

TECHNICAL REPORT

**CULTURAL RESOURCES INVENTORY
LONG ISLAND SOUND - DREDGED MATERIAL
MANAGEMENT PLAN
Long Island Sound, Connecticut, New York, and Rhode Island
VOLUME I**

**Contract #W921WJ-08-R-002
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MANAGEMENT ABSTRACT

PAL prepared a cultural resources inventory that identifies historic properties including archaeological sites and sensitivity of 57 coastal communities in Fairfield, New Haven, Middlesex, and New London Counties, Connecticut; Washington County, Rhode Island; and Westchester, Bronx, Queens, Nassau and Suffolk Counties, New York, located along the Long Island Sound. These coastal communities include the area underwater within one-half mile of the shoreline and inland at a distance of no greater than 10 miles. The cultural resources inventory for the LIS DMMP project study area is provided in a Geographic Information Systems (GIS) database that includes cultural resources map overlays and metadata: 1) information and locations for all historic properties (buildings, structures, landscapes, archaeological sites, shipwrecks, etc.) that are included or eligible for listing in the National Register of Historic Places; and 2) archaeological sensitivity maps for terrestrial and underwater archaeological resources that are suitable for external public review.

The archaeological sites inventory for the terrestrial portion of the LIS DMMP study area consists of 3,146 recorded archaeological sites, of which 195 are identified as National and State Register (NR/SR) listed or eligible sites, either within a historic/archaeological district or individually listed. In addition, there are five National Register-listed or eligible archaeological districts (or historic districts with archaeological significance). No traditional cultural properties were identified in the state inventories; however, it is expected that such resources are present in some areas and would need to be identified through discussions with Native American tribes and other ethnic groups or communities. Overall, the LIS DMMP study area along the coast of Long Island Sound is a highly sensitive region for terrestrial archaeological resources that date from all temporal/cultural periods of documented human occupation, approximately 12,000 years ago to present. The land sensitivity for archaeological resources is between 75 and 99 percent for each of the 57 communities in the LIS DMMP study area. For terrestrial archaeological resources, further investigations in the form of Phase I assessment surveys to refine the generalized archaeological sensitivity model provided in this inventory document should be conducted for any LIS DMMP alternatives that involve upland placement or other land area impacts once they are developed by the dredging proponents. The Phase I assessments would be designed to determine the full potential for unrecorded sites to be present using in-depth reconnaissance survey methods as required by the SHPOs. This phase of survey would also include the identification of any traditional cultural properties that may be present, through discussions with consulting parties including Native American tribes.

A total of 847 shipwrecks and obstructions are reported within the LIS DMMP study area. Just four of these shipwrecks and obstructions are NR-listed or eligible historic properties. Areas of low, moderate, and high sensitivity for underwater archaeological resources is highest at the study area's western end closest to the port of New York City and at its eastern end in association with the Groton-New London port area. For underwater archaeological resources, further investigation is recommended for any proposed undertaking that may impact the seafloor within the underwater LIS DMMP study area. Project area-specific Phase IA marine archaeological sensitivity assessment is recommended to evaluate the full potential for unrecorded sites to be present. Results from such an assessment are necessary for developing a research design for conducting a Phase IB marine archaeological remote sensing identification survey.

A total of 2,032 historic resources, including 914 in Connecticut, 927 in New York, and 118 in Rhode Island, were identified within the LIS DMMP study area. They include buildings, sites, structures, objects, and districts that are listed, determined eligible, or potentially eligible for the National Register and/or State Register within the respective states in which they are located. The majority are individual properties, but a large number of districts, which were counted as one property containing many additional resources, are present. For historic aboveground resources, the area within or surrounding the identified National/State Register boundaries should be avoided if at all possible during the planning for the LIS DMMP. PAL further recommends that all alternative sites identified in the study area be screened for their potential to include properties that have not been previously evaluated. This would include resources included in the SHPO inventories that have not been evaluated in accordance with the National Register Criteria for Evaluation or have not been previously recorded in the inventories. In the event the alternative site location has the potential to contain those types of resources, a reconnaissance level historic architecture survey should be conducted.

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CHAPTER ONE

INTRODUCTION

This technical report presents the results of a cultural resources inventory that identifies historic properties including archaeological sites and sensitivity of the coastal area bordering the Long Island Sound in Rhode Island, Connecticut, and New York (Figure 1-1). This inventory will be used in the development of the Long Island Sound Dredged Material Management Plan (LIS DMMP). This information will be used to screen potential dredged material management alternative sites. PAL conducted the cultural resources inventory as a sub consultant under a Master Services Agreement with Woods Hole Group for their Environmental Planning and Consulting Services for the United States Army Corp of Engineers-New England District (USACE).

Scope

The cultural resources inventory was developed for the coastal counties of Fairfield, New Haven, Middlesex, and New London Counties, Connecticut; Washington County, Rhode Island; and Westchester, Bronx, Queens, Nassau and Suffolk Counties, New York, located along the Long Island Sound. These coastal communities include the area underwater within one-half mile of the shoreline and inland at a distance of no greater than 10 miles (Table 1-1). The cultural resources inventory of known historic properties includes all recorded archaeological sites (terrestrial and underwater); and historic buildings, structures, and landscapes that are listed in the National Register of Historic Places or have been determined eligible by a federal agency or State Historic Preservation Office (SHPO) opinion. The USACE Scope of Work also requested that information about traditional cultural properties and sacred or spiritual sites in the study area be collected when available. No information regarding traditional cultural properties was recorded in SHPO or other state site files reviewed for the inventory. Expectations regarding the presence and types of traditional cultural properties in the study area are discussed at the end of the report.

Authority

The cultural resources inventory will assist the USACE in fulfilling legal obligations under Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800). Section 106 requires federal agencies to take historic properties into account prior to any federal undertaking. The cultural resources inventory was conducted in accordance with the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716, September 29, 1983) and the Advisory Council on Historic Preservation's Handbook "Treatment of Archaeological Properties" (1980).

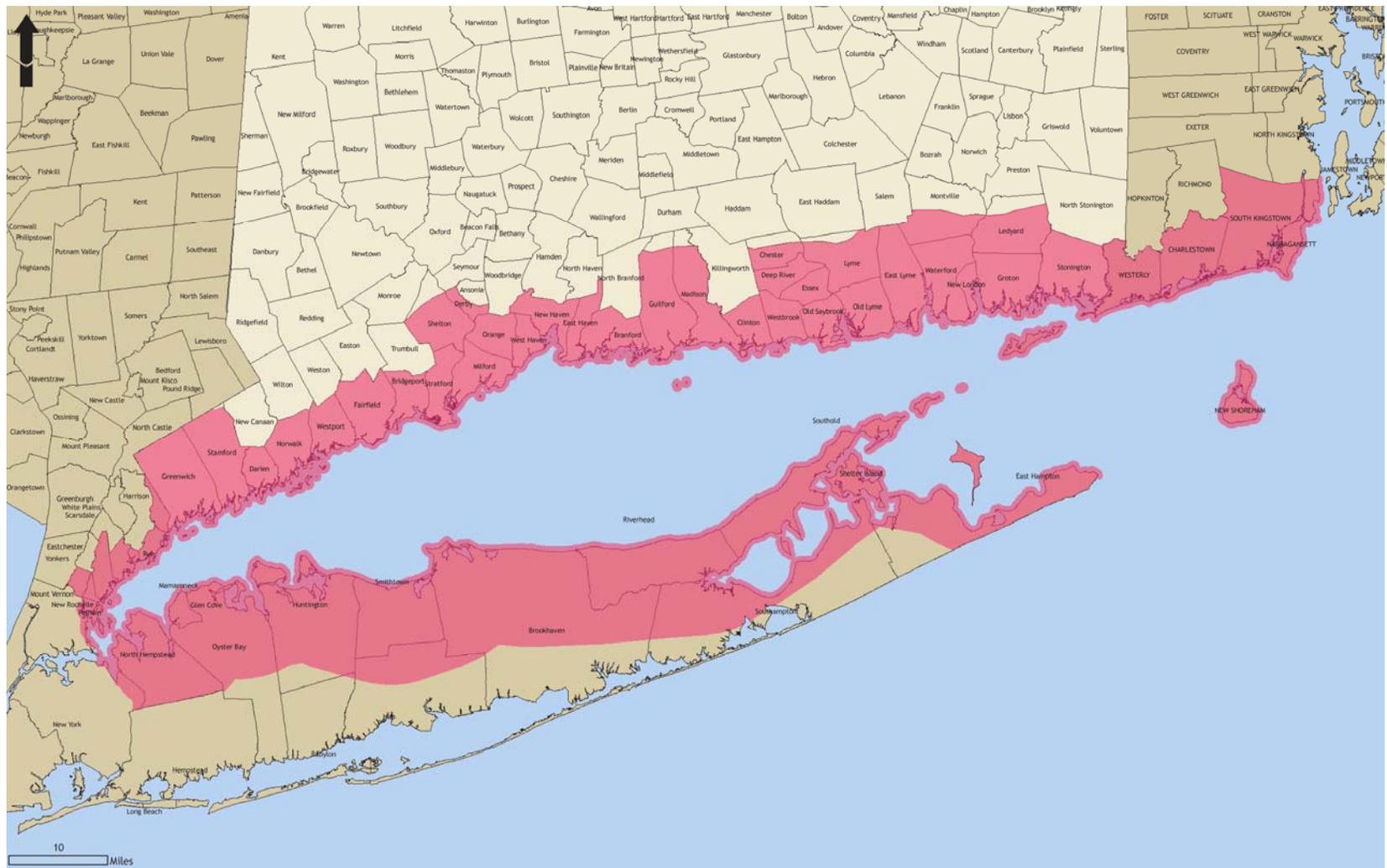


Figure 1-1. Location of the LIS DMMP project study area in the states of Connecticut, New York, and Rhode Island.

Table 1-1. LIS DMMP Cultural Resources Project Study Area By State, County, and City/Town.

State	County	City/Town
CT	Fairfield	Bridgeport
CT	Fairfield	Darien
CT	Fairfield	Fairfield
CT	Fairfield	Greenwich
CT	Fairfield	Norwalk
CT	Fairfield	Shelton
CT	Fairfield	Stamford
CT	Fairfield	Stratford
CT	Fairfield	Westport
CT	Middlesex	Chester
CT	Middlesex	Clinton
CT	Middlesex	Deep River
CT	Middlesex	Essex
CT	Middlesex	Old Saybrook
CT	Middlesex	Westbrook
CT	New Haven	Branford
CT	New Haven	Derby
CT	New Haven	East Haven
CT	New Haven	Guilford
CT	New Haven	Madison
CT	New Haven	Milford
CT	New Haven	New Haven
CT	New Haven	Orange
CT	New Haven	West Haven
CT	New London	East Lyme
CT	New London	Groton
CT	New London	Ledyard
CT	New London	Lyme
CT	New London	Montville
CT	New London	New London
CT	New London	Old Lyme
CT	New London	Stonington
CT	New London	Waterford
NY	Bronx	New York (Bronx) - east of Throg's Neck only
NY	Nassau	Glen Cove
NY	Nassau	North Hempstead
NY	Nassau	Oyster Bay
NY	Queens	New York (Queens) - east of Throg's Neck only
NY	Suffolk	Brookhaven
NY	Suffolk	East Hampton
NY	Suffolk	Huntington
NY	Suffolk	Islip
NY	Suffolk	Riverhead
NY	Suffolk	Shelter Island
NY	Suffolk	Smithtown

Table 1-1. LIS DMMP Cultural Resources Project Study Area By State, County, and City/Town.

State	County	City/Town
NY	Suffolk	Southampton
NY	Suffolk	Southold
NY	Westchester	Mamaroneck
NY	Westchester	Mount Vernon
NY	Westchester	New Rochelle
NY	Westchester	North Castle
NY	Westchester	Pelham
NY	Westchester	Rye
RI	Washington	Charlestown
RI	Washington	Narragansett
RI	Washington	New Shoreham
RI	Washington	South Kingstown
RI	Washington	Westerly

Report and GIS Database Organization

The technical report is organized into eight chapters including this introduction and appendices, in accordance with the USACE Scope of Work. Chapter 2 presents the methodology used to compile the cultural resource inventory including information sources and locations. Chapters 3 and 4 present the cultural context overviews (pre-contact, contact, and post-contact periods) for the study area, divided into separate sections for each state. Chapter 5 presents the results of the historic and archaeological resources inventory, including a description of previous investigations conducted within the project study area, the types of archaeological sites present, and a broad sensitivity assessment based primarily on the presence of recorded sites. Chapter 6 provides recommendations for future planning efforts related to the LIS DMMP and the locations of recorded and potential cultural resources in both terrestrial and offshore portions of the project study area. The References section of the report includes all information sources cited in the body of the report.

The cultural resources inventory for the LIS DMMP project study area is provided in a separate electronic Geographic Information Systems (GIS) database that includes cultural resources map overlays (Appendix A). The GIS overlays and metadata consist of: 1) information and locations for all historic properties (buildings, structures, landscapes, archaeological sites, shipwrecks, etc.) that are included or eligible for listing in the National Register of Historic Places; and 2) archaeological sensitivity maps for terrestrial and underwater archaeological resources that are suitable for external public review. A full bibliography of all documents relating to recorded cultural resources and previous surveys is provided in the GIS database spreadsheets that are keyed to the overlay maps. *Note:* The GIS database contains site location information that is **Not for Public Distribution**. The GIS cultural resources overlays will be integrated into the overall LIS DMMP GIS system prepared by the Woods Hole Group under a separate work order.

In addition to the Appendix A GIS cultural resources overlays and metadata (CD), the technical report includes three other appendices: Appendix B Cultural Resources Inventory and Sensitivity Maps – PDF

file version (CD); Appendix C are cultural resource inventory data tables (excel spreadsheets) by state/county/town; and Appendix D is a list of state repositories visited and contact information.

Survey Personnel

The data collection, processing, and synthesis tasks were conducted from September 2009 to February 2010. PAL personnel involved in the project include Deborah Cox (project manager), Suzanne Cherau (principal investigator/senior archaeologist), Steve Olausen (senior architectural historian), Jennifer Banister (project archaeologist), Quinn Stuart (architectural historian), Kimberly Allegretto and Carrie Zwang (researchers/archaeologists), and Melissa Antonelli (architectural projects assistant). David Robinson of Fathom Research, LLC (Fathom) was subcontracted by PAL to conduct the underwater archaeological resources survey. Mr. Robinson was assisted by Fathom's GIS Specialist, Timothy Wallace, in the preparation of the GIS underwater resources overlay maps and metadata. Jane Miller (GIS Specialist at PAL) was responsible for creating the cultural resources GIS database including overlap maps for the terrestrial cultural resources inventory.

Disposition of Project Materials

All project information (i.e., field recording forms, maps, cultural materials, photographs) is currently on file at PAL, 210 Lonsdale Avenue, Pawtucket, Rhode Island. PAL serves as a temporary curation facility until such time as the U.S. Army Corps of Engineers-New England District designates a permanent state repository.

CHAPTER TWO

METHODOLOGY

The LIS DMMP project study area cultural resources inventory consisted of data collection, processing and synthesis tasks for terrestrial and underwater historic properties including archaeological sites, shipwrecks, buildings, structures, and landscapes. Where available, information about traditional cultural properties and sacred or spiritual sites in the study area was also collected and reviewed. The inventory was compiled through research conducted at various state repositories in Connecticut, New York, and Rhode Island. In addition to compiling the cultural resources inventory, the Corps also requested the preparation of archaeological sensitivity maps for the study area. The archaeological sensitivity maps were developed using the known archaeological site inventory and general regional predictive models, as described below.

Data Collection

The data collection was conducted at the following repositories where information concerning recorded historic properties including archaeological sites and aboveground buildings, structures, and landscapes; maritime resources; and previous cultural resources survey reports is located:

- Connecticut State Historic Preservation Office/ Historic Commission, Hartford, CT;
- University of Connecticut-Storrs Office of State Archaeologist, Storrs, CT;
- University of Connecticut-Storrs Special Collections Library-Dodd Center, Storrs, CT;
- New York State Historic Preservation Office, Albany, NY; and
- Rhode Island State Historic Preservation Office/Preservation and Heritage Commission, Providence, RI.

In addition to the aforementioned repositories, the following sources and databases were queried for reported shipwrecks and National Register-listed or eligible shipwrecks:

- National Oceanic and Atmospheric Administration (NOAA) navigation charts and on-line Automated Wreck and Obstruction Information System (AWOIS);
- Current NOAA navigational charts;
- U.S. Engineers Office's 1904 Index and Map of Marine Disasters from Fisher's Island, New York to Cape Cod, Massachusetts;
- Bruce D. Berman's *Encyclopedia of American Shipwrecks* (1972);

- New York State Office of Parks, Recreation, and Historic Preservation's Field Services Bureau's New York State Shipwrecks Report;
- National Register of Historic Places on-line database; and
- Heritage Consultants, Inc.'s 2007 GIS database documenting shipwrecks in the Connecticut waters of Long Island Sound.

Appendix D contains a list of all state repositories that were visited during the survey along with contact names and addresses. A list of all federal and state recognized Native American tribes located within and adjacent to the study area is also included in Appendix D for future reference.

All available cultural resource inventory forms, including National Register nominations, were reviewed and/or photocopied to assist in the development of the LIS DMMP cultural resources inventory database and mapping. All available cultural resource management (CRM) reports on file at the SHPO offices were reviewed for pertinent information (see below), but generally were not photocopied.

Data Processing and Synthesis

PAL entered the collected data on inventoried cultural resources into an electronic database that was used to prepare spreadsheets. The spreadsheets serve as resource tables organized by town/county to accompany this technical report and the GIS overlay maps, as requested in the Corps' Scope of Work, Task 3(2). They also contain the attribute data that was needed to create the cultural resource GIS overlay maps and serve as the meta-data for the GIS cultural resource overlays, as requested in the Corps' Scope of Work, Task 2. The spreadsheet database assisted in analyzing the data and synthesizing information about the nature and distribution of historic properties including submerged sites within the study area. At a minimum, the spreadsheet data for aboveground resources includes (where known) the state inventory number of the resource, its name, location, property type, and National Register status (listed or eligible). For archaeological resources, the spreadsheet data includes the state inventory number, name, location, site type, contents/function, temporal affiliation, National Register status (where known), and source of information. All archaeological survey reports currently on file at the state repositories were reviewed for information relating to the identification of significant archaeological sites and recommendations for further work. A separate database was created to process and synthesize the information obtained from the archaeological survey reports. The spreadsheet data for survey reports includes the year, author, title, and results/findings, and also serves as the bibliography for this information.

Terrestrial Archaeological Sensitivity Assessment

The archaeological sensitivity assessment for the project study area was based on general regional predictive model(s) used for southern New England, with an emphasis on the coastal physiographic zone. The predictive model considers various criteria to rank the potential for a study area to contain archaeological sites. The criteria are proximity of recorded and documented sites, local land use history, environmental data, and existing conditions.

Pre-Contact Period Archaeological Sensitivity

Archaeologists have documented 12,000 years of pre-contact Native American occupation of the region, and oral traditions of some contemporary tribes tell of a 50,000-year cultural legacy. Prior to 7,000 years ago, peoples focused primarily on inland-based resources, hunting and collecting along the Northeast's waterways. After 7,000 years ago, settlement became more concentrated within the region's major river drainages. By 3,000 years ago, concurrent with a focus on coastal and riverine settlement, large populations were living in nucleated settlements and developing complex social ties, with language, kinship, ideology, and trade linking peoples across the Northeast. During the centuries prior to European contact, these groups began to coalesce into the peoples known as Pocomtucks, Nipmucks, Massachusetts, Wampanoags, Pokanokets, Mohegans, Pequots, and Narragansetts. Assessing the pre-contact archaeological sensitivity of any given project area depends on a consideration of past and present geographical and ecological characteristics, known site location databases, and knowledge of distinctive temporal and cultural patterns.

The choices that pre-contact Native Americans made about where they settled, how they organized themselves, and their technologies were all results of the dynamic relationship between culture and environment. Predictive modeling for larger-scale site location in southern New England, for example, has its roots in academic research including Dincauze's (1974) study of reported sites in the Boston Basin and Mullholland's (1984) dissertation research about regional patterns of change in pre-contact southern New England. Peter Thorbahn applied ecological modeling and quantitative spatial analysis, synthesizing data from several hundred sites in southeastern New England (Thorbahn et al. 1980), demonstrating that the highest concentration of pre-contact sites occurred within 300 meters (m) of low-ranking streams and large wetlands. The distribution of sites found along a 14-mile I-495 highway corridor in the same area reinforced the strong correlations between proximity to water and site locations (Thorbahn 1982). These and other large-scale projects provided data toward developing models of Native American locational and temporal land use (e.g., MHC 1984; RIHPC 1982) that became the foundation for site predictive modeling employed during CRM surveys through the next two decades. This modeling has been applied by regional archaeologists to similar physiographic settings in southeastern New York including New York City and Long Island.

Today, assessment of archaeological sensitivity within a given project area, and the sampling strategy applied to it, continues to take existing physiographic conditions into consideration but at multiple scales, from bedrock geology, to river drainages, to microenvironmental characteristics. These categories of data are used to establish the diversity of possible resources through time, the land use patterns of particular cultures, and the degree to which the landscape has been altered since being occupied (Leveillee 1999). Increasingly, social and cultural perspectives, as reflected in both the archaeological and historical records (Johnson 1999), and as expressed by representatives of existing Native American communities (Kerber 2006), are being taken into consideration when assessing archaeological sensitivity. Archaeological sampling strategies have also been evaluated and refined through applications of quantitative analyses (Kintigh 1992).

Geologic data provide information about lithic resources and current and past environmental settings and climates. Bedrock geology helps to identify where pre-contact Native Americans obtained raw materials for stone tools and gives indications of how far from their origin lithic materials may have been transported or traded. The variety and amount of available natural resources are dependent on soil

composition and drainage, which also play a significant role in determining wildlife habitats, and forest and plant communities.

Geomorphology assists in reconstructing the paleoenvironment of an area and is particularly useful for early Holocene (PaleoIndian and Early Archaic Period) sites in areas that are different physically from 10,000 years ago (Simon 1991). Recent landscape changes such as drainage impoundments for highways and railroads, the creation of artificial wetlands to replace wetlands affected by construction, or wetlands drained for agricultural use can make it difficult to assess an area's original configuration and current archaeological potential (Hasenstab 1991:57).

Beyond predicting where sites are located, archaeologists attempt to associate cultural and temporal groups with changes in the environmental settings of sites. Changes in the way pre-contact Native Americans used the landscape can be investigated through formal multivariates such as site location, intensity of land use, and specificity of land use (Nicholas 1991:76). However, distinguishing the difference between repeated short-term, roughly contemporaneous occupations and long-term settlements is difficult, and can make interpreting land use patterns and their evolution problematic (Nicholas 1991:86).

Contact Period Archaeological Sensitivity

The contact period in southern New England and adjacent sections of New York roughly dates from AD 1500 to 1650, and predates most of the permanent Euro-American settlements in the region. This period encompasses a time when Native and non-Native groups interacted with one another through trade, exploration of the coastal region, and sometimes conflict. While contact period sites are usually associated with Native American activity during this period, they can also include sites utilized by Native and non-Native groups such as trading posts.

Native settlement patterns during the contact period are generally thought to follow Late Woodland traditions, but with an increased tendency toward the fortification of village settlements. Larger village settlements are frequently expected along coastal and riverine settings, often at confluences. Inland villages are known to occur near swamp systems, which were exploited both as resource areas and as places of refuge in the event of attack. Such sites would likely contain material remnants reflecting the dynamics of daily life, trade, and preparedness for defense.

The identification of contact period deposits is most frequently tied to the types of artifacts located within archaeological sites. Unfortunately, the majority of the archaeological data for this period in southern New England comes from the analysis of grave goods within identified Native American burial grounds, rather than from habitation sites and/or activity areas (Gibson 1980; Robinson et al. 1985; Simmons 1970). The available data suggest that sites dating to this period often contain traditionally pre-contact features and artifacts (e.g., storage pits, chipped-stone tools) as well as non-Native trade goods and objects (e.g., glass beads, iron kettles and hoes) (Bragdon 1996). The earliest contact period sites are often located at or near the coast and estuarine margin, since European visits to New England occurred via ship. Non-Native artifacts passed from the coastal region to the interior through trade and/or seasonal travel.

Post-Contact Period Archaeological Sensitivity

The landscape of a project area is used to predict the types of post-contact period archaeological sites likely to be present. Major locational attributes differ according to site type. Domestic and agrarian sites (houses and farms) are characteristically located near water sources, arable lands, and transportation networks. Industrial sites (e.g., mills, tanneries, forges, and blacksmith shops) established before the late nineteenth century are typically located close to waterpower sources and transportation networks. Commercial, public, and institutional sites (e.g., stores, taverns, inns, schools, and churches) are usually situated near settlement concentrations with access to local and regional road systems (Ritchie et al. 1988).

Written and cartographic documents aid in determining post-contact period archaeological sensitivity. Historical maps are particularly useful for locating sites in a given area, determining a period of occupation, establishing the names of past owners, and providing indications of past use(s) of the property. Town histories often provide information, including previous functions, ownership, local socioeconomic conditions, and political evolution, which is used in the development of a historic context and to assess the relative significance of a post-contact period site.

The written historic record, however, tends to be biased toward the representation of Euro-American cultural practices and resources, particularly those of prominent individuals and families. Archival materials generally are less sensitive to the depiction of cultural resources and activities associated with socioeconomically or politically “marginalized” communities (MacGuire and Paynter 1991; Scott 1994). These communities may include, but are not limited to, Native Americans, African-Americans, and “middling” farming or working-class Euro-Americans.

Archaeological studies conducted throughout New England have demonstrated the methodological pitfalls of relying exclusively on documentary or cartographic materials as a means to identify potential site locations associated with these types of communities. A large-scale archaeological study by King (1988) showed that in rural areas only 63 percent of the sites discovered were identifiable through documentary research. This suggests that approximately one-third of New England’s rural Euro-American archaeological sites may not appear on historical maps or in town and regional histories.

More recent archaeological and ethnohistoric studies in the region have focused on the identification of other historically “invisible” communities, notably post-contact Native American communities. Several townwide surveys in southeastern Massachusetts have compiled archaeological and historical data about eighteenth- and nineteenth-century Native and African-American communities that are poorly represented or are altogether absent in written town histories (Herbster and Cox 2002; Herbster and Heitert 2004). In central Massachusetts, active and influential Native Americans have been identified through archival research despite the recorded “disappearance” of this group in the early eighteenth century (Doughton 1997, 1999). The cultural continuity of groups such as the Aquinnah Wampanoag is more thoroughly documented in archival sources, but until recently archaeologists focused their attention on pre-contact archaeological deposits. Current studies include predictive models for distinctly Native American post-contact sites, as well as interpretations of eighteenth- through twentieth-century archaeological sites (Cherau 2001; Herbster and Cherau 2002).

Other archaeological investigations have focused on worker housing and landscape organization within mixed-cultural mining communities in northern New England (Cherau et al. 2003); the social and spatial organization of a mixed racial community in western Connecticut (Feder 1994); and material culture and architectural patterns among nineteenth-century mixed African-American and Native American households in central Massachusetts (Baron et al. 1996).

Information about post-contact period land use within a project area can also be collected through written and oral histories passed through family members and descendant communities. These types of information sources can often fill in gaps in the documentary record and provide details that are not available through more conventional archival sources. While informants and other oral sources are subject to contradictory interpretations just like the documentary record, this type of information can also provide important data for the identification and interpretation of archaeological sites. The sole use of and reliance on the written and oral historical records during archival research, however, can lead to an underestimation of the full range of post-contact period sites in any given region. Therefore, walkover surveys and subsurface testing, in conjunction with the critical evaluation of available documentary and cartographic resources, are required to locate and identify underdocumented post-contact sites.

Archaeological Sensitivity Ranking

Given the large geographic area covered by the terrestrial portion of the LIS DMMP study area, the archaeological sensitivity assessment was based primarily on the presence of recorded archaeological sites along with generalizations regarding proximity to favorable cultural and environmental attributes and the degree of previous disturbance. Table 2-1 presents the typical archaeological sensitivity rankings used to determine the sensitivity of a given study area; however, these criteria could only be generally applied to the LIS DMMP study area (i.e., sensitive or nonsensitive) since a detailed study of existing conditions/historical developments including a walkover survey/ground truthing was not part of the PAL scope of work. As a result, the archaeological sensitivity assessment for terrestrial resources consists of areas that are considered to be generally sensitive for undocumented/unrecorded archaeological sites and areas that could be reasonably excluded from sensitivity. Areas that were eliminated from sensitivity and further study are based primarily on previous professional CRM archaeological surveys where no significant resources or sensitivity areas were identified, and areas that contain obvious unfavorable environmental conditions including large-scale previous disturbances (e.g., major interstate highway corridors, heavy commercial/industrial sectors, gravel/quarry pit operations, and mapped bodies of water (e.g., ponds, lakes). These disturbances were identified using GIS-based georeferenced topographic maps and aerial (orthophoto) maps of the study area. Because of the large scale of the project, major transportation corridors have been shaded in the sensitivity overlay map, but it is understood that they are generally excluded from archaeological sensitivity because of previous earthmoving disturbances.

The archaeological sensitivity for the New York portion of the study area was assisted by the online “Archeological Sensitivity GIS Database” available through the New York State Office of Parks, Recreation & Historic Preservation website. These GIS sensitivity maps define areas within the state of New York where the discovery of archaeological sites is predicted based on known sites and buffer zones. The sensitivity maps are used by the NY SHPO to provide recommendations to state and federal agencies

Table 2-1. Terrestrial Archaeological Sensitivity Rankings Generally Used for Projects.

Presence of Sites		Proximity to Favorable Cultural/Environmental Characteristics			Degree of Disturbance			Sensitivity Ranking
Known	Unknown	< 150 m	> 150 < 500 m	> 500 m	None/Minimal	Moderate	Extensive	
.		.			.			High
.		.				.		High
.		.					.	Low
.			.		.			High
.			.			.		Moderate
.			.				.	Low
.				.	.			High
.				.		.		Moderate
.				.			.	Low
	.	.			.			High
	.	.				.		Moderate
	.	.					.	Low
	.		.		.			Moderate
	.		.			.		Moderate
	.		.				.	Low
	.			.	.			Moderate
	.			.		.		Low
	.			.			.	Low

regarding the need for archaeological surveys. The maps are updated on a quarterly basis and as such the information depicted may not include the most current information regarding sites presently in the process of being reviewed. The site file review conducted by PAL was used to supplement the online sensitivity GIS database files to ensure that the most current sensitivity areas are included in the LIS DMMP inventory.

Underwater Archaeological Sensitivity Assessment

The method used to determine underwater archaeological sensitivity levels throughout the offshore portion of the project study area involved the synthesis and GIS-based geospatial analysis of shipwrecks and obstructions with reported coordinates derived from the available databases, NOAA-charted wrecks and non-geological obstructions, and National Register listings. In cases where wrecks were reported in multiple sources and the recorded locations differed, an average of the reported locations was used. Compiled data were input into a Microsoft Excel 2007 spreadsheet that was used to develop an ArcGIS (ver. 9.3.1) attribute table. The attribute table was used to perform geospatial analyses of its data using ArcGIS’s Spatial Analyst and XTools Pro tools and a process developed by Fathom’s GIS Specialist wherein the probability of underwater archaeological deposits (i.e., shipwrecks) to be present is based on the density of known and plotted sites using an area-specific search-radius parameter and a logarithmic function-derived point density grid. Specifically, the concentration of wrecks and obstructions is calculated for every 1.0 km square area within the study area by searching 5.0 km out from each square for other wrecks and obstructions. The sensitivity of each 1.0 km square area can then be determined based on the calculated concentration of shipwrecks in the neighborhood.

To determine the breakpoints between low, moderate, and high underwater archaeological sensitivity a modified “Jenks method” was used. The Jenks “natural breaks” classification method determines the arrangement of values (in this case, wrecks and obstructions) into classes (i.e., low, moderate and high) by iteratively comparing sums of the squared difference between each value in a data set and the mean of all values in the data set. The Jenks classification method does not take into account any outside data, such as the concentration of wrecks beyond a 10.0 km mark. That is to say, just because any area can be separated into three classes, does not mean that it should be. Because of this, the Jenks method was only used as a foundation for determining sensitivity.

The high, moderate, and low classifications were fine-tuned based on the study area’s cultural and environmental contexts and existing knowledge regarding the area’s archaeological sensitivity based on previous investigations (e.g., higher concentrations of reported shipwrecks are generally found closer to shore, particularly along lee shores adjacent to exposed waters, in proximity to active ports, on and around shoals or rock outcrops, and in areas where land projects out into the water, such as around points, capes, or the ends of peninsulas, or where shorelines converge and passages narrow thereby restricting navigability).

GIS Database and Map Overlays

PAL prepared the cultural resources GIS shape files for integration into the overall LIS DMMP GIS system being prepared separately by the Woods Hole Group. The GIS shape files depict the locations of all recorded aboveground and belowground terrestrial historic properties within the project study area. According to the Advisory Council on Historic Preservation (ACHP), historic properties are defined as those “districts, sites, buildings, structures, and objects” listed or eligible for listing in the National Register of Historic Places. A separate set of shape files depicts the archaeological sensitivity overlay for terrestrial portions of the project study area. Two additional sets of shape files depict the underwater resources and sensitivity overlays for the project study area. The sensitivity overlays contain general information about where unrecorded archaeological sites could be present based on the inventory of known resources, previous surveys conducted in the area, and regional predictive models for terrestrial and maritime resources/submerged sites.

The submitted GIS shape files are as follows (also contained in Appendix A CD):

Historic Aboveground Cultural Resources Geodatabase

- CT Aboveground Inventory (one point shapefile and one polygon shapefile);
- NY Aboveground Inventory (one point shapefile and one polygon shapefile); and
- RI Aboveground Inventory (one point shapefile and one polygon shapefile).

Terrestrial Archaeology Cultural Resources Geodatabase

- Project Area (polygon shapefile);
- CT Terrestrial Archaeology Inventory (polygon shapefile) *CONFIDENTIAL – NOT FOR PUBLIC DISTRIBUTION*;

- NY Terrestrial Archaeology Inventory (polygon shapefile) *CONFIDENTIAL – NOT FOR PUBLIC DISTRIBUTION*;
- RI Terrestrial Archaeology Inventory (polygon shapefile) *CONFIDENTIAL – NOT FOR PUBLIC DISTRIBUTION*;
- CT Terrestrial Archaeology Sensitivity (polygon shapefile);
- NY Terrestrial Archaeology Sensitivity (polygon shapefile); and
- RI Terrestrial Archaeology Sensitivity (polygon shapefile).

Underwater Cultural Resources Geodatabase

- Project Area (polygon shapefile);
- Underwater Cultural Resources Inventory (point shapefile) *CONFIDENTIAL – NOT FOR PUBLIC DISTRIBUTION* ; and
- Underwater Cultural Resources Sensitivity (polygon shapefile)

CHAPTER THREE

PRE-CONTACT AND CONTACT PERIOD CULTURAL CONTEXT

Archaeologists and anthropologists have documented almost 12,000 years of human settlement in the deglaciated terrestrial terrain of Connecticut, New York, and Rhode Island. Professional archaeologists commonly divide the Northeastern pre-contact record into three general temporal periods: PaleoIndian, Archaic, and Woodland. The latter two periods are further subdivided into Early, Middle, and Late categories with the Late Archaic and Early Woodland periods being separated by a distinct transitional period referred to as the Terminal or Transitional Archaic (Table 3-1). Each general period of the pre-contact archaeological record is distinguishable on the basis of material culture, specific land use patterns, and occasionally by social indicators. While these divisions are equally applicable to the native inhabitants of southern New England and adjacent sections of New York, recent archaeological and paleo-environmental research indicates that pre-contact lifeways characteristic of each period may have been less distinct on Long Island than elsewhere in the Northeast (Merwin 2000).

Following the retreat of thick glacial ice from the region between 21,000 and 16,000 years ago, coastal Rhode Island, Connecticut and Long Island (part of the Northeast's physiographic Coastal Plain Province) were likely populated by bands of migratory people collectively referred to as PaleoIndians. The timing of the initial population of the Eastern Seaboard by PaleoIndian peoples is presently debated by archaeologists with the discovery of apparent cultural strata and artifacts predating the PaleoIndian "Clovis Culture" or fluted point tradition at the Topper Site in South Carolina and the Cactus Hill Site in Virginia. Similarly, an averaged date of 15,960 radiocarbon years B.P. from reported cultural strata at the Meadowcroft Rock Shelter Site in Pennsylvania predates accepted Clovis dates in the Northeast by nearly 3,000 years (Adovasio 1993). Nevertheless, the earliest unequivocal evidence for the human occupation of the Northeast is associated with the Clovis Culture and dates to $11,120 \pm 180$ B.P. at the Vail Site in Maine (Gramly 1982). The presence of thick glacial ice in the Northeast until roughly 16,000 years B.P. makes any discussion of a pre-Clovis presence in the region largely academic.

Current models for sea level rise assert that the sea level was about 300 feet below its current mean level. By 12,000 B.P., the conservative estimate for the beginning of human occupation in the region, the sea level had risen to between 180 and 90 feet below its current level. Hypothetically, much of the Long Island Sound study area was probably located above sea level and exposed for occupation to varying degrees throughout human prehistory (Figure 3-1). However, submerged pre-contact resources have not been sought after or studied in Long Island Sound and none are known to be present within the marine portion of the study area. Development of a pre-contact context and drawing any inferences regarding the pre-contact use of the Sound, therefore, requires using archaeological information gathered from the region's terrestrial archaeological sites.

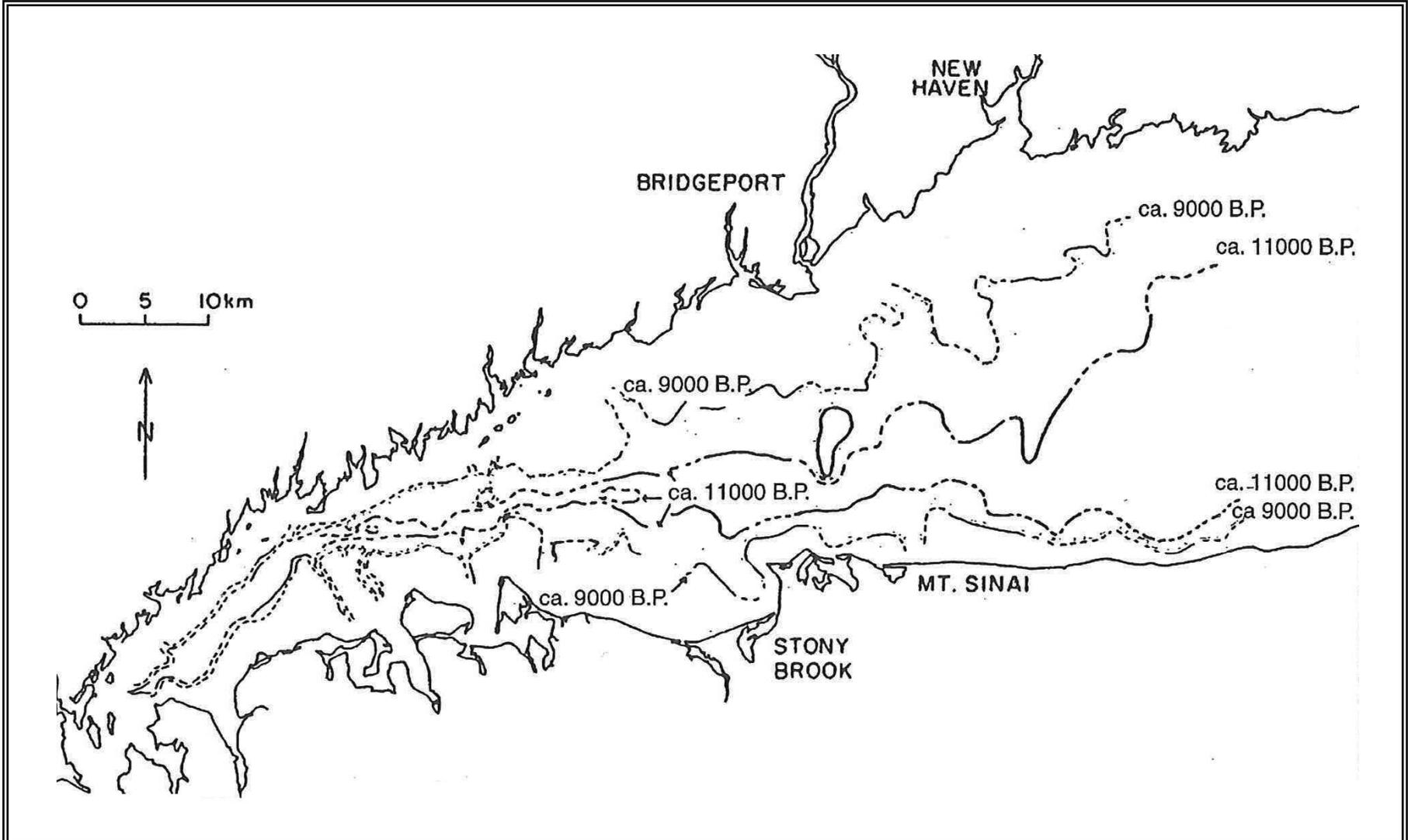


Figure 3-1. Long Island Sound paleoshoreline.

Table 3-1. Generalized Pre-Contact Period Cultural Chronology for Southern New England and Adjacent Sections of New York.

<i>IDENTIFIED TEMPORAL</i>			
<i>PERIOD</i>	<i>YEARS</i>	<i>SUBDIVISIONS¹</i>	<i>CULTURAL ASPECTS</i>
PaleoIndian	12,500 - 10,000 B.P. ² (10,500 - 8000 B.C.)	<ul style="list-style-type: none"> • Eastern Clovis • Plano 	Exploitation of migratory game animals by highly mobile bands of hunter-gatherers with a specialized lithic technology.
Early Archaic	10,000 - 7500 B.P. (8000 - 5500 B.C.)	<ul style="list-style-type: none"> • Bifurcate-Base Point Assemblages • Kirk variant • Palmer 	Few sites are known, possibly because of problems with archaeological recognition. This period represents a transition from specialized hunting strategies to the beginnings of more generalized and adaptable hunting and gathering, due in part to changing environmental circumstances.
Middle Archaic	7500 - 5000 B.P. (5500 - 3000 B.C.)	<ul style="list-style-type: none"> • Neville • Stark/Morrow • Merrimack • Otter Creek • Vosburg/Guilford 	Regular harvesting of anadromous fish and various plant resources is combined with generalized hunting. Major sites are located at falls and rapids along river drainages. Ground-stone technology first utilized. There is a reliance on local lithic materials for a variety of bifacial and unifacial tools.
Late Archaic	5000 - 3000 B.P. (3000 - 1000 B.C.)	<ul style="list-style-type: none"> • Brewerton • Squibnocket • Small Stemmed Point Assemblage 	Intensive hunting and gathering were the rule in diverse environments. Evidence for regularized shellfish exploitation is first seen during this period. Abundant sites suggest increasing populations, with specialized adaptations to particular resource zones. Notable differences between coastal and interior assemblages are seen.
Transitional	3600 - 2500 B.P. (1600 - 500 B.C.)	<ul style="list-style-type: none"> • Atlantic • Snook Kill • Orient • Koens-Crispin 	Same economy as the earlier periods, but there may have been groups migrating into the Northeast, or local groups developing technologies strikingly different from those previously used. Trade in soapstone became important. Evidence for complex mortuary rituals is frequently encountered.
Early Woodland	3000 - 1600 B.P. (1000 B.C. - A.D. 300)	<ul style="list-style-type: none"> • Meadowood • Lagoon • Adena • Rossville 	A scarcity of sites suggests population decline. Pottery was first made. Little is known of social organization or economy, although evidence for complex mortuary rituals is present. Influences from the mid-western Adena culture are seen in some areas.
Middle Woodland	1650 - 1000 B.P. (A.D. 300 - 950)	<ul style="list-style-type: none"> • Fox Creek • Jack's Reef 	Economy focused on coastal resources. Horticulture may have appeared late in period. Hunting and gathering were still important. Population may have increased from the previous low in the Early Woodland. Extensive interaction between groups throughout the northeast is seen in the widespread distribution of exotic lithics and other materials.
Late Woodland	1000 - 450 B.P. (A.D. 950 - 1500)	<ul style="list-style-type: none"> • Levanna 	Horticulture was established in some areas. Coastal areas seem to be preferred. Large groups sometimes lived in fortified villages, and may have been organized in complicated political alliances. Some groups may still have relied solely on hunting and gathering.
ProtoHistoric and Contact	450 - 300 B.P. (A.D. 1500 - 1650)	<ul style="list-style-type: none"> • Algonquian 	Groups such as the Wampanoag, Narragansett, and Nipmuck were settled in Rhode Island and Connecticut. Political, social, and economic organizations were relatively complex, and underwent rapid change during European colonization.

¹ Termed Phases or Complexes

² Before Present

PaleoIndian Period (12,500–10,000 B.P.)

During the time of initial settlement in the northeastern United States, glacial lake basins were widely distributed across the recently deglaciated tundra-like landscape. Long Island's present coastal zone was upland area at this time (Pickman 1982) and formed the southern rim of Glacial Lake Connecticut occupying what is today Long Island Sound. The waters of Glacial Lake Connecticut drained through eroded areas of the terminal moraines that are today's Long Island out onto a coastal plain (i.e., today's submerged Continental Shelf) creating river channels that led to a lowered Atlantic Ocean located approximately 60 miles seaward of Long Island's present South Shore.

PaleoIndian settlement systems have traditionally been interpreted as representing bands of highly mobile hunters specialized in the exploitation of large game, such as mastodon, bison, elk, and caribou (Dragoo 1976; Snow 1980). Such specialized subsistence models derive from PaleoIndian sites located in the Midwestern United States, such as the Folsom Site (Figgins 1927), which clearly exhibit evidence for the exploitation of large (now extinct) animal species by humans. However, in southern New England and on Long Island, there is no clear evidence for an association between large extinct animal species and PaleoIndian artifacts (Dincauze 1993; Ogden 1977).

Dincauze (1990) argues that the southern New England PaleoIndians were generalized in their subsistence regimes, opportunistically hunting and gathering readily available animal and plant species for consumption and use. Jones and Forrest (2003) similarly argue that the relatively higher regional occurrence of small PaleoIndian encampments, as compared to larger base camps, may be characteristic of the PaleoIndian settlement system whereby mobile foragers adjusted to resource unpredictability. Smaller groups would have been better equipped to opportunistically exploit available resources than larger groups. The presence of resource-rich freshwater glacial lakes, ponds, rivers, streams, and wetlands would have enticed transient PaleoIndians. These microenvironments likely supported a diversity of plant and animal species available for human exploitation. Vegetation in this more temperate portion of the tundra-like zone probably consisted of open evergreen forests, possibly intermixed with a few deciduous tree species (Fehr et al. 1996). Consequently, PaleoIndians living within the study area were likely generalized in their subsistence strategies, hunting available animal species and gathering various plant species for consumption and use.

Cultural materials diagnostic of PaleoIndian occupation include fluted Clovis-like (Bull Brook, Neponset, or Nicholas type) and Eden-like projectile points. Other stone tools associated with this period include scraping tools, graters, drills and channel flutes. PaleoIndian tools recovered from southern New England typically include non-local lithic materials (chert and jasper) and extra-regionally available rhyolites.

No large and well-documented intact PaleoIndian Period sites have been identified or excavated in close proximity to the Long Island Sound study area to date. In fact, most of the sites from this period are located outside the Long Island Sound region. These include the Duchess Quarry Cave Site in New York (Funk 1972), the Shawnee-Minisink site in Pennsylvania (Eisenberg 1978), and the Bull Brook Site in Massachusetts (Crane and Griffin 1959). Few intact cultural deposits from this period have been recorded in Rhode Island, Connecticut or New York. Most of the known sites consist of surface finds from plowed fields (Curran and Dincauze 1977).

Documented PaleoIndian materials from **Rhode Island** (Fowler 1952; George et al. 1993; Leveillee and Van Couyghen 1990; Rhode Island Historical Society 1936; Turnbaugh 1980) are quite rare and are limited to an isolated fluted projectile point find from along the shores of Chapman Pond in Westerly (Turnbaugh 1980), fluted projectile point finds and a spurred end scraper from the Great Swamp Management Area of South Kingstown (George et al. 1993), and a single fluted biface from the South Wind Site (RI 1006) along Wickford Harbor in North Kingstown (Leveillee and Van Coughyen 1990). Most recently, Kevin Smith, curator of the Haffenreffer Museum, has revisited archived collections and identified as many as seven previously unreported fluted projectile points from Rhode Island, including two (manufactured from New York cherts) recovered in the South Kingstown area.

To date, only four small, intact PaleoIndian sites have been excavated in **Connecticut**. They include the Templeton Site (6-LF-21) located in the Housatonic River drainage in Washington, The Great Hill Site in Seymour, the Hidden Creek Site (72-163), located on the Mashantucket-Pequot Reservation in Mashantucket, and the Baldwin Ridge Site located on a ridge overlooking the Thames River valley in Groton. The Templeton Site has a radiocarbon date of $10,190 \pm 300$ B.P. (Moeller 1980) and appears to have been the site of a small seasonal camp at which a wide range of stone tool manufacturing, tool maintenance, and domestic activities were carried out. The Great Hill Site contained quartz chipping debris and a complete chert fluted point dating from the Early to Middle PaleoIndian Period.

The Hidden Creek site provides evidence of yet another small, seasonal PaleoIndian camp. Tentatively dating from 9000 to 10000 B.P., the 100-square foot site is nestled on a kame terrace within the Cedar Swamp Basin, and is characterized by a lithic assemblage dominated by chert unifaces and end scrapers. The Hidden Creek Site yielded a small but diverse lithic stone tool assemblage that includes several lanceolate points and a large number of scrapers (Jones 1997). The small size of the site and its temporary nature suggest that it was occupied by a highly mobile PaleoIndian population using few durable artifacts. The Baldwin Ridge Site, located within the 10-mile terrestrial Long Island Sound study area, yielded the base of a fluted point, end scrapers, and a resharpening flake, a tool assemblage suggestive of a special-purpose location for the hunting and processing of animal resources (McBride 1984; Soulsby et al. 1981). Additionally, the Allens Meadows Site in Wilton contained two fluted points and several dozen artifacts (Wiegand n.d.).

Several sites dating to the PaleoIndian Period have been found in **Westchester County**. These include the Piping Rock Site in Ossining (Brennan 1974), the Purdy Site in White Plains, and a site in Pound Ridge where artifacts were found during construction along the Mill River south of Trinity Reservoir (Wiegand n.d.). In Staten Island there are several small possible camp-sites with Clovis and other fluted projectile points (Port Mobil Tank Farm Site and Charleston Beach). Twenty-one fluted points and more than 120 stone tools including scrapers, knives, drills, and graters, were found in three separate areas. On **Long Island**, 19 isolated spot finds of fluted projectile points associated with the PaleoIndian Period have been found (Merwin 2000; Pickman 1982), 16 from Suffolk County. Again, one of the possible explanations for the absence of any intact PaleoIndian sites on Long Island may be related, as in Connecticut, to the dramatic sea level changes that occurred in the area over the last 10,000 years.

Postglacial inundation of the Sound presumably submerged many PaleoIndian sites located on what was once theoretically inhabitable land. Periodic recovery of the bones of mammoth, mastodon, horse, tapir, musk ox, and moose from the sea floor miles from shore by the region's commercial fishermen suggests that these inundated lands supported populations of the large game species likely targeted by PaleoIndian

hunters (Merwin 2000). The closest documented PaleoIndian site to the Long Island portion of the study area is the Port Mobil Site on Staten Island (Ritchie and Funk 1973).

Archaic Period (10,000–3,000 B.P.)

Current interpretation by archaeologists indicates that the Archaic Period was a time of increased exploration and settlement of southern New England and Long Island's woodlands. The archaeological data from the Archaic Period attests to an increased diversification of food sources and generalized exploitation of faunal and floral species throughout the period. Overall, the Archaic culture is conceptualized as having a primarily hunting and gathering subsistence economy with wandering or seasonal relocations in circumscribed territories that may have coincided with major river drainage systems.

Early Archaic Period (10,000–7500 B.P.)

The Early Archaic Period was marked by warmer and drier conditions that differentiate the present Holocene Epoch from the preceding Pleistocene Epoch. As the climate warmed, large Pleistocene fauna disappeared, leaving smaller species such as moose, deer, and beaver that Early Archaic peoples hunted in their subsistence regimes. Vegetative cover for the first two millennia of this period consisted of coniferous forests over much of the Northeast before gradually shifting after about 8000 B.P. to include both coniferous and deciduous tree species (Ritchie and Funk 1973). The climate of southern New England and Long Island, including the study area, would have been relatively moderate at this time and probably supported mixed coniferous-deciduous forests that would have been attractive for both human and animal occupation. Similar to the PaleoIndians, Early Archaic peoples were also primarily hunters, but appear to have been somewhat more generalized in their subsistence regimes (Dumont 1981; Kuehn 1998; Meltzer and Smith 1986; Nicholas 1987). This was likely possible because the wider range of seasonally available food resources that were becoming increasingly more abundant permitted exploitation of a correspondingly broader range of food resources, such as spawning fish in the spring, summer berries, and autumn deer herd movements (Merwin 2000).

Identification of Early Archaic archaeological deposits has typically relied on the recovery of characteristic bifurcate-based lithic projectile points. Early Archaic occupations have been identified in the Northeast around the perimeters of ponds, marshes, wooded wetlands, and the headwaters of rivers. The proximity of Early Archaic sites to wetland locations implies that plant resources were important, although hunting still appears to have been their major subsistence strategy.

A virtually exclusive reliance on non-local and extraregionally available lithic materials for the production of Early Archaic bifurcate-based projectiles in the region suggests a highly mobile subsistence strategy for the Early Archaic bifurcate-based producers (Waller and Leveillee 2002). However, recent archaeological data from Connecticut (Forrest 1999) and the Gulf of Maine region of northern New England (Robinson 1992) suggest that some southern New England early Holocene populations utilized a distinct quartz lithic technology producing quartz "microliths" for use in composite tools (Forrest 1999). The ubiquitous nature of quartz in regional artifact assemblages raises the possibility that some Early Archaic sites and assemblages may be difficult to differentiate from those of other periods.

The settlement system associated with the microlith manufacturers appears markedly different from that of the bifurcate-based producers, consisting of “residential” base camps with subterranean pit houses occupied for extended periods of time (Forrest 1999; Jones and Forrest 2003). Small, short-duration sites resulting from logistical forays undoubtedly supplemented larger residential sites in the Early Archaic settlement system. Jones and Forrest (2003) interpret this Early Archaic semi-residential settlement pattern evidenced with the Pequot Cedar Swamp in southeastern Connecticut as an adaptive response to predictable, readily abundant resources. However, the identification of a semi-subterranean pit house associated with a LeCroy Bifurcate complex at the Weilnau Site in Ohio (Stothers 1996) and more recently the identification of two pit houses dated to 7830 ± 130 and 8110 ± 90 at the Whortleberry Site in Dracut, Massachusetts (Dudek 2005) may imply a previously unknown degree of sedentism for the Early Archaic bifurcate producers in portions of the Northeast and Great Lakes. Botanical remains (acorns, hazelnuts, blackberry/raspberry and goosefoot) from the Whortleberry Site suggest a summer occupation that possibly extended into the winter. The apparent difference in identifiable artifact assemblages (quartz microlith composite tools vs. bifurcate based projectile points) and settlement systems suggests the possibility that two distinct Early Archaic populations may have occupied the southern New England landscape during the early Holocene (Forrest 1999).

Early Archaic habitations in **Rhode Island** are scarce, consisting of low-density recoveries of diagnostic bifurcate-based projectiles from the nearby Pawcatuck River Drainage in Washington County (Turnbaugh 1980) and from the Bear Swamp in Exeter (Waller and Leveillee 2002). The large Congdon collection gathered in proximity to the Great Swamp of South Kingstown contain Kirk corner notched and a bifurcate-based projectile both diagnostic of the Early Archaic Period. In addition to temporally diagnostic projectile points, an Early Archaic presence in South Kingstown is suggested by uncalibrated radiocarbon ages of 8510 ± 90 B.P. from the Bouchard Site along Glen Brook in Usquepaug (Davin 1985) and 8510 ± 140 B.P. from the village of Rocky Brook.

The most thoroughly excavated sites from this period in **Connecticut** are located in the Connecticut River valley and on the Mashantucket-Pequot Reservation. The Dill Farm site (CT 41-50), radiocarbon dated to 8050 ± 90 B.P., yielded bifurcate-base points, charred nuts and mammal bones, refuse pits, hearth areas, and evidence of stone tool manufacturing (McBride 1984). Two bifurcate-base projectile points were recovered during the Route 6/Interstate 84 relocation surveys in the northeast highlands of Connecticut (McBride and Soulsby 1989). One of the points was found at the multicomponent Bolton Notch Site in Bolton. In addition to Early Archaic cultural materials, this site also contained evidence of Middle and Late Archaic, as well as Late Woodland Period occupations (McBride and Soulsby 1989). The other bifurcate point was recovered as an isolated find in Brooklyn, approximately one-half mile west of the Quinebaug River (McBride and Soulsby 1989).

Excavations at the Sandy Hill Site (CT 72-97) at the Mashantucket Reservation have uncovered a large and stratigraphically complex Early Archaic occupation manifested as a series of semi-subterranean pit structures excavated into a sandy, south-facing hillside. Hugging the edge of the Great Cedar Swamp, a former glacial lake basin of roughly 5 acres, Sandy Hill has yielded two bifurcate point bases, neither of which can be confidently associated with the pit structures. Radiocarbon analysis of charred hazelnut fragments recovered from the well-stratified living surfaces within the pit houses, however, securely dates the site to 8920 ± 100 B.P. Lithic analysis of the site assemblage suggests morphological affinities with the Gulf of Maine Archaic tool tradition in the form of steeply retouched quartz unifaces, small oval cores and the marked absence of formal bifaces (Forrest 1999). This assemblage profile serves to bolster the current argument that an overemphasis on projectile points as a means to temporally identify pre-contact

sites has obscured a relatively rich early Holocene record less dependent on that aspect of lithic technology (Robinson et al. 1992). Early Archaic points have also been found at the former Ferris Farm along the Post Road in Old Greenwich (Wiegand n.d.) and at the Mianus Gorge Rockshelter in northwestern Stamford close to the New York border (Powell 1963; Wiegand 1983).

Within both riverine and upland zones of Connecticut, Early Archaic sites are more widely distributed than PaleoIndian sites (McBride 1984). The evidence of occupation in such a wide variety of environments is assumed to represent the exploitation of a wide range of seasonally available resources by Early Archaic hunter-gatherers. Thus, it is likely that there are undiscovered sites of various sizes and composition dating to this period throughout the study area.

In the northern portion of **Westchester County**, several sites along the Hudson have produced a small number of Early Archaic projectile points (Brennan 1974). A radiocarbon date of 6950 ± 100 years was obtained for the Dugan Point site's basal shell heap. Two small Early Archaic sites in Westchester County have been investigated recently. One is the Pound Ridge Golf Club #3 Site in Pound Ridge where several Early Archaic projectile points, bifaces and lithic debitage were found in what is interpreted as a short-term hunting camp (Wiegand 2000, 2006). A single bifurcate-base projectile point was also found at the nearby Pound Ridge Golf Club #2 Site, which was a multicomponent site dating to the Archaic and Woodland periods. The Brandywyne #7 Site in New Castle, interpreted as a short-term hunting camp, produced several bifurcated base projectile points as well as other artifacts at the summit of one of the highest hills in town (Wiegand 2007). In **New York**, several sites, including the Ward's Point, Richmond Hill, Hollowell and Old Place sites, dating from ca. 9,410 to 7,310 B.P. on nearby Staten Island have yielded the bifurcate-based, stemmed, and corner-notched projectile points commonly associated with this period. Staten Island's proximity to Long Island and the study area suggests that some Early Archaic occupation sites may be present on Long Island and offshore, although none have been recorded to date. Pickman (1982) has hypothesized that any settlements from this period would have represented small ephemeral temporary encampments.

Middle Archaic Period (7500–5000 B.P.)

The Middle Archaic Period in southern New England and on Long Island is characterized by settlement patterns that reflect the development of localized group territories. When compared to those of the PaleoIndian and Early Archaic periods, Middle Archaic sites are generally found in a much wider range of environmental settings and appear to contain evidence for a more expanded resource base. During this period, rapid inundation of coastal plain areas within the Sound due to rising sea levels was ongoing. Up until approximately 6000 B.P., the rate of sea level rise within Long Island Sound was relatively rapid. At around 8500 B.P. the sea level reached a point that was approximately 75 feet below the present mean sea level (Gayes and Bokuniewicz 1991). By the end of the period the sea level had risen slightly to reach a point just below present day. Therefore, approximately one-half of the now submerged Long Island Sound sea floor was inhabitable space during this period. However, by the end of the period, humans were pushed inland as the Atlantic Ocean filled the Sound to near modern levels.

Pollen evidence from the Middle Archaic Period in the Northeast indicates a trend toward a moister, warmer climate in this period. New tool classes during this period include grooved axes, which imply woodworking tasks. The presence of net-sinkers and plummets indicates the growing importance of marine resources (Dincauze 1976; Snow 1980). A regional increase in the distribution and density of

Middle Archaic sites suggests that pre-contact peoples were firmly established in the area by 7500 B.P. Generally speaking, Middle Archaic archaeological deposits are common around waterfalls, river rapids, major river drainages, wetlands, and even coastal settings (Bunker 1992; Dincauze 1976; Doucette and Cross 1997; Maymon and Bolian 1992). Subsistence activities of the Middle Archaic likely consisted of generalized hunting and foraging activities, including the harvesting of anadromous fish and shellfish species. An increase in the complexity of seasonal rounds is conjectured based upon a broad range of available resources (McBride 1984). Middle Archaic components have been identifiable in site assemblages through the presence of Neville, Neville-variant, Stark, and Merrimack-style lithic projectile points (Dincauze 1976; Dincauze and Mulholland 1977). The Middle Archaic Period also presumably coincides with the introduction of ground-stone tool technology (Dincauze 1976).

The location of many of **Rhode Island's** documented Middle Archaic sites demonstrates a strong focus within the region's interior wetland environs. Neville projectiles have been recovered from along the shores of Larkin Pond (Waller and Leveillee 2001a), from the Gallo 2 Site in South Kingstown (Leveillee 1998), the Old Coach Estates project area in Charlestown (RI 1744) (Van Couyghen and Fitts 1988), Pasquisset Swamp (RI 2033), Deerskin Landing (RI 2034), and RI 1371, and from the Great Swamp Management Area. Middle Archaic Stark and Neville type projectile points are also reported in the Congdon and Bliven (Arnolda section of Charlestown) collections and from five sites along Route 4 in North Kingstown (RI 1371, RI 1024, RI 1023, RI 968, RI 1010).

Evidence of Middle Archaic Period occupation in **Connecticut** is more widely documented than for the preceding periods. The distribution and somewhat higher density of Middle Archaic sites suggests that a multisite seasonal settlement system was established in the region by this time. A variety of ecozones, with an emphasis toward interior upland wetlands, have been found to contain diagnostic Middle Archaic stone tool assemblages and radiocarbon-dated deposits. The archaeological assemblages of this period in central Connecticut are characterized by a local quartz cobble industry as well as the diagnostic Stark, Neville and Merrimack projectile points. For example, the Bolton Spring Site in Bolton has provided information about Middle Archaic settlement and subsistence in the highlands. It may be interpreted as a potential model for understanding the period (McBride and Soulsby 1989). The site contained a hearth feature and cultural materials scattered over an area of approximately 150 square feet. The material assemblage included two Neville-like projectile points along with quartz debitage, charcoal, and calcined bone (muskrat, gray squirrel, and woodchuck). Radiocarbon dates obtained from the charcoal and calcined bone suggest that the site was occupied around 8,000 years ago (McBride and Soulsby 1989).

Middle Archaic materials were found in northern Stamford at two small sites, both of which served as short-term camps (Wiegand 1980, 1983). One of these, the Finch's Corner Site, is located on the west side of the Rippowam (or Mill) River and the other is a rockshelter.

Points similar to Vosburg and Brewerton types seen in the Late Archaic Period began to develop in the coastal regions of **New York** in the later Middle Archaic Period. In **Westchester Co unty** Middle Archaic components were recorded at the Dugan Point and Piping Rock sites. A Brewerton-like point was recovered from a Middle Archaic Period site located at Little Neck Bay in northeastern **Queens County** (Platt 1997). The Wading River and Stony Brook sites on **Long Island** excavated by William Ritchie in the 1950s also documented Middle Archaic occupations (Ritchie 1959).

Late Archaic (5000–3000 B.P.) and Transitional/Terminal Archaic Period (3600–2500 B.P.)

The Late Archaic Period is traditionally considered as a time of cultural florescence, as reflected in burial ritual, population increases, and long-distance exchange networks (Ritchie 1969; Snow 1980). The large and numerous sites (compared to earlier periods) suggest population growth and dispersal, while the variety of site sizes and types of artifacts and features suggest a complex settlement pattern system. The climate continued to be warm and dry, creating an environment that is similar to the present day and was ideal for the growth of nut-bearing oaks and hickory trees as well as a variety of grasses and wild grains. Seasonal and multicomponent campsites were used for the procurement of specific resources.

The predominance of Late Archaic sites in the region suggests that settlement patterns and subsistence strategies began to shift to locations in or within very short distances of coastal and estuarine habitats. This is an apparently major deviation from the preceding Middle Archaic Period, where resource procurement appears to have focused on the region's inland freshwater sources and wetland systems. This shift in settlement and subsistence patterns likely relates to the stabilization of coastlines and the establishment of shellfish beds. Shellfish exploitation, first observed during the preceding period, intensified rapidly as the rate of coastal inundation decreased and estuaries, salt marshes, and tidal mud flats began to be established (Braun 1974; Lavin 1988). This is evidenced by the vast shell middens along the coast of Cape Cod, Long Island, and coastal Connecticut. The high density of Late Archaic Period sites found in a wider range of habitats, coupled with the larger number of artifacts attributed to the period, suggests that southern New England and Long Island supported a large population exploiting an extremely broad spectrum of resources (Dincauze 1975).

The Late Archaic Period is comprised of three major cultural traditions: Laurentian, Small Stemmed or Narrow Point, and Susquehanna. Each tradition is associated with specific periods of time, distinct lithic technologies, and/or ceremonial or cultural practices that can be discriminated archaeologically. The *Laurentian Tradition (6000–4200 B.P.)*, first identified in New York (Ritchie 1969), is the earliest expression of the Late Archaic in the Northeast, which flourished and subsequently waned prior to the end of the period. The earliest site assigned to this tradition in the Northeast is the Schafer Site, located in the Mohawk Valley of New York. This site yielded cultural deposits radiocarbon-dated to 6290 ± 100 B.P. (Wellman 1975). Laurentian occupations tend to be small, usually not more than 500 square meters in size, and are distributed across a wide range of ecological zones, with an emphasis toward the uplands (McBride 1984a). This settlement pattern is believed to reflect the movement of small, mobile groups of hunters and gatherers (10–20 people per group) moving about the landscape pursuing seasonally abundant resources. Large seasonal camps and specialized sites suggest larger aggregations of people for at least part of the year.

The tradition is characterized by an artifact complex containing wide-bladed points with side or corner notches such as Otter Creek, Vosburg, and a variety of Brewerton type projectile points (Ritchie 1980). These points often are manufactured from chert, which is not believed to have been widely available in southern New England, but is found in parts of New York and New Jersey. Other stone tools that are considered to be part of the Laurentian tradition are gouges, plummets, ground slate points, knives, ulus, adzes, hammerstones, and atlatl weights.

Laurentian tradition cultural materials in **Rhode Island** have been recovered from South Kingstown sites including RI 781 and the Gallo 2 Site. An Otter Creek projectile point was noted during an archaeological reconnaissance of the Great Swamp Management area of South Kingstown.

McBride and Soulsby identified ten Laurentian tradition (also referred to as the Lake Forest Archaic in Connecticut) sites during the Route 6/Interstate 84 Relocation survey in the towns of Bolton, Brooklyn, Canterbury, Coventry, and Hampton, **Connecticut** (McBride and Soulsby 1989). These sites included three small seasonal camps, four temporary camps, one task-specific (lithic reduction) station, and two sites of undefined function. They are distributed over a wide range of ecozones, environmental locales, and wetland types, including inland wetlands and riverine and upland stream locales. The Bliss Site in Old Lyme represents a large seasonal Laurentian tradition (Lake Forest Archaic) camp containing structural outlines, compact living floors, and elaborate mortuary ceremonialism (Pfeiffer 1984).

Late Archaic components of the Vosburg and Sylvan Lake phases were found at the Chitwick Pond Site located at the former Perry property in northwestern Greenwich (Wiegand 1992b). The Denbigh Farm #1 Site, also in Greenwich, contained the remains of two Late Archaic occupations (Wiegand 1986).

The Narrow-Stemmed tradition (4300–3500 B.P.) may be a regional development out of the Middle Archaic Neville/Stark/Merrimack sequence (Dincauze 1976; McBride 1984) and continues into the Woodland periods. The Narrow-Stemmed (sometimes referred to as the Small Stemmed) tradition is characterized by small, thick, narrow-bladed, stemmed or notched projectile points such as Sylvan Lake, Wading River, Bare Island, Squibnocket Stemmed, and Lamoka. These points are usually produced from quartz or quartzite cobbles via hard hammer percussion. Sites from this tradition also often contain gouges, plummets, scrapers, drills, adzes, paint stones and pitted stones. Settlement patterns differ from the Laurentian tradition as larger, seasonal camps occur along with small, temporary sites. The larger camps are thought to be base camps and are often situated along major rivers. Smaller, more specialized occupations are located in a variety of environmental zones including terrace and upland zones (McBride 1984a). The nature and distribution of sites suggest a less mobile population with communities gathering during summer months and dispersing into smaller groups during the cold weather (McBride 1984a; McBride and Soulsby 1989).

The database of Narrow-Stemmed/Small Stemmed tradition archaeological sites in **Rhode Island** is quite extensive, consisting of thousands of projectile points. South Kingstown, for example, has numerous small, short-duration sites of limited focus (i.e., RI 781, RI 1116, etc.) contrasted by larger, base camps, consisting of multiple family groups (i.e., RI 2008). Another good example of a large base camp is the Perryville Site (RI 247) located 3 miles east of the Narragansett Tribal Land in the Charlestown moraine. Recovered materials included 227 projectile points, a substantial number of them quartz Small Stemmed points. Diagnostic artifacts and radiocarbon dates were also recovered from the Deerskin Landing Site in Charlestown and the Pasquisset Swamp Site. Small Stemmed projectile points reported from Westerly include sites such as the Mistuxet Brook Site (RI 211), RI 273, the Lindroth Site (RI 1853), RI 1871, and RI 2025.

In **Connecticut**, the Narrow-Stemmed tradition (also referred to as the Mast Forest tradition [Snow 1980]) is represented at the Woodchuck Knoll Site, a well-documented large riverine base camp along the Connecticut River in South Windsor (McBride 1978). A thin Laurentian occupation underlies extensive

Narrow-Stemmed tradition deposits at the site. The Narrow-Stemmed component included numerous hearths and storage pits, caches, and house remains. Radiocarbon dates from this component range from 3760 to 3500 B.P. Macrobotanical remains of walnut, hickory, American lotus seeds, and *Chenopodium album* (lamb's-quarters) indicate at least summer and fall occupation (McBride 1978). Smaller, seasonal camps were identified in highland environments during the Route 6/I-84 Relocation survey (McBride and Soulsby 1989). They included three seasonal camps and four task-specific temporary camps. These sites are associated with a wide range of wetland types and environmental locales similar to the environment of the Western Uplands. Also on the former Perry tract in Greenwich was the Pine Grove Site, which is attributed to the Sylvan Lake phase (Wiegand 1988).

Sylvan Lake materials have been found at numerous sites in lower **Westchester County** including at the Hunters Knoll Prehistoric Sites #1, #2, and the Hunters Knoll Cove Site in Mount Kisco (Wiegand 1993b). In New Castle, recent investigations at the Seven Springs estate identified numerous pre-contact period sites, three of which contained projectile points indicative of Late Archaic/Transitional Archaic period occupations: a small-stemmed (possibly Wading River type) point from Area 2, Locus 1; a Bare Island or Wading River point from Area 6, Locus 1; and a Normanskill point from Area 15 (Historical Perspectives 2000, 2004). Sylvan Lake materials also were found in New Castle at the Brandywyne #4 and #5 sites (Wiegand 1989, 1992a). In North Castle, Sylvan Lake occupations have been found at the Thomas Wright Subdivision Sites #1, #2 and #4 (Wiegand 1993a) as well as the former Wampus Pond subdivision to the north (Wiegand n.d.). Sylvan Lake components were also found at the Hammond Ridge subdivision (Wiegand 1990) and the Red Brook Glen Prehistoric Site #1 (Wiegand et al. 1996). The Athena Site, a seasonal camp with Sylvan Lake materials, is located on the west side of Lake Kitchawan in Pound Ridge (Wiegand 1978). The Green Ridge Rockshelter #1 in Bedford contained evidence of both Vosburg and Sylvan Lake phase occupations (Wiegand 1993c). The Thomas Wright Site #2 also contained a Laurentian Vosburg component.

Late Archaic sites are also abundant on **Long Island** and analysis of faunal materials suggest that populations in this area were primarily sedentary, living in fixed settlements for the majority of the year (Gwynne 1982). Numerous Late Archaic sites on the north shore of Long Island have been studied including the Eagles Nest Site (Bernstein et al. 1993; Lenardi 1998), Pipestave Hollow Site (Gramly 1977; Gwynne 1982), Tiger Lily Site (Wisniewski and Gwynne 1982), Remsen Hill Site (Kalin and Lightfoot 1989), Crystal Brook Hollow II Site (Gwynne 1979, 1982), the Rudge-Breyer Site on Mount Sinai Harbor (Gwynne 1982, 1985), and the Murray Site on Setauket Harbor (Bernstein and Lenardi 1992). Many hundreds more have been reported by landowners, artifact collectors, avocational archaeologists and found during cultural resource management surveys. Documented sites from the period consist of small encampments associated primarily with hunting that are clustered along the high morainal ridges adjacent to Long Island Sound or on eastern Long Island. The sites represent three sequential pre-contact traditions: an unspecified Laurentian tradition at Stony Brook and Garvies Point; the Sylvan Lake Phase of the Narrow-Stemmed tradition at Wading River and Garvies Point; and the Snook Kill Phase of the Susquehanna tradition at Lake Montauk (Ritchie and Funk 1973).

The Transitional Archaic Period (3600–2500 B.P.) bridges the Archaic and Woodland periods and is represented in southern New England by *Susquehanna Tradition (3800–2700 B.P.)* cultural materials and sites. An extensive trade network, increased burial ceremonialism, and the development of technologies markedly different from the antecedent Late Archaic traditions characterized the Transitional Archaic. Radiometric and stratigraphic information collected from archaeological sites in southern New England indicate the Susquehanna tradition was temporally contemporaneous with the Late

Archaic Small Stemmed projectile points (Filius 1989, 1999). The earliest expression of the Susquehanna tradition in southern New England includes the Atlantic Phase complexes dated to before 3600 radiocarbon years B.P. at the Atlantic Ledges Site in Hull, Massachusetts and terminates with the Orient Phase ca. 2600 B.P., coincident with the beginning of the Early Woodland Period (Dincauze 1972; Ritchie 1980). The peoples associated with these phases, although differing in some ways from one another, shared similar cultural commonalities (lithic technologies, cultural materials, and/or settlement and subsistence data) to place them within the collective Susquehanna archaeological tradition.

New technological developments associated with the Susquehanna tradition included the manufacture of steatite vessels and broad-bladed tool forms (Atlantic, Susquehanna Broad, Coburn, Snook Kill, Perkiomen, Genesee, and Orient Fishtail projectile points or knives) that either developed out of the local populations or were introduced to the region by peoples migrating to New England. Steatite bowl use, technology, and trade had its beginnings approximately 3,600 years ago following the Susquehanna tradition Atlantic Phase, peaked between 3400 and 2900 B.P., and fell into disuse by the end of the Orient Phase of the tradition (Sassaman 1999). The composition and chronological distinction of these assemblages, as well as the variety of settlement types, vary throughout New England. Susquehanna cremation burials have been identified at the Litchfield Site in New Hampshire (Finch 1964), the Mansion Inn, Watertown Arsenal, the Vincent sites in eastern Massachusetts (Dincauze 1968), the Millbury III Site in the Blackstone River valley of Massachusetts (Leveillee 1995), at the Flat River Site in Coventry (Fowler 1968) and the West Ferry Site in Jamestown, Rhode Island (Simmons 1970), and the Bliss and Griffin sites in Connecticut (Pfeiffer 1980).

Susquehanna tradition settlement patterns differ with those of the preceding Narrow-Stemmed tradition. The pattern is similar to the Laurentian tradition, in that there are more temporary camps and specialized use of the uplands. Evidence from upland sites suggests that temporary occupations were specialized and established near streams and swamps. Less frequent group movements and more specialized procurement strategies are inferred. Communities came together near major rivers during certain parts of the year, possibly coinciding with either burial ceremonies or the harvesting of floodplain plant resources (Pagoulatos 1988). Groups then would have dispersed into smaller specialized task groups or domestic units and relocated to the highlands for other parts of the year.

In **Rhode Island**, in addition to the cremation burials in Coventry and Jamestown, the base of a felsite Orient Fishtail projectile point was recovered from the Peninsula Site on Narragansett Tribal Lands (Harrison and Leveillee 1995). Transitional Archaic materials were also recovered from the Deerskin Landing Site and the Perryville Site. Transitional Archaic materials have also been recovered from a number of sites in coastal settings, including the Greenwich Cove Site (Bernstein 1987) and from Green Point on Prudence Island (Kerber and Luedtke 1981).

In **Connecticut**, the Susquehanna tradition (also referred to as the River Plain tradition [Pfeiffer 1984]) is represented by many different types of sites, including small special purpose camps, larger seasonal base camps, steatite quarries and workshops, shell middens, rockshelters, and cremation burial grounds (Lavin and Mozzi 1996). Site CT 32-59, located along the Willimantic River in Coventry, is an example of interior upland Susquehanna tradition sites. This site includes two small loci, each measuring approximately 100 to 250 sq m in size. One locus consists primarily of quartzite blade fragments and steatite bowl debris. The other locus yielded flint and argillite chipping debris, a Genesee point, and a hearth with a radiocarbon date of 3890 ± 80 B.P. (McBride and Pagoulatos 1988). The Timothy Stevens

Site on the other hand, is situated on the terrace edge overlooking the Connecticut River floodplain in Glastonbury, and represents a typical large seasonal camp. This site yielded a wide range of features, including hearths, trash pits, post molds, special activity areas, house remains, and storage pits/caches of points. Remains of white-tailed deer, beaver, small mammals, turtle, fish, lambs-quarters (*chenopodium album* L.), hickory, and walnut were found, suggesting at least summer and fall occupancy (Pagoulatos 1986). In New Canaan, a soapstone quarry-workshop site was recorded, but was destroyed before an archaeological investigations could be conducted. A small Terminal/Transitional Archaic component was also present at the Chitwick Pond Site in Greenwich near the New York border (Wiegand 1992b).

Major Late and Terminal/Transitional Archaic components were found at 294A-AF2-1 on the floodplain of the Housatonic River in the City of Milford. The Laurentian and Narrow-Stemmed traditions are represented by 29 projectile points of seven distinctive styles. Three points are classified as Brewerton Side Notched, 12 are classified as Lamoka, five are Bare Island, four are Normanskill, two are Wading River, two are Poplar Island, and one is a Rossville. The Terminal Archaic Period is represented by 30 points of four different styles and by 12 steatite vessel fragments. The points include three Snook Kill, two Susquehanna/Wayland Notched, one Mansion Inn blade, and 24 Orient Fishtail types. In addition to the diagnostic artifacts, five features (Features 3, 9, 19, 30, 35) were radiocarbon dated to the Terminal Archaic Period and a sixth (Feature 23) was assigned to this period based on the presence of a steatite sherd. The Late Archaic Period occupations probably represent temporary camps, with the episodes limited to activities such as hunting, fishing, or other forms of resource procurement. By the Terminal Archaic Period, the site appears to have been used as a seasonal camp or semipermanent base camp occupied at least during the fall months.

In lower **Westchester County** a steatite bowl fragment was found in the Cross River Reservoir in Bedford and numerous artifacts from the period were found during construction at Hunter Peninsula on Lake Kitchawan (Wiegand n.d.). Several other artifacts have been found in Bedford and Pound Ridge. Terminal/Transitional Archaic materials have also been found at the Hunters Knoll Prehistoric Site #2 in Mount Kisco (Wiegand 1993b), the Brandywyne Prehistoric Site #2 in New Castle (Wiegand 1992a) and the Green Ridge Rock Shelter #1 in Bedford (Wiegand 1993c). Two sites in New York City (Washington Heights), the Tubby Hook and Inwood sites, contained stratified shell middens, bannerstones, axes, and all manner of projectile points and debitage (Cantwell and diZerega 2001). The Throgs Neck Site in the Bronx contains two hilltop cemeteries that face the water and several habitation sites surround them. The burials included several grave goods including broken steatite containers, fire-making kits, cosmetic stones (used for pigments), red ocher, woodworking kits, spear points, and knives. **Long Island's** pre-contact population apparently increased significantly during the Transitional Archaic Period. The Orient Phase, characterized by temporary encampment sites and separate cemeteries, represents the characteristic site distribution and settlement pattern for the period (Fehr et al. 1995). Orient No. 1 Site, located on the northeastern end of Long Island, has long been considered the defining type-site for this phase (Ritchie 1980). Archaeological evidence from sites associated with the Orient Phase demonstrates a significant deviation in subsistence patterns from those found on sites dating from earlier periods, in that shellfish (i.e., oysters and clams) apparently formed a significant part of their diet. Also, crude forms of ceramic vessels appear to begin to supplant those crafted from steatite (Ritchie and Funk 1973).

Woodland Period (3000–450 B.P.)

In southern New England, Long Island, and elsewhere in the coastal Northeast, the Woodland Period is characterized by the increased use of elaborate ceramic vessels and an introduction of tropical cultigens

(maize, beans, and squash) (McBride and Soulsby 1989). Long Island is thought to differ somewhat from this general model, because of the paucity of evidence for horticulture on the Island (Merwin 2000). In fact, eastern Long Island is completely devoid of any clear evidence for pre-European contact horticulture (Bernstein 1999).

The regional trend toward increased site size and complexity suggests a pattern of increased sedentism and social complexity in eastern North America during the Woodland Period (Dragoo 1976). Coastal shell middens increase in frequency in southern New England and Long Island's coastal areas. Many of the area's shell middens have been studied in detail.

Settlement and resource procurement targeting the coastal zone's rich beaches, bays, estuaries, and salt marshes and the increased use of shellfish is a general pattern observed all along the coast of southern New England. This intensive exploitation of coastal resources continued through the early post-contact years. Boutchard and Hartgen (1985) have hypothesized that the use of the beaches and marsh embankments of the islands as hunting and collecting areas, with collection stations, temporary campsites, and whaling look-out posts set up by small groups is probable.

All phases of the Woodland Period are represented by sites in Rhode Island, Connecticut and on Long Island. On Long Island, most are located among the marshy islands and hummocks present in the shallow bays that separate the barrier beaches from the mainland.

Early Woodland Period (3000–1600 B.P.)

The Early Woodland Period is characterized by a continuation and intensification of traits first observed during the preceding Transitional/Terminal Archaic Period, with particular emphasis placed on ceremonial burials (consisting of both cremation and primary burials). Settlement patterns were characterized by limited use of upland areas and more intensive use of coastal and estuarine resources and locales. Coastal habitation sites and shell midden deposits from along the saltwater and estuarine margins of Maine to New York reflect the increasing dependence on shellfish and other marine resources during the Early Woodland Period. Interior site locations that contain artifacts diagnostic of the Early Woodland Period are not as numerous as the preceding periods. This may be related to the problem of determining what constitutes diagnostic artifact assemblages for the period.

Early Woodland archaeological deposits have traditionally been diagnosed through the presence of Meadowood, Lagoon, and Rossville type projectile points, as well as grit-tempered, cord-marked Vinette I ceramic styles in the absence of radiocarbon dates. Early Woodland Period occupations, however, are generally underrepresented in the regional archaeological record. This has led to speculation that there was a population decline for the period (Dincauze 1974; Lavin 1988). Fiedel (2001) hypothesizes that either climatic or environmental changes, sociocultural change, or epidemics may have contributed to the so-called "Early Woodland collapse." Conversely, others argue that the apparent underrepresentation of Early Woodland sites may stem from the difficulty in determining what constitutes diagnostic artifact assemblages for the period (Julie and McBride 1984). The positive association of some Small Stemmed projectile points with Early Woodland radiocarbon dates indicates that some Early Woodland assemblages are being misidentified as older Late Archaic materials. Nevertheless, the regional database appears to argue in favor of a population decline for the period (Fiedel 2001).

Settlement appears to have intensified along the estuary margins of Narragansett Bay and **Rhode Island's** south coast with decreased coastal inundation and the stabilization of shorelines approximately 3,000 years ago. However, a few Early and Middle Woodland Period archaeological deposits are known from South Kingstown sites such as RI 1818 along Point Judith Pond.

In Connecticut, the Waldo-Hennessey Site, a collection of small, seasonal camps in a tidal estuary locale in Branford, provides information about Early Woodland subsistence procurement and land use patterns. Ceramics were found in association with Narrow-Stemmed quartz points and Meadowood and Rossville point forms. Subsistence remains include oyster, soft and hard-shelled clams, and white-tailed deer. The combination of food remains and numerous superimposed features indicates that the site was reused on a seasonal basis by small groups of people (McBride 1984). The Bolton Notch Site (12-2) is an example of a seasonal camp and is characterized by discrete lithic concentrations, resharpening flakes, Narrow-Stemmed and Meadowood projectile points, and numerous features. The tool assemblages indicate woodworking, animal butchering, skin working, and plant processing activities. Organic remains consist of deer, raccoon, unidentified small mammal, and hazel- and hickory nut, suggesting a summer and fall occupation (McBride and Soulsby 1989). An Early Woodland component at Site 294A-17-1 in the lower Housatonic Valley is represented by three Meadowood points (all made of Hudson Valley chert), as well as several cordmarked sherds representing a single ceramic vessel. Two of the projectile points were recovered from the same small locus (#3) in the south-central portion of the site. This small activity area produced the two points, two chert biface fragments, one quartz biface fragment, and a low density of chert debitage.

Early Woodland sites elsewhere in Connecticut are distributed across a variety of ecozones, although there appears to be an orientation toward floodplain wetlands and upland lakes. Larger sites often are located on the floodplain and terraces, although settlement patterns in general are characterized by seasonal group movements throughout the lowlands and uplands (McBride 1984a). The Arthur Court Site (CT 99-029), although destroyed by modern development, is another example of a Late Archaic/Early Woodland Period site. Several diagnostic artifacts were recovered from the site including small-stemmed, triangle, and straight-stemmed points.

The Athena Site in Pound Ridge, **Westchester Co unty**, contained features and an artifact assemblage indicating it was probably a seasonally occupied camp dating to the Early Woodland Period. Botanical analysis indicates that it was occupied during the summer and/or fall (Wiegand 1978). Other sites in Westchester County containing Early Woodland components include Grawbuckie Site 2-7 (Funk 1976). The Early Woodland site of North Beach, located on the present-day site of LaGuardia Airport in **Queens** yielded a variety of artifacts that suggest the area was used as a base camp for a small family group. Early Woodland site components have been identified on **Long Island** at: the Babylon Site, Cedar Point where 15 burials were unearthed, and at Massapequa Lake where a cache of several hundred ceremonial blades was recovered. Early Woodland Period vessels have been identified at several sites on the north shore of Long Island and near East Hampton (Gray and Pape Inc. 2005; Ritchie 1959). Additionally, the Jamesport Site, located on the North Fork of Long Island, identified cord-marked Vinette I style pottery, likely dating to this period (Ritchie 1959).

Middle Woodland Period (1650–1000 B.P.)

The Middle Woodland Period in the Northeast is characterized by increased sedentism and an abandonment of the concerns for elaborate ritual that characterized the Early Woodland Period, as well as diversity in ceramic styles, long-distance exchange networks, and the use of tropical cultigens by the end of the period (Dragoo 1976; Snow 1980). Diagnostic cultural materials from this period include Jack's Reef Pentagonal and Corner-Notched and Fox Creek type projectile points and rocker and dentate-stamped ceramics, Vinette II, which is frequently associated with the Fox Creek projectile points of central and eastern New York (Ritchie and Funk 1973). Ritchie noted an increase in the frequency and size of storage facility features encountered on archaeological sites dating from the Middle Woodland Period that he argued reflects an increased trend toward sedentism (Ritchie 1969; Snow 1980).

Traditionally the introduction, adoption, and subsequent intensification of horticulture for the production of food in the Northeast has been perceived as substantially altering previously established settlement and subsistence patterns of Archaic Period hunters and gatherers (Snow 1980). Consequently, horticulture has been assumed to have had important impacts on the later Native American subsistence and settlement base for southern New England, as it was widely believed that it initially supplemented and later supplanted a pre-existing focus on hunting and gathering subsistence strategies sometime during the Middle Woodland Period. However, the earliest evidence of domesticated agricultural products in the region dates to around A.D. 1000, coincident with the end of the period suggesting a "late" reliance on horticulture (Bendremer and Dewar 1993). More recent analyses of food residues from cooking pots suggest that maize and squash were present in the Finger Lakes region of New York as early as A.D. 650 (1300 B.P.) (Hart et al. 2003).

In **Rhode Island**, a Middle Woodland component including a hornfels Fox Creek projectile point has been identified at the Pasquisset Swamp Site in Charlestown (Rainey 1993). Middle Woodland materials were recovered at RI 667, and at the Greenwich Cove Site in association with the remains of deer, squirrel, beaver, rabbit, raccoon, skunk, and fox (Bernstein 1987). The Campbell Site in Narragansett was used repeatedly during the Middle and Late Woodland periods (Cox et al. 1982).

In **Connecticut**, the Cooper Site (CT 75-60), located near the confluence of the Connecticut River and Hamburg Cove in Lyme, is an example of a larger Middle Woodland riverine aggregation site. The site includes post molds, hearths and the remains of turtle, deer and small mammals, reflecting spring and summer occupancy. Numerous other seasonal camps along the river yielded roasting platform features, storage pits and subsistence remains such as beaver, turtle, bayberry and sturgeon, suggesting summer and fall occupation. Middle Woodland occupations also are found within upland zones. For example, Site CT 22-8, located in the Eastern Highlands yielded chert chipping debris concentrations, Narrow-Stemmed projectile points, features, resharpening flakes, and mammal bone. The site has been radiocarbon dated to 1550 ± 50 B.P., and is interpreted as a seasonal camp (McBride and Soulsby 1989). McBride (1984) suggests that organized task groups may have established temporary camps in the uplands to exploit specific resources. The pattern reflects a strategy in which collectors made fewer residential moves; task groups would collect resources in upland zones and transport them to the riverine base camps.

The Juniper Point Site (CT 14-027), located in Branford represents a temporary occupation during this period. Associated with a rockshelter, this site contained evidence of hunting and short-term occupation

and may be associated with a larger village site at CAS 5207. Materials recovered included pottery, trade pipe fragments, pitted stones, several projectile points, shell, and an antler flaking tool. It is also noted that a human skeleton was found at this site in the early 1940s, but was not documented as a burial.

Several sites in the lower Housatonic Valley produced substantial evidence of Middle Woodland activity. Site 270A-4-1 contained 349 ceramic sherds representing at least four vessels. Two Matinecock Point Stamped sherds were also recovered from Site 294A-AF2-1 along the main channel of the Housatonic River in the City of Milford. Additionally, 11 Vinette Dentate/Clearview Stamped sherds (a minimum of six vessels) were recovered. The ceramic assemblage at Site 294A-25-2, also in Milford, indicates an early Middle Woodland occupation determined by two radiocarbon dates from a refuse-filled pit and one date from an undetermined pit. Feature 3 yielded radiocarbon determinations of 1920 ± 80 B.P. from carbonized nutshell and 1760 ± 70 B.P. from wood charcoal. Feature 3 also produced numerous ceramic sherds including Vinette Interior Cordmarked, decorated Modified Interior Cordmarked, and Matinecock Point Stamped types. Feature 7 also yielded an early Middle Woodland radiocarbon date of 1930 ± 70 B.P. The primary function of the site, particularly the later occupations, appears to have been the exploitation and processing of food resources, especially shellfish. The early Middle Woodland settlement was likely a seasonal camp and task-specific food processing station.

In **Westchester County**, the previously mentioned Chitwick Pond Site and Pound Ridge Golf Club #2 Site contained Middle Woodland components. The Chitwick Pond Site contained several Greene projectile points (Wiegand 1992b) and a component of the Fox Creek phase was found at the Pound Ridge Gold Club #2 Site (Wiegand 2000, 2006). Additionally, the Parham Ridge, Crawbuckie 1, and Dugan Point sites, all situated on the Hudson River, contained Middle Woodland components (Funk 1976). In the **Bronx**, the Morris-Shurz Site on Throgs Neck contained an 8-foot wide circle of water-worn stones. Excavations revealed a stack of more than 150 plates of sheet mica, the origin of which was traced to southeastern Pennsylvania. Additionally, redish-purple argillite sourced to the Trenton area was recovered. Among the most extensively studied Woodland Period sites on **Long Island** is the shell midden at van der Kolk on Mount Sinai Harbor, on Long Island's North Shore (Berstein et al. 1993; Bernstein et al. 1994). The deposit yielded a large quantity of vertebrate faunal materials in addition to shell, pottery, and lithic remains radiocarbon dated to approximately AD 1240. On the South Shore, Middle Woodland components have been recorded at the Champlain Creek Site and at the Secatogue Site. The Champlain Creek Site on Great South Bay contained quartz and chert flakes, ceramic sherds, fire-cracked rock, and a pit feature (Gray and Pape Inc. 2005). Additionally, the Twin Pond Area 1 Site in Brookhaven appears to have been occupied over a period of 4,000 years, and included Middle to Late Woodland Period occupations.

Late Woodland Period (1000–450 B.P.)

The distribution of Late Woodland Period archaeological deposits appears to be a continuation of the Middle Woodland pattern with Late Woodland sites common within coastal environments, around interior freshwater ponds and wetlands, and adjacent to large tributary streams and rivers. Late Woodland settlement types included specialized exploitation sites (shell middens, hunting and processing camps, lithic workshops, etc.), small domestic sites, and larger hamlets or villages.

By the Late Woodland Period maize horticulture continued to gain in importance. With intensive maize horticulture came the need, refinement, and advances in storage technology to ensure that ample maize

would be available throughout the winter months and that a sufficient supply of seed crop would be available for the next season. Ceramic technology therefore changed in form, style, and function. With an increased reliance on stationary storage facilities, people became tethered to specific site areas or localized regions, which resulted in decreased mobility, whereby residential mobility was abandoned in favor of logistical mobility. Large villages tended to be situated along major rivers, estuaries and tidal marshes. Smaller, temporary camps were situated along upland streams and inland wetlands. Populations appear to have aggregated in large villages during much of the year. Temporary encampments were established on a seasonal basis by smaller domestic units or organized task groups in upland zones, a settlement pattern that reflects a collecting strategy (Binford 1980; McBride 1984a). Reduction in communal mobility influenced the development of Late Woodland territories and social structures. Social complexity, the formation of political alliances, and the establishment of tribal territories appear to have developed during the period (Mulholland 1988).

The Late Woodland Period is associated with an improvement in ceramic technology and production. Late Woodland artifacts represented in the regional archaeological record include triangular Madison and Levanna type projectile points and finely made brushed, cord-wrapped, stick-impressed, and incised ceramics (Lavin and Mozzi 1996; Ritchie 1969; Snow 1980).

The Late Woodland Period is well represented along the margins of southern **Rhode Island's** salt-water estuaries such as the Winnapaug and Quonochontaug ponds in Westerly. Large concentrations of Late Woodland materials have been recovered from settlement sites, such as the Potters Pond Site, and larger resource extraction sites, such as RI 1818. Native American settlements that arguably qualify as "villages" have recently been the focus of archaeological investigation near Ninigret Pond in Charlestown and along the upper Point Judith tidal estuary in Narragansett (Leveillee et al. 2006). Low-density recoveries of Late Woodland projectiles are also reported from the town's interior. The relatively fewer Woodland sites and low-density recoveries from South Kingstown's interior might be reflective of seasonal relocations of peoples for hunting and collecting purposes as ancestral Narragansetts began to establish their characteristic coastally based settlement pattern (Waller and Leveillee 2001a).

The recently identified cluster of Late Woodland Period Native American archaeological sites that includes domestic village and ceremonial mortuary sites (Leveillee and Harrison 1996; Leveillee et al. 2006; Waller 2000; Waller and Leveillee 2001b) apparently represents the formation of an ancestral Narragansett homeland situated at the headwaters of the Point Judith Pond saltwater estuary of South Kingstown and Narragansett during the Late Woodland Period. In Westerly, small, limited focus Woodland Period deposits are documented at the Mistuxet Brook Site, RI 1287, RI 1563, and RI 2025. Larger Late Woodland archaeological sites including the Foster's Cove Site have been documented along the margins of Rhode Island's lagoonal ponds. The John Hill Farm, located on the south side of Shumunkanuc Hill in Charlestown, contained shell middens with oyster, deer bone, exotic flints, a broad-based point and bifaces made of quartzite. The potato fields in this area also contained pottery fragments tempered with shell, fiber, coarse sand, and crushed mineral grit.

In **Connecticut**, the two sites along the Housatonic River in Milford discussed in the previous section also contained Late Woodland Period components. At Site 294A-AF2-1, the Late Woodland is represented by a Levanna point, a Madison point, six unclassified triangular projectile points, Windsor Brushed, Sebonac Stamped, and Hollister Plain pottery vessels, an untyped cord-wrapped stick-stamped vessels with the smoothed interior surfaces. At site 294A-25-2 the Late Woodland is represented by

overlapping radiocarbon dates from five cultural features and three of these features also contained maize dating to the Late and Final (Contact) Woodland.

In lower **Westchester County**, the Green Ridge Rockshelter Site #1 in Bedford contained numerous Late Woodland artifacts including a Levanna point and grit-tempered pottery (Wiegand 1993c). In North Castle, a single Levanna point was found at the Thomas Wright Subdivision Site #4 (Wiegand 1993a) and a Levanna point and other tools and debitage were found at the Red Brook Glen Prehistoric Site #2 (Wiegand et al. 1996). In **New York City**, at least four Woodland Period villages and associated planting fields have been identified along the shores of the Hudson and Harlem rivers in northern Manhattan. All of these sites were reported by archaeologist Arthur C. Parker in the 1920s. NYSM# 4067 is the most extensive of these settlements, and contains shell middens, charcoal, and projectile points. The Aqueduct Site near John F. Kennedy Airport in **Queens**, contained lithics, pottery, and shells as well as a double burial. The burial was surrounded by 14 postholes representing a structure that was built to protect the burial from animals. A number of “bundle burials,” secondary burials have also been found all over the city. One such example is the Archery Range Site near Pelham Bay in the **Bronx** that contained 21 bundle burials and three dogs in a mass grave. The Late Woodland site type most frequently encountered on **Long Island** are shell midden sites that are located on marshy bay islands or near the mouths of creeks draining into shallow coastal bays. Shell mound sites are composed entirely of shell (predominately clam shell) interspersed with relatively few artifacts, such as stone net sinkers and spear heads, making dating of the deposits more problematic. Late Woodland sites include the Oak Neck Site at Willets Point, the previously referenced Sectogue burial ground, and the Merrick-Ocean Site, a winter shellfish processing station near Massapequa Creek.

One National Register-eligible site is located near Cedar Creek, the Seaford Park Site, consisting of three mounds, has been the subject of numerous studies over the last 25 years (Cammisa et al. 1994; Historic Conservation and Interpretation, Inc. 1985; Wyatt 1976). The mounds’ documented stratigraphy revealed that the mounds terminate 8–10 feet below the present marsh surface on sands and sediments deposited prior to the marsh’s formation (Cammisa et al. 1994; Pickman 1982). Analyses of shell samples collected from the middens indicates that they were opened and processed at the midden sites during the late winter or early spring, but were probably consumed elsewhere (Fehr et al. 1995; Wyatt 1976;). Flotation of a midden deposit sample produced several lithic flakes, including those derived from exotic chert, jasper, and rhyolite, but no tools or temporally diagnostic artifacts (Fehr et al. 1995). Radiocarbon dates for the mounds obtained from charcoal samples range from about 1000 to 1500 B.P. indicating Middle to Late Woodland Period deposition (Cammisa et al. 1994; Historic Conservation and Interpretation, Inc. 1985).

Contact Period (450–300 B.P./A.D. 1500–1650)

The traditional cultural systems of Native Americans were rapidly transformed during the contact period. Contact with European populations slowly but completely disrupted Native American lifeways including their social, economic, and political culture. The lifeways of the Native populations during this period are believed to have been similar to those of the Late Woodland Period. There were a number of large permanent base camps and villages, some fortified, as well as smaller satellite hunting and fishing camps. Large groups may have gathered together at certain times of the year for resource exploitation as well as for social and ceremonial functions.

Early ethnohistorical documents and modern ethnohistorical sources attest to the extensive trade network in place during this period (Bragdon 1996; Brassler 1978; Snow 1980; Winthrop 1996). Fur trade was an important economic factor for Europeans and Natives alike, and in return for furs the Native Americans received clothing, food items, metal, and beads. Interaction between Native people and Europeans is recorded in notes and writings of several early explorers and settlers including John Winthrop, William Bradford, Thomas Morton, Samuel Champlain, and Samuel and John Smith. European trade goods were circulating to Native New England cultures especially during the early seventeenth century. Although pre-contact period trade routes may not have continued in use throughout the terminal Late Woodland (McBride and Dewar 1987), they were clearly serving as conduits for the distribution of European goods, especially marine shell beads (wampum), by the early seventeenth century.

European contact with the indigenous peoples of Narragansett Bay in **Rhode Island** was initiated when Giovanni da Verrazano and his crew of 50 sailed into Narragansett Bay on his vessel the *Dauphine* in 1524. Verrazano's account appears to report an encounter with the Narragansett off Point Judith in present-day Narragansett at the mouth of Narragansett Bay. In his journal Verrazano recorded:

We weied Ancker, and sayled towarde the East, for so the coast trended, and so always for 50. leagues being in sight thereof wee discovered and llande in forme of a triangle [Block Island], distant from the maine lande 3. leagues . . . And wee came to another lande being 15. leagues distant from the llande, where wee founde a passing good haven, wherein being entred [the mouth of Narragansett Bay] we founde about 20. small boates of the people which with divers cries and wondrings came about our ship (Hakluyt cited in Chapin 1919:1–2).

Over the course of his voyage, Verrazano recorded his impressions of the indigenous people he encountered and the lands in which they lived. His observations provide the first documented account of Narragansett Indian society and culture in Rhode Island with the exception of the lands between the Pawcatuck River and Weekapaug Brook (Potter 1835). Smaller groups of Narragansett, such as the Cowesett, Pawtuxet, Potowomut, and Shawomet were settled within localized areas within the larger Narragansett territory. The Narragansett settlement system involved seasonal relocations related to the cultivation of corn and beans, the hunting of game in wooded valleys of the interior, as well as the seasonal harvesting of marine and freshwater resources (Simmons 1978). The Narragansett were distinguished from the other New England tribes by their political structure, religious beliefs, and their ability to participate in trade with the Europeans. A dual sachemship, involving two leaders of succeeding generations, with inheritance passing through patrilineal bloodlines, was in place as early as the sixteenth century (Boissevain and Roberts 1974; Simmons 1978).

Contagious diseases, many of which the resident Algonquian Indians had not had sufficient time to build up a natural immunity to, followed the recently arrived European immigrants to the Americas. The result was a series of seventeenth-century epidemics that virtually decimated southern New England's indigenous population. Governor William Bradford of Massachusetts noted in 1621 that while the Massachusetts Indian tribes had been severely decimated by the first wave of epidemics in 1619, the Narragansett "had not been at all touched with this wasting plague" (Bradford 1981:97). However, the Narragansett were decimated by a second wave of epidemics during the period from 1633–1636. These epidemics had the effect of opening large tracts of land that European settlers viewed as "vacant" and ripe for settlement.

Narragansett access to the coast afforded them the opportunity to produce wampum, which was readily adopted as a storable medium of exchange by both the Dutch and English. The wampum trade had brought great wealth and power to the Narragansett and the Pequots, who controlled its production along the Connecticut coast. Narragansett control of wampum production and distribution contributed to their domination over surrounding groups. Hostilities between the Pequots and the Connecticut settlers led to a declaration of war by the English court at Hartford in May 1637. Captain John Mason and 90 men proceeded down the Connecticut River with a band of Mohegans under the Sachem Uncas toward the Pequot territory. The Niantic Indians, residing at Fort Ninigret in present-day Charlestown, were at first reluctant to join the war. However, sachem Ninigret eventually sent approximately 150 Niantics along with Captain Mason's army after receiving instructions to do so from Narragansett sachem Miantonomi (Chapin 1931). The combined Connecticut, Rhode Island, and Massachusetts colonial and Narragansett, Mohegan, and Eastern Niantic contingent assaulted the Pequot's fort in Mystic on May 26. The result of hostilities directed at the Pequots during the Pequot War of 1636–1637 effectively neutralized the Pequot's influence in the region.

A series of Native trails such as present day Post Road (Route 1) and South County Trail (Route 2) connected the Native settlement areas in southern New England, as well as available resource exploitation sites, and the major pond, swamp, river, and coastal locations that formed the core of the Narragansett territory. Post Road assisted travel between Narragansett and Pequot territory and was later adopted by colonial settlers for use as a highway.

Perceived and real social and economic injustices on behalf of the colonizing English settlers, as well as the resident indigenous peoples, contributed to deteriorating relations between the two groups throughout the seventeenth century. Worsening relations eventually culminated with an all out Wampanoag Indian assault on the settlement of Swansea, Massachusetts Bay, in June 1675. This attack marked the first assault of King Philip's War (1675–1676), and hostilities soon spread throughout New England. Although the Narragansett initially attempted to remain neutral during the outbreak of the war, they acted contrary to an agreement with the English prohibiting the sheltering of Wampanoag war refugees. The colonies viewed this as an act of aggression and planned a pre-emptive strike against the Narragansett fearing they would openly side with Metacom (King Philip) and join in hostilities against the English.

Combined colonial troops, with the aid of a Narragansett named Peter, marched from Richard Smith's garrison in Wickford to Jireh Bull's garrison at Tower Hill and then onward to the Narragansett palisaded fort concealed in the Great Swamp of South Kingstown on December 19, 1675. There, the colonists defeated the Narragansetts by killing hundreds of men, women, and children and destroying their village (Leach 1958). Many Narragansett survivors fled to the "Queen's Fort" of squaw sachem Quiapen along the borders of present-day North Kingstown and Exeter in northeastern Exeter, while the English returned to Richard Smith's garrison at Cocumscussoc. Many colonial soldiers died on the trail from the Great Swamp to Cocumscussoc with 40 of the English dead being buried in a common grave on the Cocumscussoc trading post grounds. Seventy men stayed at Cocumscussoc after the assault as a garrison to guard against retaliation by surviving Narragansetts. In March of 1677, when the soldiers departed, the Narragansett retaliated by burning down Smith's Garrison block house. Hostilities associated with King Philip's War eventually ended with Philip's capture and death at the hands of Benjamin Church in Bristol on the morning of August 12, 1676. King Philip's War effectively diffused Native American power in southern New England.

By the 1630s, when direct European contact was felt throughout **Connecticut's** coasts and larger rivers, Native Americans were organized in groups of small households that banded together along ethnic and territorial lines in larger villages during the spring and summer and dispersed during other seasons. These small groups engaged in hunting, fishing, and gathering of wild plant foods, and in the later pre-contact period were engaged in maize horticulture. During the contact period, trapping of beaver and other fur-bearing animals was an important economic activity. In the late pre-contact and contact periods settlement was focused on or adjacent to the floodplains of the major tributaries, reflecting the importance of agricultural activities, fishing, and access to transportation and communication routes. Planting in the spring and the capture of anadromous fish at waterfalls and rivers brought together households of the Paugussett people in the Housatonic and Naugatuck River valleys.

There were six major tribes that inhabited the Eastern Coastal Slope by 1614. These were the Pequots (Groton-Stonington area), the Mohegans (New London area), the Niantics (Lyme and Waterford), the Hammonassetts (Saybrook and Clinton), the Menuncatucks (Guilford and Madison), and the Quinnipiact (Branford). The Western Coastal Slope was inhabited by the Paugussett (Milford, Orange, Stratford) and the Pequannock (Stratford and Bridgeport) with the sub tribes the Uncawas (Fairfield), the Aspetuck (Fairfield, Westport, Weston) and the Sasqua (Westport). The Norwalke were situated west of the Saugatuck River and the Siwanoy occupied the area of Stamford and Greenwich. Relative to other parts of New England, Connecticut had one of the densest concentrations of tribes living in relative proximity to one another. Each tribe belonged to the Algonquian language group, facilitating intertribal communication along the coast and elsewhere in southern New England (Herzan 1997; Lavin and Mozzi 1996).

For reasons that remain unclear, there appears to be a strong correlation between the territorial boundaries of Native American ethnic groups and drainage boundaries by the 1630s. Social boundaries among the Algonquian-speaking Indians of southern New England were not rigid, and political organization for most purposes was loose, with male and occasionally female sachems recognized in limited spheres of authority. With the fur trade, however, political and territorial boundaries hardened and the fortified villages observed by the Europeans may date to this era of intertribal conflicts. Competition for trapping grounds and access to fur markets became intense in the early seventeenth century, and some English adjudication of such matters in Connecticut during later decades used drainage boundaries as political boundaries. There is evidence from other parts of New England for at least a historic period pattern of territoriality based on drainages, and to some extent this pattern probably predates European contact.

By the 1670s, the hunting and trapping grounds of southern New England were probably depleted as sources of Native American income, and those groups that had survived the disease and warfare of the early contact period had begun trading land rights, money, goods, or political security.

The Pine Orchard Swamp Site (14-028) located in Branford is an example of a contact period site. Artifacts recovered included Windsor brushed and Windsor stamped ceramics, East River pottery, triangular projectile points, hammer stones, bone awls, clay pipe stems, and deer, moose and cow bone. The presence of butchered bone as well as hearths suggests that this site represents a short-term occupation. The presence of early English ceramics and cow bone implies that this site was in use when Native American groups began to incorporate European influences. In north Stamford the Bear Rock Shelter contained projectile points, shell wampum beads and European glass trade beads (Wiegand 1983).

While it is extremely improbable that submerged Native American habitation sites from the contact period would be found within Long Island Sound, Native Americans were still utilizing the sound. There are historical accounts of mainland tribes traveling across the Sound to Long Island (Orr 1897). Consequently, it is possible that Native American debris and “shipwrecks” from this period could be located within the Sound.

The 1610 Velasco map used the name Manahata to describe the native people occupying both banks of the lower Hudson River (Grumet 1981, 1995). In 1628, Isaak de Rasieres reported the presence of 200–300 “old Manhatasen” men and women in the northern portion of the island, a group later ethnically identified as a subgroup of the Wiechquaesgeck (Bolton 1922; Grumet 1981). Unlike the groups to the north, the Manhattan lacked the furs necessary to become valuable trading partners with the Dutch. The Dutch policy of supplying the Mahican and Mohawk with firearms while denying the same goods to the groups along the lower Hudson, however, made the Manhattan vulnerable to attack. In response to European aggression and increasing intratribal hostilities over trade privileges, palisaded villages began to emerge along the New York coast. A series of major and minor skirmishes among the various competing interests eventually led to the Manhattans and Wiechquaesgecks suing the Dutch for peace in 1644. Despite this accommodation, friction persisted between the Dutch and the Manhattans culminating in two major armed conflicts over the next 20 years.

The incessant violence coupled with numerous epidemics effectively decimated the Manhattan groups living in the **New York City** area. The fragmented populations were forced to merge in order to maintain viable communities, all of which had vacated the island for the mainland Wiechquaesgeck population centers by 1628 (Grumet 1995).

Native American populations on **Long Island** during the contact period have been reported archeologically and through documentary sources (Gray and Pape Inc. 2005). The explorer Verrazano reported fires on the shores of Long Island in 1524, and seventeenth-century colonists reported native people residing on Long Island. The impact of European contact on Native American groups living on Long Island was so rapid and extensive that it is difficult to know how sociogeographic patterns observed by colonists and traders had been altered by contact. Regardless of the precise context, it is clear that post-contact period Native American settlement in the area was much more extensive than European descriptions and local histories suggests.

Permanent settlement by English colonists did not begin in central Suffolk County until the mid- to late seventeenth century. At this time, Native groups inhabiting Long Island included remnant groups of Montauk, Secatogue, and Unquachog Indians, speakers of the Mohegan-Pequot-Montauk Algonquian language (Salwen 1978). According to an early historian (Thompson 1839), the division between the deciduous forests on and north of the Ronkonkoma terminal moraine and the scrub oak and pitch pine barrens of the glacial outwash plain to the south also marked a cultural boundary between Native American groups.

By the time of European arrival, there was little conflict as local Native Americans were already weakened by disease and from raids by the mainland Connecticut tribes. While there was constant fear of attack, there was little actual violence (Bayles 1874), and prime land and local power quickly passed to the white settlers. However, the Ryder Survey of 1670 refers to the southern two-thirds of present day

Suffolk County as Sachem Land. This suggests that residual Native American groups may have continued to live and hunt throughout the region at least until the end of the seventeenth century. Archeological evidence suggests that shoreline settings were preferred during the contact period on Long Island (Gray and Pape Inc. 2005).

At the Pound Ridge Golf Club Rockshelter in lower Westchester County contact period artifacts including stone tools, pottery, gunflints, lead shot, and a glass trade bead were recovered (Wiegand 2006). The only contact period site on Long Island is the seventeenth-century Fort Massapeag (NCM No. 20), a palisaded village located east of Cedar Creek on Fort Neck (Massapequa) on the southern shore.

CHAPTER FOUR

POST-CONTACT PERIOD CULTURAL CONTEXT

Rhode Island Study Area

European Settlement and Expansion (1636–1775)

During the period of European Settlement and Expansion a complex series of land transactions between Native groups and Europeans, including the Rhode Island Patent of 1643 and the Misqamicut Purchase in 1660, facilitated colonization of Rhode Island (RIHPC 1977, 1981). Although these purchases secured much of Washington County for colonial interests, actual settlement in the area was primarily concentrated along the coast until the years following King Philip's War in the 1670s. Unclear ownership rights led to multiple claims to the territory by the governments of Rhode Island, Massachusetts, and Connecticut during the latter seventeenth century (Greene 1877; RIHPC 1981).

Kingstown was first settled near Tower Hill in 1658 (RIHPC 1984). The town was divided into South Kingstown and North Kingstown in 1703. Narragansett separated from South Kingstown in 1901 (RIHPC 1991). Block Island was settled by orthodox Puritans as an extension of Massachusetts and Plymouth in 1661 (RIHPC 1991, 2001). Westerly was incorporated in 1669, and included the areas of Charlestown, Hopkinton, and Richmond (RIHPC 1981). Charlestown was separated from Westerly in 1738, and Richmond was separated from Charlestown in 1747 (RIHPC 1977, 1981). Hopkinton was first settled after 1709 and was incorporated in 1757 (RIPHC 1976).

The period following King Philip's War and leading up to the American Revolutionary War was defined by rapid expansion and development for southern Rhode Island colonists. Large farm and plantations were focused primarily in coastal areas, while smaller subsistence farms tended to be located in the interior. Sawmills and gristmills were built along the rivers and eventually became centers for settlement (Kulik and Bonham 1978). Commercial and maritime activity also increased during this time (RIHPC 2001). Shipwrights along the lower Pawcatuck in Westerly constructed new vessels for coastal trade and local fishing as early as 1681 (RIHPC 1978).

Roads were built to connect the plantations with ports along Narragansett Bay, as well as with early grist- and sawmills. Small commercial and industrial hamlets grew up along these roads (RIHPC 1978, 1981). A ferry was also established between Newport and the mainland in 1709 and this facilitated export of goods from the plantations to Newport and Jamestown. Plantation farming reached a peak between 1730 and 1774. Farms included a 2,000-acre estate owned by the Champlin family in Charlestown, and a farm of more than 2,000 acres owned by the Hazards in South Kingstown (RIPHC 1981, 2001). Narragansett Pacer horses, cheese and hay were exported. Additional crops included corn, tobacco and rye (Greene 1877; RIHPC 2001).

Federal and Industrial Periods (1775–1860)

In the Federal and Industrial Periods an embargo during the Revolutionary War that cut off farms from markets in Newport and Jamestown led to the decline of plantation farming in the area (RIHPC 2001). The cessation of slavery, division of estates, and curtailment of trade with the West Indies also contributed to the end of the plantation lifestyle during the latter eighteenth century. Large plantation tracts were subdivided into multiple smaller farmsteads (RIPHC 2001).

New technologies in the nineteenth century had a great effect on southern Rhode Island's economic stability, counterbalancing the decreasing importance of agricultural pursuits in some areas. The introduction of mechanized cotton-textile manufacturing by Samuel Slater in the early part of the nineteenth century led to the development of mill villages along major waterways throughout the state (RIPHC 1977). Woolen manufacturing became a specialty of South Kingstown, drawing new workers from throughout the region as well as European immigrants (RIHPC 1979). In contrast to the relative industrial prosperity of other Washington County towns during the nineteenth century, Charlestown's milling exploits were for the most part short-lived or marginally successful (RIHPC 1981). Although Block Island remained largely agricultural, the construction of a marine landing in 1816 led to increasing development of the area as a vacation area in the 1840s and 1850s (RIPHC 1991).

Late Industrial Period (1860–1915)

During the Late Industrial Period, mill activity peaked in the 1850s and then declined with the loss of the southern market for woolen goods during the Civil War. The war, however, stimulated expansion of manufacturing including metal working, steam engines, and machinery. By the turn of the century more Rhode Island residents clustered around urban areas and worked in mills than in agriculture. Most of this industry occurred around Providence, while Washington County remained relatively undeveloped (RIHPC 1978).

The attractive coastal areas of Charlestown and the onset of the resort era helped revive the town at the turn of the twentieth century through modern times (RIHPC 1981). Block Island also continued to develop into a vacation area and a number of hotels were built in the 1870s. (RIPHC 1991). Creation of the harbor on Block Island facilitated growth of the fishing industry as well (RIHPC 1991).

Modern Period (1915–present)

In the Modern Period the importance of Washington County's mills continued to decline throughout the twentieth century. The Great Depression of the 1930s further worsened the state's local economy. This period of economic instability was followed by a period of increased productivity in manufactured goods and military construction stimulated by World War II. The advent of the automobile and modern highway construction improved transportation networks and revitalized the area. Urban core areas began to decline as outlying areas became suburbanized (RIHPC 2001).

During this time, the Charlestown shore area continued to develop as a summer resort area. The interior farms declined and the mill villages remained essentially static. Improved transportation networks have lured increasing numbers of affluent suburbanites to settle in the area year-round. This had the effect of

transforming many of Charlestown's agricultural and forested areas into residential districts. Block Island reached its peak as a summer resort early in the twentieth century and then gradually declined (RIPHC 1991).

As southern areas of the state became attractive for summer vacationing, sections of coastal and near coastal South Kingstown became focal points for residential subdivision and retail development, facilitated by improved transportation. Inland, much of South Kingstown remains rural, and farms remain an important aspect of the local economy. Richmond, Hopkinton and Westerly also remained primarily agricultural, with some urban development (RIHPC 1976, 1977, 1978).

Connecticut Study Area

Colonial Period (1675–1775)

New London County

The economy of the region during the Colonial Period was based primarily upon agriculture. In addition to local use, improvements in transportation routes allowed farmers to move products to the growing trade centers of New London and Norwich (Spencer 1993). New roads were laid out to link farmsteads and mills to village centers. While manufacturing for export in the colonies was forbidden by English law, towns established a variety of small industries within the parameters of the restriction. Other industries such as whaling and fishing were established along the coast in New London, Lyme, and Stonington (Marshall 1922). A cotton mill was established in 1724 in New London to produce canvas for sails (Harwood 1931).

New London was an established maritime port by the mid-seventeenth century (Caulkins 1895). Several shipwrights were in residence by that time and constructed a variety of vessels for well-known colonial shippers. In 1718, New London was named Connecticut's official port of entry and clearance (Ransom 1978). To facilitate shipping, the first lighthouse in New London was constructed in 1760 at the west side of New London Harbor near the mouth of the Thames River (Templeton 1985a). It was replaced by the New London Harbor Lighthouse in 1801, and a second lighthouse, the New London Ledge Lighthouse, was established on the east side of the harbor in 1909 (Templeton 1985b).

The success of New London was based on its accessibility to overseas trade with the West Indies (Caulkins 1895). The Connecticut Colony did not have a direct trade link to England during the Colonial Period. New London merchants, however, were able to obtain English goods, sugar, and rum from the West Indies. In return, they exported grain crops, flour, peas, barreled meat, timber products, pipe staves, livestock, horses, fish and oysters, all of which were abundantly produced on the coast and in the Eastern Uplands (Harwood 1931; Herzan 1997).

Middlesex County

By the end of King Philip's War in 1676, the Connecticut River valley was completely settled. Many of the settlers were wealthy, landed gentry and merchants from Essex, England (Cunningham 1995). Crops grown in this area included hay, corn, grain, potatoes, onions, and tobacco (Beers and Whitteford 1884). In addition to agriculture, shipbuilding became important in the early to mid-eighteenth century,

particularly along the Connecticut River in Saybrook, Essex, and Chester (Beers and Whitteford 1884). As in New London County, the West Indies trade was established during this time and continued until the mid-eighteenth century (Beers and Whitteford 1884).

New Haven County

Commerce and trade in New Haven County began to flourish during the Colonial Period (Cunningham 1995:31). Merchants built warehouses and wharves to accommodate increased trade, particularly associated with the West Indies trade. By the early eighteenth century, Guilford had become one of the principal ports in the region. By the end of the century, however, New Haven had surpassed it (Rockey 1892). In 1717, the Collegiate School founded in Saybrook was moved to New Haven and renamed Yale College (Harwood 1931). It was the third college after William and Mary, and Harvard to be established within the British colonies. By 1776, more than 200 students were enrolled in the college, making it the largest college in the colonies.

Fairfield County

As the population of Fairfield County grew, new farms were located farther from the original settlements. Secondary centers formed and eventually became new towns (Cunningham 1992). Farms became more specialized, with Fairfield specializing in growing flax for export, Westport in onion production, and Greenwich in potato production (Cunningham 1992). To connect inland farms with coastal areas and facilitate the distribution and export of agricultural products, a network of roads was built, and a bridge was built across the Norwalk River (Hurd 1881).

Many early grist- and sawmills were established that later transformed for the production of cloth and leather goods (Cunningham 1992). Commercial and maritime centers also developed, particularly in Norwalk and Darien (Cunningham 1992). Norwalk also became known for the production of oysters (Hurd 1881).

Federal Period (1775–1830)

New London County

During the Revolutionary War, shipbuilding in waterside towns was increased to supply troops of the Continental Army. Shipyards were located at Gales Ferry in Ledyard and at New London. In Stonington, a coastal battery was built, and a mill in Stonington manufactured potash, saltpeter, and black powder (Crofut 1937). During the war, forts at Groton and New London were attacked by English troops under the command of General Benedict Arnold (who was a native of Norwich).

The economy of the region continued to be oriented around mixed husbandry. Marshes and tidal river peripheries were sources of fish, peat and seaweed used for fertilizer, and marsh grasses that served as feed for livestock. The West Indies trade continued and the whaling industry was established in 1784 (Harwood 1931). The British blockade of Long Island Sound during the War of 1812, however, effectively blocked trade for 21 months and disrupted the whaling industry. Fort Trumbull was rebuilt in New London, and Fort Decatur was constructed in Ledyard (Crofut 1937). By the end of the war, only a

few merchants were still trading in New London. Most of the merchants invested their capital and ships into hunting seals and whales (Caulkins 1895). Textile mills also began to be established. In 1814, large mills for the production of woolen goods were built by the Mystic Manufacturing Company in Stonington (Crofut 1937). By 1818 there were nine cotton mills in New London County (Harwood 1931).

The number of new towns in eastern Connecticut proliferated during the Federal Period and sections of New London were ceded to form the towns of Montville in 1786, Waterford in 1801, Salem in 1819, Ledyard in 1836, and East Lyme in 1839 (Caulkins 1895; Marshall 1922). Transportation in the area was improved. In 1792, a toll road between New London and Norwich was constructed to facilitate transportation of goods. A toll gate for the road was located in Montville. In 1818, the Groton and Stonington Turnpike Company built a road in North Stonington (Crofut 1937). By 1830, a network of turnpikes, ferry crossings and steamboat routes permitted comparatively speedy travel between the regional centers of New London, New York, New Haven, Hartford, Providence, and Boston (Spencer 1993).

Middlesex County

Middlesex County, originally consisting of the towns of Middletown, Chatham, Haddam, East Haddam, Saybrook and Killingworth, was incorporated in 1785 (Beers and Whitteford 1884). Several new towns were established in the early nineteenth century, including Essex in 1820, Chester in 1836, and Clinton in 1838 (Beers and Whitteford 1884).

The shipping industry was important in the towns along the Connecticut River. Shipbuilding began in Chester in 1755, and by 1810 the town was participating in the West India trade (Beers and Whitteford 1884). During the War of 1812, several ships in Potapaug (Essex) were burned by the British. After the attack, the shipping industry recovered and continued to grow again until it reached its peak around 1840 (Beers and Whitteford 1884:354).

Other industries established at the beginning of the nineteenth century included a rope walk in Potapaug, and quarrying in Chester and Saybrook (Beers and Whitteford 1884:). Manufacturing grew along streams, including factories in Chester and Saybrook (Beers and Whitteford 1884). Roads were built to connect these new manufacturing centers, and in 1802 the road from Saybrook to Wethersfield, was incorporated as a turnpike (Harwood 1931).

New Haven County

Following the Revolutionary War, commerce and trade continued to be centered in the leading port cities of New Haven County. Agricultural products were still the main export, but lumber interest in northern New England supplied the fuel and building needs of cities in southern New England, as well as cities along the Atlantic seaboard (Cunningham 1995). Shipbuilding also prospered during this period. During this time, the town of East Haven was incorporated from New Haven in 1785. Orange separated from Milford in 1822 (Rockey 1892). Madison was set off from Guilford in 1826 (Rockey 1892).

In 1799, the first turnpike in the Central Valley was constructed between Hartford and New Haven. By 1820, several more turnpikes were in existence on both sides of the Connecticut River (Cunningham 1995). Rapid canal and railroad construction in the 1820s ended a period of economic decline, and ushered in a new era of cultural improvements, including the founding of museums, libraries and colleges. Unlike other coastal towns, New Haven lacked a navigable river, and in 1822 it was decided to build a canal to connect the town with inland Connecticut. In July 1823, the Farmington Canal Company was formed and construction began in August 1825 (Cook and McCarthy 1992).

Fairfield County

The Revolutionary War disrupted economic and social life in the area. As in other counties, farmers provisioned troops, and the British raided coastal communities (Cunningham 1992). The towns of Fairfield and Norwalk were attacked and many homes, buildings and ships were destroyed (Hurd 1881). Following the war, the West Indies trade resumed and grew, until it was disrupted by the British during the War of 1812 (Cunningham 1992). Whaling was established at Bridgeport (Hurd 1881).

Agricultural decline was offset by the expansion of transportation networks, allowing distribution of goods to more markets, such as New York City. In addition to shipping, roads were built to connect Fairfield County towns with New York and Boston. The Post Road was rebuilt as a toll road in 1807, and a bridge was built across Newfield Harbor (Bridgeport) in 1891 (Cunningham 1992; Hurd 1881). During this period, several new towns were established including Huntington (Shelton) in 1789, Darien in 1820, Bridgeport in 1821, Monroe in 1823, and Westport in 1835 (Hurd 1881).

Early Industrial Period (1830–1850)

New London County

By the mid-nineteenth century, the agricultural economy within the region was in decline. Construction of interregional railroads presented Connecticut farmers with stiff competition from agricultural producers to the west, and many local farmers switched over to dairy and fruit production and market gardening (Herzan 1997). By this time, New London had become an eminent shipbuilding center and whaling seaport, supporting numerous maritime-related trades. Whaling and sealing supported the economy of New London as trade once had, and by the mid-nineteenth century, New London was the second largest whaling fleet in the world.

Industry brought pervasive change to the region. While they had often proved unsuitable for farming, the rocky hinterlands of eastern Connecticut contained numerous small rivers and watercourses that were harnessed by the new textile mills that nineteenth-century technological innovations had brought into being. Modest factories were constructed in almost every town in the region, dedicated to the production of a wide variety of goods. North Stonington, containing the sources of the Mystic and Shunock rivers and at the western branches of the Ashaway River, provided locations for various small factories. Industries also grew along the Oxoboxo River in Montville. Granite quarrying was conducted in Waterford, and a silex (silica or silicate) mine was opened at Lantern Hill in Ledyard (Marshall 1922).

Middlesex County

Farming continued to play an important role in Middlesex County during the Early Industrial Period. Agricultural products grown in the county included hay as the major crop, corn, potatoes, onions, tobacco, wheat, dairy, beef (Beers and Whitteford 1884). In addition to farming, shipbuilding and commercial fishing continued to be important along the coast in the nineteenth century (Beers and Whitteford 1884). During this period several new towns were incorporated, including Chester in 1836, Clinton in 1838, and Westbrook in 1840 (Beers and Whitteford 1884).

New Haven County

In the Early Industrial Period, New Haven became one of the major manufacturing centers in the Central Valley of Connecticut (Cunningham 1995). Industrial growth prompted the improvement of the transportation system, with construction of railroads and bridges across the Connecticut River (Cunningham 1995). The Farmington Canal was opened to the Connecticut River in July 1835 and began to be profitable in the early 1840s. By the mid-1840s, however, plans were made to convert the canal to a railroad, and construction began in 1847 (Cook and McCarthy 1992).

Fairfield County

Prompted by increased competition from the west, farmers in Fairfield County shifted from mixed agriculture to more specialized market production in order to survive. During this period shipping became important along the coast. Lighthouses were built to support the industry, and a canal was built in 1833 (Cunningham 1992). Shell fishing and industrial development also became important about 1830. As in other counties, transportation routes continued to be developed.

Industrial and Urban Growth Period (1850–1930)

New London County

The processes of change already at work in eastern Connecticut in the first half of the nineteenth century accelerated sharply during the period between 1850 and 1930. The whaling boom ended and the industry declined rapidly after the early 1850s as kerosene replaced whale oil (Caulkins 1895). Led by the textile industry, manufacturing expanded rapidly and technology spawned new industries (Spencer 1993). As industry accelerated in the region, the maritime economy of New London declined rapidly. Merchants did not find a profitable maritime alternative to whaling and capital investment shifted to industry. The New Haven, New London and Stonington Railroad was constructed along the waterfront. Despite efforts to link the port to inland centers by rail, New London was never reestablished as a major port after this period. Much of New London's waterfront was filled, and developers constructed houses and shops on the filled lands that were often leased for profit (Baker et al. 1995).

Improvements in rail transportation continued to play an important role in the growth of the region's economy. In addition to the rail lines, the state initiated several highway programs, which led to the establishment of US Routes 6 and 44 (Spencer 1993). These improvements in transportation encouraged development of the seasonal tourism industry in coastal Connecticut. Stonington and Crescent Beach in

East Lyme began to develop as summer resorts (Marshall 1922:232–233). Ledyard remained agricultural, specializing in peaches and strawberries (Marshall 1922:233).

Middlesex County

The mid-nineteenth century in Middlesex County saw the establishment of new towns. The town of Saybrook was divided into Old Saybrook and Saybrook in 1852. Essex was set off from Old Saybrook in 1854 (Beers and Whitteford 1884:342). Industrial growth in the county included a shoddy and wadding mill built in Essex in 1864 (Beers and Whitteford 1884:357). By 1884, one of the leading industries in Clinton was the oyster trade (Beers and Whitteford 1884:233). Transportation improvements during this period included the first bridge built over the Connecticut River in 1870 and an iron bridge connecting the towns of Clinton and Madison in 1882 (Beers and Whitteford 1884:229; Harwood 1931:375).

New Haven County

Industrial development in the late nineteenth century included arms production, hardware, and machine tools (Cunningham 1995). New Haven became the center for the production of arms. The two largest companies were the Winchester Repeating Arms Company, relocated to New Haven in 1870 and the Marlin Firearms Factory (Cunningham 1995). Farming became increasingly specialized and more commercial during this period. Production of dairy products and tobacco in the Connecticut River valley were the dominant agricultural industries. Commercial growth led to the construction of multiple commercial blocks and town markets, and the growth was enhanced by a wave of immigrants from eastern Europe and southern Italy in the 1880s (Cunningham 1995).

Fairfield County

As agriculture and shipping declined by the end of the nineteenth century, local industries grew into large industrialized areas, particularly in response to need for manufactured goods during the Civil War. These areas were concentrated along the coast, particularly in Bridgeport, Norwalk and Stamford (Cunningham 1992:22). In the mid- to late nineteenth century, the village of Shelton became known as a manufacturing center, producing a wide variety of goods including corsets, tacks, paper, hosiery, carriage hardware, silverware and pins (Hurd 1881:411-416). In 1854, Charles B. Wheeler started manufacturing boots and shoes for the United States Army in Monroe and his business continued after the war (Hurd 1881:434). A variety of manufacturers were established in Norwalk by 1881, including 10 hat manufacturers (Hurd 1881:548, 553). In 1868, Yale Lock and Manufacturing opened a plant at Stamford (Hurd 1881:718).

As farming declined, many farms were converted into country estates by wealthy urbanites (Cunningham 1992:24–25). The undeveloped coastline and proximity to New York City attracted residents and visitors, creating summer resorts and suburban residential communities. Existing farmhouses were converted to inns or boardinghouses, and new construction boomed with the building of new resort hotels and the establishment of summer colonies.

Transportation improvements facilitated both industrial and suburban development. To facilitate movement of goods, the Stamford Ship Canal was constructed in 1868 (Hurd 1881:719). The commuter rail of New York, New Haven and Hartford Railroad was built with four tracks in 1893, and the line was

electrified in 1913. Automobile travel increased with the rebuilding in 1924 of the historic Post Road as US Route 1, the northeast's first true highway. Ten years later, construction began on the Merritt Parkway from Milford, Connecticut to the New York State line, which was built as a restricted access roadway in 1934–1938 (Cunningham 1992:30).

Modern Period (1930–Present)

New London County

At the beginning of the Modern Period, the economy of southeastern Connecticut was oriented around mill industries, manufacturing, and shipbuilding. New highways were constructed, linking regional centers, and the textile mill industry reached a peak of productivity. The years following World War II witnessed extensive residential and commercial development. In the 1950s and 1960s, the textile industry collapsed, triggering an economic slump. This was offset in part by defense-related industries, galvanized by wartime production, such as Electric Boat and General Dynamics in Groton. The United States Navy also selected a site on the Thames River for a new base in Groton (Town of Groton 2010).

The general trend toward suburbanization led to the expansion of service industries (financial, health care, education, government, and retail), but also to the stagnation of urban centers (Herzan 1997). Presently, tourism remains the economic mainstay of southeastern Connecticut. Attractions include the Mystic Sealife Aquarium and Mystic Seaport in Stonington, and the resort and gaming industry promoted by the Mashantucket Pequot and Mohegan tribal nations. New London has become one of the major manufacturing cities in Connecticut, known especially for pharmaceuticals.

Middlesex County

As in other counties, industry in Middlesex County declined as a result of the Great Depression (Herzan 1997:77). Some limited industries still exist in the county including Fortune Plastics, Pequot Globe Press, Cramer Company, and Pye & Hogan in Old Saybrook (Town of Old Saybrook 2009). Middlesex County, largely residential, is the home of commuters to New Haven and Hartford. Coastal towns such as Clinton developed into summer resorts as well as suburban communities (Town of Clinton 2009).

New Haven County

Suburban development began to change the rural landscape after the end of World War II. Farmland began to be sold off for housing developments and industrial parks. The population of towns around New Haven increased, as people desired to live outside the city. The interstate highway system was initiated in Connecticut in 1956, with the construction of Interstates 95 (the Connecticut Turnpike) and 91 (Cunningham 1995:127). Today the county is densely settled and the population is sustained by industrial, agricultural, commercial and recreational economy.

Fairfield County

Industrial centers declined after the stock market crash of 1929. During the Great Depression, WPA and CCC projects constructed roads, recreation areas, civic buildings and water systems. Economic

production was revived during World War II, particularly in defense-related industries, but with the end of the Cold War this industry started to decline (Cunningham 1992:28–29).

Real estate became a major economic activity in the late nineteenth and early twentieth centuries. Residences were built as coastal or inland estates with large houses, associated sites, and structures, and also within planned subdivisions on regularly spaced lots. Following World War II, residential suburban development experienced a building boom. Development continued through the 1950s and 1960s. By 1950, fast commuter trains carried commuters to offices in New York. Railroad systems were improved in the 1960s and 1970s. The Connecticut Turnpike, Interstate Route 95, was completed in 1956, passing through town between the Post Road and the shoreline (Cunningham 1992:30–31).

New York Study Area

Colonial Period (1675–1775)

Westchester County

Westchester County was one of the original 12 New York counties established in 1683 when the New York colony was divided by the British government. In the late seventeenth century, farmers living in the county were joined by communities of religious dissenters, including the Huguenots in New Rochelle, and Quakers in Harrison (Keller 2005). Large amounts of land, particularly in the western part of the county, were occupied by six manors during the mid-eighteenth century (Keller 2005). Agricultural products grown on the manors were for local use and transport to market in New York City (Keller 2005). African-American slaves worked on the manors, and by the mid-eighteenth century comprised 13 percent of the population.

Bronx County

The area of present-day Bronx County was included in Westchester County when the 12 counties of New York were established. The economy was based on farming during the Colonial Period and major products included wheat, cattle, sheep, horses, and pigs. Wheat was the major crop and was milled into flour for sale in New York City. Gristmills for this purpose were established in several places, including along Westchester Creek and the Bronx River (Bromley and Ultan 2005). Mills were also established along the waterways to card and spin wool for transport to the city.

Queens County

Queens County was one of the original 12 New York counties established in 1683, and it included all the land comprising present-day Nassau County. As in Westchester County, agricultural products were grown for both local consumption and for transport to New York and Brooklyn (Kroessler 2005).

Nassau County

The Nassau County towns of Hempstead and Oyster Bay were originally included in Queens County. From the late seventeenth century to the mid-eighteenth century, the population of the two towns grew

slowly (Smits 2005). Farms were scattered outside the towns and along the North Shore bays. Agricultural products included livestock, firewood, and fruit, and were primarily for local use but also for sale in New York City markets (Smits 2005). Grist, saw, and fulling mills were established. The first recorded American horse race took place on Hempstead Plain in 1665, and horse racing became an important activity in Nassau County (Smits 2005).

Suffolk County

Suffolk County was also one of the original 12 New York counties. As the population of the county grew, the towns of Islip and Riverhead were established in 1710 and 1792 (Wunderlich 2005). Farms in Suffolk County produced hay, cordwood, poultry, butter, eggs, cattle, horses swine and sheep (Wunderlich 2005). Goods were transported mainly by water until a road was built along the center of the island from Brooklyn to East Hampton in 1704. Later, more roads were built along the shores, including the post route built in 1764 (Bailey 1949; Wunderlich 2005). By the mid-eighteenth century, several mills were established along the north shore. Cold Spring Harbor (in Huntington) became a center for milling activity (Valentine et al. 1960). The Wading River was also harnessed for milling power starting in 1708 (Meier 1967).

Federal Period (1775–1830)

Westchester County

During the Revolutionary War, Westchester County was considered neutral territory and provided supplies to both sides (French 1925). Several battles were fought in the area, including the battles of White Plains and Pell's Point in 1776 (Keller 2005). Many farms and towns were destroyed during the war and it took years to rebuild (Keller 2005). Agricultural products during the Federal Period included wheat, rye, oats, corn, potatoes, hay, buckwheat, wool, and dairy. Iron foundries, brickyards and quarries were established, in addition to sawmills, gristmills and cider mills, (Keller 2005).

Bronx County

Most of the population of Bronx County either remained neutral or supported the British during the Revolutionary War (Bromley and Ultan 2005). After the war, the area remained rural until the War of 1812 when paint, glass and pottery manufacturers were established along the Bronx River at West Farms. These industries, however, were short lived as less expensive goods from England became available after the war (Bromley and Ultan 2005). Similarly, agriculture was affected by the completion of the Erie Canal in 1825, allowing less expensive wheat to be imported from the Midwest. In response, local farmers shifted to producing dairy and meat for New York City markets (Bromley and Ultan 2005).

Queens County

During the Revolutionary War, the population of Queens County was largely in support of the British, supplying wood and agricultural products (Kroessler 2005). In the early nineteenth century, the opening of the Erie Canal affected the sale of agricultural products and Queens County farms began to specialize in fruit, vegetables and flowers (Kroessler 2005). Growth in the county, however, was limited by transportation problems during this period (Kroessler 2005).

Nassau County

Long Island attracted British attention during the Revolutionary War because of the island's proximity to the major port of New York Harbor, and also to Connecticut and Rhode Island. Loyalties in Hempstead and Oyster Bay were divided during the war. The North Shore largely supported independence, the South Shore supported the British, and Quakers living in the central part of Hempstead and Oyster Bay remained neutral (Smits 2005). After the Battle of Brooklyn, Washington withdrew his troops from New York City in 1776 and Long Island was under British control for the remainder of the war. During the occupation, farms were forced to supply and house troops.

In the early nineteenth century, farmers began to focus on growing wheat, corn and oats for sale in New York and Brooklyn. Grain was milled locally before shipment by boat (Smits 2005). Along the coast, fishing was the main economic activity. Oyster Bay developed into a maritime center, focused on fishing, oysters and shipbuilding (Smits 2005).

Suffolk County

During the British occupation of Long Island Sound, Suffolk County provisioned British troops, and the local agrarian economy was disrupted as the British stripped the region of food, timber, and herd animals (Luke 1976). The majority of the population supported independence. Many left for the mainland and then participated in cross-Sound raids on the British (Wunderlich 2005). Industry and water-borne trade were interrupted with the British occupation of Suffolk County, but life gradually returned to the earlier pattern after 1781. By the early 1800s, the railroad provided an economical means of transporting both people and goods.

Whaling and shipbuilding began to emerge as important industries in the early nineteenth century, particularly in Sag Harbor. Greenport, Cold Spring Harbor, Jamesport, and New Suffolk also became centers for whaling. Shipbuilding and sailmaking, associated with the whaling industry, led to the development of other maritime centers on the coast, including Port Jefferson, Northport, Setauket, and Smithtown (Wunderlich 2005:1499). During this period, the settlement of Brookhaven and Riverhead proceeded slowly and was concentrated along North Country Road and Middle Country Road.

Early Industrial Period (1830–1850)

Westchester County

Westchester County continued to supply food, as well as building materials, to New York City during the Early Industrial Period. When the Croton Dam was finished in 1842, the county also helped to meet the demand for water in New York City (Keller 2005). Several rail lines were constructed in the 1840s to further connect Westchester County with New York City (Keller 2005).

Bronx County

At the beginning of the Early Industrial Period, Bronx County farms still produced fruits, vegetables and dairy products for sale in New York City. In the 1840s, the county became more accessible by train. New

routes included the New York and Harlem Railroad in 1841 and the Hudson River Railroad in 1849. As tracks were laid and population grew around the new stations, however, available farmland was decreased (Bromely and Ultan 2005). Many of the new residents were immigrants, fleeing from a failed revolution in Germany in 1848 (Hermalyn and Ultan 1995).

Queens County

The Brooklyn and Jamaica Railroad Company opened a line to Queens County in 1836. As a result, population began to accelerate during the Early Industrial Period (Kroessler 2005). Irish immigrants displaced by the potato famine in the late 1840s settled in Jamaica and Flushing (Seyfried and Peterson 2010). Many large cemeteries were established in the county for New York City residents as the result of a ban on cemeteries in the city in 1848. Manufacturers also began to move factories from New York City to places in Queens County, including Whitestone (Seyfried and Peterson 2010).

Nassau County

Although Nassau County still produced grain during the Early Industrial Period, it was supplemented by other crops such as potatoes, sweet corn, cabbage, peas, onions, carrots, turnips, cucumbers, and apples. The villages of Farmington and Wauntaugh produced pickles. Westbury, Syosset, and Hicksville specialized in dairy. Rail service from Brooklyn to Hicksville was added in 1837 (Smits 2005).

Suffolk County

During the nineteenth century, Suffolk County remained agricultural. Two major crops were cordwood and hay. Cordwood was sold for heating until it was replaced by anthracite coal in the 1840s (Wunderlich 2005). Water-borne trade continued to play an important role in the economy, and by the mid-nineteenth century boatyards had been established along the northern coast. Steamboat service facilitated travel to New York City and New England after 1830 (Wunderlich 2005). By 1844, trains on the Brooklyn-Greenport line of the Long Island Railroad were running regularly. Settlement of the interior of Suffolk County was facilitated and encouraged by the railroad.

Industrial and Urban Growth Period (1850–1930)

Westchester County

In the mid- to late-nineteenth century, manufacturing began to replace agriculture as the major economic activity in Westchester County. The construction of reservoirs also submerged farmland, contributing to the decline of agriculture (Keller 2005). By the turn of the century, many industries were established in the county, producing a wide variety of manufactured items. After 1865, railroad suburbs began to emerge (Keller 2005). Even greater access to the county resulted from the construction of roads in the early twentieth century, including the Bronx River and Saw Mill River parkways (Keller 2005).

Bronx County

In the late nineteenth century, several parts of Bronx County were annexed to New York City, including West Farms and Morrisania in 1874, and Westchester in 1895 (Bromley and Ultan 2005). As a result, undeveloped parts of the annexed area were urbanized quickly. The majority of the new residents were European immigrants (Bromley and Ultan 2005). Development was further encouraged by the opening of the first subway line to the Bronx in 1904 (Bromley and Ultan 2005). Land for parks and parkways was purchased in 1888, establishing Bronx County's park system.

Queens County

By the time Queens County was consolidated into New York City in 1898, most of the farmland had been used to build housing (Kroessler 2005). Urbanization was accelerated by improved transportation, including the opening of the Williamsburg Bridge in 1903, and the Queensboro Bridge in 1909. Rail improvements also contributed, and included the electrification and extension of the Long Island Railroad into Pennsylvania Station and the addition of new lines throughout Queens (Kroessler 2005). Streetcars also made it possible for New York City families to visit the many cemeteries established in Queens (Kroessler 2005).

Industry grew rapidly during the nineteenth century. Many industries from Manhattan and Brooklyn relocated to Queens, prompted by complaints about pollution, expense, and congestion in the city (Kroessler 2005). Industrial growth, however, ended suddenly in 1929, and the Depression resulted in a high unemployment rate in the county (Kroessler 2005).

Nassau County

Nassau County was formed in 1899 and included the towns of Hempstead, North Hempstead and Oyster Bay—the three Queens County towns consolidated into New York City in 1898 (Smits 2005). Agriculture continued to play a role in the county's economy, including potatoes and milk. Real estate development, however, reduced the amount of farmland considerably. Suburban development was accelerated by the extension of the Long Island Railroad into Manhattan in 1911 and the consolidation of smaller branches to Syosset and Hempstead (Smits 2005). Automobile access was also improved with the 1908 opening of the Long Island Motor Parkway, a toll highway linking northern Queens County to Lake Ronkonkoma in Suffolk County (Smits 2005).

In addition to suburban development, millionaire estates were built along the North Shore, along with exclusive facilities such as golf courses and yacht clubs (Smits 2005). Nassau County also became a center for car racing and aviation in the early twentieth century. The Vanderbilt Cup car races were held from 1904 to 1910. Aviation became important, starting with the first sustained air flight of 16 miles across Hempstead Plains by Glenn H. Curtis in 1909. Charles Lindbergh's 1927 flight originated at Roosevelt Field, established in 1918. A second air strip, Mitchel Field was also established in 1918 as an army air base. The county became a center for aviation and several small aircraft manufacturing companies were established (Smits 2005). Other manufacturers established in the county included the Duryea Starch Works in Glen Cove (Smits 2005).

Suffolk County

Population growth in Suffolk County continued to proceed slowly during the late nineteenth and early twentieth century. Agriculture remained important, particularly poultry, butter, eggs, ducks, cauliflower and potatoes. With the advent of the railroad, maritime commerce began a steady decline. The discovery of petroleum in 1859 also contributed to the end of the whaling industry (Wunderlich 2005). Shipbuilding declined, but was revived in World War I with the testing of submarines. The East End became known for fishing, particularly clams, scallops, crabs, eels and lobsters (Wunderlich 2005). A few cotton and woolen mills were established, along with other industries.

The Long Island Railroad was extended to Montauk in 1895, and in 1910 it was possible to travel between Suffolk County and Manhattan after the extension of the line by tunnel was constructed under the East River. By the 1920s, suburbs began to grow in the western part of Suffolk County (Wunderlich 2005). Shortly after the United States entered World War I in April 1917, mobilization for the war effort commenced and the site of the Pine Barrens forest was selected for a cantonment because of its proximity to New York and access to water and electricity. Over seventeen hundred buildings were constructed at Camp Upton (Donahue 1918; Meyers 1918). The camp was closed in 1919, and the campgrounds reverted to its previously forested state (Bayles 1977).

Modern Period (1930–Present)

Westchester County

In the early twentieth century, manufacturing declined and the economy of Westchester County shifted from industry to housing. Suburbanization was accelerated by the completion of several roads, including the Taconic and Cross County parkways, constructed in the early 1930s (Keller 2005). The 1950s saw construction of additional roads, including the New York State Thruway in 1958 (Keller 2005). Construction of the Tappan Zee Bridge in 1955 further connected the county to New York City by automobile (Keller 2005).

Bronx County

The population of Bronx continued to grow in the twentieth century. This included a large number of people moved to the Bronx from Harlem and East Harlem after the Harlem riot of 1943 (Bromley and Ultan 2005).

Queens County

Queens benefited greatly from government work programs during the Depression and much of the infrastructure was built during this time (Kroessler 2005). In 1934, Mayor Fiorello La Guardia appointed Robert Moses the Commission of the New York City Park Department. He was responsible for many transportation improvements in the 1930s and 1940s including the Triborough Bridge in 1936 (Gale Research 1998). Moses was also instrumental in the selection of Queens as the location for the 1939 World's Fair. The Queens Boulevard line of the Independent Subway System was also completed during this time. The population continued to grow, and reached two million people by 1970 (Kroessler 2005).

Nassau County

By the 1930s, the economy of Nassau County was based on commuters to New York City. Robert Moses was instrumental in the construction of the Northern State Parkway, built between 1931 and 1965, despite opposition by estate owners along the Gold Coast (Smits 2005). Agriculture continued to play a role in the economy, particularly potatoes, milk, horses and vegetables. In the 1940s production of potatoes declined, however, due to an infestation of golden nematodes. By the 1950s and 1960s, farmland had been reduced greatly by suburban development (Smits 2005).

During World War II, factories to produce military aircraft were established. The Sperry Gyroscope factory was also established at Lake Success during the war and employed 90,000 workers. A publishing plant was established at Garden City in 1910 by Doubleday and Page. With these exceptions, manufacturing in Nassau County was limited (Smits 2005).

Suffolk County

Agriculture has continued to be an important economic activity in Suffolk County into the early twenty-first century, although it diminished somewhat after World War II as farmland has yielded to housing developments. Crops include potatoes, strawberries, cauliflower, cucumbers, turnips, and oats (Wunderlich 2005). Wine grapes are also grown, and wine is produced locally. The shellfish industry has declined as a result of pollution, environmental changes, and the die-off of lobsters in Long Island Sound (Wunderlich 2005).

During the mid-1930s, the Civilian Conservation Corps (CCC) developed an 8,000-acre tract, including Camp Upton, as a state demonstration forest and game preserve. Much of the CCC reforestation efforts were reversed when Camp Upton was rebuilt and re-opened in 1940; underbrush and saplings were cleared and roads and sewers were improved. Camp Upton served primarily as an induction center for thousands of World War II Army draftees. After World War II, Camp Upton was transformed into the site of a government laboratory. The Brookhaven National Laboratory opened in January 1947 (Dwyer 1966).

CHAPTER FIVE

RESULTS

The following chapter is organized according to state, county, and city/town (beginning in the east and working west across Rhode Island, Connecticut, and New York around Long Island Sound) for all inventoried historic properties within the LIS DMMP study area. The cultural resources inventory for the terrestrial portion of the LIS DMMP study area consists of 2,032 aboveground resources and 3,146 archaeological sites. The inventoried historic resources include only those listed or determined eligible for listing in the National Register of Historic Places (National Register), and distributed as follows:

State	Buildings, Districts, Structures, Objects, and Cemeteries
Connecticut	914
New York	927
Rhode Island	118
TOTAL	2,032

Of the recorded 3,146 terrestrial archaeological sites, 195 are identified as National and State Register (NR/SR) listed or eligible sites, either within a historic/archaeological district or individually listed. In addition, there are five National Register-listed or eligible archaeological districts (or historic districts with archaeological significance) within the terrestrial portion of the LIS DMMP study area. The archaeological sites and NR eligible archaeological sites and districts are distributed as follows:

State	Terrestrial Archaeological Sites	Not NR/SR Eligible or Listed	NR Districts	NR Eligible
Connecticut	1,367	18	1	0
New York	1,279	66	1	41
Rhode Island	500	111	3	14
TOTAL	3,146	195	5	55

The remaining 2,951 terrestrial archaeological sites in all three states are either determined as not NR eligible, or their eligibility has not yet been determined because more survey is needed. Fifty-Five (55) sites are recorded as not NR eligible, but the vast majority (2,896) of the sites' NR status are listed as "unknown" in the inventory database because there was not enough information available in the site files or in survey reports to determine their current status. More extensive research into SHPO correspondence files or discussions with the SHPO staff archaeologists would be needed as part of any future survey work to make these determinations.

For the purposes of the terrestrial archaeological resources inventory, all locations of recorded sites have been considered for the sensitivity assessment, although the locations of the sites that have been determined by the SHPO as ineligible for listing in the National Register are not assigned archaeological sensitivity since no further work would be needed at these site locations.

The available databases queried for the underwater portion of the LIS DMMP study area produced a total of 847 reported shipwrecks and obstructions. Of these, only four (i.e., three in Bridgeport, Connecticut, and one in East Hampton, New York) are NR-listed or eligible historic properties. For the remaining 843 reported wrecks and obstructions, their identity as shipwrecks and their NR-eligibility have not yet been determined because more survey is needed. For the purposes of the archaeological sensitivity assessment, all of the inventoried shipwrecks and obstructions were considered. The distribution of reported shipwrecks and obstructions and NR eligible or listed shipwreck sites is as follows:

State	Shipwrecks and Obstructions	NR Eligible or Listed
Connecticut	266	3
New York	500	1
Rhode Island	81	0
TOTAL	847	4

Appendix B contains the locations of all NR listed and eligible terrestrial historic and archaeological resources including archaeological sensitivity as well as underwater shipwrecks and obstructions, NR-listed shipwrecks, and underwater sensitivity. Appendix C contains spreadsheet data tables for the cultural resources inventory within the LIS DMMP study area.

Rhode Island Inventory

The LIS DMMP study area encompasses Washington County in the southern portion of Rhode Island. There are five towns within Washington County: Narragansett, South Kingstown, Charlestown, Westerly and New Shoreham (Block Island). All five towns lie within the Salt Pond and Island physiographic contexts as defined by the Rhode Island Historic Preservation Commission (RIHPC 1986). Roger Williams’s (1973 [1643]) seventeenth-century account of Narragansett Indian seasonal resource acquisition, land use, and settlement prompted the RIHPC¹ to demarcate six geographical or geophysical zones within the State of Rhode Island and Providence Plantations. Each of the RIHPC’s geocultural physiographic distinctions coincides with areas where general Narragansett Indian land use patterns and practices appear to have been focused. The RIHPC (1986:71) has noted that Rhode Island’s Salt Pond and Bay Area physiographic zones, comparatively speaking, have been “the most completely surveyed” of their identified Indian land use physiographic contexts. Within the Salt Pond region in particular site densities appear to be exceptionally high with 45 percent of the land surface surrounding nearby Potter’s Pond and 30 percent of the land surface surrounding Trustom Pond containing evidence for Indian land use (Robinson 1987:6). Each of the coastal context geographic areas supported a rich and varied floral and faunal resource base that was routinely exploited and targeted by the region’s indigenous peoples and colonists. Roger Williams describes seventeenth-century Narragansett Indian land use in these areas as

¹ The Rhode Island Historic Preservation & Heritage Commission (RIHPHC) formerly was called the Rhode Island Historic Preservation Commission (RIHPC).

consisting of small concentrated hamlets or Indian “townes” surrounded by horticultural fields contrasted by smaller resource extraction/acquisition (fishing and shell fishing) sites.

The LIS DMMP study area in southern Rhode Island encompasses the entirety of two Multiple Property archaeological land use areas. The *Indian Use of the Salt Pond Region between ca. 4000 B.P. and ca. 1750 A.D.* multiple property area extends across the southern mainland in portions of the towns of Westerly, Charlestown, South Kingstown, and Narragansett. The eastern boundary is Route 108 in Narragansett, the western boundary is the Pawcatuck River, the southern boundary is Block Island South, and the northern boundary is generally U.S. Route 1 (Post Road). While the multiple property area has not been officially designated as a NR eligible archaeological district, it is recognized by the RIHPHC as a geographic area that contains and has the high potential to contain significant pre-contact through post-contact period Native American sites that would be eligible to the National Register under Criterion D (Robinson 1987). The LIS DMMP study area also encompasses the entirety of the *Indian Use of Block Island between 500 BC and AD 1676* multiple property area. Like the Salt Pond Area, the Block Island area has not been officially designated as a NR eligible archaeological district, but it is recognized by the RIHPHC as a geographic locale that contains and has the high potential to contain significant pre-contact through post-contact period Native American sites that would be eligible to the National Register under Criterion D (McBride 1989b).

Narragansett

The town of Narragansett is located in the southeast corner of Washington County. It occupies a total area of 37.8 square miles (sq m) (24,192 acres), of which 14.1 sq m (9,024 acres) is land and 23.6 sq m (15,168 acres; 62.56 percent) is water². The town contains eight villages and neighborhoods that are wholly within its boundaries, which comprise the main population and development centers: South Ferry, Bonnet Shores, Narragansett Pier, Point Judith, Galilee, Great Island, Salt Pond, and Mettatuxet. It lies within the coastal lowlands physiographic region and is characterized by coastal salt ponds and river drainages, including the Pettaquamscutt River, a major coastal tributary of southeastern Rhode Island.

Historic Aboveground Resources

The town of Narragansett contains four districts and eight individual properties that are listed or determined eligible for listing in the National Register. Two districts and seven individual properties have been evaluated eligible by the RIHPHC for listing in the National Register.³

Terrestrial Archaeological Resources

There have been 38 CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 72 pre-contact and post-contact period sites (see Appendix B-1). Of these sites, four have been determined to be NR eligible and five have been determined ineligible. The NR eligibility of the remaining 63 sites could not be determined based on the information available in the SHPO site file

² U.S. Census Bureau Gazetteer Files, 2000 [includes all city/town statistics in this report]

³ The State of Rhode Island does not maintain a State Register separate from the National Register for historic properties. The RIHPHC has identified a number of properties that are eligible for listing and have been reviewed for eligibility by the State National Register Review Board. Those properties are included in the count of resources as “eligible properties.”

database. The pre-contact period sites date from the Archaic and Woodland periods and consist primarily of habitation and resource exploitation camps (e.g., shell middens) along the coast and salt ponds. The post-contact period sites date from the eighteenth through twentieth-centuries and include commercial, residential-agrarian, military, and institutional resources.

The four NR eligible sites date from the pre-contact period: RI-102, -110, -111, and -114 (see Appendix B-1). RI-102, the Black Point Site, is located along the Rhode Island Sound shoreline at the end of Clarke Road. It yielded cultural deposits that date from the Late Archaic through Late Woodland periods. RI-110, the Salt Pond Site, is located at the northeast side of Upper Pond (north of Point Judith Pond). This site consists of a large habitation-village that dates from the Late Archaic through contact periods. Archaeological remains include hearths, pits, post holes from wigwam structures, cremation burials, and one confirmed inhumation burial. RI-111, the Sprague 1 Site, is situated on the east shore of Pettaquamscutt Cove. It yielded Late Archaic cultural materials including a Small Stemmed point assemblage. The remaining NR eligible site is RI-114, the Campbell Site, which is located on the east bank of the Pettaquamscutt River, about 2 miles north of RI-111. Identified occupations date from the Late Archaic and Late Woodland periods.

Approximately 7,507 acres, or 83 percent of the total land area in Narragansett, is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. The remaining approximately 1,517 acres of land area (17 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey and no NR eligible and potentially NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 20 reported shipwrecks and obstructions, and no NR eligible and or listed sites in Narragansett. The waters of Narragansett are assessed as having moderate archaeological sensitivity (see Appendices B-4, B-5, and C-4). The sensitivity rankings for the underwater component of Narragansett along with the entire study area are discussed in detail on pages 12-13 of the report. These sensitivity rankings apply to all underwater components of the Project study area discussed in this chapter.

South Kingstown

The town of South Kingstown is located west of Narragansett, also in the southeast corner of Washington County. It occupies a total area of 79.8 sq m (51,072 acres), of which 57.1 sq m (35,544 acres) is land and 22.7 sq m (15,528 acres; 28.43 percent) is water. The town contains nine villages (Kingston, West Kingston, Wakefield, Peace Dale, Snug Harbor, Tuckertown, East Matunuck, Matunuck, and Green Hill), which comprise the major population and development centers, along with the unique localities of Ocean Ridge, Perryville, Indian Lake, and Torrey Hill. Peace Dale and Wakefield are treated as a census-designated place called Wakefield-Peacedale. The town lies within the coastal lowlands physiographic region and is characterized by coastal salt ponds and river drainages, along with the interior Worden Pond and Indian Lake.

Historic Aboveground Resources

The town of South Kingstown contains five districts and 19 individual properties that are listed or determined eligible for listing in the National Register. Two districts and 24 individual properties have been evaluated eligible by the RIHPHC for listing in the National Register.

Terrestrial Archaeological Resources

There have been 86 CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 180 pre-contact and post-contact period sites (see Appendix B-1). Of these sites, 29 are listed in the National Register, including 22 sites in the Potters Pond Archaeological District (see discussion below), one has been determined NR eligible, and four have been determined ineligible. The NR eligibility of the remaining 146 sites could not be determined based on the information available in the SHPO site file database. The pre-contact period sites date from the Archaic through Late Woodland periods and consist primarily of artifact cluster/scatters that are likely related to habitation and resource exploitation camps in both interior and coastal locations. There are also four burial sites dating from the pre-contact period recorded within the town boundaries. The post-contact period sites date from the seventeenth through early twentieth centuries and include commercial, residential-agrarian, military, and institutional resources.

Twenty-two of the 29 NR listed sites in South Kingstown are situated in the Potters Pond Archaeological District. The Potters Pond Archaeological District occupies approximately 481 acres from the Block Island Sound coastline north to Wash and Little Wash Pond on the north side of U.S. Route 1 (Post Road). The eastern boundary of the district follows closely to the Point Judith Pond shoreline (boundary with Narragansett) and the western boundary extends along Matunuck Beach Road. The 22 NR listed sites in the Potters Pond Archaeological District date from ca. 3,100 years ago during the Late Archaic Period through the Late Woodland Period. The recorded sites comprise household settlements, burial places, and resource processing and disposal areas (lithic procurement and reduction workshops, shell middens). The significance of the district is embedded in its high potential to address processual issues related to the emergence of horticulture, the effects of long-term environmental change upon human adaptation, and the role of the salt pond within the overall coastal-interior land use strategy (Robinson 1986).

The remaining seven NR listed sites include: RI-701, -702, -704, -705, -781, -926, and -1025 (see Appendix B-1). RI-701 and -704 are located in the Kingston Village Historic District along Route 138 in the northern, interior part of the town. RI-701 is the remains of a nineteenth-century blacksmith shop site run by two generations of the Fayerweather Family. RI-704 is an eighteenth- and nineteenth-century home-farmstead site. RI-702 is the Fernwood Site, located about 2 miles west of the Kingston Village Historic District. It yielded both pre- and post-contact period cultural materials. RI-705, the Silas Mumford or Tappan Site, is also a nineteenth-century home-farmstead site with a large household midden located in the northwest corner of the town near the Queen's River. RI-781 is located off Ministerial Road (Route 110) and consists of a large 41-acre Late Archaic settlement extending north-south along the Chipuxet River. The Late Archaic occupation is based on the presence of two Squibnocket Small Stemmed projectile points. The site is interpreted as a habitation and associated activity area that may have only been occupied for a short, but intensive duration. RI-926 is a seventeenth- and eighteenth-century house site that was also used as a garrison during the early contact and Plantation periods. It is

located on the west side of the Pettaquamscutt River in the Tower Hill section of the town. RI-1025, the Bouchard Site, is an Early Archaic, Terminal Archaic, and Early Woodland Period habitation site located on a bluff overlooking the Glen Rock Reservoir in the northwest corner of the town. The one NR eligible site is RI-343, Biscuit City, which is an eighteenth and nineteenth century habitation and gristmill located on White Horn Brook off South Road in the northern part of the town.

Approximately 34,752 acres, or 97 percent of the total area in South Kingstown, is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. The remaining approximately 792 acres of land (3 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., gravel quarries), and no NR eligible or potentially NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are six reported shipwrecks and obstructions, and no NR eligible and or listed shipwrecks in South Kingstown (including Wakefield). The waters of South Kingstown are assessed as having moderate archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Charlestown

The town of Charlestown is located west of South Kingstown in the south-central portion of Washington County. It occupies a total area of 59.3 sq m (37,952 acres), of which 36.8 sq m (23,552 acres) is land and 22.5 sq m (14,400 acres; 37.86 percent) is water. The town contains four villages (Carolina, Shannock, Cross Mills, and Quonochontaug), which comprise the major population and development centers, along with the Narragansett Indian Reservation (see discussion below), the Burlingame Wildlife Management Area, and the former U.S. Naval Reservation Auxiliary Landing Field, presently Ninigret National Wildlife Refuge containing more than 900 acres located south of Route 1. The town lies within the coastal lowlands physiographic region and is characterized by coastal salt ponds and river drainages, including the headwaters of the Pawcatuck River, a major coastal tributary of southern Rhode Island.

Historic Aboveground Resources

The town of Charlestown contains two districts and seven individual properties that are listed or determined eligible for listing in the National Register. One district and four individual properties have been evaluated eligible by the RIHPHC for listing in the National Register. Two districts listed in the National Register are located in both Charlestown and Richmond, Rhode Island.

Terrestrial Archaeological Resources

There have been 79 CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 84 pre-contact and post-contact period sites (see Appendix B-1). Of these sites, 21 are listed in the

National Register, including 16 sites in the Narragansett Indian Tribe historic/archaeological district (see discussion below), four have been determined NR eligible, and three have been determined ineligible. The NR eligibility of the remaining 56 sites could not be determined based on the information available in the SHPO site file database. The pre-contact period sites date from the Archaic through Late Woodland periods and consist primarily of artifact cluster/scatters that are likely related to habitation and resource exploitation camps in both interior and coastal locations. There is also one recorded burial and at least two shell midden sites that date to the pre-contact period recorded within the town boundaries. The post-contact period sites date from the seventeenth through early twentieth centuries and include primarily residential-agrarian resources.

There is one National Register-listed historic/archaeological district in Charlestown. The Historic Village (Former Reservation) of the Narragansett Indian Tribe is located in the north-central part of the town (see Appendix B-1). The Narragansett Indian Tribe is a sovereign, federally recognized nation. The village, or former reservation lands, was listed as an historic/archaeological district in the National Register in 1973. It encompasses 8.75 sq m (5,600 acres) in the central portion of the town, bounded by Routes 2 and 112 on the east, Route 1 on the south, Kings Factory Road on the west and Route 91 on the north. It includes School House and Deep ponds as well as the Indian Cedar Swamp. From 1709 to 1880 this district was the nucleus of the reservation of the Narragansett Indian Tribe, and all of the lands are considered to be an important archaeological resource area. Nineteen individual archaeological sites are recorded, including 16 that are listed in the National Register, within the district's boundaries along with the historic Indian Church (circa [ca.] 1859) and at least 14 graveyards including the village cemetery and individual family plots (Lesser 1973).

The remaining four NR listed archaeological sites in Charlestown consist of: RI-15, -16, -17, and -971 (see Appendix C-1). RI-15 is the archaeological site at Fort Ninigret on Ninigret Pond in the south coastal part of the town. The site has yielded both pre-contact (Late Archaic, Middle-Late Woodland) and post-contact (seventeenth-nineteenth centuries) cultural materials. It is interpreted as both a pre-contact period camp site and a post-contact period European fortification. RI-16 is the Foster Cove Site, located on an approximate 1.5-acre peninsula extending into Foster Cove at the western edge of the former U.S. Naval Reservation Auxiliary Landing Field, presently Ninigret National Wildlife Refuge. This habitation site has yielded Middle Woodland and Late Woodland cultural materials. RI-17 is known as Indian Burial Hill, located just east of the Narragansett Tribe village district boundaries. It reportedly contained a seventeenth-century Native American burial. RI-971 is the Shannock Historic District archaeological site, which encompasses belowground resources associated with nineteenth and early twentieth century residential and mill-related sites. The Shannock Historic District is located along the Pawcatuck River in the northern part of the town and extends into the adjacent town of Richmond.

The four sites that have been evaluated as NR eligible in Charlestown include: RI-1815, -1816, -1817, and -1851. RI-1815, -1816, and -1817 are all situated east of the Narragansett Tribe village district boundaries. All three sites date to the eighteenth and nineteenth centuries and represent Euro-American home-farmstead sites. RI-1816 also contained evidence of pre-contact period occupation, dating to the Terminal Archaic Period. RI-1851 is located near the intersection of Ross Hill Road and U.S. Route 1 in the southwest corner of the town. This site, the Crandall Farm, contains structural and artifactual remains associated with an eighteenth- and nineteenth-century home-farmstead.

Approximately 21,568 acres, or 91 percent of the total land area in Charlestown is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. The remaining approximately 1,984 acres of land (9 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., former Naval Air Landing Strip runways, sand extraction quarries), and no NR eligible and potentially NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are three reported shipwrecks and obstructions, and no NR eligible and or listed sites in Charlestown. The waters of Charlestown are assessed as having moderate archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Westerly

The town of Westerly is located west of Charlestown in the southwest corner of Washington County. It occupies a total area of 74.8 sq m (47,872 acres), of which 30.1 sq m (19,264 acres) is land and 44.7 sq m (28,608 acres; 59.78 percent) is water. The town contains a number of small villages (Watch Hill, Misquamicut, Winnapaug, Weekapaug, Dunn's Corner, Shelter Harbor, Avondale, Potter Hill, and White Rock), but the major population center and municipal seat is in Downtown Westerly, a short distance from the Westerly State Airport. The town lies within the coastal lowlands physiographic region and is characterized by coastal salt ponds and river drainages, including the Pawcatuck River that forms the boundary between Westerly and Pawcatuck, CT and the large freshwater lake known as Chapman's Pond.

Historic Aboveground Resources

The town of Westerly contains six districts and six individual properties that are listed or determined eligible for listing in the National Register. Four districts and five individual properties have been evaluated eligible by the RIHPHC for listing in the National Register. One evaluated historic district is located in both Westerly and Hopkinton, Rhode Island.

Terrestrial Archaeological Resources

There have been 28 CRM archaeological surveys conducted in the town over the past three decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 55 pre-contact and post-contact period sites (see Appendix B-1). Of these sites, one is listed on the National Register and one has been determined ineligible. The NR eligibility of the remaining 53 sites could not be determined based on the information available in the SHPO site file database. The pre-contact period sites date from the Archaic through Woodland periods and consist primarily of artifact cluster/scatters that are likely related to habitation and resource exploitation camps in both interior and coastal locations. The post-contact period sites date from the seventeenth through early twentieth centuries and include commercial, residential-agrarian, and industrial resources.

The one NR listed site in Westerly is RI-273, Nursery Site, located just north of the Westerly State Airport (see Appendix C-2). The site is recorded as a single component pre-contact period cluster of lithic debitage and stone tools, most likely dating to the Late-Early Woodland Period on the basis of diagnostic Narrow Stemmed projectile points. This projectile point type places the site occupation sometime between 4200 and 2000 B.P.

Approximately 18,112 acres, or 94 percent of the total land area in Westerly is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. The remaining approximately 1,152 acres of land (6 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., Westerly State Airport runways; gravel quarries), and no NR eligible and potentially NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are seven reported shipwrecks and obstructions, and no NR eligible and or listed sites in Westerly. The waters of Westerly are assessed as having moderate archaeological sensitivity (see Appendices B-4, B-5, and C-4).

New Shoreham (Block Island)

The town of New Shoreham occupies Block Island, which is located approximately 13 miles off the coast of Rhode Island and is the southernmost town in Washington County. The island is separated from the mainland by Block Island Sound in the Atlantic Ocean. It has a total area of 109.5 sq m (70,080 acres), of which 9.7 sq m (6,208 acres) is land and 99.8 square miles (63,872 acres; 91.11 percent) is water. The town contains one official village of New Shoreham on the eastern shore at Old Harbor. New Shoreham village center serves as the town's commercial and municipal seat. The Block Island State Airport lies to the west of the New Shoreham village center. The northern half of the island is dominated by Great Salt Pond, which is designated as the Great Salt Pond Archaeological District (see discussion below). The island is part of the Outer Lands physiographic region, a coastal archipelago made by the recessional and terminal moraine that resulted from the retreat of the Wisconsin glacier around 22,000 years ago. The Outer Lands term denotes the prominent terminal moraine archipelagic region off the southern coast of Massachusetts, Rhode Island, and New York, comprising the peninsula of Cape Cod and the islands of Martha's Vineyard, Nantucket, Block Island, and Long Island as well as the surrounding islets.

Historic Aboveground Resources

The town of New Shoreham contains one district and four individual properties that are listed or determined eligible for listing in the National Register. Five individual properties have been evaluated eligible by the RIHPHC for listing in the National Register. Additionally the Southeast Light is a National Historic Landmark.

Terrestrial Archaeological Resources

There have been 31 CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 109 pre-contact and post-contact period sites (see Appendix B-1). Of these sites, 50 are listed in the National Register (as part of the Great Salt Pond Archaeological District – see discussion below). One site has been determined NR ineligible and the NR eligibility of the remaining 58 sites could not be determined based on the information available in the SHPO site file database. The pre-contact period sites date from the Late Archaic and Woodland periods and consist primarily of artifact cluster/scatters that are likely related to habitation and resource exploitation camps in both interior and coastal locations. There is also one recorded burial and four midden sites that date from the pre-contact period on the island. The post-contact period sites date from the seventeenth through early twentieth-centuries and include residential-agrarian artifact clusters and scatters, along with one gristmill archaeological site.

All of the National Register listed and eligible sites recorded on the island (n=50) are located within the boundaries of the National Register-listed Great Salt Pond Archaeological District (see Appendix B-1 and C-1). Great Salt Pond is the most prominent physical feature on Block Island, comprising approximately 500 acres. The Great Salt Pond Archaeological District represents a core area of Native American settlement, land use, and resource acquisition that dates to the Middle Woodland through contact periods (McBride 1989a; Robinson 1987). Site types range from the Fort Island (fortified village) Site (RI 118) with occupations dating from the Late Woodland through contact periods and into the late 1600s to numerous camp and midden sites that date from the Archaic and Woodland periods. Several of the sites contain evidence of later contact period/seventeenth century and eighteenth- and nineteenth-century occupations. The recorded Native American archaeological sites are focused around the margins of the protected Great Salt Pond and associated estuary ponds such as Harbor Pond.

As discussed above, the incorporated limits of New Shoreham, which are coterminous with the island of Block Island, are also recorded in the RIHPHC's cultural resource inventory as a multiple property area designated "The Indian Use of Block Island between 500 BC and AD 1676." This multiple property listing pertains to recorded and potentially significant archaeological sites including household settlements, resource processing and disposal areas including shell middens, burial places, and trading places that could be present throughout the island and have a high research value. These sites are associated with the fairly continuous Indian use of the island from 5,000 BP to the mid-eighteenth century, although the frequency, size, and complexity of the sites changed dramatically during the post-contact period (McBride 1989b).

Approximately 5,952 acres, or 95 percent of the total land area in New Shoreham is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites, including all of the Great Salt Pond Archaeological District (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites, including the multiple property listing that covers the entire island land area, and general environmental characteristics of the geographic area contained on Block Island. The types of expected sites are commensurate with the recorded sites described above. Approximately 256 acres of land (5 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey including part of the state airport property, contain obvious large-scale disturbed areas (e.g., several gravel quarries), and no NR eligible or potentially NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 44 reported shipwrecks and obstructions, and no NR eligible and or listed sites in New Shoreham. The waters of New Shoreham are assessed as having moderate archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Connecticut Inventory

The LIS DMMP study area encompasses four counties across the southern coastal portion of Connecticut (from east to west): New London County, Middlesex County, New Haven County, and Fairfield County. The study area portion of New London County includes nine towns: Stonington, Groton, Ledyard, New London, Waterford, Montville (southern half), East Lyme, Lyme, and Old Lyme. The study area portion of Middlesex County includes six towns: Old Saybrook, Essex, Deep River, Chester (southern two-thirds), Westbrook, and Clinton. The study area portion of New Haven County includes nine towns: Madison, Guilford, Branford, East Haven, New Haven, West Haven, Orange, Derby, and Milford. The study area portion of Fairfield County includes nine towns: Shelton, Stratford, Bridgeport, Fairfield, Westport, Norwalk, Darien, Stamford, and Greenwich.

New London County

New London County lies within the Eastern Coastal Slope Geographic historic context, as defined by the Connecticut Historical Commission (Herzan 1997). The Eastern Coastal Slope borders Long Island Sound and consists of numerous natural harbors, inlets, salt marshes, sandy beaches, and rocky outcroppings. The area's physical landscape is characterized by uniformly low hills and is forested mainly with hardwoods typical of the central eastern seaboard. The creation of Long Island Sound, part of the Wisconsin glacier's terminal moraine, was followed by a rising sea level caused by melting of the ice cap. This sequence produced Connecticut's drowned coastline, Long Island Sound, and a series of rivers that provide ideal habitats for migrating fish and other marine resources, which were important sources of food for Native Americans and early colonists. More favorable soil conditions existed in the Eastern Coastal Slope region than in the more rugged landscape of the Eastern Uplands to the north. After European settlement, farmers and merchants recognized the economic potential of ocean commerce, and large ports developed at Mystic, New London, and Stonington. Whaling and shipbuilding were two of the most important post-contact period pursuits in the region's coastal communities during the eighteenth and nineteenth centuries. The Eastern Coastal Slope also provided rich, agricultural lands and waterpower sources that supplied the coastal merchants with plentiful sources of lumber, produce, and livestock.

Stonington

The town of Stonington is located in the southeast corner of New London County in the southeasternmost portion of the state. It occupies a total area of 50.0 sq m (32,064 acres), of which 38.7 sq m (24,768 acres) is land and 11.4 sq m (7,296 acres; 22.68 percent) is water. The town contains the borough of Stonington along with a number of small villages (Pawcatuck, Lords Point, Wequetequock, and the eastern halves of the villages of Mystic and Old Mystic (the other halves being in the town of Groton). The densely built borough of Stonington occupies a point of land that projects into Little Narragansett Bay, which separates the southwestern tip of Westerly, RI from Stonington. The town lies within the coastal lowlands physiographic region and is characterized by extensive salt marshes included in the Barn

Island State Wildlife Management Area. The coastal portion of the town is bound by the Pawcatuck River on the east and the Mystic Harbor on the west. Inland areas, including North Stonington, are characterized by numerous hills interspersed with lakes and ponds. Major upland areas are included in the Pachaug State Forest and Assekonk Swamp Wildlife Management Area.

Historic Aboveground Resources

The town of Stonington contains five individual properties that are listed as National Historic Landmarks. Four districts and five individual properties are listed or determined eligible for listing in the National Register. An additional 24 individual properties are listed in the Connecticut State Register of Historic Places (State Register).⁴

Terrestrial Archaeological Resources

There have been 23 CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 21 pre-contact and post-contact period sites (see Appendix B-1). The NR eligibility of these sites could not be determined based on the information available in the SHPO site file database. The pre-contact period sites date from the Archaic and Woodland periods and include three camps and two shell middens that are likely related to habitation and resource exploitation areas in both interior and coastal locations. The post-contact period sites date from the eighteenth through early twentieth-centuries and include commercial, residential-agrarian, and industrial resources.

Approximately 23,950 acres, or 96 percent of the total land area in Stonington is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 818 acres of land (4 percent) within the town is not assigned archaeological sensitivity because they have been subjected to previous survey and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are eight reported shipwrecks and obstructions, and no NR eligible and or listed sites in Stonington (including Stonington Harbor and Mystic). The waters of Stonington are assessed as having moderate archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Groton

The town of Groton is located west of Stonington and south of Ledyard in the southeasternmost portion of the state. It occupies a total area of 45.2 sq m (28,928 acres), of which 31.3 sq m (20,032 acres) is land and 13.9 sq m (8,896 acres; 38.75 percent) is water. The town contains the principal communities of Groton Center (on the Thames River), Groton Long Point, Burnett's Corner, Long Hill, Mystic (western part), Noank, and Old Mystic (western part). The main population center and municipal seat is located

⁴ All properties that are listed in the National Register are also State Register-listed properties. The State Register total consists of properties that listed in the State Register, but not the National Register.

in Groton Center. Groton is the home of the Electric Boat Corporation and the pharmaceutical company Pfizer. The Avery Point section is the location of a regional campus of the University of Connecticut. The town lies within the coastal lowlands physiographic region and is characterized by extensive coves and inlets along the coastline and small tributary streams to the north in inland, upland locations.

Historic Aboveground Resources

The town of Groton contains one individual property that is listed as a National Historic Landmark. Five districts and five individual properties are listed or determined eligible for listing in the National Register. An additional district and 15 individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 40 CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 78 pre-contact and post-contact period sites (see Appendix B-1). One of these sites is listed in the National Register and one site has been determined to be NR eligible and has been nominated for listing in the National Register. The NR eligibility of the remaining 79 sites could not be determined based on the information available in the SHPO site file database. The pre-contact period sites date from the Middle Archaic and Early Woodland periods and include 21 camps, two fish weirs, one coastal midden, and one burial that are likely related to habitation and resource exploitation areas in both interior and coastal locations. The post-contact period sites date from the seventeenth through early twentieth centuries and include commercial, residential-agrarian, and industrial resources.

The one NR and SR listed archaeological site in Groton is Site 59-72, known as the Pine Island Archaeological Site. The site includes the entire 15-acre island, located about one-quarter mile off Avery Point in Fishers Island Sound. The island is owned by the State of Connecticut as part of the Groton Campus of the University of Connecticut. The estimated occupation range of the island site is ca. 1670 to ca. 1890 and then during World War II as an observation post. Visible evidence of archaeological resources include a stone and concrete wharf on the north shore, a boat slip on the east side of the wharf, a fish factory foundation south of the wharf, timber pilings on the east side of a small cove on the north shore, numerous scattered historic structural and artifactual remains, and the James Baley burial dated to 1788.

The town of Groton also contains the National Register-eligible and nominated Pequot Fort Site (aka Mystic Fort, Site 59-19). The site is located on approximately 2–3 acres of land at the summit of Pequot Hill on the south bank of the Mystic River. Pequot Hill is a large drumlin with steeply sloping hills; Pequot Avenue runs down the center and summit of the hill. Archaeological testing on the summit of Pequot Hill between the 185 and 200-ft contour intervals located seventeenth-century European and aboriginal artifacts. The site is interpreted as the early seventeenth-century Pequot fortified village, based on seventeenth through nineteenth century documentary descriptions of the fort used during the Pequot War of 1636–1637 (McBride 1990).

Approximately 16,067 acres, or 80 percent of the total land area in Groton is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2).

This sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 3,965 acres of land (20 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., Groton-New London Airport, UCONN-Avery Point campus, and gravel quarries), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 21 reported shipwrecks and obstructions, and no NR eligible and or listed sites in Groton (including Noank). The waters of Groton are assessed as having variable archaeological sensitivity ranging from moderate to high (see Appendices B-4, B-5, and C-4).

Ledyard

The town of Ledyard is entirely inland, located north of Groton in the southeastern portion of the state. It occupies a total area of 40.0 sq m (25,600 acres), of which 38.1 sq m (24,384 acres) is land and 1.9 sq m (1,216 acres; 4.62 percent) is water. The LIS DMMP study area occupies all but the northern portion of the town. The town contains the principal communities of Ledyard Center (also known as Ledyard Village) and the Gales Ferry section (including Christy Hill Estates, Devonshire Estates, Ferry View Heights, Glenwoods, Pheasant Run, Sherwood Forest, Woodridge Estates). Other minor communities and geographic areas are: Aljen Heights, Barrett Park, Colonial Manor, Cranwood Homestead, Highlands, Lakeside, Lantern Hill, Long Pond, Parsonage Hill Manor, Presidential Estates, Quaker Town, and Stonehenge. The town also contains the Mashantucket Pequot Reservation in the northeastern corner of the town (see discussion below). The town is situated along the east bank of the Thames River about 5 miles inland from the coast. It is characterized by interior streams and drainages, with Long Pond constituting the largest inland body of water within the town boundaries.

Historic Aboveground Resources

The town of Ledyard contains two districts and 11 individual properties that are listed or determined eligible for listing in the National Register. An additional 10 individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 18 CRM archaeological surveys conducted in the town over the past three decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 171 pre-contact and post-contact period sites (see Appendix B-1). Nine of these sites have been determined to be NR eligible and one is evaluated as NR eligible (State Register listed), all within the Mashantucket Pequot Reservation (see discussion below). The NR eligibility of the remaining 161 sites could not be determined based on the information available in the SHPO site file database. The pre-contact period sites date primarily from the Archaic Period and include camps and rockshelters that are likely related to habitation and resource exploitation in the upland, interior locations of the town. The post-contact period sites date from the seventeenth through early twentieth-centuries and include

commercial, residential-agrarian, and industrial resources, as well as the seventeenth/eighteenth century palisaded fort within the Pequot Reservation lands.

The Mashantucket Pequot Indian Reservation Archeological District is located within the town of Ledyard (see Appendix B-1). The northern limits of the reservation extend outside of the current LIS DMMP study area in the northeastern corner of the town. The Mashantucket Pequot Tribe is a federally recognized government entity in the state of Connecticut. The village, or former reservation lands, is listed as a historic district in the National Register and was nominated as a National Historic Landmark in 1992 (McBride and Grumet 1992). The reservation/archaeological district comprises 1,637.79 acres of archaeologically sensitive lands, nearly three-quarters of which are in the LIS DMMP study area. Reservation acreage largely consists of heavily glaciated rocky uplands ranging from 150 ft to 300 ft above mean sea level (amsl) in an area of the town historically known as Mashantucket. As of 1992 ongoing archaeological investigations begun in 1983 have identified 73 archaeological sites within the district, 15 of which are contributing sites associated with early historic contact in Eastern Connecticut (nine of these contributing sites are within the LIS DMMP study area – see Appendix B-1 and C-1). Fifty-eight of the sites have been determined to be non-contributing resources. Thirty-one of these are the remains of pre-contact period temporary campsites occupied between 9,000 and 500 years ago. Fourteen sites are associated with post-eighteenth century Pequot occupations, and five non-contributing resources are associated with non-Indian occupations. The final eight resources are of uncertain chronological and cultural provenience (McBride and Grumet 1992).

Approximately 18,059 acres, or 95 percent of the study area portion of the total land area in Ledyard is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites, including all of the Mashantucket Pequot Indian Reservation Archeological District (see Appendix B-2). This sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 952 acres of land (5 percent) within the study area portion of the town are not assigned archaeological sensitivity because they have been subjected to previous survey and no NR eligible sites have been located in these areas.

New London

The city of New London is located west of Groton along the coastline at the mouth of the Thames River. It occupies a total area of 10.76 sq m (6,893 acres), of which 5.54 sq m (3,546 acres) is land and 5.23 sq m (3,347 acres; 50 percent) is water. The town contains the principal communities of New London Center (Downtown), Ocean Beach, and Pleasure Beach. Lesser communities are located in Bates Woods Park, Fort Trumbull, Glenwood Park, Green's Harbor Beach, Mitchell's Woods, Riverside Park, and Old Town Mill. Downtown New London is situated on the west shore of the Thames River and is the site of the Cross Sound Ferry to Long Island, the U.S. Naval Academy, and the home port of the U.S. Coast Guard Cutter *Chinook* and the Coast Guard's tall ship *Eagle*. The town lies within the coastal lowlands physiographic region and is characterized primarily by the mouth of the Thames River. Upland locations are limited to the Soldier Hill and Quaker Hill areas along the town boundary with Waterford.

Historic Aboveground Resources

New London contains one individual property that is designated as a National Historic Landmark. Eleven districts and 26 individual properties are listed or determined eligible for listing in the National Register. An additional nine individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 31 CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 15 pre-contact and post-contact period sites, none of which are listed in or have been determined to be NR-eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). One of the two pre-contact period sites is multicomponent and the other dates to the Middle Woodland Period. The multicomponent site is reported to be a midden and burial, while the Middle Woodland site is a rockshelter. The 13 post-contact period sites date from the eighteenth through early twentieth centuries, and all but one are of unknown function. The remaining post-contact period site is recorded as a cemetery.

Approximately 3,162 acres, or 89 percent of the total land area is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 384 acres of land (11 percent) within the city are not assigned archaeological sensitivity because they have been subjected to previous survey and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 13 reported shipwrecks and obstructions, and no NR eligible and or listed sites in New London. The waters of New London are assessed as having variable archaeological sensitivity ranging from moderate to high (see Appendices B-4, B-5, and C-4).

Waterford

The town of Waterford, like Groton and Stonington to the east and East Lyme to the west, contains both coastal and interior, upland terrain. It occupies a total area of 44.4 sq m (28,416 acres), of which 32.8 sq m (20,992 acres) is land and 11.6 sq m (7,424 acres; 26.22 percent) is water. The town contains the principal communities of Graniteville, Jordan, Millstone, Morningside Park, and Quaker Hill. Other minor communities and geographic features are: Durfee Hill, East Neck, Fog Plain, Gilead, Goshen, Great Neck, Harrisons, Lake's Pond, Logger Hill, Mago Point, Magonk, Mullen Hill, Oswegatchie, Pepper Box Road, Pleasure Beach, Ridgewood Park, Riverside Beach, Spithead, Strand, and West Neck. The Crystal Mall, located just north of Interstate-95 across from the New London town line, is one of the town's largest single developments. The town is bounded on the east by New London and the upper Thames River and on the west by the Niantic River. The coastline sections are characterized by numerous inlets and coves, and the interior sections contain streams, drainages, and small ponds as well as the southern half of Lake Konomoc.

Historic Aboveground Resources

The town of Waterford contains seven districts and one individual property that are listed or determined eligible for listing in the National Register. An additional five individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 24 CRM archaeological survey conducted in the town in the past two decades (see Appendix C-2), which along with predominantly the work of avocational collectors, have resulted in the recordation of 136 pre-contact and post-contact period sites, none of which are listed in or have been determined to be NR-eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The pre-contact period sites date from the Middle Archaic to Late Woodland Period and include villages and/or camps, rockshelters, shell middens, and one burial that are likely related to habitation and resource exploitation in both coastal and upland, interior locations of the town. The post-contact period sites date from the seventeenth through early twentieth centuries and include commercial, residential-agrarian, and industrial resources.

Approximately 17,054 acres, or 81 percent of the total land area in Waterford is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 3,938 acres of land (19 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., airport, larger shopping Crystal Mall, nuclear power plant, gravel quarries), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 12 reported shipwrecks and obstructions, and no NR eligible and or listed sites in Waterford (including Niantic). The waters of Waterford are assessed as having moderate archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Montville

The southern portion of the interior town of Montville is included in the LIS DMMP study area. Montville occupies a total area of 44.1 sq m (28,224 acres), of which 42.0 sq m (26,880 acres) is land and 2.1 sq m (1,344 acres; 4.78 percent) is water. The town contains the principal communities or villages of Chesterfield, Kittemaug, Massapeag, Mohegan, Oakdale, Palmertown, and Uncasville. The Mohegan Native American Tribal Nation has been a presence in this part of Connecticut since the sixteenth and seventeenth centuries. Their 700-acre reservation is located in the Village of Uncasville. Although the reservation sits within the borders of the town of Montville, the tribe is a federally recognized government entity. The Mohegan Tribe also operates a casino resort, Mohegan Sun, on their reservation that opened in 1996. The reservation is situated in the northeast part of the town near the boundary with Norwich, outside of the LIS DMMP study area. The study area portion of the town is bounded on the south by Waterford, on the east by Ledyard, and on the west by East Lyme. The town consists of uplands,

interspersed with numerous streams, drainages, and small ponds as well as the northern half of Lake Konomoc.

Historic Aboveground Resources

The town of Montville contains one individual property that is listed in the National Register. An additional four individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 11 CRM archaeological surveys conducted in the survey portion of the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 29 pre-contact and post-contact period sites, one of which has been determined to be NR eligible and is listed in the Connecticut State Register. The NR eligibility of the remaining 28 recorded sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The nine recorded pre-contact period sites are of unknown temporal/cultural affiliation and function(s), but they are likely related to habitation and resource exploitation in the upland, interior locations of the town. The post-contact period sites date from the eighteenth through early twentieth centuries and are mostly of unknown function(s) except for three industrial resources and one religious resource.

The one NR-eligible site, Site 86-16, known as the New England Hebrew Farmers of Emanuel Society Synagogue and Creamery Site (aka Chesterfield Synagogue), is located on Flanders Road in the village of Chesterfield in the southwest part of the town (see Appendix B-1 and C-1). The site contains the fieldstone foundation and burned timber remains of the synagogue along with the rubble fieldstone remains of other associated buildings and a creamery and several stone wells. The remains are associated with the New England Hebrew Farmers of Emanuel Society, who established their community center including synagogue at this location in 1892. These Jewish farmers were immigrants from Poland, Lithuania, Ukraine, and Russia who settled in the Chesterfield section of the town. They provided farm products to a large population in Montville and also established a number of agricultural cooperatives throughout the state.

Approximately 11,129 acres, or 75 percent of the total land area in the study area portion of Montville is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 3,724 acres of land (25 percent) of land area within the study area portion of the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., sand and gravel pits), and no NR eligible sites have been located in these areas.

East Lyme

The town of East Lyme, like Waterford to the east, contains both coastal and interior, upland terrain. It occupies a total area of 42.0 sq m (26,880 acres), of which 34.0 sq m (21,760 acres) is land and 7.9 sq m (5,056 acres; 18.89 percent) is water. The town consists primarily of two villages: the village of Flanders and the village of Niantic. The village of Niantic gets its name from the Nehantic Indians whose hunting grounds once extended from Wecapaug Brook, in nearby Rhode Island to the Connecticut River. Shortly before the first settlers arrived the Pequots had invaded Nehantic territory and annexed about half of the land claimed by the tribe. The village of Flanders was historically a farming area along the Old Post Road, a cottage textile industry developed similar to that in Flanders, Belgium. The part of Flanders most referred to is Flanders four-corners, which is the intersection of Route 161 (Chesterfield Road) and U.S. Route 1 (Post Road). The town is bounded on the east by the Niantic Bay and river and on the west by Old Lyme and Lyme. The coastline sections are characterized by numerous inlets and coves, and the interior sections contain streams, drainages, and small ponds as well as several large lakes including Powers Lake and Pattagansett Lake.

Historic Aboveground Resources

The town of East Lyme contains eight individual properties that are listed or determined eligible for listing in the National Register. An additional 14 individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 27 CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 58 pre-contact and post-contact period sites, none of which are listed in or have been determined to be NR-eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 35 recorded pre-contact period sites date from the Middle Archaic through Late Woodland periods, and include camps and rockshelters along with one village site likely related to habitation and resource exploitation in both the coastal and upland, interior locations of the town. The post-contact period sites date from the eighteenth through early twentieth-centuries and include residential-agrarian and industrial resources.

Approximately 19,562 acres, or 90 percent of the total land area in East Lyme is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 2,198 acres of land (10 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., sand pits and gravel quarries), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are three reported shipwrecks and obstructions, and no NR eligible and or listed sites in East Lyme. The waters of East Lyme are assessed as having moderate archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Lyme

The town of Lyme, like Montville and Ledyard to the east, is entirely inland. It occupies a total area of 35.5 sq m (22,720 acres), of which 31.9 sq m (20,416 acres) is land and 2.6 sq m (1,664 acres; 7.63 percent) is water. The town contains the principal communities or villages of Bill Hill, Hadlyme, Hamburg (town center), and North Lyme. Other minor communities and geographic areas are Becket Hill, Brockway's Ferry (also known as Brockway Landing), Brush Hill, Elys Ferry, Grassy Hill, Gungy, Joshuatown, Lord Hill, Mt. Archer, Pleasant Valley, Rogers Lake West Shore, Sterling City, and Tuttle's Sandy Beach. The town's western sections are dominated by the Connecticut River, which contains a number of coves, inlets, and salt marsh islands including Selden Neck State Park. The remainder of the town is characterized by upland, hilly terrain that reaches 450 ft amsl in the northeast corner within the Nehantic State Forest (extends east into East Lyme). The northern half of Roger Lake, a natural body of water regulated by a dam, is situated in the southeast part of the town that borders Old Lyme.

Historic Aboveground Resources

The town of Lyme contains one district that is listed in the National Register. An additional seven individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been five CRM archaeological surveys conducted in the town over the past two decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 70 pre-contact and post-contact period sites, two of which are listed in the State Register and have been determined NR eligible. The NR eligibility status of the remaining 68 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 58 recorded pre-contact period sites date from the Middle Archaic through Middle Woodland periods, and include camps, rockshelters, and a quarry likely related to habitation and resource exploitation in both the coastal (Connecticut River) and upland, interior locations of the town. The post-contact period sites date from the nineteenth through early twentieth-centuries and include commercial and industrial resources.

The two NR eligible sites consist of 75-18 and 75-65 (see Appendix B-1 and C-1). Site 75-18, the McCourt Site, is located in the village of North Lyme off of Keeny Road. It yielded Early and Middle Woodland artifact assemblages that reflect an increased settlement of upland riverine areas during this period. Site 75-65, the Coudert Ledge #2 Site, is located in the village of Hadlyme off Joshua Town Road. It contained Middle Woodland (Selden Creek Phase) ceramic sherds from three vessels, which suggests a highly specialized use since no other artifacts were identified in the less than 1-acre site area.

Approximately 14,615 acres, or 82 percent of the study area portion of the total land area in Lyme is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 3,230 acres of land (18 percent) within the study area portion of the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., gravel pits), and no NR eligible sites have been located in these areas.

Old Lyme

The town of Old Lyme is mostly coastal and the entire western boundary is dominated by the Connecticut River estuary that includes a number of salt marsh islands. It occupies a total area of 28.8 sq m (18,432 acres), of which 23.1 sq m (14,784 acres) is land and 5.7 sq m (3,648 acres; 19.85 percent) is water. The town contains the principal communities or villages of Black Hall, Laysville, Lyme Station, Old Lyme Center, Sound View, and South Lyme. Other minor communities and geographic features in the town are: Between the Rivers, Black Hall Pond, Brighton Beach, Ferry Road, Flat Rock Hill, Four Mile River, Griswold Point, Hall's Corners, Hawk's Nest Beach, Homestead Circle, Johnnycake Hill, Miami Beach, Mile Creek, Neck Road, Old Colony Beach, Old Lyme Estates, Old Lyme Shores, Rogers Lake, Sill Lane, Smith's Neck, Tantummaheag, Tuttle's Sandy Beach, Whippoorwill, White Sand Beach. The town's coastline extends west from the Four Mill River at Rocky Neck State Park to the Connecticut River. The coastal sections are characterized by numerous inlets and coves, and the interior sections contain streams, drainages, and small ponds as well as the southern half of Rogers Lake.

Historic Aboveground Resources

The town of Old Lyme contains one individual property that is designated as a National Historic Landmark. One district and four individual properties are listed or determined eligible for listing in the National Register. An additional 16 individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 16 CRM archaeological surveys conducted in the town over the past three decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 66 pre-contact and post-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 58 recorded pre-contact period sites date from the Early Archaic through Late Woodland periods, and include mostly camps and rockshelters along with cemeteries/burials and one shell midden site. These sites are likely related to habitation and resource exploitation in both the coastal (Connecticut River estuary) and upland, interior locations of the town. The post-contact period sites date from the seventeenth through early twentieth-centuries and include commercial (inn) and industrial (rural) resources.

Approximately 14,232 acres, or 96 percent of the total land area in Old Lyme is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 552 acres of land (4 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., gravel pits and quarries), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are three reported shipwrecks and obstructions, and no NR eligible and or listed sites in Old Lyme. The waters of Old Lyme are assessed as having moderate archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Middlesex County

Middlesex County lies within the Eastern Coastal Slope Geographic historic context, as defined by the Connecticut Historical Commission (Herzan 1997), and described above for New London County.

Old Saybrook

The town of Old Saybrook is mostly coastal and the entire eastern boundary is dominated by the Connecticut River estuary that includes a number of salt marsh islands. It occupies a total area of 21.6 sq m (13,824 acres), of which 15 sq m (9,600 acres) is land and 6.6 sq m (4,224 acres; 30.45 percent) is water. The town contains the principal communities or villages of Old Saybrook Center (includes Saybrook Point), Chalker Beach, Cornfield Point, District of Fencove, Borough of Fenwick, District of Fenwood, Indian Town, Knollwood, District of Otter Cove, and Saybrook Manor. The town's coastline extends west from the Connecticut River to Cold Spring Brook at Chalker Beach. The coastal sections particularly at the mouth of the Connecticut River are characterized by numerous inlets and coves, and the interior sections contain streams, drainages, and small ponds including Chalkers Millpond and Pequot Swamp Pond.

Historic Aboveground Resources

The town of Old Saybrook contains three districts and 16 individual properties that are listed or determined eligible for listing in the National Register. An additional 42 individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been eight CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 32 pre-contact and post-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 27 recorded pre-contact period sites are mostly of unknown cultural/temporal affiliation, although Archaic and Woodland period artifacts are present at a number of multicomponent sites. Most of the pre-contact sites are camps along with one rockshelter, one village, and one cemetery site, all of which are likely related to habitation and resource exploitation in both the coastal (Connecticut River estuary) and upland, interior locations of the town. The post-contact period sites date from the seventeenth through early twentieth-centuries and include residential-agrarian and commercial resources.

Approximately 8,384 acres, or 87 percent of the total land area in Old Saybrook is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 1,216 acres of land (13 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., gravel pits), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are eight reported shipwrecks and obstructions, and no NR eligible and or listed sites in Old Saybrook (including Old Saybrook Center, Fenwick, and Cornfield Point Shoal). The waters of Old Saybrook are assessed as having moderate archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Essex

The town of Essex is inland from the coastline, but borders the estuarine landforms of the Connecticut River on the east. It occupies a total area of 11.8 sq m (7,552 acres), of which 10.4 sq m (6,656 acres) is land and 1.5 sq m (960 acres; 12.35 percent) is water. The town is comprised of the three villages of Essex, Centerbrook, and Ivoryton. The eastern border along the Connecticut River is dominated by numerous coves and inlets along with the Great Meadow salt marshes. The western interior is dominated by the Falls River drainage, which passes through the Centerbrook and Ivoryton (former mill) villages.

There has been one CRM archaeological survey conducted in the town (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 14 pre-contact and post-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 11 recorded pre-contact period sites are mostly of unknown cultural/temporal affiliation, although one Archaic and one Woodland Period occupations are present at two of the sites. Most of the pre-contact sites are camps along with two rockshelters, all of which are likely related to habitation and resource exploitation in both the Connecticut River estuary and upland, interior locations of the town. The post-contact period sites date from the seventeenth through early twentieth-centuries and include residential-agrarian, commercial, and industrial resources.

Historic Aboveground Resources

The town of Essex contains one district and nine individual properties that are listed or determined eligible for listing in the National Register. An additional 15 individual properties are listed in the State Register.

Terrestrial Archaeological Resources

Approximately 6,517 acres, or 98 percent of the total land area in Essex is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2).

This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 139 acres of land (2 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., gravel pits), and no NR eligible sites have been located in these areas.

Deep River

The town of Deep River is also inland from the coastline, but borders the Connecticut River on the east in an area that contains estuarine landforms. It occupies a total area of 14.2 sq m (9,088 acres), of which 13.6 sq m (8,704 acres) is land and 0.6 sq m (384 acres; 4.3 percent) is water. The town is comprised of the two principal communities of Deep River center in the east and Winthrop in the west. The eastern border along the Connecticut River is dominated by numerous coves and inlets including Pratt Cove. The western interior is dominated by the Cockaponset State Forest, which contains elevations that rise to 450 ft amsl.

Historic Aboveground Resources

The town of Deep River contains four individual properties that are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There has been one CRM archaeological survey (1988) conducted in the town (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of six pre-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The six recorded pre-contact period sites include Archaic and Woodland Period occupations from camp and rockshelter sites, all of which are likely related to habitation and resource exploitation along the Connecticut River and in upland, interior locations of the town. There are no recorded post-contact period sites in the town of Deep River.

Approximately 8,287 acres, or 91 percent of the total land area in Deep River is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 801 acres of land (9 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey contain obvious large-scale disturbed areas (e.g., gravel pits), and no NR eligible sites have been located in these areas.

Chester

The southern half of the town of Chester is located within the LIS DMMP study area. It is also inland from the coastline, but a small portion of the eastern boundary in the study area borders the Connecticut River. It occupies a total area of 16.8 sq m (10,752 acres), of which 16 sq m (10,240 acres) is land and 0.8 sq m (512 acres) of it (4.75 percent) is water. Chester center, which lies in the eastern part of the town, is the principal community within the town. The entire western half is dominated by uplands associated with the Cockaponset State Forest. The Chester River flows west to east through the approximate center of the town, and drains into a large tidal flat at the confluence with the Connecticut River.

Historic Aboveground Resources

The town of Chester contains five individual properties that are listed or determined eligible for listing in the National Register. An additional 12 individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been five CRM archaeological surveys conducted in the town in the past three decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of two pre-contact period sites, neither of which is listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The two recorded pre-contact period sites are of unknown temporal/cultural affiliation, although one is recorded as a camp related to habitation and resource exploitation along the Connecticut River. There are no recorded post-contact period sites in the town of Chester.

Approximately 6,481 acres, or 93 percent of the study area portion of the total land area in Chester is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 504 acres of land (7 percent) within the study area portion of the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., sand pits), and no NR eligible sites have been located in these areas.

Westbrook

The town of Westbrook contains both coastal and interior upland locations, west of Old Saybrook and Essex. It occupies a total area of 21.4 sq m (13,696 acres), of which 15.7 sq m (10,048 acres) is land and 5.7 sq m (3,648 acres; 26.47 percent) is water. The town contains the principal communities or villages of Westbrook center, Grove Beach, and Pond Meadow. Minor communities and geographic features in the town are: Chapman Beach, Coral Sands, Grove Beach Point, Grove Beach Terrace, Horse Hill, Island View, Kelsey Point, Little Standard, Middle Beach, Pilot's Point, Pointina, Quotonset Beach, Sagamore Terrace, Salt Works, Stannard Beach, and West Beach. The town's coastline extends west from Cold Spring Brook to Grove Beach. The coastal sections are dominated by long stretches of beach interspersed

with small creek inlets. The interior sections contain streams, drainages, and small ponds including Chapman Pond and Vincent Pond.

Historic Aboveground Resources

The town of Westbrook contains three individual properties that are listed or determined eligible for listing in the National Register, one of which is located in both Westbrook and Deep River, Connecticut. An additional 17 individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 14 CRM archaeological surveys conducted in the town in the past two decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 20 pre-contact and post-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 17 recorded pre-contact period sites contain both Archaic and Woodland Period occupations associated with camps and large villages, likely related to habitation and resource exploitation along both coastal and inland locations in the town. There is one recorded eighteenth- through early-twentieth-century residential-agrarian farmstead site and one recorded site of unspecified pre-contact or post-contact period affiliation.

Approximately 9,725 acres, or 96 percent of the total land area in Westbrook is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 323 acres of land (4 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., gravel pits), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are four reported shipwrecks and obstructions, and no NR eligible and or listed sites in Westbrook. The waters of Westbrook are assessed as having variable archaeological sensitivity ranging from low to moderate (see Appendices B-4, B-5, and C-4).

Clinton

The town of Clinton also contains both coastal and interior upland locations, west of Westbrook. It occupies a total area of 19 sq m (12,160 acres), of which 16.3 sq m (10,432 acres) is land and 2.8 sq m (1,792 acres; 14.5 percent) is water. The town contains the principal community or center of Clinton, which is located in the south-central portion of the town along U.S. Route 1 (Post Road) and Route 81. Minor communities and geographic features in Clinton are: Beach Park, Boulder Lake, Clinton Beach, Cow Hill, Duck Hole, Grove Beach, Grove Beach Manor, Harbor View, Kelseytown, Lochwood, Mill District, Old Harbor Village, Ridgewood, Riverside, and Silver Bluff. The town's coastline extends west

from Grove Beach across Clinton Harbor to the Hammonasset River, which forms the boundary between Middlesex and New Haven counties. The coastline in Clinton is dominated by the harbor, which is surrounded by tidal flats and contains Cedar Island. The interior sections contain streams, drainages, and small ponds including a small portion of the Cockaponset State Forest, which traverses the northeast corner of the town that borders Westbrook and Deep River.

Historic Aboveground Resources

The town of Clinton contains one district and one individual property that are listed or determined eligible for listing in the National Register. An additional 10 properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been three CRM archaeological surveys conducted in the town in the past two decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 36 pre-contact and post-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 33 recorded pre-contact period sites contain Late Archaic through Early Woodland Period occupations associated with camps, shell middens, rockshelters, a fish weir, a sweat house, and a trading post, all related to habitation and resource exploitation along both coastal and inland locations in the town. There are two recorded seventeenth- through nineteenth-century sites, one of which is related to rural-agrarian land uses.

Approximately 10,330 acres, or 99 percent of the total land area in Clinton is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 102 acres of land (1 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are no reported shipwrecks and obstructions, and no NR eligible and or listed sites in Clinton. The waters of Clinton are assessed as having low archaeological sensitivity (see Appendices B-4, B-5, and C-4).

New Haven County

The far eastern portion of New Haven County lies within the Eastern Coastal Slope Geographic historic context, as defined by the Connecticut Historical Commission (Herzan 1997), and described above for New London County. The LIS DMMP study area New Haven County towns in this region consist of Madison, Guilford, and Branford. The eastern portion of New Haven County lies within the Central Valley Geographic historic context, as defined by the Connecticut Historical Commission (Cunningham 1995). The Central Valley extends from the Massachusetts border south to Long Island Sound,

encompassing all of the central lowlands of Connecticut. The chief characteristic of this region is its gently rolling terrain that lies less than 300 ft amsl. The LIS DMMP study area portion of this region is limited to the coastal towns of East Haven, New Haven, and West Haven. New Haven is one of the two largest cities in the Central Valley region and is also one of the largest in the state. The geology of the New Haven area at the south end of the region reflects the same forces that formed all of the drowned coastline of Connecticut. These forces included glacial action and continental uplift, which occurred as the glacier melted. Streams and rivers cut through the sediments, forming gorges in their path to the sea and then became partially filled by the rise in sea level. New Haven harbor formed in this manner, similar to other estuaries along Long Island Sound. The New Haven area was near the edge of the southern boundary of the glacier, so the soil contains more sand and gravel that was part of the terminal moraine that formed Long Island.

Madison, like East Lyme to the east in New Long County, contains a long land area that extends from the coastline at Long Island Sound inland more than 10 miles. All but the extreme northern portion of the town is within the LIS DMMP study area. It occupies a total area of 36.8 sq m (23,552 acres), of which 36.2 sq m (23,168 acres) is land and 0.6 sq m (384 acres; 1.58 percent) is water. The town contains five primary communities: Madison Center, East River, Hammonasset Point, North Madison, and Rockland. Madison's center of town is the main area of all businesses and the location of the town library and green. The coastal portion of the town is bounded on the east by the Hammonasset River and Hammonasset Beach and on the west by the East River. The coastline sections are characterized by beaches and tidal flats, and the vast interior sections contain portions of the Cockaponset State Forest on the east and upland streams, drainages, and small ponds that intersperse hilly landforms including Broomstick Ledges that rise to more than 450 ft amsl.

Historic Aboveground Resources

The town of Madison contains one district and five individual properties that are listed or determined eligible for listing in the National Register. An additional 40 properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 12 CRM archaeological surveys conducted in the town over the past two decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of seven pre-contact and post-contact period sites, one of which is listed in the National Register. The NR status of the remaining six sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The four recorded pre-contact period sites date from the Archaic through Late Woodland periods, and include camps and one rockshelter likely related to habitation and resource exploitation in both the coastal and upland, interior locations of the town. The post-contact period sites date from the eighteenth through early twentieth centuries and include two industrial sites, an iron works and a paper mill, the latter of which is NR listed.

The Hammanasset Paper Mill Site, #76-6, is located on both sides of the Hammonasset River about 3.5 miles inland from the coast. The east side of the site is on the east side of the river in Killingsworth. This part of the site contains the east end of the 20-ft long stone dam. On the west side in Madison are the fieldstone remains of the mill complex along with stone-lined head and tailraces. Foundation remains include the main mill building and at least two associated structures. A sawmill was built at this site

around 1865 and produced straw board, a paper product used for making boxes. The mill was a successful local operation until its closing around 1890. The site is well-preserved in a wooded area (as of 1995), and had not been subjected to any subsurface testing as part of its recordation. Visible artifacts associated with the mill remains included iron pipes that were used to move and direct water around the mill site. Visible iron rods were also observed and interpreted as associated with various possible machinery that was used in the mill. The mill site was listed in the National Register under Criterion D for its potential to yield information important to the historical documentation of nineteenth-century paper mills in Connecticut (Soulsby and Clouette 1995).

Approximately 20,755 acres, or 97 percent of the study area portion of the total land area in Madison is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 594 acres of land (3 percent) within the study area portion of the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., gravel and sand pits), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are no reported shipwrecks and obstructions, and no NR eligible and or listed sites in Madison. The waters of Madison are assessed as having low archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Guilford

The town of Guilford closely matches the town of Madison in shape and size, and also contains a long land area that extends from the coastline at Long Island Sound inland more than 10 miles. Like Madison, all but the extreme northern portion of Guilford is within the LIS DMMP study area. It occupies a total area of 49.7 sq m (31,808 acres), of which 47 sq m (30,080 acres) is land and 2.7 sq m (1,728 acres; 5.39 percent) is water. The town contains five primary communities: Guilford Center, Leete's Island, North Guilford, Nut Plains, and Sachem's Head. Other minor communities and geographic features in Guilford are: Guilford Lakes, Indian Cove, Old Quarry. The coastal portion of the town is bounded on the east by the East River and on the west by Hoadley Neck/Point. The coastline sections are characterized by coves, inlets, small islands, and tidal flats. The northwest, interior side of Guilford is flanked by the Metacomet Ridge, a mountainous traprock ridgeline that stretches from Long Island Sound to nearly the Vermont border. Notable features of the Metacomet Ridge in Guilford include Totoket Mountain, with its most notable peak, Bluff Head at 700 ft amsl; and two eastern high points named East Sugarloaf and West Sugarloaf at 450 ft amsl. Quonnipaug Lake, just west of the Totoket Mountain range is the largest water body in the interior portion of the town.

Historic Aboveground Resources

The town of Guilford contains one individual property that is designated as a National Historic Landmark. Four districts, one of which is located in both Guilford and Branford, Connecticut, and five individual

properties are listed or determined eligible for listing in the National Register. An additional 46 properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 23 CRM archaeological surveys conducted in the town over the past two decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 13 pre-contact and post-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The nine recorded pre-contact period sites date from the Woodland Period, and include camps, one rockshelter, one quarry and one shell midden, all related to habitation and resource exploitation in both the coastal and upland, interior locations of the town. There are four additional sites, indicated to have cultural deposits dating to the pre-contact, contact, and/or post-contact periods. The two contact period sites, both in coastal settings include a cemetery (four recorded burials) and one camp site that reportedly contained petroglyphs.

Approximately 26,500 acres, or 91 percent of the study area portion of the total land area in Guilford is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 2,612 acres of land (9 percent) within the study area portion of the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., gravel pit), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are three reported shipwrecks and obstructions, and no NR eligible and or listed sites in Guilford (including Falkner Island). The waters of Guilford are assessed as having low archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Branford

The town of Branford contains both coastal and interior upland locations, but is less than half the north/south length of Guilford. It occupies a total area of 28 sq m (17,920 acres), of which 22 sq m (14,080 acres) is land and 6 sq m (3,840 acres) of it (21.5 percent) is water. The town contains six principal communities: Branford Center, Branford Hills, Indian Neck, Pine Orchard, Stony Creek, Short Beach, and Hotchkiss Grove. Minor communities and geographic features in Branford include: Branford Point, Brocketts Point, the Thimble Islands, and Todd's Hill. The town's coastline extends west from Grove Beach across Clinton Harbor to the Hammonasset River, which forms the boundary between Middlesex and New Haven counties. The town's coastline, which stretches from Stony Point in the east to the Farm River in the west, is dominated by two harbors, the more central Branford Harbor and Stony Creek Harbor on the east end. Most of the town's interior border with East Haven to the west is dominated by Lake Saltonstaff, a reservoir owned by the South Central Connecticut Regional Water Authority, and Saltonstall Mountain, part of the Metacomet Ridge, described above. The southern

terminus of the Metacomet Ridge, Beacon Hill, is also located in Branford just south of U.S. Route 1 (Post Road) and I-95 at the western end of the town.

Historic Aboveground Resources

The town of Branford contains five districts, one of which is located in both Branford and East Haven, Connecticut, and 29 individual properties that are listed or determined eligible for listing in the National Register. An additional 25 properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 14 CRM archaeological surveys conducted in the town over the past two decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 53 pre-contact and post-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 42 recorded pre-contact period sites date from the Archaic and Woodland periods, and include camps, shell middens, and one rockshelter, all related to habitation and resource exploitation in both the coastal and upland, interior locations of the town. There are six additional sites, indicated to have cultural deposits dating to the pre-contact, contact, and/or post-contact periods. The three post-contact period sites date to the nineteenth and early twentieth centuries and include one quarry. There are also two recorded sites in the town for which there is no information regarding cultural/temporal affiliation.

Approximately 13,123 acres, or 93 percent of the total land area in Branford is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 957 acres of land (7 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., gravel quarry), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are three reported shipwrecks and obstructions, and no NR eligible and/or listed sites in Branford. The waters of Branford are assessed as having low archaeological sensitivity (see Appendices B-4, B-5, and C-4).

East Haven

The town of East Haven also contains both coastal and interior upland locations. It occupies a total area of 13.4 sq m (8,576 acres), of which 12.3 sq m (7,872 acres) is land and 1.1 sq m (704 acres; 8.57 percent) is water. The town contains three large sections, rather than villages: Foxon, the area that borders Branford and North Branford and is the hilliest inland part of the town; Momauquin, along the coast from Morris Cove near New Haven on the west to Branford on the east; and the Center, in the west

near New Haven where the town's administrative and municipal offices are located. The town's coastline is dominated by long stretches of beach between Morris Cove on the west and the Farm River estuary on the east. The interior sections of the town north of I-95 are dominated by the Saltonstall Ridge, which has a summit of 250 ft amsl and the adjacent Lake Saltonstall. The Tweed-New Haven Airport is located east of Morris Cove, and is shared land with New Haven.

Historic Aboveground Resources

The town of East Haven contains one district and one individual property that are listed or determined eligible for listing in the National Register. An additional seven properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 15 CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 12 pre-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The recorded pre-contact period sites date from the Archaic and Woodland periods, and include mostly camps, although one site overlooking the Farm River estuary contained a shell midden, rockshelter, and a reported burial of unknown pre-contact period date. There are no contact or post-contact period sites recorded in the town.

Approximately 6,824 acres, or 86 percent of the total land area in East Haven is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 1,048 acres of land (14 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., Tweed-New Haven Airport, East Shore Park and tank farms, and a sand pit), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There is one reported shipwreck/obstruction, and no NR eligible and or listed sites in East Haven (including Quixes Ledge). The waters of East Haven are assessed as having low archaeological sensitivity (see Appendices B-4, B-5, and C-4).

New Haven

The city of New Haven also contains both coastal and interior upland locations, and is the second largest municipality in the state (after Bridgeport and ahead of Hartford) and the sixth largest municipality in New England. It is situated on New Haven harbor and occupies a total area of 20.2 sq m (12,928 acres), of which 18.9 sq m (12,096 acres) is land and 1.4 sq m (896 acres; 6.91 percent) is water. The city is laid out in a planned street grid system that divides it into a number of distinct neighborhoods including: the

west central neighborhoods of Dixwell and Dwight; the southern neighborhoods of The Hill, historic waterfront City Point (or Oyster Point), and the harborside district of Long Wharf; the western neighborhoods of Edgewood, West River, Westville, and Amity; the east-central neighborhoods of Mill River and Wooster Square, and Fair Haven, an immigrant community located between the Mill and Quinnipiac rivers. The city is also the home of Yale University, which has a sprawling urban complex that includes the Yale-New Haven Hospital. New Haven Harbor is formed by the confluence of the Mill and Quinnipiac rivers that flow in a southerly direction from the North Haven uplands. The West River flows into the harbor from the northwest and forms the boundary with West Haven. The harbor is protected from Long Island Sound by a peninsula from its western side, once known as “Little Necke” but now called Lighthouse Point, because of the lighthouse that was constructed on its tip in 1805.

Historic Aboveground Resources

The city of New Haven contains one district and eight individual properties that are designated as a National Historic Landmarks. Twenty-one districts, two of which are located in both New Haven and Hamden, Connecticut, and 29 individual properties that are listed or determined eligible for listing in the National Register. An additional seven districts, one of which is located in both New Haven and Hamden, Connecticut, and 27 individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 29 CRM archaeological surveys conducted in the city over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 23 pre-contact and post-contact period sites, only one of which has been determined NR eligible. The NR eligibility status of the remaining 22 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 15 recorded pre-contact period sites date from the Archaic and Woodland periods, and include mostly camps related to habitation and resource exploitation mainly in coastal locations around New Haven harbor and the associated river confluences. The post-contact period sites date from the seventeenth through early twentieth centuries and consist primarily of industrial sites, including the Cruttenden Carriage Works, which was determined to be NR eligible and an archaeological data recovery was conducted. The Carriage Works Site was located during archaeological investigations for the replacement of the I-95 (“Q”) bridge. The site was situated in a former mill quadrant on Wooster Street that also contained nineteenth-century worker housing and saloons (Ford and Cherau 2005).

Approximately 10,477 acres, or 86 percent of the total land area in New Haven is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the city boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 1,619 acres of land (14 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., Yale urban campus, sand pits), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are eight reported shipwrecks and obstructions, and no NR eligible and or listed sites in New Haven (including City Point). The waters of New Haven are assessed as having moderate archaeological sensitivity (see Appendices B-4, B-5, and C-4).

West Haven

The city of West Haven, like East Haven and New Haven surrounding New Haven harbor contains primarily coastal settings, although there are some uplands in the interior areas near the northwest boundary with Orange and Woodbridge. The city occupies a total area of 11 sq m (7,040 acres), of which 10.8 sq m (6,912 acres) is land and 0.2 sq m (128 acres; 1.54 percent) is water. It is divided into three principal neighborhoods of West Haven center, Allington, and West Shore. Allington, which lies in the hilly northern part of the city away from the coastline is the home of the University of New Haven. The city's coastline extends from New Haven Harbor west to Oyster River and is dominated by long stretches of beach and tidal flats that comprise one-quarter of the state's publically accessible beaches. The city was best known for the Savin Rock Amusement Park, which opened in the late 1800s and operated until the 1960s. It was located along the west side of New Haven Harbor in what is now Morse Park, a municipal walking and bike park.

Historic Aboveground Resources

The city of West Haven contains one district and five individual properties that are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been three CRM archaeological surveys conducted in the city over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 10 pre-contact and post-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The seven recorded pre-contact period sites are of mostly unknown temporal/cultural affiliation, although one camp site may represent an occupation during the Early Archaic Period. The post-contact period sites recorded in the town date from the eighteenth through early twentieth centuries and include rural agrarian and industrial resources.

Approximately 6,371 acres, or 92 percent of the total land area in West Haven is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the city boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 541 acres of land (8 percent) within the city are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., VA Hospital-surveyed; New Haven College campus), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are no reported shipwrecks and obstructions, and no NR eligible and or listed sites in West Haven. The waters of West Haven are assessed as having moderate archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Orange

The town of Orange is completely land-locked, bounded on the east by West Haven, on the south by West Haven and Milford, on the west by Shelton, and on the north by Derby and Woodbridge. It occupies a total area of 17.4 sq m (11,136 acres), of which 17.2 sq m (11,008 acres) is land and 0.2 sq m (128 acres; 1.38 percent) is water. Orange was historically formed from the northern and eastern districts of the town of Milford to the south, and as such only contains one principal community known as Orange center. The town's terrain is primarily residential subdivisions in upland, terrain interspersed with small stream and river drainages. The town's western boundary is formed by the Housatonic River, which is also the divide between New Haven and Fairfield counties.

Historic Aboveground Resources

The town of Orange contains one district and three individual properties that are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been seven CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 13 pre-contact and post-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 10 recorded pre-contact period sites date from the Archaic and Woodland periods and include several village and camp sites related to habitation and resource exploitation in upland, interior locations. The post-contact period sites date from the eighteenth through early twentieth centuries and include a rural homestead site and one cemetery with unmarked headstones.

Approximately 10,784 acres, or 97 percent of the total land area in Orange is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 224 acres of land (3 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey and no NR eligible sites have been located in these areas.

Derby

Derby is also a small, interior town situated in the northwest portion of New Haven County. It is bound on the south by Orange, on the north by Ansonia, on the east by Woodbridge, and on the west by Shelton. It is the smallest town in Connecticut, occupying a total area of only 5.4 sq m (3,456 acres), of which 5 sq m (3,200 acres) is land and 0.4 sq m (256 acres; 7.41 percent) is water. The town lies at the confluence of the Housatonic River, which forms its western boundary with Shelton and the Naugatuck River, which flows in a southerly direction from Ansonia and Seymour to the north. It is comprised of two principal villages: Derby Center, between the two rivers, and East Derby, on the east side of the river confluence. Nearly one-fifth of the town is dominated by the 350-acre Osborndale State Park, which is located in the northern part. Like Orange, the town's terrain is primarily residential subdivisions in upland, terrain interspersed with small stream and river drainages.

Historic Aboveground Resources

The town of Derby contains one district and five individual properties that are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been no CRM archaeological surveys conducted in the town. The seven recorded sites have been identified on the basis of avocational collectors working in the early decades of the twentieth century, and most of the recorded site locations are suspected to have been destroyed by modern developments. None of the recorded sites are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The six recorded pre-contact period sites are mostly of unknown temporal/cultural affiliation, although there are possible Archaic and Woodland Period artifacts from one of the camps. The remaining site reportedly contained five burials at Sentinel Hill that date from the Woodland and contact periods.

Approximately 3006 acres, or 93 percent of the total land area in Derby is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 194 acres of land (7 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., sand and gravel pits), and no NR eligible sites have been located in these areas.

Milford

The city of Milford contains both coastal and interior, upland settings. It occupies a total area of 23.7 sq m (15,168 acres), of which 22.3 sq m (14,272 acres) is land and 1.5 sq m (960 acres; 6.15 percent) is water. Principal communities in the city limits include: Milford center, Devon, Rivercliff, Morningside, Walnut Beach, Wildermere Beach, and Woodmont borough. Other minor communities and geographic

features are: Anchor Beach, Bayview, Bayview Heights, Burwells Beach, Cedar Beach, and Milford Point. The city's coastline extends from Oyster River on the east across Milford Harbor and Gulf Pond west to the Housatonic River. The coastline contains long stretches of beach and the large tidal flats known as Ells Island at the mouth of the Housatonic. Milford also owns three islands in the Housatonic River: Fowler Island, just to the south of the Igor I. Sikorsky Memorial Bridge, Duck Island and Nells Island, both near the mouth of the river.

Historic Aboveground Resources

The city of Milford contains one district and 10 individual properties, one of which is located in both Milford and Stratford, Connecticut that are listed or determined eligible for listing in the National Register. One additional district and five individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 12 CRM archaeological surveys conducted in the city over the past three decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 69 pre-contact and post-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 60 recorded pre-contact period sites date from the Archaic through Late Woodland periods and include camps/villages and shell middens, related to habitation and resource exploitation in both coastal and upland, interior locations. The post-contact period sites recorded in the town date from the nineteenth and early twentieth centuries and include rural homestead and maritime (e.g., marine railways) resources.

Approximately 14,057 acres, or 98 percent of the total land area in Milford is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the city boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 215 acres of land (2 percent) within the city are not assigned archaeological sensitivity because they have been subjected to previous survey and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are two reported shipwrecks and obstructions, and no NR eligible and or listed sites in Milford (including Burns Point Jetty). The waters of Milford are assessed as having moderate archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Fairfield County

Fairfield County lies entirely within the Western Coastal Slope Geographic historic context, as defined by the Connecticut Historical Commission (Cunningham 1992). The Western Coastal Slope region follows the Long Island Sound coastline from Milford (New Haven County) west to Greenwich at the New York border. The LIS DMMP study area also includes the town of Shelton, which is actually located in the

Western Uplands region to the north. The coastal region is one of the most heavily developed areas of the state and the most densely populated. This 40-mile strip of Connecticut's coast is 10 miles wide and gradually slopes from an elevation of 500 ft amsl to sea level. The region's coast is completely sheltered by Long Island, which protects the harbors and inlets from storms and erosion and has allowed the formation of extensive salt marshes. The region was historically an ideal environment for marine life, especially oysters, which are a major resource. The Western Coastal Slope region is a mix of urban, suburban, and exurban settings that formally and presently contain colonial centers, nineteenth-century ports, mill villages, industrial complexes, urban neighborhoods, modern suburbs, grand estates, and high-rise civic and commercial centers that have coexisted in a complex, cultural landscape.

Shelton

Shelton is a large, interior town situated in the east-central portion of Fairfield County. It is bound on the east by Ansonia, Derby, and Orange; on the south by Stratford; on the west by Trumbull, and on the north by Monroe and Oxford. The southern two-thirds of the town lies within the LIS DMMP study area. The town occupies a total area of 31.9 sq m (20,416 acres), of which 30.6 sq m (19,584 acres) is land and 1.4 sq m (896 acres; 4.26 percent) is water. The municipal and administrative center of the town lies on the west bank of the Housatonic River across from Derby Center. The southern part of the town is dominated by the Farmill River drainage, which flows in a southeasterly direction to empty into the Housatonic at the boundary line with Stratford. The large Trap Falls Reservoir is present in the southwest corner of the town. Elevations in the northern half of the town exceed 500 ft amsl in the Lower White Hills area.

Historic Aboveground Resources

The town of Shelton contains one district and three individual properties that are listed or determined eligible for listing in the National Register. An additional two individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been eight CRM archaeological surveys conducted in the town over the past three decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 41 pre-contact and post-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 40 recorded pre-contact period sites are mostly of unknown temporal/cultural affiliation, although Late Archaic and Woodland Period artifacts have been recovered at a few of the sites. Small, temporary and task-specific camps constitute the majority of the recorded pre-contact sites, along with two rockshelters and one quarry. The recorded sites are related to habitation and resource exploitation in the upland, interior locations of the town. There is only one recorded post-contact period site in the town. It contained artifacts that date from the nineteenth and early twentieth centuries found around a fieldstone foundation that likely represents a rural, home-farmstead.

Approximately 14,796 acres, or 94 percent of the study area portion of the total land area in Shelton is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and

general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 955 acres of land (6 percent) within the study area portion of the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., gravel pit), and no NR eligible sites have been located in these areas.

Stratford

The town of Stratford contains both coastal and interior, upland settings. It occupies a total area of 19.9 sq m (12,736 acres), of which 17.6 sq m (11,264 acres) is land and 2.3 sq m (1,472 acres; 11.52 percent) is water. The town's main development area and population center is Stratford Center located along the Housatonic and occupying the entire southern two-thirds of its land area. The town's coastline extends west from the Housatonic River across the Great Meadow tidal flats to Johnson's Creek, which forms the eastern boundary of Bridgeport Harbor. The large Sikorsky Memorial Airport dominates the southeast coastal portion of the town, adjacent to the Great Meadows Unit of the Stewart B. McKinney National Wildlife Refuge. The north end of Stratford contains the 250-acre mixed deciduous Roosevelt Forest containing numerous ponds and wetlands. The land was set aside in the 1930s when much of the infrastructure was created as a Works Progress Administration (WPA) project. The forest includes camp sites with cooking pits, picnic tables, a playground, restrooms, and walking trails.

Historic Aboveground Resources

The town of Stratford contains two districts, one of which begins in Stratford and continues through Greenwich Connecticut, and eight individual properties that are listed or determined eligible for listing in the National Register. An additional district and one individual property are listed in the State Register.

Terrestrial Archaeological Resources

There have been eight CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 26 pre-contact and post-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 20 recorded pre-contact period sites date from the Early Archaic through Late Woodland periods and include camps/villages, shell middens, a fish weir, a rockshelter, and one burial, all related to habitation and resource exploitation in both coastal and upland, interior locations. Several of the pre-contact sites yielded artifact assemblages indicative of continued use during the contact and early historic periods as well. There is one site recorded in the town that contained exclusively post-contact period deposits. The site is indicated to be of commercial/industrial origins, but yielded primarily household debris that date to the eighteenth through early twentieth centuries.

Approximately 10,463 acres, or 93 percent of the total land area in Stratford is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 801 acres of land (7 percent)

within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., Igor Skorsky Memorial Airport), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There is one reported shipwreck/obstruction, and no NR eligible and or listed sites in Stratford. The waters of Stratford are assessed as having moderate archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Bridgeport

Like Stratford, the city of Bridgeport contains both coastal and interior, upland locations, but in a highly urbanized and developed setting. It is the most populated city in the state of Connecticut and ranks as the 41st largest urban area in the United States. The city limits occupy a total area of 19.4 sq m (12,416 acres), of which 16 sq m (10,240 acres) is land and 3.4 sq m (2,176 acres; 17.53 percent) is water. The city contains a number of neighborhoods including the downtown area near the mouth of the Pequonnock River and Long Island Sound. Bridgeport Harbor is formed by the estuary of the Pequonnock River and Yellow Mill Pond, an inlet. Between the estuary and the pond is a peninsula, East Bridgeport, which was once the site of some of the largest nineteenth and twentieth century manufacturing establishments (most no longer extant). West of the harbor and the river is the main portion of the city, with the wholesale section extending along the bank, the retail section farther back, and numerous factories along the line of the railway far to the west. The city limits also contain two large parks: Beardsley is in the extreme northern part of the city and Seaside is west of the harbor entrance and along the Sound. It has statues in honor of Elias Howe, who built a large sewing-machine factory in 1863; and of P.T. Barnum, the showman, who lived in Bridgeport after 1846. The principal buildings are the two hospitals (St Vincent's and Bridgeport), the Protestant orphan asylum, the Barnum Institute (occupied by the Bridgeport Scientific and Historical Society), the Bridgeport Medical Society and the United States Customs House, which also contains a post office. The Bridgeport coastline extends west from the harbor to Ash Creek, which forms the boundary with Fairfield.

Historic Aboveground Resources

The city of Bridgeport contains 24 districts and 29 individual properties that are listed or determined eligible for listing in the National Register. An additional district and five individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 14 CRM archaeological surveys conducted in the city over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 21 pre-contact and post-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 17 recorded pre-contact period sites date from the Archaic through Late Woodland periods and include camps/villages, a shell midden, a quarry, a cemetery, and a ceremonial ground all related to habitation and resource exploitation in both coastal and upland,

interior locations. The post-contact period sites recorded in the town date from the eighteenth and early twentieth centuries, and include the remains of Bridgeport's Revolutionary War fort and the remains of two wooden canal boats, one of which was built for service on the Erie Canal.

Approximately 9,292 acres, or 91 percent of the total land area in Bridgeport is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the city boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 948 acres of land (9 percent) within the city are not assigned archaeological sensitivity because they have been subjected to previous survey and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

Bridgeport (including Riverside and Black Rock Reach) contains 21 reported wrecks and obstructions, three of which are NR listed historic properties: *Berkshire No. 7*; *Elmer S. Dailey*; and *Priscilla Dailey*. The three NR listed shipwrecks consist of a canal boat-design coastal transport, an Erie Canal boat, and a Champlain Canal boat, respectively, dating from the early twentieth century, all of which are submerged in Bridgeport Harbor. Bridgeport is assessed as having a moderate archaeological sensitivity (see Appendices B-4, B-5 and C-4).

Fairfield

Fairfield is an affluent town in the southeast part of the county that contains both coastal and interior, upland settings. It occupies a total area of 31.3 sq m (20,032 acres), of which 30 sq m (19,200 acres) is land and 1.3 sq m (832 acres; 4.15 percent) is water. The town is made up of a number of neighborhoods including the wealthy Southport, where well-known General Electric Chief Executive Officer Jack Welch lived for many years, and Greenfield Hill. Other well-established neighborhoods include Stratfield, Tunxis Hill, the University area, Grasmere, Mill Plain, Knapp's Village, Melville Village, Holland Hill, and the Fairfield Beach area, which has recently undergone a renaissance with the construction of many new homes by residents wishing to live in proximity to the beach and downtown. The coastal sections of the town extend west from Ash Creek across the long, linear Fairfield Beaches and Southport Harbor to Sasco Brook, which forms the boundary with Westport. Upland, interior areas contain a number of ponds and stream drainages as well as the southern half of Hemlock Reservoir. The Mill River also flows in a southerly direction through the center of the town to empty into Long Island Sound at Southport Harbor.

Historic Aboveground Resources

The town of Fairfield contains two individual properties that are designated as National Historic Landmarks. Three districts and seven individual properties are listed or determined eligible for listing in the National Register. An additional three districts and 10 individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been eight CRM archaeological surveys conducted in the city over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 43 pre-contact and post-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 37 recorded pre-contact period sites date from the Archaic through Late Woodland periods and include camps, a rockshelter, a quarry, and a burial all related to habitation and resource exploitation in both coastal and upland, interior locations. There is also one recorded contact period site near Southport Harbor that reportedly contained many graves associated with the Pequot Swamp Battlefield. The post-contact period sites recorded in the town date from the eighteenth through early twentieth centuries, and include commercial, industrial, and transportation-related resources. There is also a military “powderhouse” site that dates from the War of 1812.

Approximately 19,000 acres, or 98 percent of the total land area in Fairfield is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 200 acres of land (2 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., gravel pit), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are five reported shipwrecks and obstructions, and no NR eligible and or listed sites in Fairfield. The waters of Fairfield are assessed as having variable archaeological sensitivity ranging from moderate to high (see Appendices B-4, B-5, and C-4).

Westport

Westport is another coastal town situated between Fairfield on the east and Norwalk on the west. It is considered one of the most affluent communities in the entire United States. It occupies a total area of 33.3 sq m (21,312 acres), of which 20 sq m (12,800 acres) is land and 13.3 sq m (8,512 acres; 39.98 percent) is water. There are five principal neighborhoods in the town: Saugatuck, around the Westport railroad station near the southwestern corner of the town; Greens Farms, around the Greens Farms railroad station near the southeastern corner of town; Cockenoe Island, just off the southeastern coast of the town; Old Hill, west of the Saugatuck River and north of U.S. Route 1 (Post Road); Coleytown, located at the northern edge of town, near the Weston town line; and Compo, located around the main beach in the town, Compo Beach. The coastal portion of the town extends west from Sasco Brook around Sherwood Island State Park to the mouth of the Saugatuck River, which opens into Long Island Sound. Interior sections of the town are characterized by small hills at elevations between 250 and 300 ft amsl interspersed with numerous streams, drainages, and small ponds.

Historic Aboveground Resources

The town of Westport contains six districts and nine individual properties that are listed or determined eligible for listing in the National Register. An additional four districts and 27 individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 46 CRM archaeological surveys conducted in the city over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 119 pre-contact and post-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 90 recorded pre-contact period sites date from the Archaic and Woodland periods and include camps, many of which are indicated as unknown site types in the state site files. All of these sites are likely related to habitation and resource exploitation in both coastal and upland, interior locations. A number of recorded sites contain both pre-contact and post-contact period cultural materials from a variety of coastal and inland locations. The post-contact period sites recorded in the town date from the eighteenth through early twentieth centuries, and include home-farmstead, industrial, and military resources.

Approximately 11,976 acres, or 93 percent of the total land area in Westport is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 824 acres of land (7 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., gravel quarry), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 14 reported shipwrecks and obstructions, and no NR eligible and or listed sites in Westport. The waters of Westport are assessed as having variable archaeological sensitivity ranging from moderate to high (see Appendices B-4, B-5, and C-4).

Norwalk

The city of Norwalk is also a coastal community in the south-central portion of Fairfield County. It is the sixth largest city population-wise in Connecticut and the third largest in Fairfield County. It occupies a total area of 36.3 sq m (23,232 acres), of which 22.8 sq m (14,592 acres) is land and 13.5 sq m (8,640 acres; 37.24 percent) is water. There are a number of principal neighborhoods in the town including Central Norwalk, East Norwalk, West Norwalk, and South Norwalk. The coastal portions of the town extend west from the Saugatuck River around Saugatuck Shores and Norwalk Harbor to the Five Mile River, which forms the western boundary with Darien. The shoreline in Norwalk is comprised of beaches, inlets, coves, and the major Norwalk barrier islands in the Sound. Inland areas are characterized

by upland streams and drainages, many of which feed into the Norwalk River, which flows in a southerly direction to empty into Norwalk Harbor in the approximate center of the town.

Historic Aboveground Resources

The city of Norwalk contains one individual property that is designated as a National Historic Landmark. Five districts and 12 individual properties are listed or determined eligible for listing in the National Register. An additional three districts and 11 individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been eight CRM archaeological surveys conducted in the city over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 50 pre-contact and post-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 43 recorded pre-contact period sites date from the Archaic and Woodland periods and include camps, shell middens, and a rockshelter, all related to habitation and resource exploitation in both coastal and upland, interior locations. One village site also reportedly contained a contact period occupation. The post-contact period sites recorded in the city date from the eighteenth through early twentieth centuries, and include commercial and industrial resources.

Approximately 13,525 acres, or 93 percent of the total land area in Norwalk is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the city boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 1,067 acres of land (7 percent) within the city are not assigned archaeological sensitivity because they have been subjected to previous survey and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 52 reported shipwrecks and obstructions, and no NR eligible and or listed sites in Norwalk. The waters of Norwalk are assessed as having high archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Darien

Darien is also a coastal town in the south central portion of Fairfield County. However, unlike Norwalk it is considered a relatively small, yet very affluent “bedroom community.” It occupies a total area of 23.4 sq m (14,976 acres), of which 12.9 sq m (8,256 acres) is land and 10.6 sq m (6,784 acres) of it is water. In addition to some small neighborhoods, the larger divisions of the town are Noroton (roughly in the southwest corner of town), Noroton Heights (roughly north of Interstate 95 to Middlesex Rd with an eastern boundary somewhere east of Noroton Avenue), and Tokeneke, in the southeastern end of town. The coastal portions of the town extend west from the Five Mile River across Scott Cove and Goodwives River to Holly Pond and the Noroton River, which forms the town boundary with Stamford. The

shoreline in Darien is comprised of inlets, coves, and small islands. Inland areas are characterized by upland streams and drainages, many of which feed into the Noroton River, which flows in a southerly direction to empty into the Sound at Holly Pond in the western part of the town.

Historic Aboveground Resources

The town of Darien contains one individual property that is designated as a National Historic Landmark. One district and two individual properties are listed or determined eligible for listing in the National Register. An additional district and five individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been five CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 12 pre-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). These sites date from the Archaic and Woodland periods and consist primarily of camps, although many are listed in the state site files as unknown site types. They are all likely related to habitation and resource exploitation in both coastal and upland, interior locations. There are no post-contact period sites recorded in the town.

Approximately 7,802 acres, or 94 percent of the total land area in Darien is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 454 acres of land (6 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 12 reported shipwrecks and obstructions, and no NR eligible and or listed sites in Darien. The waters of Darien are assessed as having high archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Stamford

Stamford is a large coastal city in the southwest part of Fairfield County, and population-wise, it is the fourth largest city in the state and the eighth largest city in New England. It occupies a total area of 52.1 sq m (33,344 acres), of which 37.3 sq m (23,872 acres) is land and 14.3 sq m (9,152 acres) of it is water. There are many neighborhoods that are dispersed throughout the town's boundaries including the Downtown area situated near the coast and around Stamford Harbor, North Stamford, Newfield, and Springdale. The coastal portions of the town extend west from the Noroton River around Shippan Point and across Stamford Harbor to just west of Peck Point. The shoreline in Stamford is comprised of inlets and coves. Inland areas are characterized by upland streams and drainages, many of which feed into the

Rippowam River, which flows in a southerly direction to empty into the Sound at Stamford Harbor in the western part of the town.

Historic Aboveground Resources

The city of Stamford contains six districts and 25 individual properties that are listed or determined eligible for listing in the National Register. An additional 12 individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 15 CRM archaeological surveys conducted in the city over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 23 pre-contact and post-contact period sites, one of which is listed in the National Register. The NR eligibility status of the remaining 22 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 19 pre-contact sites date from the Archaic and Woodland periods and consist primarily of camps, although many are listed in the state site files as unknown site types. They are all likely related to habitation and resource exploitation in both coastal and upland, interior locations. There is one rockshelter site complex that also reportedly contained Native American occupations dating from the Late Archaic, contact period, and eighteenth century. The post-contact period sites recorded in the city date from the eighteenth through early twentieth century, and include the remains of Fort Stamford and a homestead site.

The one NR listed archaeological site is located in the northern part of the town near the junction of Saddle Hill and Rock Rimmon Roads. The Rockrimmon Rockshelter (135-06) surround a large glacial erratic that has a large overhang. Archaeological deposits recovered at the site indicate occupation during the Middle Archaic and Late Archaic periods. Stone tool manufacture and repair as well as the hunting and processing of animal and plant foods took place at the site. There is also archaeological evidence of hearths and other features indicating the cooking of food and disposal of trash. The rockshelter appears to have been used on a seasonal basis by small hunting groups, probably in the late summer and early fall (Soulsby and Wiegand 1993).

Approximately 23,566 acres, or 98 percent of the total land area in Stamford is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the city boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 306 acres of land (2 percent) within the city are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., gravel pit), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 24 reported shipwrecks and obstructions, and no NR eligible and or listed sites in Stamford. The waters of Stamford are assessed as having high archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Greenwich

Greenwich is the southwesternmost town in Fairfield County and Connecticut, containing both coastal and interior settings. It occupies a total area of 67.2 sq m (43,008 acres), of which 47.8 sq m (30,592 acres) is land and 19.4 sq m (12,416 acres; 28.88 percent) is water. Greenwich is divided into many neighborhoods that are dispersed throughout the town's boundaries including the Downtown area situated near the coast and around Greenwich Harbor, Belle Haven and Cos Cob both also on the coast, and Rock Ridge to the north. The coastal portions of the town extend west from Greenwich Cove across Cos Cob Harbor and Belle Haven to Byram Point at Port Chester Harbor, which is the boundary line with New York State. The shoreline in Greenwich is comprised of inlets, coves, and numerous small islands. Inland areas are characterized by upland streams and drainages, many of which feed into Long Island Sound. Upland elevations rise up to over 550 ft amsl in the hilly, ridge terrain in the northern part of the town bordering New York State.

Historic Aboveground Resources

The town of Greenwich contains one individual property that is designated a National Historic Landmark. Seven districts and 20 individual properties are listed or determined eligible for listing in the National Register. An additional district and 10 individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 48 CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 71 pre-contact and post-contact period sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 66 pre-contact sites date from the Archaic through Late Woodland periods and consist primarily of camps, along with several rockshelters in interior locations and shell middens along the coast. All of these recorded sites are related to habitation and resource exploitation in both coastal and upland, interior locations. The post-contact period sites recorded in the town date from the seventeenth through early twentieth century, and include a portion of the original seventeenth-eighteenth century Boston-New York Post Road, called Put's Hill Site (57-51).

Approximately 28,259 acres, or 92 percent of the total land area in Greenwich is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 2,333 acres of land (8 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 47 reported shipwrecks and obstructions, and no NR eligible and or listed sites in Greenwich (including Old Greenwich). The waters of Greenwich are assessed as having high archaeological sensitivity (see Appendices B-4, B-5, and C-4).

New York Inventory

The LIS DMMP study area encompasses five counties across the southeastern coastal portion of New York and the northern shore of Long Island (from north to south and west to east): Westchester County, Bronx County (borough east of Throg's Neck only), Queens County (borough east of Throg's Neck only), Nassau County, and Suffolk County. The study area portion of Westchester County includes five towns: Rye, Mamaroneck, New Rochelle, Mount Vernon, and Pelham including Pelham Bay. The study area portion of Nassau County includes three towns: North Hempstead (northern half), Glen Cove, and Oyster Bay (northern half). The study area portion of Suffolk County includes ten towns: Huntington, Smithtown, Islip (northern third), Brookhaven, Riverhead, Southold including Fisher's Island, Shelter Island, Southampton (northern half), and East Hampton.

There are no historic and archaeological geographic regions designated in New York by the State Historic Preservation Office. As a result Native American and Euro-American cultural land use contexts in the state of New York are defined at the county or city/borough/village levels as discussed in Chapters 3 and 4.

Westchester County

Rye

The town of Rye includes the village (city) of Rye and the village of Port Chester in the southeast corner of Westchester County. The village of Rye is primarily coastal, while the village of Port Chester to the northeast contains mostly interior settings. The overall town of Rye occupies a total area of 22.5 sq m (14,400 acres), of which 8.2 sq m (5,248 acres) is land and 14.3 sq m (9,152 acres; 72 percent) is water. Rye City was formally a village within the town of Rye until it was granted a city charter in 1942. The city is located just south of I-95 near the border with Port Chester. The larger town area lies to the southwest where it is bounded on the west by Mamaroneck and on the north by Harrison. The village of Port Chester is formally included in the town of Rye, occupying the eastern section bordering Greenwich, CT. Port Chester's coastal frontage is limited to the narrow Port Chester Harbor, while Rye's coastal area extends from the harbor west around Manursing Island and Peningo Neck to Milton Harbor. Upland, interior locations of the town reach 450 ft amsl in the northern portion at High Point just west of the Blind Brook drainage. Blind Brook flows in a southerly direction through the town of Rye, just west of the city, to empty into Long Island Sound at Milton Harbor.

Historic Aboveground Resources

The town of Rye contains one district and one individual property designated as National Historic Landmarks. Twenty-nine individual properties are listed or determined eligible for listing in the National Register. An additional 46 individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 16 CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 35 pre-contact and post-contact period sites, nine of which are listed in the National Register and two that have been determined ineligible for listing. The NR eligibility status of the remaining 24 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 11 pre-contact sites date from the Paleo-Late Archaic and Woodland periods, and consist primarily of camps along with a rockshelter in an interior location and shell middens along the coast. All of these recorded sites are related to habitation and resource exploitation in both coastal and upland, interior locations. The post-contact period sites recorded in the town date from the seventeenth through early twentieth century, and include several residence-farmsteads, a historic shell midden, a historic church site, a possible quarry, and a possible causeway or railroad embankment.

All of the NR listed sites in Rye are situated in the Boston Post Road Historic District, which occupies 286 acres between Boston Post Road (U.S. Route 1) and the west shoreline of Milton Harbor in the southwest coastal corner of the town. The historic district was listed in the National Register and designated a National Historic Landmark in 1982, and archaeological significance was added in 1984 (O'Brien 1982/1984). The archaeological significance of the district includes the identification of nine pre-contact and post-contact period sites as well as a high potential for cultural deposits associated with existing structures and buildings older than 50 years including two former estates (Jay Estate and Parsons Estate) that border the inclusive 137-acre Marshlands Conservancy lands along the harbor shoreline. The nine listed archaeological sites were identified through the work of both avocational collectors over several decades as well as professional archaeological surveys conducted in the early 1980s. Five loci of pre-contact period activity were identified from the collection of Wilbur and Glenn Clark, on the former property of Walter Devereux. These sites are recorded as the Dev. #1 Site (119-45-0041) and Dev. #2 Site (119-45-0042), both identified as Paleo-Archaic Period camps that contained shell midden features along with diagnostic stone tool assemblages. The Dev. #3 Site (119-45-0043) is a Late Archaic camp and shell midden. The Dev. #4 Site (119-45-0044) is a cave/rockshelter and shell midden site of unknown temporal/cultural affiliation, and the Dev #5 Site (119-45-0045) is a Late Archaic to Middle Woodland multicomponent shell midden. The remaining four listed archaeological sites were all identified by John Pfeiffer in 1982 during a walkover survey of the district lands. Two of the Pfeiffer sites (119-45-0120 and -0121) are probable pre-contact resource areas that include shell middens of unknown temporal/cultural affiliation. The other two sites (119-45-0122 and -0123) are historic features that include a possible quarry for local building stone and a possible early-nineteenth-century causeway and/or a late-nineteenth-century embankment.

Approximately 3,954 acres, or 75 percent of the total land area in Rye is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 1,294 acres of land (25 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., Rye County Airport), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 19 reported shipwrecks and obstructions, and no NR eligible and or listed sites in Rye (including Port Chester). The waters of Rye are assessed as having high archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Mamaroneck

The small town of Mamaroneck is located west of Rye and also occupies a small coastal area in Westchester County. There are two villages contained within the town: Larchmont and the Village of Mamaroneck (part of which is located in the town of Rye). The majority of the town's land area is not within either village, constituting an unincorporated area, although a majority of the population lives within the villages. The overall town of Mamaroneck occupies a total area of 14 sq m (8,960 acres), of which 6.6 sq m (4,224 acres) is land and 7.4 sq m (4,736 acres; 52.85 percent) is water. The coastal shoreline extends southwest from Mamaroneck Harbor around several small islands and inlets to Larchmont Harbor at the boundary with New Rochelle. The Mamaroneck River flows south through the city and drains into the East Basin portion of the harbor. There are no real uplands in the town boundaries as it is primarily dominated by an urban, densely populated setting.

Historic Aboveground Resources

The town of Mamaroneck contains 32 individual properties that are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been four CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 16 archaeological sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). Only seven of the sites are inventoried as dating from the pre-contact period (Late Archaic and Late Woodland components). The remaining nine sites do not have enough information on file to determine their temporal/cultural affiliation or function(s). Nearly all of these sites were reported based on collector activities in the early 1900s. They are all located along the coastline in the least developed sections of the town.

Approximately 4,085 acres, or 96 percent of the total land area in Mamaroneck is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 139 acres of land (4 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 21 reported shipwrecks and obstructions, and no NR eligible and or listed sites in Mamaroneck (including Larchmont). The waters of Mamaroneck are assessed as having high archaeological sensitivity (see Appendices B-4, B-5, and C-4).

New Rochelle

The city of New Rochelle is roughly triangular in shape, 10-miles long north to south, and is situated in the south-central portion of Westchester County. It occupies a total area of 13.2 sq m (8,448 acres), of which 10.4 sq m (6,656 acres) is land and 2.9 sq m (1,856 acres) of it is water. The coastal shoreline extends southwest from Larchmont Harbor to Lower Harbor and includes numerous small islands and inlets, including the 78-acre David's Island (former Fort Slocum Military Reservation) and the 105-acre (former theme park) Glen Island Park (now open to the public). Like neighboring Mamaroneck, there are no real uplands in New Rochelle as it is primarily dominated by an urban, densely populated setting.

Historic Aboveground Resources

The city of New Rochelle contains one individual property designated as a National Historic Landmark. Two districts and 32 individual properties are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 21 CRM archaeological surveys conducted in New Rochelle over the past three decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 16 archaeological sites, one of which has been determined NR eligible. The NR eligibility status of the remaining 15 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). Of the 16 sites, only nine could be temporally/culturally affiliated with pre-contact, post-contact or pre- and post-contact period occupations. Pre-contact period site occupations date from the Archaic and Woodland periods, and include one identified camp, one shell midden, and one village. Post-contact period occupations date from the eighteenth through early twentieth centuries, and include archaeological remains of the Fort Slocum Historic and Archaeological District on David's Island.

The one NR eligible site (119-42-0318) is situated at the north end of the Isle of San Souci and extends south on the peninsula into Davenport Park. The site reportedly contained a shell midden associated with a village occupation, but no temporal/cultural affiliation or artifact types are indicated. The site was reportedly discovered in 1989 during a cultural resources survey of the Sound Cable Project, conducted by the Rochester Museum and Science Center. The NY SHPO determined the site to be individually NR eligible, although no further information regarding its significance is provided in the site inventory files.

Approximately 6,266 acres, or 94 percent of the total land area in New Rochelle is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general

environmental characteristics of the geographic area contained within the city boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 390 acres of land (6 percent) within the city are not assigned archaeological sensitivity because they have been subjected to previous survey and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 28 reported shipwrecks and obstructions, and no NR eligible and or listed sites in New Rochelle. The waters of New Rochelle are assessed as having high archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Mount Vernon

Mount Vernon is a completely land-locked city west of New Rochelle and north of Pelham that borders the New York City Bronx borough on the east. It occupies a total area of 4.4 sq m (2,816 acres), all of which is land area. Mount Vernon is divided into four major sections in its four square miles: The North Side, the South Side, Mount Vernon Heights, and Downtown. Like its neighbors, there are no real uplands in Mount Vernon as it is primarily dominated by an urban, densely populated setting. The Hutchinson River flows in a southerly direction along the eastern boundary of the city (with Pelham) and drains into Long Island Sound at Pelham Bay.

Historic Aboveground Resources

The city of Mount Vernon contains one district and thirteen individual properties that are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been five CRM archaeological surveys conducted in Mount Vernon over the past three decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of four archaeological sites, none of which are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The one recorded pre-contact period site is of unknown temporal/cultural affiliation. The two recorded post-contact period sites date from the eighteenth through early twentieth centuries, and include domestic-related cultural deposits. Two of the recorded sites (119-41-0294 and -2095) are situated on the grounds of St. Paul's Church on the west side of the Hutchinson River drainage, opposite the village of Pelham Manor. The sites were identified and investigated during Phase 1 and 2 investigations conducted in 2008 and 2009 by John Milner Associates. The tested site area yielded Late Archaic and Woodland Period projectile points and pottery intermixed with a considerable amount of eighteenth and nineteenth century domestic refuse. St. Paul's Church was listed in the National Register in 1967 for its associations with the Revolutionary War. The church property includes the church, a museum, and two cemeteries.

Approximately 2,789 acres, or 99 percent of the total land area in Mount Vernon is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the city boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 27 acres of land (1 percent) within the city are not assigned archaeological sensitivity because they have been subjected to previous survey and no NR eligible sites have been located in these areas.

Pelham

Pelham is a town in southwest Westchester County that also includes Pelham village, North Pelham village, and Pelham Manor village. The town and villages combined occupy a total area of 4.3 sq m (2,752 acres), of which 4.2 sq m (2,688 acres) is land and 0.1 sq m (64 acres) of it is water. The Pelham shoreline extends southwest from Lower Harbor at the town line with New Rochelle around Hunter Island and across Pelham Bay to Eastchester Bay and the Hutchinson River. As previously noted, the Hutchinson River flows in a southerly direction along the western boundary of the town (with Mount Vernon) and drains into Long Island Sound at Pelham Bay. The Pelham Bay area remains largely undeveloped with a large golf course (Pelham-Split Rock), Hunter Island Park, Pelham Bay Park, and Orchard Beach Park.

Historic Aboveground Resources

The town of Pelham contains fourteen individual properties that are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There has been one CRM archaeological survey conducted in the town (see Appendix C-2). The 2001 survey only consisted of a literature review and sensitivity assessment; no archaeological sites were identified. The five recorded sites are identified from artifact collections documented in the New York State Museum repository files in the 1920s. Only one of these sites is indicated to be pre-contact period with a Late Woodland shell midden. One site is a post-contact period residential house foundation, and the remaining three sites are camps/villages of unknown temporal/cultural affiliation. None of these sites are listed in or have been determined NR eligible, and/or their NR eligibility status could not be determined based on the information available in the SHPO site file database (see Appendix B-1).

Approximately 2,617 acres, or 97 percent of the total land area in Pelham is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 71 acres of land (3 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There is one reported shipwreck/obstruction, and no NR eligible and or listed sites in Pelham (including Pelham Manor). The waters of Pelham are assessed as having high archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Bronx (East of Throg's Neck)

The Bronx is the northernmost of the five boroughs (Bronx, Brooklyn, Manhattan, Queens, and Staten Island) of New York City. It is divided by the Bronx River into a hillier section in the west, closer to Manhattan, and the flatter East Bronx, closer to Queens and Long Island. It occupies a total area of 57 sq m (36,480 acres), of which 42 sq m (26,880 acres) is land and 15 sq m (9,600 acres) of it is water. The Hudson River separates the Bronx on the west from Alpine, Tenafly, and Englewood Cliffs in Bergen County, New Jersey; the Harlem River separates it from the island of Manhattan to the southwest; the East River separates it from Queens to the southeast; and, to the east, Long Island Sound separates it from Nassau County in western Long Island. The Bronx River flows south from Westchester County through the borough, emptying into the East River; it is the largest freshwater river in New York City. A smaller river, the Hutchinson River passes through the East Bronx and empties into Eastchester Bay. The Bronx also includes several small islands in the East River and Long Island Sound, including City Island and Hart Island. The Bronx's highest elevation is about 280 ft amsl in the northwest corner, west of Van Cortlandt Park. The opposite (southeastern) side of the Bronx has four large low peninsulas or "necks" of low-lying land that jut into the waters of the East River and were once saltmarsh: Hunt's Point, Clason's Point, Screvin's Neck and Throgs Neck. Further up the coastline, Rodman's Neck lies between Pelham Bay Park in the northeast and City Island. Almost 27 percent of the Bronx's total area is water and the irregular shoreline extends for 75 miles.

The LIS DMMP study area only includes the coastal land area portion (approximately 3,709 acres) of the Bronx that is situated east of Interstate 295 and the Throgs Neck Bridge around Eastchester Bay and the Long Island Sound. Throgs Neck is a narrow spit of land in the southeastern portion of the Bronx and it demarcates the passage between the East River and Long Island Sound. The Throgs Neck lighthouse is situated at the southern tip of the Neck in the Bronx. The study area includes the southern tip of the Throgs Neck peninsula containing the lighthouse and Coast Guard Station; the Park of Edgewater neighborhood; the Cherry Tree Point neighborhood; Pelham Bay Park including Rice Stadium; and City Island on the east side of Eastchester Bay.

Historic Aboveground Resources

The Bronx east of Throgs Neck contains one individual property designated as a National Historic Landmark. Five individual properties are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 13 CRM archaeological surveys conducted in the Bronx east of Throgs Neck over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 45 archaeological sites, nine of which have been determined ineligible to the

National Register. The NR eligibility status of the remaining 36 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The recorded pre-contact period sites date from the Archaic and Woodland periods, and include shell middens, villages, and camps related primarily to coastal habitations and resource exploitation. The post-contact period sites recorded in the study area portion of the borough date from the nineteenth century and include the site of a Native American burial ground on City Island that later became Public School 17 (ca. 1897–1798), a standing structure listed on the National Register, and the remains of a possible inn.

Approximately 2,862 acres, or 77 percent of the study area portion of the Bronx is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the project boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 847 acres of land (23 percent) in the study area portion of the Bronx are not assigned archaeological sensitivity because they have been subjected to previous survey, previous disturbances, and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 133 reported shipwrecks and obstructions, and no NR eligible and or listed sites in the Bronx. The waters of the Bronx are assessed as having high archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Queens (East of Throg's Neck)

Queens is the largest in area and easternmost of the five boroughs of New York City. It occupies a total area of 178.3 sq m (114,112 acres), of which 109.2 sq m (69,888 acres) is land and 69 sq m (44,160 acres) of it (38.7 percent) is water. It is located on the western portion of Long Island, and is home to two of the three major New York City area airports, JFK International and LaGuardia. It is also the location of the US Open tennis tournament, Flushing Meadows Park and two movie and television studios (Kaufman Astoria Studios and Silvercup Studios). The Queens coastline includes a few smaller islands, most of which are in Jamaica Bay and form a part of Gateway National Recreation Area, which is in turn one of the National Parks of New York Harbor. The Rockaway Peninsula sits between Jamaica Bay and the Atlantic Ocean. The western and northern edge of the borough is defined by a watery continuum made up of Newtown Creek, which flows into the tidal estuary known as the East River and includes the associated Flushing Bay and Flushing River. The East River opens into Long Island Sound just east of the Throgs Neck Bridge.

The LIS DMMP study area includes the coastal land area portion of Queens (approximately 3,732 acres), which like the Bronx is situated east of Interstate 295 and the Throgs Neck Bridge. This area includes Little Bay Park and the former Fort Totten Military Reservation on Willets Point; tidal flats along Alley Creek; and the Douglaston neighborhood on Little Neck. The interior, urban neighborhood of Glen Oaks is also included in the study area situated east of the Cross Island Parkway to the corporate boundary with Hempstead and North Hempstead in Nassau County.

Historic Aboveground Resources

The borough of Queens contains three districts and five individual properties that are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been four CRM archaeological surveys conducted in Queens east of Throgs Neck over the past three decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 20 archaeological sites, one of which has been determined eligible to the National Register. The NR eligibility status of the remaining 19 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The recorded pre-contact period sites date from the Archaic and Woodland Periods, and include shell middens, villages, and camps related primarily to coastal habitations and resource exploitation. The one post-contact period site recorded in the study area portion of the borough is Site 081-01-00141, known as the Totten Ave/Fort Totten Historic Archaeological Site, on Willets Point. The fort site is situated on a 10-acre parcel of parkland donated by the U.S. Army to New York City in 1987. The site contains the remains of the historic nineteenth-century (ca. 1862–1864 Civil War Period) fort built originally to defend the eastern approach to New York Harbor. A nineteenth-century artillery battery is also included in the park site along with grassy tree-lined grounds and winding footpaths. The Fort Totten Site has been determined to be eligible for listing in the National Register.

Approximately 2,891 acres, or 77 percent of the total land area in the study area portion of Queens is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the project boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 841 acres of land (23 percent) in the study area portion of Queens are not assigned archaeological sensitivity because they have been subjected to previous survey, previous disturbances, and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 23 reported shipwrecks and obstructions, and no NR eligible and or listed sites in Queens (including New York). The waters of Queens are assessed as having high archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Nassau County

North Hempstead

The town of North Hempstead is located in the northwest corner of Nassau County on Long Island, New York. It contains both coastal and interior settings, occupying a total area of 69.1 sq m (44,224 acres), of which 53.6 sq m (34,304 acres) is land and 15.5 sq m (9,920 acres; 22.47 percent) is water. There are 30 incorporated villages and 19 unincorporated hamlets within the town boundaries. The coastline of North Hempstead extends east from Little Neck Bay around Kings Point and Great Neck across Manhasset Bay

and Sands Point to Hempstead Harbor. Interior areas to the south contain some hilly terrain that ranges from 150 to 200 ft amsl interspersed with small stream drainages and ponds that appear to have been altered by the extensive modern period neighborhood developments. Villages in coastal areas include: Kensington, Great Neck Estates, Great Neck Plaza, Port Washington North, Sands Point, and Manorhaven. Villages in interior areas include: North Hills, Williston Park, Mineola, Westbury, North Hyde Park, and Lake Success.

Historic Aboveground Resources

The town of North Hempstead contains 16 districts and 190 individual properties that are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 26 CRM archaeological surveys conducted in North Hempstead over the past three decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 22 archaeological sites, two of which are listed in the National Register, two that have been determined NR eligible, and one site that has been determined ineligible. The NR eligibility status of the remaining 18 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The recorded pre-contact period sites date from the Late Archaic to Late Woodland periods, and include shell middens, villages, and camps related to habitation and resource exploitation in both coastal and interior locations. The post-contact period sites recorded in the town date from the seventeenth and nineteenth centuries, and include residential foundation remains and/or associated artifact assemblages.

One of the NR listed sites is located within the Valley Road Historic District off Community Drive in the Manhasset section. The district encompasses the only extant archaeological, structural, and historical remains of the historic hamlet of Success. Success was established in 1829 as a community of free Blacks, former slaves, and Matinecock Indians along Valley Road (present-day Community Drive) (Smith 1976). Site 059-02-1390 is identified as the site of a former residence included in the historic Success community. The other NR listed site is situated in the Main Street Historic District located in the village of Roslyn at the head of Hempstead Harbor. Site 059-73-0110 consists of a seventeenth-century artifact assemblage found on the property of the Van Nostrand-Starkins House. The original house is reported to have been built ca. 1680.

The two NR eligible sites contain pre-contact/contact period Native American cultural deposits. Site 059-02-1576 is situated in the North Hills village in between Interstate 495 and the Northern Parkway east of Lake Success. The site was discovered during a CRM survey for a subdivision. It reportedly contained diagnostic artifacts from the Transitional Archaic and Early Woodland periods. The other site, 059-70-0093, contained both pre-contact and post-contact period artifacts. It is located south of Motts Point (Sands Point) in Port Washington village on golf course property off Astor Lane. This site is significant for its associations with Sachem Tackapousha, one of coastal New York's most important seventeenth century Algonquin Native chiefs.

Approximately 32,574 acres, or 95 percent of the total land area in North Hempstead is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 1,730 acres of land (5 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 57 reported shipwrecks and obstructions, and no NR eligible and or listed sites in North Hempstead (including Great Neck, Kings Point, Manhasset, and Plandome). The waters of North Hempstead are assessed as having high archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Glen Cove

The city of Glen Cove is located on the north shore of Long Island between North Hempstead and Oyster Bay, the latter of which surrounds the city on three sides. It contains primarily coastal settings on the neck between Hempstead Harbor and Peacock Point. The city occupies a total area of 19.2 sq m (12,288 acres), of which 6.7 sq m (4,288 acres) is land and 12.6 sq m (8,064 acres; 65.51 percent) is water. Glen Cove was historically a village of Oyster Bay and was granted city status in 1917. As such, there are no villages or hamlets within the city boundaries, since it basically originated as a hamlet or village itself. The terrain is generally flat rising up from the coastal beaches to elevations of 150–200 ft amsl.

Historic Aboveground Resources

Glen Cove contains two districts and 38 individual properties that are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 12 CRM archaeological surveys conducted in Glen Cove over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 14 archaeological sites, only one of which has been determined ineligible. The NR eligibility status of the remaining 13 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 10 recorded pre-contact period sites date from the Archaic and Woodland periods, and include shell middens, villages, and camps related to habitation and resource exploitation in the city's coastal settings. The post-contact period sites recorded in the city date from the eighteenth and early twentieth centuries, and include artifact assemblages of unknown functional association.

Approximately 4,113 acres, or 96 percent of the total land area in Glen Cove is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the city boundaries. The types of expected sites

are commensurate with the recorded sites described above. Approximately 175 acres of land (4 percent) within the city are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., sand and gravel pits; industrial-commercial zones), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 43 reported shipwrecks and obstructions, and no NR eligible and or listed sites in Glen Cove (including Glen Head, Glenwood Landing, and Port Washington). The waters of Glen Cove are assessed as having high archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Oyster Bay

The Town of Oyster Bay extends from the Long Island Sound in the north, south to the waters of South Oyster Bay and the Atlantic Ocean across the entire width of Long Island. The LIS DMMP study area portion of the town encompasses the northern portion south to about the Interstate-495 corridor. The study area portion of the town therefore includes both coastal and interior settings. The entire town occupies a total area of 169.5 sq m (108,480 acres), of which 104.4 sq m (66,816 acres) is land and 65.1 sq m (41,664 acres; 38.42 percent) is water. There are 18 incorporated villages and 18 unincorporated hamlets within the town boundaries. The Long Island Sound coastline of Oyster Bay extends east from Peacock Point to Oyster Bay and Harbor, which forms the boundary with Suffolk County. Interior areas to the south contain some hilly terrain that reaches 300 ft amsl interspersed with small stream drainages and ponds that appear to have been altered to some degree by modern period neighborhood developments. Villages in coastal areas include: Lattingtown, Oyster Bay, Mill Neck, and Bayville. Villages in interior areas include: Muttontown, Brookville, Laurel Hollow, and East Hills.

Historic Aboveground Resources

The study area portion of Oyster Bay contains one individual property designated as a National Historic Landmark. Two districts and 84 individual properties are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 48 CRM archaeological surveys conducted in the study area portion of Oyster Bay over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 89 archaeological sites, one of which has been determined ineligible and one that has recently been recommended as NR eligible. The NR eligibility status of the remaining 87 sites including two that are located within the Sagamore Hill National Historic Site could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 23 recorded pre-contact period sites date from the Archaic and Woodland periods, and include shell middens, villages, and camps related to habitation and resource exploitation in both coastal and interior locations. The post-contact period sites recorded in the town date from the seventeenth through early twentieth centuries, and include residential, institutional, commercial, and industrial resources.

The Sagamore Hill National Historic Site (NR listed) contains three recorded archaeological sites that are managed by the National Park Service. The Sagamore Hill National Historic Site is located in the village of Cove Neck in the northeast coastal part of the town. It was the home of Theodore Roosevelt from 1885 until his death in 1919, and the “Summer White House” during his U.S. Presidency. The 85-acre site contains farm and woodland on the highest elevation in the Cove Neck area, and it has 890 ft of frontage on Cold Spring Harbor. Site 059-12-0300 contains a buried stone foundation and associated nineteenth to twentieth century artifact assemblage, interpreted as the remains of the late-nineteenth/early-twentieth-century stable and lodge that once stood at this location. Recent Phase I/II archaeological investigations at the site identified intact structural foundation remains and associated artifact assemblages within the Stable and Lodge Site, which has been recommended as eligible for listing in the National Register under Criteria B and D (Gillis and Heitert in prep). Site 059-12-0031 contains an early-mid-nineteenth-century trash midden located behind the extant Gray Cottage on the property. Site 059-12-0032 is the only pre-contact period archaeological deposit recorded to date on the historic property. The site was found near the shoreline and yielded lithic materials that are not assigned any temporal/cultural affiliation.

Approximately 42,610 acres, or 96 percent of the total land area in Glen Cove is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the city boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 1,877 acres of land (4 percent) within the city are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., sand and gravel pits), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 59 reported shipwrecks and obstructions, and no NR eligible and or listed sites in Oyster Bay (including Bayville, Centre Island, Cold Spring Harbor, Cove Neck, Mill Neck, Sea Cliff, and Syosset). The waters of Oyster Bay are assessed as having high archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Suffolk County

Huntington

The Town of Huntington includes both coastal shoreline along Long Island Sound and interior settings south to about the Interstate-495 corridor. All but the far southwest corner of the town lie within the LIS DMMP study area. The town occupies a total area of 137.1 sq m (87,744 acres), of which 94 sq m (60,160 acres) is land and 43.2 sq m (27,648 acres) of it (31.47 percent) is water. There are four incorporated villages and 15 unincorporated hamlets within the town boundaries. The Long Island Sound coastline of Huntington extends east from Cold Spring Harbor and Oyster Bay around Lloyd Neck and across Huntington Bay and Northport Bay to Fresh Pond at the town boundary with Smithtown. Interior areas to the south contain some hilly terrain that reaches 250 ft amsl interspersed with small stream drainages and pond. Villages in coastal areas include Northport and Huntington Bay. Villages in interior areas include South Huntington and Huntington Station.

Historic Aboveground Resources

The town of Huntington contains 14 districts and 115 individual properties that are listed or determined eligible for listing in the National Register. An additional three individual properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 59 CRM archaeological surveys conducted in the town of Huntington over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 165 archaeological sites, of which six are listed in the National Register, two have been determined eligible, and four have been determined ineligible. The NR eligibility status of the remaining 153 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 73 recorded pre-contact period sites date from the Middle Archaic through Late Woodland periods, and include shell middens, villages, camps, and burials related to habitation and resource exploitation in both coastal and interior locations. The post-contact period sites recorded in the town date from the seventeenth through early twentieth centuries, and include residential, institutional, commercial, industrial, military, and transportation-related resources.

Four of the six NR listed sites are located in historic NR districts. Site 103-04-0061 and Site 103-04-0147 are situated in the Old Town Green Historic District, located in the unincorporated village of Huntington. Site 103-04-0147 is the site of Widow Platt's Tavern, built ca. 1650 and demolished in 1860. The tavern served a variety of functions for the newly settled village including that of a local meeting place, inn, store, and auction house. No excavations have taken place, but it is a well-known local historic resource, presently covered by an asphalt parking lot and small modern commercial building. Site 103-04-0061 is identified as the Huntington Town Green in the village. Site 103-04-0906 is located in the Harbor Road Historic District on a steep southeastern bank of Cold Spring Harbor in the northwest part of the town. The site is recorded to be the foundation remains of the ca. 1791 Hewlett-Jones Grist Mill. Site 103-04-0924 is located in the East Shore Road Historic District in the Halesite Town Park on the east shoreline of Huntington Harbor. The site is recorded to be the remains of a pottery works operated by the prominent Brown Brothers from 1863 until 1904. The remaining two NR listed sites include Site 103-04-0146, the Fort Golgotha and Old Burial Hill Cemetery. The remains of the ca. 1782 British Fort Golgotha are reported to be visible within the perimeter of the Old Burial Ground on top of the hill in the unincorporated village of Huntington. The burial ground was used by the village of Huntington as its cemetery from as early as the early eighteenth century until 1948, and most recently served as a museum owned and maintained by the town (Schoenholt 1980). Site 103-69-0097 is located on the northwest side of Lloyd Harbor, and contains the remains of an early eighteenth century manor house built and occupied by Henry Lloyd. It was reportedly the first manor house (ca. 1711) built in the historic Queen's Village section of the town along Lloyd Harbor.

The two sites determined to be NR eligible are both situated in the unincorporated village of Greenlawn in the interior, southeast part of the town. Site 103-04-0943 yielded pre-contact lithic materials along with gunflints and metal hoes associated with the contact period Mattinnecock longhouse. Site 103-04-0975 yielded a large assemblage of cultural materials dating from the Middle Archaic through Late Woodland periods.

Approximately 52,504 acres, or 99 percent of the study area portion of the total land area in Huntington is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 503 acres of land (1 percent) within the study area portion of the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., sand pits), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 60 reported shipwrecks and obstructions, and no NR eligible and or listed sites in Huntington (including Centerport, Easton's Neck, Fort Salonga, Halesite, Lloyd Harbor, and Northport). The waters of Huntington are assessed as having high archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Islip

The town of Islip is located on the south side of Long Island, but the northern third is within the LIS DMMP study area south of Smithtown. There are no coastal areas in Islip that fall within the study area. The entire town occupies total area of 163.1 sq m (104,384 acres), of which 105.3 sq m (67,392 acres) is land and 57.8 sq m (36,992 acres) of it (35.46 percent) is water. There are four incorporated villages and 23 unincorporated hamlets within the town boundaries. The interior hamlets of Hauppauge and Ronkonkoma are within the study area. Lake Ronkonkoma, which lies at the boundary of Islip, Smithtown, and Brookhaven, is the largest lake on Long Island. It is a groundwater "kettle hole" lake, instead of being stream fed and has no surface outlet.

Historic Aboveground Resources

The study area portion of Islip contains two districts and 12 individual properties that are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 19 CRM archaeological surveys conducted in study area portion of the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 15 archaeological sites, of which one is listed in the National Register and one has been determined ineligible. The NR eligibility status of the remaining 13 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The five recorded pre-contact period sites date from the Late Archaic through Early Woodland periods, and include camps likely related to habitation and resource exploitation in interior locations. The post-contact period sites recorded in the town date from the eighteenth through early twentieth centuries, and include house foundation(s) and associated artifact assemblages and a cemetery.

The one NR listed site is located in the Connetquot River State Park Preserve in the unincorporated hamlet of North Great River. Site 103-05-0286 is recorded as the Collins House Site, which contained a small stone house foundation and associated artifact assemblage. The house is possibly the watchman's house for a poultry farm that operated from about 1800 to the 1920s on the property.

Approximately 20,583 acres, or 92 percent of the study area portion of the total land area in Islip is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 1,765 acres of land (8 percent) within the study area portion of the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., sand pits), and no NR eligible sites have been located in these areas.

Smithtown

The Town of Smithtown includes both coastal shoreline along Long Island Sound and interior settings south to about the Interstate-495 corridor. The town occupies a total area of 111.4 sq m (71,296 acres), of which 53.6 sq m (34,304 acres) is land and 57.8 sq m (36,992 acres; 51.89 percent) is water. There are three incorporated villages and seven unincorporated hamlets within the town boundaries. The Long Island Sound coastline of Smithtown extends east from Fresh Pond across Nissequogue River and Stony Brook Harbor to Stony Brook, which forms the town boundary with Brookhaven. The Nissequogue River flows northerly through the western part of the town to the Sound from its inlet source at New Millpond west of Hauppauge. Elevations in the town are highest along the coast where they reach 200 ft amsl. Villages in coastal areas include Head of the Harbor and Nissequogue. Villages in interior areas include Village of the Branch and Hauppauge (shared with Islip).

Historic Aboveground Resources

The town of Smithtown contains nine districts, one of which is located in both Smithtown and Brookhaven, New York, and 38 individual properties that are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 59 CRM archaeological surveys conducted in Smithtown over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 138 archaeological sites, of which one is listed in the National Register, two have been determined eligible, and seven have been determined ineligible. The NR eligibility status of the remaining 128 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 55 recorded pre-contact period sites date from the Late Archaic through Late Woodland periods, and include shell middens, villages, camps, workshops, and burials related to habitation and resource exploitation in both coastal and interior locations. The post-contact period sites recorded in the town date from the eighteenth through early twentieth centuries, and include residential, institutional, commercial, industrial, military, and transportation-related resources.

The one NR listed site consists of the remains of Fort Salonga (Site 103-08-0036), located in the northwest coastal section of the town just south of Fresh Pond. The site is located on a bluff in a developed residential area between Fresh Pond and Sunken Meadow State Park. There has been no known archaeological testing or excavation of the site. The fort was reportedly erected as part of a network of British military posts on Long Island, more specifically as an adjunct to a larger fortification at Lloyd's Neck, known as Fort Franklin. The only recorded evidence comes from the landowners who have recovered misshapened pieces of lead, rusted metal, and contemporary shell casings. The full range of artifacts and features at the ca. 1776 and 1781 Fort site has not been determined. The NR nomination boundary of the Fort site is a square concentric with the square form of a remnant fortification and approximately 30 meters on a side, making it a 0.25 acre area (Schoenholt 1981).

The two NR eligible sites (Site 103-08-0463 and Site 103-45-0116) both date from the pre-contact period. Site 103-08-0463, called Indian Head, is situated in the hamlet of Commack west of Indian Head Road. The site reportedly contained Late Archaic through Late Woodland cultural materials recovered from intact soil horizons. Site 103-45-0116, called Kycia, is located in the incorporated village of Head of the Harbor. It yielded 1,931 lithics (almost all quartz) including corner and side-notched projectile points, bifaces, and debitage from a probable Late Archaic Period occupation.

Approximately 33,194 acres, or 96 percent of the total land area in Smithtown is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 1,110 acres of land (4 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., sand and gravel pits), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There is one reported shipwreck/obstruction, and no NR eligible and or listed sites in Smithtown (including St. James). The waters of Smithtown are assessed as having moderate archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Brookhaven

The Town of Brookhaven includes coastal shoreline on the north shore (Long Island Sound) and south shore (Atlantic Ocean) with interior settings in between. The LIS DMMP study area portion of the town extends from Long Island Sound south to about the Interstate-495 corridor, and includes the L-shaped area south of the town of Riverhead in the east. It is the largest town in New York in terms of total area, occupying 531.5 sq m (340,160 acres), of which 259.3 sq m (165,952 acres) is land and 272.2 sq m (174,208 acres; 51.22 percent) is water. There are eight incorporated villages and 52 unincorporated hamlets within the town boundaries. The Long Island Sound coastline of Brookhaven extends east from Stony Brook across Port Jefferson Harbor and long stretches of beaches to Shoreham. Villages in coastal areas include Port Jefferson, Belle Terre, and Shoreham. Hamlets in interior areas include Coram, Seldon, and Ridge. The highest elevation in the town is at Bald Hill, elevation 302 ft amsl, in the hamlet of Farmingville just north of the Interstate-495 corridor in the west central part of the town. Major

interior river drainages include Carmans River, which flows in a southerly direction to the Atlantic Ocean, from its headwaters in Middle Island. Small ponds and river drainages characterize interior portions of the town.

Historic Aboveground Resources

The town of Brookhaven contains nine districts and 45 individual properties that are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 216 CRM archaeological surveys conducted in study area portion of the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 202 archaeological sites, of which 10 have been determined NR eligible and four have been determined ineligible. The NR eligibility status of the remaining 188 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 79 recorded pre-contact period sites date from the Early Archaic through Late Woodland periods, and include shell middens, villages, camps, and burials related to habitation and resource exploitation in both coastal and interior locations. The post-contact period sites recorded in the town date from the seventeenth through early twentieth centuries, and include residential, institutional, commercial, industrial, military, and transportation-related resources.

The NR eligible sites consist of six pre-contact period deposits, three post-contact period resources, and one site area that contains both pre-contact and post-contact resources. Two of the post-contact period sites are situated on the grounds of the Brookhaven National Laboratory in the hamlet of Upton. Site 103-02-0474, the Camp Upton WWI Training Trenches, includes the surface depressions of training trenches and associated features. Site 103-02-2771, the World War I Period Camp, consists of a set of trenches and pits along with coils of wire and strips of wire visible on the ground surface. The remaining post-contact period site (103-02-1733) is located in the coastal hamlet of Rocky Point. This eighteenth-century homestead site contains structural evidence of a fieldstone foundation and brick chimney with associated artifact assemblage.

The seven recorded NR eligible pre-contact period sites are distributed in both coastal and inland settings of the town. Three of the sites are located in the coastal hamlet of Mount Sinai. Site 103-02-1538, called Eagles Nest, consists of a Middle Archaic to Early Woodland camp with a shell midden component. It yielded numerous projectile points and other stone tools and preforms along with scattered hard clam, scallop, and oyster shell. Site 103-02-1635, Mount Sinai Court, is a multicomponent Late Archaic and Transitional Archaic camp that yielded a high density of lithic materials including projectile points, and intact subsurface features. The third site, 103-02-1714, is reportedly a multicomponent shell midden.

Two of the sites are located to the west in the coastal hamlet of Setauket. Site 103-02-1611, called the Murray Site, is a camp site of unknown temporal/cultural affiliation on the basis of recovered quartz flakes and a pitted anvil stone. Site 103-02-2892, the Murray Site Extension, is reportedly associated with the Murray Site; it yielded a lithic artifact assemblage diagnostic of the Late Archaic Period. The remaining two NR eligible sites include Site 103-02-1713, situated in the inland hamlet of Coram. The

site is multicomponent with loci that date to the Late Archaic and Late Woodland periods based on the presence of diagnostic artifact assemblages including pottery. Site 103-02-1732 is situated in the coastal hamlet of Rocky Point. It reportedly contained a low density of quartzite flakes as well as a structural feature and associated artifacts that represent a late-eighteenth/nineteenth-century early African-American homestead.

Approximately 111,975 acres, or 96 percent of the study area portion of the total land area in Brookhaven is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 4,782 acres of land (4 percent) within the study area portion of the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., sand and gravel pits, Brookhaven Airport), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are five reported shipwrecks and obstructions, and no NR eligible and or listed sites in Brookhaven (including Miller Place and Port Jefferson). The waters of Brookhaven are assessed as having variable archaeological sensitivity ranging from moderate to low (see Appendices B-4, B-5, and C-4).

Riverhead

Riverhead is a primarily coastal town on the north shore of Long Island. It stretches east more than 10 miles from the boundary with Brookhaven to the outlet of the Peconic River into Flanders Bay. The town occupies a total area of 201.3 sq m (128,832 acres), of which 67.4 sq m (43,136 acres) is land and 133.9 sq m (85,696 acres) of it is water. There are no incorporated villages, but there are nine unincorporated hamlets within the town boundaries. The Long Island Sound coastline of Riverhead is comprised of long stretches of beach and the Wading River tidal estuary. The town's topography is dominated by the Peconic River drainage, which flows in an easterly direction from its headwaters just over the town line in Brookhaven the entire length of Riverhead to its mouth at Flanders Bay. The river forms the southern boundary of the town. Numerous ponds, wetlands, and small lakes are present along the Peconic River drainage in Riverhead. The mouth of the river at Flanders Bay is also the confluence of three smaller rivers to the north: Sawmill Creek, Terrys Creek, and Meetinghouse Creek. Elevations in the town are relatively flat, rising only to 100 ft amsl at its highest points near the Grumman Peconic River Airport.

Historic Aboveground Resources

The town of Riverhead contains two districts and 33 individual properties that are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 39 CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 68 archaeological sites, of which six have been determined NR eligible and six have been determined ineligible. The NR eligibility status of the remaining 56 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 34 recorded pre-contact period sites date from the Middle Archaic through Late Woodland periods, and include shell middens, villages, camps, and a fishing station related to habitation and resource exploitation in both coastal and interior locations. The post-contact period sites recorded in the town date from the eighteenth through early twentieth centuries, and include residential and industrial (mill-related) resources.

Two of the NR eligible sites are situated in the coastal hamlet of Northville. Both sites date to the post-contact period. Site 103-06-0015, Penny's Landing (originally Terry's Landing), is documented as the site of an 1814 skirmish between a British Squadron off the coast and the U.S. militia on land. No archaeological survey has been conducted of the gully, bluff, and valley where this action took place. Site 103-06-0016, Iron Pier Beach aka Luce's Landing, is the location of where several cannon balls were shot by the British during the 1814 skirmish. The site also contains the documented remains of the 396-ft long Iron Pier built at this location in 1900. Two pre-contact period sites have been recorded in this same area. Site 103-06-0678, Hallock's Pond, is a Late Archaic/Transitional Archaic Period camp based on the presence of diagnostic projectile points. Site 103-06-0679, East End, also dates to the Late Archaic Period based on the presence of diagnostic projectile points, knives, choppers, and scrapers. Site 103-06-0776, Area 1 (Twin Pond), contained Terminal (Transitional) Archaic through Late Woodland cultural material assemblages including evidence of possible hearth features (fire-cracked rock). Site 103-06-0797, Patrick Property/St. Mary's Drive, is located in the coastal bay hamlet of Jamesport. It yielded quartz flakes of unknown temporal/cultural affiliation adjacent to an unnamed creek less than one-half mile north of Peconic Bay.

Approximately 41,722 acres, or 96 percent of the total land area in Riverhead is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 1,414 acres of land (4 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., Riverhead Airport), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are three reported shipwrecks and obstructions, and no NR eligible and or listed sites in Riverhead (including Baiting Hollow). The waters of Riverhead are assessed as having low archaeological sensitivity (see Appendices B-4, B-5, and C-4).

Southold

Southold is also a primarily coastal town that encompasses the entire northeastern shoreline of Long Island between the Sound and Great Peconic Bay and Little Peconic Bay on a peninsula known as the North Fork. The northeast tip of the town is known as Orient Point. The entire town occupies a total area of 404.5 sq m (258,880 acres), of which 53.7 sq m (34,368 acres) is land and 350.8 sq m (224,512 acres; 86.72 percent) is water. There is one incorporated village (Greenport) and 10 unincorporated hamlets including Southold, Peconic, and Orient within the town boundaries. The eastern islands of Robins Island, Plum Island, and Fisher's Island are also part of the town. The Long Island Sound coastline of Southold is comprised of long stretches of beaches interspersed with inlets and coves. The southern bay side contains harbors, ponds, and coves along with numerous small creek and brook drainages. Elevations in the town are highest along the Long Island Sound shoreline where the bluffs reach 100 ft amsl. The 435-acre Robins Island is situated in Great Peconic Bay. It is undeveloped, privately owned, and not accessible to the public. Plum Island is located off the eastern end of the town off Orient Point in Gardiners Bay. It is owned by the U.S. Government – for Department of Agriculture restricted research and under the Department of Homeland Security. Fishers Island is located 11 miles off the east end of Southold, NY and 2 miles from the Connecticut coastline. The 9-mile long island contains both year-round and seasonal populations.

Historic Aboveground Resources

The town of Southold contains five districts and 56 individual properties that are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 65 CRM archaeological surveys conducted in the town over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 182 archaeological sites, of which two have been listed in the National Register, seven have been determined eligible, and three have been determined ineligible. The NR eligibility status of the remaining 170 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 97 recorded pre-contact period sites date from the PaleoIndian (possible) and Middle Archaic through Late Woodland periods, and include shell middens, villages, camps, workshops, and burials related to habitation and resource exploitation in the town's primarily coastal and island settings. The post-contact period sites recorded in the town date from the seventeenth through early twentieth centuries, and include residential, institutional, commercial, industrial, and military-related resources.

The two NR listed sites contain post-contact period occupations. Site 103-10-0028, Fort Corchaug, is situated in the western part of the town in the hamlet of Cutchogue. Fort Corchaug dates to the seventeenth century (1637–1662) and was occupied by the Corchaug Indians during early trade encounters with the Dutch and English explorers to the island. Archaeological investigations conducted in the 1930s and 1940s discovered that the fort was log constructed and contained living shelters along the inner walls (Rennenkampf 1973). The other NR listed site, 103-10-1323, is located in the hamlet of Southold in the approximate center of the town. The site, Bilbery Swamp, dates to the seventeenth century and is recorded as the location of a seventeenth-century English homestead on a 0.7-acre lot that contains the extant Town Doctor's House built around 1720. No archaeological investigations have been conducted at the site.

Two of the sites determined to be NR eligible are located in Peconic Landing just west of the hamlet of East Marion and bordering Long Island Sound. Both sites (103-10-1294 and 103-10-1295) date to the pre-contact period and consist of possible lithic workshops of unknown temporal/cultural affiliations. A third NR eligible site, 103-10-1325, is also pre-contact, and is located on Little Peconic Bay. The site appears to date from the Late Woodland Period on the basis of pottery and lithic stone tools found in association with cultural features that include hearths and fire pits.

The remaining four NR eligible sites are all situated on the North Hill end of Fishers Island and three of them date to the pre-contact period. Sites 103-10-1238, 103-10-1246, and 103-10-1247 consist of camps containing cultural deposits and features that date from the Transitional Archaic through Late Woodland periods. The remaining recorded site on Fisher's Island is the WWII Gun Emplacement Site (103-10-1239). The site is associated with Battery Hackleman constructed in 1942 as part of the coastal defenses during the early war effort. The site includes the concrete magazine, two anti-aircraft gun emplacements, a machine gun nest, the ruins of a bath and sanitary facility, a barracks, and water and drainage systems.

Approximately 33,989 acres, or 98 percent of the total land area in Southold is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 379 acres of land (2 percent) within the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., airport landing strips), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are 29 reported shipwrecks and obstructions, and no NR eligible and/or listed sites in Southold (including Cutchogue, Fishers Island, Greenport, Northville, and Orient). The waters of Southold are assessed as having variable archaeological sensitivity ranging from low to moderate (see Appendices B-4, B-5, and C-4).

Shelter Island

Shelter Island is located between the North Fork and South Fork peninsulas at the east end of Long Island. It is completely surrounded by water (Shelter Island Sound and Gardiners Bay) and is reachable only by ferry. The island is approximately 8,000 acres and a vast majority of the land area is protected wetlands nature preserve marshland, with nearly one-third of the island owned by the Nature Conservancy. The entire town occupies a total area of 27.1 sq m (17,344 acres), of which 12.1sq m (7,744 acres) is land and 15 sq m (9,600 acres) of it (55.2 percent) is water. The shoreline of the island consists of beaches, creek inlets, and coves. Interior areas are relatively flat at about 50 ft amsl, with the exception of a small hill that rises to 106 ft amsl on the north side of West Neck Bay. The population and development areas are mainly in the western half of the island. The eastern half is dominated by the nature preserve.

Historic Aboveground Resource

Shelter Island contains three districts and seven individual properties that are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 13 CRM archaeological surveys conducted on the island over the past four decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 24 archaeological sites, of which one has been listed in the National Register. The NR eligibility status of the remaining 23 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The five recorded pre-contact period sites date from the Archaic and Woodland periods, and include a camp/workshop, village, and a fort related to habitation and resource exploitation in the town's primarily coastal settings. The post-contact period sites recorded in the town date from the eighteenth through early twentieth centuries, and include residential, institutional (cemetery) and municipal (dump) resources.

The one NR listed site, 103-07-0379, is the Shelter Island Windmill Site. It is recorded as an archaeological site, related to the extant windmill structure situated in a meadow north of Manwaring Road near the center of the island. The windmill was reportedly built in 1810 at Southold and moved to Shelter Island in 1840. It operated commercially until 1879 when it was moved to the Sylvester Manor Estate on the island in 1926. The archaeological site appears to be the original location of the windmill off State Route 114 on Shelter Island, although no survey to locate and identify any belowground cultural remains has been conducted. The Andrew Fiske Memorial Center for Archaeological Research at the University of Massachusetts-Boston conducted extensive documentary research and field excavations at Sylvester Manor on Shelter Island from 1998-2006. The site (103-07-0231) was first recorded in 1978 as containing the remains of a slave burial ground on the estate. The UMASS field school excavations focused on the North Peninsula containing a Native American Late Woodland Period habitation and a possible "Negro Garden", and on the South Lawn containing a large midden dating to the seventeenth-century and a small work house structural remains used by the Native American laborers (Hayes and Mrozowski 2007).

Approximately 7,599 acres, or 95 percent of the total land area on Shelter Island is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the island. The types of expected sites are commensurate with the recorded sites described above. Approximately 401 acres of land (5 percent) on the island are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., sand and gravel pit), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are no reported shipwrecks and obstructions, and no NR eligible and or listed sites in Shelter Island. The waters of Shelter Island are assessed as having variable archaeological sensitivity ranging from moderate to low (see Appendices B-4, B-5, and C-4).

Southampton

Southampton is a long, linear coastal town that occupies the western end of the South Fork Peninsula on Long Island. It occupies a total area of 295.6 sq m (189,184 acres), of which 138.9 sq m (88,896 acres) is land and 156.7 sq m (100,288 acres; 53.02 percent) is water. The LIS DMMP study area encompasses the northern portion of the town that extends from the western border with Brookhaven along Flanders Bay and Great Peconic Bay to the east at the East Hampton town line. The coastal shoreline bordering the bays is comprised of creeks, small bays and inlets, and long stretches of shoreline. The Peconic River drainage forms the northern boundary of the town with Riverhead. Elevations in the western part of the town rise to 200 ft amsl in the Flanders Hill landform, to 90 ft amsl in the Shinnecock Hills in the central part of the town, and to 250 ft amsl in the northeast part of the town. There are six incorporated villages and 16 unincorporated hamlets within the town boundaries. The study area portion of the town includes the villages of North Haven (on the North Haven peninsula that extends into Shelter Harbor Bay), Southampton, and Sag Harbor (shared and the hamlets of Hampton Bays, Shinnecock Hills, North Sea, and Noyack).

Historic Aboveground Resources

The town of Southampton contains one individual property designated as a National Historic Landmark. Three districts, one of which is located in both Southampton and East Hampton, New York, and five individual properties are listed or determined eligible for listing in the National Register. No additional properties are listed in the State Register.

Terrestrial Archaeological Resources

There have been 63 CRM archaeological surveys conducted in study area portion of the town over the past three decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 83 archaeological sites, of which two have been determined to be NR eligible. The NR eligibility status of the remaining 81 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). The 29 recorded pre-contact period sites date from the Archaic and Woodland periods, and include camps, workshops, villages, and burials related to habitation and resource exploitation in the town's primarily coastal settings. The post-contact period sites recorded in the town date from the eighteenth through early twentieth centuries, and include residential, institutional, industrial, and commercial resources.

One of the NR eligible sites is 103-09-0219, called the Robinson 1 Ridgetop, is located in the North Sea hamlet in the north central part of the town. It contained diagnostic artifacts from the Late Woodland Period including brushed and stamped pottery. The other NR eligible site is situated in the same part of the town. Site 103-09-0220, the Robinson 2 Wetland Site, contained diagnostic artifacts from the Middle Woodland Period including stamped pottery styles.

Approximately 43,985 acres, or 91 percent of the study area portion of the total land area in Southampton is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above.

Approximately 4,500 acres of land (9 percent) within the study area portion of the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., Suffolk Air Force Base runways, sand and gravel pits), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are three reported shipwrecks and obstructions, and no NR eligible and or listed sites in Southampton. The waters of Southampton are assessed as having low archaeological sensitivity (see Appendices B-4, B-5, and C-4).

East Hampton

East Hampton is also a long, linear coastal town that occupies the eastern end of the South Fork Peninsula on Long Island. The LIS DMMP study area encompasses all but the southwest portion of the town that borders Southampton on the west. The coastal shoreline borders from west to east: Sag Harbor Bay, Northwest Harbor Bay, Gardiner Bay, Napeague Bay, and Fort Pond Bay out to Long Island Sound. The town also includes Gardiners Island in Gardiners Bay. The island is 5-square miles and includes both forested and open meadowlands. It is the largest privately owned island in the United States. The town stretches nearly 25 miles from Wainscott in the west to Montauk Point in the east. It is about 6 miles (10 km) wide at its widest point (from the village to Cedar Point) and less than 1 mile at its narrowest point at Napeague (where the town was split in half during the Hurricane of 1938 when the ocean washed over the peninsula). The entire town occupies a total area of 386 sq m (247,040 acres), of which 74 sq m (47,360 acres) is land and 312 sq m (199,680 acres) of it is water. The town has 70 miles of shoreline on both the interior bays to the north and the Atlantic Ocean on the south. Elevations in the eastern part of the town rise to 100 ft amsl at Montauk Point and to 150 ft amsl to the west in Hither Hills and to the boundary with Southampton. There are two incorporated villages (Sag Harbor shared with Southampton and East Hampton) and five unincorporated hamlets within the town boundaries.

Historic Aboveground Resources

The town of East Hampton contains one individual property designated as a National Historic Landmark. Five districts and 38 individual properties are listed or determined eligible for listing in the National Register. An additional district and one individual property are listed in the State Register.

Terrestrial Archaeological Resources

There have been 66 CRM archaeological surveys conducted in study area portion of the town over the past three decades (see Appendix C-2), which along with the work of avocational collectors, have resulted in the recordation of 136 archaeological sites, of which one is listed in the National Register, seven have been determined to be NR eligible, one has been recommended as potentially eligible, and three have been determined ineligible. The NR eligibility status of the remaining 124 sites could not be determined based on the information available in the SHPO site file database (see Appendix B-1). In addition, there are five archaeological sites recorded in the Sag Harbor village area, which are either in East Hampton or Southampton, and their NR eligibility status is undetermined. The 58 recorded pre-contact period sites date from the PaleoIndian through Late Woodland periods, and include camps, workshops, villages, and burials related to habitation and resource exploitation in the town's primarily coastal settings. The post-

contact period sites recorded in the town date from the seventeenth through early twentieth centuries, and include mostly residential (foundations with associated artifacts assemblages) and some Native American burial sites.

The one NR listed site, 103-03-0201, is identified as an historic archaeological site area related to the Montauk Point Lighthouse on property owned by the U.S. Coast Guard. Archaeological testing at the site recovered domestic (household) artifacts and the remains of stone flooring or paving from the mid- to late nineteenth century. The original lighthouse structure and occupation of the property date back to 1796/1797. The Montauk Point Lighthouse is listed in the National Register.

Four of the NR eligible sites are also located in the Montauk Point section of the town. Three of the sites are located between Colloden Point and the western shoreline of Lake Montauk. These include Site 103-03-0140, the Colloden Point Sites. This multisite area contained numerous artifact assemblages dating from the Middle-Late Woodland periods and into the Contact Period. Resources include a living floor and post molds indicative of a structure along with associated lithic artifact assemblages. There are also reports of about 20 Indian graves dating from the eighteenth century on the same property. Some of the graves are marked by stone cairns. Site 103-03-0336, the Capurso Site, is identified as a small Late Woodland Period camp that yielded a diverse assemblage of chipped and ground stone tools along with pottery in a highly intact context. Site 103-03-0809, the Falcone Site, contained diagnostic stone tool assemblages dating from the Archaic through Woodland periods. Several features including a rock platform were also present. Site 103-03-0816 is actually situated on Star Island, a small island that protrudes into the northern part of Lake Montauk. The site yielded diagnostic stone tools and chipping debris along with features radiocarbon-dated to the Late Woodland Period.

The remaining NR eligible sites are located to the west including one on Gardiners Island. The site on Gardiners Island (103-03-0291) yielded both pre-contact and post-contact cultural materials. It is called the 1774 Manor House Site and reportedly contains the fieldstone and earth berms remains of the house begun in 1774 by David Gardiner and completed by John Lyon Gardiner by 1800. The house was destroyed by fire in 1947. It is marked by a monument along with two sets of brown sandstone steps to the former front door, and a granite well head. No archaeological testing has been done at the site. Gardiners Island has reportedly been privately owned by the Gardiner family since 1639 when it was settled by Lion Gardiner from a grant by Charles I as the first colonial English settlement in present-day New York State. The island was originally in its own jurisdiction affiliated with neither New York nor New England. The island has been privately owned for over three hundred years by Lion's descendants, and is the only real estate still intact as part of an original royal grant from the English Crown.

The remaining two NR eligible and potentially eligible sites include Site 103-03 0818 and Site 103-03-0169. Site 103-03-0818, the Oyster Road Shore Site, is situated at the south end of Threemile Harbor in the western part of the town. It yielded Late Woodland Period lithic and pottery assemblages. The one potentially NR eligible site is Site 103-03-0169 located in the Grassy Hollow area in the western part of the town. Quartz and flint debitage was reportedly collected from the ground surface in an area on the north shore of South Pond.

Approximately 34,029 acres, or 91 percent of the study area portion of the total land area in East Hampton is assessed as being sensitive for potentially significant Native American and Euro-American archaeological sites (see Appendix B-2). This broad sensitivity assessment is based on the presence of

known sites and general environmental characteristics of the geographic area contained within the town boundaries. The types of expected sites are commensurate with the recorded sites described above. Approximately 3,300 acres of land (9 percent) within the study area portion of the town are not assigned archaeological sensitivity because they have been subjected to previous survey, contain obvious large-scale disturbed areas (e.g., sand and gravel pit), and no NR eligible sites have been located in these areas.

Underwater Archaeological Resources

There are eight reported shipwrecks and obstructions in East Hampton (including Montauk, Northwest Harbor, and Sag Harbor), one of which is the NR listed H.M.S. *Culloden* Shipwreck Site (NYSDHP Unique Site No. A103-03-0077). The submerged remains of the H.M.S. *Culloden*, a Revolutionary War-era 74-gun British frigate, are located in Long Island Sound off of Culloden Point. The waters of East Hampton are assessed as having variable archaeological sensitivity ranging from moderate to low (see Appendices B-4, B-5, and C-4).

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The cultural resources inventory including GIS database and map overlays was developed for 57 coastal communities that border Long Island Sound in Connecticut, New York, and Rhode Island as well as the area underwater within one-half mile of the shoreline. The land area extends inland at a distance of no greater than 10 miles from the shoreline. The current inventory effort was intended to update the cultural resources inventory performed for the 2004 Final Site Designation Environmental Impact Statement, and is part of the baseline data gathering efforts for the LIS DMMP. The cultural resources inventory of known historic properties includes all recorded archaeological sites (terrestrial and underwater); and historic buildings, structures, and landscapes that are listed in the National Register of Historic Places or have been determined eligible by a federal agency or SHPO opinion. Available information about traditional cultural properties and sacred or spiritual sites in the study area was reviewed for the project study area, but none was present in the SHPO inventories. The repositories that were consulted for the inventory consist primarily of the SHPOs in the three states. Additional information sources specific to underwater resources (shipwrecks) were also consulted (see Chapter 2 for a full list).

Archaeological Resources Inventory

Terrestrial Resources

The archaeological sites inventory for the terrestrial portion of the LIS DMMP study area consists of 3,146 recorded archaeological sites, of which 195 are identified as National and State Register (NR/SR) listed or eligible sites, either within a historic/archaeological district or individually listed. In addition, there are five National Register-listed or eligible archaeological districts (or historic districts with archaeological significance). The historic/archaeological districts include both the Historic Village (Former Reservation) of the Narragansett Indian Tribe in Charlestown, Rhode Island and the Mashantucket Pequot Indian Reservation in Ledyard, Connecticut. The recorded pre-contact sites date from the PaleoIndian through Late Woodland periods; and include camps, villages, shell middens, rockshelters, quarries, and burials related to habitation and resource exploitation in both coastal and interior locations. There are also recorded contact period Native American sites that include forts and villages or camps located in both coastal and interior locations. The recorded post-contact Euro-American resources date from the early seventeenth through early twentieth centuries; and include residential-agrarian, institutional, commercial, industrial, military, maritime, and transportation-related resources.

The recorded sites in the LIS DMMP study area have been identified as a result of CRM surveys conducted over the past four decades and the work of avocational collectors since the early to mid-twentieth century. More than 1,400 archaeological surveys and investigations (Phase I assessment through Phase III data recovery) have been conducted within the study area portion of the 57 Long Island Sound project communities. The archaeological sensitivity for the terrestrial portion of the study area was derived from generalized regional predictive models for coastal and near interior upland environmental

settings in southern New England. These models rely on the presence and locations of known sites, proximity to favorable environmental factors (e.g., well-drained soils, freshwater, level terrain, transportation corridors) and the degree of previous disturbances. Information needed to determine archaeological sensitivity at the local level is typically collected during a detailed study of existing conditions and historical developments that includes a walkover survey/close ground surface inspection. However, these in-depth activities were not part of the PAL scope of work for the LIS DMMP terrestrial archaeological resources inventory. As a result, the archaeological sensitivity assessment for terrestrial resources consists of areas that are considered to be generally sensitive for undocumented/unrecorded sites and areas that could be reasonably excluded from sensitivity because they were either previously surveyed or they contained obvious large-scale disturbances. These disturbances were identified using GIS-based georeferenced topographic maps and aerial (orthophoto) maps of the study area.

Overall, the LIS DMMP study area along the coast of Long Island Sound is a highly sensitive region for archaeological resources that date from all temporal/cultural periods of documented human occupation, approximately 12,000 years ago to present. A high number (more than 3,000) and wide variety of pre-contact, contact, and post-contact period Native American and Euro-American site types are recorded and documented in the 57 coastal communities. Expected archaeological resources are commensurate with those that are recorded in the existing cultural resources inventory for the Connecticut, New York, and Rhode Island LIS DMMP study area. Any areas that are currently underrepresented by recorded sites are largely because of a lack of surveys in those specific geographic locations, and not because of a lack of potential sites. The resulting land sensitivity is between 75 and 99 percent for each of the 57 communities in the LIS DMMP study area.

The study area also likely contains traditional cultural properties including sacred and spiritual sites, although none are presently recorded in the SHPO site files. These types of resources are typically not documented in the archaeological record through avocational collections or professional surveys. Rather, they are known to the specific cultural groups connected to a particular locale including but not limited to Native American Tribes and ethnic groups or communities. The locations and importance of such resources would be identified primarily through the Section 106 consultation process between the USACE and these groups as part of individual undertakings including dredge disposal for the Project.

Table 6-1 presents a summary of the total recorded sites, NR listed or eligible sites, NR districts, and total sensitive acreage for the LIS DMMP study area.

Table 6-1. Summary of Terrestrial Archaeological Sites and Sensitivity of the LIS DMMP Study Area.

State/County	City/Town	Total Recorded Sites	NR Listed or Eligible Sites	NR Districts	Total Sensitive Acreage (%)
RHODE ISLAND					
Washington	Narragansett	72	4	0	83
Washington	South Kingstown	180	30	1	97
Washington	Charlestown	84	25	1	91
Washington	Westerly	55	2	0	94
Washington	New Shoreham	109	51	1	95
TOTAL RI		500	112	3	--
CONNECTICUT					
New London	Stonington	21	0	0	96
New London	Groton	78	2	0	80

State/County	City/Town	Total Recorded Sites	NR Listed or Eligible Sites	NR Districts	Total Sensitive Acreage (%)
New London	Ledyard	171	10	1	95
New London	New London	15	0	0	89
New London	Waterford	136	0	0	81
New London	Montville	29	1	0	75
New London	East Lyme	58	0	0	90
New London	Lyme	70	2	0	82
New London	Old Lyme	66	0	0	96
Middlesex	Old Saybrook	32	0	0	87
Middlesex	Essex	14	0	0	98
Middlesex	Deep River	6	0	0	91
Middlesex	Chester	2	0	0	93
Middlesex	Westbrook	20	0	0	96
Middlesex	Clinton	36	0	0	99
New Haven	Madison	7	1	0	97
New Haven	Guilford	13	0	0	91
New Haven	Branford	53	0	0	93
New Haven	East Haven	12	0	0	86
New Haven	New Haven	23	1	0	86
New Haven	West Haven	10	0	0	92
New Haven	Orange	13	0	0	97
New Haven	Derby	7	0	0	93
New Haven	Milford	69	0	0	98
Fairfield	Shelton	41	0	0	94
Fairfield	Stratford	26	0	0	93
Fairfield	Bridgeport	21	0	0	91
Fairfield	Fairfield	43	0	0	98
Fairfield	Westport	119	0	0	93
Fairfield	Norwalk	50	0	0	93
Fairfield	Darien	12	0	0	94
Fairfield	Stamford	23	1	0	98
Fairfield	Greenwich	71	0	0	92
TOTAL CT		1,367	18	1	--
NEW YORK					
Westchester	Rye	35	9	1	75
Westchester	Mamaroneck	16	0	0	96
Westchester	New Rochelle	16	1	0	94
Westchester	Mount Vernon	4	0	0	99
Westchester	Pelham	5	0	0	97
Bronx	East of Throg's Neck	45	0	0	77
Queens	East of Throg's Neck	20	1	0	77
Nassau	North Hempstead	22	4	0	95
Nassau	Glen Cove	14	1	0	96
Nassau	Oyster Bay	89	1	0	96
Suffolk	Huntington	165	8	0	99
Suffolk	Islip	15	1	0	92
Suffolk	Smithtown	138	3	0	96
Suffolk	Brookhaven	202	10	0	96
Suffolk	Riverhead	68	6	0	96
Suffolk	Southold	182	9	0	98
Suffolk	Shelter Island	24	1	0	95

State/County	City/Town	Total Recorded Sites	NR Listed or Eligible Sites	NR Districts	Total Sensitive Acreage (%)
Suffolk	Southampton	83	2	0	91
Suffolk	East Hampton	136	9	0	91
TOTAL NY		1,279	66	1	--
STUDY AREA TOTAL		3,146 1	96	5	--

Underwater Resources

A total of 847 shipwrecks and obstructions are reported within the LIS DMMP study area. Just four of these shipwrecks and obstructions are NR-listed or eligible historic properties; however, that should not be considered an accurate indicator of the potential for many of the reported and as yet unlocated shipwreck sites within the LIS DMMP to be NR eligible. Instead, it is more a function of the limited amount of underwater archaeological investigation, and NR site evaluations in particular, that has been conducted to date within the turbid waters of Long Island Sound. Most shipwrecks in American waters date from the centuries prior to the start of systematic reporting of vessel casualties by the U.S. Bureau of Customs (1867) and the U.S. Life Saving Service (1876), and, therefore, are unreported. It is highly probable that the actual number of wrecked vessels in the LIS DMMP study area is significantly higher than what was inventoried by this study. Given that, and the fact that the locational information and attribute data for each documented vessel is uneven in its accuracy and its completeness, the inventory assembled for this project, while extensive, must be considered merely a sample of the total population of shipwrecks in the LIS DMMP.

It is noteworthy that the geospatial distribution of reported shipwrecks and obstructions within the LIS DMMP study area, and, thus, the area's archaeological sensitivity, appears to be non-random. This non-randomness may be a result of factors also observed in the distributions of shipwrecks in the confined waters of the Great Lakes (Lenihan et al. 1987) and in coastal Massachusetts (Robinson 2008). These factors include cultural as well as environmental variables (i.e., proximity to major historic ports, as well as proximity to prominent landforms [e.g., points of land extending out into shipping routes and areas of constricted sea room]) that posed navigational hazards to maritime traffic from the threat of groundings and collisions. As a result of these variables, archaeological sensitivity within the LIS DMMP study area is highest at its western end, which is most proximal to the eastern seaboard's historically busiest port – New York City, as well as where the northern and southern shores of Long Island Sound converge. The archaeological sensitivity is lowest in the LIS DMMP within the broadest part of Long Island Sound, which offers the greatest amount of sea room. Archaeological sensitivity rises to high and moderate levels outside one of Long Island Sound's oldest and busiest ports, Groton-New London, and at the LIS DMMP's eastern end.

Shipwreck sites are not only an important source of archaeological information, they are also significantly different from terrestrial archaeological sites. Unlike more deeply stratified terrestrial sites, shipwreck sites are synchronic – that is they represent a “snap-shot” in time captured in the disastrous moment at which the ship sank. They are also largely self-contained. That is, the shipwrecks of vessels that carried crew, cargo, and, in some cases, passengers, tend to be sites that are bound by the limits of the vessel's hull and its associated debris field. Unlike terrestrial sites, the locations of which were often determined by favorable environmental conditions, shipwreck sites tend also to be located in geographical locations that are undesirable – places that were avoided because of the inherent environmental dangers that

contribute to wrecking events. Finally, the relative inaccessibility and the preservative qualities of the submerged environment together combine to make the preservation of a broad range of cultural material types comprising most shipwreck sites typically extraordinary as compared to terrestrial sites. These characteristics would be expected of the shipwrecks present within the LIS DMMP study area.

Historic Resources Inventory

A total of 2,032 historic resources, including 914 in Connecticut, 927 in New York, and 118 in Rhode Island, were identified within the LIS DMMP study area. They include buildings, sites, structures, objects, and districts that are listed, determined eligible, or potentially eligible for the National Register and or State Register within the respective states in which they are located. The majority are individual properties, but a large number of districts, which were counted as one property contain many additional resources, are present. The only identifiable pattern that predicts the location and distribution of historic resources is that they are generally clustered in population centers and along historic period roads.

Rhode Island's inventory of historic resources is the most complete of the three states, although the survey information available for some of the towns is in some cases more than 30 years old. It is likely, therefore, that additional properties in the Rhode Island portion of the study area have achieved significance in more recent years. The number of potentially eligible resources that have not been previously identified in the historic property inventories maintained by the Connecticut and New York SHPOs is probably much higher as only a few of the towns within those study areas have anything that approaches a comprehensive survey and most of those were conducted years ago.

Recommendations

Archaeological Resources

Terrestrial Resources

The cultural resources inventory provides information about recorded archaeological sites and sensitivity within the terrestrial portion of the 57 communities included in the LIS DMMP study area. The information is current as of December 2009-January 2010 in regards to the recorded sites and CRM surveys. The sensitivity assessment is based on generalized predictive models for locating and identifying previously unrecorded archaeological sites. As summarized above, the LIS DMMP study area is a highly sensitive ecozone in southern coastal New England for archaeological sites that date from all documented cultural/temporal periods of human occupation.

Further archaeological investigations in the form of Phase I assessment surveys to refine the generalized archaeological sensitivity model provided in this inventory document should be conducted for any LIS DMMP alternatives that involve upland placement or other land area impacts once they are developed by the dredging proponents. The Phase I assessments would be designed to determine the full potential for unrecorded sites to be present using in-depth reconnaissance survey methods as required by the SHPOs. These methods include a review of available geotechnical data (e.g., soil borings, soil surveys), archival research including historical maps and town histories, and a walkover survey to examine existing conditions. The results of the Phase I assessment(s) would be used to determine the need for and scope of

Phase I subsurface testing to locate, identify, and evaluate any archaeological resources that may be present in potential dredged material management alternatives that involve upland ground disturbances.

Underwater Resources

The cultural resources inventory provides information about reported shipwrecks and obstructions and the archaeological sensitivity of the underwater portion of the LIS DMMP study area. The sensitivity assessment is based on the observed relative frequencies and geospatial distributions of the shipwrecks and obstructions with reported coordinates that are located within the LIS DMMP study area. Its results are intended to provide a basic framework for developing research designs for locating and identifying previously unrecorded archaeological sites (i.e., shipwrecks) within the underwater portion of the LIS DMMP study area. As summarized above, the underwater portion of the LIS DMMP study area has variable archaeological sensitivity for containing post-contact period resources, with the LIS DMMP study area's western end assessed as having the highest sensitivity.

Further archaeological investigation is recommended for any proposed undertaking that may impact the seafloor within the underwater LIS DMMP study area. Project area-specific Phase IA marine archaeological sensitivity assessment is recommended to evaluate the full potential for unrecorded sites to be present. Results from such an assessment are necessary for developing a research design for conducting a Phase IB marine archaeological remote sensing identification survey. It is anticipated that Phase IB identification surveys, conducted to determine the presence/absence of unrecorded underwater archaeological sites, would be necessary for all proposed undertakings that impact the seafloor within the LIS DMMP study area.

Historic Inventory

The properties included in the Historic Inventory are considered to be "historic" under the definition provided in Section 106 of the National Historic Preservation Act. PAL recommends that the area within or surrounding the National/State Register boundaries identified for those properties on the GIS accompanying this report should be avoided if at all possible during the planning for the LIS DMMP. PAL further recommends that all alternative sites identified in the LIS DMMP be screened for their potential to include properties that have not been previously evaluated. This would include resources included in the SHPO inventories that have not been evaluated in accordance with the National Register Criteria for Evaluation or have not been previously recorded in the inventories. In the event the alternative site location has the potential to contain those types of resources, a reconnaissance level historic architecture survey should be conducted. Additional intensive historic architecture survey may be necessary to fully evaluate the resources identified during the reconnaissance survey in accordance with the National Register criteria if the alternative site location is selected and impacts to historic properties cannot be avoided. The screening and reconnaissance level survey should be conducted as early as possible during the selection of the alternative Project sites in order to make the most complete and informed decisions regarding their selection.

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