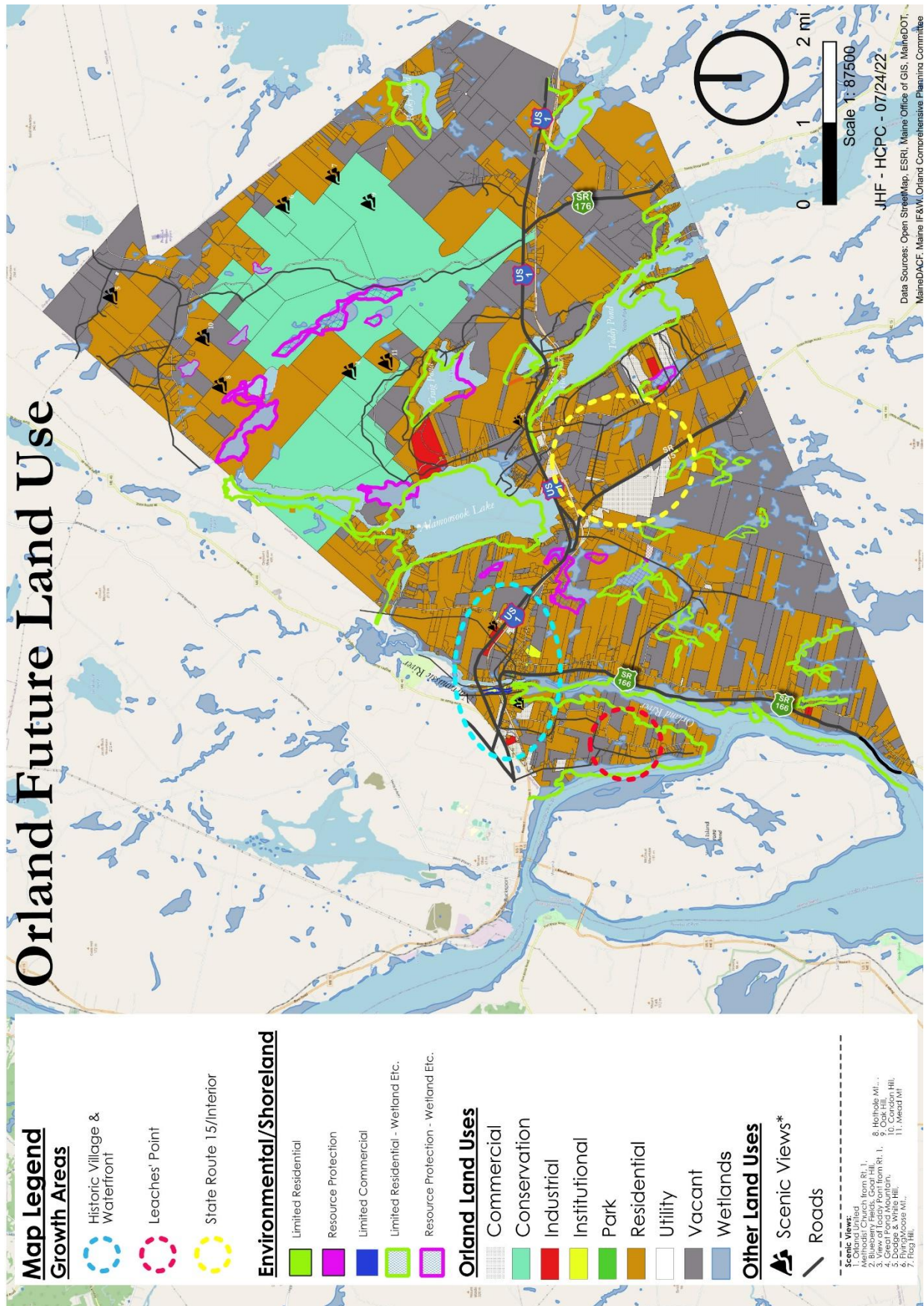
Orland's residents support maintaining the rural character, quiet and tranquil lifestyle and access to natural resources and agrarian economy. While at the same time, residents also wish to expand housing and economic activities to attract new residents. This will require a careful balance between the wishes of the public and reality required to accomplish both. As economic activity and industrial applications occur on the land, and the population grows, conflict will arise without measures in place. The only factors limiting more heavy development are environmental and distance from larger service centers such as Ellsworth and Bucksport. While in the past both may have contributed to reducing Orland's development potential, the impacts of climate change and social forces in larger urban centers of the United States and our nation's west coast, have contributed to a massing population move eastwards and to rural places. This will place pressure on Orland for development as this trend continues. With limited real estate availability, and high housing costs, development is the only option to accommodate new residents.

As Orland has no zoning, and designated growth areas, to date the only measure to avoid sprawl-like developments and the loss of Orland's pastoral landscapes and agrarian character, is conservation easements. While these are effective tools at ensuring open space is available to residents, they also reduce the tax revenues of a town, and limit areas available for development. Rural by Design accomplishes two goals in that it assures open spaces and common land for public access, while retaining taxable properties for the municipality.

This plan proposes the following measures to protect what Orland's residents value, and also ensure development can continue in the best locations suitable. The following are strategies the Town may consider to accomplish these goals:

1. Revise the Subdivision Ordinance to incentivize *Rural by Design* or conservation subdivisions that maximize open spaces and increase density and are also located near the designated growth areas. *[Note: BwH is willing to assist Orland by providing examples of different approaches.]*
2. Incentivize infrastructure improvements and direct Federal, State and Private funding towards infrastructure expansion and improvements to the growth areas for things such as: trails, bike lanes, charging stations, roads, pedestrian lanes/paths and parks.
3. Promote economic incentives and support to commercial activities and businesses that build or locate within the historic village districts, with the long-term goal of re-creating the historic downtowns and village centers.
4. Create or modify development impact fees, to fund improvements that the Town will be required to provide to the development.
5. Enact a policy of never accepting new subdivision roads in the rural areas as town-way roads, while accepting roads associated with growth area subdivisions.
6. Review the current Subdivision Ordinance and allow for smaller lot sizes and alternatives to individual septic systems, to account for changes in building technologies and improved waste water management techniques available.
7. Review setback requirements and consider removing setback requirements for the village growth areas.

Map N - 1: Proposed Future Land Use Map: Orland Maine (Following Page)



6. Summary

This proposed future land use plan is formed as a response to the residents' desire to maintain the look, feel, and character of rural Orland, while also allowing for development and expansion of economic activity. Without placing any land use restrictions on individual property owners; this proposal encourages (1) concentrating development within historic areas to re-invigorate the past social and economic vibrancy of historic Orland, (2) protecting the open spaces and pastoral views Orland's taxpayers value, and (3) reducing the cost burden associated with development to said taxpayers.

No plan is perfect, nor will it please everyone. This plan is a balance between the values that the residents have expressed and the reality faced by Orland in the future – increased demand for development and the environmental constraints of the land itself. Without a coherent strategy directing the future growth of Orland, all residents could find themselves losing both things that are important to them – rural character and low tax burden. Other rural towns have already experienced the negative impacts of sudden development as a result of having no priorities in place to benefit the larger public good. Such impacts include: loss of access to open space and traditional ways of rural life (hiking, hunting, fishing, off-road vehicle use, etc.), increased pressure on natural resources such as water and game available, increased tax burden associated with expanding public services, and lastly, a suburban style subdivision out of place with a rural small town in Hancock County. This plan is a research-based scientific approach based upon public input, environmental conditions and documented case studies from similar New England and Maine towns, to accomplish the goals stated above.

7. Goals & Objectives

Goal 1: Orland will incentivize appropriate new development and maintain the small, quiet rural character and clean environment, without placing undue burdens on the taxpayers.

Objective A: Promote development in the designated growth areas.

Strategies:

- I. Promote rural subdivision design that is best suited to Orland's character and needs via a set of guidelines to help inform the general public, developers and policy makers of development alternatives.
- II. Review the current Subdivision Ordinance and consider any changes or updates needed.
- III. Approve non-residential development only in existing vacant or underused properties of matching or similar use. (e.g., a gas station /convenience store at vacant store).
- IV. Direct a minimum of 75% of new municipal growth-related capital investments into designated growth areas identified in the Future Land Use Plan.

Responsibility & Time Frame: Selectmen, Planning Board, HCPC. Immediate – within 2 years

Objective B: Identify targets of opportunity for development projects that are of clear benefit to the community and conform to the desired outcome of maintaining its rural character in the face of future change

Strategies:

- I. Explore the “brownfields” redevelopment opportunities within town. [A brownfield is a site or building with an unknown environmental history that may contain known contaminants or have environmental impact.]
- II. Consider areas of Town most suitable to achieve the housing goals expressed in the Housing Chapter.

Responsibility & Time Frame: Selectmen, Planning Board, HCPC. Immediate and ongoing

Objective C: Protect the rural character and historic land use patterns of Orland, such as scenic views, working farms and intact natural areas.

Strategies:

- I. Encourage coordination between conservation groups, conservation easement properties and various landowners on outreach and educational materials.

Responsibility & Time Frame: Planning Board, Great Pond Mountain Conservation Trust (GPMCT), etc. Immediate and ongoing

Summary of Community Engagement

2016 Public Opinion Survey

Mailed to every household (2,089 property owners) between October 24 and November 28; extra copies made available at Town Office and Community Center.

Of all Orland residents including seasonal residents, 217 responded.

Inventory and Analysis Outreach (2016-17)

Interviews and/or questionnaires to Town service departments, Selectmen, and other local stakeholders/contractors.

Submissions of OCP updates to Annual Town Reports

2018 June 12-13 Town Meeting

OCPC-staffed information table engaging citizens with map of Town and opportunity to list what they most appreciated about Orland. 50 signatures and contact info collected from interested Orland residents.

2018 Neighborhood Visioning Sessions with HCPC staff assisting members of OCPC

Public notices: Town website, Town email, local newspaper, committee member outreach

6/18/2018 Orland Community Center: 13

6/20/2018 Bald Mountain Community Center: 21

6/25/2018 Craig Brook National Fish Hatchery: 19

6/27/2018 Orland Community Center: 11

“What We Heard” power point (summary of public comment) created for OCPC by HCPC staff

2021: June 8 Orland Town Election Day Outreach:

OCP table staffed by Committee members to engage with residents. Provided a 1-page Handout on the Orland Comprehensive Plan 2020 with background on purpose of a comprehensive plan, update on Committee progress, and next steps and goals.

Implementation & Evaluation Program and Regional Coordination Summary

A) Implementation & Evaluation Program

Orland's Comprehensive Plan Update for 2021 – 2022, includes strategies to address local, regional and national to global issues that the Town will face in the coming decade. Each chapter contains a specific goals and objectives section that further contains specific policies and approaches the Town will enact to accomplish the tasks determined in this plan. These sections determine a goal (what is to be accomplished), and strategies (how it will be accomplished), a responsible party (who will implement the goal), and a time-frame (when it will start and when it will be completed).

This Plan is a guide to assist the Board of Selectmen and various committees to establish annual work plans for Town departments and to prioritize capital expenditures, investments and improvement to Orland's public facilities. This plan is also a tool for supporting decision making by elected and municipal officials, and the success of this Plan is contingent upon its being actively used in day-to-day operations. Orland's Comprehensive Plan implementation must be monitored and the Town will conduct an annual review of this progress to ensure that the priority goals and objectives are being met.

As this plan progresses, the Comprehensive Plan Committee, Orland residents, Board of Selectmen, and Planning Board will monitor the Plan's implementation. An annual meeting will be held that will include the Board of Selectmen, members from Orland Comprehensive Plan Committee, and the Planning Board to summarize the progress towards implementation and publish the findings Annual Town Report.

The Growth Management Act, Title 30-A, Chapter 187 of Maine State Statutes, requires that progress on the Plan be evaluated at minimum, every five years to determine the following:

1. The degree of implementation of Future Land Use strategies;
2. The percent of capital investments dedicated to the growth areas defined in the Future Land Use Plan;
3. The location of new development relative to the established growth areas; and
4. The amount of critical natural resources, waterfront, recreation and open spaces protected through the acquisition of property, conservation easements and other methods available to Orland.

These four mandated requirements will serve as guidance for the previously mentioned meeting and metrics to measure implementation.

B) Regional Coordination Summary

Each chapter in Orland'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

Orland 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 coastal and water quality issues, consulting with the Department of Marine Resources (DMR) and the Maine Department of Environmental Protection (DEP). On transportation issues, Orland consults with Maine Department of Transportation (MaineDOT). The State Police provide policing and protection to the Town as well. The Department of Economic and Community Development (DECD), is a resource to help Orland advance economic goals set out in this chapter.

County & Local Government

Hancock County provides essential services through the Sheriff's Office, Hancock County Emergency Management Agency, along with support on certain economic development issues.

Orland closely coordinates with neighboring towns including, Bucksport, Castine, Penobscot, and Ellsworth on various issues such mutual aid for Fire and Emergency Response, solid waste management, watershed management, recreational programming, broadband development and other important economic activities. Tourism, an increasingly important component of the local and regional economy is supported through regional cooperation efforts through Downeast Acadia Regional Tourism (DART) and the Maine Office of Tourism.

Educational services are closely coordinated with the Bucksport School Department.

Other Coordination with Regional Partners

Orland is a member of Hancock County Planning Commission (HCPC) and works with HCPC to address issues related to 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.