

## Chapter 2: STUDY CONTEXT

### Chapter Overview

This chapter describes the study setting, focusing on aspects that are in some way related to transportation. Travel demand and economic activity, which are both of interest to the CYCCS, are in part dependent upon how many people live and work in an area. Therefore, York County's population and employment levels and distribution are important considerations. Historic patterns are examined and projections of future conditions through the year 2035 are presented.

The natural and built environments can both be affected by activities associated with transportation. Construction of new facilities may require new or expanded rights-of-ways, and in that regard may impact natural, rural, or built areas (including sites or structures of historical nature). Transportation facilities and services can also indirectly affect areas by severing habitat, increasing emission of pollutants, increasing noise, and other effects.

### Study Area Background

York County is located in the southwestern corner of Maine, and is the primary gateway into Maine for travelers from other states. The Portland metropolitan area is Maine's population and jobs center and is located to the east (Figure 2-1), approximately 20 miles from Biddeford via the Maine Turnpike.

According to data from the United States Census Bureau, almost half of the County's working residents commute to jobs outside the County. Conversely, relatively little in-commuting occurs—about 70 percent of York County's jobs are filled by County residents. While these

commuting patterns are not as extreme as those typical of "bedroom communities," they are indicative of a local housing/jobs imbalance.



Figure 2-1: Location of CYCCS Study Area in Maine

## Population and Employment

Current population and employment estimates (year 2010), as well as future projections for the year 2035, were developed to support the transportation and economic development analysis for the CYCCS. These projections were used to describe the baseline conditions (i.e. – conditions without any major transportation improvements or changes in regulatory policies) in year 2035 in terms of population, employment, and transportation network performance, and were used in comparison with alternative transportation scenarios examined in the study process.

The population and employment forecasts were prepared by the University of Southern Maine’s (USM’s) Center for Business and Economic Research (CBER) using econometric models developed by Regional Economic Model Inc. (REMI) of Amherst, MA and maintained by CBER. Refer to *Appendix E: Population and Employment Forecasts* for a detailed description of the population and employment forecast methodology.

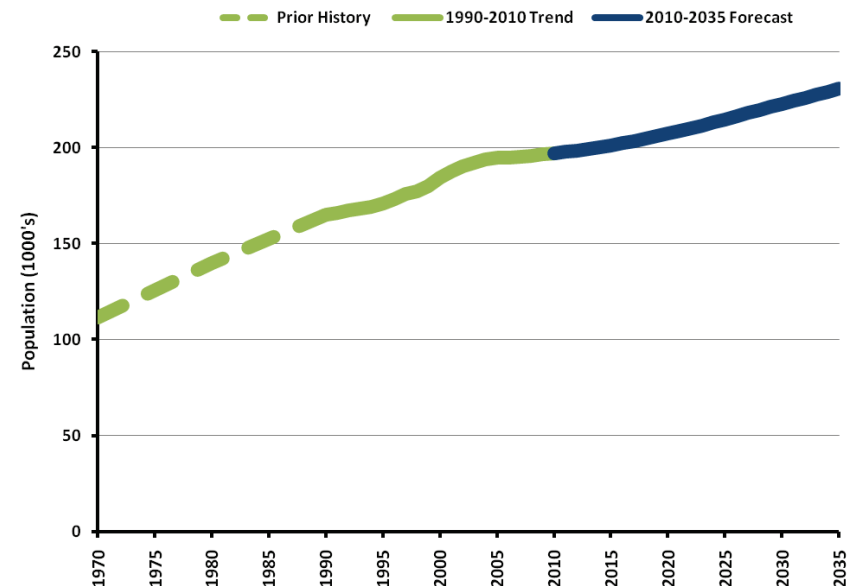
### Population Projections

#### Countywide Population Forecasts

York County is one of Maine’s fastest growing regions, though as with many locations in New England, growth slowed in recent years. Between 1990 and 2010, the County’s population grew from 164,587 to an estimated 197,131 persons, an increase of 19.8 percent (equivalent to a 0.9 percent annual growth rate).

By 2035, the population of York County is forecast to grow to 230,703, a total increase of 33,572 over the estimated 2010 population, or 17 percent. This corresponds to an annual average growth rate of 0.6 percent, which is lower than the 1990-2010 average of 0.9 percent per year.

Figure 2-2 illustrates the population of York County since 1970 and forecast population for years 2010 – 2035. Growth trends since 1990 were considered in developing the 2010 – 2035 forecasts, whereas the historic population for 1970 – 1990 is shown for context only.



Source: University of Southern Maine Center for Business and Economic Research, 2011 and U.S. Census Bureau, 2011.

**Figure 2-2: York County Population Estimates (Historical and Forecast), 1970 – 2035**



### Components of Population Change

Population changes may be categorized by four components:

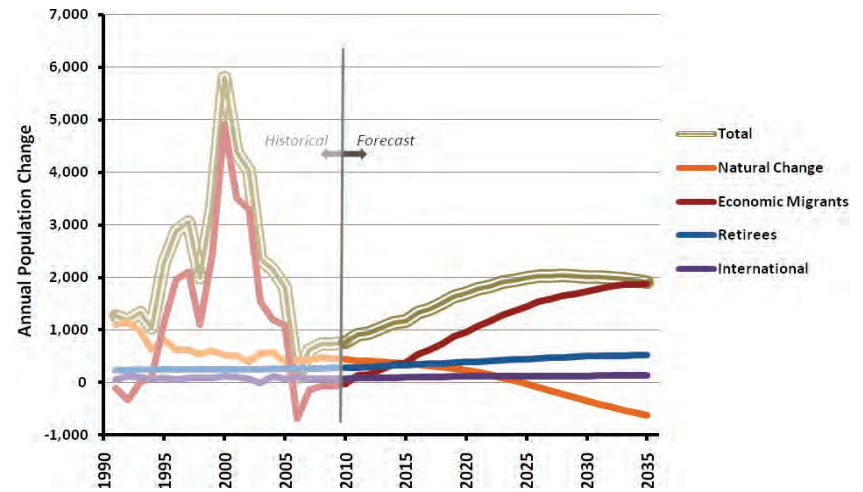
- Natural change – the change in population resulting from births and deaths only.
- Economic migrants – the net migration into the county from all other domestic regions for jobs.
- Retirees – the net migration into the county of retired persons.
- International – the net migration of foreign or immigrant persons into the county.

A fifth component, *Special populations* (such as military and prison populations), does not apply in York County and is therefore not accounted for in the forecasts.

Figure 2-3 shows the annual level of change associated with each of these components since 1990 and forecast through 2035. York County experienced a spike in economic migrants in 2000, which was associated with the end of the “tech boom” in the late 1990s. Other components have exhibited steadier trends; declining growth in natural population and consistent but small annual increases in retirees and international populations.

The rate of natural population growth is forecast to continue its decline, resulting in net decreases by 2024 as deaths exceed births in the county. This trend reflects the aging population in York County and the rest of Maine. From 2025 on, population growth in the county will be due entirely to net in-migration (economic, retiree and international). Net economic migration is expected to grow slowly

through the next decade as the economy recovers from the recession. The national housing crisis is further restricting migration through this decade, though a recovery in the housing market is expected by the end of the decade. Net economic migration to York County is forecast to accelerate to between 1,000 and 2,000 per year in 2020–2030 and level out just under 2,000 per year from 2030 onward.



Source: University of Southern Maine Center for Business and Economic Research, 2011.

**Figure 2-3: Historical and Projected Annual Population Change by Component**

Over the entire 2010-2035 period, net economic migration to York County is forecast to average about 1,000 persons per year. This compares with an estimated average economic migration of about 1,200 persons per year over the 1990–2010 period. The lower forecast rate reflects the effects of the recession and housing market slump. The historical data also covers a period in 1998–2002 when economic migration to York County averaged a very high 3,500 per year.



Retiree migration is forecast to grow steadily, increasing from an average rate of about 250 per year (1990-2008) to 400–500 persons per year after 2020. International migration is expected to slowly increase from 100 to about 150 persons per year based on long term population trends.

### Town and TAZ Level Population Forecasts

The population projections at the county level were further distributed to the town level. Table 2-1 shows a summary of the projected population growth in each of the CYCCS towns. The projected annual population growth rate ranges from a low of -0.4 percent in Ogunquit to a high of 2.2 percent in Waterboro. Overall, there is an estimated 12,479 person increase in the population of the CYCCS communities between 2010 and 2035, a total increase over the 2010 population of 17 percent (corresponding to a 0.6 percent annual growth rate).

Traffic Analysis Zones (TAZ) are the smallest groupings of population and jobs estimates prepared for the study. TAZs are used by the travel demand model to estimate trip generation and assign trips to the transportation network at specific locations. Their size is based on the level of development and/or transportation network complexity, with smaller zones established for more developed areas, and larger zones for more sparsely populated areas. TAZ boundaries correspond to established census tract and town line boundaries.

Population forecasts were prepared as part of the study by converting population to households (also known as “occupied dwelling units”) and then disaggregating the households to the TAZ level, taking into account underlying zoning and developable land. Figure 2-4 illustrates the distribution of the change in households by TAZ between years 2010 and 2035, ranging from less than 10 percent to greater than

50 percent. Darker shaded areas indicate locations with higher amounts of relative growth. Note that relative growth is dependent not only on the net amount of growth predicted, but on existing population as well. Therefore, a fairly small increase in net growth may result in a high degree of relative growth in a TAZ that is currently lightly populated.

**Table 2-1: Population Summary for CYCCS Communities**

Study Area Town	2010 Population	Projected 2035 Population	Projected Change 2010- 2035	Projecte d Annual Growth Rate 2010- 2035	Share of Study Area Growth
Alfred	2,238	3,019	781	1.2%	6.3%
Arundel	2,669	4,022	1,353	1.7%	10.8%
Biddeford	20,710	21,277	567	0.1%	4.5%
Kennebunk	8,004	10,798	2,794	1.2%	22.4%
Lyman	3,390	4,344	954	1.0%	7.6%
North Berwick	3,793	4,576	783	0.8%	6.3%
Ogunquit	974	892	-82	-0.4%	-0.7%
Sanford	20,463	20,798	335	0.1%	2.7%
Waterboro	4,510	7,693	3,183	2.2%	25.5%
Wells	7,778	9,589	1,811	0.8%	14.5%
<b>TOTAL</b>	<b>74,529</b>	<b>87,008</b>	<b>12,479</b>	<b>0.6%</b>	



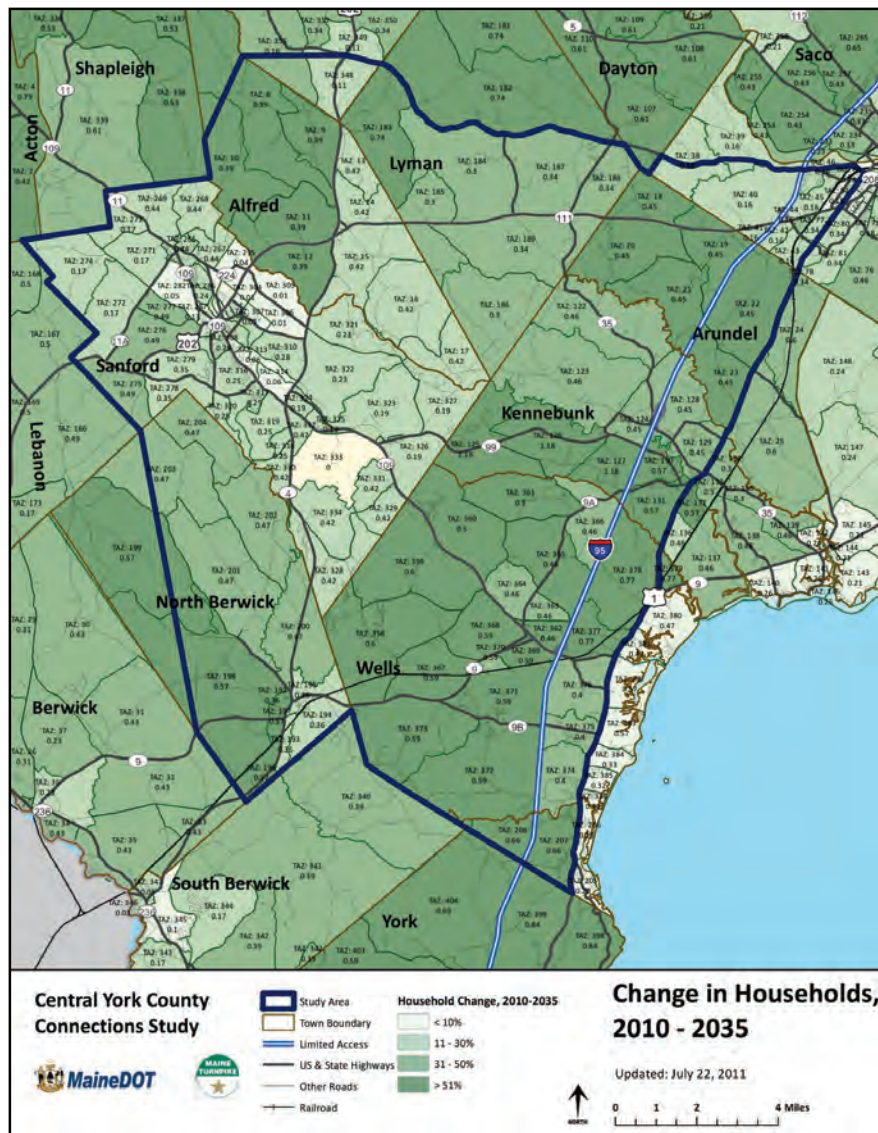


Figure 2-4: Change in Households (2010 to 2035) by Traffic Analysis Zone (TAZ)

### Employment Projections

The other key demographic projection prepared for the study is an estimate of employment by labor category for each TAZ. Employment forecasts are also derived by the REMI model described in detail in *Appendix E: Population and Employment Forecasts*. Since much of the employment data is confidential and cannot be publically distributed, only summary data is presented.

### Countywide Employment Forecasts

Table 2-2 shows the REMI forecast change in employment in York County from 2010-2035 grouped by the five sectors used in the transportation model. Manufacturing employment is forecast to decline by 779 jobs over the time period, while all other sectors are forecast to experience growth. The total net growth is an increase in employment of 20,534 in 2035.

Table 2-2: York County Forecast Change in Employment by Sector, 2010–2035

Employment Sector	Projected Job Growth (2010 – 2035)
Manufacturing	-779
Recreation	341
Residual <sup>1</sup>	2,346
Retail	3,253
Services	15,373
<b>TOTAL</b>	<b>20,534</b>

1. Residual employment refers to all job types not represented by the other sectors shown (for example, agriculture or fishing).



### Town and TAZ Level Employment Forecasts

Existing employment in each sector was allocated to the town and TAZ level based on data from the 2010 Quarterly Census of Employment.

Summary employment data is shown in Table 2-3 for those communities in the CYCCS study area.<sup>1</sup> The projected annual employment growth rate ranges from a low of 0.6 percent in Ogunquit to a high of 1.5 percent in Kennebunk. Overall, there is an estimated employment increase of 10,954 jobs in the CYCCS communities between 2010 and 2035.

**Table 2-3: Employment Summary for CYCCS Communities**

Study Area Town	2010 Jobs	Projected 2035 Jobs	Change 2010- 2035	Annual Growth Rate 2010-2035	Share of Study Area Growth
Alfred	649	918	269	1.4%	2.5%
Arundel	967	1,323	356	1.3%	3.2%
Biddeford	8,810	12,075	3,265	1.3%	29.8%
Kennebunk	4,324	6,207	1,883	1.5%	17.2%
Lyman	326	439	113	1.2%	1.0%
North Berwick	880	1,225	345	1.3%	3.1%
Ogunquit	2,358	2,743	385	0.6%	3.5%
Sanford	6,672	9,217	2,545	1.3%	23.2%
Waterboro	2,108	2,706	598	1.0%	5.5%
Wells	4,210	5,405	1,195	1.0%	10.9%
<b>TOTAL</b>	<b>31,304</b>	<b>42,258</b>	<b>10,954</b>	<b>1.2%</b>	

<sup>1</sup> The employment levels for any given year are for third quarter employment (Jul-Aug-Sep), not annual average.

### Historic and Archaeological Resources

The following provides an overview of the historic and archaeological resources documented within the Study Area. A discussion of the data sources and methodology used for this assessment can be found in *Appendix F: Historic and Archaeological Resources*.

#### Methodology

Historic resource identification for the CYCCS involved mapping historic buildings, structures, and historic districts currently listed in the National Register of Historic Places (National Register), as well as those previously determined to be eligible for the National Register by the Maine Historic Preservation Commission (MPHC), which is the State Historic Preservation Office (SHPO). For the purposes of project review, “listed” and “determined eligible” are equivalent. Identified archaeological sites were mapped separately.

Only properties previously identified as listed or eligible are presented in this chapter; other properties with the potential for National Register eligibility also exist within the study area. Further field investigation and documentation performed to assess potential historic resources in specific study area locations as they relate to the proposed recommendations of the CYCCS are discussed in the context of the proposed recommendations in Chapter 3 of this report.

#### National Register of Historic Places and Determinations of Eligibility

The National Register of Historic Places (National Register) is composed of districts, sites, buildings, structures, and objects



significant in American history, architecture, archaeology, engineering, and/or culture. Properties are nominated to the Register, or determined eligible, under one or more criteria of significance. They can be related to local contexts, or in some cases to subjects of statewide or national importance. The four general criteria are:

- Association with important events or historic trends
- Significance by way of association with important persons
- Significance for architecture and design
- Potential to yield important information in history or prehistory (usually through archaeology)

Nomination forms for the National Register listed properties in the Central York County region were prepared by Maine Historic Preservation Commission staff in conjunction with local organizations such as the historical societies or historic preservation commissions. The National Register documentation is on file at MHPC and at the National Park Service, National Register of Historic Places in Washington, DC.

Pursuant to Section 106 of the National Historic Preservation Act of 1966 (Section 106), agencies are required to consult with the Maine Historic Preservation Commission (the SHPO) to assess the effects of any federally funded, permitted, or licensed undertaking on “historic properties.” These are defined as cultural resources listed in or eligible for listing in the National Register of Historic Places. The goal of this consultation process is to identify the presence of significant historic buildings, structures, districts, and archaeological sites and take steps to avoid, minimize, or mitigate adverse effects (Maine Historic Preservation Plan, MHPC 2005). The process by which the Maine Department of Transportation (MaineDOT) meets their responsibilities

for undertakings pursuant to Section 106 is set forth in the 2004 Programmatic Agreement between the Federal Highway Administration, Federal Transit Administration, the Advisory Council on Historic Preservation, MHPC and the MaineDOT. MaineDOT is responsible for defining the area of potential effect (APE) for each undertaking, identifying historic properties within the APE using MHPC Historic Buildings/Structures survey forms, and evaluating the eligibility of any historic properties for inclusion in the National Register. Documentation is forwarded to the SHPO (MHPC) for concurrence and entered in the MHPC survey files.

### Limits of Available Information

Because existing determinations of National Register eligibility were made only for properties immediately within earlier projects’ APEs, the status of the majority of historic buildings in the CYCCS study area remains undetermined. These properties are not assumed to be ineligible and official determinations would need to be made by MHPC and MaineDOT should a future project potentially affect such properties.

Similarly, archaeological excavations are conducted when disturbance is threatened, but other currently unknown archaeological sites may exist within the study area.

In addition to the architectural survey forms that record determinations of eligibility, the MHPC survey files contain large numbers of reconnaissance-level architectural survey forms. Most were locally generated by historic preservation commissions for identification and planning purposes. In central York County towns, the focus of most earlier historic building surveys was on the coastal zone, just east of the study area. These surveys record basic information

about the property type, architectural data, approximate age, and location, but do not include historical information or National Register evaluation. The level of documentation may be sufficient to determine National Register eligibility, but the earliest of these surveys are now nearly twenty-five years old and likely out of date. These records are not included in the listings identified in the following sections.

### Overview of Study Area

The CYCCS Study Area is anchored by the Maine Turnpike (I-95)/US Route 1 corridor which parallels the coastline (Figure 2-5). US Route 1 still follows mainly the same path as the original Post Road, and was the focus of all early settlement in the region. US Route 1 was the first numbered federal highway in the country. US Route 1 is the main road in Wells, Kennebunk, and Arundel with development all along it. Many historic buildings remain, though overall much of Route 1 is characterized by modern commercial properties. Locally, the road is identified as Main Street in Ogunquit, Post Road in Wells, York Street in southern Kennebunk, Main Street in downtown Kennebunk, and Portland Road to the north and through Arundel, becoming Elm Street in Biddeford.

The Maine Turnpike was opened in 1947, just inland from and parallel to US Route 1 through a rural area. The Turnpike became part of Interstate 95 (I-95) in 1956. There are interchanges at Exit 19 in Wells (Routes 9 and 109), Exit 25 in West Kennebunk (Route 35), and Exit 32 in Biddeford (Route 111).

The western part of the study area is defined by Route 4. It is a south-north road from Dover, New Hampshire and South Berwick, through North Berwick, southern Sanford, Alfred, and Waterboro to points north, continuing all the way to Rangeley. In Alfred and Waterboro, the

highway carries both Route 4 and Route 202 designation (north of Route 111).

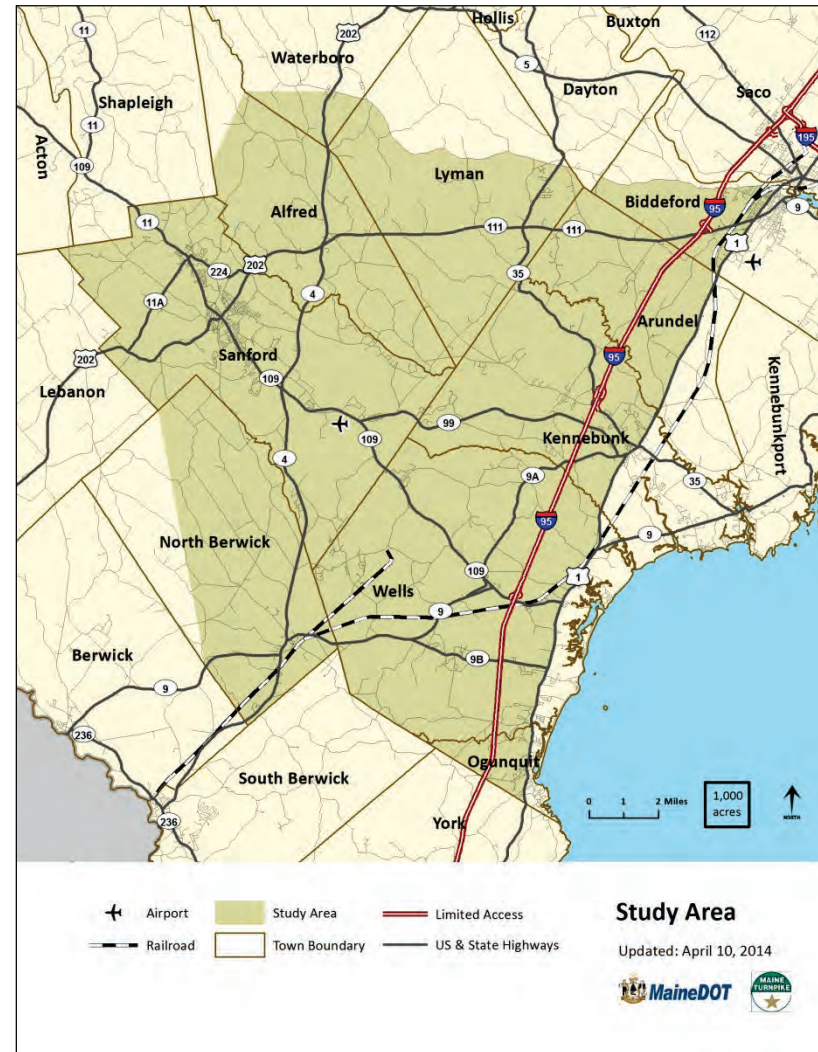


Figure 2-5: CYCCS Study Area





Route 109 (Sanford Road) is the direct route between Wells and Sanford. Wells is the eastern terminus of the 24-mile route across to Acton at the New Hampshire state line. Route 109 passes through the Highpine neighborhood of Wells and past the Sanford Regional Airport. The northern highway in the study area, Route 111 is an east-west road (Alfred Road) from Biddeford to Alfred, where it continues east to Sanford and beyond to New Hampshire as US Route 202. In the south, Routes 9, 9A and 9B connect coastal Wells with North Berwick.

Historically, three railroads passed through southern and central York County, all in a generally south-north direction, connecting Boston and Portland. The one remaining rail line, formerly the Boston and Maine, is the route of the Downeaster passenger train operated by Amtrak on Pan Am Railways track. From Dover, New Hampshire, it passes through South Berwick, North Berwick, Wells, Kennebunk, and Biddeford. This section of the Boston and Maine was built in 1873 to compete with the earlier Boston to Portland line, the Portland, Saco & Portsmouth (PSP), then controlled by the Eastern Railroad. Built in 1842, it passed through Kittery, Eliot, North Berwick, Wells Depot, Wells Branch, and Kennebunk. The two roughly parallel routes intersect in North Berwick. The Boston and Maine prevailed and was able to take over the Eastern Railroad in the 1880s. The PSP line was abandoned in the 1940s, but parts of the right-of-way still remain evident in segmented ownership. The most inland of the three railroads in the study area was the 1871 Portland & Rochester Railroad, which went southwest-northeast from Rochester, through Springvale and Alfred and north through Waterboro toward Portland. Passenger service ended in 1932 and much of the line was abandoned in the 1950s. The right-of-way remains evident in places under various ownerships.

Not including the major south-north routes, most of the local roads in the area run east-west or more commonly southeast-northwest, connecting the seacoast and inland towns. These local roads follow the topography, particularly the valleys and interval areas of numerous rivers and streams that flow from northwest to southeast into the Atlantic. These rivers provide water-power upriver and salt marshes and sheltered harbors at their outlets on the coast. Outside of the town centers, the roads in this region pass through rural areas. There are many scattered historic houses and farms, a number of distinct neighborhoods, and late 20th century development interspersed.

### ***Identified Historic and Archaeological Resources*** **Summary of Findings**

In the study area, there are currently thirty-nine (39) individual properties and five (5) historic districts listed in the National Register of Historic Places (Figure 2-6 and Table 2-4). Two additional districts in Biddeford are immediately adjacent to the study area. In addition, seventy-two (72) individual properties, six (6) bridges and one (1) rural historic district in the study area have previously been determined eligible for the National Register of Historic Places. There are no National Historic Landmarks in this part of York County. If no determination of National Register eligibility has been made for a resource, its status is not ineligible, but “undetermined” (i.e., pending further study).



Figure 2-6: Historic Resources Documented within Study Area

Table 2-4: National Register Listed or Identified Eligible Properties in the CYCCS Study Area

Town	Registered		Determined Eligible		
	Districts	Properties	Districts	Properties	Bridge
Alfred	2	3	—	6	—
Arundel	—	—	—	—	—
Biddeford	—	—	—	—	1
Kennebunk	2	3	—	13	—
Lyman	—	—	—	1	—
North Berwick	—	6	1	15	—
Ogunquit	—	3	—	—	—
Sanford	1	7	—	30	3
Waterboro	—	—	—	—	—
Wells	—	17	—	7	2
<b>Total</b>	<b>5</b>	<b>39</b>	<b>1</b>	<b>72</b>	<b>6</b>

Source: Maine Historic Preservation Commission, 2011  
 Note: Only includes those properties within the CYCCS study area

There are 46 known archaeological sites, either prehistoric (dating from before recorded history) or historic, in the study area (Figure 2-7 and Table 2-5).

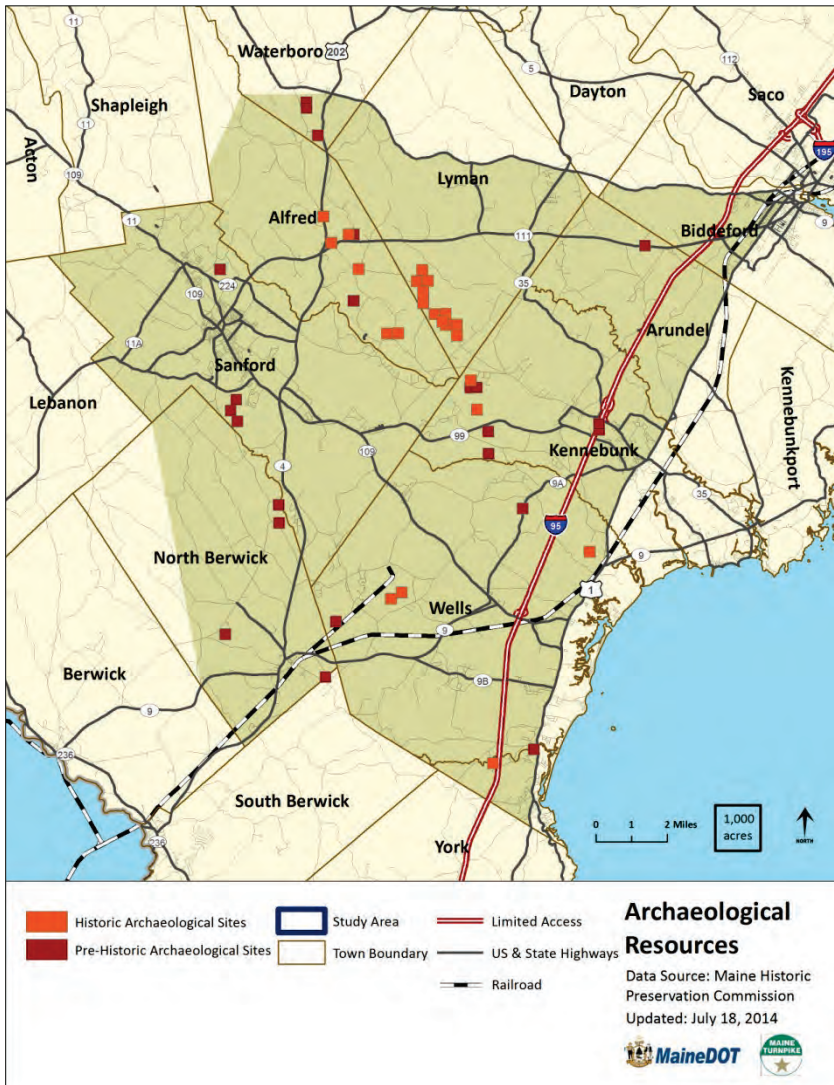


Figure 2-7: Archaeological Resources within Study Area

Table 2-5: Identified Archaeological Sites in the CYCCS Study Area

Town	Historic Archaeological Sites	Prehistoric Archaeological Sites	Total
Alfred	6	2	8
Arundel	—	1	1
Biddeford	—	—	0
Kennebunk	2	6	8
Lyman	11	—	13
North Berwick	—	4	4
Ogunquit	1	1	2
Sanford	—	4	4
Waterboro	—	3	3
Wells	3	2	5
<b>Total</b>	<b>25</b>	<b>23</b>	<b>46</b>

Source: Maine Historic Preservation Commission, 2011

Several Central York County towns have local Historic Preservation Commissions. However, there are no Local Historic Districts or Local Landmarks designated by Town ordinances within the CYCCS area. Maine State legislation requires each town to include historic preservation planning as one of ten stated goals in its comprehensive plan. The level of detail on historic and architectural resources varies, but the towns have not identified any locally significant historic resources within the study area.



### ***Resources Identified in CYCCS Towns***

The towns in Central York County are listed (alphabetically) below with a summary of identified National Register listed and identified eligible historic resources, as well as archaeological resources. These sites are shown on the Historic and Archaeological Resources maps (Figures 2-6 and 2-7), and National Register sites are additionally tabulated in Appendix B.

#### **Alfred**

Alfred, in the geographical center of the county, has been the seat of York County since the early 1800s. It remains a small town with distinctive historic buildings, including the old courthouse. The intersection of US Route 202 and Route 111 is near the middle of the town.

Alfred has two (2) National Register listed historic districts and three (3) individually listed houses. The town center (Saco and Kennebunk Roads) was listed in the National Register of Historic Places as a historic district in 1983. The 150-acre district contains forty-six (46) buildings, most from the early 1800s. The Alfred Shaker Village Historic District on US Route 202/Route 4 (Shaker Hill Road) in the northern part of town was listed in 2001. Individual National Register listed properties are the Senator John Holmes House on US Route 202 (listed 1975), the Lord-Dane House on Federal Street north of US Route 202 (listed 1992), and the District No. 5 Schoolhouse on Gore Road (listed 2009).

Determinations of National Register eligibility have been made for six (6) additional properties on Back Road, Blueberry Hill Road, and Oak Street. Alfred contains six (6) identified historic archaeological sites and two (2) prehistoric.

The Town of Alfred has a local Alfred Historical Museum and Historical Committee, established in 1981. The Alfred Village Museum is located in the old firehouse in the National Register historic district. The town's Comprehensive Plan does not identify any local historic districts or landmarks.

#### **Arundel**

The study area includes portions of Arundel on and west of US Route 1. Therefore, the eastern and southeastern coastal parts of Arundel are not included. Arundel was formerly known as North Kennebunk until it was set off as a separate town in 1915 with the Kennebunk River as the dividing line. Settlement is focused on Route 1 (Portland Road), and the town is primarily rural in outlying areas. Route 111 crosses the northern edge of Arundel, west of Biddeford and the Maine Turnpike exit 32 interchange.

There are no properties in the study area listed in or determined eligible for the National Register of Historic Places. There is one (1) prehistoric archaeological site. The Arundel Comprehensive Plan adopted in 2007 recommended future survey of historical sites and buildings, but this has not been conducted. Arundel does not have a local historic preservation commission or ordinance.

#### **Biddeford**

The City of Biddeford began as a factory town on the Saco River near its mouth at the ocean. With a population of 22,000, Biddeford is Maine's sixth largest city. The northeast tip of the CYCCS study area is defined by the "Five Points" intersection at the southwest corner of downtown Biddeford at the junction of US Route 1 and Route 111. Directly to the north and east of (but external to) the study area are the southern edges of two (2) National Register listed historic districts,



the Biddeford Main Street Historic District and the Biddeford-Saco Mills Historic District.

Within the study area, there is one (1) National Register eligible property in Biddeford, the Elm Street/Hooper Street Bridge (built in 1929). Elsewhere in Biddeford, several individual buildings have been determined eligible for the National Register, but all are outside the study area. In 2009, properties on Elm Street/US Route 1 in the vicinity of St. Mary's Cemetery were surveyed but none were determined eligible. There are no surveyed archaeological sites in Biddeford that are located within the study area.

The Biddeford Main Street Historic District listed on the National Register of Historic Places in 2009 lies external, but immediately adjacent to the northeast corner of the study area. The Main Street Historic District includes 29 to 316 Main Street and portions of Elm, Jefferson, Adams, Washington, Franklin, Alfred, and Water Streets. To the east, on the Saco River, the Biddeford-Saco Mills Historic District listed on the National Register in 2008 is bounded by Pearl, Lincoln, York and Main, Biddeford, Gooch and Saco Streets.

Archaeological sites have not been identified within the small area of Biddeford that lies within the CYCCS study area.

### **Kennebunk**

Kennebunk developed as an independent village of Wells until set off as a separate town in 1820. The downtown was centered near the present-day Kennebunk Bridge over the Mousam River and adjacent industrial sites. The commercial center lines US Route 1 at the junction of US Route 1, Route 9A, Route 99, and Route 35. Route 99 runs east-west out of Kennebunk toward Sanford on the south side of the Mousam River. Route 35 passes through the village of West Kennebunk

(also Kennebunk Depot) and Alfred to the northwest. East of US Route 1, Route 35 continues toward the shore along the south side of the Kennebunk River.

Within the study area, Kennebunk contains two (2) National Register listed historic districts and three (3) individually listed properties. The Kennebunk Historic District listed in the National Register of Historic Places in 1974 includes both sides of Route 35 (Summer Street) from US Route 1 eastward along the south side of the Kennebunk River. The "Upper Square" in downtown Kennebunk at the intersection of US Route 1 and Route 35 falls within the current study area, though most of the historic district is to the east. Individual National Register listed properties on the west side of US Route 1 are the Bourne Mansion at 8 Bourne Street (listed 1980) and Wallingford Hall (added 2004) at 21 York Street, as well as the James Smith Homestead on Route 35 (listed in 1982). Other individually listed National Register properties are in the coastal part of town east of US Route 1. In the study area, the Lower Alewife Historic District, listed on the National Register of Historic Places in 1994, is a rural district of farms and open fields west of the Maine Turnpike on the northern edge of Kennebunk. It is located on Emmons Road, east of Route 35/Alewife Road.

Thirteen (13) buildings in the study area have determinations of National Register eligibility. They are primarily on Fletcher Street and Alewife Road, which are Route 35.

Kennebunk is the only Central York County town that is a Certified Local Government (CLG). The CLG Program was created in the early 1980s by an amendment to the National Historic Preservation Act to promote preservation planning and cultural resource protection efforts at the local level, consistent with State and Federal standards. The key requirement for participation is the adoption of a historic preservation

ordinance that creates a local historic preservation commission. CLGs are eligible to apply for dedicated annual grants. A Kennebunk survey was conducted in 1991–93 and 1999–2000 primarily in the historic district east of Route 1. The intersection of US Route 1 and Ross Road was surveyed in 2001 but no determinations of individual eligibility resulted. A reconnaissance-level historic buildings survey has not been conducted in the study area, west of US Route 1.

There are six (6) identified prehistoric archaeological sites in Kennebunk and two (2) historic archaeological sites.

### Lyman

Inland from Biddeford is the small town of Lyman, the southern half of which is included in the study area. The main road through Lyman is Route 111, Alfred Road, a straight east-west highway from the coast to the county seat crossing the southern part of town. Settled in the late 18<sup>th</sup> century, Lyman was originally incorporated as Coxhall until being renamed in 1803. Farming and forestry were the primary industries. Lyman's town center is at "Goodwin's Mills" a small hamlet in the east corner of town, north of Route 111 on Route 35 (Goodwin's Mills Road). This area was formerly home to saw and grist mills dating from the 18<sup>th</sup> century. The village of Goodwin's Mills, which overlaps the Dayton town line, is located along South Waterboro Road and South Street, which form a west-east route north of and parallel to Route 111 and define the north edge of the study area. Goodwin Mills is not presently identified as eligible for listing.

Within the study area, there are no National Register listings but there is a single determination of eligibility for the former Congregational Church on Old Kennebunk Road. Eleven (11) archaeological sites are recorded on the Phase I map. Nearby to the north of the study area is the National Register listed Levi Foss House on Route 35. The Alfred

Shaker Historic District, described previously, abuts Lyman's western town line.

### North Berwick

North Berwick, settled in the late 18<sup>th</sup> century and part of Berwick until 1831, was mainly a farming town. The town center developed as a mill village in the southeast corner of town on the Great Works River. This was the junction of the Portland, Saco and Portsmouth Railroad (1842) and the Boston and Maine Railroad (1873). The woolen mill operated from 1834 to 1955, and the Hussey Manufacturing Company established in the mid-1800s remains in business. North Berwick (village) is the junction of south-north Route 4 (Elm and High Streets) and east-west Route 9. Outside the town center, North Berwick is largely rural and sparsely settled. The irregular intersecting roads run in an overall southeast-northwest direction toward Sanford and Alfred. For the North Berwick Comprehensive Plan of 1990, a list of historic houses more than fifty years old was compiled, though determination of eligibility for National Register listing was not made. The North Berwick Historical Society was founded in 1958, though the town does not have a local heritage commission or historic preservation ordinance.

About 75 percent of eastern North Berwick's land area is included in the study area. There are six (6) properties listed in the National Register of Historic Places and another fifteen (15) properties and one (1) historic district determined to be eligible. Listed properties include: the North Berwick Woolen Mill on Canal Street (listed 1983), the Thomas Hobbs Jr. House on Wells Street (listed 1982), the Mary R. Hurd House on Elm Street (listed 1979), the Hussey Plow Company Building on Dyer Street (listed 1979), the J.L. Prescott House on High



Street (listed 1985), and the Old Morrell House on Bauneg Beg Pond Road (listed 1976).

The Knights Pond Road Historic District is a small rural area determined to be eligible as a historic district. It contains several farm properties on the North Berwick-South Berwick town line including land in the latter town. Fifteen individually eligible properties are located in the downtown and elsewhere in North Berwick. There are no eligible historic bridges. Four (4) prehistoric archaeological sites are identified in town, including one (1) on the South Berwick town line.

### Ogunquit

Ogunquit is a small oceanfront town, part of Wells for much of its history. The Town of Ogunquit was incorporated in 1980. It is located on the southern edge of the study area, north of the town of York. US Route 1 is the main road. East of US Route 1 on the waterfront is the focus of this summer resort community. The western part of town, which is bisected by the Maine Turnpike, is largely rural.

Ogunquit has three (3) properties in the CYCCS area listed on the National Register of Historic Places. No other determinations of National Register eligibility have been made. The Goodale/Stevens Farm and the Goodale/Bourne Farm on North Village Road were listed on the National Register in 1979, as was the Charles Perkins House on Scotch Hill. Outside the study area, National Register listed properties east of US Route 1 include the Ogunquit Playhouse and the Winn House, one of the early Wells capes (see section on Wells) moved to its present site in 2001. One (1) historic archaeological site and one (1) prehistoric archaeological site are located near the Ogunquit/Wells town line.

Ogunquit conducted an intensive architectural survey for potential National Register Eligibility in 1990, focusing on Route 1 and eastward. No determinations of National Register eligibility were made. Ogunquit has a Historic Preservation Committee and local preservation ordinance in place. The two locally designated sites in the ordinance are both east of Route 1 outside the study area: Perkins Cove Bridge and the Winn House on Obed's Lane.

### Sanford

The entire city of Sanford falls within the CYCCS study area. With a population of more than 20,000, Sanford is the eighth largest municipality in the state. It was an important factory town, densely settled on both sides of the Mousam River. The distinct village of Springvale had its own factories from the 1820s and was the town's original commercial center. Thomas Goodall established the Goodall Mills woolen mill in the 1860s. The large company manufactured blankets, carriage robes, upholstery and drapery fabric and later woolen cloth for clothing. The company prospered and local growth continued in the early twentieth century. The mills operated until 1954.

The main road through Sanford and Springvale is Main Street, which is also designated Route 109. The highway parallels the south side of the Mousam River. Local roads converge in the downtown. Route 4 bypasses the downtown, passing through South Sanford where it intersects with Route 109. US Route 202 passes southwest-northeast through Sanford on Lebanon Road and Cottage Street. The outlying areas were historically rural, but residential subdivisions have been built in the late 20<sup>th</sup> century.

Sanford does not have a local historic preservation ordinance. The Sanford Historical Committee was formed by the Town in 1927 to acquire, preserve, and display items of historical significance. In 2005, the Sanford-Springvale Historical Society was formed as a non-profit corporation to create a historical museum in the former Town Hall in Springvale for the collections of the Sanford Historical Committee. Portions of Sanford were surveyed at a reconnaissance level in 1984 and the survey forms are on file at MHPC.

Sanford has seven (7) individual properties and one (1) historic district listed in the National Register of Historic Places. Determinations of National Register eligibility have been made for thirty (30) Sanford properties and additionally three (3) historic bridges.

The Sanford Mills Historic District, listed in the National Register in 2009, is a 7½-acre district of industrial buildings on the Mousam River in downtown Sanford. National Register listed individual properties include The Sanford Naval Air Station Administration Building and Control Tower (listed 1997) off Route 109 in the southern part of town. In the downtown, National Register listed properties include: the Thomas Goodall House at 232 Main Street (listed 1975), the Smith-Emery House at 253 Main Street (listed 1998), the Emery Homestead at 1-3 Lebanon Street (listed 1980), the U.S. Post Office at 28 School Street (listed 1986), the Old Sanford Town Hall at 505 Main Street (listed 2007), and the Goodall Memorial Library at 953 Main Street (listed 2008).

Properties with determinations of National Register eligibility include: the Goodall Hospital buildings at 25 and 27 June Street, the Unitarian-Universalist Church at 5 Lebanon Street, the Charles Frost House at 226 Main Street, the Brown Hall-Nasson Institute at 457 Main Street, the

Wentworth-Bradford Block on Main Street in Springvale, and the First Baptist Church at 905 Main Street. The group of twelve (12) individually eligible houses on Cottage Street/US Route 202 (26 to 64 Cottage Street) is mill worker housing that forms a potential historic district. Outside the downtown, historic properties determined eligible include Pickett Homestead at 1410 Main Street, the Hawthorne School at 1431 Main Street and the J. Moulton House/Farm on Gavel Road in South Sanford and 82 Littlefield Road on the outskirts of Springvale. The three National Register eligible historic bridges are the Bridge Street Bridge on Route 224 (built in 1901), the Washington Street Bridge (built in 1920), and the Jellison Bridge on South Curve Lane (built in 1920).

The Sanford Comprehensive Plan of 2002 identified the town's high likelihood of undiscovered archaeological sites in addition to the four (4) prehistoric sites recorded in MHPC files.

### Waterboro

The southern corner of Waterboro lies within the CYCCS study area. Located due north of Alfred, Waterboro was historically an agricultural town with some lumbering and industry in the town center and at South Waterboro. The latter developed in the post-Civil War period and was the local station on the Portland and Rochester Railroad, which opened in 1868. Route 4 and US Route 202 follow south-north as Main Street. West Road and South Waterboro Road (running northwest and southeast) intersect and form the northern edge of the study area. South Waterboro Road is a major route toward the coast, becoming South Street and continuing east into Biddeford on the south side of the Saco River.

South Waterboro along Main Street retains some integrity as a historic village center with many nineteenth century buildings, though none of





these have determinations of eligibility. Large areas of the town, including northern Main Street, were destroyed by fires in 1911 and 1947. The bulk of the town and its other village centers are north of the study area, which is defined by the intersection of Main Street and South Waterboro Road,

There are no properties currently listed in or previously determined eligible for the National Register of Historic Places in the southern part of Waterboro that is within the CYCCS study area. MHPC identified locations of three (3) prehistoric archaeological sites.

The 1990 Waterboro Comprehensive Plan with 2003 updates included extensive discussion of historical resources in town. The Plan identified South Waterboro, which partially resides within the CYCCS study area, as a historic area worthy of future architectural survey.

## Wells

Wells is an oceanfront community with an extensive coastline of beaches and tidal inlets. Incorporated as Webhannet in 1653, it was the third town in Maine. Farming was the focus with small local mills and shipbuilding. Settlement was concentrated on Post Road (US Route 1). The eastern coastal part of town became dominated by summer tourism later in the 19<sup>th</sup> century. Inland Wells has an irregular pattern of interconnecting rural roads. Several form east-west state highways. The intersection of Route 109 and Route 9 is near the Maine Turnpike exit 19 interchange. Route 9 (North Berwick Road) is an east-west road on the north side of the Webhannet River. Route 9B (Littlefield Road) is a smaller road parallel to the south side of the river. Across the southern edge of town, Tatnic Road is the route to South Berwick. Route 109, Sanford Road, is the main road toward Sanford and Alfred. Toward the northwest edge of Wells, the “Highpine”

neighborhood was a center of settlement and a railroad station on the Eastern Railroad.

Within the study area in Wells, seventeen (17) buildings are currently listed in the National Register. Seven (7) buildings and two (2) bridges have been determined eligible.

National Register listed properties include: the Wells Baptist Church Parsonage on Branch Road (Route 9A), the Wells Homestead on Sanford Road, the Emery House on Highpine Loop, the Austin-Hennessey Homestead on Burnt Mill, the Dorfield Farm off HARRISECKETT ROAD, the Early Post Office at Bragdon’s Crossing, the Littlefield Homestead on Branch Road, the Littlefield Tavern on Route 9B, Littlefield-Chase Farmstead on Route 9/North Berwick Road, the Littlefield-Dustin Farm on Dodge Road, and the Littlefield-Keeping House on Route 9B. A number of the above were nominated in 1979 as part of a multiple property nomination listing fifteen (15) separate houses (many in the study area) that were listed as a thematic grouping known as the “Early Capes of Wells, Maine.” National Register listed sites also include: the First Church, now the Meeting House Museum of the Historical Society of Wells & Ogunquit on Post Road/US Route 1, and the Division 9 Schoolhouse on North Berwick Road. Libby’s Colonial Tea Room, part of Johnson’s American Museum, is located on the corner of Post Road/US Route 1 and HARRISECKETT ROAD.

The Boston & Maine Railroad Underpass Bridge (circa 1920) on Bypass Road and the Old Buffum Bridge (circa 1931) on Post Road were determined eligible by the MaineDOT survey. Properties with determinations of National Register eligibility include the Wells Branch Community Building at 1411 Branch Road, the Fire Association Building

at 1291 Branch Road and dwellings and farms on Branch Road located at 936, 1010, 1140 and 1285 Branch Road.

According to the Wells Comprehensive Plan, the Town had a local Historic Preservation Committee as early as 1978 and a Historic Preservation Commission since 1985. The local commission conducted a survey of significant properties and sites in Wells between 1999 and 2004. A report on the locations of the many small family cemeteries was produced with the assistance of the Department of Public Works in 1997. At the time of the Comprehensive Plan, the Wells Preservation Commission had placed nine (9) properties on the local historic register. Of these, four (4) are also on the National Register of Historic Places (Littlefield-Keeping House, Littlefield-Dustin Farm, Former First Congregational Church, and Division 9 School). The other five locally identified properties are the Moulton Homestead (61 Post Road), the Rankin School (1817 Post Road), the Eldridge Tavern (6 Eldridge Road), the Oliver West Farm (359 Bald Hill Road), and the Rose Cottage (224 Sanford Road).

Wells, as with much of the study area, may potentially have additional prehistoric sites that have yet to be identified. Two (2) prehistoric archaeological sites and three (3) historic archaeological sites are identified by MPHIC.

## Natural Resources

Much of the CYCCS study area is rural or undeveloped, and a variety of habitats, environmentally sensitive areas, and other natural resources are found throughout. This section provides an overview of identified natural resources regulated by Federal and State agencies as well as non-regulated resources that are considered important to the environment and character of the Study Area. Refer to *Appendix C: Natural Resources Technical Memo* for complete documentation of natural resource information for the CYCCS.

## Regulatory Background

The following is an overview of Federal and State regulations regarding natural resources that are evaluated during the National Environmental Policy Act (NEPA) process. The US Army Corps of Engineers (USACE) regulates the placement of dredged or fill material in waters of the United States, which includes wetlands and surface waters, under Section 404 of the Clean Water Act (33 U.S.C. 1344). The USACE also regulates under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) certain structures or work in or affecting navigable waters of the United States. Maine Department of Environmental Protection (MaineDEP) has jurisdiction over impacts to wetlands and surface waters under the Natural Resources Protection Act (NRPA, M.R.S.A §480-A to 480-HH). US Fish and Wildlife Service (USFWS) has primary responsibility for listed terrestrial and freshwater organisms and their habitats under the Endangered Species Act (ESA) as well as bald eagle management under the Bald and Golden Eagle Protection Act (BGEPA, 16 U.S.C. 668-668c). The ESA directs all Federal agencies to conserve threatened and endangered species and, in consultation with the USFWS, ensure that their actions do not jeopardize the continued existence of a listed species or destroy or adversely affect



designated critical habitat. The BGEPA prohibits anyone without a permit issued by the Secretary of the Interior from “taking” bald eagles, including their parts, nests, or eggs.

National Marine Fisheries Service (NMFS) is responsible under the ESA, as well as the Marine Mammal Protection Act (MMPA), for protecting marine mammals and threatened and endangered marine species. Maine Department of Inland Fisheries and Wildlife (MDIFW) oversees the Maine Endangered Species Act, which includes listed species and Essential Habitats (EH). EH are identified and mapped by MDIFW and include roseate tern, least tern and piping plover nest sites. Additionally, USFWS regulates wildlife habitat under the Fish and Wildlife Coordination Act, which involves evaluation of impacts to fish and wildlife from water resource development projects. Federal Emergency Management Agency (FEMA) and Maine Emergency Management Agency (MEMA) regulate floodplains.

### ***Study Area Natural Resource Findings***

The Study Area has extensive areas of wetlands and hydric soils. Wetlands, which include vernal pools, and stream crossings are the most highly protected and highly analyzed resources by the agencies (Figure 2-8). In addition, undeveloped habitat blocks, important for wildlife, are present throughout the Study Area. There are a number of imperiled natural communities (as defined by Maine Natural Areas Program, MNAP), some of which support threatened or endangered species or species of concern (Figure 2-9). Concentrations of endangered, threatened and species of concern have been documented along the southern boundary and within the central to northwest portion of the Study Area. These include the Massabesic Experimental Forest, Kennebunk Plains Wildlife Management Area and Wells Barrens.

## **Regulated and Otherwise Protected Resources**

### **Wetlands**

Construction of a new transportation corridor or reconstruction of an existing corridor would require an assessment of the extent of wetlands and surface waters under existing Federal and State regulations in compliance with the NEPA process. The USACE has jurisdiction over rivers, streams, waterbodies and wetlands within the Study Area. Section 404 of the Clean Water Act (33 U.S.C. 1344), administered by the USACE, requires that projects that impact wetlands follow the sequential process of first avoiding adverse wetland and surface water impacts, then minimizing impacts that cannot be practicably avoided and finally compensating for those impacts that cannot be further minimized. The USACE Highway Methodology details a process to systematically evaluate alternatives in a timely yet thorough manner (USACE 1993).

MaineDEP has jurisdiction over wetlands and water bodies under the Natural Resources Protection Act (NRPA, 38 M.R.S.A §480-A to 480-HH). The NRPA identifies sensitive wetland areas as Wetlands of Special Significance (WSS), which include:

- Peatlands (including heaths);
- Critically imperiled or imperiled communities;
- Significant wildlife habitat;
- Locations near coastal wetland;
- Locations near GPA great ponds (GPA defined as water quality suitable for drinking water, recreation, etc., 38 M.R.S.A. §465-A. All great ponds in Maine are classified as GPA);
- At least 20,000 square feet of aquatic vegetation, emergent marsh vegetation or open water;

- Wetlands subject to flooding; and
- Wetlands located within 25-feet of a river, stream or brook.

Impacts to WSS require more rigorous review and permitting than non-WSS wetlands and frequently require compensation through restoration, enhancement or preservation.

National Wetland Inventory (NWI) wetlands and hydric soils are shown in overview in Figure 2-8. The wetland boundaries are approximate and likely to change when wetlands are formally delineated. As indicated in the map, there are numerous NWI wetlands and hydric soils throughout the Study Area.

### Surface Waters

Rivers, brooks, streams and waterbodies are under the jurisdiction of the USACE and DEP. NWI wetlands also include several ponds and streams.

Rivers within the Study Area include:

- Mousam River, which begins at Mousam Lake in York County, flows for approximately 30 miles through the towns of Sanford and Kennebunk and into the Gulf of Maine just west of the Kennebunk River;
- Kennebunk River, approximately 15 miles long, begins at Kennebunk Pond and generally flows southeast emptying into the Gulf of Maine;
- Merriland River, approximately 4 miles long, which flows southeast through Wells to the Gulf of Maine; and
- Great Works River, approximately 27 miles long, flows south past North Berwick and meets with the tidal part of the Salmon Falls River in South Berwick.

A total of 23 Great Ponds occur within the Study Area. Great Ponds are defined by the NRPA as inland water bodies in a natural state that have a surface area in excess of 10 acres plus any inland bodies of water artificially formed or increased that have a surface area in excess of 30 acres. Great ponds are public waters under the jurisdiction of the State of Maine. A summary table listing the great ponds is provided in Table 2-6.

### Vernal Pools

Federal and State regulations provide additional protection to certain types of wetlands referred to as vernal pools. Federal criteria define a vernal pool as “a temporary to semi-permanent body of water occurring in a shallow depression that typically fills during the spring or fall and may dry during the summer. Vernal pools have no permanent inlet or outlet and no viable populations of predatory fish (USACE 2010). Vernal pools may offer habitat to obligate vernal pool species such as wood frogs, spotted salamanders, blue spotted salamanders, and fairy shrimp. The Federal definition is similar to Maine’s except that non-natural (i.e., human-created) pools are included in the federal definition and would include vernal pools considered non-significant by MDIFW. The Federal regulations require that impacts to vernal pools and the vernal pool management area (the area within a 750 foot radius from the pool edge) be minimized to the maximum extent practicable. Federal regulations consider all vernal pool types in a similar manner.



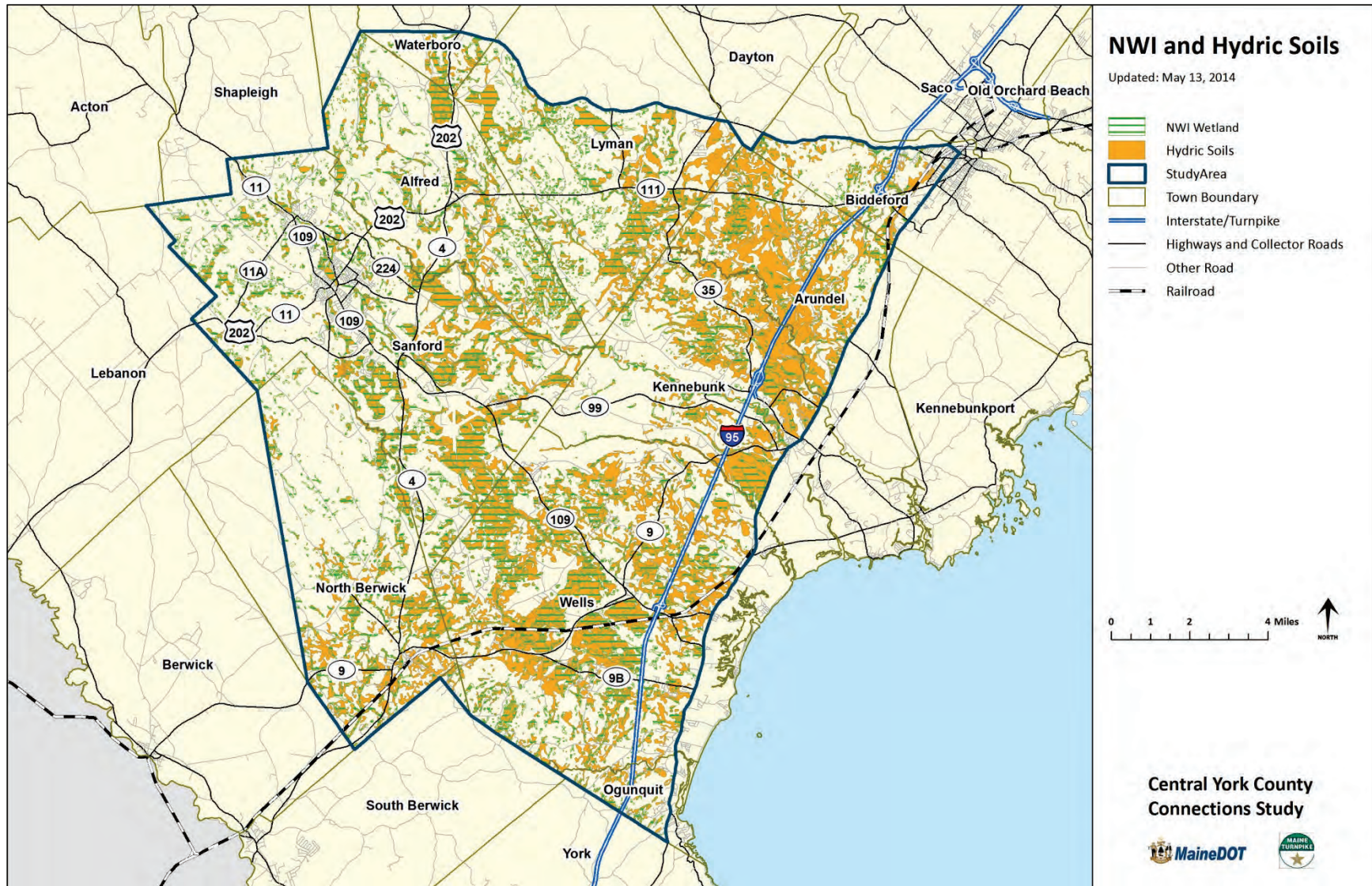


Figure 2-8: Overview of Wetlands and Hydric Soils in the Study Area

**Table 2-6: Great Ponds within the Study Area**

Name	Acres
Bunganut Pond	296.29
Kennebunk Pond	191.65
Unnamed	185.37
Bauneg Beg Pond	183.45
Estes Lake	174.75
Shaker Pond	109.17
Old Falls Pond	85.77
Alewife Pond	45.68
Number One Pond	41.97
Little Pond	33.41
Unnamed	31.46
Sand Pond	31.06
Unnamed	26.96
Stump Pond	26.12
Deering Pond	23.71
Littlefield Pond	21.02
Unnamed	18.90
Hobbs Pond	17.93
Old Fishing Pond	17.90
Unnamed	17.10
Unnamed	16.48
Curtis Pond	11.93

Source: U.S. Geological Survey (USGS), MEGIS, 1993, hydrop\_04202006.shp

The USACE reviews vernal pools on a case-by-case basis and has the discretionary authority to give higher consideration for protection to natural, undisturbed vernal pools compared to manmade vernal pools (e.g., skidder ruts) based on the presence of conditions allowing for breeding success.

Maine NRPA Chapter 335, Significant Wildlife Habitat, defines a vernal pool as a “natural, temporary to semi-permanent body of water occurring in a shallow depression that typically fills during the spring or fall and may dry during the summer.” Significant vernal pools are vernal pools that have been identified by MDIFW as meeting specific criteria for the presence of breeding obligate vernal pool species and are more highly protected. The Chapter 335 definition includes critical terrestrial habitat within a 250-foot radius of a significant vernal pool.

Figure 2-9 includes significant and non-significant vernal pools with 250-foot buffers, as mapped by MDIFW, as of July 2011. A limited number of significant and non-significant vernal pools have been identified to date by other projects in Ogunquit, Kennebunk, North Berwick, and Wells.

### Threatened and Endangered Species

Section 7 of the Endangered Species Act (ESA) requires that for any project in which there is a federal action that “may affect” listed species or their critical habitat, the action agency must consult with either the USFWS or NMFS. One federally-listed species, Atlantic salmon Gulf of Maine (GOM) Distinct Population Segment (DPS), has no critical habitat within the Study Area (NOAA 2010, Colligan 2012). The USFWS indicates that there are “no federally threatened or endangered species under the jurisdiction” of the USFWS. Other protected species noted by the USFWS include New England cottontail



rabbit (*Sylvilagus transitionalis*), which is a candidate for federal listing. New England cottontail is listed as an endangered species by MDIFW. USFWS also notes that occasional, transient bald eagles may occur in the general Study Area. The bald eagle was removed from the federal threatened list on August 9, 2008 and is now protected under the BGEPA and the Migratory Bird Treaty Act and reviewed under the 2007 National Bald Eagle Management Guidelines. No bald eagle nest sites have been mapped within the Study Area based on MDIFW Essential Habitat (EH) 2009 mapping and USFWS review.

The NMFS indicates that migrating shortnose sturgeon may utilize the Kennebunk and Mousam Rivers within the study area (Colligan 2012). It is unlikely that shortnose sturgeon will pass through the lower-most dam of the Mousam River. The dams on the Great Works River make it unlikely that shortnose sturgeon could move upstream of North Berwick. A dam on Branch Brook makes it unlikely that shortnose sturgeon could migrate west of US Route 1 past Drakes Island. The dam at Hobbs Pond probably prevents shortnose sturgeon movement upstream of the Merriland River beyond Maine Route 9A. In summary, it is unlikely that shortnose sturgeon will occur west of US Route 1 in York County.

On February 6, 2012, NMFS published new rules in the Federal Register listing Atlantic Sturgeon as threatened in the Gulf of Maine (GOM) Distinct Population Segment (DPS). Based on currently available information, Atlantic sturgeon may be present in the lower reaches of any of the rivers within the Study Area. It is likely that Critical Habitat will be designated for Atlantic Sturgeon in the future in tidal waters of the Study Area.

The Maine Endangered Species Act designates mapped Essential Habitats for species listed as endangered or threatened. A review of the data layers determined that there are no mapped Essential Habitats for least terns, roseate terns, or piping plovers within the Study Area.

A summary of state-listed Rare, Threatened and Endangered (RTE) animal and plant species that have the potential to occur within the Study Area based on data layers provided by Beginning with Habitat is provided in Table 2-7. A total of 14 state-listed threatened and endangered animal species have been documented within the Study Area. These include three reptiles (Northern black Racer, ribbon snake, and Blanding's Turtle); two butterflies (Hessell's Hairstreak and Spicebush Swallowtail); two dragonflies (Ringed Boghaunter and Arrowhead Spiketail); two moths (Barrens Chaetagnaea and Broad Sallow); five birds (Common Moorhen, Least Bittern, Saltmarsh Sharp-Tailed Sparrow, Upland Sandpiper and Grasshopper Sparrow) and one mammal, New England Cottontail. Some of the occurrences are clustered in the Kennebunk Plains Wildlife Management Area and Massabesic Experimental Forest as well as the Sanford Airport. Blanding's Turtle, wood turtle and spotted turtle have been listed by Beginning with Habitat within either the Mt. Agamenticus or Kennebunk Plains/Wells Focus Areas. A total of thirty-two endangered, threatened, and rare plant species occur throughout the Study Area, along with fourteen imperiled natural communities.

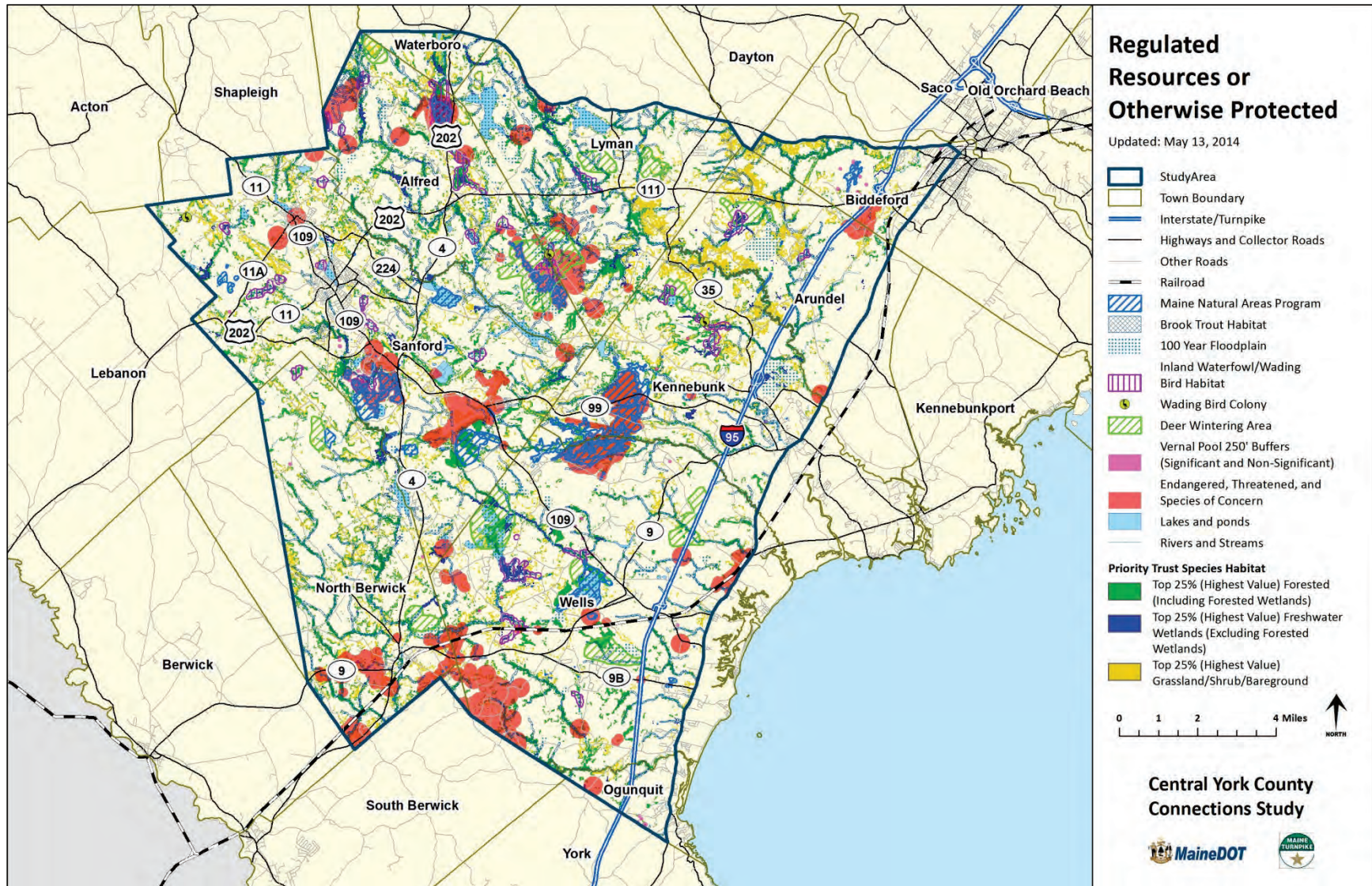


Figure 2-9: Overview of Regulated and Otherwise Protected Resources in the Study Area



**Table 2-7: Rare, Threatened and Endangered Species within Study Area (Beginning with Habitat)**

Common Name	Scientific Name	State Protection Status <sup>1</sup>
Arrowhead Spiketail	<i>Cordulegaster obliqua</i>	SC
Barrens Chaetagnae	<i>Chaetagnae tremula</i>	SC
Blanding’s Turtle	<i>Emys blandingii</i>	E
Broad Sallow	<i>Xylosteus capax</i>	SC
Common Moorhen	<i>Gallinula chloropus</i>	T
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	E
Hessel’s Hairstreak	<i>Callophrys hesseli</i>	E
Least Bittern	<i>Ixobrychus exilis</i>	E
New England Cottontail	<i>Sylvilagus transitionalis</i>	E
Northern Black Racer	<i>Coluber constrictor constrictor</i>	E
Ribbon Snake	<i>Thamnophis sauritus</i>	SC
Ringed Boghaunter	<i>Williamsonia lintneri</i>	T
Saltmarsh Sharp-tailed Sparrow	<i>Ammodramus caudacutus</i>	SC
Spicebush Swallowtail	<i>Papilio troilus</i>	SC
Upland Sandpiper	<i>Bartramia longicauda</i>	T

1. State Protection Status: E=Endangered. T=Threatened. SC=Special Concern.

**Wildlife Habitat**

Under NRPA Chapter 335, Significant Wildlife Habitat includes: endangered or threatened species habitats; high and moderate valued deer wintering areas (DWA) and travel corridors; critical spawning and nursery areas for Atlantic salmon; vernal pools; MDIFW-mapped moderate and high-value inland waterfowl/wading bird habitats and

MDIFW-mapped shorebird nesting, feeding and staging areas. Figure 2-9 shows significant habitats within the Study Area. Inland Waterfowl/Wading Bird habitats are scattered throughout the Study Area. Generally, these areas are associated with brooks or rivers. One wading bird colony has been identified in the Town of Arundel along Ward Brook, which feeds into the Kennebunk River.

DWA are found throughout the area, including several large DWAs located in Lyman and Sanford just north of the Mousam River. All of the DWA have been rated as indeterminate, requiring a review by MDIFW.

There are no MDIFW mapped shorebird nesting, feeding, staging areas, or tidal wading bird habitats within the Study Area.

A number of areas designated for endangered, threatened and species of concern occur through the Study Area, including high value habitat for USFWS Priority Trust Species. Figure 2-9 shows the top 25% forested, freshwater and grassland high value habitats mapped by the USFWS Gulf of Maine Coastal Program (GMCP). All the species included in the GMCP habitat analysis regularly inhabit the Gulf of Maine watershed and meet one or more of the following criteria (USFWS 2007):

- Federally endangered, threatened and candidate species;
- Migratory birds, diadromous and estuarine fish that are declining nationwide;
- Migratory birds, diadromous and estuarine fish that are threatened or endangered in two of the three states in the Gulf of Maine watershed; or



- Other birds that have been identified as species of concern by the North American Waterfowl Management Plan, the U.S. Shorebird Conservation Plan, the Colonial Waterbird Plan and Partners in Flight.

### Fisheries

In 2006, Legislative protection (Maine Legislature 2006) was extended to native brook trout populations (Bonney 2009). Any proposal to stock waters containing native brook trout requires review and consent from the Maine Legislature's Fish and Wildlife Committee. Two wild brook trout (*Salvelinus fontinalis*) waters were identified by MDIFW within the project area, Coldwater Pond and Kennebunk Plains Pond (See Figure 2-9). A wild brook trout fishery is defined by MDIFW as a body of water that has not been directly stocked with brook trout in the previous 25 years. Stream stocking is practiced most intensively within the MDIFW region that encompasses the Study Area. Of the 337 mapped streams within the Study Area, 278 (82%) are mapped as brook trout habitat by MDIFW. In comparison, data noted in the MDIFW 2009 *Not Stocked Since 1983 Brook Trout List*, indicates that there are 250 wild brook trout lakes and ponds within the entire state (GKG Projects 2010). Brook trout habitat losses accelerate with increased rates of development and often are permanent (Bonney 2009). Loss of habitat connectivity occurs from improperly placed/sized culverts at road crossings that limit fish passage.

There are no anadromous/catadromous fish runs identified by MDIFW in the Study Area. DMR indicated that there are likely American eel, alewife, blueback herring, American shad, sea lamprey and possibly striped bass within the Study Area, with a low likelihood for Atlantic sturgeon, shortnose sturgeon and Atlantic salmon. These species are

likely to occur in the Ogunquit, Wehannet, Merriland, Mousam and Kennebunk rivers (Wipplehauser 2011).

There are no Essential Fish Habitat (EFH) species in freshwater habitats within the Study Area (Chiarella 2011). EFH Species within tidally influenced areas (Wells Harbor) are listed in Table 2-8.

**Table 2-8: List of Essential Fish Habitat Species Within Study Area Tidally Influenced Areas**

Species
White hake ( <i>Urophycis tenuis</i> )
Redfish ( <i>Sebastes fasciatus</i> )
Winter flounder ( <i>Pleuronectes americanus</i> )
Yellowtail flounder ( <i>Pleuronectes ferruginea</i> )
Windowpane flounder ( <i>Scopthalmus aquosus</i> )
Atlantic halibut ( <i>Hippoglossus hippoglossus</i> )
Atlantic sea herring ( <i>Clupea harengus</i> )
Bluefish ( <i>Pomatomus saltatrix</i> )
Long finned squid ( <i>Loligo pealei</i> )
Short finned squid ( <i>Illex illecebrosus</i> )
Surf clam ( <i>Spisula solidissima</i> )
Ocean quahog ( <i>Artica islandica</i> )
Spiny dogfish ( <i>Squalus acanthias</i> )

Source: NOAA Fisheries Service: Northeast Regional Office, <http://www.nero.noaa.gov/hcd/me13.html>, views on January 6, 2012.

### Floodplains

Executive Order 11988, Floodplain Management, requires that all federally funded projects determine whether a proposed project will occur in a floodplain and to consider alternatives to avoid adverse effects and incompatible development in floodplains. The 100-year



floodplains of streams and rivers were identified within the Study Area based on Flood Insurance Rate Mapping (FIRM) completed by the FEMA. The 100-year floodplains are generally associated with areas directly adjacent to rivers and some of the larger brooks. Floodplains are shown on Figure 2-9.

### Other Resources

Other resources that could be adversely affected include water resources, designated conservation areas, Section 6(f) resources, and undeveloped habitat blocks. Other resources in the Study Area are identified in Figures 2-10 to 2-12.

### Water Resources

A number of aquifers are found throughout the Study Area. Public water supply areas and public water supply wells, found throughout the Study Area, are protected by the MaineDEP State Drinking Water Program, as part of the Federal Safe Drinking Water Act (42 U.S.C. 300 f et seq.; 6939b; 15 U.S.C. 1261 et seq.). Some locations within the Study Area have been identified for historic hazardous oil spills and remediation sites, which fall under the jurisdiction of MaineDEP Bureau of Remediation and Waste Management. Two wastewater treatment facilities are located in North Berwick, whose operation is governed by MaineDEP Bureau of Land and Water Quality. One closed landfill is located in the Town of Wells, which falls under Maine's Landfill Closure and Remediation Program 38 MRSA §1310-C et. seq., implemented by MaineDEP Bureau of Remediation and Waste Management.

A summary of watersheds and lakes most at risk from development and watersheds identified by MaineDEP as nonpoint source priority watersheds are summarized in Table 2-9. These watersheds and lakes

fall under the jurisdiction of the Stormwater Management statute (38 M.R.S.A §420-D), which requires projects to manage stormwater to protect surface waters. A stormwater analysis and storm water management plan are also required when major additions of impervious surface are proposed. The Maine Department of Transportation (MaineDOT) and Maine Turnpike Authority (MTA) are obligated under the MaineDOT/DEP/FHWA Cooperative Agreement for Stormwater Management to comply with NRPA Chapter 500, Stormwater Management, standards, which includes a written plan.

### Designated Conservation Areas

The Study Area overlaps two Biophysical Regions, Gulf of Maine Coastal Plain and Gulf of Maine Coastal Lowland (McMahon 1998). The Gulf of Maine Coastal Plain contains the largest concentration of glaciofluvial deposits in the state (McMahon 1990). This region includes a transition zone from warm temperate to cool temperate and boreal vegetation. The Gulf of Maine Coastal Lowland parallels the Gulf of Maine in a 20-mile-wide band. The Atlantic coastal plain reaches its eastern extent just north of the Study Area. Ecosystems that reach their northern limit include the sandplain grasslands and oak hickory forests. The largest coastal pitch pine community in Maine occurs in Kennebunk and Wells.

Designated Conservation Areas within the Study Area include areas under federal, state, town or non-profit ownership. These areas are depicted along with other resources on Figure 2-10 and additionally called out separately in Figure 2-11. The two largest are the Kennebunk Plains Wildlife Management Area (WMA) and the Massabesic Experimental Forest. The Kennebunk Plains WMA, which is managed by MDIFW, is a 3,200-acre protected sandplain grassland community, a state-listed critically-imperiled natural community and

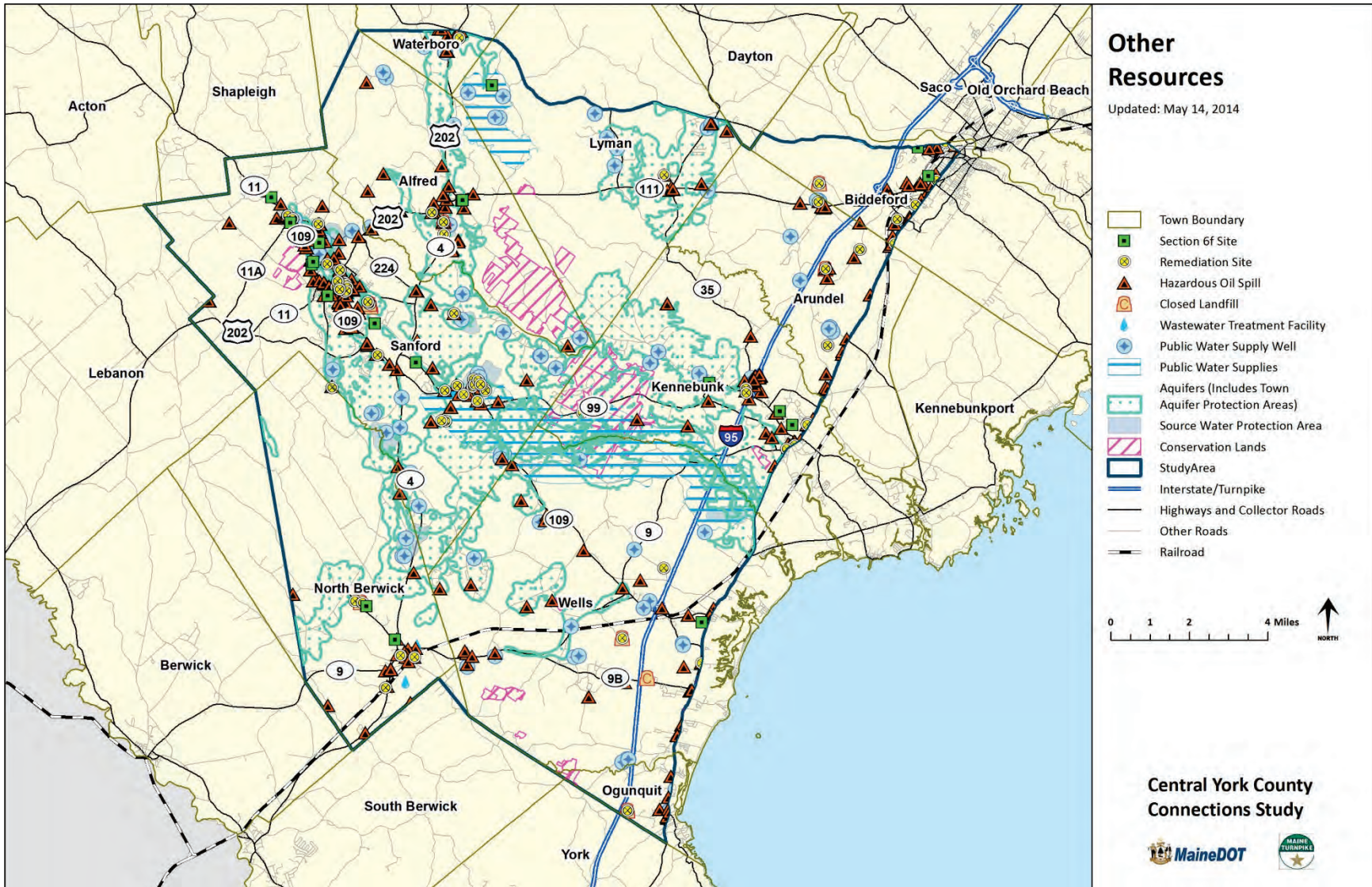


Figure 2-10: Overview of Other Resources in the Study Area



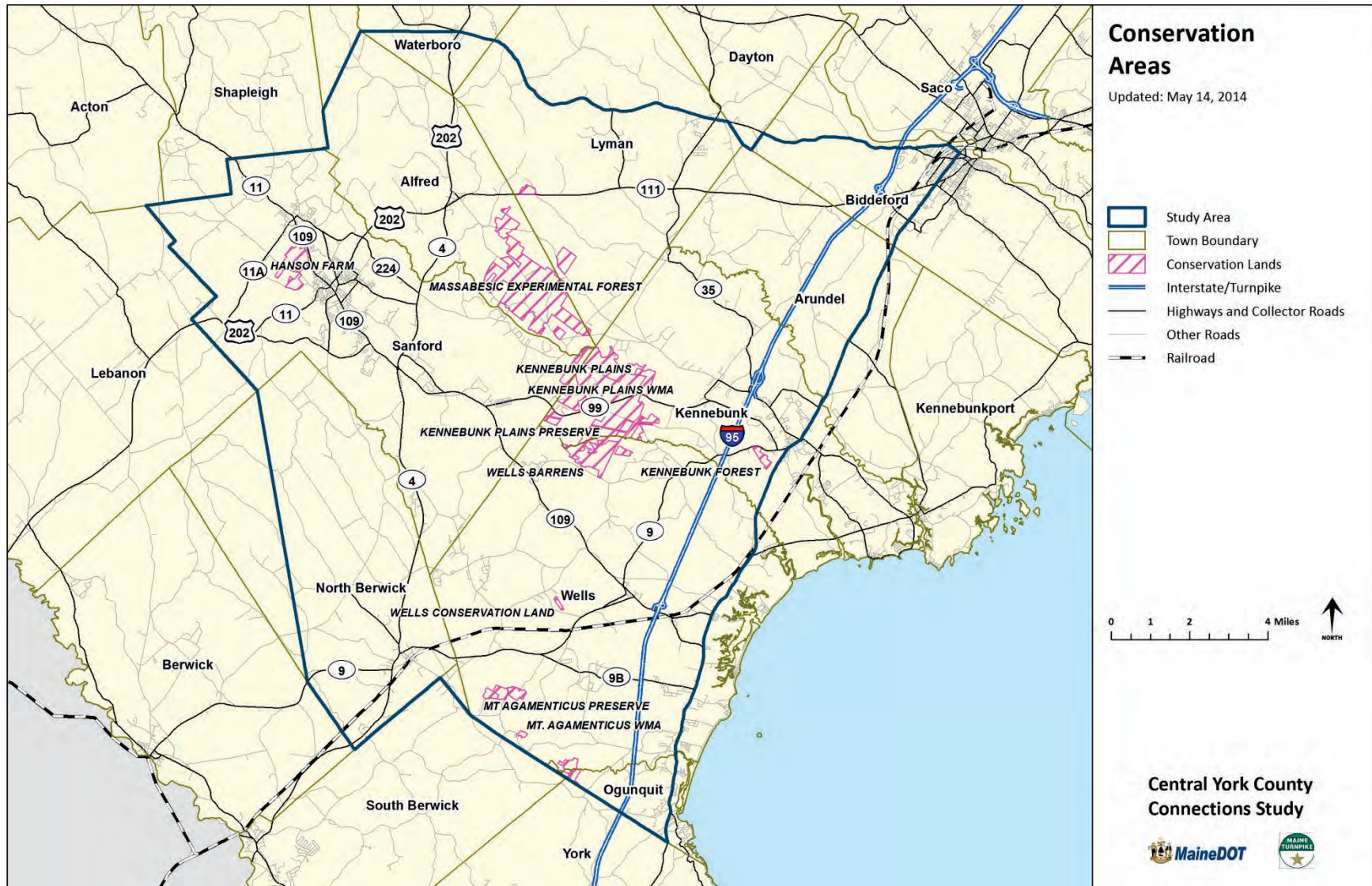


Figure 2-11: Conservation Areas in the Study Area



home to rare animals, (including reptiles such as the black racer, a state-listed species) and plants. It is the largest example of this type of ecosystem in the New England Region (SPO 2010) and combined with the Wells Barrens is one of the top-priority conservation areas in the state of Maine. Other critically-imperiled natural communities (pitch pine-heath barrens and pitch pine-scrub oak barrens) also occur in the area (MNAP 2010a). The Massabesic Experimental Forest, a 3,700-acre area located in Alfred and Lyman, is owned by the U.S. Forest Service (USFS). Tree stands within the forest consist of a mixture of pine and hardwoods, including northern red oak (USFS 2010). An imperiled natural community, Atlantic White Cedar Swamp, is found in the area. The Forest provides habitats for several state-listed endangered species such as Blanding's and spotted turtles (MNAP 2010 b,c).

Other designated Conservation Areas include:

- Mt. Agamenticus Hilton Easement;
- Mt. Agamenticus Wildlife Management Area;
- Mt. Agamenticus Preserve;
- The Heath in Wells;
- Kennebunk Forest;
- Wells Barren, which is home to the state-listed Black Racer; and
- Hansen Farm.

The Sanford Ponds area, while not a Conservation Area, is a designated focus area by the Maine Natural Areas program (MNAP 2010d).

**Table 2-9: Watersheds and Lakes Most at Risk and Nonpoint Source Priority Watersheds**

Watersheds and Lakes Most at Risk	
	City
Bauneg Beg Pond	Sanford
Deering Pond	Sanford
Ell Pond	Sanford
Estes Lake	Sanford
Nonpoint Source Priority Watersheds (Town)	Type Of Impairment Or Public Water Supply
Branch Brook (Sanford, Arundel, Kennebunk)	Public water supply
Great Works River (Sanford, North Berwick, Berwick)	Low dissolved oxygen
Kennebunk River (Kennebunk, Arundel, Kennebunkport)	Sediment, nutrients, bacteria
Mousam River (Sanford, Arundel, Kennebunk)	Sediment, nutrients, bacteria

Source: MaineDEP Nonpoint Source Priority watersheds List, 10-15-98 and Chapter 502, Direct Watersheds of waterbodies most at risk from development.



**Section 6(f) Resources**

Section 6(f) of the Federal Land and Water Conservation Fund (LWCF) Act of 1964 provides financial assistance for the acquisition and development of public lands to create parks and open spaces; protect wilderness, wetlands and refuges; preserve wildlife habitat; and enhance recreational opportunities. Lands acquired or improved with these funds are subject to Federal regulations administered by the US Department of the Interior (USDOI). Pursuant to these regulations, any land subject to Section 6(f) cannot be “converted” to another use for purposes inconsistent with the Act without the approval of the USDOI and without being replaced with other land that is of equal use and value to the land proposed for conversion.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy For Users (SAFETEA-LU), the successor to the Intermodal Surface Transportation Efficiency Act (ISTEA), transfers a percentage of gasoline taxes paid on non-highway recreational use in off-highway vehicles from the Highway Trust Fund into the Recreational Trails Program for trail development, improvement and maintenance. The State of Maine has agreed to take part in the Recreational Trails Program (RTP) under the Federal Highway Administration (FHWA), the federal agency that administers at the national level.

The Bureau of Public Lands database identified 17 sites under the LWCF and 3 sites under the RTP. These sites are shown on Figure 2-10. A summary of the sites is provided in Table 2-10.

**Table 2-10: Section 6(f) Properties**

Recreation Project	Project	State/Local Project
LWCF	Alfred Ballfield	Local
LWCF	Alfred Recreation Park	Local
LWCF	Ballfield Lighting	Local
LWCF	Ballfield, Park & Playground	Local
LWCF	Bunganunt Pond	State
LWCF	Gowen Park Field	Local
LWCF	Memorial Field Recreation Facility	Local
LWCF	Multi-Purpose Field	Local
LWCF	Park	Local
LWCF	School Park	Local
LWCF	Skateboard Park	Local
LWCF	Soccer Field	Local
LWCF	Springvale Playground Renovation	Local
LWCF	Springvale Swim Area	Local
LWCF	Tennis Courts	Local
LWCF	West Kennebunk Recreation Area	Local
LWCF	Wiggan Pond Park	Local
RTP	Rehab Trails	Local
RTP	Rehab Trails	Local
RTP	Sanford	Not noted

Source: Department of Conservation, March 9, 2012



### Undeveloped Habitat Blocks

Undeveloped habitat blocks within the region based on 2003 to 2006 aerial imagery are mapped in Figure 2-12. These blocks are at least 100 acres in size and are considered to offer the best opportunity for conservation of relatively undisturbed blocks of habitat. These areas have not been broken by roads and contain relatively little development. The general land use/landcover is provided for use in initial assessments of these areas. Landcover categories include forest areas and other areas, which include agricultural lands, exposed rock, gravel pits, etc. Large blocks of undeveloped land may provide habitat for animals with large home ranges such as black bear, bobcat, fisher and moose as well as species that are sensitive to human disturbance such as upland sandpipers and wood thrushes.

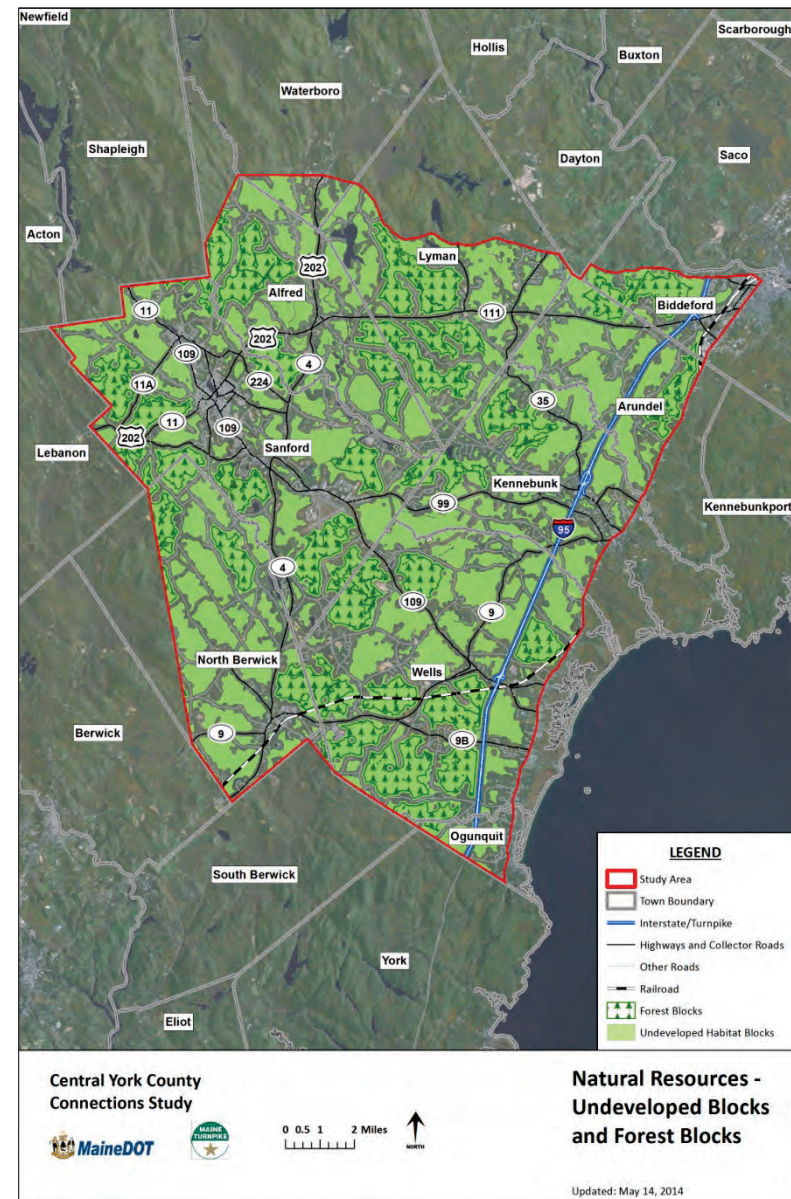


Figure 2-12: Undeveloped Habitat and Forest Blocks