Chapter II
Natural and Cultural Resources

CHAPTER II
NATURAL AND CULTURAL RESOURCES

Burrillville is rich in natural resources: valuable wetlands for flood control, groundwater aquifers and recharge areas, high quality surface water, unique historical areas. The Town's natural environment adds immeasurably to its property values and quality of life. Although many large areas of undeveloped land exist in Burrillville, the environment is experiencing direct and indirect impacts from residential and other forms of development.

The Comprehensive Planning and Land Use Regulation Act requires that this element "provide an inventory of the significant natural resource areas such as water, soils, prime agricultural lands, natural vegetation systems, wildlife, wetlands, aquifers, coastal features, floodplains and other natural resources and the policies for protection and management of such areas. The element shall include policies for the protection of historic and cultural resources of the municipality and the state. The policies and implementation techniques must be identified for inclusion in the implementation program element." This element considers the nature of the environment, the ability of the Town's natural resources to support future development, the impact the Town's current regulations have upon the environment, and how the resources can be best protected in the future.

II.1 Natural Resource Conditions, Trends and Projections

The following presents an inventory of natural and cultural systems in the Town of Burrillville.

Topography - Burrillville lies in Rhode Island's interior uplands. There are no drastic changes in topography in surrounding towns, although elevations do gradually increase to the northwest in Douglas and Webster, Massachusetts. Conversely, elevations decrease to the south and east as the Narragansett lowland boundary is approached.

The Town's irregular topography was shaped by glacier ice which receded some 11,000 years ago. The irregular pattern of hills provide for a diversified, scenic topography, but the rugged slopes and rock outcrops also have acted as a deterrent to settlement. Kame-and-kettle topography formed by large blocks of ice which broke off from the main glacier is prevalent in the western part of Town. This type of topography is characterized by numerous small kettle holes and a very irregular topography.[1]

[1] Rhode Island Historical Preservation Commission. Preliminary Survey Report Town of Burrillville. 1982.

Elevations range from a low of 249 feet above mean sea level (msl) at the Slatersville Reservoir on the Burrillville-North Smithfield town line, to a high of 753 feet above msl on Benson Mountain at the Burrillville-Thompson, Connecticut border. There are relatively few large areas of slope having severe restrictions to development (in excess of 15 percent). Areas of steep slope are found throughout the Town, but are more prevalent along western and eastern borders.

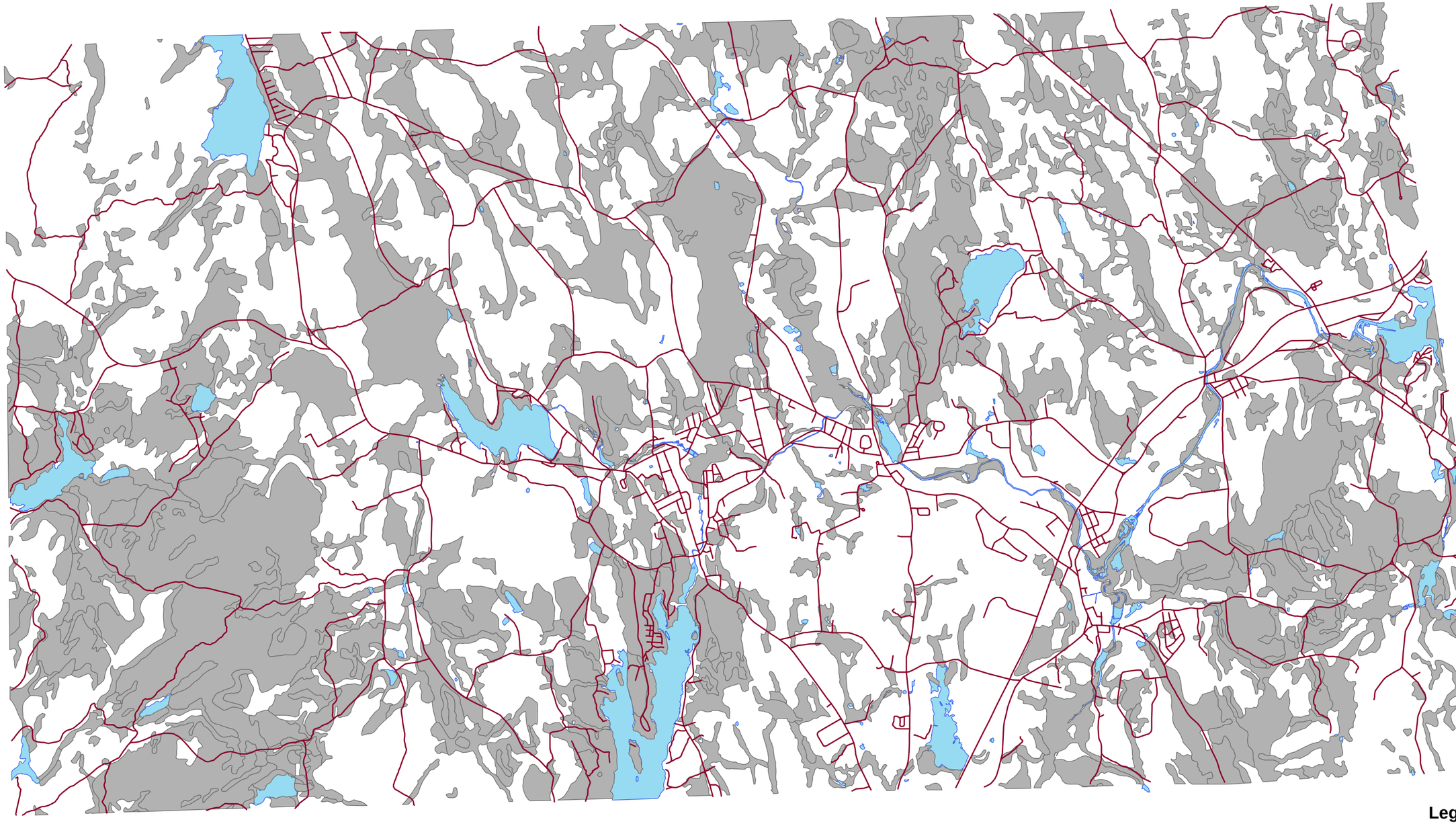
Soils - An assessment of Burrillville's soil types is important when considering future development potential. A mixture of unsorted soil and rocks, commonly known as till, covers most of Burrillville. In areas where rivers flowed from the glacier, well-sorted sands and gravels were left behind. Outwash deposits are found in the valleys along rivers and other low-lying areas. Till soils in Burrillville are generally thin, hard and very stony.[2] Glacial till is characterized as consisting of clay, silt, sand and boulders transported and deposited by glacial ice. Outwash areas in Burrillville also are poorly suited for crop production because of their composition of excessively well-drained sand and gravel. Outwash is stratified sand and gravel produced by glaciers and carried, sorted and deposited by water that originated mainly from the melting of glacial ice.

Certain soil characteristics lend themselves to use for crops and pastures, while others may serve well as locations for buildings or transportation routes. Soils with poor drainage and high flooding frequency may be unsuitable for development. Soils with a high water table, rapid permeability or shallow depth to bedrock may preclude installation of on-site septic systems unless special design features are incorporated to mitigate these problems.
Decisions regarding individual development applications should be based upon site specific soils data. For the purposes of this Plan, soils are defined as follows:[3]

- **Soils with moderate constraints to development** - Soils which are generally suited to residential development. Some soils in this group have moderate soil constraints for development and evaluations must be made on a case by case basis. The constraints consist of: 1) very rapidly permeable soils which have a higher potential for groundwater contamination; 2) slowly permeable soils which tend to have greater septic system failure rates and 3) extremely stony soils, which are expensive to excavate and grade for residential development. Also included are disturbed areas which are often suitable for residential development, but which need site specific evaluation. Examples include gravel pits, cut and fill areas, and paved areas.

2 Rhode Island Historical Preservation Commission. Preliminary Survey Report Town of Burrillville. 1982.
3 Rhode Island Geographic Information System, 1991.

Major Wetlands and Severe Constraints Soils



Source: 1997, RIGIS

Map 1

Legend

- roads
- water
- Severe Constraints

0 1,400 2,800 5,600 Feet

Prime agricultural soils, defined as those best suited for producing food, fee, forage, fiber and oilseed crops, and also available for these uses, are also classified as having moderate constraints to development.

- **Soils with high constraints to development** - Soils with bedrock and slope constraints (greater than 15 percent slope - 15 feet of vertical rise over 100 feet of horizontal distance) - soils in this group have slopes in excess of 15 percent, and/or have significant shallow to bedrock areas. The steep slopes increase the potential for soil erosion during construction, and make construction of on-site septic systems difficult. Shallow soils, and rock outcrops impair the construction of roads, buildings, buried utilities and on-site septic systems.

  Soils with a seasonal high water table (19 inches to 42 inches depth) are considered to have high constraints to development. They generally have a seasonal high water table at a depth of 1.5 to 3.5 feet from the surface for significant periods during the year. Many of these soils have additional constraints to development, such as slow permeability or, in a few instances, very rapid permeability.

  Seasonal high water tables are found throughout the Town, and are especially prevalent in the northwest and northeast quadrants of the community. Soils having bedrock and slope constraints are found throughout the Town, and in particular the southwest corner of the Town, in the Pulaski Memorial State Forest, surrounding the Pascoag Reservoir, between Hill Road and Round Top Road, and in the Oakland area.

- **Soils with severe constraints to development** - These are hydric (wet) soils (0 - 18 inches depth) which have water at, or near, the surface for significant periods of the year. Other severe constraints (rock, sand etc.) which consist of miscellaneous soil types that have significant constraints for residential development. Soils attaining severe constraints to development are depicted on Map 1.

  Hydric soils are found throughout the Town, generally associated with river and stream systems. Excessively rocky or sandy soils are found in two small pockets, one at the landfill along the Clear River, and one northwest of Spring Lake.

Development in Burrillville is highly controlled by poor soil conditions. Of the 36,279 total acres of land in the Town, approximately 12,517 acres are undeveloped, and of these, 9,320 acres (40 percent of undeveloped acres) are considered developable based on soil conditions.

Approximately, 3,448 acres contain some type of building such as a single family home with property in the Town's Farm Forest and Open Space Program. Soils with moderate constraints to development are shown on Map 2.

Wetlands - Wetlands are generally defined as those areas in which the amount of moisture in the soil exceeds the amount necessary for the growth of most plants. The formation of "hydric" (water-saturated) soils, and certain plants and animals which have adapted to living in a "wet" environment, indicate the presence of a land in which the water table is at, near or above the ground surface, i.e., wetland. Many wetlands occur between uplands and open water bodies, others are found in upland areas where there is a seasonally high water table.

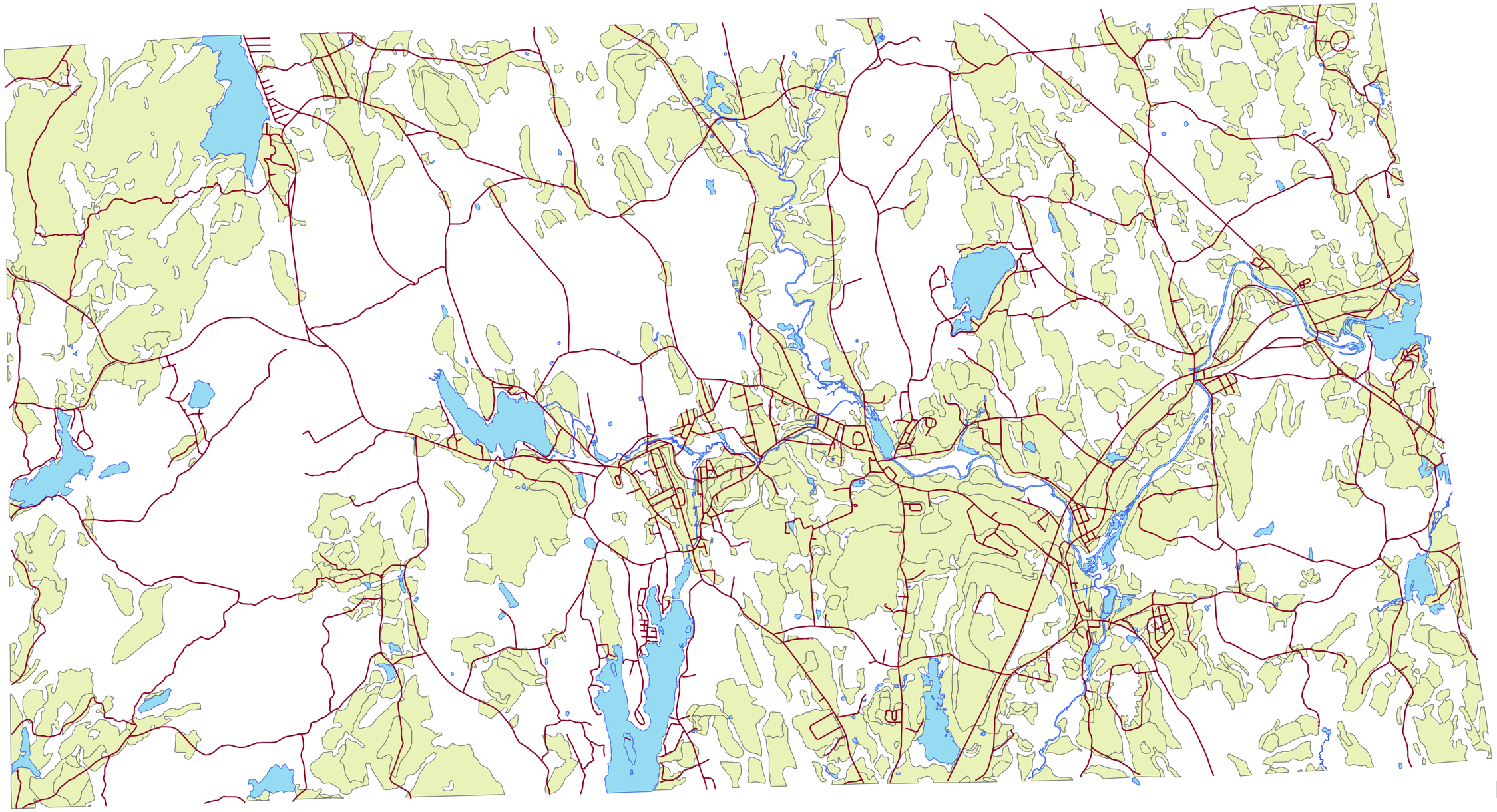
Wetlands provide several important functions which, in Burrillville, are classified as follows:

- *Flood control* - ability of a wetland to reduce flood velocity and provide storage capacity for flood waters;
- *Groundwater potential* - the ability of a wetland to contribute to collect runoff from surrounding areas and recharge the groundwater system, as well as acting as filters for polluted runoff;
- *Planning elements* - aesthetic appeal, educational value, recreational value, buffer capacity, and vulnerability to development or modification; and,
- *Ecological parameters* - value to wildlife, wildlife diversity, wetland size, type of site (streamside, lakeside, pondside), and vegetative diversity.

Approximately 1,450 to 1,500 acres of Burrillville land area is considered wetland. Wetlands are classified by the U.S. Fish and Wildlife Service by ecological system and further by bottom characteristics and vegetation types. The ecological systems include estuarine, palustrine (vegetated wetlands), riverine (rivers, streams and brooks), marine and lacustrine (lakes and ponds). Wetlands in Burrillville are either palustrine, riverine or lacustrine.

The dominant type of palustrine wetland in Burrillville is the forested wetland, commonly known as the wooded swamp. Most of the wooded swamps are vegetated with broad- leafed deciduous trees and include a variety of species including red maples, gum, oak and others. Wooded swamps dominated by evergreens are also found in Burrillville. Two extensive evergreen swamps are found to the north and west of the Wilson Reservoir in the western part of Town. White pine, Atlantic white cedar, and hemlock are the dominant species in evergreen swamps.

Moderate Constraint Soils



Source: 1997, RIGIS

Map 2

Legend

- roads
- water
- busoi96 selection

0 1,6253,250 6,500 Feet

4

The scrub/shrub swamp, is another wetland type within the palustrine ecological system, found in Burrillville. Though not as common as the wooded swamp, the scrub/shrub swamp is found in most areas of the Town. They are characterized by a dominance of shrubs or tree saplings less than 20 feet tall, broad-leafed shrubs and other low growing plants including bottombush, sweetgale, highbush blueberry, swamp azalea, winterberries, and many others. Scrub/shrub swamps are often intermixed with emergent wetlands which are vegetated by nonpersistent grasses, rushes, sedges, and other herbaceous or grass-like plants.[4]

Local Wetland Regulation - Burrillville's Zoning Ordinance provides wetland protection relating to building lots containing wetlands, individual sewage disposal system proximity to wetlands, and impervious surfaces.

Rhode Island Freshwater Wetlands Act - This Act requires that a permit be obtained from RIDEM (Rhode Island Department of Environmental Management) Freshwater Wetlands Section before any freshwater wetland is altered in any way. Filling, grading, clearing of vegetation or construction is considered alteration of a wetland.[5]

The Act protects land that is clearly wet, such as ponds, rivers, marshes, streams and bogs, as well as those areas which may seem dry for much of the year, such as wooded swamps, where water is not observed on the surface, and areas subject to storm flowage and flooding. The law also considers as wetlands, certain areas which might be dry all year round, such as the area 50 feet around ponds, marshes, swamps and bogs, along with the area 100 feet from flowing bodies of water less than 10 feet in width and the area 200 feet from flowing bodies of water greater than 10 feet in width. The Town has the option of placing more restrictive regulations upon wetlands within its boundaries, but may not require less setback than that required by the State.

Surface Water Resources - A critical issue in all Rhode Island communities, the question of water supply and quality is also important to Burrillville residents, as indicated in the 1990 citizen survey. When asked about the ability of existing regulations to protect the Town's water quality, many respondents were unsure (24 percent), while the remainder split, 39 percent agreeing, 35 percent disagreeing. Those who said the regulations did not adequately protect water quality were asked which water bodies needed additional protective measures. The response receiving the highest number of mentions was "all" the lakes, ponds, rivers and streams. The list of water

4 U.S. Department of the Interior Fish and Wildlife Service. Wetlands of Rhode Island. September 1989.
5 Freshwater Wetlands Act Information Sheet, Rhode Island Department of Environmental Management.

bodies which respondents specifically mentioned, beyond those which were already listed included:

- Echo Lake
- Clear Brook;
- Mill Pond;
- Sucker Pond;
- Round Top Pond;
- Brook Pond;
- Harris Pond;
- Tarkiln Pond;
- Brothers Pond; and,
- Fish Pond.

Burrillville is included in the Blackstone River Basin, one of three major drainage basins in Rhode Island. Portions of western Burrillville are in the Five-Mile River sub-basin which is part of the larger Thames River Basin. The majority of land area in Burrillville drains to the Clear River or to brooks which eventually flow into the Clear River. The flow from the Clear and Chepachet Rivers join in eastern Burrillville to form the Branch River which flows generally north-east out of Burrillville and joins the Blackstone River in North Smithfield.

Burrillville is bisected generally north and south by a system of rivers. A number of brooks enter this system from the north and south. The river system starts with the Clear River which originates in Wallum Lake in the northwest part of the Town. The Clear River flows south into the Wilson Reservoir and is joined by Dry Arm and Hemlock and Brooks. The extreme northern portions of the River are classified as A-Type water.

For inland surface waters, class A can be considered for existing or proposed drinking water supply, fish and wildlife habitat, recreational use, agricultural use, industrial supply and other purposes. Class B can be considered for bathing, fish and wildlife habitat, recreational use, agricultural use, industrial supply and other legitimate uses, including navigation. Class C can be considered for recreational use, fish and wildlife agricultural and industrial water supply, industrial cooling, sewerage discharges and other legitimate uses, including navigation.

Clear River is downgraded to C-type water after flowing into a relatively flat swampy area, and is upgraded to B-type water shortly after it leaves the swamp. The River meanders easterly after leaving the Wilson Reservoir and is ponded at a dam in the Laurel Hill area. The Pascoag River, Class-B water flowing from the Pascoag Reservoir, joins the Clear River from the south, and

shortly thereafter flows into a wetland area where it is joined by Mowry Brook from the north. The River takes a more northerly course and flows under several roads before joining the Nipmuc River in Graniteville Village.

From this confluence the River flows in a southerly direction and backs up into a millpond which is dammed in Harrisville. From this dam the flow meanders east for approximately a mile and is joined by Herring Brook which flows south out of Spring Lake, and is Class-A water. At Whipple Road the flow turns south and after going under Route 102, is down graded to Class-C water. Clear River joins the Chepachet River (Class-B water) flowing from the Chepachet Reservoir, to form the Branch River.

The channel widens at the confluence and begins to flow in a northeasterly direction. The Branch's flow is interrupted by a mill dam in the Oakland area and flows under Route 102 before reaching the apex of its northerly tract in Burrillville. Tuckey Brook enters the flow from the north in a small wetland area before the River meanders back to a southeasterly course. The River enters Slatersville Reservoir which is Class-B water after flowing under Douglas Pike in the Nasonville area of the Town.

The Branch River and several reaches of the Clear River in Burrillville are contaminated by industrial and municipal wastewater. Organic compounds are the principal contaminants; they cause local deficiencies in dissolved oxygen during low-flow and elevated coliform-bacteria counts at high and low flow periods. A reduction in the number of industrial-waste discharges during the past two decades and expansion and upgrading of sewerage treatment facilities have led to a corresponding increase in the quality of water in the Branch and Clear Rivers.[6]

There are several other small brooks in Town, most of which originate in wetlands or ponds and flow into neighboring Towns in Rhode Island, Connecticut and Massachusetts. Several of these brooks have been given water quality classifications, and are listed in Table II-1 along with other currently named watercourses.

6 U.S. Geological Survey Water Supply Paper 2300.

Table II-1
Small Brooks and Watercourses
Burrillville, Rhode Island

Name of System	Origin	Destination	Class
Chockalog River	Cedar Swamp & Greene	Nipmuc River	A
	River, Mass.		
Croff Farm Brook	Wetlands System	Whitman Pond, CT	B
	Buck Hill Mgt.Area		
Keach Brook	Pond and Wetland	Quaddick Res, CT	B
	System		
	Pulaski St. Park		
Tarkiln Brook	Wetlands in Glocester	Slatersville Res.	B
	and Burrillville, Paine Bk.		
Leeson Brook	Wetlands in Buck Hill	Cold Spring Bk.&	A
	Mgt. Area	Croff Farm Bk.	
Cold Spring Brook	Wetlands in Buck Hill	Wallum Lake	A
	Mgt. Area		
Dry Arm Brook	Round Pond	Clear River	B
Iron Mine Brook	Wetlands Pulaski	Clear River	B
	State forest		
Leland Brook	Wetlands near Pulaski	Wilson Reservoir	B
	State Forest		
Mowry Brook	Wetlands north of Stone	Clear River	B
	Barn Road		
Round Top Brook	Chase Pond, Mass.	Nipmuc River	A
Herring Brook	Spring Lake	Clear River	B
Hemlock Brook	Wetlands in Mass.	Clear River &	A
		Tinkerville Bk	
Tuckey Brook	Wetlands east of	Branch River	B
	Black Hut Mgt Area		

Source: Rhode Island Department of Environmental Management.

Burrillville's landscape is dotted with lakes and ponds. Some are manmade, but most are natural water bodies left by the receding Laurentide glacier. The Pascoag Reservoir is the largest water body, approximately 424 acres in Burrillville. None of these surface water bodies are used for drinking water supply. Other large water bodies found in Town are listed in Table II-2.

Table II-2
Major Water Bodies

Water Body	**Area** (Acres)	**Water Quality Classification**
Pascoag Reservoir	424	B
Wallum Lake	275	A
Wilson Reservoir	109	B
Spring Lake	95	B
Wakefield Pond	76	B
Slatersville Reservoir	67	B
Sucker Pond	55	B
Un-named Water Bodies	54	B
Wilbur Pond	23	B
Round Pond	15	B
Peck Pond	13	B
Big Round Top Pond	7	A
Ross Pond	4	B
Chapham Pond	3	B
Gilleran Pond	3	B
Little Round Top Pond	2	B
Tarklin Pond	NA	B
Total Area	**1,225**	NA

Source: http://www.state.ri.us/dem/pubs/regs/REGS/WATER/h20qlty.pdf; Rhode Island Department of Environmental Management

Lakes and ponds in Burrillville are used for a variety of uses including boating, fishing, swimming and other active and passive types of recreation.

Groundwater - The area beneath the land surface can be divided into two zones. In the upper zone, known as the unsaturated zone, open fractures in rocks or open spaces between soil particles are only partially filled with water. Beneath this zone all the open spaces are filled with water. This completely filled zone is termed the *saturated zone*. Water within this zone is called *groundwater*, and its upper boundary is known as the *water table*.

Swamps, streams, ponds and wetlands are places where the land surface intersects with the water table. Under natural conditions, these are discharge areas for groundwater, not recharge areas. Wells penetrate the saturated groundwater zone some distance below the water table and

intercept this slow moving resource before it reaches natural points of discharge, such as wetlands and streams.[7]

A groundwater reservoir is defined as an area of stratified drift with a saturated thickness of 40 feet or greater, and an average transmissivity of 4,000 square feet per day or greater.[8] Stratified drift is unconsolidated, sorted sediment composed of layers of sand, gravel, silt or clay, deposited by meltwater from glaciers. Coarse-grained stratified drift contains space between the gravel and sand particles which can hold large amounts of water without restricting its flow. A thick deposit of stratified drift has an excellent chance of yielding large quantities of water.[9]

Two types of water sources, direct and indirect recharge, replenish stratified drift aquifers. The major source of direct recharge is precipitation that falls directly on and infiltrates into the ground, flows through the unsaturated zone to the water table, and then down the hydraulic gradient to streams and ponds. Under natural conditions, groundwater will move from the aquifer to the stream. If a pumping well is located near the stream, the water table gradient may be reversed and water from the stream may infiltrate the aquifer and flow toward the center of the pumping, and is defined as indirect or induced recharge.

Glacial till, a second type of aquifer, functions primarily as recharge to underlying bedrock or down gradient stratified drift aquifers.[10] Till typically consists of unsorted boulders, gravel, sand, silt and clay, and exhibits a low permeability. The average thickness of till is 20 feet. Wells dug in till have low and often variable yields.

Burrillville is one of 14 Rhode Island communities which depend entirely upon groundwater for its drinking water source.

The Town of Burrillville is underlain by the Upper Branch River Groundwater Reservoir, an extensive primary recharge coarse-grained and layered stratified drift aquifer with a water saturated thickness of 10 feet or greater (see Map 3). This groundwater aquifer is classified by

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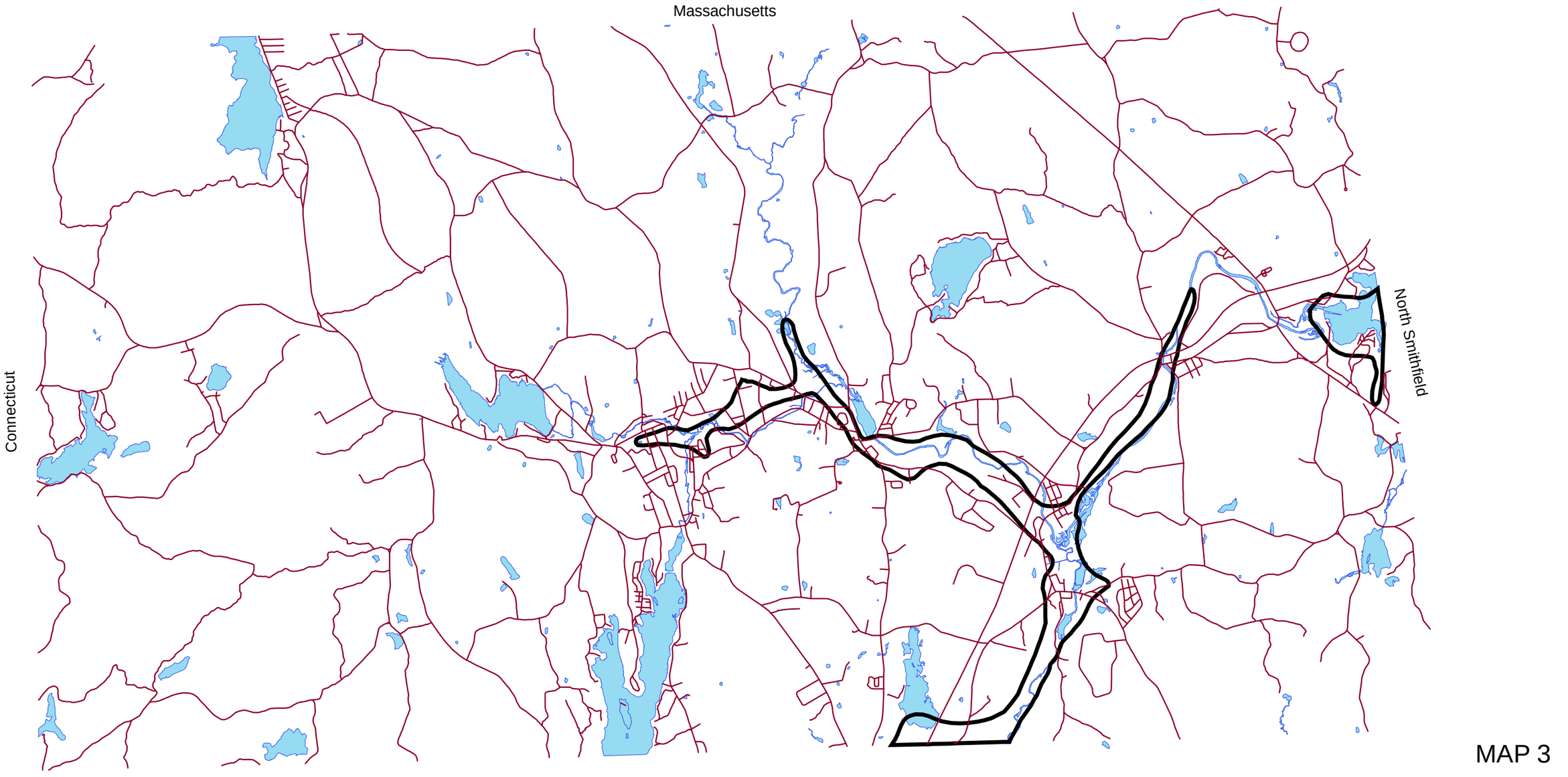
7 Protecting Connecticut's Groundwater - A Guide to Groundwater Protection for Local Officials, Connecticut Department of Environmental Protection, p. 4.

8 The State of the State's Groundwater, State of Rhode Island and Providence Plantations, Department of Environmental Management, April 1990.

9 Protecting Connecticut's Groundwater - A Guide to Groundwater Protection for Local Officials, Connecticut Department of Environmental Protection, p. 4.

10 The State of the State's Groundwater, State of Rhode Island and Providence Plantations, Department of Environmental Management, April 1990.

Groundwater Reservoir



MAP 3

Source; 1997, RIGIS

Legend

- roads
- gw_reservoirs
- water

0 2,200 4,400 8,800 Feet

RIDEM as GAA, indicating "groundwater resources that are known or presumed to be suitable for drinking water use without treatment."

Use of Groundwater in Burrillville - Fire Districts in the Town currently tap its groundwater resources for domestic water use purposes through a series of active production wells. There are three (6) production wells in the Harrisville Fire District, which draw water from the Clear River Aquifer. The transmissivity in the area where these wells are drilled is as high as 5,000 sq. ft./day. The Pascoag Fire District also has two wells in the Clear River Aquifer that are currently not able to yield potable due to MTBE (gasoline additive) contamination in the ground water. These wells are capable of yields of up to 600 gallons per minute (gpm) jointly.

Potential Sources of Groundwater Contamination - Groundwater quality may be affected by "point" sources of pollution (coming from a specific source) and "nonpoint" (coming from disperse activities). Point pollution sources identified by RIDEM in the Inventory of Known and Potential Sources of Groundwater Contamination include landfills, dumps, underground injection control sites, surface impoundments, salt storage sites, leaking underground storage tanks, and other miscellaneous sites. The inventory is not all-encompassing - additional potential contamination sources are likely to exist. In Burrillville, the known and potential pollution sites include (all of these site are either undergoing environmental remediation or environmental study and analysis in advance of remediation):

- Former Mobile Station (Main Street, Pascoag)
- Union Avenue garage - salt storage;
- Burrillville landfill;
- Whipple Avenue salt storage area;
- Burrillville Wastewater Treatment Plant;
- Burrillville salt storage area;
- Refinement International (Mapleville) - inactive surface impoundment;
- Boliden Metech (Mapleville) - inactive injection well;

One significant hazardous waste site is located in Burrillville, the Western Sand and Gravel site on Route 7 at the North Smithfield Town line. A portion of the quarry was used for liquid waste disposal, and studies show contamination of ground and surface water around Tarkiln Brook. This is an EPA Superfund site, and a public water system has been constructed to serve homes in the area.

Nonpoint sources of pollution include pesticides, fertilizers, septic systems, road salt application, radon and others. Most of Burrillville has been identified as "threatened" in terms of the impact that nonpoint pollution has on its groundwater resources. These are areas where groundwater is presumed suitable for drinking water use, except for localized degradation. Nonpoint sources are prevalent in these areas, and they threaten groundwater quality.[11]

Groundwater Protection in Burrillville - Groundwater protection activities in Burrillville are administered both locally and by the State Department of Environmental Management.

The Town has delineated aquifer protection districts in the Zoning Ordinance in order to prevent contamination of this valuable resource. The existing Aquifer Protection District prohibits six (6) specific uses within overlay district boundaries, and all uses not specifically permitted, are prohibited. Residential densities in Aquifer Protection Districts are set according to the transmissivity of the underlying aquifer.[12] Areas with higher transmissivity have lower densities. RIDEM has embarked on a program of revising aquifer and recharge area boundaries based upon more recent techniques of defining these areas. It is suggested that the Town review the revised boundaries at the earliest possible time, and make the necessary revisions to the groundwater aquifer zoning district boundaries.

The State administers the Underground Storage Tank and Leaking Underground Storage Tank program, Oil Spill Emergency Response and Oil Storage programs, groundwater investigations, groundwater classification, the Wellhead Protection program and private well drilling regulations. Underground storage tank regulations require that tank owners and operators obtain certificates of registration from RIDEM and follow defined procedures for proper closure of tanks no longer in service. More stringent requirements apply to existing facilities located in sole source aquifers as designated by EPA or for new facilities located in an area where a leak could affect groundwater or surface water used for present or future public water supplies.[13]

The Wellhead Protection Program is a program administered by the Groundwater Section of RIDEM to prevent contamination of groundwater resources that are used by public drinking water systems. It applies to public wells which provide drinking water to 15 or more service connections, or regularly serves an average of at least 25 individuals daily, at least 60 days of the

11 The State of the State's Groundwater, State of Rhode Island and Providence Plantations, Department of Environmental Management, April 1990.

12 Transmissivity is the rate at which water flows through the ground.

13 The State of the State's Groundwater, State of Rhode Island and Providence Plantations, Department of Environmental Management, April 1990.

year. This includes community wells that serve resident populations such as trailer parks, nursing homes, major municipal wells, and non-community wells that serve hotels, restaurants, schools etc.

RIDEM has provided the local Fire Districts with wellhead protection area delineations and other technical assistance, and reviews the local protection programs. The Districts responsible for developing the wellhead protection plan, including potential pollution source inventories, protection strategies and contingency plans. Plans for various districts were submitted to RIDEM by Pascoag in March 1994; and, Harrisville in 1995. Management options include public education, land acquisition, groundwater monitoring, and groundwater amendments to local zoning ordinances and local regulations for design and operating standards.

Most recently, as of November, 2007, the Harrisville Fire District (HFD) updated its Water Supply System Management Plan which contains admirable goals, policies and actions that collectively work to protect groundwater quality and quantity, a major component of which is public education and awareness.

Water Quality Protection can be preserved through dissemination about the hydrologic cycle and proper handling of household chemical; Demand Management is controlled through pamphlets containing general information on the system, leak, sources of lost water, and information on consumption and daily activities. During times of water conservation, the HFD relies on advertisements, public service announcements or the town's website.

Estimated future demand is based on projections contained in the Town's Comprehensive Plan with future projections being conservatively high such as a 5.8% growth rate between 2010 and 2020.

A complete executive summary of the Water Supply System Management Plan can be seen in Appendix I of Chapter III Community Services and Facilities.

Stormwater Management

The Environmental Protection Agency's National Pollutant Discharge Elimination System (NPDES), Phase II Rules Interpretation requires "small Municipal Separate Storm Sewer Systems or MS4's" to obtain permits and establish a storm water management program that is intended to improve waterbodies by reducing the quantity of pollutants that can enter storm sewer systems during storm events.

The State RIDEM mandated that all MS4's adopt Stormwater Management Plan that prescribes various goals, policies and actions related to minimizing stormwater contaminants as well as attenuating stormwater runoff.

Burrillville took a progressive approach by constructing two porous parking lots within town; one serves the newly expanded Police Station with the other being within the Stillwater Mill Redevelopment District is depicted here:

Studies have shown water quality to decline after impervious surfaces exceed 10% of total land coverage. Burrillville is actually improving its water quality by introducing porous pavement into its former mill sites.

A copy of the Town's Stormwater Management Plan may be obtained from the Planning Office.

Floods and Floodplains

Floods in Burrillville occur in every season of the year. Spring floods are common and are caused by rainfall combined with snowmelt. Floods in late summer and fall are usually the result of hurricanes or other storms, and winter floods often result from occasional thaws, particularly in

years of heavy snowfall. Figure II-3 represents flood hazard zone A, a special flood hazard area inundated by 100-year floods.

Areas considered to be in Flood Hazard zone A exist along most of the major rivers, brooks, swamps, lakes and ponds in Burrillville. The broadest areas of land subject to flooding are found in the floodplains north of the confluence of the Clear and the Nipmuc Rivers in Graniteville and south of the confluence of the Clear and Chepachet River in the Oakland area. Another broad band of land which is subject to flooding from a 100-year storm is found along the Clear River north of the Wilson Reservoir.

A floodplain management plan was conducted for the Pascoag Reservoir dams. This study conducted by U.S.D.A Soil Conservation Service in 1989, identifies areas that would be inundated by a dam breach, areas that would be inundated by a 100 year flood, and floodplain management alternatives that need to be considered to minimize damage from a 100 year flood event.

Vegetation and Wildlife - The vegetation and animal populations of Burrillville's uplands reflect the past use of the land and this past use was determined to a great extent, by the underlying soils. Although much of the land that was once farmed has reverted back to woodland, man still has an impact on the types of vegetation and wildlife which inhabit an area. Forests were cleared in areas where the soils were suitable for crop and livestock. These areas are mainly found in the valleys. Stone walls found in second growth forests are evidence that much of Burrillville's land had once been cleared for agricultural uses.

Today much of Burrillville is forested with mixed hardwood forests. Like most of the state, Burrillville's forest are dominated by the oak-hickory forest type. Low to medium grades of White, Scarlet, Black, and Red Oak stands dominate the mixed hardwood stands, along with a small percentage of several species of Hickory. Productivity in most areas is low but most stands exceed the 20 cubic feet per acre per year minimum which designates forestland as being commercially viable. Stands of high grade Northern Red Oak (*Quercus rubra)* and other hard woods are found in areas of the Town where soils are suited for woodland management and production. Woodbridge soils found north of the Wilson reservoir and east of Wallum Lake have

high site indexes for northern red oak.[14] The White Oak population in Burrillville and around the state has been declining, partially due to defoliation impacts from gypsy moth caterpillars.

The Elm-Ash-Red Maple forest type is also wide spread in Burrillville, and accounts for 28 percent of commercial forestland in the State. The Red Maple is the dominant species in this forest type with a small percentage of white ash. The American elm has been decimated by the Dutch Elm disease, and is essentially no longer a part of this forest type. This forest type is found throughout the Town in soils where available moisture is high.

The State manages close to 6,000 acres of land in Burrillville, most of it maintained as forest land. The State has a firewood program for people who burn wood for heating and other purposes. State foresters show wood lots to interested parties, and the high bidder is allowed to take fuel wood which has been marked for removal. Much of the fuel wood is taken from areas where heavy gypsy moth infestation has left a stand of dead or dying trees. The State also conducts operations aimed at improving wildlife habitat in parts of State management areas. These operations usually involve clear cutting small patches of land. New growth in cleared areas provide food for a variety of browsing animals, and piles of brush and treetops provide shelter for other small animals. The Boy Scouts of America own close to 1,100 acres of land in the Wallum Lake area of Burrillville. Much of this land is forested, and is utilized for research and education.

Stonewalls dividing fields are often lined with native trees and shrubs, becoming narrow ribbons of woodland crisscrossing the agricultural land. These field borders, and upland areas associated with them, support a variety of wildlife including pheasants, quail, redtail hawks, sparrow hawks, doves, and woodcock.

In addition to avian species, these areas are also inhabited by a number of mammals which typically exist in Rhode Island, i.e., fox, rabbit, skunk, woodchuck, deer, etc. Wetlands and the land immediately surrounding them are often left in their natural state and provide another valuable type of wildlife habitat. Animals utilizing these habitats include wood ducks, black ducks, mallards, snipe, rails, herons, kingfishers, marsh hawks, muskrats, mink and otter. The safe movement of wildlife throughout the Town is of concern, especially as the outlying areas become more developed.

[14] Site index is a measure of productivity which denotes the height of a tree in relation to its age. The soils mentioned above have a site index of 72 for northern red oak which means that a 50-year-old tree in this soil will typically reach a height of 72 feet.

Rare and Endangered Species and Habitats - The historical and current status of species of plants and animals suspected of being rare or declining has been monitored for the past decade by the Rhode Island Natural Heritage Program (NHP). There are approximately 49 species of plants and animals in Burrillville which the NHP has cataloged. Species are assigned to one of seven status categories. The Federally Endangered and Federally Threatened species are given the highest status in regard to protection, followed by State Endangered, State Threatened, State Interest, Species of Concern and State Extirpated species. There are no known Federally Endangered or Federally Threatened species in Burrillville. However, there are a number of state status species in the Town. A list of these species is found on the following website: http://www.state.ri.us/dem/programs/bpoladm/plandev/heritage/index.htm

The NHP has inventoried habitats where rare species are found and have made management recommendations to ensure their continued survival in those habitats. Sites of particular interest in Burrillville include the following:

1. The Clear River area provides habitat for a number of state-listed rare plants, three of which may be known from only a single locality in the state.

2. The wetland in Leeson Brook, contained within the Buck Hill Management Area, is a site for nesting Great Blue Herons.

3. The Pulaski/Washington State Forest Complex provides a large, relatively undisturbed forest habitat for several rare birds and amphibians.

4. The wetland just west of the North Smithfield line and contiguous to the Massachusetts border, generally known as Screech Hole Bog, contains a rare Level Fen community, several rare plant occurrences, and one of the few remaining populations of a rare invertebrate.

5. The Cedar Swamp Pond and Croff Farm Brook complex represents one of the most significant areas of biological diversity in Rhode Island. At least 15 state-listed rare species occur; such species as Black Spruce, American Larch, and Creeping Snowberry, commonly found much farther north, co-occur with Inundated Horned Rush and the Horsetail Spike-Rush, a regionally rare Coastal Plain Species which range southward to the Gulf Coast.

All of the sites listed above would benefit from additional protection in the form of protective zoning, placement of conservation restrictions, or acquisition of buffer zones.[15]

[15] RI Department of Environmental Management Planning and Development Department. A Survey of the State's Scenic Areas. 1990.

Agricultural Land - Prime agricultural land is defined as: land best suited for producing food, fee, forage, fiber and oilseed crops, and also available for these uses.[16] (see Map 4). It has the soil quality, growing season, and moisture supply needed to produce high yields of crops economically when treated and managed, including water management, according to modern farming methods. In Burrillville, the Soil Conservation Service has identified prime agricultural soils throughout the Town. Small pockets of prime farmland soils are located in all areas of the Town, most of the larger areas are located to the east and south of Harrisville. Farmland of State-wide Importance is land that is nearly prime farmland and that economically produces high yields of crops when treated and managed according to modern farming methods. Large contiguous areas of important farmland are found in the center of Town, running from the Rhode Island/Massachusetts border to the Burrillville-Glocester Town line.

Farming has not been a staple of the Burrillville economy since the early 19th century. Only a few farms have survived into the twentieth century, most of the early farms have been reclaimed by forest. Despite a small agrarian population, preserving the Town's agricultural heritage, as well as protecting that land which produces food for local and regional consumption should be carefully considered. It is important for the Town to look upon farming as something other than a transient use, soon to be replaced by urban development.

Visual and Aesthetic Resources - Visual resources, simply defined, are represented by the character of the physical environment and the perception we have of that particular environment. Research into human perception has established that visual quality in the environment makes a significant contribution to a community's overall quality of life. The character and interplay between topographic features, natural and man-made landmarks, the form of open space and development, as well as historic and culturally meaningful structures and sites, creates a community identity; what landscape architect, J.B. Jackson, referred to as "a sense of the place."

Incongruous elements in, or aberrations to this perceived landscape or the lack of a perceivable form and order adversely affects residents' and visitors' attitudes toward the community. As such, the erosion of the visual and cultural character of a community can have not only psychological impacts, but also very real economic impacts through depreciated real estate and failing marketability to prospective new businesses and residents.

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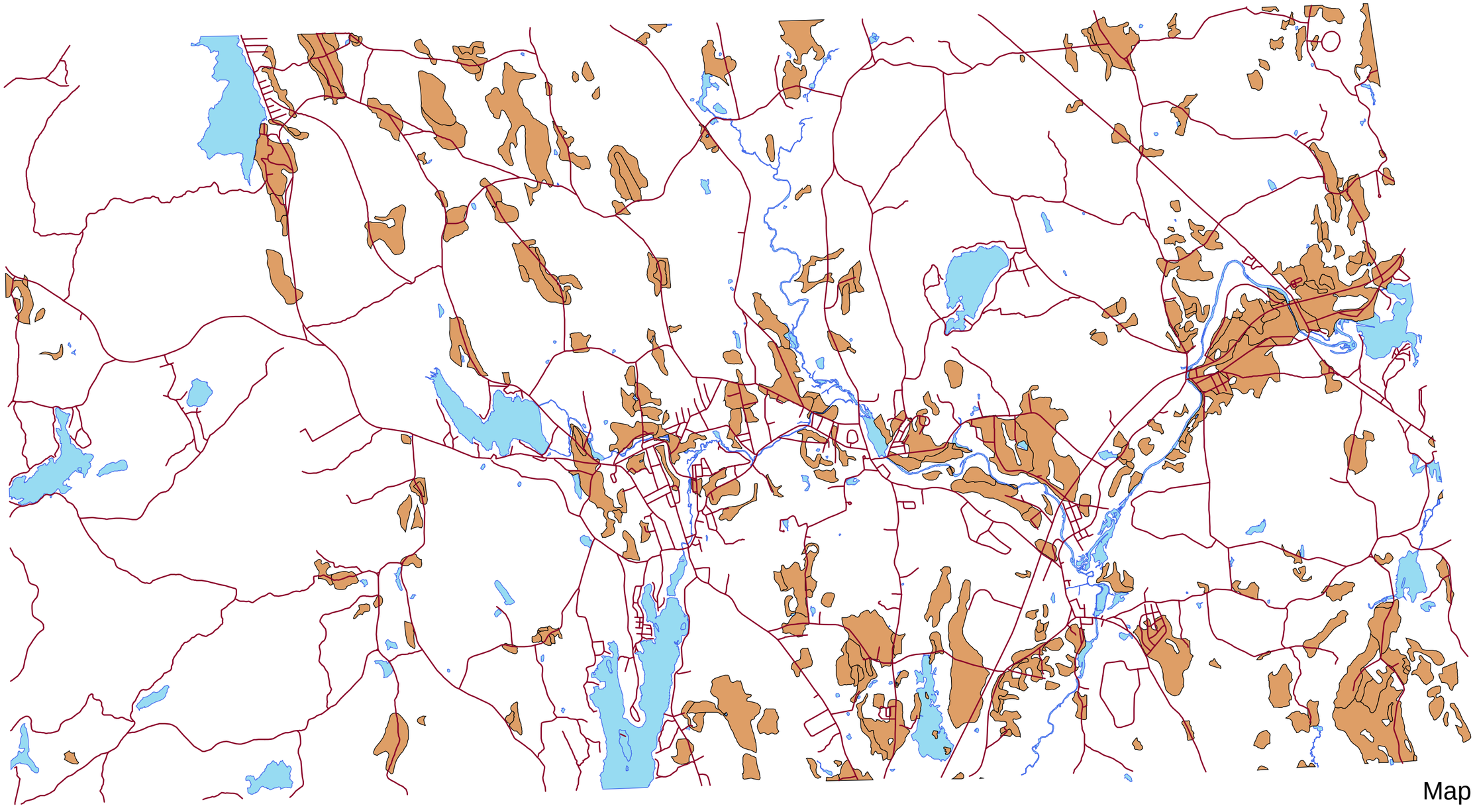
16 The source of this information, and that which follows regarding the definition of prime agricultural land is from the U.S.D.A. Soil Conservation Service, Eastern Rhode Island Conservation District Newport County. Important Farmlands.

Prime Agricultural Soils
Farmland Group = 1



Map 4

Source: 1997, RIGIS

Legend

- roads
- water
- Prime Agricultural Soils

0 1,6253,250 6,500 Feet

4

Too often, concern for the visual environment has been dismissed as being a nonessential appurtenance to land use decision-making. Such an attitude is both archaic and unresponsive to public need. This fact is clearly demonstrated by citizen outcry against development projects that fail to fit into the character of the Burrillville landscape. The citizen survey indicated that the characteristics of Burrillville which people liked best were visual qualities: its small town character and natural beauty.

A detailed inventory and evaluation of Burrillville's visual resources is beyond the scope of this study. Such an endeavor requires a separate comprehensive study that should be undertaken in the future. However, for the purpose of developing a Town policy toward visual quality, a generalization of important elements is provided.

In descriptive terms, Burrillville's urban form includes a dense urban center surrounded by suburban residential uses and forested open spaces beyond. Two such urban centers exist, downtown Pascoag and Harrisville. Other smaller, yet definable villages also dot the Town and are still recognized by residents.

Areas such as streams, rivers, ponds, open farmland and fields lend natural definition to the Town and it is these elements which create a distinct, identifiable place.

Removal of large areas of existing vegetation, walls and rolling terrain, and replacing it with unplanned suburban-style layout of dwellings, placed upon clear-cut landscapes will eventually destroy the Town’s natural character and spatial definition, thereby forever changing the basic character of Burrillville. Certainly this is an important issue to guide our decision making when planning the Town’s future. Both the Comprehensive Plan and building regulations must be regularly monitored for their effectiveness in preserving the values and characteristics which define this environment.

Open space is especially critical in Burrillville to:

- Provide cleared undeveloped open spaces in a landscape dominated by forested or urbanized areas;
- Create unique edges between forests and cultivated or pastured fields;
- Maintain the rural character that is Burrillville's visual and cultural heritage; and,
- Provide visual counterpoint to the urbanized image generated by commercial development.

Similar to open space land, wetlands and watercourses provide essential open space in forested or urbanized environments. In addition to the open space and rural character issues, water resources have special inherent characteristics that have been documented as providing highly valued visual experiences. Steps must be taken to preserve the natural and aesthetic values these water resources offer and make them accessible to the public.

The Town of Burrillville is characterized by areas of unique natural beauty. Views of rural areas, ridges, historic districts, farmlands, wetlands and wooded areas, together with rivers, ponds, reservoirs, and streams give the Town its special character. An inventory of the Town's scenic landscapes was compiled as part of a Statewide study by the RIDEM Planning and Development Department. Sites with "noteworthy" or "distinctive" landscapes were identified using a variety of methods. Approximately 4,800 acres on eight sites were identified as noteworthy or distinctive within Burrillville. Sites include:

- Mill and grounds around Wallum Lake;
- The sequence of old farms and fields on East Ironstone Road;
- Views of woods around Round Pond;
- Pine forests and shoreline of Wakefield Pond;
- Town Farm Road at Wilson Reservoir with its surrounding pine forests and interesting shoreline; and,
- The noteworthy vegetation and residential development on Colwell Road.

The survey of scenic inventories is limited in that only sites which are visible from Town roads are considered. Other important views and vistas not identified in the State's inventory include:

- The view from Benson Mountain;
- The area along Knibb Road and Jackson Schoolhouse Road;
- The mill pond and waterfall at East Avenue in Harrisville;
- Harrisville Center;
- The Oakland Triangle (corner of Whipple Avenue and Victory Highway); and,
- The Snake Hill ledges in Oakland.

Additional scenic landscapes found in less visited areas are recognized to exist throughout the Town, and should receive equal attention to those identified above. This may be on a case by case basis in terms of future preservation efforts.

Protection of these visually important spaces may be achieved through a variety of techniques, including:

- Acquisition of important and sensitive lands;
- Conservation restrictions - limits what an owner can do with their property and/or enables others to use the property for specific purposes. State law defines such restrictions. Conservation restrictions may be drafted to conform to almost any situation, such as a restriction against cutting trees or removing stone walls.
- Purchase of development rights - acquisition of a conservation easement for the rights of development of a parcel to ensure preservation of the property as an undeveloped open space in perpetuity.
- Visual easements - a conservation restriction or easement which protects the visual or scenic elements of a parcel of land;
- Transfer of development rights - offers a person who's right to develop is restricted an opportunity to sell those rights to the owner of land in an area where the local government is prepared to allow development.
- Revise zoning and subdivision regulations to include scenic criteria and design guidelines such as the following:[17]
    - Structures should not be placed in open fields;
    - Buildings should be located adjacent to tree lines and wooded field edges so as to blend with the natural landscape;
    - Homes should not front directly onto off-site streets;
    - Where clustering will yield open space that can remain in active agriculture, its use should be explored and possibly required;
    - Existing farm and logging roads should be incorporated into subdivision design, linkages to open spaces, etc.;
    - Stone rows and tree lines should be preserved whenever possible;

[17] Preserving Rural Character, Fred Heyer, American Planning Association, Planning Advisory Service Report No. 429, and December 1990.

- Existing agricultural structures such as barns and silos should be preserved where feasible and maintained;

- Roads should follow existing contours to reduce severe earthwork;

- Disturbance for the construction of roads, stormwater basins and other improvements should be kept at a minimum and re-landscaped;

- A minimum setback from lakes or ponds should be consistently maintained;

- The maximum linear disturbance per lakefront lot should be limited, including docks, bulkheads, decks, walkways and beach areas;

- Structures should not be placed on ridge lines;

- Trees on ridges should not be removed;

- Water towers should not be placed on top of ridgelines;

- The height of water towers should be limited to an elevation below the crown line of mature on-site trees;

- Naturally vegetated areas between the new buildings and roads should be preserved and their alteration restricted;

- The creation of extensive property line to property line lawn areas should be discouraged;

- Building setback lines should be located to encourage development in the most suitable areas for development;

- Building should be restricted in steep slope areas that require extensive clearing, and earthwork;

- The maximum amount of natural vegetation on sloped sites should be preserved as much as possible;

- Encourage the use of natural materials for engineered structures such as curbing, culverts, walls and outlet structures.

• Public education.

II.2 Natural Resource Issues

The following issues relating to natural resources have been identified through the planning process, and are the focus of the goals, policies and recommendations of this element.

Topography

- The irregular pattern of hills provides for scenic topography, but the rugged slopes and rock outcrops constrain development.

- There are relatively few large areas of slope having severe restrictions to development (in excess of 15 percent). Areas of steep slope are found throughout the Town, but are more prevalent along western and eastern borders.

- The Town's Soil Erosion and Sediment Control ordinance should be updated to reflect the State's model as described in Chapter 45-46-5 of the Rhode Island General Laws.

Soils

- Development in Burrillville is limited by its poor soil conditions. The land is underlain to a large extent by soils considered to have high or severe constraints to development by the presence of a high water table, bedrock, slope greater than 15 percent, hydric conditions (wetlands), rock and/or sand.

- Prime agricultural soils best suited for producing food, forage, fiber and oilseed crops should be preserved to the greatest extent possible, particularly when associated with an active agricultural use.

- Soil erosion is identified by the Town as a major concern, particularly related to new residential development and road building.

- In any construction activities, the Town should comply with the best management practices presented in the Rhode Island Soil Erosion and Sediment Control Handbook.

- Enforcement of the existing soil erosion and sedimentation ordinance has been irregular. The Town should vigorously enforce the ordinance.

Wetlands

- Approximately 1,450 to 1,500 acres of Burrillville land area is considered to be classified as regulated wetland. The dominant type of palustrine wetland in Burrillville is the forested wetland, commonly known as the wooded swamp.

- Burrillville's Zoning Ordinance provides wetland protection relating to building lots containing wetlands, individual sewage disposal system proximity to wetlands, and impervious surfaces.

- The Rhode Island Freshwater Wetlands Act requires that a permit be obtained before any freshwater wetland is altered. Filling, grading, clearing of vegetation or construction is considered alteration of a wetland.[18] The Town has the option of placing more restrictive regulations upon wetlands, but may not require less setback than that required by the State.

- A wetland just west of the North Smithfield line, contiguous to the Massachusetts border, generally known as Screech Hole Bog, contains rare plant communities, several rare plant occurrences, and one of the few remaining populations of a rare invertebrate. Protection of this area should be a priority.

- The Town has no clear policy on wetland alteration, i.e., it is not evident whether the Town's policy is no wetland loss or no net loss from alteration etc.

Surface Water

- Preservation of water quality in Burrillville's lakes and ponds is of critical concern to most citizens, whether it be for future drinking water, recreational or natural resource preservation reasons. Watershed/lake protection regulations can be adopted for three general purposes:

  - Protecting the lake by regulating watershed activities that cause erosion and pollution problems.

  - Controlling development to protect the aesthetics and benefits of the shoreland. and,

  - Regulating the lake usage to reduce conflicts among swimmers, boaters, fishing enthusiasts and others.

- Some or all of the following measures should be considered to help preserve high water quality in the Town's surface water bodies:

[18] Freshwater Wetlands Act Information Sheet, Rhode Island Department of Environmental Management.

- Amendments to the zoning ordinance - in certain watershed districts, modify requirements on lot size, height, floor area ratio etc.

- Cluster zoning - planned unit development (uses regulated through specific design standards and performance criteria, rather than through the traditional lot by lot approach of conventional subdivision and zoning controls.)

- To preserve their natural beauty, restrict certain lakes and ponds to limited uses: i.e., non-use of motor boats; flyfishing only; etc.

- Lake monitoring - regular monitoring of certain chemical/physical parameters of lakes/ponds of concern - University of Rhode Island has a lake-monitoring program.

- Encourage best management practices in construction etc. - for example, porous pavements, street cleaning in communities near lakes; streambank stabilization; surface roughening (groove the soil along the contour of a slope to spread out the runoff), etc.

- Encourage the use of modern ISDS technologies.

- Provide municipal sewers to those lakefront areas which are currently developed and whose dated septic systems are affecting the water quality.

Groundwater

- Burrillville depends entirely upon groundwater as its drinking water source.

- Principal sources of groundwater contamination are waste disposal sites, underground fuel-storage tanks, surface impoundments of liquid wastes, solid waste landfills, septic systems and cesspools, storage areas for highway deicing salt, and oil and chemical spills. The principal groundwater contaminants derived from these sources are volatile organic chemicals, pesticides, metals, nitrate, sodium and chloride.[19]

- The Town should consider more specificity in zoning language regarding groundwater protection and land uses.

- Public education - particularly important in a community which takes all of its drinking water from groundwater sources.

[19] National Water Summary 1986, Groundwater Quality, Rhode Island, U.S. Geological Survey Water Supply Paper 2325.

Farmland

- Between 1966 and 1990, the amount of land classified as active agriculture decreased from 1,865 acres to 1,006 acres, a 46 percent decrease. According to RI DEM's Department of Agriculture, Burrillville contains only 548.86 acres of active farmland.[20]

- The Town should work to protect prime agricultural producing land by promoting development on marginal agricultural or non-agricultural land.[21] Various techniques may be considered, including cluster zoning, conservation easements and farmland preservation funds.

- The Town should have a policy stating that existing commercial agricultural areas, prime and State important farmland soils are important to the interest of Burrillville and its residents.

- Consider using the open space set aside provision in subdivision applications to preserve not only wetlands, but also prime/important farmland soils as well.

- Much of Burrillville is forested with mixed hardwood forests. Stands of high grade Northern Red Oak (*Quercus rubra)* and other hard woods are found in areas of the Town where soils are suited for woodland management and production.

- The State manages close to 6,000 acres of land in Burrillville, most of it maintained as forestland. The State has a firewood program for people who burn wood for heating and other purposes.

- Stonewalls and vegetative hedgerows dividing fields and forested upland areas, provide a variety of wildlife habitat; this diversity of wildlife should be preserved.

- The safe movement of wildlife throughout the Town is of concern, especially as the more rural areas are developed.

[20] http://www.state.ri.us/dem/programs/bnatres/agricult/farms99.htm

[21] Town Farmland Protection, Theresa M. Levins, American Farmland Trust, Connecticut Department of Agriculture, page 35, 1987.

- There are no known Federally Endangered or Federally Threatened species in Burrillville. Habitats where rare species are found include the Clear River area; the wetland in Leeson Brook, in the Buck Hill Management Area; the Pulaski/Washington State Forest Complex; the wetland just west of the North Smithfield line and contiguous to the Massachusetts border, generally known as Screech Hole Bog; the Cedar Swamp Pond and Croff Farm Brook complex.

- The sites listed above would benefit from additional protection in the form of protective zoning, placement of conservation restrictions, or acquisition of buffer zones.[22]

Visual

- Replacement of existing vegetation with development can destroy the natural rural character and spatial definition of Burrillville.

- Excessive scale, mass and glaring color of structures, or vegetational clearing and infrastructure construction that does not conform to the form and contour of the terrain can have a substantial negative impact upon the visual character of Burrillville.

- Similar to open space land, wetlands and watercourses provide essential open space in both forested and urbanized environments. In addition to the open space and rural character issues, water resources have special inherent characteristics that have been documented as providing highly valued visual experiences. Steps should be taken to preserve the natural and aesthetic values these water resources provide and make them accessible to the public.

II.3 Cultural Resources

The purpose of the Cultural Resources Element is to protect and preserve the Town's historic resources and to integrate historic preservation into the comprehensive planning process. The Rhode Island Comprehensive Planning and Land Use Regulation Act states that this element "shall include policies for the protection of historic and cultural resources of the municipality and

[22] RI Department of Environmental Management Planning and Development Department. A Survey of the State's Scenic Areas. 1990.

the state. The policies and implementation techniques must be identified for inclusion in the implementation element".

Comprehensive Planning Context - The ultimate intent of the planning effort is to integrate the Cultural Resources Element into the overall Comprehensive Plan. While the element itself is a complete document, with independent recommendations and implementation actions, it also integrates preservation goals with those of other elements and other interests within the Town. This interrelationship makes the plan truly comprehensive, as opposed to a compendium of detached master plans.

The Burrillville Planning Board is the agency charged with primary responsibility for the Comprehensive Plan, with direct assistance from the Comprehensive Planning Commission (CPC). The planning process also requires substantial citizen input. The CPC is composed of representatives of the Planning Board, Conservation Commission, Recreation Commission, Town Council, citizen members, and is open to all major interests and constituencies to work with Town planning staff and consultants to develop the overall comprehensive plan. In addition, the research for the Cultural Resources Element included the participation of the Burrillville Historical and Preservation Society (BHS), the Northwest Villages Conservancy (NVC) and the Rhode Island Historical Preservation Commission (HPC).

Context for Preservation Planning - The Cultural Resources Element responds to the following questions posed by the HPC:

1. What historic resources exist? Where are they located? In what fashion do they relate to the past and future development of the community?
2. What preservation activities have already taken place or are in progress? How effective have they been?
3. Have the identified resources been adequately documented and evaluated? Are there resources (or entire groups of resources) which have not been identified, documented or evaluated?
4. How and in what way are the Town's historic resources threatened?
5. What are the Town's goals for its historic resources?
6. How will the town achieve these goals? Through which specific actions? Who are the actors?

7. To what extent is preservation part of the Town's overall plan for its development? Does the Town intend to integrate preservation into other aspects of its planning?

8. Given the identified resources and the present level of preservation activity, which strategies and actions are most important? Most urgent? Which are least important?

The cultural resources element includes the following material to answer these questions: an historical overview to establish the context for preservation activities; an inventory of documented properties, historic sites, and historic cemeteries and graveyards; an evaluation of historical preservation activities in Burrillville; an evaluation of known and likely threats to historic resources; and a set of priorities for addressing issues. Finally, the element presents goals, policies and actions for preservation.

Burrillville's historic resources have been documented by the Rhode Island Historical Preservation Commission through the local historic survey prepared in 1982.[23] This document presents a comprehensive inventory of the Town's historic resources and districts. The historical overview is presented in narrative form and is based on existing histories of Burrillville, most notably the HPC historic survey. This narrative, prepared by William M. Woodward of HPC, is designed to reflect a context for preservation activity and is not intended to be presented as a definitive history of Burrillville. The status of past historic preservation planning was derived from interviews with knowledgeable members of the BHS.

Known and likely threats to resources are documented, areas which are/are not protected with respect to historic and archaeological resources are noted. Preservation planning goals, objectives and policies reflect the needs of the Town as expressed by the members of the CPC, BHS and NVC. Finally, the policies lead to specific recommendations on specific actions and strategies, such as historic district zoning, creating an historical district commission, and setting into place specific mechanisms to preserve and protect archaeological resources.

II.3.a Cultural Resources - Existing Conditions, Trends and Projections

Located in the northwest corner of the state, Burrillville has a variety of historic resources typical of rural, upland Rhode Island towns. The circumstances of the Town's geography and its relative remoteness, however, distinguish its historic character from that of neighboring towns. Burrillville experienced an early agricultural phase, industrialization in the nineteenth century, and continued residential and industrial growth in the twentieth century. Civic, religious, and

[23] Historical and Architectural Resources, Burrillville, Rhode Island: A Preliminary Report, Rhode Island Historical Preservation Commission, 1982.

educational structures, especially from the early twentieth century, remain as valuable indicators of Burrillville's history.

Topography is important to understand Burrillville's development. Glacial deposits, scouring of the soil as glacier retreated, and long periods of erosion gave Burrillville an irregular topography, which formed settlement patterns and land use. A number of streams and small rivers cross the Town, and small bodies of water include a number of natural lakes and several man-made reservoirs. The presence of moving water across the Town's landscape encouraged settlement and played an important role in industrial development before the advent of steam. The higher, rugged areas remained more thinly populated than the lower, broader, river valleys. Burrillville's natural resources, moreover, are important for recreation and leisure use and their aesthetic qualities.

Pre-European Settlement - Three Algonquin tribes inhabited northern Rhode Island before European settlement. The Nipmucs, including a small sub-tribe known as the Pascoags, who were subsidiary to the Narragansetts and Wampanoags, occupied the area now known as Burrillville. Limited archaeological sites associated with the Indians have been identified.

Early Settlement - The first English settler in today's Burrillville was probably John Smith, who came to the Tarkiln area probably around 1674 and later encouraged several friends and family members to settle there. While their earliest buildings no longer stand, the village that grew at Oak Valley/Tarkiln was one of the Town's earliest nodes.

After nearly a century of English colonization, the rural western part of the state realized a sufficient number of residents who neither could nor would participate in town activities in Providence. In 1731 the northern and western sections of Providence County were set off as separate towns; Burrillville was part of the Town of Glocester. In 1800, residents of present-day Burrillville demanded separation from the Town of Glocester and in 1806 the Town of Burrillville was established.

Eighteenth Century - The eighteenth century settlement pattern of the Town was characterized by a rural population scattered about the Town with farms on the most arable land. Several early farmhouses survive in Burrillville, such as the M. Smith House (ca. 1750), on Victory Highway, the Reuben Keach House (18th century), on Central Street, and the J. Milard House (ca. 1754) on East Wallum Lake Road are all story-and-a-half- center-chimney dwellings. An unusual eighteenth-century form, seldom seen outside Burrillville is the end-chimney house, somewhat reminiscent of the seventeenth-century stone-ender form and apparently built in two sections.

Examples include the Esten House, on Mount Pleasant Road, the Ballou-Bligh House, on Joslin Road, and the Greene House on Smith Hill Road. Farming continued into the twentieth century, and farm complexes evolved over time are important in defining the Town's character: barns, corncribs, sheds, stone walls, orchards, and open fields are among the agricultural resources common to the rural landscape.

Nineteenth Century - As agriculture prevailed in the eighteenth century, industry dominated in the nineteenth century. Aided by improvements in transportation and technology, sleepy hamlets became bustling mill villages that saw dramatic changes in physical form. Improvements in transportation began in 1805 with the construction of Douglas Pike (Route 7). Soon after, Walling's Hotel was built beside the route in Nasonville. Railroad service, from Providence in 1873 and from Woonsocket in 1893, came later, and, indeed, its late arrival may well have limited the Town's growth potential in the nascent years of industrialization. Greater access to Burrillville followed the advent of the automobile and an improved road network, including the Victory Highway (1922 et seq., Route 102) from Woonsocket to Wickford, the refurbished Louisquisset Pike (Route 146), and Interstate Highways 95 and 195 to the south and east.

The Town's earliest industrial activity supported the agricultural economy and included sawmills and gristmills; these were in operation at Pascoag by 1746 and Wallum Lake by 1766. By the 1790's, small mills (all now gone) were active in Saxonville, Glendale, Harrisville, and Mapleville. Non-agricultural industry began to appear in the second quarter of the nineteenth century and grew rapidly: a machine shop in Harrisville in 1825, woolen mills in Huntsville and Gazzaville in the 1830's, eleven woolen mills in Town by 1850, and twenty-two woolen mills by 1856. At the outbreak of the Civil War, Burrillville's economy was clearly dominated by textile production. In addition to the mills, the villages that grew around them included mill offices and other auxiliary structures, dams, raceways, bridges, shops, institutional buildings, worker's housing, mill superintendent's housing, and occasionally mill owner's housing. Most of these villages remain but the early mills themselves have been lost to fire, though extensive rebuilding has occurred on original industrial sites. Mills remain today at Glendale (1853, 1889), Harrisville (1882, 1895-1926), Mapleville (1845, 1871-72, 1901), Mohegan (1892), Nasonville (1882), Oakland (1850, 1856, 1870, 1882), Pascoag (1865) and Saxonville (1905).

In response to the nineteenth-century population growth, schools, churches and other institutions flourished. The first public school house was built in 1806, and others appeared in the 1820's, including the Eagle Peak School (1826). In the 1860's and 1890's schools included the Joseph C. Sweeney School in Bridgeton and the Mapleville School in Mapleville. The Town's first religious

structure was the Society of Friends Meeting-house (1791), now much altered, in Mapleville. In the nineteenth century religious diversification paralleled the Town's growth: Methodists, Baptists, Episcopalians, and especially, after 1850, achieved sufficient numbers to build nine new churches for their members. Important surviving churches include the First Baptist Church (1839) in Pascoag, the First Universalist Church (1886, 1933) in Harrisville, and the United Methodist Church (1893) in Glendale.

The Town's rural character attracted new institutional use, including a tuberculosis hospital (now the Zambarano Hospital Complex) at Wallum Lake in the 1890's; Casmir Pulaski Memorial State Park in the 1930's, and the creation of several Management Areas.

Twentieth Century - Burrillville continued to develop in the twentieth century. Charles Fletcher located his Coronet Worsted Company in Mapleville in 1901 and added a new mill to that complex. Beginning in 1912, the presence of Austin T. Levy and his Stillwater Worsted Company had a profound effect on the Town. Not only did Levy purchase and operate existing mills, but also built large amounts of new worker's housing, including attractive Neo-Colonial houses in Harrisville from the 1920's through the early 1940's and modern pre-fabricated houses (unusual for Rhode Island) at Glendale in the 1930's. Levy also recast the village of Harrisville in a "New England Village" mode through his contributions of the Town Hall, The Assembly, The Ninth District Court, and The Jesse M. Smith Library, all designed by Jackson, Robertson & Adams in a Neo-Colonial style.

Post World War II - As the State underwent extensive suburbanization after World War II, Burrillville has received large numbers of new suburban residents. Its population has grown from approximately 8,000 in 1940 to over 13,000 in 1980. The construction of new houses, most of which are strung out along the Town's many roads, is a trend dissimilar to the strong village settlement pattern which characterized Burrillville's historic development. The Town retains, however, important groups of historic properties that reflect its agricultural beginnings, its industrial growth, and its civic development.

Existing Historic Resources - The HPC Preliminary Survey is the Town's primary list of properties considered important to Burrillville's history. Lists of historically significant properties are found in several different sources, including the National and State Register of Historic Places, and the local Historical Society files. The State of Rhode Island Historical Preservation & Heritage Commission’s Preliminary Survey, 1982, also depicts a number of historic properties, though not entirely comprehensive, according to those active in Burrillville historical preservation.

The inventory contains a listing of 230+ sites, comprising historic structures, municipal properties, parks, historic districts, houses of worship, and cemeteries. National Register and State Register sites are listed in the inventory as are other properties that may be eligible for nomination to the National Register or may be considered for local historic zoning.

The National Register of Historic Places includes the State's most important historic places, and is the nation's official list of significant historic properties worthy of preservation.[24] The benefits of being on the National Register include official recognition of the property's importance; eligibility to apply for federal planning and restoration grants when funds are available; eligibility to apply for federal planning and restoration grants when funds are available; eligibility for federal investment tax credits for certified substantial rehabilitations of income-producing properties; and protection from the adverse effects of state or federally funded or licensed projects through a review and assessment program. Listing on the Register does not require the owner to preserve or maintain the property. Unless the owner applies for and receives special federal or state benefits, she/he can do anything with the property which is permitted by local ordinances.

Currently there are two districts in Burrillville which are listed on the National Register of Historic Places: the Harrisville Mill Village Historic District, roughly bounded by Wood and Sherman Roads, East Avenue, Main, Chapel, School and River Streets; and the Oakland Historic District, including parts of Alice, Remington and Whipple Avenues, Victory Highway, Maple Lane, Mill, Pond River and School Streets. Map 5 shows the general location of these sites and others in the preliminary survey.

The HPC has also prepared a list of properties which *may* be eligible for listing on the National Register or the State Register. These are shown on Table II-3:

Table II-3
Properties and Districts with Potential for Inclusion in the National Register of Historic Places

	Name & Location	Potential (see Key)
1.	Pascoag Historic District (Main Street, Sayles Avenue, and Frank Potter Memorial Bridgeway)	+
2.	Sweet's Hill Historic District, East Avenue	#

[24] This paragraph is excerpted from the Historical and Architectural Resources of West Warwick, Rhode Island: A Preliminary Report, Rhode Island Historical Preservation Commission, 1987, page 28.

3.	Smith-Nichols House, Colwell Road, Oakland-Tarkiln	#
4.	Albert L. Sayles Residence, Pascoag	#
5.	Logee-Whiting House, Buck Hill Road	#
6.	Reuben Keach House, 18th Century, 66 Central Street	#
7.	First Baptist Church, Church Street, Pascoag	#
8.	Calvary Episcopal Church, Church Street, Pascoag	#
9.	Nasonville School, Douglas Pike	+
10.	Nasonville Bridge, Douglas Pike, over Branch River	*
11.	Eagle Peak School, Eagle Peak Road	***
12.	J. Millard House/Barksfield, East Wallum Lake Road	#
13.	D. Smith House, Hill Road	#
14.	Ballou-Bligh House, Joslin Road	#
15.	D.H., Whipple House (Lawton House), 41 Main Street	***
16.	Esten Farm, Mount Pleasant Road	#
17.	House, Pole 353, Old Route 102	+
18.	S. Eddy House, Reservoir Road	#
19.	Young-Sherman House, Sherman Farm Road	#
20.	Greene House, Smith Hill Road	#
21.	House, 78 South Main Street, Pascoag	+
22.	John White Farm, Spring Lake Road	+
23.	M. Smith House, Victory Highway	#
24.	Oakland Bridge, Victory Highway	*
25.	Brown Angell Farm/Singleton Farm, Wallum Lake Road	***
26.	A. Paine Farm, West Road	#
27.	Richardson-Arnold House, Round Top Road	***
28.	Smith-Darling Housing, Barnes Road	+

Source: Rhode Island Historical Preservation Commission

Key:

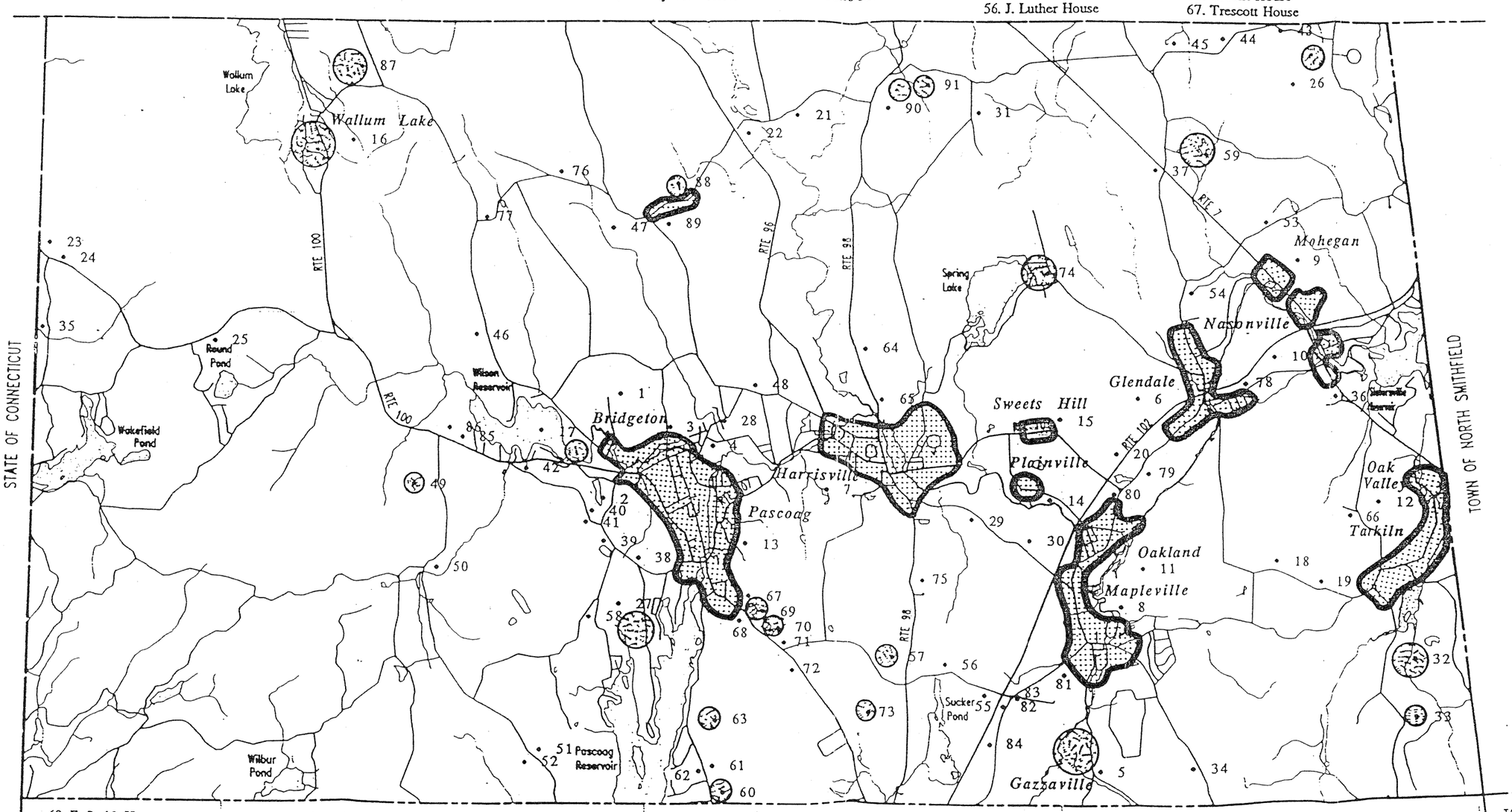
- Recommended for National Register consideration in the Historical Preservation Commission survey publication

* - Formally determined eligible for National Register listing by the National Park Service

*** - Review of preliminary materials by the State Review Board suggests the property may be eligible for the National Register.

+ - Consideration requested or suggested for National Register by owner or other party (this category includes properties for which the State Review Board reviewed preliminary or final materials and found that it did not appear National Register eligible at the time)

1. Bridgeton Historic District
2. Huntsville
3. Laurel Hill/Laurel Ridge
4. Saxonville/Saxondale
5. Gazzaville Historic Area
6. Glendale Historic District
7. Harrisville Historic District
8. Mapleville Historic District
9. Mohegan Village Historic District
10. Nasonville Historic District
11. Oakland Historic District
12. Oak Valley-Tarkiln Historic Area
13. Pascoag Historic District
14. Plainville/Whipple Historic Area
15. Sweet's Hill Historic District
16. Wallum Lake Area
17. Site of Wilson's Mills
18. S. Paine House/Tamarack Farm
19. Smith-Darling House
20. Lapham-Darling House
21. Taft-Arnold House
22. "Modern Colonial" House
23. Logee House
24. Logee-Whiting House
25. Buck Hill Fire Tower
26. A. Mowry Farm/Wright's Farm
27. Camp Dixie
28. Stone Arch Bridge
29. Ray Menard House
30. Reuben Keach House
31. John White House
32. Phetteplace-Smith Farm
33. G. Smith Farm/Country View Acres
34. Cooper House
35. Former Buck Hill District School
36. Walling House
37. Walling Schoolhouse
38. Washington Logee House
39. Former Eagle Peak Schoolhouse
40. Seth Ross House
41. Salisbury House
42. Whipple Angell House
43. Richardson-Ballou House
44. Richardson's Saw Mill
45. John Esten House
46. J. Millard House/Barksfield
47. Logee-Taft Farm
48. D. Smith House
49. J. Stanfield Farm
50. Site of Saw Mill
51. Jonathan Lackey House
52. Woodbury Lackey House
53. Ballou-Bligh House
54. Benjamin Joslin House
55. Smith Homestead
56. J. Luther House
57. Novitiate of the Sacred Heart Bros.
58. Sterling Paine House
59. Esten Farm
60. Welcome Sayles Farm/ Episcopal Conference Center
61. S. Eddy House
62. Former gas station/fruit stand
63. J. Eddy Farm
64. Young-Sherman House
65. Shippee Bridge
66. Greene House
67. Trescott House



68. E. Smith House
69. J. Irons Farm Complex
70. J. Salisbury Farm Complex
71. H. Chase House
72. L. Vallett House
73. Job Ballou Farm/Wood's Edge
74. Spring Lake Summer Resort
75. Mowry-Steere House/Hemlock Hill Farm
76. Thayer House
77. Stone Barn and G. Salisbury House
78. J. Clarkson House
79. Darling House
80. Former Trolley Substation
81. W. M. Smith House
82. M. Smith House
83. Gasoline station
84. A. Smith House
85. E. Angell House
86. Randall Angell House
87. Angell-Singleton Farm
88. A. Paine Farm
89. West Road Roadscape
90. Burlingame-Mitchell Farm
91. J. Reynolds Farm
92. I. Whipple House

Districts and Areas

More Than One Structure, Large Sites and Farms

• 99 Structures and Small Sites

Source: Rhode Island Historical Preservation Commission

MAP 5

0 2000 4000 6000
Feet

Comprehensive Plan
Burrillville, Rhode Island

Albert Veri & Associates, Inc.
Community Planners
70 Elm Street
Providence, Rhode Island
401/274-1360 02903

No Revisions Date

HISTORIC DISTRICTS, STRUCTURES AND SITES

Date: July 15, 1990 Digital data provided by the Rhode Island Geographic Information System
Drawn By: M.A.D.
Scale: As Noted

The above list of potentially eligible properties is not to be considered complete. As new research is conducted, and as the Town changes, other potential candidates for the National Register may be identified.

Members of the NVC and BHS, in an effort to update the Preliminary Survey Report so that it accurately portrays the extent of the historic resources in Town, recently conducted an informal follow-up survey. Members canvassed the Town for historic sites which were missed in the 1982 Survey. Many sites considered to be potentially significant were found on roads which had been overlooked in the original survey.

Table II-4 presents a preliminary listing of sites which should be considered for inventory and documentation by the HPC. The approximate location of these additional sites are shown on Map-6. The survey also revealed two areas which require further consideration for their merit as National Register Historic Districts. While the inventory is large, it is not complete. These sites and areas should be considered in future preservation planning efforts, and require a more detailed and formalized effort in documentation.

It should be noted that this list is based on a partial survey of the Town only. The BHS and NVC is planning additional town-wide surveys, and will provide information to the Town Planning Department and HPC for inclusion in the Plan as it becomes available.

Table II-4
Historic Resources Requiring Documentation and Evaluation

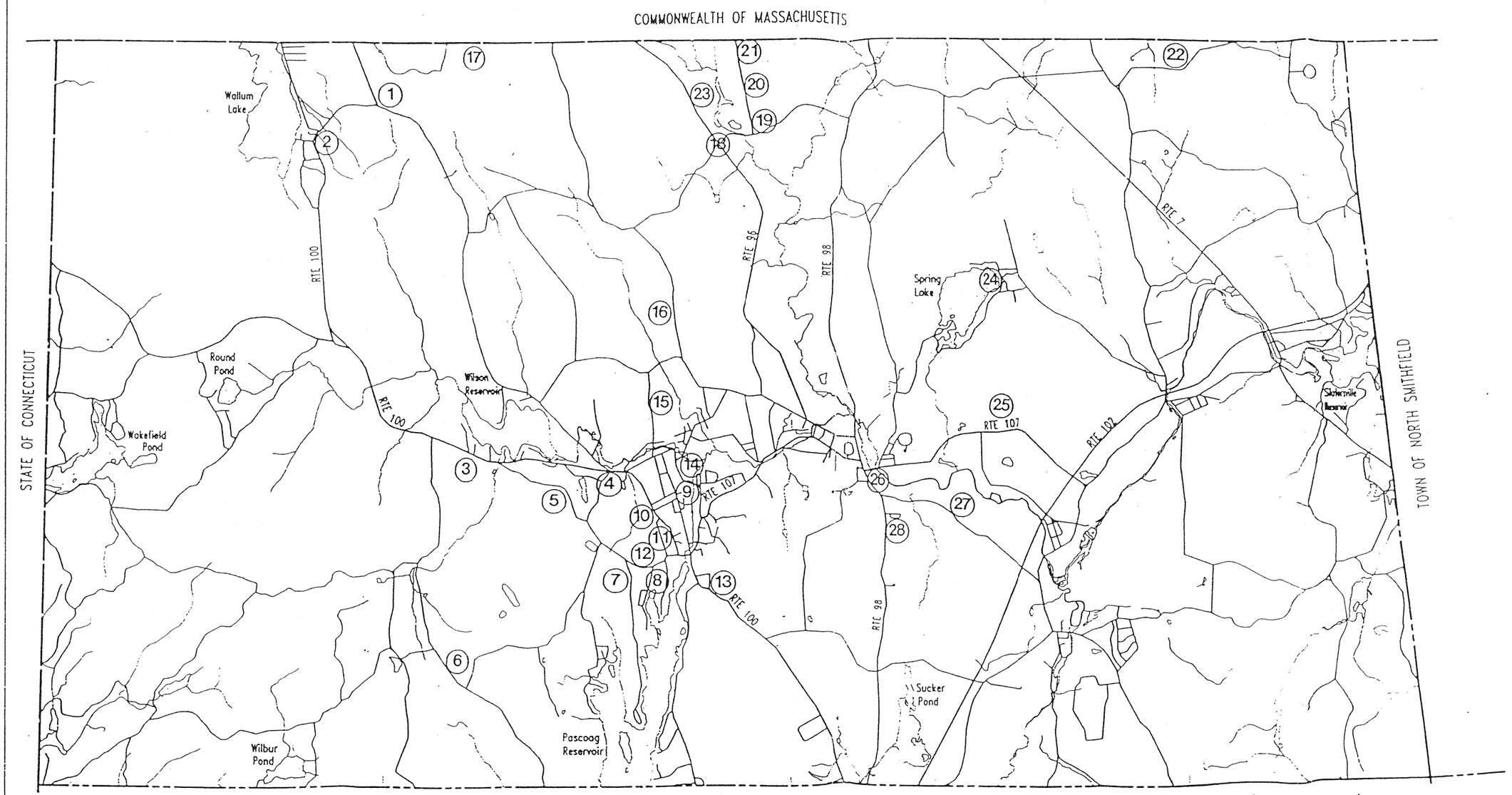
Map Ref.	Street Name	Description
1.	East Wallum Lake Road	Complete settlement with tannery and possible Indian graves
2.	Wallum Lake Road	Richardson House
3.	Wallum Lake Road	Gordon McLean House, hiding places for underground railroad
4.	Wallum Lake Road	Ross Village District, mixture of vintage homes and styles.
5.	Eagle Peak Road	Peck Farm, possible district along Eagle Peak Road.
6.	Jackson Schoolhouse Road	Lorenzo house, cape with later additions.
7.	Camp Dixie Road	Richard Carter house 18th century cape.
8.	Rock Avenue	Dunn's House, with cemetery.
9.	Sayles Avenue	Mill houses, Victorian & Queen Anne.
10.	Laurel Hill Road	Victorian Houses.
11.	Broad Street	Farm
12.	High Street	Tanner Hill School, Greek Revival, two story.
13.	South Main Street	Cattle impoundment, cemetery, stone walls.
14.	Centennial Street	Two Capes
15.	219 North Road	Chauvin farmhouse
16.	Hill Road	Harold Lovejoy farm 1870's
17.	Buxton Road	Cora Bates house, Cole-Segrave house stone structures.
18.	Round Top Four Corners	Commercial Village District known as Tassle Top.
19.	Broad Brook	Stone bottom house, old foundation.
20.	#310 & #235 Collins-Taft Road	#310 Nice details some original windows, #235 high federal farmhouse pedimented gable.
21.	Collins-Taft	Cattle impoundment, nice stone work.
22.	East Ironstone Road	Cattle impoundment.
23.	Spring Lake	Arcade, being restored, interesting artifacts of the period.
24.	Central Avenue	House possibly site of early town meetings.
25.	Central Avenue	Gable house.
26.	Steere Farm Road	House.

Sources: Burrillville Historical and Preservation Society, Northwest Villages Conservancy.

The inventory of historic sites includes some 232 districts, buildings and sites, but is generally thought to be in need of further study.[25] Few sites are currently protected through zoning, easements, historic districting or other measures. Sites which have been approved for the National Register have limited protection from potentially damaging federal programs and may be eligible for certain tax benefits and for federally funded matching grants-in-aid.

Future inventories of the Town's historic resources should be developed using criteria that objectively access Burrillville's historic resources. These criteria may include building age, architectural

[25] Statements by various members of Northwest Villages Conservancy, Burrillville Historical Society, Rhode Island Historical Preservation Commission.



1.	East Wallum Lake Road	Complete settlement with tannery and Indian graves.
2.	Wallum Lake Road	Richardson House.
3.	Wallum Lake Road	Gordon McLean House, hiding places for underground railroad.
4.	Ross Village District	Mixture of vintage homes and styles.
5.	Eagle Peak Road	Peck Farm, possible district along Eagle Peak Road.
6.	Jackson Schoolhouse Rd.	Lorenzo house, cape with later additions.
7.	Camp Dixie Road	Richard Carter house 18th century cape.
8.	Rock Avenue	Dunn's House, with cemetery.
9.	Sayles Avenue	Mill houses, Victorian & Queen Anne.
10.	Laurel Hill Road	Victorian Houses.
11.	Broad Street	Farm.
12.	High Street	Tanner Hill School, Greek Revival, two story.
13.	South Main Street	Cattle impoundment, cemetery, stone walls.
14.	Centennial Street	Two Capes.
15.	219 North Road	Chauvin farmhouse.
16.	Hill Road	Harold Lovejoy farm 1870's.
17.	Buxton Road	Cora Bates house, Cole-Segrave house stone structures.
18.	Round Top Four Corners	Commercial Village District known as Tassle Top.
19.	Broad Brook	Stone bottom house, old foundation.
20.	#310 & #235 Collins	#310 - Nice details some original Taft Road windows; #235 high federal farmhouse pedimented gable.
21.	Collins-Taft	Cattle impoundment, nice stone work.
22.	East Ironstone Road	Cattle impoundment.
23.	Round Top Road	Old Brook farm, cemetery.
24	Spring Lake	Arcade, being restored, interesting artifacts of the period.
25.	Sweet's Hill farm	House is neglected and is threatened by development.
26.	Central Avenue	House possibly site of early town meetings.
27.	Central Avenue	Gable house.
28.	Steere Farm Road	House.

Source: Burrillville Historical Society, Northwest Villages Conservancy, 1990.

Key:

(X)

General Vicinity of Historic Site

MAP 6

0 2000 4000 6000
Feet

1990
Comprehensive Plan
Burrillville, Rhode Island

Albert Veri & Associates, Inc
Community Planners
70 Elm Street
Providence, Rhode Island
401/274-1350 02903

No Revisions Date

HISTORIC SITES FOR FUTURE CONSIDERATION

Date July 6 1990 Digital data provided by the
Drawn by MAS Geographic Information System
Scale As Noted

style, building type, condition and thematic associations. No one criteria is paramount. A structure not conforming to one criterion could still be listed if it was found to have significant merit under other criteria.

The age criteria should be the fifty-year limit used by the National Register of Historic Places. With certain exceptions, the Register will not consider for listing structures that are less than fifty years old. The same applies to the local historic properties inventory prepared by HPC.

Another criterion is architectural style. Structures that have been included in the HPC local historic properties inventory in many cases are representative of a specific architectural style or local/regional building tradition. The condition criteria comes into play when accessing a structure's architectural style. Alterations to a structure that substantially mask or destroy a structure's architectural integrity could preclude its listing in the HPC inventory.

Thematic associations can refer to a structure's historical associations or to its contribution to an historic district's overall theme. In the case of the former, a structure could be included in the inventory if it was owned, occupied or built by an individual or organization notable in national, state or local history. In the case of the latter, a structure could be included in the inventory if it contributes to the overall theme of an identified historic area. Examples include any of the Levy buildings, or mill housing.

II.4 Cultural Resource Issues

Historic Preservation Activities - There have been three primary boards and commissions involved with the preservation of Burrillville's history, in addition to numerous individuals who have contributed informally over the years. The *Burrillville Historical and Preservation Society* was formed in the 1970's and continues to be an active group today. The Society's primary purpose is to maintain the history of the Town, and specifically, the preservation of buildings and archives. Activities conducted by the Society include storage of Town archives, programs such as History Month (bus tours, slide shows etc. funded through the State), historical programs for the local school system and informational workshops and meetings. The Society is an independent group, and is supported by members, State funding for selected programs, etc.

Burrillville's *Historic District Commission* (HDC), in existence since 1981, was dissolved in 1988. The HDC was active in historic preservation activities and in promoting historic district zoning. The Commission was considered part of Town government, and was allotted meeting and storage space in Town Hall, as well as a small budget.

The Commission played an important role in placing two historic districts on the National Register of Historic Places. Commission members' knowledge of the Town's historic resources was used extensively by the Preservation Commission in the preparation of their Preliminary Survey Report for the Town of Burrillville.

In February of 2003 the Burrillville Town Council motioned to re-establish the town's Historic District Commission. The HDC's primary responsibility will be to create Historic District Zoning which the town will use to protect existing historic areas. If successful, the town may be certified with Local Government Status by the Rhode Island Historic Preservation Commission and allow residents to be eligible for Historic Tax Credits.

The effectiveness of preservation activities can be measured by the completeness of the resource inventory, and the degree to which historic districts, buildings and sites are protected from deterioration, demolition and unsympathetic renovation. Using these measures, Burrillville's preservation activities to date have been less than fully effective. However, the current Town Council recognizes the potential of unsympathetic renovation.

As pressure for development increases in Burrillville, it is unlikely that future projects will be undertaken by people who are sympathetic to preservation goals. The Town recognizes the importance of expanding its tax base, of revitalizing its commercial centers, of reconstructing and, in some cases, of building new roadways. The area is a prime location for regional energy facilities and continues to experience development pressure in this sector. There is a need for the Town to establish stronger mechanisms through zoning and to find a means to protect historic properties, historic structures, bridges, historic landscapes, as well as potential archaeological sites, and cemeteries and graveyards which may be impacted by such development.

Evaluation of Known Threats to Historic Resources - Shifts in regional and local economies transformed Burrillville from a farming community to one dominated by manufacturing. Later changes in the national economy resulted in a geographic shift of manufacturing industries to Sun Belt states in the south leaving many of the mills in Burrillville vacant, and many of the once prominent mill villages underused and neglected. Residential development is the most recent prevailing growth to occur in Town. Many of the Town's historic resources are threatened by the combination of these forces and shifts in the economy and development patterns. A significant number of historic sites are threatened either by neglect or by development forces. Threatened resources fall into the following general categories:

1. Large mill complexes and associated mill housing;
2. Individual or isolated structures scattered throughout Burrillville;
3. Cemeteries and graveyards;
4. Historic landscapes and farms; and,
5. Town archives.

Mill Complexes - Historic mills and mill complexes in Burrillville comprise a large portion of the Town's historic resources. In some cases all that remains of these once imposing structures are foundations, dams or water works; other structures have been updated and changed over the years so that only remnants of the original buildings remain. Vacant mill structures are threatened unless they are put to a use that will ensure their survival. Marginal uses do not yield the type of revenue needed to protect the integrity of the structures. At some point, the land which these mills occupy may be more valuable without the buildings thus encouraging present or future owners to raze all or portions of the site. The condition of structures left vacant may disintegrate to the point where only massive public support will save them. Mill structures which may be in jeopardy include:

- Glendale Mills (west side of Branch River - Bruin Plastics);
- Harrisville Mill Complex/Stillwater Worsted Mills (Clear River south of East Avenue, east of Main Street);
- Mapleville Mills (on Chepachet River, north of Main Street - home to Boliden);
- Mohegan Mill (on Branch River - now home to Atlas Pallet)
- Nasonville Mill (on Douglas Pike, backing on Branch River - home to Turex); and,

Those buildings currently in active use tend to be better maintained, including Glendale Mills, Mapleville Mills, and Nasonville Mill. The Burrillville Redevelopment Agency has championed a Redevelopment Plan for the Stillwater Mill Complex, located in Harrisville. The plan includes housing and affordable housing, an expanded Town Library (Jesse M. Smith library), public open space and light retail/service uses to accommodate existing and proposed residential uses. For a copy of the Redevelopment Plan, see: http://www.burrillville.org/Public_Documents/BurrillvilleRI_EconDev/StillwaterMasterPlan.
Offering incentives to small scale manufacturing businesses and warehousing operations that are willing to occupy structurally sound mill structures is another viable method to reusing mill structures.

Individual or Isolated Structures - The following is a list of individual structures that are not part of potential districts. They are generally isolated from other historic structures and therefore are at some risk. This list is not intended to be all-inclusive; rather, it represents significant examples that typify preservation threats:

- **Esten Farm** - A 1 1/2-story farmhouse, built in two sections, like several other early Burrillville rural dwellings, with a traditional 5-bay, center entry, a center chimney section at the right, and higher, 2-bay end chimney section at the left. The house is set on a slight hilltop in the center of a large working farm, which includes a 20th century barn and fields divided by stone walls. The Estens were early settlers in this area. John Esten, who built this house, was a member of the first Town Council when the Town was incorporated in 1806; his family and descendants lived here into the 20th century. The property is one of Burrillville's last surviving working farms. The site of this house is threatened by lack of general upkeep, and development pressures.

- **Richardson Farm** - on West Ironstone Road, across from the lumber company. Currently an active farm, with an historic component in the form of historic house and outbuildings. Potential threat from development pressures.

- **Sweet's Hill Farm** - on East Avenue. House on site is in preservable condition, but the site has been the target of recent development proposals, and includes a large amount of land with limited constraints to development.

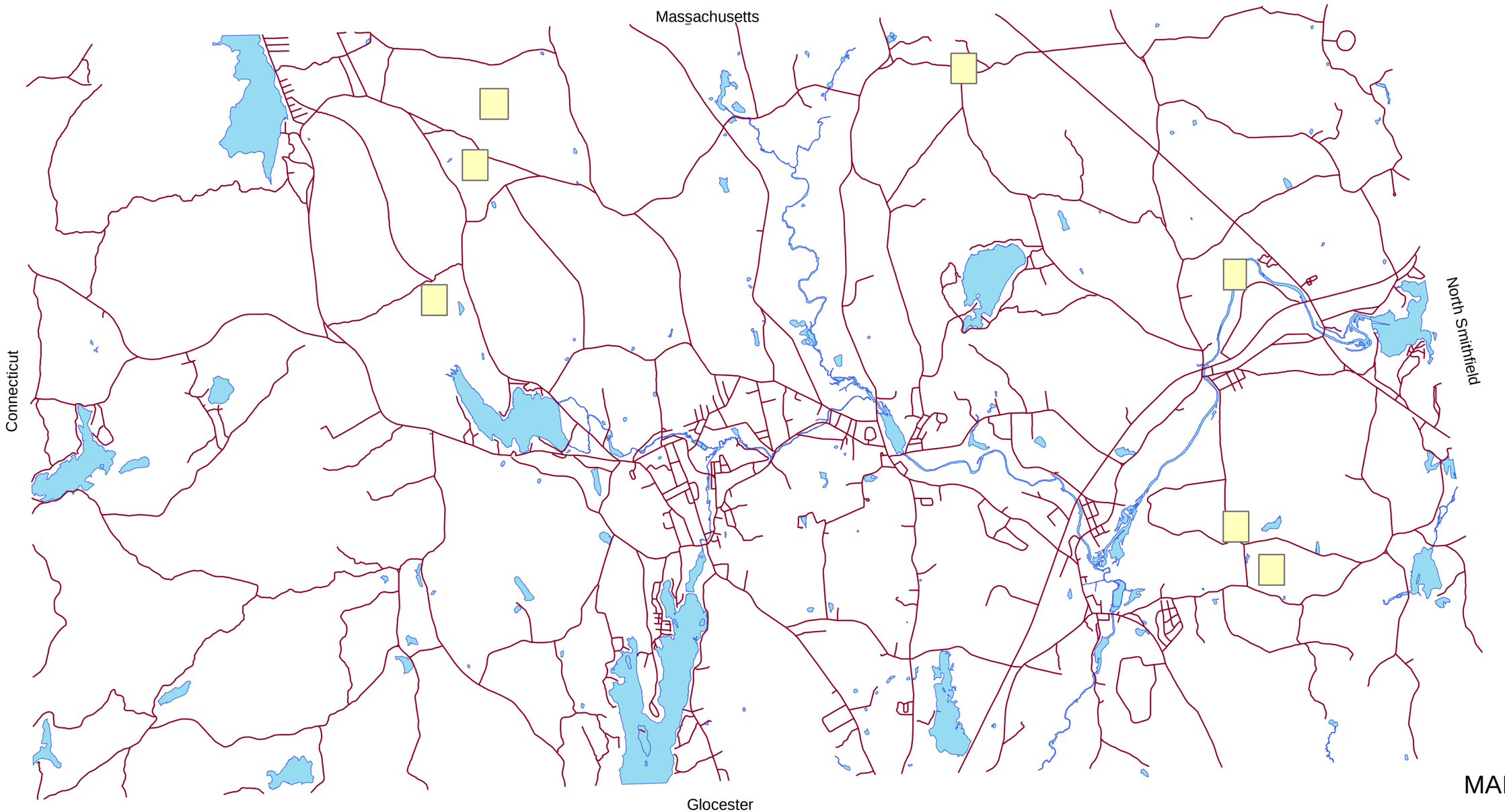
- **Star Farm** - between Wallum Lake Road, East Wallum Lake Road and Buxton Road - a cluster of buildings, including a school, tannery and others. Development pressures also jeopardize the future preservation of this site.

- **Angell Singleton Farm** - on Wallum Lake Road. Materials reviewed by the State suggest this site may be eligible for National Register listing. Considered in jeopardy due to lack of maintenance and development pressures.

Cemeteries and Graveyards - All historic cemeteries and graveyards are presently at risk, and hidden graveyards are at special risk. Burrillville developed as an agricultural community and many of its farmsteads incorporated family graveyards. While many farms have disappeared with the advance of suburban development, the graveyards remain and can be found today throughout the Town. These graveyards are claimed by no one, but exist as private rather than public property. While theoretically protected from development, they are threatened by the development of adjacent land, vandalism, and neglect.

Once vandalized, sites tend to draw more vandals who compound the damage. While volunteer efforts have been attempted to clear sites of rubbish and overgrowth, these efforts cannot deal with the problems posed by headstones, mausoleums, and walls damaged by vandals and the

Archeological Sites



MAP 7

Source; 1997, RIGIS

Legend

roads

water

Archeological Site

0 2,125 4,250 8,500 Feet

elements. The inventory indicates the sites of some known cemeteries and graveyards, but does not include so-called "hidden" graveyards (i.e. sites for which records no longer exist). For the purposes of this discussion, these "hidden" sites should be treated like archaeological sites, needing protection but difficult to protect since they are in many cases not clearly defined as to location. At one time, the Historical Society had a program to maintain historic cemeteries but funding was not available to maintain the program.

Historic Agricultural Landscapes - Farming has been an important character-defining activity in Burrillville well into the twentieth century, and farm complexes evolved over time are important in defining the Town's character. Barns, corncribs, sheds, stone walls, orchards, and open fields are among the agricultural resources common to the rural landscape.

Burrillville slowly experienced changes in its physical environment as farmland has been converted into residential subdivisions, as well as scattered commercial and industrial developments. Recent development has often focused on farmland, and Burrillville now retains only a few remaining farmsteads. These historic landscapes tell the story of the Town's agricultural past. All are threatened by encroaching development and escalating property values.

Historical Archives - Archives are threatened in that there is no central repository for archived material, there is no inventory of existing material and currently, archived material is stored at Historical Society member's homes.[26] A temporary storage facility was rented for some of the records. Loss of these valuable resources due to theft, vandalism, general neglect and poor climate conditions is inevitable unless a suitable structure with climate control is found. The BHS is actively seeking a suitable site but budget constraints have severely limited their options.

Archaeological Sites - The Historical Preservation Commission and the State Archaeologists' Office have identified six archaeological sites which are potentially eligible for inclusion in the National Register of Historic Places (see Map 7). These sites include are of prehistoric or historic nature, and include Native American burial grounds. No archaeological sites in Burrillville are currently listed on the Register. The sites exist throughout the community and have been identified through archaeological surveys for State- or Federally-funded projects or through other historical evidence. There are likely many more archaeological sites which have not been identified or documented.

-[26] Archives are the property of the Burrillville Historical and Preservation Society.

Currently, an archaeological site is documented only if required by law as part of a Federally-funded project, such as a new roadway or power line. The Town has no means for identifying potential sites, or notifying property owners whether their land may have archaeological sensitivity. Archaeological resources are at risk in the absence of local authority to protect them. The Town must develop a clear policy and mechanism to identify and protect sites from destruction.

Extent of Preservation Planning with Overall Planning Context - The record of preservation planning from the early 1980's to the present reveals well-intentioned efforts by many people. Unfortunately these efforts were hampered by insufficient information, too much reliance on voluntary resources, and inadequate authority to protect historic resources. However, the identification and delineation of National Register sites and districts has been done to make preservation planning part of the Town's overall plan of development. In addition the Town now contains an active Land Trust, which may be used to assist with preservation and conservation development. The Town Council has entertained the idea of reactivating the Burrillville Historic District Commission and is currently taking citizen board member applications. The old proposal for historic district zoning may have to be modified, in hopes that the Town Council will find it more palatable.

Site plan review for new development in historically sensitive areas is a viable mechanism which the Town now employs. The BHS, Conservancy and proposed Historic District Commission need to become stronger advocates for historic resources of the Town. They need to educate the Town's other agencies, boards and commissions on the importance of historic resources to the landscape and economy, and the effect development has on the integrity and cultural value of these resources.

Priorities for Addressing Issues - The record of preservation planning in Burrillville has had many peaks and valleys throughout the years. It has been documented that the Town has been active in surveys and inventories and has a number of individuals and groups which are willing to devote a sizable amount of time and energy to preservation efforts. However, there is much to be accomplished and the Town needs to develop a strong program and an organized implementation strategy to accomplish the goals of preserving historical and archaeological resources. The previous section of this element provides specific preservation planning goals, policies and actions. Clearly, the Town will not be able to realize its goals all at once; therefore, a priority system will guide the selection of activities that should be undertaken over time.

Many activities can be undertaken concurrently, some with volunteers, existing Town staff, and others with outside consultants. As guiding principles, the following ought to be considered the order of priority:

1. Establish a formal Town-supported board/commission to develop the regulations necessary to preserve the Town's historic sites, structures and artifacts.

2. Establish land use regulations necessary to preserve the Town's historic sites, structures and artifacts.

3. Ensure the physical preservation of existing historical archives.

4. Expand the Town's knowledge and documentation of historical and archaeological sites and structures.

5. Promote the Town's rich historical heritage to attract tourism and other viable economic development activities.

II.5 Goals, Policies and Implementation Actions

The ultimate goal of this Plan is to preserve and protect the natural, historical, cultural and archaeological resources and natural heritage of the Town. The following goals, policies and implementation actions lead to the achievement of this vision.

II. Natural and Cultural Resource Goals	Policies	Implementation Actions
II.1 Promote a harmonious relationship between land development and natural resources.	II.1.a Foster new development which is designed sympathetically to site topography, watercourses and waterbodies, and unique natural features of the site. Encourage creative site design to preserve a site's natural assets while permitting reasonable development intensity.	II.1.a.1 Amend the Zoning Ordinance and Subdivision Regulations to require that structures (excluding single and two family dwelling units) be designed to blend with the natural surroundings of a site, and harmonize with the natural features of the area.
		II.1.a.2 Use of a particular site should be compatible with adjacent land uses.
II.2 Preserve agricultural activities and soils in concert with development.	II.2.a Direct development towards land less suitable for agricultural uses.	II.2.a.1 Establish a public land trust that can protect and preserve agricultural lands.
	II.2.b Ensure town ordinances support farm viability.	II.2.b.1 Consider a Transfer of Development Rights Ordinance to steer development to areas less suitable for farming.
		II.2.b.2 Promote the Farm, Forest and Open Space Program.
		II.2.b.3 Examine if the Town's composting site can be recycled to assist with local gardening initiatives.
	II.2.c Protect agricultural lands for their health and economic importance	II.2.c.1 Revise zoning ordinance to allow agricultural support uses and direct sale of agricultural products to consumers in appropriate areas.
	II.2.d Support agricultural and agricultural support uses and protect their infringement by surrounding non-compatible uses.	II.2.d.1 Assess feasibility of revitalizing vacant or underutilized publicly owned parcels as food resources, such as community gardens, incubator kitchens and permanent farmer's market facilities.
	II.2.e Support the consumption of locally grown foods at sponsored events and within the local schools.	

II.3	To consider the natural capacity of land to support future development and population.	II.3.a	Flood zones should continue to be protected from intensive development for the safety and protection of residents and the environment.	II.3.a.1 100-year flood zones should be reserved for open space, recreation or agricultural purposes. Areas flooded only rarely may be considered for limited development with adequate precautions.
		II.3.b	Wetlands, as critical elements of groundwater recharge, wildlife habitat, flood storage and recreational value will be maintained in their current state to the extent possible.	II.3.b.1 Wetlands will not be filled or built upon where reasonable avoidance measures may be taken. A permit must be obtained from the Rhode Island Department of Environmental Management for any wetland alteration.
				II.3.b.2 Wetland areas should be excluded from zoning density calculations in standard subdivisions, cluster subdivisions, multifamily developments and nonresidential developments.
				II.3.b.3 The Town will identify and document (map) wetlands as defined by the Freshwater Division, RIDEM. This document will serve as a guide when reviewing permit applications at the Town level.
		II.3.c	Sloping land (15%+ slope) will be regarded as prohibitive to most standard construction, and site design will be required to comprehensively address such slope conditions.	II.3.c.1 Steep slopes, those exceeding 15 percent, should not be built upon.
				II.3.c.2 Drainage on sloping sites, including private home sites, will be designed to direct flow away from public roads.
				II.3.c.3 The Town's erosion and sedimentation ordinance will be enforced on a consistent and timely basis.
		II.3.d	The existing quality of surface water bodies will be maintained and improved.	II.3.d.1 Dredging of lakes, rivers and wetlands should be limited to reduce adverse effects of silting and bottom habitat damage.
		II.3.e	Utilize the RI Community Low Impact Design Site Planning and Design Guidance Manual to reduce the impacts of stormwater runoff.	II.3.e.1 Mitigate water quality impacts of stormwater runoff and provide for drainage controls in all new development. Post-construction site runoff should not exceed pre-construction runoff.

		II.3.e.2 The Town will conduct a study of design alternatives and best management practices for stormwater runoff controls.
II.4 To ensure that current and future development does not adversely affect natural or cultural resources, or the existing rural qualities of Burrillville, and that environmentally sensitive areas are protected, especially water supply and quality.	II.4.a Individual sewage disposal systems should be installed and/or maintained according to best management practices.	II.4.a.1 Technologically advanced ISDS systems should be installed per the State Department of Environmental Management requirements.
		II.4.a.2 Existing individual sewage disposal systems will be regularly maintained.
		II.4.a.3 Septic systems will not be installed closer than 200 feet from tributaries to drinking water supplies or any other lake, stream or standing surface water.
		II.4.a.4 Establish a town-wide public education program regarding the importance of septic system pumping and maintenance.
		II.4.a.5 Study the merits of establishing a municipal septic system inspection program.
		II.4.a.6 Septic systems should be inspected at the time of a house sale.
	II.4.b Maintain and improve the existing quality of drinking water in the community.	II.4.b.1 Mapping of groundwater aquifers and recharge areas as prepared by the Groundwater Division of the Rhode Island Department of Environmental Management will be reviewed and adopted as the aquifer protection district boundaries.
		II.4.b.2 The Town will cooperate with the Rhode Island Department of Environmental Management in their efforts to identify and inventory underground storage facilities.

		II.4.b.3 Establish a water resources management board, including representatives of all local water suppliers, to address the provision of water services on a town-wide basis. Composition of the Committee is to be determined cooperatively between the Town and the Fire Districts.
		II.4.b.4 The Water Resources Management Board will commission a study to determine the most appropriate course of action in managing its drinking water resources.
		II.4.b.5 The Town will work closely with the Fire Districts to acquire or otherwise protect the land surrounding Fire District wellheads.
		II.4.b.6 Reservoirs, ponds, lakes, rivers and streams in the Town will be managed to ensure a minimum water flow at all times.
		II.4.b.7 All salt piles and sand/salt mixtures shall be enclosed, with highest priority given to those within the Wallum Lake watershed, or within recharge areas of groundwater aquifers currently used for public water supply or with potential for public water supply development.
		II.4.b.8 The State and Town highway departments should minimize their use of road salt in winter road maintenance.
		II.4.b.9 Environmentally sensitive areas associated with present or potential ground or surface water supplies should be considered water resource protection areas, and special restrictions should be applied to the use of road salts in such areas.
		II.4.b.10 Limit intensive development to those areas served by public sewer systems which can provide for adequate collection and treatment of liquid wastes generated.
		II.4.b.11 Require pre-treatment of sewage by industrial operations where appropriate.
		II.4.b.12 Ensure that the Town's lakes, ponds, rivers and streams meet the water pollution levels set in the State's water quality classification plan.

		II.4.b.13 Require that industrial development causing other than domestic waste discharges occur only in areas served by public sewer systems.
		II.4.b.14 Require recycling of industrial wastes be undertaken whenever possible to conserve resources and reduce treatment problems.
		II.4.b.15 To preserve the village character found in areas of Town, small lots should be allowed where public water and sewers are available.
		II.4.b.16 To preserve the Town's rural character, promote low-intensity land use and protect high quality surface and groundwater the F-5 zone should continue as currently mapped in the Town's zoning ordinance.
		II.4.b.17 Development regulations should be related to the land's capability to support development, particularly soils capabilities.
		II.4.b.18 Require setbacks from surface and groundwater public water supplies compatible with State regulations.
		II.4.b.19 Require a natural buffer strip from the rainy season flow of a stream or the high water mark of a natural body of standing water compatible with State regulations.
		II.4.b.20 Land disturbance during construction should be minimized, and natural vegetation left intact to the greatest extent possible. If natural vegetation is removed, the area should be revegetated as soon as possible.
		II.4.b.21 Waterfront areas should be zoned for large lot or cluster type developments (except in F5 districts) to reduce runoff.

II.5 To preserve biological diversity by identifying, preserving and managing state forests and federally-listed rare, endangered and threatened plant and animal species and unique natural communities.	II.5.a Wildlife and vegetation are considered important natural and economic resources to be preserved.	II.5.a.1 Coordinate with the Rhode Island Natural Heritage Program on a regular basis to determine sensitive habitat locations.
	II.5.b Maintain strict accordance with RI State Forest Management Plan	II.5.b.1 Develop a series of protection and management recommendations for each identified habitat location in coordination with the Rhode Island Natural Heritage Program.
		II.5.b.2 Include the Rhode Island Natural Heritage Program staff in consultation on development proposals which may potentially impact an identified site.
		II.5.b.3 Incorporate a wildlife activity protection area within the site plan review process, as well as for the Recreation Commission to consider when applying for open space funding programs.
		II.5.b.4 Encourage Forest Resource Management, Sustainability, Information and Education, Health, Commercial Forest Products, Water Resources, Forest and Recreation and Tourism
II.6 To ensure that air quality in Burrillville meets national ambient air quality standards and maintain air quality levels in the Town higher than these standards.	II.6.a Encourage measures which reduce air pollution levels.	II.6.a.1 Work with local business to implement air pollution reduction measures including, but not limited to, commuter services, park and ride lots, bus transit, car pool/van pool programs, bicycle programs, variable work hours etc.
		II.6.a.2 Require that all new commercial and industrial developments meet or exceed national clean air standards.
		II.6.a.3 Lobby adjacent communities to quickly address potential air quality problems within their boundaries.

II.7 To identify and preserve Burrillville's historic sites, structures, documents and artifacts as representations of the Town's cultural heritage.	II.7.a. Establish a formal Town-supported board/commission to develop the regulations necessary to preserve the Town's historic sites, structures and artifacts.	II.7.a.1 Reestablish the Burrillville Historic District Commission (HDC) by enactment of the Town Council and add the Commission to the Town Charter through the amendment process. Ongoing
		II.7.a.2 Provide the HDC with meeting and storage space at the Town Hall or other appropriate Town-owned facility, and provide a suitable operating budget to enable it to carry out its functions as expressed by local ordinance.
		II.7.a.3 Through the HDC and establishment of an historic zoning district, gain Certified Local Government (CLG) status.[27]
	II.7.b. Establish land use regulations necessary to preserve the Town's historic sites, structures and artifacts, including but not limited to, cemeteries, stone walls and trees.	II.7.b.1 Working with the HDC, review historic district zoning regulations of other communities, designate those areas of the community which should be targeted for such preservation efforts and after holding required public hearing(s), prepare legislation to permit historic district zoning.
		II.7.b.2 The Town Planner, Planning Board, Town Council and HDC should cooperatively prepare design guidelines for adoption as part of the historic district regulations to enforce the purposes of historic district zoning.
		II.7.b.3 Establish an environmental review process within the subdivision regulations and site plan review process (once established) which will permit the Planning Board to request an on-site archaeological investigation if the State Archaeologist indicates there is potential for an archaeological site on the premises.

[27] CLG status allows a Town to secure preservation grants and loans to carry out preservation activities needed to protect historical resources.

		II.7.b.4 Identify known archaeological sites on a Town base map in a generalized manner, i.e., twenty-acre radius around one or more sites so as not to pinpoint a particular site. Maintain this map as a resource in the Planning Department to let property owners know locations which may have archaeological sensitivity.
		II.7.b.5 The Town's Community Development Block Grant (CDBG) assisted housing rehabilitation program should give special consideration to historic structures, and require compliance with historic district guidelines, whenever appropriate.
	II.7.c. Ensure the physical preservation of existing historical archives.	II.7.c.1 Provide suitable climate-controlled space to archive historical Town records and materials.
	II.7.d. Expand the Town's knowledge and documentation of historical and archaeological sites and structures.	II.7.d.1 Urge the HDC, Burrillville Historical and Preservation Society and other groups to establish and expand the existing historic site inventory.
		II.7.d.2 The HDC should develop a standard list of criteria by which "significant" resources are recommended for further study.[28]
		II.7.d.3 Support professional and/or academically oriented archaeological investigations of known or potential pre-colonial and colonial sites, including projects by local colleges and universities.
		II.7.d.4 Request the HPC to review and document those sites considered potentially eligible for listing on the National Register of Historic Places.
	II.7.e. Promote the Town's rich historical heritage to attract tourism and other viable economic development activities.	II.7.e.1 Support the development of a network of historic homes and sites which are open to the public for walking and interpretive tours to augment the sites and historic routes which already exist.
		II.7.e.2 Actively promote the Town as an area rich in historic resources of the 18th, 19th and 20th centuries. Focus on the mill villages throughout the Town.

[28] This is a potential CLG grants-funded project.

		II.7.e.3 Develop an adaptive reuse program for mill structures. Suggested reuses include Town government, mixed residential/office/retail use, industrial/commercial incubator, elderly housing, and library.
		II.7.e.4 Review land use regulations to encourage preservation and reuse of historic mill structures. Modify such regulations to achieve this objective, if necessary.
		II.7.e.5 Lobby for the inclusion of Burrillville's historic villages and mill districts in the Blackstone Valley National Heritage Corridor Master Plan.
	II.7.f Promote inter-office and inter-agency coordination and cooperation in historical preservation activities.	II.7.f.1 Once established, the HDC should receive agenda material from the Planning Board and Zoning Board of Review. Members of the HDC are encouraged to attend Planning and Zoning Board meetings and to testify on matters affecting historical and archaeological resources.
		II.7.f.2 Require advance property owner notification for all Department of Public Works projects requiring the removal of major trees from private property.
II.8 To promote an appreciation for and understanding of Burrillville's historic resources.	II.8.a. Educate the public about the importance of preserving historic resources.	II.8.a.1 Provide support through the Historical Society and other groups for public education on historic and cultural resources, including, but not limited to, activities such as workshops, forums, historic house tours, information packets and living and learning centers, etc.
		II.8.a.2 Encourage the schools to expand educational efforts and resources committed to teaching about local history such as promoting volunteer participation and other efforts.
		II.8.a.3 Form a coalition of local preservation interests, with the HDC as the core, to promote a public/private partnership in preservation.[29]

[29] Should include groups such as the Northwest Villages Conservancy, the Burrillville Historical and Preservation Society and other interested parties who wish to be represented.