Natural and Cultural Resources Element Inventory

I. Introduction

Lincoln's natural resource and environmental planning has been quite extensive. The town's goal of protecting at least 30% of the land area has resulted in a significant number of acres being purchased. These lands include both active and passive recreation areas, a variety of natural areas, and cultural features such as Chase Farm and the Hannaway Blacksmith Shop. Lincoln's cultural resources planning have been less focused and formal. The Great Road Historic Area has been organized for many years, for example, but it is not a historic district under protection of local historic district commission regulations. The most recent change in the cultural resource scene is the creation of the John F Chaffee Blackstone River Valley National Heritage Corridor. This national park interprets the economic and cultural history of the Blackstone River Valley of which Lincoln is a part. With the continued implementation of heritage corridor programs, the level of awareness of Lincoln's historic and cultural resources will continue to expand. This will continue to encourage additional consideration of more formal cultural resource protection mechanisms for Lincoln.

II. Inventory of Natural Resource Base

The Blackstone River and Moshassuck River Water Systems

Lincoln's largest uniform natural resource is the Blackstone River. It defines the town's land boundaries to the east and was the genesis for development of Lincoln's early industrial economy. Figure H, Water Resources, indicates the drainage areas for the Blackstone River. They include the valley immediately adjacent to the river and the watershed of Crookfall Brook to the northwest.

Draining almost as large an area of Lincoln is the Moshassuck River and its tributary the West River. Figure H indicates the central portion of the town drained by the Moshassuck and the southwestern portion drained by the West River. The West River

drains to North Providence and then joins the Moshassuck in that town. The streams and ponds composing each of these water systems are listed below:

Blackstone System

Tributaries	Subtributaries
Crookfall Brook	Townline Swamp
Meaders Pond/Rochambeau Pond	Laportes Pond
Scott Pond	
Several unnamed streams	

Moshassuck System

Tributaries	Subtributaries
West River	Several unnamed streams
Olney Pond	Several unnamed streams
Butterfly/Barney Ponds	Several unnamed streams

Source: U.S.G.S. Attleboro Quadrangle. 1:25,000 scale metric. 41071-H3-TM-025

Crookfall Brook forms the border with North Smithfield and drains the Woonsocket Reservoir Number Three just over the Lincoln border in North Smithfield. The Blackstone River is the border with Cumberland and part of Central Falls. Jenckes Hill Road forms the watershed line between the West River and Moshassuck River watersheds. Route 295 serves the same function for a portion of the line between the Moshassuck and Crookfall Brook watersheds. The West River in Lincoln drains to the Wenscott Reservoir in Lincoln/Smithfield/North Providence.

From a land use standpoint, the town's older industrial areas and villages all drain into the Blackstone. The newer industrial and commercial areas along Route 116 drain to either the Moshassuck or Crookfall watersheds depending on the area of the development. In general the Moshassuck receives the majority of runoff from the highway system as much of the length of Route 146 and Route 116 run through that watershed.

The map entitled Groundwater Recharge Areas and Watersheds also indicates the degree to which the watershed and recharge area of the Blackstone also lies within Cumberland.

Joint action and cooperation will be important in continuing to upgrade the water quality of the river.

Water Quality – All surface waters of the state have been categorized according to the water use classifications of the RI Water Quality Regulations (RIDEM, August 6, 1997) based on consideration of public health, recreation, propagation and protection of fish and wildlife, and economic and social benefit.

The RI Water Quality Regulations identify the following water use classifications:

- Class A – These waters are designated as a source of public drinking water supply, for primary and secondary contact recreational activities and for fish and wildlife habitat. They shall be suitable for compatible industrial processes and cooling, hydropower, aquacultural uses, navigation, and irrigation and other agricultural uses. These waters shall have good aesthetic value.

- Class B – These waters are designated for fish and wildlife habitat and primary and secondary contact recreational activities. They shall be suitable for compatible industrial processes and cooling, hydropower, aquacultural uses, navigation, and irrigation and other agricultural uses. These waters shall have good aesthetic value.

- Class B1 - These waters are designated for primary and secondary contact recreational activities and fish and wildlife habitat. They shall be suitable for compatible industrial processes and cooling, hydropower, aquacultural uses, navigation, and irrigation and other agricultural uses. These waters shall have good aesthetic value. Primary contact recreational activities may be impacted due to pathogens from approved wastewater discharges. However all Class B criteria must be met.

The Blackstone River through Lincoln is classified by RIDEM as B1. Scott Pond and its tributaries are class B waters. Crookfall Brook is Class A. The Moshassuck River from its headwaters, including Bleachery and Barney Ponds in Lincoln is classified by RIDEM as B. Olney Pond in Lincoln Woods State Park is also classified as B waters. The West River headwaters in Lincoln are also Class B waters. All streams tributary to Class A waters are Class A waters, in accordance with the RI Water Quality Regulations. All freshwaters hydrologically connected by surface waters and upstream of Class B waters are Class B waters unless identified in the regulations. All other fresh waters, including, but not limited to, ponds, kettleholes and wetlands not listed in the regulations are considered Class A.

Clean Water Act - In accordance with the Section 303(b) of the federal Clean Water Act, RIDEM identifies waters of the state that do not attain state standards for aquatic life, drinking water supply, shellfishing, fish consumption and swimming. In Lincoln,

Scott Pond does not attain the state standards based on hypoxia (lack of oxygen), phosphorus, and excess algal growth. The Moshassuck River is in non-attainment based on pathogens (bacteria and viruses) and total suspended solids. Although the entire river is on the list, it is important to note that only limited water quality assessment has been conducted in the upper reaches in Lincoln, including the Limerock quarry area. This area is noted for its good water quality and its wildlife habitat. Barneys Pond is in non-attainment based on phosphorus.

RIDEM has initiated a Blackstone River watershed study to characterize water quality and to provide data on pathogens, nutrients and metals. Water quality sampling will be conducted in 2002 and 2003. It is anticipated that this study will be completed in 2004. RIDEM will utilize this information to prepare a Total Maximum Daily Limit (TMDL) study (State of the State's Waters, 2002 305(b) Report). Between 1992 and 2002, RIDEM has conducted biological monitoring on the Blackstone River below the Manville Dam. No chemical monitoring has been conducted at this site. According to the State of the State's Waters, 2002 305(b) Report, the beach area at Camp Meehan was closed once during the 2001 summer because of high fecal coliform counts.

RI Rivers Council - This council was created by statute to coordinate, oversee, and review efforts to improve and preserve the quality of the State's rivers and other water bodies and to develop plans to increase river use. The General Assembly created the Council because "state jurisdiction over rivers, environmentally, culturally and economically, is scattered among state agencies and in some instances, state policies and plans [concerning rivers] are conflicting."

The Council is not a regulatory body; its functions are planning, coordination and empowerment. The basic duties of the Council are:

1. to develop a Rhode Island State Rivers Policy and Classification Plan
2. to advise State Agencies and municipalities concerning programs and measures to improve and protect river and watershed quality and to promote river use consistent with the Rivers Plan
3. to foster public involvement in river planning and decision-making through public education and promotional activities
4. to designate watershed councils as bodies corporate and politic with specific powers, duties and responsibilities.

The Blackstone River Council has been designated as a Watershed Council by the Rhode Island Rivers Council. The organization's new name is "The Blackstone River Watershed Council". Designated watershed councils are granted the authority to be advocates for watershed planning and water quality improvements and may be eligible for state funding.

RIDEM Sustainable Watersheds Office FY 2002-2003 Work Plan identifies several goals, which, although initially focused on the South County and Woonasquatucket watersheds, will be applied to the Blackstone Watershed in the future as well. In addition to water quality, the following issues will be addressed: planning for growth, creative land use techniques, alternative natural resource-based businesses, habitat restoration, and open space preservation. The objective of the livable communities' goal is to help communities plan for growth, to minimize impacts to the environment and community character, and to support the governor's Growth Planning Council. A second objective is to coordinate reorientation of RIDEM activities toward effective watershed resource management through community based planning and implementation.

The *Moshassuck River Watershed Report* is the product of a yearlong project conducted by Save the Bay and Friends of the Moshassuck, funded by an Urban Environmental Initiative Grant from the U.S. Environmental Protection Agency-New England. Two of the goals of the Urban Environmental Initiative project were collecting additional water quality information and building stewardship for the Moshassuck. The combination of polluted storm water runoff from non-point sources and direct point source discharges from storm drains and combined sewer overflows continue to make these waters unsafe for direct human contact during storm events and for a minimum of seven days after.

The Moshassuck River Valley Protection Plan, a wetlands grant application from a consortium consisting of the Town of Lincoln, the Lincoln Land Conservation Trust, Moshassuck Watershed Conservation Commission, RIDEM, the Blackstone River Valley National Heritage Corridor Commission, the RI Historic Preservation Commission, and the Nature Conservancy has been prepared. This project is focused on studying the watershed issues in Lincoln, educating people about the Moshassuck River, protecting the environment, and improving the economy in ways that protect the upper end of the watershed. Friends of the Moshassuck (FOTM) will seek to become more involved in this effort, and if FOTM, as planned, organizes a Moshassuck Greenway conference, this effort will be one of the highlighted activities in the watershed.

Wetlands

Figure I, Waterbodies and Wetlands indicates the major environmentally sensitive areas within Lincoln. By state statute, wetlands are defined as areas that include, but are not limited to "marshes, swamps, bogs, ponds, rivers, river and stream flood plains and banks, areas subject to flooding or storm flowage, emergent and submergent plant communities in any body of fresh water including rivers and streams and that area of land within fifty feet of the edge of any bog, marsh, swamp or pond."

There are a total of 21 major wetland systems in the town. The largest wetland systems are the Townline Swamp and the Valley Pond (Lonsdale Marshes) wetlands. Valley Pond has been partially purchased by the state due to its size and quality. It is one of the

largest freshwater wetlands in the state and contains unusual stands of cattail and six state listed rare bird species.

The Townline Swamp drains to Crookfall Brook and forms part of the boundary between North Smithfield and Lincoln, and this wetland receives drainage from both towns. Of particular importance is the drainage from the industrial areas in Lincoln.

The key threats to wetland quality include filling, sediment erosion, landfill runoff, developed area runoff pollution (phosphorus, pesticides and toxic organic compounds such as oil), and surface water diversion with its resulting lowering of surface water flow, lowering of the water table and draining of wetlands. Additionally, development that occurs near wetlands can disturb some, though not all, plant and animal species.

Protection of wetlands continues to be of special importance. Areas of planning concern are described below:

Wetlands on the periphery of the Lincoln Park, an area that may see reuse at some point in the future. The Technical Review Committee's review of any proposed development within this Area of Local Planning Concern assures consideration of the project's impact on natural resources including water quality, groundwater quality, and wetlands. Wetlands within the Conklin Quarry are now protected from development through the acquisition of this property as open space. The $1.8 million Lonsdale Marsh Restoration Project along the Blackstone River has been announced by RIDEM. When completed, the former Lonsdale Drive-In site will provide upland and marshland wildlife habitat with recreational and educational value.

Wetlands in the following areas may be subject to alteration through potential future development:

- Moshassuck River Valley in East Limerock where the majority of the remaining developable land in Lincoln is located,

- Infill development in West Limerock and Twin River planning areas; and Crooksfall Brook watershed along Route 146.

Floodplains

The 100 Year Floodplain map, Figure J, indicates the degree to which Lincoln's river valleys are subject to runoff flooding during a major storm with a 1% likelihood of occurring each year. As shown on the map, the federal flood zone area extends down the Blackstone River Valley, Crookfall Brook and the Moshassuck River Valley.

Although Lincoln does not have any significant remaining developable areas within the floodplains, the town's natural floodplains and floodways should be managed carefully.

Future use must be compatible with the river's long-term health and with the broad floodplain and floodway that cross this parcel. Most villages lie above the floodplain and therefore no major population areas are threatened. The town must also educate the public on the role of wetlands in absorbing floodwaters and reducing flood damage. Increasing encroachment on wetlands will only cause greater damage during floods.

Soils

Figure K, Natural Resources, indicates the nature of Lincoln's soil base. The federal Natural Resources Conservation Service (NRCS) inventories the soils of all towns in the United States and produces reports and catalogues of their findings. Figure K is based on the NRCS data digitized by the Rhode Island GIS project. The three inter-related, but separate features of soils that are most relevant for a comprehensive plan are soil type (clay, sand, loam, etc.), slope, and depth to groundwater. Each of these features is conveyed in Figure K. The major conclusions to be drawn about Lincoln's soil patterns include the following:

1) Lincoln's rolling topography and glacial character has produced a soil base wherein the most fertile and buildable soils are found in the valleys and along the gentle slopes. This includes most of the town. This was part of the reason for the early settlement of the river valleys and the farming of the uplands.
2) Lincoln has few very steep slopes (>15%) and with the presence of sewer service throughout town, most land--with the exception of wetland areas-- is buildable. In other words, topography is not a constraint to development in Lincoln.
3) Though rocky in places, the soils of Lincoln remain fertile for agriculture. To the degree that housing development does not out compete farming, there will likely be a continuation of small-scale agriculture in the town.

Aquifers

Figure G, Water Resources, indicates the location of known major groundwater aquifers. Lincoln's major aquifer lies beneath the Blackstone River. Under Section 46, Chapter 13.1 of the Rhode Island Acts, Groundwater Protection Act of 1985, the state defines the four types of groundwater classifications that must be used for planning purposes: GAA, GA, GB and GC. GAA waters are suitable for public drinking water use without treatment. GA waters may be used as public drinking water with or without treatment. GB indicates that the waters may not be suitable for public drinking without treatment due to known or presumed degradation. And, GC waters may only be used for certain waste disposal practices since the waters are not suitable for public drinking. In the cases of GAA and GA, the additional rating of "NA" indicates "non-attainment." This means that although the area was or perhaps could be again either a GA or GAA, it is currently contaminated and should not be used for public drinking water.

The aquifers in Lincoln were created by glacial stratified drift deposits of sand and gravel beneath the Blackstone River Valley. These types of aquifers are recharged from three sources: 1) by rainwater infiltration immediately above the aquifer, 2) by groundwater

inflow from springs and rainfall outside the immediate area above the aquifer, and 3) by surface water flow from upstream which then soaks into the soil above the aquifer. There are two major aquifer areas: the Blackstone (approximately 2.2 square miles in size) and the Lower Blackstone (approximately 6.5 square miles). The Lower Blackstone has two recharge areas: the first around the Blackstone River in Lincoln, Cumberland and Central Falls, the second around the Moshassuck River in Lincoln. As indicated in Figure G, Lincoln shares its aquifers with Woonsocket, Cumberland, Central Falls and Pawtucket.[1]

Groundwater Use and Dependence: Currently, Lincoln receives its water from the Scituate Reservoir, but the town also has nine wells along the Blackstone River. As shown in Figure G, wells 583, 440 and 420 are located in the immediate contamination areas of several hazardous waste remediation sites in Cumberland and Lincoln. The other wells are either usable or are in the process of cleanup. (See facilities section for more discussion on water supply.)

Potential Sources of Contamination: Various contamination sources in the Blackstone and Lower Blackstone aquifers have the potential to affect groundwater quality. They include sludge dumps, industrial contamination discharges, closed landfills, a closed hazardous waste site, a state salt pile and a town salt pile.

The Peterson/Puritan, Inc. Superfund encompasses over two miles of mixed industrial/residential property situated in the towns of Cumberland and Lincoln. The Site "study area" comprises an industrial park, including the former Peterson/Puritan facility, J. M. Mills Landfill (inactive), an inactive solid waste transfer station, sand and gravel operations, Blackstone River State Park development, impacted municipal water supply wells and numerous interspersed areas of undeveloped land, flood plain and wetlands along the Blackstone River. Land uses surrounding the Site are a mixture of industrial, commercial, residential and recreational parcels. There are over 1000 residences within a one-mile radius and 12,000 people living within a 4-mile radius of the Site (www.epa.gov/region1/superfund/sites/peterson).

The Peterson/Puritan, Inc. plant, built in 1959, packaged aerosol consumer products. A rail car incident and product tank spill occurred on the facility's property in 1974 releasing an estimated 6000 gallons of solvent. In 1976, following a major fire, the plant was rebuilt. The Martin Street well and Lennox Street well in the Town of Cumberland and the Quinnville well field in the Town of Lincoln were closed in 1979 due to ground water contamination, and remain out of service. The Peterson/Puritan spill was identified as a primary source of contaminants impacting the sand and gravel aquifer feeding the

[1]Trench, Elaine C. Todd and Daniel J. Morrissey. 1985. *Classification and Delineation of Recharge Areas to the Blackstone and Lower Blackstone -Moshassuck Ground Water Reservoirs in Northeastern Rhode Island.* United States Geographical Survey.

river and the Martin Street well, and Quinnville well field. The Town of Lincoln has since been connected to the Providence Water Supply at the Scituate Reservoir.

Phased construction of the selected remedies began in the fall of 1995 and was completed in January 1997. All remediation systems have been operating as designed since July 1997. Operation and maintenance of these remedial systems shall continue until the EPA determines that containment concentrations are within the EPA's acceptable risk range. The estimated time frame for this is between 4 and 12 years. Fieldwork for an investigation into the nature and extent of contamination at the J.M. Mills Landfill and its surroundings is scheduled to begin in the spring of 2002. Following the completion of this study, a final cleanup remedy will be selected.

Another source of concern is the aquifer pollution running south from the Airpark Industrial Park. This area was polluted by industrial contaminants and several sites in the area are either on the Superfund list or are eligible. Cleanup operations are proceeding in some parts of each of these contaminated areas. Currently, the public health is not threatened as the town is completely served by water from the Scituate Reservoir, but as the groundwater has the potential of contaminating future backup sources of drinking water, the cleanup should continue.

Regional Perspective: Cumberland's industrial and business zoning over their portion of the Blackstone and Lower Blackstone aquifers poses the greatest threat of future contamination. Although some of these areas are shifting away from heavy manufacturing and state and local regulations provide significantly more protection than in the past, there is still some hazard from fuel or other material spills. Woonsocket, Cumberland, Central Falls and Pawtucket all acknowledge the presence of these aquifers in their comprehensive plans and cooperative planning is proceeding to ensure joint protection of the resources.

Protection Issues: Protection and management efforts along the Blackstone River overlap the areas of groundwater protection, flood zone management, water quality, eco-system management and recreation management. A clear, consistent policy for the entire river system can synthesize these various challenges.

The major long-term aquifer challenges for the town will be the slow and steady lobbying and finances needed to clean up the contaminated areas. Persistent effort will also be needed to ensure compliance with existing strict hazardous material regulations.

Lincoln's Zoning Ordinance (adopted November 15, 1994) has been amended to include a watershed and wellhead protection district. New construction and substantial alternation to structures or buildings within this district is subject to an additional review by the Zoning Enforcement Officer. The review addresses minimizing the flow of runoff into the water supply, removing or prohibiting any potentially polluting uses, and

assuring consistency of development with the Lincoln Comprehensive Plan. Mapping of this overlay district should be included on GIS parcel mapping to assure that both the applicant and the Zoning Enforcement Order are aware of development limitations on a parcel by parcel basis.

Habitats and Endangered Species

Lincoln contains two areas designated as being of significance for the presence of rare or endangered species of plant and animal life. The Rhode Island Natural Heritage Program (RINHP) RIDEM creates these designations and is the prime force in Rhode Island for identifying and monitoring the status of rare or endangered plant and wildlife species in Rhode Island. The town should work closely with this agency in its natural protection efforts. The two areas of importance are the Limerock quarry area and the Lonsdale Marshes (Valley Falls Pond area). (See Figure L, Cultural and Natural Resources.) Acquisition of these properties as open space by the Town of Lincoln has assured that the quality of these vital resource areas will be protected.

According to the RINHP, "the Limerock area contains the only significant outcropping of limestone in Rhode Island, and as such is valuable habitat for a wide variety of calcicoles, or plants preferring alkaline soils." "The rich, mesic forest, circumneutral seepage swamp, streamside slopes, and calcareous ledges support at least 20 occurrences of rare plants."[2] The Lonsdale Marshes are one of the largest freshwater marshes in the state and contain a large cattail population and provide habitat to at least six species of rare birds. Ongoing consultation with the Natural Heritage Program will ensure that the town is up to date on recent sightings and protection strategies.

The species noted by RINHP as being found in Lincoln are shown on the following pages.

[2]Letter to town of Lincoln from Joanne Michaud, RINHP. December 1990.

Table A
Inventory of Rare and Endangered Species

AGALINIS ACUTA	SANDPLAIN GERARDIA
ADLUMIA FUNGOSA	CLIMBING FUMITORY
ARALIA RACEMOSA	SPIKENARD
ASPLENIUM RHIZOPHYLLUM	WALKING FERN
GALEARIS SPECTABILIS	SHOWY ORCHIS
PELLAEA ATROPURPUREA	PURPLE CLIFF-BRAKE
HIRUNDO PYRRHONOTA	CLIFF SWALLOW
ASCLEPIAS QUADRIFOLIA	FOUR-LEAVED MILKWEED
COELOGLOSSUM VIRDE VAR VIRESCENS	LONG-BRACTED GREEN ORCHIS
CORALLORHIZA ODONTORHIZA	AUTUMN CORALROOT
COREOPSIS ROSEA	PINK TICKSEED
CYPRIPEDIUM PUBESCENS	LARGE YELLOW LADY'S-SLIPPER
DESMODIUM CILIARE	SMALL-LEAVED TICK-TREFOIL
GENTIANOPSIS CRINITA	FRINGED GENTIAN
LIPARIS LILIIFOLIA	LILY-LEAVED TWAYBLADE
LIPARIS LOESELII	YELLOW TWAYBLADE
PLATANTHERA HYPERBOREA	NORTHERN GREEN ORCHID
TRIOSTEUM AURANTIACUM	WILD COFFEE
ANAS CRECCA	GREEN-WINGED TEAL
CISTOTHORUS PALUSTRIS	MARSH WREN
IXOBRYCHUS EXILIS	LEAST BITTERN
PORZANA CAROLINA	SORA
ACTAEA RUBRA	RED BANEBERRY
ANEMONE CYLINDRICA	LONG-FRUITED ANEMONE
BOTRYCHIUM LASNCEOLATUM VAR ANGUSTISEGMENTUM	TRIANGLE GRAPE-FERN
BOTRYCHIUM MATRICARIIFOLIUM	DAISEYLEAF GRAPE-FERN
BOTRYCHIUM SIMPLEX	DWARF GRAPE-FERN
CORALLORHIZA MACULATA	LARGE CORALROOT
CORNUS RUGOSA	ROUND-LEAVED DOGWOOD
HEDEOMA PULEGIOIDES	AMERICAN PENNYROYAL
HOTTONIA INFLATA	FEATHERFOIL
JUNCUS DEBILIS	WEAK RUSH
ULMUS RUBRA	SLIPPERY ELM
ASPLENIUM TRICHOMANES	MAIDENHAIR SPLEENWORT
EQUISETUM SYLVATICUM	WOODLAND HORSETAIL
HEPATICA NOBILIS VAR OBTUSA	HEPATICA
MATTEUCCIA STRUTHIOPTERIS	OSTRICH FERN
PLATANTHERA PSYCODES	SMALL PURPLE FRINGED ORCHID

SANGUINARIA CANADENSIS	BLOODROOT
SAXIFRAGA VIRGINIENSIS	EARLY SAXIFRAGE
SORGHASTRUM NUTANS	INDIAN GRASS
ZIZIA AUREA	GOLDEN ALEXANDERS
AGRIMONIA PUBESCENS	HAIRY AGRIMONY
CASTILLEJA COCCINEA	PAINTED CUP
EUPATORIUM AROMATUCUM	SNAKEROOT
GEUM LACINIATUM VAR TRICHOCARPUM	HAIRY HERB-BENNET
LINNAEA BOREALIS SSP AMERICANA	TWINFLOWER
PARNASSIA GLAUCA	GRASS-OF-PARNASSUS
SPIRANTHES LUCIDA	SHINING LADIES'-TRESSES
SOUTHERN NEW ENGLAND RICH MESIC FOREST	SOUTHERN NEW ENGLAND RICH MESIC FOREST

Forests

According to the May, 1999 - Rhode Island Urban and Community Forest Plan, "Urban forest provide a multitude of benefits to residents of cities. Ecological benefits include water quality, soil conservation, air quality, and wildlife habitat. Trees give a sense of pride to communities and bring people together for planting, care and recreation." (Rhode Island Urban and Community Forest Plan, May 1999). Today, the Town of Lincoln has 2577 acres of forested public open space and still retains its original character of forested land, agricultural areas, a pattern of forested and hilly country roads, and the absence of regional strip commercial centers.

A continuing goal contained within the Town of Lincoln's last three Comprehensive Plans was to protect at least 30% of the town as forested open space. Currently, there are 2577 acres of land protected or a total of 21.3% of the land base. The most critical feature of the town's open space planning efforts have been the *de facto* creation of a greenbelt around the villages of Lonsdale, Fairlawn and Saylesville. This belt of open space is acting as a buffer that will prevent further high-density development from moving northward from the existing village areas. This green space clearly delineates the villages and will preserve their distinct character. The other recent dominant feature to the open space plan is the creation of RIDEM's Blackstone River Valley Park, a 150-acre ribbon of land along the Blackstone River. Forested open space is well dispersed throughout the town and includes land of both active and passive recreational value as well as lands of ecological significance.

The Land Use chapter of this plan identified key land use issues that by impact the existing forested areas within Town. According to the Land Use chapter, "Lincoln is located in an area that, under typical development circumstances, would very likely see increasing urbanization as time passes. The presence of the urban areas of Central Falls, North Providence and the city of Providence just to the south could act as significant

urbanizing forces that would eventually transform the town of Lincoln. If the town of Lincoln's overall zoning districts were not as solidly in place as they are now, there would be a great potential for increasing density in many areas. Holding those zoning districts will be a major challenge for the future" (Land Use chapter, page LU-8). This chapter also points out is that the Town is approaching build out with approximately 32% of buildable land remaining. The 2003 Comprehensive Plan notes, "the key challenge facing Lincoln today is to define whether and where continued medium density development should proceed given that the entire town is now sewered and given the rate of residential development. The majority of buildable residential land is located in Limerock between Route 116 and Route 123. Limerock's large land area and medium low to medium density zoning designation encourages single-family growth. Also atypical of Limerock is the lack of commercial areas. Limerock is a single-family suburban village containing the largest remaining vacant parcels of land" (Land Use chapter, page LU-5). These two important land use issues can significantly affect the amount and quality of the Town's community forests. Special consideration should be given when any zoning or subdivision regulations are amended.

III. Inventory of Lincoln's Cultural Resources

Context for Understanding Historic Resources

Lincoln is a nineteen-square-mile inland town in northern Rhode Island. The townscape of Lincoln has been formed by generations of inhabitants. The existing fabric reveals various stages of development through three centuries. Native Americans lived and farmed in Lincoln for generations. Several Archaic sites near freshwater streams are known in the town. One of the best documented is the Twin Rivers site which was excavated by the Massachusetts Archeological Society in the 1950s. Other areas occupied during this period have been found along Crookfall Brook and the Blackstone River. Sites along the Crookfall Brook and the Wenscott Reservoir probably represent inland hunting and gathering that complemented the coastal horticulture of the period. The Indians have left Lincoln an enduring legacy that includes more than archeological sites and landmarks. Many local place names are derived from the Indian language. These vestiges of the native culture are memorials to an extinct way of life and remind us of the rich and complex pre colonial history of the town, which can only be understood by carefully preserving and scientifically excavating any remaining archeological sites.

White settlers arrived in the seventeenth century to farm the land and mine the abundant lime. Eleazer Arnold, the first settler, and his sons and daughters built homes and operated farms, and a small community grew up in the region. Eleazer Arnold left a lasting legacy--in his house, his descendants' houses, and in the encouragement given to further settlement in the Blackstone and Moshassuck Valleys. The homes and fields of these settlers were not clustered in villages but strung out along Great Road, separated

from each other by the forest, creating small rural homestead oases in the wilderness. The houses they built were constructed in an English rural tradition. Two seventeenth-century houses survive in Lincoln on Great Road--the Eleazer Arnold House (c.1687) and the Valentine Whitman, Jr., House (c.1694). Very few "stone-ender" dwellings such as these remain in the state; Lincoln's two fine "stone-enders" constitute a disproportionate share of this architectural legacy.

Blackstone Valley Quakers held their meetings in private homes until 1704, when they built a small meetinghouse, which still stands near Great Road, now a wing on the later (c.1745) building. Taken together, the Arnold and Whitman Houses and the meetinghouse are a testimony to the achievements of these first settlers.

Throughout the eighteenth century, Lincoln was primarily an agricultural area, connected to Providence by Great Road. Lincoln is fortunate in retaining many reminders of its agricultural past. Several notable farm complexes and farmhouses survive in good condition--well preserved and well cared for--to document various aspects of the town's agricultural history. The Simon Aldrich Farm on Louisquisset Pike at Limerock is the best-preserved and most complete early farm in Lincoln. In addition, many fine farmhouses survive--since virtually all eighteenth-century houses were once the center of farms--mostly on lower Great Road. Barns and sheds are another important and rare component of Lincoln's historic architecture. Among the survivors is the late nineteenth-century barn at the Whipple-Cullen Farm on Old River Road. Other remnants of Lincoln's agricultural heritage exist throughout the town. The occasional cellar holes hidden in wooded areas and the miles of stone fence laced throughout the woods are poignant reminders that at one time much of Lincoln was farmed and that a way of life that supported most of the town's people has almost disappeared.

One of the earliest of colonial roads, the Great Road opened in 1683 and was designed to concoct the growing town of Providence with its agricultural hinterland. The southern stretch of Great Road, bypassed by heavy traffic, remains a unique historic environment, a fabric of buildings constructed over three hundred years in a natural setting of unequaled beauty. Along this section are ranged not only extraordinarily fine examples of Lincoln's colonial architecture, but also good examples of Federal and early and mid-nineteenth-century styles and two early mills -- one a machine shop and the other a textile factory. The Great Road district has retained its rural character and its orientation to the road. It is a unique resource for Lincoln; its historic beauty and significance have been recognized by its entry in the National Register of Historic Places. The heavy traffic routed through this district must be counted as the single greatest disruption in the historic district.

The earliest substantial concentration of development along Great Road in Lincoln occurred in the Limerock area. The mining and processing of lime at Limerock is one of the first and oldest industries in the nation. The ruins of original lime-houses can be seen

on the eastern side of Old Louisquisset Pike. In addition, well-preserved kilns and quarries survive in Limerock on Old Louisquisset Pike. As Limerock expanded, the village required a variety of institutions. Many of Limerock's handsome houses dating from the eighteenth and early nineteenth centuries still stand. The public buildings at Limerock are for the most part still in use, though their uses have changed over time. The unique character of Limerock and, in particular, the antiquity of its lime-processing industry has been recognized by the village's inclusion in the National Register of Historic Places.

While the earliest of Lincoln's builders constructed houses whose sources and models were the essentially late medieval dwellings of early England, in the second century of the town's settlement colonial builders came under the influence of English interest in classical architecture. The house plan underwent radical change and the five-room plan became almost universal. Houses built on this pattern exist throughout Lincoln and were built from the eighteenth century until well into the nineteenth. One of the best preserved of Lincoln's early houses is the Israel Arnold House on Great Road (c.1740).

In the nineteenth century, the industrial and transportation revolutions remade Lincoln. Early industrial activity was centered along the Blackstone River as it flows along the eastern border of the town. By the end of the century, most houses were clustered around mills to form small villages, and most residents no longer worked the land, but instead worked at machines in a mill. Each village contains some of these common elements: a factory or processing site, waterways, houses, stores, churches, schools, and kindred institutions. The villages, however, display a marked variation in form, reflecting their particular natural advantages, the corporate organizations which guided their development, and the background and character of their inhabitants. Lincoln's first mill village, Old Ashton (Quinnville), was founded in 1809; it has remained a small settlement. While the mills of Manville, begun in 1812, were located on the Cumberland side of the river, a substantial village grew up on the Lincoln side. Just south of Manville, the village of Albion developed; as one of Lincoln's most complete manufacturing communities, it retains its mill and several streets of company houses. Lincoln's later villages, Lonsdale and Saylesville, are located on the southern reaches of the Blackstone and Moshassuck Rivers. The older half of Lonsdale, one of Rhode Island's largest mill villages, is located in Lincoln. Saylesville was the site of one of the nation's largest cloth finishing plants. The mill villages that developed along Lincoln’s rivers in the nineteenth century still exist as lively residential communities.

The Industrial revolution was paralleled by a radical remaking of Lincoln's transportation network. New highways, the Blackstone Canal, and the railroad increased Lincoln's participation in the regional and national economy. The Blackstone Canal is an important remnant of the great canal-building efforts throughout the nation in the early nineteenth century, and a four-and-a-half mile section of the canal runs from the Ashton Dam to Front Street, past Quinnville and into Lonsdale. This in one of the longest and best-

preserved remaining sections of the canal. Bridges have been another important element of Lincoln's transport system. Several notable nineteenth-century bridges still exist: the Mussey Brook Bridge (1856), the Albion Bridges (1885, 1887), and the Canal Bridge (before 1890). Transportation in 1847 shifted to the new railroad, and passenger service on the railroads was supplemented in the early twentieth century by a trolley line connecting Providence to Woonsocket.

In 1871, Lincoln separated from Smithfield and became a town. Central Falls remained part of Lincoln; as the largest and most highly urbanized of all of Lincoln's villages, it had most of the town's public buildings. After the 1895 incorporation of Central Falls, Lincoln needed new public buildings. Several schoolhouses were erected in the twentieth century, the Old Lonsdale Baptist Church on Lonsdale Avenue was purchased to serve as the new Town Hall, and a tract of land on Old River Road was bought to serve as the new town asylum.

Lincoln Woods was purchased in 1909 and developed as a rural park. The park is still a fine example of the work of the regional planning of the Metropolitan Park Commission and still provides for the recreational needs of the region as its developers envisioned.

Throughout the nineteenth century, the economic life of Lincoln relied on income-producing activity, first agricultural, then industry. The decline of the textile industry in the early twentieth century wrought enormous changes in Lincoln. The town's future growth would be conditioned not by its reliance on a single industry but by suburban expansion. As great tracts of new residential, commercial, industrial, and institutional development filled in the space between the villages, Lincoln developed an identity of its own, supplementing the identity of its farms and villages and often at odds with their historical development patterns.

Twentieth-century suburban development has its own characteristic form and has contributed new patterns to the look of Lincoln. The town has examples of suburban tracts from each of the last six decades, and, although there are variations, these developments have much in common. They are almost exclusively residential, and suburban houses are largely single-family dwellings, separated from each other by lawns and set well back from the streets, still surrounded by natural landscape. Above all else, such suburban areas reflect in form, this century's reliance on the automobile indicating that their residents can drive to schools, shops, churches, and work places.

Connections to the interstate highway system have become a more critical determinant for Lincoln's twentieth-century development. These close ties are reflected in the recent construction of educational and commercial facilities that attract commuters on a region-wide basis--Community College of Rhode Island, Davies Vocational-Technical School, and Lincoln Mall. Moreover, the town's increased accessibility further encouraged suburbanization.

Lincoln retains an industrial base, though its modern industry is now concentrated on the western side of the town. No longer confined to the river by their need for waterpower, new industries are for the most part located in an industrial park near Washington Highway.

Town services and buildings have expanded greatly since 1945. Several new elementary schools, a junior-senior high school, and the new Lincoln Town Hall serve the town.

Lincoln has a long and varied history, much influenced by its physical resources. Everywhere in Lincoln, the forms of earlier times emerge to remind its residents of the historical presence of their predecessors and to give them a sense of continuity. The town has changed dramatically over the last fifty years, however, as large-scale highway systems and suburban development overlay historic building patterns and rural areas. The order of village, farm, wood, and field must be considered and protected if Lincoln's future planning efforts are to be successful.

In addition to the DEM survey, the Rhode Island Historic Preservation Commission conducted surveys of designed landscapes and agricultural landscapes. The RIHPC reported the following on Lincoln:

"Lincoln's landscape tradition is revealed more in a study of cultural landscapes than that of designed landscapes. Lincoln Woods is the only designed landscape listed in the survey. This designed landscape does not reflect a completely new park plan, but instead represents the reuse of agricultural farmland and existing roads for park landscape and circulation systems.

The purchase of the lands surrounding Olney's Pond, and the creation of Lincoln Woods as part of an overall metropolitan Providence park plan forms an interesting overlay of regional planning on town development. Lincoln Woods, like other parks in the metropolitan park system, became more of a regional park than a town resource. Its patrons were people who took the trolley from Providence and Pawtucket in addition to the local residents."

Lincoln Woods remains a popular regional park today. The study of its underlying cultural landscape in relation to Lincoln's town development will be important in understanding the role the development of the park played in Lincoln's townscape and preservation of some of its earlier farmsteads.[3]

[3]RIHPC Designed Landscape Survey. Materials submitted to Town of Lincoln, March 1994.

Lincoln's Civic Organizations

Perhaps the most important cultural feature of Lincoln is the village pattern of development and social organization. People associate themselves with their villages to a great degree. The social and civic organizations of the villages are indicated below.

Manville

Alphonse Yelle Post #9, American Legion
Enrico Caruso Society
Golden Agers of Manville and Albion
Holiday Retirement Home
Manville Firemen's Association and Women's Auxiliary
Manville Manor Tenant's Association
Manville Park Association
Poisson-Cournoyer Disabled Veteran's
Ukranian Beneficial Society of Mychaylo Drahomaniu

Albion

Albion Elks Lodge
Albion Firemen's Association
Albion-Limerock Baseball League
Albion Social Club

Quinnville

Ashton-Berkely-Quinnville Social Club - located in Cumberland
Quinnville Fire District and Firemen's Association

Lonsdale

Lonsdale Firemen's Association and Women's Auxiliary

Saylesville

Saylesville Post #33, American Legion
Saylesville Firemen's Association
Saylesville Highlands Garden Club
Saylesville Highlands Improvement Association

Fairlawn

Fairlawn Firemen's Association
Lincoln Manor Tenants Association

Limerock

Limerock Firemen's Association

Many organizations have a townwide focus:

Booster Club - Lincoln High School
Committee for the Advancement of Natural Areas in Lincoln
Disabled American Veterans
Friends of Lincoln Library
High Ridge Swim and Tennis Club
Kirkbrae Country Club
Kiwanis International
Knights of Columbus
Lincoln Amateur Skating Association
Lincoln Council on the Arts
Lincoln Country Club
Lincoln Manor Chorus
Lincoln Senior Citizens Club
Lions International
Little League Baseball - Upper and Lower Valley divisions
Maccoll Field YMCA
Maccoll Twirlers Square Dance Club
Masonic Organization of Lincoln
Order of the Eastern Star - Limerock Chapter
Patriots Tri-State Girl's Softball
Rams Football Association
Roadrunners
Society for Preservation and Encouragement of Barbershop Quartet Singing

Regional organizations are also very important in the life of most Lincoln residents. The following list covers some of these regional organizations.

Babe Ruth Baseball League - Cumberland/Lincoln
Blackstone Valley Community Action Program
Blackstone Valley Historical Society - formerly of Lincoln, now of Pawtucket
Blackstone Valley Junior Women's Club - Pawtucket
Blackstone Valley Writers Guild of Southern New England - Pawtucket
Boy Scouts of America
Boys Club - Cumberland and Lincoln - Located in Cumberland
Camp Fire Girls
Community College of Rhode Island - Lincoln
Cumberland-Lincoln Community Chorus - Lincoln
Davies Vocational Technical High School - Lincoln
Girl Scouts of Rhode Island
Jaycees - Cumberland and Lincoln

Retired Senior Volunteer Program - Woonsocket
State Ballet of Rhode Island

The community also has several places of worship, which are critical cultural features:

Christ Episcopal Church - Lonsdale
First Baptist Church of Lonsdale
Limerock Baptist Church
Lincoln Christian Fellowship
Lincoln Seventh Day Adventist Church
St. Ambrose Parish
St. Basil the Great
St. James Parish
St. Jude's Roman Catholic Church
Sayles Memorial United Church of Christ
Saylesville Friends Meeting House
Wesley United Methodist Church

Historic Resources

Although Lincoln has no local historical commission, many properties are of historic significance and have been placed on the National Register of Historic Places. Figure L, Cultural and Natural Resources gives the RIGIS map of areas of historical significance. Table A gives the properties and districts currently on the State and National Register of Historic Places. Also included in this table are sites and properties eligible for the Register and other properties deemed by the Heritage Corridor Commission to have historic importance. This information was gathered from the Rhode Island Historical Preservation Commission and the Blackstone River Valley National Heritage Corridor Commission.

The table indicates the type of site (engineering structure, building, complex of buildings or landscape) and provides an abbreviated description of the general theme or themes of the resource that is named. This system was developed for the Corridor Commission's preparatory studies.[4] The themes will be used as the basis for developing interpretive programs for the valley and as such are important for the community to understand as it seeks to protect the resource and the adjoining area. The codes for the system are as follows:

agri:	agriculture
arch:	architecture
comm:	commerce
comd:	community development
eset:	early settlement
eth:	ethnicity and immigration
idec:	industrial decline
ind:	industrial development
lab:	labor and management
nat:	Native American
rel:	religion
soc:	social reform
tech:	technology
tran:	transportation

For further information on historic resources in the community, refer to the RIHPC survey.

[4]Slater Mill Historic Site. 1989. *Inventory of Historic Cultural Resources in the Blackstone River Valley National Heritage Corridor*. pg. 34.

Table B
Historic Resources of Lincoln

General Description of National Register Districts Located in Lincoln

Albion Historic District: including portions of School Street, Main Street, Berkshire Drive, Willow Lane, and Ledge Way.

Blackstone Canal Historic District/Paul Ronci Memorial Park: Front Street north to the Ashton Dam (also Pawtucket and Providence).

Great Road Historic District: Great Road.

Limerock Village Historic District: including both sides of old Louisquisset Pike for a short distance north and south of its intersections with Smith Road and Wilbur Road; running east to Great Road.

Lonsdale Historic District: Bounded by Lonsdale Avenue, Front, Main, Cook, Grant and School Streets (in Lincoln); Broad Mill, Cross and Blackstone Streets, Blackstone Court, and Main Street (in Cumberland)

Old Ashton Historic District: including portions of Lower River Road and the Blackstone Canal Towpath.

Saylesville Historic District: including portions of Smithfield Avenue, East Avenue, Brunswick Avenue, Orchard Avenue, Whittle Avenue, Branch Avenue, Woodland Street and Court, Walker Street, Industrial Circle, Chapel Street, Sayles Avenue, Walker Avenue, Slater Avenue, and Memorial Avenue.

Sites and Structures with Individual Listings on the National Register

It should be noted that the following sites and structures, while not listed individually in the National Register enjoy benefits and protection of Register listing by virtue of their inclusion in National Register districts.

Place Name and Location	Site Type	Theme Abr.
1. Limerock Quarry & Kiln (c1650+) Wilbur Rd. and Route 146	landscape	idec, ind, eset
2. Lime Kiln, off Old Louisquisset Pike	Landscape	eset
3. Lime Kiln, off Sherman Rd	Landscape	eset

4. Lime Kiln, off Dexter Rock Rd	Landscape	eset
5. Pullen Corner Schoolhouse (1850) Angell, Whipple Rd.	building	comd
6. Elliot-Miner House (1850) 1406 Old Louisquisset Pike	building	arch, comd
7. Jenckes House (1730) 1730 Old Louisquisset Pike & Sherman Ave	building	eset
8. Jenckes House (1735-1765) 81 Jenckes Hill Rd	building	eset
9. Ballou Farmhouse (1782) Albion Rd	complex	agri, eset
10. Israel Arnold House (1740) 600 Great Rd	building	eset, arch
11. Eleazer Arnold House (1687) Great Rd	building	arch, eset
12. Hearthside (1810-11) Great Rd	building	tran, comd, arch
13. Saylesville Meetinghouse/ Smithfield Lower Meetinghouse (1704,40-45) Smithfield Ave, Chapel St.	building	rel, comd
14. Whipple-Cullen Farm Barn (1740) Old River Rd	Landscape	eset, agri

Significant Sites and Structures Located in Districts Listed on the National Register

Place Name and Location	**Site Type**	**Theme Abr.**
15. Wilbur Road Schoolhouse (1850) Wilbur Road	building	comd, arch

16. North Gate Tollhouse (1805-07) Old Louisquissett Turnpike	building	comd, tran
17. Lonsdale Co. Housing (c1840) Main St.	building	comd, ind, lab
18. Lonsdale Mill No. 3 (1833) Cook St.	complex	ind, lab
19. Lonsdale Hall (1869) Front St., 1661 Lonsdale Ave	building	comd, soc, lab
20. Christ Church (1883) 1659 Lonsdale Ave	building	rel, arch
21. Lonsdale Railroad Bridge and Dam (1894) Blackstone River	engineering	ind, tran, tech
22. Sayles Bleachery (1854) Walker St.	complex	ind, lab, tech
23. Sayles Memorial Chapel (1873) 185 Chapel St.	building	rel, arch, lab
24. Saylesville Mill House (1920) Woodland Court	building	comd, soc, arch
25. Mount Moriah Lodge #8 (1804) Wilbur, Great Rd	building	comd, soc
26. Smithfield Limerock Bank (1823) Great Rd	building	comm, comd, arch
27. Moffitt Mill and Dam (1812) Great Rd on Moshassuck River	complex	ind, tech
28. Valentine Whitman Jr. House (c1694) Great Rd	building	esset, arch
29. Hannaway's Blacksmith Shop (1870-95) Great Rd	building	comm, ind.

30. Butterfly Mill House (1812) Great Rd	industrial	ind, idec
31. Lonsdale Tenements (1870-88) Grant Street	building	lab, arch
32. Albion Mills (1830) School St.	complex	ind, idec, tech
33. Albion Bridged (1885-87) Albion Rd at Blackstone River	complex	tran, tech, ind.
34. Brick House (c1908) 92 School St., Albion	building	lab
35. Long House (c1840) Main St., Albion	building	lab
36. Green Mill (c1830) 29-33 School St.	industrial	arch, lab, idec
37. Non-Denominational Chapel (c1840) School St., Albion	building	rel,eth,lab
38. Albion Gatehouse (C1916) off School St.	engineering	ind, tech
39. Blackstone Canal (c1828) Ashton to Lonsdale	landscape	tran,ind, comd

Sites and Structures Deemed Eligible for Listing on the National Register

1. ## Crookfall Brook Historic and Archaeological District
   Lincoln and North Smithfield

2. \+ Lincoln Community School
   Breakneck Hill Road

3. \+ Lincoln Woods State Park
   Breakneck Hill Road

4. \+ Arnold Bakery / Lonsdale Bakery

234 Chapel Street, Saylesville

5. + Olney Arnold House
100 Cobble Hill Road

6. + Bastow Frame Shop
20 Knowles Street

7. ## Paine's Mill Site (RI-402)
Louisquisset Turnpike, Lincoln and North Smithfield

8. ## Crookfall Brook Factory Site (RI-398)
Louisquisset Turnpike

9. + Manville School
School Street

10. * Ashton Viaduct
Washington Highway (RI-116), over Blackstone River, Lincoln, and Cumberland

Ranking Codes:

* Formally determined eligible for National Register Listing by the National Park Service.
** Review of nomination and approval by State Review Board indicates property is most likely eligible for the national register.
*** Review of preliminary materials by the State Review Board suggests property may be eligible for the National Register.
# Recommended for National Register consideration in the Historical Preservation Commission survey publication.
Eligibility agreed upon by Historical Preservation Commission and a Federal or State agency for environmental review purposes.
+ Consideration requested or suggested for National Register by owner or other party (Note: this category includes properties for which the SRB reviewed preliminary or final materials and found that it did not appear NR eligible at the time)

Note: Archaeological sites formally determined eligible for NR listing by NPS are included in the list, but not mapped on the accompanying maps. They are mapped on the archaeological sites map set.

Other Sites and Structures Identified as Having Historic Importance by the Historic Resources Inventory Performed for the Blackstone River Valley National Heritage Corridor Commission:

Place Name and Location	Site Type	Theme Abr.
1. Crookfall Brook Historic and Archeological District	complex	arch
2. Lincoln Community School	building	NA
3. Olney Arnold House	building	NA
4. Bastow Frame Shop	building	NA
5. Crookfall Brook Factory Site	NA	ind
6. Manville School	building	NA
7. Ashton Viaduct	NA	NA
8. Jeremiah Smith House (1790) Wilbur Rd	building	eset, arch
9. Mussey Brook Bridge (1856) River Rd at Mussey Brook	engineering	tech, tran
10. Old Louisquisset Turnpike (1805-06) Route 246	landscape	tran, comm
11. St. Ambrose Church School St., Albion	complex	rel, eth
12. Capt. Wilbur Kelly House (c1810) Lower River Rd, Old Ashton	building	lab, tran
13. Old Ashton Mill House (c1810) Lower River Rd, Old Ashton	building	arch, lab
14. Mesker Brothers Triple Decker (1909) Winter St., Manville	building	lab, tech, arch

Significant Landscapes

The Rhode Island Department of Environmental Management performed a scenic landscape inventory of the entire state in order to identify areas of important scenic beauty.[5] The state was divided into several physiographic landscapes and Lincoln falls within the "Interior Upland" landscape and the "Narragansett Lowland" landscape. In the case of Lincoln, two areas were cited as being noteworthy, meaning that there is "overall continuity and harmony of form in relationship between vegetation and development", and a "fairly consistent built fabric". The two areas in Lincoln are the Great Road area near Hannaway Blacksmith Shop and a portion of Whipple Road at the Smithfield border. (See Figure L, Cultural and Natural Resources.)

Each of these areas must be managed carefully in the years ahead, but for different reasons. The Great Road area is primarily under protection of town ownership and easements on the existing farmland. Protection is needed to ensure that roadway improvements and increased tourism activity do not detract from the area's beauty.

The Whipple Road area will be the site of future development activity. Although much of the development may occur in Smithfield, access may be needed through Lincoln. Cooperative planning will be important to ensure that both home sites and roadways do not damage the area's scenic beauty.

Lincoln's landscape tradition is revealed more in a study of cultural landscapes than that of designed landscapes. Lincoln Woods is the only designed landscape listed in the survey. This designed landscape does not reflect a completely new park plan, but instead represents the reuse of agricultural farmland and existing roads for park landscape and circulation systems.

The purchase of the lands surrounding Olney's Pond, and the creation of Lincoln Woods as part of an overall metropolitan Providence park plan forms an interesting overlay of regional planning on town development. Lincoln Woods, like other parks in the metropolitan park system, became more of a regional park than a town resource. Its patrons were people who took the trolley from Providence and Pawtucket in addition to the local residents.

Lincoln Woods remains a popular regional park today. The study of its underlying cultural landscape in relation to Lincoln's town development will be important in understanding the role the development of the park played in Lincoln's townscape and preservation of some of its earlier farmsteads.

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[5]Rhode Island Department of Environmental Management. 1990. *The Rhode Island Landscape Inventory: A Survey of the State's Scenic Areas.*

Archeological Resources
The state of Rhode Island's Historical Preservation Commission keeps records on known archeological sites throughout the state. Figure M, Archeological Sites indicates the general locations of those resources in Lincoln. The sites shown in the map are of at least 20 acres in size, the intention being to highlight general areas containing important sites without disclosing the specific locations of the resources. A review of RIHPC files indicates that Lincoln's archeological resources include the following general types of materials and sites: arrowheads, pottery shards, campsites, rock shelters, and prehistoric campsites ranging in age from 9,500 to 11,000 years old.

Future site review and site design must take these resources into account. When smaller subdivisions are proposed, only the town can ensure that potential historic resources are taken into consideration.

Cemeteries
Due to Lincoln's colonial agrarian and village settlement pattern, there are 54 cemeteries in the town. Known sites are shown on maps in the Lincoln Open Space Plan maps.

Farms
Figure L, Cultural and Natural Resources, indicates the location of Lincoln's farms. The source of the data is the Rhode Island Geographic Information System's inventory of land use in Lincoln in 1988 and field visits. It is not anticipated that this data has significantly changed within the past decade. In general, Lincoln needs to seek ways to encourage its remaining farms to stay intact. Rural protection zoning or transfer of development rights may be useful methods for such protection.

Scenic Roads
Figure L, Cultural and Natural Resources, also indicates the scenic roads in Lincoln. Although these roads have not gone through any formal designation, this plan's initial identification of the town's most scenic roads is a first step.

The Blackstone River Valley National Heritage Corridor
This recently established national corridor park will be an ongoing effort to identify and interpret the cultural and economic heritage of the communities in the Blackstone River Valley. The funds and energy already in place to move this project ahead will have economic and cultural impacts on Lincoln. The economic impacts will primarily be from tourism activity within the Corridor. The cultural impacts will include increased traffic and contact with tourists and a heightened awareness of Lincoln's role in the development of the Corridor's history and its own cultural and historic resources.

Corridor Tourism and Lincoln

Along with preserving cultural and environmental resources, another main focus of the Blackstone River Valley National Heritage Corridor is the stimulation of tourism. From the perspective of the Lincoln Comprehensive Plan, tourism should be examined for its potential economic, environmental and cultural impacts on the community. Tourism planning and development work has the potential for serving as a link that will draw Blackstone Valley communities together on a variety of planning issues. Both local initiatives and regional efforts will be needed in the future if Lincoln and its neighbors are to grow the tourism sector without damaging the quality of life in the Valley.

The Blackstone River Valley Tourism Council was formed in 1984 to coordinate tourism development activity. Since that time the organization has worked to develop a regional tourism plan.[6] The major themes that emerge for Lincoln are the following:

1. Protection of historic structures and landscape - Lincoln has an aggressive open space protection strategy. Less effort has been made at the municipal level to protect the town's historic structures. To date, however, the residents' efforts in the Great Road area have been quite effective. The community should consider whether current strategies will be sufficient to protect the resources over the next ten to twenty years.

2. The tourism plan calls for a land use strategy along the river that protects access, views and land.

3. Involvement of individuals in the valley tourism promotional effort will be needed. This extends from opening homes to tours, to pathways, to essay contests by students.

4. Management of the visitor should be considered by Lincoln. This includes handling traffic in specific areas (e.g. along the bikepath) to generating opportunities for local business people to profit from the tourism traffic (e.g. providing proper signage and traffic routes so that visitors pass by local merchants.)

The Blackstone River Valley Natural Heritage Corridor Commission ranked the following sites in Lincoln as high value natural resources:

- Lonsdale Marsh (Lincoln, Cumberland) – ranked high significance in Natural Value

[6]Blackstone Valley Tourism Council, Incorporated. 1991. *A Draft Regional Comprehensive Tourism Planning Component to be considered for the Comprehensive Plans for the Blackstone River Valley Communities.*

- Ashton Meadow – ranked high significance in Cultural Value
- Lime Rock – ranked high significance in Natural Value and Cultural Value
- Chase Farm – ranked high significance in Cultural Value
- Albion Floodplain Forest
- Lincoln Woods State Park

Lonsdale Marshes

The 25+ acre Lonsdale Marshes is one of the largest wetland complexes in northern Rhode Island. The Rhode Island Department of Environmental Management (RIDEM) has acquired much of this area because it maintains a diversity of wetland habitats, including emergent cattail marsh, which supports several state-listed rare nesting birds. Its size and quality also make the Lonsdale Marshes one of the most important migratory waterfowl areas in the Blackstone Valley. Its scenic qualities within a highly urbanized context also contribute to the site's high natural and cultural values. Its historic and traditional land use values are less significant, but the site possesses both local and regional significance.

On the north side is the abandoned Lonsdale drive-in property. RIDEM has had this site appraised and is currently negotiating with the landowner. The purchase of this site will make possible the restoration of the former drive-in back to original natural floodplain. The site has been targeted by the Army Corps of Engineers as one of its priority projects in an on-going effort to restore water quality and flow along the Blackstone River. RIDEM Division of Fish and Wildlife is planning to install a boat ramp nearby.

Currently, the issues concerning the Lonsdale Marshes are that the wetlands are presently threatened by negative impacts from development. In addition, to pollution from household runoff, such as pesticides, toxic organic compounds and phosphorous, there is runoff originating from a landfill site. Filling, sediment erosion and surface water diversion serve to decrease the water table and drain the wetlands. The ultimate result is a devastated water supply and a general disruption to vegetation and wildlife. Restoration would renew and extend the water quality and life-support functions of the marshes and offers a unique opportunity for natural inspection. Volunteer clean-up projects at the Lonsdale Marshes have cleared a great deal of surface debris. On the Cumberland side, a project is being planned to eliminate a small hazardous waste dump as part of mitigation for construction of the Blackstone Bikeway through the area.

Ashton Meadow

Ashton Meadow is one a few remaining open meadows along the Blackstone River. Located within the Blackstone River State Park, the Meadow is adjacent to the Kelly House, a historic resource owned and managed by RIDEM. The site illustrates one of the traditional landscapes of the Valley – river, meadow, farmhouse, and floodplain forest – later transformed with the advent of mills and worker housing. A well-worn path,

parallel to the river, passes along the site into the forest on either side of the House and Meadow. The Blackstone Bikeway will pass close by and enhance the visitor's experience of the River and its significant landscapes.

Currently, maintenance on the meadow is uneven and sporadic. The meadow needs to be mowed regularly to keep it clear of invasive species. Well-intentioned by poorly-advised landscaping attempts have resulted in conifers planted in the meadow as well as foundation plants and exotics planted in front of the Kelly House.

Limerock

Limerock contains Rhode Island's only significant and one of a few outcroppings of limestone in New England. Like Lonsdale Marshes, Limerock's primary water sources are the Moshassuck and Blackstone River Valleys. Long quarried for its limestone, the site is now host to one of Rhode Island's largest concentration of rare plants associated with the underlying calcareous bedrock. The unique terrain of alkaline rock quarry is habitat for the purple-stemmed cliffbrake, the walking fern and the showy orchid. The mixture of mesic forest, circumneutral seepage swamp, streamside slopes, and calcareous ledges nurture some 20 occurrences of rare plants. Limerock has high cultural value in the traditional land use category, scenic category, and historic category. It has significant geology, vegetation and habitat, and represents an important local and regional resource.

Many owners including The Nature Conservancy, the Town of Lincoln, the Lincoln Land Trust, and several key private owners control the land. The largest private owner is a quarrying company, which has significantly reduced excavation operations but uses the site for processing and storage. It is expected that the quarry will close at some time in the near future. The Lincoln Water Commission is interested in using the quarry as a second source of drinking water for the town and could potentially reuse the vacant processing building to house a water pump. The Nature Conservancy is also interested in acquiring additional parcels.

Chase Farm

Chase Farm, owned by the Town of Lincoln, is located along the historic Great Road. The area is known for its preserved landscapes and historic sites related to colonial times, early industry, and dairy farming. These historic sites along the Great Road are preserved and managed by the Town and State agencies, and by private parties, such as The Society of the Preservation of New England Antiquities. A trail system (away from the road) has been suggested to connect protected properties with open space to Chase Farm.

Several years ago, the Town requested that the Corridor Commission assist with the design of appropriate landscaping at the Farm and adjacent sites. Concerned that the farm not lose its agricultural setting to suburban landscaping and programmatic elements, such as parking, the Commission developed a Historic Landscape Assessment for all Town properties along Great Road. It included a series of recommendations for

improving recent landscaping additions and development of a master plan recommending how the Farm and related sites might be used by the public in the future.

IV. Looking Ahead: Issues for Consideration

The main issues arising from the above inventories are as follows:

1. The Blackstone River should be a major theme within the overall planning framework for the town. The natural and cultural resources that fall within the valley of the river are numerous and potential conflicts exist because of this overlap. For instance, reuse of land in the villages or increased tourism use will place additional pressure on the natural systems of the river. An integrated historic, ecological and land use strategy is needed for the river valley. The Lower Blackstone River Re-Use Plan[7] laid the groundwork for this approach and should be used in future management decisions.

2. The Townline Swamp (near Old Saylesville Road at Crook Fall Brook) is a major wetland system that has received no public acquisition protection despite its proximity to industrial activity and the Woonsocket Reservoir. Additional protection for this area should be explored**.**

3. Though some of the Limestone area has been protected, there remains more land that is unprotected and lands at the edge of the area have no special protection or regulatory control. A clear policy and strategy is needed for this area. This is especially the case for the Moshassuck River Valley. The drainage basin for this river in East Limerock will be an area of future development. A comprehensive approach is needed for this area to ensure adequate environmental protection beginning with developing a protection and interpretive strategy for Limerock with property owners and other partners in anticipation of the cessation of quarry operations. Initiate a discussion with the Conklin Lime Company to determine the timeline for the actual closing of the quarry and with the RI Natural Heritage Program and other interested parties to ensure adequate planning for the preservation of the site.

4. The floodplain and floodway are limited, and existing zoning, floodplain and floodway protections appear adequate.

5. Though Lincoln has a variety of historic resources, few are protected in a manner that will guarantee their preservation. In the past, the community has resisted the formation of an historic district commission. Consideration should be given during this plan to adopting stronger protective mechanisms, especially in the

[7]Rhode Island Department of Environmental Management and Division of Planning and Development. 1990. *Lower Blackstone River Re-Use Plan, Cumberland and Lincoln, RI.*

Great Road area. Consideration should be given to "first steps" the town can take to move it toward a protective strategy with which it feels comfortable.

6. The mapping for the first time of Lincoln's many cultural resources will allow the town to better coordinate the site plan review process in regard to synthesizing the many factors that come into play in plan review.

7. The villages form the core of Lincoln's cultural system. The town must continue to protect its villages and the village institutions.

8. Continuing education of both residents and elected leaders on the pros and cons of historic resource protection should be pursued. Develop recreational opportunities in combination with the preservation of historic resources along the Blackstone River and its banks can connect important historic sites to provide a continuous corridor of recreation and educational experiences.

9. Develop a plan for a State Heritage Park with the Blackstone River Valley.

10. Improve access, water quality, and develop canoe portages on the Blackstone River to provide opportunities for canoeing, kayaking, and recreational fishing. Also look at potential or expanding existing bicycling, hiking, cross-country skiing, picnicking, and sightseeing opportunities along the corridor. Collaborate with surrounding communities on the Blackstone Bikeway.

11. Participate in regional cooperation to ensure the Blackstone Valley is protected and cherished for years to come, to preserve open space, and limit future suburban sprawl as Lincoln and northern Rhode Island becomes the new destination for commuters as development pressures extend south from Boston via Interstate 495.

12. Continue involvement in the ongoing efforts to reclaim the Lonsdale drive-in property. As a part of this project begin to consider strengthening project review and site plan review processes, to protect the site from inappropriate development on property adjacent to or upstream from the Lonsdale Marshes.

13. Continue to work with RIDEM through their Cooperative Agreement to clarify various management issues of Ashton Meadows. The Bikeway will help provide a forum for the discussion of management issues and the implementation of a maintenance plan for the site. In addition, the trail leading to the Albion Floodplain Forest, through the old growth forest, can be highlighted.

14. Review the Historic Landscape Assessment Report done by the Corridor Commission in order to preserve the agricultural landscape.

15. Investigate using the Historic Preservation Investment Tax Credit to restore any income-producing building by making preservation work more affordable.
16. The Town of Lincoln should consider creating a local historic district for zoning purposes. A local historic district zone is a special zoning area that helps save historic buildings and to preserve the special sense of time and place that exists within the community. It monitors and guides construction activity in its historic areas. Since listing on the National and State Registers of Historic Places provide protection only when public funds or government licenses are involved in a project, the Town Council would have to pass an ordinance to establish a historic district commission who would then identify areas for designation as historic district zones.

17. The Town of Lincoln, with the cooperation from the Town of Cumberland, should investigate the ownership of the "Un-Named Island". This piece of land was formed from the Blackstone River. This is an area that could be made into a passive recreational area and a resting place for canoe and kayak users.

Natural and Cultural Resources Element Strategy Summary

Status of Natural/Cultural Resource Planning in Lincoln

Lincoln has assertively protected open spaces and special habitats and has a good track record of working with a variety of groups to protect open space. The town's strategy concerning managing environmental threats and protecting cultural resources has been less well defined. The plan sets the stage for in-depth examinations of both the environmental and historic resource protection regulatory options open to the town.

Goal

To identify and protect the critical natural and cultural resources of the town.

Policies

1. Protect the air, water, soil, plant life and wildlife of Lincoln.
2. Develop and follow clear protection strategies in the following critical environmental areas: rare and endangered species, erosion, storm water runoff, contaminant runoff, aquifers, surface water, wetlands, riverbanks and floodplains, wildlife habitats, road de-icing, wastewater treatment, septic systems, fuel storage tanks, quarrying, sand and gravel operation, air quality, hazardous materials use and handling, hazardous waste cleanup and industrial material handling and processing.
3. Identify and catalogue the historic resources of the town and work with property owners to seek means to protect those resources.
4. Seek to protect agricultural uses to the maximum extent feasible.
5. Work with adjoining towns and the region to advance environmental and cultural resource protection strategies.

Policy Statement on Natural and Cultural Resources in the Villages:

Lonsdale: The key natural resource in Lonsdale is the Blackstone River Valley. This includes the river, the canal, the riverbanks and the marshes. Stronger environmental and design regulations will ensure no further pollution of the river. Well protection will be pursued at the town's wells to the north and south of the village. The town will work to protect its two state register historic districts (Great Road and Lonsdale Village). Consideration will be given to flexible mechanisms to encourage the preservation of the historic structures and historic landscapes. Lincoln will cooperate closely with the Blackstone Valley Heritage Corridor to enhance this natural and historic resource, which Lonsdale shares with many other communities. Lincoln will work to protect and enhance the gateways to the village, that is, the streetscapes, signage and views that people see when they enter the village.

Saylesville: The town will work to provide clear, protective standards that will allow for the reuse of industrial properties within Saylesville while also protecting the Moshassuck River watershed and the various ponds and water bodies within that watershed. The historic character of the Saylesville industrial park historic district will also be protected while full use of all buildings is encouraged. Key challenges include:

- The Moshassuck and ancillary water bodies should be protected from surface water pollution.

Fairlawn: The predominant cultural resource of Fairlawn Village is neither historic nor environmental but rather consists of the very personal neighborhoods that comprise this village. The policy of Fairlawn village is to protect this character to ensure adequate trees and landscaping along public streets, discourage the widening of roads and in general to maintain current zoning so as to protect the residential character of the area. Key challenges include:

- The primary natural resource effort in Fairlawn should be the extension of the Moshassuck River Protection Program to this area.

- Strategies should be developed to revitalize the health of and provide greater access to the river, while allowing abutting industrial uses to thrive.

Quinnville: Protection of the historic structures on Lower River Road is a priority for Lincoln. Quinnville will continue to be a model of a riverside village that does not have any negative environmental impacts on the river.

Limerock: The predominant natural resources of this area are the Blackstone River and the Moshassuck River. Key natural resources challenges include:

- All efforts should be made to protect and improve the quality of the rivers including the headwaters of the Moshassuck River. Numerous wetlands fill much of the remaining open land in both West Limerock and Twin River.

- Efforts must be made to decrease surface, non-point source pollution from residential properties.

The Blackstone River, old Limerock Village (Great Road), and the older farm/estates in West Limerock along Jenckes Hill Road and Angell Road are the predominant historic resources of this area. Planning policies will protect the historic character of these areas while allowing for their day to day use. Key cultural resource challenges include:

- Roadside protection strategies should be employed to ensure that the rural character of this area is maintained.

- The historic resources of Great Road must be protected.

Industrial Corridor and Parks: The Industrial Corridor and Parks areas will continue to be models of how economic development can proceed in an environmentally safe manner. To the degree feasible, the town will work with landowners to remediate sites with hazardous waste issues and to ensure that such pollution does not occur again in the future. All developments will conform to strict environmental protection standards.

Albion: The town will enhance historic qualities of Albion Village in the future through public investments and mechanisms to require or encourage the protection of historic structures. The Albion Bridge and locks should be protected for the future. Albion has a great potential to be a more active cultural center through an increase in small business activity within limited areas.

Manville: Manville is surrounded by either the river or by significant wetlands. Future development must take precautions to avoid pollution to surface or ground water. Manville is another area of Lincoln that has a state register historic district and, therefore, the enhancement of those historic resources is an objective of the village. However, Manville's character is an on-going expression of Blackstone Valley building styles, and the village should continue to encourage this. Reuse of existing historic structures rather than demolition should always be the preferred option. The town should consider adoption of a water shed protection overlay district along the Crooksfall Brook to protect Woonsocket's water supply.

Natural and Cultural Resources Element Actions

NC1 - Guidepost Actions

a. **Work with conservation, historic preservation and environmental groups to carry out the town's objectives.**
b. **Continue to move toward the goal of setting aside at least 30% of the town as protected open space.**
c. **Undertake an overall effort to more clearly define the town's environmental protection strategy.**

NC2 - Townwide. Form a short term task force to review all town environmental regulations and determine whether new or revised regulations should be adopted to strengthen town environmental protection efforts. Consider adoption of a zoning overlay district to protect critical environmental resources.

Action Agent: Town administrator's office creates task force with representatives from the public works department, planning board, public safety departments, conservation commission and water commission.

Cost: Part of zoning revision process.

Recommended topics for consideration are given below.

Category 1 Construction and Land Development

Adopt a development plan review provision within the zoning ordinance. This provision should include specifications for environmental protection during and after the development process.

Complete digitizing of the Airport Hazard Zone (AHZ), Blackstone River Valley Overlay District (BRV), Moshassuck River Valley (MRV), Rural Protection Zone (RPZ), Watershed and Wellhead Protection District (WPD), and Flood Hazard Zone (FHZ) onto tax maps for reference to parcel data.

Category 2 Storm water runoff from storm water systems, roads, parking areas, rooftops, lawns and unvegetated areas

Update the town's existing Soil Erosion and Sediment Control Ordinance to prevent further runoff pollution of the town's waterways and waterbodies. Consider use of the RI Soil Erosion and Sediment Control Handbook to guide management of the ordinance and adopt state erosion control enabling legislation standards.

Consider participating in the Regional Compliance Inspection Program wherein Conservation District staff assists local departments in reviewing site plans and performing site inspections.

Consider adoption of a land clearing ordinance that limits the amount of any lot that can be clear-cut during development.

Review estimates of level of capacity for the town storm water system and determine where additional tie-ins should not be allowed without system expansion. Review maintenance schedules of all town-owned and town managed storm water mitigation facilities.

Comply with the requirements of Rhode Island Pollution Discharge and Elimination System Phase II through development of a Stormwater Management Project Plan (SWMPP). Prepare mapping of the stormwater system and develop a plan to remove illicit connections to the stormwater system.

Category 3 Aquifer and Wellhead Protection

Develop clear zoning language that identifies the development plan review process for proposed development within the overlay zone. Complete digitizing of the Wellhead Protection Areas onto tax maps for reference to parcel data. Include the Water Commission as reviewers with approval powers.

Amend the review procedures for the Blackstone Valley Overlay District in the zoning ordinance to protect this class AA source of groundwater from further contamination.

Category 4 Water Quality Protection

Consider adoption of a watershed protection ordinance in the Crooksfall Brook watershed in order to protect the Woonsocket Reservoir system.

Consider adoption of the Moshassuck River Valley Protection Program. See NC4.

Consider using federal funds to provide educational materials to farmers on the best management practices available for minimizing the impact of farming on surface and groundwater.

Encourage the RIDEM to conduct Total Daily Maximum Limit (TDML) studies on both the Blackstone and the Moshassuck Rivers to determine

pollutant loadings. Upon completion of TMDL studies, initiate development requirements that protect local water quality.

Category 5 Flood Plains and Floodways

Review existing regulations and potential use conflicts.

Category 6 Wetlands Protection

Review all local ordinances for consistency with the state Freshwater Wetlands Act.

Support state efforts to restore the Lonsdale Marsh (site of the former Lonsdale Drive-In) as upland and marshland wildlife habitat with recreational and educational value.

Category 7 Road De-Icing Practices

Consider requiring all drivers, loaders and handlers of road salt to attend the "Sensible Salt Program" sponsored free of charge by the Salt Institute.

Category 8 Wastewater Collection Systems

Continue town policy of tying into the sewers all failed septic systems. The Town prefers that new homes should be on sewer service.

Establish program to develop funding mechanisms for pump station maintenance.

Establish program levying pump station operation and maintenance fees to new development discharging flow to existing pump stations.

Category 9 Wastewater Treatment

Encourage the Narragansett Bay Commission to continue to update its wastewater facility plan as required by state and federal regulations.

Lincoln recognizes that combined sewer overflows are a major problem for the bay area, but with regard to Combined Sewer Overflow capital expenditures, the town believes that the expense should be borne by the state as this is a statewide natural resource protection issue.

Category 10 Underground Storage Tanks

Consider performing an inventory of all privately owned underground storage tanks, both those subject to and exempt from RIDEM regulations. Add this information to the land management system.

Review land use regulations and identify areas where underground tanks should be prohibited due to groundwater and aquifer resources.

Category 11 Sand, Gravel and Quarrying Operations

Consider the adoption of a town ordinance to manage the operation and reclamation of sand, gravel and quarrying operations. In particular, runoff and water quality issues should be addressed.

Category 12 Hazardous Materials Management

Review the town's hazardous materials storage and handling requirements. Review regulations pertaining to automobile storage.

Category 13 Industrial Processing and Materials Monitoring

Review all local ordinances and procedures for inspecting and monitoring the handling of industrial materials in town. Identify weak procedures and correct them.

Category 14 Rare and Endangered Species Protection

Continually be in contact with the Natural Heritage Program to ensure that up to date information is available on rare and endangered species. Consider including the Natural Heritage Program as a reviewing body for strengthened development plan review zoning.

Category 15 Forest Management Practices

Evaluate the degree to which forest protection and conservation should be a criteria in rural protection zoning regulations and in general town environmental education efforts. Consider adoption of the Farm, Forest and Open Space Act. The Town should reference the State's Urban Foresting Guide Plan for direction on forest management practices.

NC3 - Townwide. Clarify the Wellhead Protection Overlay zoning process for development proposals. Develop clear zoning language that identifies the development plan review process for proposed development within the overlay zone. Complete digitizing of the Wellhead Protection Areas onto tax maps for reference to parcel data. Include the Water Commission as reviewers with approval powers.

Action Agent: Planning Board, Water Commission, Engineering Department
Cost: Part of zoning revision process

NC4 - Limerock, Saylesville and Fairlawn. Adopt a comprehensive protection and sustainable development program for the Moshassuck River Valley from its headwaters to the Pawtucket city line. In Lincoln, the Moshassuck River runs through an area with the highest residential development potential in town, and then along the historic Great Road area, and then through an increasingly silted series of ponds and finally through the industrial area in Saylesville and Fairlawn. This is a great diversity of land uses and landscape. The Moshassuck River Valley Protection Program should be designed to put in place zoning and other regulatory and management systems that will allow the people of Lincoln to use and reuse the land along the Moshassuck while also protecting and restoring the health of this river.

The components of the program will be the following:

a. A river way overlay district that will require runoff, land use and development controls. For example, rural protection zoning might be required in the upper valley to reduce residential runoff and to keep all houses and lawns as far away from the river and wetlands as possible while still giving developers access to their allowed densities.

b. A river way setback zoning provision to strengthen state wetlands requirements so as to protect the river quality. The Moshassuck River Valley Overlay District should identify minimum setbacks from the river and establish specific Best Management Practices for stormwater runoff.

c. A river cleanup program where volunteers work to clean the river and ponds in the stretches where garbage has been dumped.

d. An industrial/river sustainable development program where all industrial users along the river meet to review land use practices that will minimize the impact of industry on the river. Ideally, this program should seek to restore the river and riverbanks to a more natural state even as it runs through the industrial areas. This program should also include a definition of industrial uses that should not be allowed near the river. Given the history of pollution in the

Blackstone and Moshassuck River Valleys, heavy industry, waste recycling, waste incineration, hazardous materials handling and other potentially polluting uses should be prohibited within the water sheds of these rivers. Cooperation with other towns will be critical for this effort.

Action Agent: Planning Board
Cost: Part of the zoning revision process

NC5 - Townwide. The town of Lincoln should adopt a public education program designed to raise awareness among homeowners of the impacts they have on surface and ground water quality. Materials should be distributed to homeowners and other residents on issues such as disposal of household waste, lawn fertilizers, use of salting materials and other issues relative to non-point source pollution.

Action Agent: Town Administrator's office and Conservation Commission
Cost: $1000 annually for brochure printing and mailing

Cultural Resources

NC6 - Townwide. Explore how to best protect the historic properties of Lincoln, and pursue a historic preservation educational program for town residents and officials. Prepare a set of slides or videos for all the properties within Lincoln's historic districts and identify central changes that could be made to these structures that would destroy or be detrimental to the historic character of the area. Review the rules and regulations of other towns in Rhode Island that have adopted historic district zoning and apply those rules, or an amalgamation of those rules, to the potential changes that could occur within Lincoln. Determine the type of constraints and opportunities that would be placed on property owners if similar regulations were put in place in Lincoln. Explore the creation of a design review commission that would have no legislative authority to deny projects but would be required to comment on all potential changes to structures within the historic district. A fast track review process would be recommended. This may be an appropriate first step for Lincoln to encourage that historic structures be protected.

Action Agent: Planning board
Cost: Part of zoning revision process.

NC7 - Townwide. Consider a design review process whereby all properties on the state register of historic places would be subject to a non-binding architectural design review prior to the issuance of a building permit, special permit or site plan approval. This committee would not have the power to deny an application. Instead

their function would be to provide information to the community and provide input on prospective developments relative to the appropriateness of the proposed design and to educate the general public. The committee could function using the standards and guidelines followed by historic district commissions. In addition, the use of historic district zoning should be encouraged in areas where residents support this form of regulation.

Action Agent: Planning Board and Town Administrator's office
Cost: Part of zoning revision process

NC8 - Townwide. The proposed development plan review zoning provision should also include a section addressing the impacts of new development on historic, archaeological and other cultural resources. All new developments should be required to review the comprehensive plan and prepare a concise presentation on how their development can enhance and protect the town's cultural and historic resources.

Action Agent: Planning Board
Cost: Part of zoning revision process

NC9 - Townwide. Protect all agricultural uses in Lincoln through zoning that provides incentives for protecting agriculture (Rural Protection Zoning) and through land or development rights acquisition. Lincoln maintains several large and small farming operations that lend the town much of its rural character. Town planning and development policy should recognize these businesses as true assets to the community. The town's purchase of the Chase Farm is an example of the town's commitment to agricultural protection. Similar arrangements as finances allow will reap benefits both for the rural quality of life and in the long-term fiscal impact of land that does not become housing. The town should also review its tax policies relating to the taxation of open farmland.

Action Agent: Planning Board and Town Administrator's office
Cost: Zoning changes will be part of the zoning revision process.
Acquisitions will be made on a case by case basis as finances allow.

NC10 - Townwide. Consideration should be given to providing tax relief to investments made in historic mill buildings. A meeting of mill owners, assessors and the town administrator should be held to review the pros and cons of this issue.

Action Agent: Assessors office, Town Administrator and mill owners
Cost: Unknown. Trade offs on overall increased value would need to be calculated.

NC11 - Townwide. Continue town projects to keep old cemeteries clean from brush and debris.

Action Agent: Town Council
Cost: Summer student help

NC12 - Townwide. Lincoln has several notable historic bridges. The town should keep historic character protection in mind for all local and/or state bridge improvement projects.

Action Agent: Department of Public Works
Cost: Monitoring - staff time

NC13 - Townwide. Lincoln should encourage property owners to complete requirements necessary to add more properties to National Register of Historic Places.

Action Agent: Town Administrator
Cost: Staff time, letter to all eligible property owners

NC14 - Saylesville. Saylesville Pond is gradually filling in with sediments. Eutrophication has begun. The Town should initiate an effort to work with state DEM to devise a plan to either halt silting or dredge the pond. This concept, though potentially contradictory to the state wetland laws, is critical to maintaining the pond as a community resource.

Action Agent: Conservation Commission
Cost: Unknown.

NC15 - Limerock. Historic structures should be protected in this area. The Town should go through an evaluation process of the pros and cons of historic district zoning as recommended in Townwide Action NC-6. In the interim, a design review process should be adopted whereby an advisory committee provides historic structure design advice to all developments in this area. See NC-7 - Townwide.

Action Agent: Planning Board and Town Administrator
Cost: Part of zoning process.

NC16 - Industrial Corridor. The town should continue to work with state, local and federal agencies and politicians to provide funding for the cleanup of Airpark Industrial Park hazardous waste sites. In particular, cooperative efforts should be pursued with the Blackstone Valley Development Foundation and the Woonsocket Industrial Development Corporation. Given that this site is still in the early stages of the

Superfund process, no cost estimates, as final analyses of the extent of contamination, have been prepared.

Action Agent: Town Administrator's office.
Cost: Unknown

NC17 - Manville. Encourage landowners to clean up riverfront land.

Action Agent: Conservation Commission
Cost: Unknown.

NC18 - Townwide. Provide mapping for the Blackstone River Valley and Moshassuck River Valley overlay zone.

Action Agent: Planning Department
Cost: Consultant

NC19 - Townwide. Support sustainable Brownfield redevelopment efforts that protect water quality

Action Agent: Planning Department
Cost: Staff time

NC20 - Townwide. Implement Phase II RIPDES stormwater requirements to provide education and eliminate illicit connections

Action Agent: Public Works Department
Cost: consultant

NC21 - Townwide. Coordinate with the Blackstone River Council

Action Agent: Planning Department
Cost: Staff time

NC22 - Townwide. Support efforts to form the Moshassuck River Valley Protection Plan

Action Agent: Administration
Cost: Staff time

NC23 - Townwide. Utilize results of Blackstone River TMDL study in reviewing proposed development in the Blackstone River Valley overlay zone.

Action Agent: Planning Department
Cost: Staff time

NC24 - Townwide. Support the Governor's Growth Policy Council efforts to protect natural and cultural resources in the development process.

Action Agent: Planning Department / Administration
Cost: Staff time

NC25 - Townwide. Continue to press for site remediation and reuse of the Peterson/Puritan, Inc. parcels.

Action Agent: Administration
Cost: Staff time

NC26 - Townwide. With the cooperation from the Town of Cumberland, the Town of Lincoln should investigate the ownership of the "Un-Named Island".

Action Agent: Administration, Planning Department
Cost: Staff time, Consultant