

**G- NATURAL AND
CULTURAL RESOURCES**

G. NATURAL AND CULTURAL RESOURCES

G-1.0 Introduction

The residents of North Smithfield are the caretakers of 15,600 acres or about 2% of the land and inland water area of Rhode Island. As will be pointed out in this element of the Comprehensive Plan, North Smithfield has a rich variety of both natural and cultural resources worthy of protection.

When states such as Rhode Island become more urbanized, all citizens become increasingly aware of the interrelated nature of our living environment. The breach of a dam on the Branch River might have a significant impact on Narragansett Bay through the release of contaminated sediments trapped behind the dam. Excessive paving, as in Park Square, may contribute to downstream flooding of residential areas near Cherry Brook. Closed landfills over the Slatersville Aquifer cast doubts on the long-range viability of that aquifer. It has become time for North Smithfield to analyze the nature of existing development practices and to determine the extent to which the Town wishes to continue or discontinue selected practices.

North Smithfield's environment is complex and sometimes difficult to manage. Although 42% of the soils have only moderate limitations for development, 58% have severe constraints due to high water tables, steep slopes, shallow bedrock or wetland conditions. Increasingly, new development is encountering more demanding sites. Over 3,000 acres have agricultural soils rated as prime or of statewide importance. In actual use for agriculture are only approximately 500 acres. The sections which follow explain the derivation of the above-cited statistics.

Both surface and groundwater resources are abundant in North Smithfield. The Slatersville Aquifer to the south of the Slatersville Reservoir has a potential safe yield of 5.5 million gallons per day and is one of 22 major aquifers in the State. The portions of the Branch and Blackstone Rivers in North Smithfield are Class B waters but remain unsuitable for public water supply because of upstream wastewater treatment plants. The City of Woonsocket draws the bulk of its water supply from two reservoirs located in North Smithfield.

The Town's rolling and forested terrain, interspersed with streams, ponds and wetlands, creates habitats for a variety of plant and animal species, both common and rare. These same features help to break up the development pattern and provide varied living environments for man as well. Unique natural areas such as the Blackstone River Gorge or the Blunders and Booth Pond are of statewide importance.

Culturally, North Smithfield has a rich history. Several areas are on or have been nominated for the National Register of Historic Places. The Town has a major role to play in the implementation of the plans for the Blackstone River Valley National Heritage Corridor.

G-2.0 Goals, Policies and Actions

1. PROTECT PRIME GROUNDWATER AQUIFERS AND RECHARGE AREAS FROM POTENTIAL ENVIRONMENTAL DAMAGE

- A. Strengthen existing groundwater overlay protection regulations and revise the overlay district map to include all the protection zones listed including surface water supply basins.
- B. Establish Wastewater Management districts to preclude potential environmental degradation from failing septic systems in areas over principal groundwater reservoirs and recharge areas.
- C. Extend sewers as specified in the Wastewater Facilities Plan and investigate alternatives such as packaged wastewater treatment facilities to those developed areas impacting groundwater resources.
- D. Amend the Subdivision and Land Development Regulations to strengthen non-point source pollution standards with emphasis on protection of areas over principal groundwater reservoirs or recharge areas or within reservoir drainage areas, in accordance with the Town's Phase II Stormwater Management Plan (SWMP).
- E. Strengthen the Town's Soil and Earth Removal Ordinance to protect ground and surface water resources from sand and gravel removal operations.
- F. Insist that the Rhode Island Department of Environmental Management (RIDEM) to adopt more stringent regulations for underground storage tank installation, maintenance and testing in critical aquifer and watershed protection areas
- G. Encourage the use of properly designed and maintained ISDS especially in areas with highly permeable soils (generally associated with groundwater reservoirs); encourage DEM to remain vigilant in making sure that necessary ISDS maintenance contracts remain in place.
- H. Request quarterly reports from RIDEM to the Town's Environmental Advocate regarding the monitoring program and remedial action being taken with respect to the Landfill & Resource Recovery and Western Sand & Gravel EPA Superfund sites in the vicinity of the Slatersville Aquifer.
- I. Develop an ordinance that requires all new lots approved by the Planning Board to have a well water test for volatile organic compounds (VOC's).

2. PROTECT THE TOWN'S SURFACE WATER RESOURCES WITH EMPHASIS ON THE WATERSHEDS OF THE SLATERSVILLE AND WOONSOCKET RESERVOIRS

- A. Maintain strong enforcement of various development regulations within reservoir drainage areas under the presumption that the Slatersville Reservoir is being preserved as an alternate source of potable water for the Town of North Smithfield and surrounding regional needs.
- B. Adopt a stormwater management ordinance in accordance with the Phase II Stormwater Management Plan to protect against flooding, encourage groundwater recharge and protect water quality of all surface waters through employment of Best Management Practices.
- C. Consider adopting flexible zoning measures such as conservation development design, which could allow the retention of natural vegetation, buffer areas adjacent to streams, wetlands and provide for opportunities to preserve large tracts of open space.
- D. Encourage the Town of Burrillville to consider land use and development impacts relating to downstream areas such as the Slatersville Reservoir.
- E. Implement a revised Soil Erosion and Sediment Control Ordinance.
- F. Work cooperatively with the City of Woonsocket as part of a Regional Watershed Protection Committee concerned about Reservoirs # 1 and # 3 and Crookfall Brook; as applicable, strengthen zoning, subdivision and related development regulations and alter municipal operating procedures which adversely impact the watershed.
- G. Establish Wastewater Management Districts to preclude pollution from individual sewage disposal systems; incorporate household hazardous waste education and control as part of the program.
- H. Coordinate the Town's open space and conservation planning efforts, with program priority given to increasing land holdings in the Woonsocket Reservoir system watershed in North Smithfield.
- I. Develop regulations that prevent the clear cutting of properties that are in the formal process of being reviewed as a Subdivision or Land Development; clearing should occur only as identified on a Planning Board approved Plan.

3. ADOPT AND IMPLEMENT ACTION PROGRAMS TO PROTECT NATURAL RESOURCES AND CONSERVATION AREAS THROUGH ACQUISITION, CONSERVATION EASEMENTS AND OTHER MEASURES

- A. Maintain strong enforcement of existing and, when adopted, proposed regulations such as zoning, subdivision and land development, erosion and sediment control, soil and earth removal, stormwater management, conservation development design and Development Plan Review (site plan review).

- B. Development regulations shall provide appropriate controls and review procedures in relationship to critical conservation and natural resource considerations such as wetland protection, woodland preservation, scenic area enhancement, Rhode Island Natural Heritage Program habitat preservation and agricultural land preservation.
- C. Identify and rank key parcels for acquisition or protection based on criteria such as but not limited to: size, adjacent protected parcels, significant natural resources, rare or endangered species or habitat, significant cultural features, development potential etc. as prioritized in the Woonasquatucket Greenspace Mapping Project (WGMP).
- D. Require the submission of an "Existing Resources/Site Analysis Map" as part of the Master Plan review stage.
- E. Acquire and otherwise protect key parcels that meet criteria for protection.
- F. Ensure that the timing of peak flows from new development is handled to minimize down stream flooding especially in flood prone watersheds such as Cherry Brook.
- G. Work with the Conservation District and RIDEM to identify solutions to minimize seasonal flooding along Cherry Brook.

4. ADOPT AND IMPLEMENT THE PHASE II STORMWATER MANAGEMENT PLAN IN ACCORDANCE WITH RHODE ISLAND'S POLLUTION DISCHARGE ELIMINATION SYSTEM (RIPDES) GENERAL PERMIT

- A. Develop a litter and pet waste clean-up program that may utilize ordinances, fines, pamphlets, signage and newspaper articles to inform the public about the impacts of improper litter and pet waste disposal.
- B. Continue to promote Earthday cleanup and consider adding a fall cleanup.
- C. Adopt an ordinance that prohibits illicit discharge to wetlands and waterbodies.
- D. Develop a plan to detect illicit discharges.
- E. Continue practice of cleaning and inspecting catch basins at least twice a year and detention and retention basins once a year. Consider provisions that would require landowners to conduct periodic inspection and cleaning of catch basins and other stormwater structures installed as part of land development projects outside of the right-of-way.
- F. Amend Land Development and Subdivision Regulations to include implementation of pre and post construction erosion, sediment and waste controls in accordance with the Rhode Phase II Stormwater Regulations.

- G. Adopt Development Plan Review (site plan review) regulations that include a site inspection procedure for sites with greater than one (1) acre of disturbance.
- H. Continue training municipal employees about spill prevention and reduction of stormwater pollution.
- I. Hold an annual meeting to inform the public about existing and proposed stormwater pollution prevention programs and consider other means of informing the public regarding this issue.
- J. Continue the practice of sweeping streets a minimum of once a year.

5. PROTECT PRIME FARMLAND AND FARMLANDS OF STATEWIDE IMPORTANCE WITH EMPHASIS IN THOSE AREAS ACTIVELY USED FOR FARMING

- A. Encourage active farms to take advantage of the reduced property assessments when participating in the Farm, Forest and Open Space Act.
- B. Use "conservation development design" regulations to preserve prime farmland as part of the open space requirement.
- C. Encourage the State to continue the purchase of farm development rights and encourage owners to apply to the program.
- D. Where possible, coordinate the conservation programs of the Open Space and Recreation Element with agricultural land preservation.
- E. Support the community's agricultural based businesses by providing technical assistance for available grants and investigate tax incentives for landowners that maintain active agricultural pursuits.

6. INCREASE THE AWARENESS AMONG NORTH SMITHFIELD RESIDENTS OF THE VALUE OF THEIR OWN NATURAL AND CULTURAL RESOURCES

- A. Broaden the range of values attributed to North Smithfield's cultural resources so as to include not only historic and aesthetic values but also values relating to housing, recreation and economic opportunity.
- B. Create a public information campaign to increase awareness, which involves a series of efforts over several years.

- C. Link educational activities to other local and regional programs such as those of local schools, the Blackstone River Valley National Heritage Corridor, the Woonasquatucket River Watershed Council and the Blackstone Valley Tourism Council, Inc.
- D. Utilize the mapping resources generated from the Woonasquatucket Greenspace Project and make them accessible to the public.
- E. Make copies of the following documents available to the public at various locations and on the town's website: *Images of America -North Smithfield*, North Smithfield Heritage Society and the *Historic and Architectural Resources of North Smithfield, Rhode Island: A Preliminary Report*, Rhode Island Historic Preservation Commission.
- F. Make the Comprehensive Plan accessible through the Town's web site.
- G. Prepare an inventory of scenic roads and consider adoption of a scenic road ordinance.

7. PROTECT THE CULTURAL RESOURCES FROM PHYSICAL CHANGE INAPPROPRIATE TO THEIR CHARACTER

- A. Analyze the elements of North Smithfield's landscapes and built environment which comprise its cultural/natural resource legacy.
- B. Protect archaeological resources as part of the development application review process and work in collaboration with groups of Native American heritage who are interested in the preservation of their Tribal cultural resources.
- C. Reach consensus, among local people, as to what aspects of local landscapes and built environments are most significant.
- D. Emphasize a flexible strategy aimed at protecting a range of cultural assets, including, but not limited to, historic structures.
- E. Adopt a range of land use controls in the Zoning Ordinance to supplement the Historic Area Zoning where necessary.
- F. Emphasize the protection of corridors rather than individual properties and sites.

8. ENCOURAGE APPROPRIATE REHABILITATION OR ADAPTIVE REUSE FOR BUILDINGS AND AREAS AS A PROTECTIVE MEASURE

- A. Be pro-active relative to the reuse of underutilized, significant privately owned buildings.
- B. Target rehabilitation efforts to home improvement programs in efforts to protect existing affordable housing.

9. INTEGRATE OVERALL PLANNING AND DEVELOPMENT WITH PROGRAMS FOR THE REVITALIZATION OF THE BLACKSTONE RIVER VALLEY NATIONAL HERITAGE CORRIDOR

- A. Link, wherever possible, cultural resource protective actions to other compatible improvement efforts in the Town and Blackstone Valley Region.
- B. Use Federal funds for targeted areas where historic home rehabilitation coincides with other community development activities.
- C. Utilize RIDOT Enhancement funds to develop an interpretive/recreation park at the Mammoth Mill site.

10. PRESERVE AND PROTECT THE HISTORIC VILLAGE OF SLATERSVILLE

- A. Preserve Slatersville historic components.
- B. Ensure the mill's economic viability and reintegration into the Village by allowing mixed uses and innovative ways that combine thoughtful, modern redevelopment with the sensitive preservation of the area's historic elements.
- C. Use Slatersville as a model for future historic preservation activities in Town.

G-3.0 Plan Description

G-3.1 Inventory of Significant Natural Resources

This inventory was developed using a variety of data and map sources including the standard package of map reproductions and hard copy printouts provided to the Town under agreement with the Rhode Island Geographic Information System (RIGIS) and the maps generated through the Woonasquatucket Greenspace Mapping Project.

G-3.1.1 Soils Suitability

The United States Department of Agriculture, Soil Conservation Service in collaboration with the Rhode Island Division of Planning, has classified Rhode Island soils into five general groupings in terms of their suitability for residential development. As shown on Map G - 1, Soils Suitability for Development, identifies the general location of Groups A through E. Although the soils have been rated in terms of suitability for residential development, the applicable constraints generally apply to the common types of public, commercial and industrial uses which might be developed in North Smithfield. Consequently, they serve as a good community-wide planning guide.

- **Group A - Moderate Constraints**

• Soils in this group generally have few or moderate development constraints. The moderate constraints include: very permeable soils with a potential for groundwater pollution; slowly permeable soils with potential for septic system failures; and stony soils which are expensive to excavate and grade. The Soil Conservation Service cautions that development in soils with moderate constraints needs to be evaluated on a case by case basis. Approximately 6,600 acres or about 42% of North Smithfield is covered by Group A.

- **Group B - High Water Table Constraints**

This group includes soils with a seasonally high water table located within 1.5 to 3.5 feet from the surface for significant periods of the year. In most cases, the soils are characterized by very slow permeability. RIDEM's regulations for individual sewage disposal systems (ISDS) generally require a minimum of 3 feet between the bottom of the leaching field and the seasonally high water table. Where the seasonally high groundwater is located between 2 feet and 4 feet from the natural surface of the land, mounding to elevate the bottom of the leaching field is allowed when certain additional state requirements are met. In general, development in Group B soils would be better served by sewers than septic systems. Comprehensive Plan studies show that 1,100 acres or about 7% of the Town's land area is in Group B.

- **Group C - Slopes Over 15% and/or Shallow Bedrock**

The steep slopes in Group C render these soils difficult for on-site septic systems and are easily eroded during construction. Shallow bedrock increases road construction costs and often precludes the underground installation of utilities or septic systems. Portions of the Rolling Acres subdivision in North Smithfield were constructed in Group C soils; extensive removal of ledge was required. RIDEM's regulations for individual septic systems generally require a minimum of 5 feet between the bottom of the leaching field and ledge (impervious formations). Systems may be permitted to be mounded where ledge is encountered between 4 to 6 below the original ground surface when certain additional State requirements are met. There are about 5,800 acres in Group C; this is approximately 37% of the land area of North Smithfield. The hilly nature of much of the Town accounts for this rather high percentage.

- **Group D - Hydric Soils**

Hydric soils have water at or near the surface for significant periods of the year. A hydric soil is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper layers. Many areas with hydric soils are classified as wetlands. Development in areas with hydric soils usually is not feasible nor allowed by local, State or Federal wetland regulations (e.g. RIDEM, Division of Groundwater and Freshwater Wetlands, U. S. Army Corps of Engineers) without a specific permit granted by RIDEM based on engineered plans. Hydric soils cover about 2,250 acres or approximately 14% of North Smithfield.

Map G - 2 delineates areas of freshwater wetlands and hydric soils. Wetlands, as defined by the Army Corps of Engineers, are lands where saturation with water is the main factor determining the nature of soil development (hydric soils) and vegetation types (hydrophytes). It should be noted that not all areas of hydric soils are wetlands, such as the case of drained hydric soils not

capable of supporting hydrophytes without restoration of favorable conditions. Wetlands serve a variety of valuable functions of value to man and the natural ecology of the area. Alteration of wetlands and their associated buffers are strictly regulated by RIDEM. Also, the U.S. Army Corps of Engineers regulates activities within federal wetlands.

Cedar Swamp is by far the largest wetland in North Smithfield. It was severely altered to construct Route 146 and is increasingly impacted as upstream paving, construction and siltation increases direct flow into the basin it occupies.

The wetlands/hydric soils map is suitable for community planning purposes only; the National Wetlands Inventory, the basis for identifying the wetlands, is derived from the interpretation of high altitude aerial photographs. The maps may be only accurate to areas of 10 acres or greater.

Wetlands are considered a severe constraint to land development. Virtually all significant wetland areas should be considered as prime candidates for conservation and preservation.

- **Group E - Landfill**

The Landfill & Resource Recovery landfill covering about 28 acres is the only site in Group E.

G-3.1.2 Agricultural Soils and Farmland

In its report, *Rhode Island - Important Farmlands*, the Soil Conservation Service of the U.S. Department of Agriculture has identified soils which are classified as prime farmland or farmland of statewide importance; all prime farmland is also classified as farmland of statewide importance. Map G-3 shows soils classified as prime farmland and those of statewide importance.

The total acreage of prime and statewide importance soils in North Smithfield is approximately 3,160 acres of which 1,170 acres are prime and 1,990 acres are of statewide importance. This total includes acreage which is now used for various types of suburban and urban uses.

Approximately 500 acres are actually used as farmland in North Smithfield. According to Statewide Planning's Tax Division, there were 22 parcels owned by 14 different entities registered as "State Code 33 – Farm, Forest and Open Space" at the end of December 2003. Based on the Town's records, in 2004 there were five properties classified as "Farms" and another eight that were classified as "Farm/Forest". The Act requires that Farms wishing to have their land taxed as a Farm, file appropriate management plans with the Town and State. For example, the 94-acre Goodwin Brothers Farm and 36-acre Wright's Farm are both in this particular tax program. Additionally, the state has purchased the development rights of Christiansen's Farm (42 acres) and West Wind Farm (86 acres).

Farmlands present both constraints and opportunities. The constraints relate to desires to keep productive farmland from being forever lost to urban and suburban uses. The opportunities are

there for conserving valuable farmland, maintaining agricultural business and contributing to an open and rural environment.

Prime Farmland

Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops and ought to be used for agricultural purposes such that North Smithfield may maintain its link to its agricultural history, maintain a viable agricultural industry and preserve scenic landscapes. The following is a listing of prime farmland soils according to the soils groupings used in evaluating soils suitability for development in G-3.1.1 above:

Group A

- AfA Agawam fine sandy loam, 0 to 3% slopes
- AfB Agawam fine sandy loam, 3 to 8% slopes
- MmA Merrimack sandy loam, 0 to 3% slopes
- MmB Merrimack sandy loam, 3 to 8% slopes
- PaA Paxton fine sandy loam, 0 to 3% slopes
- PaB Paxton fine sandy loam, 3 to 8% slopes

Group B

- Pp Podunk fine sandy loam
- Ss Sudbury sandy loam
- StA Sutton fine sandy loam, 0 to 3% slopes
- StB Sutton fine sandy loam, 3 to 8% slopes
- Tb Tisbury silt loam
- WhA Woodbridge fine sandy loam, 0 to 3% slopes
- WhB Woodbridge fine sandy loam, 3 to 8% slopes

Farmland of Statewide Importance

Generally, farmlands of statewide importance include those lands that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to modern farming methods.

The following is a listing of farmland soils of statewide importance:

Group A

- CdC Canton and Charlton fine sandy loams, 8 to 15%
- HkA Hinckley gravelly sandy loam, 0 to 3% slopes
- HkC Hinckley gravelly sandy loam, rolling
- WgA Windsor loamy sand, 0 to 3% slopes
- WgB Windsor loamy sand, 3 to 8% slopes

Group D

- Ru Rumney fine sandy loam
- Wa Walpole sandy loam

G-3.1.3 Mineral Resources

The primary resource extracted from the natural geology of North Smithfield are the sands and gravels found in ice age fluvioglacial deposits throughout the Town. The major sand and gravel operators and the acreages under their jurisdiction, as provided by the North Smithfield Tax Assessor, are as follows: Holliston Sand & Gravel - 95 acres; Pawtucket Redi Mix (batch plant) - 3 acres; and Material Sand & Gravel - 114 acres. At one time, both granite and whetstones were commercially quarried in North Smithfield. A rock excavation operation has been under way for a number of years in a former gravel pit located west of Pine Hill road. The parcel in North Smithfield consists of approximately 82 acres. Expansion of the operation onto adjoining lots is the subject of pending litigation.

Gravel extraction has been allowed pursuant to the Right to Farm Act, R.I.G.L. Chapter 23 on a portion of the Trout Brook Farm adjacent to the Holliston Sand & Gravel. Once extraction is completed, the area will be reclaimed as pasture for the Brookside Equestrian Center. Plans on file in the Building Department show a proposed turf farm adjacent to Holliston Sand & Gravel on six lots with a combined acreage of 284 acres; approximately 150 acres is to be cleared and leveled for sod production. The amount of material to be removed and processed to achieve the proposed grades for the turf farm operation is enormous and will likely take years to complete.

Soil and earth removal operations are governed by Chapter 11, Article IV of the Code of Ordinances of the Town of North Smithfield first adopted in 1979. The article requires the issuance of a license, subject to the granting of a Special Exception by the Zoning Board of Review, which governs operating conditions, ground and surface water protection and site restoration including recontouring and the restoration of ground cover to control wind and water erosion. The article excluded from control any sand and gravel operations which were in existence at the time the regulations were adopted. All of the previously-cited sand and gravel removal operations were pre-existent in 1979.

Article IV does provide in Section 11-41 (f) that "Upon the sale of any real property being used for earth removal activities, the nonconforming status of the section will no longer be considered in effect and any subsequent earth removal activities must be licensed and conform to the regulations of this article." The Ordinance language should be revised if the property is sold for other than sand and gravel operations there ought to be a requirement that there be land reclamation in the form of recontouring and the restoration of vegetation. Additionally the Ordinance should have a stronger mechanism to deal with blasting and the monitoring and enforcement of earth removal operations. Apart from earth removal as a business, it must also be noted that, historically, earth removal operations have taken place as a precursor to subdivision or land development. The Town values its natural topography and would like to maintain it by limiting earth removal associated with subdivisions and land developments.

G-3.1.4 Surface and Groundwater Water Resources

Map G - 4 shows surface and groundwater resources and identifies several threats to water quality.

Groundwater Reservoirs/Recharge Areas

Studies conducted by RIDEM have identified the major groundwater aquifers in Rhode Island. Of the 22 in the state, two, the Slatersville and Lower Branch, are located in North Smithfield. These stratified drift aquifers are divided into two parts. One part is the groundwater reservoir - that part where there is the greatest potential for water supply development. The balance of the aquifer is the surrounding principal recharge area.

RIDEM has classified North Smithfield's aquifers as Class GAA aquifers; this means the aquifer is presumed to be suitable for drinking water without treatment. Water currently being withdrawn from the aquifer for public water supplies is not treated. It has been estimated that there is a potential safe yield of approximately 5 million gallons per day from the Slatersville Aquifer (*May 1990 Report on Water System Master Plan for North Smithfield* prepared by Weston and Sampson).

As shown on Map G - 4, the groundwater reservoir generally parallels the Branch River to and then along the Blackstone River near Waterford. The surrounding recharge area substantially covers the northern sections of North Smithfield. Accepted practice calls for no development within a specified radius of a wellhead and overlay zoning prohibiting groundwater pollutant-generating uses over the groundwater reservoir and the recharge area. North Smithfield's Zoning Ordinance has a section covering the regulation of groundwater aquifer zones. Much of the Town's more intense residential, commercial and industrial development has historically been located over aquifers. Although some of this area is sewerage, most of it is not.

The Department of Health along with URI Cooperative Extension developed drinking water pollution risk assessments for the Slatersville Public Water System and the Woonsocket Water System that includes areas of North Smithfield. The risk assessment for both systems indicated an overall "Moderate" susceptibility to contamination. Identified sources in the Slatersville system included roadways and gravel operations located in close proximity to well sites. Contamination sources in the Woonsocket system included commercial, industrial and dense residential development as well as several high capacity roadways. A number of protection opportunities were identified as part of the assessments and many have been included as policies and implementation actions in this Plan Update.

In collaboration with the U. S. EPA and RIDEM, the Town completed a Wellhead Protection Program to delineate wellhead protection areas and establish programs to protect water quality. Public community supply wells are shown on Map G-4. Studies similar to the 2004 USGS delineation of the Tift Road public-supply well recharge area would be very useful in understanding the water supply capacity at a particular site and how nearby land uses may affect

the water supply depending on a pumping rate. While there is much data available on the Town's surficial aquifers, there is insufficient data and attention given to its bedrock aquifers which may also serve as potential community water supplies.

Water Supply Basin

As shown on Map G - 4, major portions of the watersheds serving Reservoir #3 and Reservoir #1 of the Woonsocket water supply system are located in North Smithfield. The watershed is divided into two sections. The westerly portion drains to Reservoir #3 which straddles the North Smithfield/Smithfield Town line. The easterly section drains directly into Crookfall Brook and Reservoir 1; Reservoir #1 is bisected by the North Smithfield/Lincoln Town line. Risk assessments of the watersheds were undertaken in 2004 by the Department of Health and URI Cooperative Extension. Based on an analysis of existing uses and zoning, the Woonsocket water supplies are "moderately susceptible to contamination".

The City of Woonsocket owns about 30% of Reservoir #3 watershed, primarily around the reservoir's perimeter. All of the Reservoir #3 watershed in North Smithfield is zoned for single family homes; only a small percentage of potential watershed development has taken place to date.

Woonsocket purchased 100 acres of riparian land along Crookfall Brook in the watershed of Reservoir # 1, as part of the emergency pipeline project. With this purchase, Woonsocket's land holdings represent about 7% of the watershed area. This watershed is crossed by the following: Route 146 and its associated residential, commercial and light industrial development in North Smithfield; the new Route 99 Industrial Highway in Lincoln; and Route I-295 in Lincoln and Smithfield. Approximately one-third of the proposed mixed-use development east of 146A is located in the watershed of Reservoir #1. Because of existing and potential development, the Reservoir #1 watershed is the most critical in terms of hydrologic importance.

In the mid 1990s, the Crookfall Brook emergency pipeline was constructed to move water in a more regulated and hygienic manner from Crookfall Brook to Reservoir #3 and then on to Reservoir #1. From Reservoir #1, the water is piped to a water treatment facility.

Pursuant to the Rhode Island Water Quality Protection Act of 1987, the City of Woonsocket recently completed a Water Quality Protection Plan for the watershed areas. A 21-point program is incorporated in the Plan. Priority actions of importance to North Smithfield included the following: land acquisition with first attention to land around Reservoir #1 and along Crookfall Brook; construction of a pipeline between the two reservoirs; water quality monitoring; and formation of a Regional Watershed Protection Committee. Most of these actions have been implemented or are ongoing activities like water quality monitoring.

Development activities in the watershed will be constrained to the extent that special measures or restrictions may apply to this important watershed.

Rivers and Streams

North Smithfield is located within the drainage system of three major Rhode Island rivers. The northern portions of the Town drain into the Branch River which in turn joins the Blackstone River in the northeastern section of Town. In the southwest corner several streams, including those flowing through Primrose Pond, combine to form the headwaters of the Woonasquatucket River. In the eastern section of the community both the Cherry Brook and Crookfall Brook systems flow to the east and into the Blackstone River in Woonsocket.

State Guide Element 162 classifies the various river segments in North Smithfield as follows:

- The Branch River from its confluence with the Clear and Chepachet Rivers to the Slatersville Reservoir is suitable for swimming or fishing. It has recreational open space value, and mill villages are located along its corridor. (Classified as "Recreational Open Space")
- Slatersville Reservoir (both upper and lower) has recreational value and is designated as swimmable and fishable. It has a state boat ramp and fishing club access. Its current condition with respect to contact recreation is, however, marginal due to coliform and metals levels that exceed state standards. The Land Resource and Recovery landfill Superfund site is located near the Reservoir. (Classified as "Recreational Open Space")¹
- The Branch River, from the Slatersville Reservoir to its confluence with the Blackstone River at the Blackstone Gorge in the Town of North Smithfield, has scenic and open space value with mill villages located along the river corridor. It is suitable for non-contact recreation. (Classified as "Recreational Multiple Use")
- The Blackstone River from the Blackstone Gorge to the Rhode Island state line is suitable for non-contact recreation. White-water rafting is occasionally possible in this segment. (Classified as "Recreational Open Space")
- The Blackstone River from the Rhode Island state line to Thundermist Falls in Woonsocket is suitable for non-contact recreational activities. Mills with historical value are located along the river corridor. (Classified as "Recreational Multiple Use")
- The Woonsocket Reservoirs and Crookfall Brook and its tributaries are components of a public drinking water supply. The main reservoir, identified as Reservoir No. 3, is located in Smithfield and North Smithfield. Crookfall Brook conveys water from Reservoir No. 3 through Reservoir No. 2 to Reservoir No. 1, the terminal reservoir and the water treatment facility. Mill sites, historical resources, and archeological remains can be found along the Crookfall Brook corridor. (Classified as "Water Supply")

¹ While the State classified this segment as "Recreational Open Space", the Town would have applied a more conservative classification due to the acknowledged current contaminants in the Reservoir.

All of the rivers and streams serve the obvious function of carrying off drainage from the adjoining lands. As a greater percentages of the drainage area is developed and covered by impervious surfaces (e.g. buildings, roadways and parking lots), the streams and rivers are challenged to handle increasing flows and stormwater following major storms. A good example is the considerable paving which is located in and around Park Square. This commercial area drains into the Cherry Brook system where there are present examples of downstream residential area flooding.

There are four major dams in North Smithfield. Three, located along the Branch River, were developed to provide water power for the mills. The fourth dams Crookfall Brook to create Woonsocket Reservoir #3. The maintenance of existing dams is important for water quality purposes. The dams, particularly those along the Branch River, have served to trap contaminated sediments; a breach could have adverse environmental consequences of statewide significance. RIDEM's Dam Division is concerned with dam safety issues in Rhode Island.

Rivers and streams which were the basis for the mills which attracted people to North Smithfield are no longer looked upon as workhorses. They are being rediscovered as educational and recreational resources in our own back yard. Other sections of this Plan Update discuss programs to bring the rivers and brooks of North Smithfield back into the "mainstream" of community life.

Flood Plains

Map G - 4 shows the limits of the 100 year flood plain adjacent to major streams and rivers in North Smithfield as delineated by the *Federal Emergency Management Agency Flood Insurance Study of 1993*. Generally, these flood plains coincide with the wetland and hydric soils areas delineated on Map G - 2. Flooding in North Smithfield is primarily the result of heavy rainfall from spring storms.

The Branch River, with steep side slopes, has a minimal flood plain. Cherry Brook, with headwaters formed by the confluence of two small streams near Follett Street and Greenville Road, has a more extensive flood plain as it passes along Todd's Pond and Cedar Swamp and ultimately into Woonsocket. Several subdivision streets close to Cherry Brook in the Union Village area are subjected to frequent flooding. An undersized culvert under the nearby railroad contributes to this problem. Other flood plains tend to be in more rural and less developed sections of the community.

North Smithfield has adopted zoning regulations applying to development in Flood Hazard Areas. The 1993 FEMA report warns that "Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacities, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself." Generally, the regulations prohibit any land alteration which will result in the decrease in the flood storage capacity of the watercourse. It should be noted that FEMA is currently updating its floodplain and floodway boundaries and maps. Once updated, these maps should be included in this Comprehensive Plan.

G-3.1.5 Rhode Island Natural Heritage Program

The Rhode Island Natural Heritage Program (RINHP), an agency of RIDEM, is the State's repository of data on rare and vulnerable plants, animals and ecologically significant natural communities. RINHP has provided the North Smithfield Planning Department with a list of rare plant and animal species and exemplary natural communities occurring, either presently or historically in North Smithfield, and a list of animal species of special concern in Rhode Island. Additionally, through the RIGIS data base maps available in the Planning Department office (which are continually updated), information on rare species is available for use when development proposals are being reviewed.

Three areas have been cited for special attention by RINHP as follows:

- The Blunders area between the Douglas and Farnum Pikes. This is a diverse area of woodlands, streams and wetlands supporting at least six rare plants. A portion of the Blunders, containing man-made drainage structures and a historic road, is designated as a Town Historic District. A 17-lot subdivision proposed for this 76.5 acre site received Master Plan approval in 2004. The Master Plan includes a proposed dedication of 30 acres of open space. The historic district and sensitive habitat area are included in the open space areas.
- The northeastern flank of Woonsocket Hill where an ecotone between forest and fen supports a rare sedge. The present owner has agreed to protect the area. According to RINHP "Protection of the site would also involve the preservation of areas upslope of the site, as the fen is largely dependent on groundwater flow".
- A wetland area adjacent to the point where Tarkiln Brook joins the Slatersville Reservoir near the North Smithfield/Burrillville Town line. This is immediately downstream of the EPA Western Sand and Gravel Superfund site. The site, according to RINHP, is "a wetland surrounded by a pine-dominated woodland and supports the climbing fern, a state-listed rare plant".
- Booth Pond is located on the Woonsocket/North Smithfield border east of Landmark Medical/Fogarty Unit. This is a diverse area of woodlands, ponds, streams and wetlands within an urbanized area. The northern portion of the pond is in Woonsocket and is part of the 92 acre Booth Pond Conservation Area purchased by the City in 1977 using a combination of City and Federal funds. A recently completed study conducted by Virginia Brown, a recognized odonate (dragonflies and damselflies) specialist found that 51 species of odonates exist at Booth Pond, a number that was exceeded by only one of the other 400 sites surveyed in the state. Among the odonates found at Booth Pond, two were listed by the RINHP as species of State Concern and one was listed as Endangered. Preliminary survey of plants and birds also indicate that Booth Pond and surrounding upland forests represent a significant biodiversity resource within an otherwise highly developed portion of the state. A major retail development proposing significant disturbance of the area around Booth Pond received Master Plan and Special Use Permit approval from the Town of North Smithfield in 2004.

The following list of rare and exemplary natural communities in North Smithfield was provided by the RI Natural Heritage Program for inclusion in this Update:

Table G-3.1.5 Rare and Exemplary Natural Communities

Variable Sedge	Early Coralroot
Purple Needlegrass	Featherfoil
Long-bracted Green Orchis	Climbing Fern
Large Yellow Lady's Slipper	Green Pyrola
Swamp Saxifrage	Eastern Hognose Snake
Wild Coffee	Swamp Pink
Daisyleaf Grape-fern	Maidenhair Spleenwort
Level Fern	Wild Lupine
Large Coralroot	Southern New England Acidic

G-3.1.6 Forest Resources and Trees

Visual observation of aerial photographs indicates that somewhere in excess of 50% of the land area in North Smithfield is wooded. With one acre and larger housing sites being used for new development in large portions of the community, a considerable amount of woodland is now located on individual house lots.

Current Subdivision and Land Development Regulations call for the submission of landscaping plans, which presumably will all include the preservation or installation of street trees, although the requirement of street tree installation is not currently specified. Proposed Land Development Design Standards, however, are very specific regarding plantings and street trees.

Woodlands serve major ecological, hydrological, climatological and aesthetic functions in North Smithfield. They also provide a local source of firewood for those with small woodlots. Where there has been unsympathetic clear-cutting, the community bears the scar for many years. A good example of this is located to the immediate north of Todd's Pond; here all vegetative cover was stripped to remove fill for the construction of Route 146 through Cedar Swamp.

The Town's Erosion and Sediment Control Ordinance requires a permit for any clearing or construction involving an area of over 1,000 square feet or more or when the slope is greater than 10%. Excluded from permit requirements, however, are accepted management practices and harvest activities associated with property utilized for private and/or commercial silviculture (forestry) purposes.

Clustering housing using Conservation Development techniques is one method being used in other areas of the State to combine housing and common forested areas.

As of December 2004, three property owners had their land certified as "Forest" land for tax assessment purposes under the Farm, Forest and Open Space Act, and another eight were certified as "Farm/Forest" (meaning there were large tracts of both farm and forest on the

property). The certification applies to properties covered by a forest management plan approved by state agencies.

Under the Rhode Island Intent to Cut regulations, state permits are required for the cutting of 5 acres or more, 35 cords or in excess of 8,000 board feet. The RI Division of Forest Environment confirms that North Smithfield is not an active area for forestry but rather is an area for non-managed timber cutting. Agriculture and woodlands contribute to the quality of life in the community and should not be treated lightly; in that sense they add to the common value of the properties in Town.

G-3.1.7 Scenic Resources and Historic Landscapes

A 1989 RIDEM report, *The Rhode Island Landscape Inventory*, identifies the State's significant scenic resources. Only one site in North Smithfield, out of 127 statewide, was listed as "highly scenic". Grange Road was cited as having - "excellent views; distinct forest and land pattern". The Grange Road area has also been nominated for inclusion on the National Register of Historic Places. Because Grange Road is so significant, the Planning Board, for example, is working with the Estate of the Phillips family to preserve stone walls and viewsheds along Grange Road as part of a subdivision of key parcels. Grange Road, and similar roads in North Smithfield should be considered for protection under the Scenic Roads Inventory Ordinance as proposed in the Circulation Element. Development proposals for key parcels on Grange Road are currently before the Planning Board and attempts are being made to preserve the historic landscape features. Possible roads for "Scenic Roadway" designation are listed in the Circulation Element of this Plan.

In addition to Grange Road, the RI Historical Preservation and Heritage Commission's 2001 report on *Historic Landscapes* suggests Christiansen Orchards and Wright's Dairy are worthy of protection and preservation as classic examples of certain types of Rhode Island's landscapes. Christiansen Orchards continues to produce large quantities of apples and contains several historic buildings, while Wright's Dairy is one of the very few remaining active dairy farms in the State. The Town wishes to recognize the importance of both of these sites by rezoning them for specifically agricultural purposes. This will encourage their continued use, but will also provide the flexibility these properties need to remain commercially viable.

Although North Smithfield's scenic resources do not run to the unusual and dramatic, there are many man-made and natural landscapes which add to the attractiveness of the community. Many of the natural resources such as Todd's Pond or the Blackstone River Gorge are obscured from public view due to private ownership or limited access. Others are not; the view of the farms and barns on Woonsocket Hill Road as one travels north on Route 146 is both dramatic and memorable. Walks through the Audubon Property off the Providence Pike take one into a seemingly virgin area of slow streams, ponds, fields and woods that could pass for an isolated section of northern New England. These are but a few of North Smithfield's "highly scenic" resources.

Fortunately, as is being pointed out through the efforts of the Blackstone River Valley National Heritage Corridor Commission and Scenic Rhode Island, Rhode Islanders are learning that there are untapped scenic resources readily at hand to be enjoyed.

G-3.1.8 Threats to North Smithfield's Natural Resources: EPA CERCLIS & Superfund

EPA CERCLIS Sites

Pursuant to the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) a Comprehensive Environmental Response and Liability Information System list (CERCLIS) has been developed by the US EPA for each state. The CERCLIS list is an inventory of potential hazardous waste sites. This listing means that there is evidence indicating there may have been a release, disposal and/or storage of hazardous materials on this site presently or in the past. Once investigated, locations not found to be a public hazard are not removed from the list. This is done to prevent reinvestigation of areas previously investigated.

Following preliminary assessments and site inspections, those locations deemed to represent an immediate threat to public health and safety are elevated to the National Priority List (NPL) and are commonly referred to as Superfund sites.

Map G - 4 shows the location of the CERCLIS Non-Superfund and the three CERCLIS Superfund sites in North Smithfield. The Non-Superfund sites generally are confined to the active industrial areas in North Smithfield; EPA, in collaboration with RIDEM has, or will be ordering remedial action, if required, to remove any pollutant threats at these sites.

The Non-Superfund sites are identified as follows: Amperex/Philips Electronic Corp.; Apple Acquisition, LLC; ATP Manufacturing (former Tupperware), LLC; Branch Metals; Branch River Industrial Park; Chomerics, Inc. property; Clausen property; Comtorgage; CVS Distribution Facility; Dart Industries; DB Mart; Department of Defense F/Air - RI National Guard Nike Control; Department of Defense F/Army - North Smithfield NIKE Launch; Elizabeth Polak Residence (Williams Street); Glasskraft/SRP; Gouin Supply Company; GTECH; Halliwell Boulevard property; Homestead; Industrial Machine Corp., Property #1 & #2; Liberty Fabrics (former enterprise coatings); Liquid Carbonic; Polytop Corp.; Narragansett Electric (Woonsocket Hill Road); Narragansett Electric (Farnum Substation); Narragansett Electric (Woonsocket Substation); Naylor Property (Ferrier Street); NEC (West Farnum Substation); North Smithfield Auto Salvage; Polytop Corporation; R & L Car Care; Rocky Hill Road Site and Quinn Transmission.

Each of these sites requires special attention. Site-specific data should be collected for each of them. For example, site-specific information for two of these sites is as follows:

- Groundwater contamination has been found in private wells of homes surrounding Black Plain Hill. Contaminant levels exceeded recommended drinking water standards for Trichloroethane and Dichloroethene in some wells tested by RIDEM in 2000. The Rhode Island Air National Guard (RI ANG) facility on Old Oxford Road formerly the Nike Control

Site is the suspected source. The RI ANG began on site testing to determine if the source of the contaminants is on their site.

- Methyl tertiary-butyl ether, or MTBE as it is commonly known, has been found in private drinking water wells of homes on Black Plain Road in the vicinity of an auto salvage yard. The contaminant level in some homes exceeded the EPA's lifetime health advisory (HA) concentration of 20 ug/L. The owner of the salvage yard has taken steps to prevent further releases in accordance with DEM regulations for facilities of this type.

EPA Superfund Sites

The following is a summary of conditions at the three EPA Superfund sites in North Smithfield. Unfortunately, information developed to date does not provide definitive answers on the sites' long-term impacts to surface and groundwater resources. Monitoring continues at all these sites, and monitoring results will dictate whether further EPA action is warranted.

Stamina Mills

Stamina Mills, which is on a 5-acre parcel of land, began operating as a textile mill in the early 1900's. It was closed for an undetermined period of time during the Depression, and changed ownership in the 1940's. In 1969, a solvent scouring system which used trichloroethylene (TCE) for removing oil and dirt from newly woven fabric was installed. Sometime during that same year, an unknown quantity of TCE was spilled at the site. In 1975, the mill was closed. In 1977, a fire destroyed the manufacturing complex; the site has been vacant and unused since then. In 1981, in response to the discovery of private well contamination, the Rhode Island Water Resources Board and the Town of North Smithfield installed a public water line to area residences; however, not all residences were connected to the service. Subsequently, the EPA provided resources to extend the water system and complete connections to those residences. By 1987, all residences impacted by the spill were connected to the public water supply. The Village of Forestdale, with a population of approximately 1,000, is located within one-half mile of the site. A school and private residences with nearly 300 people are located within one-quarter mile of the site. Industrial and commercial facilities with about 1,200 people are within one-half mile of the site. The site is bordered by wetlands and the Branch River to the south.

Groundwater is contaminated with volatile organic compounds (VOCs), primarily TCE and some of its by-products. Sediments are contaminated with TCE, dieldrin, and polycyclic aromatic hydrocarbons (PAHs). The soil is contaminated with TCE, dieldrin, and heavy metals (including lead, arsenic, and cadmium), as well as PAHs. Surface water is contaminated primarily with VOCs. People who trespass on the site potentially are at risk from direct contact with contaminated soils, surface water, or groundwater. In 1986, a security fence was erected to prevent unauthorized entry into the site.

In 1990, the EPA selected the following remedies to clean up the site: in-place vacuum extraction of soil contaminated with TCE in the spill area, which involves installation of a number of shallow wells to withdraw air containing TCE and other VOCs for carbon treatment; excavation of approximately 550 cubic yards of landfill waste and sediments in the 100-year flood plain and placement of excavated landfill waste under a new multi-layer cap; and the extraction of

contaminated groundwater and treatment using ultraviolet light (UV) and hydrogen peroxide, an innovative technology to remove VOCs. The mill raceways were to be sealed, and on-site buildings demolished. Deed restrictions were to be used at the site to regulate land use and preserve the integrity of the remedy's components. The septic tank location was to be confirmed and its contents tested and removed. A monitoring program for the groundwater, soil, surface water, and sediments was to be implemented to ensure the effectiveness of the selected remedies. Demolition activities were completed in the summer of 1992. At that time, partially standing structures were demolished, debris and building rubble were sorted and disposed of, voids were collapsed and filled in, the two mill raceways were sealed, the septic tank was located and its contents tested, and a majority of the site was graded and covered with clean fill. Quarterly groundwater sampling activities were initiated at the site in November 1992 and were used to establish a baseline of information prior to the design and construction of the groundwater extraction and treatment system. Pre-design field work including the operation of a pilot-scale soil vapor extraction and groundwater UV/Hydrogen Peroxide System was completed during the summer and fall of 1994. The construction of the soil vapor extraction system was completed in December of 1997. The system became operational in May 1998. The landfill capping design was completed and approved by EPA in March 1998. Construction activities were initiated in August 1998 and shortly thereafter technical problems arose which required a modification of the landfill remedy. Rather than being capped in place, landfill wastes were excavated and transported off-site for disposal. Upon completion, approximately 25,000 tons of landfill wastes, soil, and sediment were excavated and disposed of off-site. Excavation and final grading of the former landfill area was completed in October 1999. The groundwater extraction and treatment system design and construction was completed in the spring of 2000, and the system became operational in May of 2000. The groundwater treatment system was modified to consist of air stripping of the groundwater and the use of activated carbon for treatment of the vapor phase. The changes made to the landfill remedy and method of treatment of the groundwater were accounted for by EPA in the Explanation of Significant Differences (ESD) signed on June 27, 2000. A preliminary close-out report (PCOR) was completed by EPA in August of 2000. The PCOR documents that the cleanup remedy has been constructed in accordance with the remedial design plans and specifications. Treatment of the groundwater and contaminated soils will continue until required cleanup levels are achieved or a decision is made by EPA and RIDEM to modify existing cleanup levels.

Landfill & Resource Recovery (L&RR) Site

The Landfill and Resource Recovery, Inc. (L&RR) site is a 28-acre landfill on a 36-acre parcel of land. The site originally was a sand and gravel pit and was used for small-scale refuse disposal from 1927 to 1974. In 1974, the site was sold and developed into a large-scale disposal facility accepting commercial, municipal, and industrial wastes. Until 1979, an estimated 1 million gallons of hazardous wastes were accepted and disposed of with other wastes in the central portion of the landfill. The hazardous wastes included many types of bulk and drummed organic and inorganic materials in liquid, sludge, and solid forms. In 1979, the operator placed a polyvinyl chloride cover over the area containing hazardous waste to prevent rainwater from entering. Landfilling of commercial and residential wastes continued until 1985, when the

owners closed the landfill and placed another synthetic cover over most of the landfill. Soil was placed over the synthetic cover and it was partially planted with vegetation.

The cap was designed and built with gas vents to prevent the build-up of gases under the cap. The selected long-term remedy for this site includes: installation of more substantial fencing; stabilization of the steep side slopes of the landfill and installation of a synthetic cap over the uncapped area of the landfill, with establishment of a vegetative cover over the entire landfill; collection and thermal destruction of underlying gases in an enclosed flare; and groundwater and air monitoring. In 1994 and 1995, under EPA supervision, the parties potentially responsible for site contamination completed the design and construction of these cleanup actions. Long-term operation and maintenance activities are currently underway and will continue until established cleanup goals are met.

Although the area is still rural, there are approximately 10,000 residents in a 25-square-mile area; the area appears to be undergoing a substantial growth in residential development. Within a 1/2-mile radius of the site, there are fewer than 50 residences and no multi-residential housing developments. More than 3,000 people live within 3 miles of the site. An industrial park is located approximately 3,000 feet to the north, and Air National Guard installations are located approximately 1,000 feet to the east and 3,000 feet to the south of the site. Most, if not all, residences in the site's vicinity obtain their drinking water from individual wells. Trout Brook, adjacent to the site, and the Slatersville Reservoir, into which it discharges, are used for fishing and other recreation, but are not public water supply sources.

The air at the landfill was contaminated with volatile organic compounds (VOCs) including carbon tetrachloride, chloroform, and benzene. The on-site groundwater is contaminated with arsenic, lead, and VOCs from waste liquids disposed of on site and from rainwater entering the landfilled wastes, causing contamination to seep into the groundwater. The surface water on the site is contaminated with lead. The immediate health threat at the site was from gaseous emissions from the landfill. The landfill closure in 1994 and 1995 minimized threats of contamination in air, groundwater and surface water. The landfill is enclosed by a chain link fence. The only significant environmental threat was to the wetlands surrounding the site. The cleanup action minimized soil erosion from the landfill and the resultant filling in of the nearby wetlands.

EPA signed a Record of Decision (ROD) in September 1988, requiring construction of a landfill cap and an enclosed flare to thermally treat the landfill gases. After unsuccessful negotiations with the potentially responsible parties (PRPs), EPA ordered the parties to construct the remedy. The remedy was eventually completed in the summer of 1995. Since that time, the PRPs have been operating and maintaining the remedy as well as conducting monitoring to ensure the protectiveness of the remedy. EPA and Rhode Island Department of Environmental Management (RIDEM) have been reviewing and overseeing the site monitoring and have found that the remedy is functioning as designed and constructed. EPA completed the first 5-year review in 1999 and the second 5-year review in September 2004. This most recent 5-year review concluded that the remedy implemented in 1995 remains protective of human health and the environment;

however, several recommendations were noted that need to be addressed to ensure that the remedy is protective over the long-term. Those recommendations included:

- Determining the extent of the plume between the landfill and discharge area,
- Testing for manganese and cadmium,
- Determining if unsealed gap exists between liner and gas extraction wells (and sealing them, if necessary),
- Finalizing the site survey and updating the institutional controls.

Western Sand & Gravel

The Western Sand & Gravel site consists of about 25 acres of land, and is located in a rural area on the boundary of Burrillville and North Smithfield, Rhode Island. The site was a sand and gravel quarry operation from 1953 until 1975. From 1975 to 1979, approximately 12 acres of the 20-acre site were used for the disposal of liquid wastes, including chemicals and septic waste. Over time, the wastes penetrated into the permeable soil and contaminated the groundwater. Contents of tank trucks were also emptied directly into 12 open lagoons and pits, none of which were lined with protective materials. The pits were concentrated on a hill that slopes towards Tarkiln Brook, which is used for recreational purposes and drains into the Slatersville Reservoir. The State closed the disposal operation because nearby residents complained of odors. Approximately 600 people within a 1-mile radius of the site depend on groundwater. Eight homes were historically found to have contaminated wells.

Groundwater is contaminated with volatile organic compounds (VOCs) including toluene, trichloroethylene (TCE), trichloroethane, benzene, chlorobenzene, and dichloroethane. The soil also was contaminated with VOCs. Prior to the capping of the soil and sludge and the provision of an alternate water supply, potential exposure to VOCs may have occurred by ingestion or direct contact with contaminated soil or groundwater.

The site has been addressed in four stages: initial actions and three cleanup plans selected in three Record of Decisions (RODs).

In early 1980, the State began to pump one lagoon dry to halt leachate movement. Approximately 60,000 gallons of liquid chemical and septic waste were removed for off-site disposal. A groundwater recirculation system was installed. In 1982, the EPA built a permanent alternate water supply to service approximately 56 parcels of land. The potentially responsible parties installed carbon canister filters as a temporary protective measure in all the homes in the affected area until the permanent water supply was functional. In 1988, the parties potentially responsible for contamination installed a 2-acre cap over the areas of contaminated soil and sludge and graded the site to promote run-off and drainage. The site was also fenced and the potentially responsible parties agreed to maintain the fence, cap, and site. All construction is complete.

The potentially responsible parties conducted an investigation to determine the extent of contamination and to evaluate alternatives for cleanup of the off-site groundwater. The investigation was completed in early 1991. Based on this investigation, the EPA selected a

remedy of cleanup of groundwater through natural attenuation. The progress of natural attenuation is evaluated by EPA every three years. If natural attenuation is not progressing at the expected rate, EPA may require the installation of a groundwater pump and treat system. At the present time, the site groundwater continues to be cleaned up through natural attenuation processes.

In October 2001, a Prospective Purchaser Agreement between EPA-New England and Supreme Mid-Atlantic, Inc. (Supreme) was signed. The Prospective Purchaser Agreement grants a covenant not to sue to Supreme with respect to existing contamination at the Site. Supreme purchased the 25-acre site in 2001. Supreme constructed a truck body assembly plant on the site in 2003-2004. The development consists primarily of a 20,000 square feet assembly building and open space for truck parking. The truck body assembly plant is currently in operation and employs about 30 people.

G-3.2 Inventory of Historic Resources

North Smithfield's significant historic resources consist of districts, structures and archaeological resources that represent patterns of community settlement and growth from pre-European settlement through twentieth centuries. Most of these resources are fully documented and described in *Historic and Architectural Resources of North Smithfield: A Preliminary Report*, prepared by the RIHPC in 1980. One subsequent inventory of historic resources has been taken by the Blackstone River Valley National Heritage Corridor Commission for their 1989 *Cultural Heritage and Land Management Plan*. However, this document was based on the earlier 1980 inventory, which remains the most comprehensive record of North Smithfield's historic resources prepared to date. Due to the presence of these documents, this section is not intended to provide a detailed history but rather to give an overview for resource protection.

G-3.2.1 History of the Town

North Smithfield's cultural history is evident today in the Town's pattern of development and architecture, much of which dates to the 18th and 19th centuries. Agriculture, once the basis of the region's economy, is now a minor occupation. Nevertheless, the legacy of the Town's agricultural past is still apparent in the historic farmhouses, the stone walls, and the open fields once devoted to agriculture. In a similar way, the manufacturing settlements which sprang up in the latter part of the 18th century have left a rich legacy in the mill villages, characterized by an urban design and architecture of another age.

In 1666, what is now North Smithfield was settled by European colonists from Providence. Prior to that time, the area was inhabited by Native Americans. North Smithfield remained largely agrarian during the early years of the 18th century. During the latter part of the 18th century, small, decentralized milling operations sprang up wherever waterpower was available. The simplicity of 18th century life is reflected in the buildings that survive. Along Farnum Pike, Iron Mine Hill Road and Louisquisset Pike are several surviving 18th century houses. They are also to be found in the Grange Road District, in Union Village, on Grange Road, and Pound Hill Road.

A major route in the pre-Revolutionary period is today's Smithfield Road (146A), (see Map G - 5), formerly the Great Road and today marked by milestones indicating the distance from Providence. Several mills, serving the farmers, were located at various waterpower sites in North Smithfield. These most likely included a gristmill, sawmills initially and a mill manufacturing iron farm tools by the end of the century.

During the 19th century, what had been small settlements began to expand. In Union Village, several large houses, a tavern, bank (the first in northern R.I.), and academy were built shortly after 1800. Later, several substantial dwellings were constructed. After 1851, Union Village was bypassed by the completion of the Providence and Worcester Railroad through Woonsocket. Whereas Union Village grew as a result of its highway location, the other villages grew as mill villages dependent on the waterpower of the Branch and Blackstone Rivers. The

industrial transformation of the area contributed to the decline of agriculture as the basis for the Town's economy.

Of the several textile mill villages that developed during the 19th century, Slatersville was the first. In 1806, Samuel Slater, who had earlier set up America's first successful textile mill in Pawtucket, formed a partnership which was the basis for "Slatersville" which began operations a year later, as one of the first factory villages in the U.S. The present mill was erected in 1826. The village was designed to be self-contained -- and included additional factories, mill houses, a Congregational Church and a pair of commercial blocks. Much of the village remains today, including not only the buildings cited, but later 19th century additions, such as St. John's Roman Catholic Church (1872) built for the French-Canadian millworkers.

Other extant mill villages include: Forestdale, inaugurated in 1825 with a scythe factory along the Branch River. By the end of the century, the Forestdale settlement included a commercial block, a cotton mill, a row of Greek Revival houses, and a one-room schoolhouse.

Waterford developed as a village in the early 1800's to serve several mills including Mammoth Mill along Canal Street. The mill's name was derived from its size as the largest mill building in the United States at the time. The mill's ruins are still in evidence.

Transportation improvements during the 19th century stimulated industrial development of that time. These included highways, a canal and rail and streetcar service. By 1875, agriculture had experienced a gradual decline at which time the census recorded 191 farms, with farmland beginning to revert to forest. By 1900 the Town's population had dipped to 2,400 from its 19th century peak of 3,200 in 1875.

During the first half of the 20th century, the textile industry of New England underwent a serious decline which adversely affected North Smithfield firms. Tupperware's purchase of two North Smithfield factories helped stabilize the local economy in the 1950's. During the same decade, Slatersville village properties, once owned by one company, were sold piecemeal.

The advent of car ownership facilitated North Smithfield's gradual conversion from a self-contained group of settlements to a community functioning increasingly as a suburb. As a result, the villages declined and the countryside became dotted with homes. North Smithfield's access to employment stimulated residential development. This development continued along public ways, as it had historically. However, with the advent of zoning, the development was sited on uniform-sized lots rather than in conjunction with farms. A significant departure from the traditional settlement patterns is represented by the subdivision of tracts of land into lots of like area and dimensions, also introduced by the Town's Zoning Ordinance. These recent land development patterns represented a significant departure from the traditional dispersed agricultural pattern on one hand and the compact mill village settlement, on the other. In terms of "change-factors" affecting cultural resources, subdivision and zoning are among the most important.

G-3.2.2 Historic Districts and Areas

North Smithfield contains several concentrations of historic structures, industrial systems and other historic resources which represent a cohesive development pattern and which retain many of their original qualities of design and environment. Several of these areas, recorded on the local inventory, are protected by entry on the National Register of Historic Places and one has been designated as a local historic district. These historic districts are shown on Map G-5, Historic Resources, within this Plan Update.

Placement on the National Register - the official inventory of the nation's cultural and historic resources which are worthy of preservation - affords limited protection from potentially intrusive federally funded or licensed projects through review procedures. Under certain circumstances, it also may provide tax benefits for rehabilitated income-producing properties, and more limited funds for matching grants for restoration of key properties.

The establishment of local historic districts provides, through enactment of historic district zoning, more stringent controls on the exterior appearances of structures located within district boundaries. A local Historic District Commission rules on the appropriateness of alterations and new construction within districts. The following listings are current as of February 2005.

National Register Districts

Slatersville Historic District: The district includes the Slatersville reservoir, dams and water-power systems, and 19th century mill, commercial blocks, mill houses, churches, and other buildings along Main Street, Green Street, School Street, Railroad Street and several side streets.

Forestdale Historic District: Lies at the intersection of Main Street and Maple Avenue, near the Branch River/Mill Pond dam and mill. The mill housing runs along both streets.

As with other mill villages, the value of Slatersville and Forestdale lies not only in individual structures but also in its historic street plan and development pattern, which evolved to service a self-contained community.

Old Smithfield Road Historic District: This historic area consists of a seven-tenths mile section of Smithfield Road (originally Great Road) north of the Manville Road. There are six noteworthy houses, two cemeteries, stone walls, an apple orchard, fields, woods and two brooks. Laid out in the 17th century, the original Great Road joined Providence to Worcester. In this part of North Smithfield, the highway's course was altered in about 1741 to follow what is now Smithfield Road. Except for an 18th century tavern, the district's features are 19th century. Smithfield Road itself is important as it retains the narrow, winding roadway, lined by stone walls and passing through open fields, woods, and houses.

Union Village Historic District: This district is a half-mile long section of Great Road (Route 146A), from Woonsocket Hill Road to a point just beyond Westwood Road. Union Village includes fifteen 18th and early 19th century structures as well as twelve late 19th and 20th century buildings.

National Register Eligible Districts

The following districts in North Smithfield have been determined eligible but are not yet listed on the National Register of Historic Places:

St. Paul Street (Waterford) Historic District: Includes a series of structures built from 1845 to 1927, located on the street and dominated by the 1852 Gothic Revival - St. Paul's Roman Catholic Church possibly designed by Richard Upjohn. Also includes the Mammoth Mill and Saranac Mill sites which will be the subject of an archeological study funded by a RIDOT Enhancement Grant. Funds will also be used to design and develop interpretive features at site.

Grange Road Historic District: Includes a section of Grange Road (approximately seven tenths of a mile long) lying north of Providence Pike, and a short section of Rocky Hill Road where the two roads meet. This is a very good 18th century example of Rhode Island's rural agrarian landscape. The district contains four 18th century farm complexes, and other historic structures including: a schoolhouse, grange hall, 4 cemeteries, fields bounded by stone walls; and 2 narrow early roadways.

Another potentially eligible district is on Great Road at the Branch River in the north-central part of Town. This district could contain two industrial areas, several mill houses, a fire station and a variety of commercial establishments. It is well known as the location of the Tupperware complex.

Also recommended for further study and possible nomination to the National Register is Wright's Dairy on Woonsocket Hill Road. This working farm complex contains several historic buildings and is listed in the RI Historical Preservation and Heritage Commission's 2001 publication titled *Historic Landscapes of Rhode Island*.

Local Historic Districts

To date, Union Village and the Blunders are the only Town designated historic districts, and only Union Village is listed simultaneously on the National Register.

Other Historic Areas

Other areas worthy of protection are the following "Historic Areas" that were included in the 1980 report on *Historic and Architectural Resources in North Smithfield*:

- Blackstone River/High Rocks Natural and Historic Area: Located along the northern border of Town where the Blackstone River enters Rhode Island is a rugged, and mainly undeveloped section of the River. This area includes High Rocks and continues south to just below Branch River.

- Cedar Swamp Natural and Historic Area: This is a relatively large swamp of historic importance for trapping of animals and hunting along Cherry Brook in the north-central part of Town.
- Mattity or Mattetokomitt Meadow Natural and Historic Area: An extensive swamp in the southwestern part of Town at the headwaters of the Woonasquatucket River used initially for animal grazing but is now of greater botanical importance.
- Nipsachuck Natural and Historic Area: Located in the extreme southwestern corner of North Smithfield, south of lake Belair and west of Nipsachuck Hill, this area was of historic importance during the King Phillip's War in the late 1600s, but is still of geologic interest due to its swamp, irregular "kame and kettle" topography and esker (a long, narrow and steep ridge).
- Woonsocket Reservoir No. 3 Natural and Historic Area: Of critical importance as a modern watershed, this area north of Rocky Hill Road and west of Woonsocket Reservoir No. 3 in the southeastern corner of North Smithfield, contains a rich mixture of cultural features and was of historic importance for its farmsteads.

G-3.2.3 Historic Structures

Structures - consisting of buildings, roadways, cemeteries, and engineering structures - both within and located independently of districts, are recorded in the local inventory, *Historic and Architectural Resources of North Smithfield: A Preliminary Report*. Those that have been individually listed on the National Register are given below. (Numbers refer to Local Inventory Number.) These structures are shown on the Map G-5, Historic Resources, within this Plan. A longer list of structures that are potentially eligible for listing is also excerpted from the inventory. Since this list was compiled over two decades ago, it would be necessary to update determination of eligibility for these resources, to assure that the qualities that made them Register-eligible have not been lost. However, this 1980 *Report* is still the most comprehensive inventory as of February 2005.

Individual Structures on the National Register

Peleg Arnold Tavern, 4 Woonsocket Hill Road (1690, c. 1790)
Smith-Andrews-Taft-Todd Farm, 670 Farnum Pike (c. 1740 et seq.)
William Mowry House, Farnum Pike (c. 1802-1805)
Tyler Mowry House, 112 Sayles Hill Road (c. 1825)

Individual Structures Potentially Eligible for National Register Listing

Aldrich Farm, Comstock Road (#20) (1775, 1815, 1825)
Mowry-Connolly House, Iron Mine Hill Road (#44) (c. 1800)
A. Aldrich Farm, Iron Mine Hill Road (#45)
Ananias Mowry II House, Iron Mine Hill Road (#47) (c. 1764)

West Acres, Louisquisset Pike (#55) (c. 1730 et seq.)
Metcalf Marsh House, Mechanic Street (#62) (c. 1820)
Andrews Tavern, Old Great Road (#72) (1825)
Old Sayles Hill Historic Roadway (#73) (17th century)
#485 Pound Hill Road (#79) (c. 1810)
Nathan Staples Farm (#88) (Late 18th century and 1810)
Blackmar Wing Farm, 2338 Providence Pike (#91) (c. 1690 et seq.)
Cyrus Arnold Farm, Woonsocket Hill Road (#109) (1815, c. 1890)

G-3.2.4 Archaeological Resources

Mapped information provided to the Town under the RIGIS program shows 17 areas in North Smithfield where the Rhode Island Historical Preservation Commission has identified prehistoric and historic archaeological resources. The RIGIS map showing these archaeological resources is on file at the North Smithfield Planning Department offices.

One location, the Three Dog Site (Blunders), near Route 5 and 104 on the Smithfield Town Line, is the only prehistoric archaeological site presently listed on the National Register of Historic Places. A 17-lot subdivision proposed for this 76.5 acre site received Master Plan approval in 2004. The Master Plan includes a proposed dedication of 30 acres of open space. The historic district and sensitive habitat area are included in the open space areas.

The following tables summarize archaeological resources presently on file at the RIHPC, status of documentation/protection, and potential threats:

Table G-3.2.4 North Smithfield Historic Archaeological Resources

SITE	GENERAL LOCATION	STATUS	THREATS
Cider Mill Foundation	Route 104, near Todd's Pond	Potentially National Register eligible	Road improvements; scattered housing
Whetstone Quarry	Near Todd's Pond	Potentially National Register eligible	Road improvements; scattered housing, logging, potential gravel
Saw Mill, Dam, Ice House	Route 104, Southern end of Primrose Pond	Potentially National Register eligible	Private development
Schoolhouse Foundation	Near intersection of Routes 104 and 7	Potentially National Register eligible	Housing development; gas pipeline maintenance
Abandoned Farnum Pike	Route 7, between Route 104 and 5/104	Potentially National Register eligible	Road improvements; scattered housing
Electric Street Car Line	Near Route 146 on Lincoln Town Line	Potentially National Register eligible	Road improvements; water pipeline construction
Morris Mill	Near Route 146 on Lincoln Town Line	Potentially National Register eligible	Road improvements
Crookfall Dam	Near Route 146 on Lincoln Town Line	Potentially National Register eligible	Road improvements

In addition to these sites, there are several others considered "low priority" including sections of dirt roads, a railroad station foundation, and stone walls where little information is available.

Table G-3.2.4.a North Smithfield Prehistoric Archaeological Resources

SITE	GENERAL LOCATION	STATUS	THREATS
Three Dog Site/Blunders	Route 5 and 104, near Smithfield Town Line	National Register	Road improvements; construction
Twin Indian Cemetery	Route 5 near High School	Further Study Recommended	Active farm; encroaching gravel operation
Vegetable Garden Site	Woonsocket Hill Road, Union Village	Further Study Recommended	High tension powerline maintenance; housing development
Crookfall Brook Rock Shelter	Crookfall Brook near Route 146 and Lincoln Town Line	Further Study Recommended	City of Woonsocket in ownership of large "undevelopable" tract - (Reasonably well protected)

There are five other mapped prehistoric sites which contain single artifacts and are therefore considered as "low priority."

G-3.2.5 Threats to North Smithfield's Historic and Cultural Resources

Inappropriate Change, Redevelopment

There is an ongoing need to educate local residents and property owners about the value of their historic resources and advise them of the direct relationship of the elements that comprise historic character to this value. Choice of unsuitable architectural materials, out-of-scale additions, styles that bear little relation to surrounding New England architecture, and poorly executed craftsmanship can cheapen and degrade structures, often negatively affecting their market value. In addition to the direct economic benefits of well maintained historic properties (such as those evidenced in Union Village and Slatersville) there is the less tangible but equally important value of community identity and particular character - qualities by which the Town is identified and recognized by residents and by outsiders. Education relies on ready sources of information on local periods and styles of architecture, where to find architects and contractors skilled in restoration practice, and where to get financing assistance for appropriate materials and technical help.

Deterioration/Inactivity

While the majority of North Smithfield's historic resources are not threatened by disrepair, a portion of one asset, the granite buildings of the Slatersville mill site, are in imminent danger of being lost due to deterioration. Despite its listing on the National Register, it is vacant and is not be adequately protected. The Master Plan for a mixed-use project that includes the renovation of all the structures on the site to National Park Service standards has been approved by the Planning Board. An application for Special Use Permit for this project is pending before the Zoning Board with a recommendation for approval from the Planning Board. The developer of

the project has indicated a willingness to work with the Town on the nomination papers for National Historic Landmark status.

Related to the threat of deterioration is that of inactivity, the “threat of doing nothing”. Without education about local resources and their value, and the benefits of saving them, there is likely to be little motivation to pursue a preservation program. North Smithfield has demonstrated the advantages of historic districting and of National Register listing for a portion of its resources. Building a prioritized program for extending these protections, educating local people and encouraging related activities is a critical goal.

Incremental Development

North Smithfield’s historic and cultural resources are also threatened by the development that occurs incrementally over time. Loss of historic character typically occurs in areas that have no growth management plan or where weak land use controls permit haphazard construction. Development or redevelopment which introduces uses without regard for neighborhood character, or is otherwise uncoordinated with actual community needs cannot best take advantage of timing and locational benefits or maximize potential economic advantages of a market area, or provide a climate where ancillary uses will thrive. This type of development can separate historic buildings from the environmental context in which they are best appreciated, creating visual intrusions or conflicting uses that devalue historic properties and negatively affect quality of life. Typical sprawl development including strip malls, cookie-cutter suburban subdivisions with large lots and uniform setbacks lead to a sameness which eliminates open spaces, destroys scenic vistas and detracts from the sense of place. North Smithfield has clearly recognized the need for coordinated development in creating a Comprehensive Plan to guide the future it wishes to see.

Threats to Archaeological Sites

As noted in *Historic and Architectural Resources of North Smithfield*, there is limited professional archaeological knowledge of the earliest inhabitants of what is now North Smithfield. The Narragansett Indian Tribe has advised the Town of an interest in protecting its Tribal and historic and cultural resources located in North Smithfield. There may be other similarly valuable periods of resources not yet recorded. Lack of knowledge of other existing sites is a threat that can be counteracted by continued surveying and use of predictive land use models in areas deemed archaeologically sensitive.

Further study is also recommended for those sites which have been identified by the State survey and which may potentially be eligible for National Register listing. Since any land development project - gravel excavation, road construction, public works projects or building development - can potentially disrupt these sites, coordination of mapped data with state and local agencies (DOT and local planning board, for example) can help pinpoint archaeological resources before they are disturbed.

G-3.2.6. Regulatory Organizations Available to Protect Historic and Cultural Resources

Within Town government, there are several officers and boards which, while not charged with the protection of cultural resources, nevertheless have the potential to be highly influential in that regard. The North Smithfield Historic District Commission (HDC) and the Blackstone River Valley National Heritage Corridor Commission (BRVNHCC), because of their unique mandates, will be discussed in greater detail.

For regulation of all land uses, the Planning Board and Zoning Board have the primary authority. Thus the Zoning Ordinance and Subdivision and Land Development Regulations are their primary responsibility. The Ordinance and Regulations have a strong impact on cultural resources, an impact which is often unrecognized.

The Town Administrator and Town Planner are often charged with the conception and application for non-local funding for a variety of activities which may explicitly include or indirectly influence the protection of cultural resources. For example, such funding can be obtained for educational purposes, promotion of the arts, redevelopment or adaptive use activities, or programs for the improvement of public spaces and parks or housing rehabilitation.

The schools in North Smithfield have a powerful potential role in educating local children about local history including the architecture, urban design and other types of ancient structures in the community.

North Smithfield Historic District Commission

The North Smithfield Historic District Commission was established to administer Historic District Zoning for the preservation of structures of historic or architectural value in North Smithfield. The Commission administers historical area zoning to preserve districts and specific buildings of North Smithfield which have been designated by Town Ordinance as historic districts.

The Commission is appointed by the Town Council. Within a Historic District, a property owner (including the Town itself) proposing an alteration affecting the exterior appearance of a structure and requiring a building permit, must receive a Certificate of Appropriateness from the Commission.

Currently, the only two areas subject to the regulation of the Commission are properties within Union Village Historic District and Blunders Historic District.

The current regulatory function of the Commission is limited to exterior changes within Historic Districts which would require a building permit. Thus, the Commission does not regulate much of the change associated with development or redevelopment.

Blackstone River Valley National Heritage Corridor

The John H. Chaffee Blackstone River Valley National Heritage Corridor was established along the Blackstone River Valley in Rhode Island and Massachusetts by Congress to recognize the historic and cultural significance of the Valley. The Corridor covers 23 municipalities, including North Smithfield.

The Corridor Commission was also established to develop and implement a plan with a primary purpose being to protect the Valley's historic, cultural and natural resources. At this time, the Commission functions as an agency in partnership with other government bodies, such as North Smithfield and the National Park Service, rather than exercising regulatory or other powers.

Although for its existence and funding, the Corridor Commission is currently dependent on Congress, the Corridor Commission continues to play a vital role in broadening an awareness of North Smithfield as part of a region of rich cultural heritage. The agency has worked cooperatively with the North Smithfield Historic District Commission in educational programs on the significance of Slatersville. The Local Historic District Commission has approached the BRVNHCC on numerous occasions, such as, for example, for inclusion on cooperative efforts such as a signage program for historic resources in the Blackstone Valley. The Town supports the reauthorization of the Corridor in 2006 and expects the organization, regardless of Congress's decision, to continue to thrive because of the relationships it has established over the years and the valley-wide beneficial work it has done.

G-3.2.7 Tools Available to Protect Historic and Cultural Resources

Tools available for the protection of North Smithfield's cultural resources include the following:

Regulation

Historic District Zoning: Under Title 45-24.1 of the General Laws of Rhode Island, the Town Council is empowered to designate mapped districts for historic district zoning which empowers the local Historic District Commission to grant or deny permissions for exterior alterations within the district.

North Smithfield has designated two such districts, the Union Village Historic District and Blunders Historic District. This designation is the primary, but not the only, regulatory tool available to the Town for the protection of cultural resources. Its advantages are the extent of protection afforded to the exterior of significant structures (both public and private) within a district.

Zoning and Subdivision Regulations: Whereas Historic District Zoning is quite limited in its scope, land use zoning covers a broad array of subjects codified in North Smithfield in the Zoning Ordinance and Subdivision and Land Development Regulations. It is possible to include cultural resource protection in zoning and subdivision regulations. Common examples of doing so include requiring a Special Use Permit prior to significant alteration of mapped cultural

resources or including impacts on cultural resources in site or design review procedures, as North Smithfield is considering doing with the proposed Conservation Development Ordinance.

Overlay Districts: According to the State's Zoning Enabling Act of 1991, municipalities may create overlay districts. Such districts are superimposed on one or more underlying zones and involve a set of additional requirements applicable to the properties within the Overlay District. North Smithfield already uses this tool to protect its aquifers and is considering another overlay zone to preserve and facilitate reuse of several of its mill villages.

National Register of Historic Places Nomination

The National Register, maintained by the Heritage Conservation and Recreation Service of the U.S. Department of the Interior, is a permanent record of structures, sites, areas and objects that have contributed importantly to American history and culture.

As previously described, tax benefits are available to owners of income producing National Register listed or eligible properties for rehabilitation work performed in accordance with the standards of the U.S. Department of the Interior. Furthermore, when Federal funds are used for a project which may affect a National Register property (for example, a highway improvement), the National Environmental Protection Act (NEPA) requires environmental assessments and related mitigation measures to minimize damage to such properties. In addition, Register listing confers benefits to eligible properties under specific circumstances. For example, Community Development Block Grants (CDBG) may be used for historic rehabilitation for privately owned individual structures.

Grant Monies for a Variety of Activities

For Improvements: The CDBG monies may be used for a wide variety of development related activities which involve cultural resource protection. Such activities include, but are not limited to, rehabilitation of privately owned properties if the household beneficiaries are at least 51% low and moderate income. It is possible to create a residential rehabilitation program combining the protection of historic homes with building code compliance rehabilitation. CDBG funds may be applied to adaptive reuse projects, again if there are significant benefits to low/moderate income households involved. These Federal funds may also be used for streetscape and public spaces and park improvements, including the acquisition and placing of period benches, lampposts, paving and other amenities.

The National Park Service provides limited funding, administered through the Blackstone River Valley National Heritage Corridor Commission and from partnerships formed by the Commission, for a range of activities that interpret, educate, protect, manage, and stimulate public and private investment in the cultural and natural assets of the Blackstone Valley National Heritage Corridor.

The RI Historical Preservation Commission also helps owners meet the costs of maintaining their historic properties with tax incentives, preservation easements and low interest loans.

For Education of Local People: There are grants available from the Rhode Island Historic Preservation Commission for educational activities (slide shows, video, talks, books, etc.) relating to increasing awareness of cultural resources among local people.

Education is important for two reasons: 1) people typically resist efforts which personally affect their properties if the value and consequences associated with the effort is not clearly understood, and 2) whereas those involved in cultural resources protection tend to appreciate both the historic and aesthetic merits of resources in question, many others do not, unless they are personally drawn into the question of the resources' value. This personal involvement is best achieved through education actively involving the person or people whose appreciation is sought.

For Planning and Inventory Work: The RI Historical Preservation Commission grants may be used for inventorying cultural resources which have yet to be sufficiently documented in North Smithfield and also for planning activities for protecting cultural resources.

Economic Development and Tourism

One aspect of economic development particularly appropriate to cultural resource protection is tourism. The primary focus, initially, should be on increasing local awareness of the value of the Town's cultural resources (both aesthetically and economically). Local awareness then turns into regional and statewide awareness and ultimately potential improvements to the tourist economy.

Both the *Cultural Heritage and Land Management Plan for the Blackstone River Valley National Heritage Corridor* and *Draft Regional Comprehensive Tourism Planning Component*, prepared by the Blackstone Valley Tourism Council, Inc., are rich in ideas. Local efforts involving culturally related economic development should be coordinated with these two regional organizations.

G-3.2.8 Evaluation of Existing Preservation Activity and Needs

Inventory of Historic and Archaeological Resources

Prepared in 1980, *Historic and Architectural Resources of North Smithfield: A Preliminary Report*, provides a well-documented source for the community's historic assets which is still adequate as a baseline for decision making on the majority of local historic resources. The inventory should be updated. Needed is information on changes to structures that have occurred since its original publication—alterations, deletions, and discoveries of new resources, uncovered by subsequent research.

Archaeological Resources Documentation

Previous discussion of archaeological inventory work has noted that some information on historic and prehistoric resources is mapped and on file on the RIGIS and with the RIHPC. There is a need to further document Indian campgrounds and possibly other historic and prehistoric sites in North Smithfield. Locations and potential threats as previously listed should be integrated into local land use planning and surveying procedures. Another important goal is to

assess levels of significance for archaeological resources, in particular, which of the mapped sites may be eligible for the National Register.

National Register Documentation

To date, four areas in North Smithfield have been designated as districts on the National Register, two other districts have been determined eligible, another may be eligible, and four individual structures enjoy National Register Protection.

In order to meet the broad goal of increasing awareness of cultural resources, the comprehensive level of documentation on local, state and federal levels afforded by National Register status is vital to local educational efforts and perspective. Clearly, more districts, properties, and archaeological sites in North Smithfield belong on the Register, and the 1980 list of potentially eligible resources deserves evaluation in light of present conditions. A revised priority list should be reviewed by the North Smithfield Historic District Commission in conjunction with other local boards and the Rhode Island Historical Preservation Commission. As a Certified Local Government, North Smithfield would be eligible to apply for funds from RIHPC for listing of districts, individual properties, and archaeological resources cited in the inventory.

Because of its national and regional prominence and level of deterioration, Slatersville deserves a high priority in preservation planning and a deeper level of protection than its present National Register status provides.

Local Historic Districts

While it should be pursued as a basic preservation tool, National Register listing alone may not be entirely effective in guiding change, especially where privately funded actions are concerned. Historic districts created and enforced through local enabling legislation have been very effective as a means of managing development in historic areas in many communities. Union Village has provided the impetus for preservation-conscious rehabilitation and maintenance. This in turn has translated into relatively stable market values and a spirit of "keeping up appearances" vital to the well being of historic areas.

North Smithfield Historic District Commission

The Commission has a strong history of activity, in efforts to regulate changes within the Union Village Historic District, pursue funding for preservation activities, enact educational programming, and cooperate with other local planning and administrative activities involving preservation in historic areas. The Commission continues to pursue a brisk educational and informational program to designate Slatersville as a local Historic District.

Despite the interest and dedication of its members, and an impressive list of accomplishments undertaken with volunteer labor, the local Historical Commission has much more work to do than it has manpower or resources. Many of the preservation activities it hopes to see realized will require funding and expertise from outside sources.

Town Planning and Preservation

As evidenced by the preparation of this document, the Town of North Smithfield has been proactive in including a historic preservation element in its local Comprehensive Plan. More specific recommendations pertaining to strengthening historic area and structure planning and regulations are contained in the 1994 *Slatersville Area Plan* prepared by Everett Associates, Inc. The *Slatersville Plan* serves not only as a vision for future improvements to Slatersville and Forestdale but helped forge partnerships between the Town, RIDOT and Blackstone River Valley National Heritage Corridor Commission who helped fund the Plan's preparation.

G-4.0 The Plan

G-4.1 The Natural Resources Plan

The Natural Resources Plan is focused on protecting the significant water and land resources which occur naturally in North Smithfield. Respondents to the 2001 Community Survey consistently recognized natural resource protection as the most critical task ahead. When asked to rate their levels of concern for certain environmental issues, groundwater and surface water received the highest scores. The respondents linked resource protection with open space acquisition. Beyond supporting efforts that "encourage permanent open space" (79% of respondents), 55% of respondents felt providing additional land for open space was the highest priority and 82% of these respondents indicated their willingness to finance the costs of acquisition/protection. Recognizing the diversity of these natural resources, a variety of approaches and techniques are recommended.

It is suggested that the Town particularly avail itself of the resources of the EPA and RIDEM (e.g. Nonpoint Source Pollution Management Program) whose major concerns are nonpoint source pollutants (stormwater, runoff, eroded sediment, excess fertilizers and pesticides, septic tank leachates and road salt).

G-4.1.1 Aquifer Protection

The following approaches are suggested for the protection of the Slatersville and Branch River Aquifers and other lesser groundwater reservoirs and recharge areas which have potentials for public water supply.

Groundwater Overlay Zoning

The Town responded to the 1992 Comprehensive Plan's call for groundwater protection by adopting Section 6-19 of the Zoning Ordinance titled "Regulation of Groundwater Aquifer Zones, Groundwater Recharge Areas, Wellhead Protection Areas and Water Supply Basin". As recommended by the Comprehensive Plan, the regulations dictating uses over these particular resources are more stringent than in the underlying districts. The current Overlay language ought to be reviewed for possible expansion of the list of prohibited uses and the Overlay map should be revised to clearly show all protection zones including surface water supply basins. More

specifically, it ought to prohibit excessive water drawdown for non-municipal uses. More resources ought to be spent on enforcement of the Ordinance and property owner education. The bedrock aquifers and especially those areas sensitive to brittle fracture zones ought to be mapped and baseline data collected for the purpose of monitoring ground water quality.

Wastewater Management Districts

Individual sewage disposal systems in Rhode Island fail at a rate of 13% per year. North Smithfield is not immune to this problem which could have a severe impact on the Town's water resources. As noted in the Services and Facilities Element, there are a number of places within areas contributing to the recharge of aquifers and with direct drainage to surface water reservoirs which have experienced problems with failing onsite septic systems. Sewering may be the solution in some critical areas, but sewers generally are not recommended where growth at higher densities over aquifers or within watersheds could be induced. Also, sewerage large areas of large lot development is very expensive.

The Wastewater Facilities Plan Update, which is recommended in the Services and Facilities Element, should reconfirm where sewers are essential and where Wastewater Management Districts are a viable water resource protection device.

Wastewater Management Districts, based on legislation passed in the 1987 General Assembly, may be established by individual municipalities. Essentially, they would provide a system for inspections, pumping and maintenance of individual sewage disposal systems in designated areas. The Rhode Island Division of Planning, in collaboration with RIDEM, is developing a regional management approach to assisting individual towns and cities with the administration of Wastewater Management Districts.

In 2003, the Town received a RIDEM grant to prepare an Onsite Wastewater Management Plan. A consultant will be hired to prepare the plan that will provide the basis for enactment of wastewater management districts.

Soil Erosion and Sediment Control Ordinance

North Smithfield's Erosion and Sediment Control Ordinance requiring proper provisions for water disposal and the protection of soil surfaces during and after construction is in conformance with State law. However, the Ordinance needs some adjustment in light of the recently adopted Stormwater Management Plan. A major objective is the prevention of water pollution. Enforcement remains a challenge due to competing and limited resources.

Subdivision and Land Development Regulations

The present Subdivision and Land Development Regulations do require consideration of drainage and the suitability of lots for the individual sewage disposal systems. However, as written, the Regulations appear to favor the piping of stormwater rather than the use of natural drainage courses.

The Regulations should be reexamined to consider best management practices (BMP) such as natural drainage, retention and detention basins and related measures being advanced by the Land Management Project and generally included in contemporary subdivision regulations. Requirements that drainage flow from the site shall not exceed that experienced prior to development already exist in some communities, as do stormwater standards for Land Development projects and definitions and standards dictating minimum contiguous buildable lot sizes. The Town should also consider adopting regulations more rigorous than DEM's current regulations pertaining to the buffering of wetlands and waterbodies.

In recognition of limited Town staff time and expertise to review complex development proposals, all development proposals are reviewed by a professional engineer at the expense of the developer. The Town will also begin to collect construction inspection fees as part of the development review process. These fees will be used to hire an independent professional engineering consultant to inspect construction projects to ensure compliance with approved plans and BMPs.

Soil and Earth Removal Ordinance

As previously noted, the Soil and Earth Removal Ordinance does not apply to several sand and gravel operation which were in operation prior to the enactment of the Ordinance. One, for example, is located between the Slatersville Reservoir and the Slatersville groundwater reservoir.

Since critical resources of the Town and State may be at risk, the Town should reexamine present regulations with particular regard to the underlying water resources and adjacent wetland and surface waters and the restoration of the land in a manner which will provide long-term protection. The Soil Erosion and Sediment Control Ordinance will be amended in accordance with Phase II Stormwater regulations and will include pre and post construction provisions.

Underground Storage Tanks

State regulations on the installation, management and testing of underground storage tanks are administered by RIDEM. Failed tanks can impact individual wells, large aquifers, streams and waterbodies. The Town should insist on strong enforcement of these regulations in critical water resource areas.

Hazardous and Emergency Spill Response

Through its Emergency Management Agency, the Town continues to participate with nine other Northern Rhode Island communities in a regional compact covering hazardous and emergency spill responses.

As a result of the effort associated with the production of the October 2004 *Multi-Hazard Mitigation Strategy*, there is now better coordination amongst the various public safety organizations in and around North Smithfield and a comprehensive inventory of the equipment that may be used to deal with hazards and emergency spills. Additionally, the March 2004 *Stormwater Management Program Plan*, in response to RIPDES Stormwater Phase II

Regulations illustrates all outfalls such that, in an emergency, the Town's rivers and streams can be better protected by the targeting of critical outfall locations.

Individual Sewage Disposal Systems

A critical area generally associated with groundwater reservoirs is the highly permeable soils which transmit wastewater too quickly, allowing little time for waste constituents to be attenuated. This condition may apply over the Slatersville Aquifer. While the Town does have slightly more stringent regulations than the RIDEM (in terms of ISDS setbacks to waterbodies), more must be done to protect aquifers and groundwater recharge areas.

Two solutions may be possible. The most effective would be to have RIDEM make an amendment to the December 1989 "Rules and Regulations Establishing Minimum Standards Relating to Location, Design, Construction and Maintenance of Individual Sewage Disposal Systems" to include designated aquifer and recharge areas as "Critical Resource Areas" as in the "Scituate Reservoir Critical Resource Area" to protect the quality of water supplies. Secondly, as previously discussed, the Town is working with the RIDEM to establish a Wastewater Management District. Properties in this District will be subject to regular inspections of their ISDS as well as requirements to address deficiencies found during inspections.

EPA Superfund Sites

The three EPA Superfund sites in North Smithfield all have the potential to degrade the Town's water resources. RIDEM and the EPA should continue to submit regular reports of site monitoring and other remedial actions to the Town.

G-4.1.2 Watershed Protection

Two watersheds are of prime importance. They include those relating to the Slatersville Reservoirs and Woonsocket Water Supply Reservoirs #1 and #3. The Town should use the resources of the EPA and RIDEM as well as the Northern Rhode Island Conservation District to help protect these areas. Other key organizations are the Watershed Councils. The Woonasquatucket and Blackstone River Watershed Associations are non-profit organizations, empowered by the Rhode Island Rivers Council, to restore and improve the communities within their respective watersheds. North Smithfield has worked extensively with the Woonasquatucket Council in 2004 on its mapping project, however, both Councils should be recognized as important partners that could assist with future land acquisition activities, river and resource area cleanups, and water quality monitoring.

Reservoir Protection

Various development regulations should be strongly enforced where there is the potential to degrade the Slatersville and Woonsocket Reservoirs. In some cases, such as the Town's water supply well near the Slatersville Reservoirs, the aquifer is being recharged, in part, by surface water from the Reservoir.

The Town should work cooperatively with the City of Woonsocket as part of a regional protection strategy. Where possible, North Smithfield's program for conservation area protection, as presented in the Open Space and Recreation Plan Element, should be coordinated with the land holdings, both existing and proposed, of the City of Woonsocket.

North Smithfield should also encourage strong upstream protection of both surface and groundwater resources by the Town of Burrillville.

Development Regulations

North Smithfield should consider adopting flexible residential development regulations allowing the clustering of housing through "Conservation Development" and the protection of open space and fragile resources. This approach could open up opportunities for natural buffers and a reduction of impervious surfaces. Clustering, or its modern successor: Conservation Design or Development, can be a major tool for protecting interconnected networks of open space and implementing key goals of this Comprehensive Plan.

The adoption of best management practices, as previously discussed, will also bring significant surface water benefits.

Stormwater Management

The March 2004 *Five-Year Municipal Stormwater Management Program Plan* prepared with the assistance of Vanasse Hangen Brustlin, Inc. is also an important tool to help protect watersheds. The actions identified in that document should be implemented as prescribed.

Wastewater Management Districts

Wastewater Management Districts, when implemented, should be applied to the water supply drainage areas for the Woonsocket Reservoirs shown on Map G - 4.

G-4.1.3 Protect Farms, Forests and Special Areas

Proposals for the conservation of significant natural areas are contained in the Open Space and Recreation Element.

The array of regulatory controls discussed in this Natural Resource Plan should be applied with equal vigor to the protection of significant natural resources.

Of special importance is the inclusion in Town regulations of provisions for the review of development applications by all concerned Town boards. The regulations should be amended, as necessary, to protect special areas (e.g. Rhode Island Natural Heritage Program sites).

Protect Farmlands

North Smithfield's areas of prime farmland and farmland of statewide importance are significantly in excess of the lands used for agricultural purposes. Unfortunately, not enough of these lands are used for farming.

Protection of remaining farmland can be accomplished through the following:

- Encouraging applications for reduced property assessments under the Farm, Forest and Open Space Act.
- Consider adopting Conservation Development regulations to set aside farmland in perpetuity.
- Additional State acquisition of development rights.
- Considering farm preservation as part of open space and conservation planning.
- Adoption of an Agricultural Business Zoning District that encourages the continuation of farming and agricultural operations with limited onsite retail sales.

Forest Resource Protection

Conservation Development options (currently being considered) and strict enforcement of Town and State wood cutting regulations will, in part, insure a continuation of the woodlands in the Town.

Many of the areas proposed for conservation in the Open Space and Recreation Element represent relatively large tracts of forested land.

G-4.2 The Historic and Cultural Resources Plan

The focus of this section is on crafting an approach to better protecting North Smithfield's cultural resources. While various efforts have begun, the Town must continue implementing its cohesive Cultural Resources Plan as described in the 1992 Comprehensive Plan. (Please also see Comprehensive Plan Element K, Blackstone River Valley National Heritage Corridor, which supplements and supports the proposals of the Cultural Resources Plan.) The residents of North Smithfield continue to regard the preservation of historic and cultural components as necessary, as is illustrated by the 2001 Community Survey. When asked "How important is maintaining the historic appearance/character of Town Villages?", 68% of respondents to the 2001 Community Survey indicated that it was "very important" or "important".

By cultural resources is meant any physical object or design which provides significant evidence of a culture which has been, or continues to be, influential in North Smithfield. Such a definition includes a wide variety of objects and designs ranging from known places of Wampanoag and Narragansett activity dating prior to the 17th century to early 20th century domestic architecture to the urban design of the mill villages.

The Historic and Cultural Resources Plan will present a strategy and action program that, when taken together, supports and satisfies the broad preservation goals, which are:

- Increase Awareness of Cultural Resources
- Protect Cultural Resources from Change
- Encourage Rehabilitation/Adaptive Use
- Integrate Planning and Development with BRVNHCC Programs
- Preserve and Protect the Historic Village of Slatersville

Clearly, the 1980 inventory of historic areas and structures must be updated and further study of archaeological resources to create a contemporary framework for historic resource evaluation is appropriate. Because local resources are limited and the work to be accomplished town-wide is extensive, Slatersville will remain the focus of preservation efforts, but could also serve as a model for future preservation efforts in other parts of Town. People are persuaded by seeing tangible results. Adaptive reuse for underutilized areas should be considered and facilitated with routine town activities such as zoning, public works activities, maintenance and code enforcement, and with other town initiated improvements including protecting existing affordable housing and upgrading pedestrian amenities. A variety of protection tools should be used rather than relying on one or two tools to prevent haphazard development and guide growth comprehensively. The findings of ongoing preservation activities and research should serve as a basis for a community wide education program involving a broad set of "players" and people to build a constituency critical for effective implementation.

G-4.2.1. Preservation Documentation and Investigation

Continue investigatory work to develop an accurate local and regional context for preservation planning.

Update the 1980 list of National Register eligible properties in the light of changes that may have occurred. Prepare nomination forms on currently eligible properties. Historic Landmark nomination forms should be prepared for the Slatersville Historic District.

Study further mapped archaeological sites to determine National Register eligibility. Obtain information from the Rhode Island Department of Transportation to locate potential threats to archaeological resources from state road improvements. Integrate archaeological data into Town site planning procedures.

Continue to apply for grants that may be used to augment the existing inventory to include important North Smithfield cultural resources, such as the cemeteries, Indian campgrounds, and archaeological resources which are insufficiently documented and recognized, to place additional eligible properties, districts and archaeological resources on the National Register, and/or for educational efforts increasing local awareness of these resources.

G-4.2.2 Preservation Action

Continue to pursue a preservation and redevelopment plan for Slatersville that coordinates many of the regulatory bodies, tools and actions previously described in this Element.

Secure additional municipal office space near the Town Hall (see related discussion in Services and Facilities Element). The prime candidate for such expansion is the Slatersville Mill.

Continue working with the BRVNHCC on the installation of heritage signage.

Support rehabilitation efforts of the Slatersville Mill owners as to their future plans for the mill buildings and property. Advance the idea of mixed uses of the property. Determine the possibility of utilizing the buildings for some combination of these uses: housing (private and subsidized); retail goods or services/commercial; offices (government or private); incubator for new or small businesses; education (for example: daycare); tourism/interpretation use in conjunction with a regional tourism (historic interpretation) effort with the Blackstone River Valley National Heritage Corridor.

Reevaluate the adoption of Historic District Zoning with all affected property owners, both resident and non-resident.

Support the application for inclusion of the Slatersville Mill as a series of individual structures on the National Register.

Continue the program of upgrading of streets and public owned lands to include amenities such as streetlights, benches etc. for the Slatersville streets around the Town Hall area and for Centennial Park. Interpretative signage designed by the BRVNHCC should also be installed and maintained by the BRVNHCC.

Housing rehabilitation monies for older homes in the area should be identified. A grant application should combine historic rehabilitation and housing rehabilitation in one proposed housing program.

Conservation Development (an option currently being considered) and Development Plan Review (site plan review) as discussed elsewhere in this Update could require that cultural, historic, and archeological resources be illustrated on any plan for development. The Planning Board should continue to seek guidance as to how such resources should be protected and handled during the course of a parcel's development or redevelopment.

G-4.2.3 Preservation Education

Harness resources for ongoing preservation activities and findings of new research and documentation in town-wide educational efforts.

Education can occur in several forms and be for several purposes. The North Smithfield Historic District Commission has a slide presentation program for residents of Slatersville to increase awareness of the Village's historic assets. This should serve as a prelude to other activities.

Another type of educational effort which is recommended is signing. Signs erected by the BRVNHCC can alert residents and visitors to the existence of a National Register District. If a walking tour is created for specific sub-areas, such as around the Slatersville Mill and Centennial Park, then signing is essential for self-guided tours.

Apply for grants that may be used for educational purposes. North Smithfield should consider creating a specific educational program on the Town's mill villages, their history and their value, broadly interpreted. Such an effort should relate to the Corridor and Tourism Council activities. For example, recommend both informational brochures and tours be developed to promote tourism.

G-5.0 Consistency Statement

The Natural and Cultural Resources element supports the goals of the Comprehensive Planning and Land Use Act and is consistent with relevant State Guide Plan Elements.

This Element is also consistent with, and supportive of, the programs and policies of the Rhode Island Department Environmental Management, the Rhode Island Natural Heritage Program and the Blackstone River Valley National Heritage Corridor Commission.

The following sections summarize the relationship of the North Smithfield Comprehensive Plan to state natural and cultural resource policies.

State Guide Plan Element 152, *Ocean State Outdoors: RI's Comprehensive Outdoor Recreation Plan*

The North Smithfield Comprehensive Plan recommends action programs for the protection of open space and natural ecosystems, surface and groundwater systems, wetlands and natural drainage courses and agricultural operations.

State Guide Plan Element 121, *State Land Use Policies and Plan 2010*

See the Land Use Element of this Update for a summary consistency statement.

State Guide Plan Element 161, *Forest Resources Management Plan*

Forest lands will be protected and properly managed as part of open space and conservation programs.

State Guide Plan Element 711, *Blackstone Region Water Resources Management Plan*

Growth and Land Use: Land use proposals and related zoning, subdivision and development regulations have and will be related to the availability of sewer services and the potential for non-point source water pollution of all types. Conservation Development Design is being considered.

Individual Subsurface Disposal Systems: North Smithfield has a short-range program for extending sewers to areas with failing onsite septic systems. The Comprehensive Plan recommends the updating of the long-range Wastewater Management Plan. Wastewater

management districts have been suggested as a method to prevent pollution from failing septic systems.

Urban Runoff: Zoning, Subdivision and Land Development Regulations and amended soil erosion and sedimentation controls will be used to help in the abatement and prevention of runoff pollution.

Landfills: There are no active landfills in Town. Please see the section titled "Threats to North Smithfield's Natural Resources" for a discussion of cleanup and monitoring of former landfills under EPA's Superfund program.

Road Salt: The North Smithfield Department of Public Works has an adequate water resource related program for the storage and application of road salt.

Erosion and Sedimentation: North Smithfield will amend its Soil Erosion and Sediment Control Ordinance to comply with Phase II Stormwater Regulations.

State Guide Plan Element 721, *Water Supply Policies for Rhode Island*

Demand Management: The North Smithfield Water Department continues to evaluate and project long-term water demands.

Supply Management: The Town Council appointed a subcommittee from its membership to coordinate programs for the local management of and/or the purchase of water supplies from regional sources. The Comprehensive Plan includes proposals directed towards the protection of the City of Woonsocket's reservoir resources in the Town of North Smithfield.

Planning and Institutional: The Comprehensive Plan encourages coordination between planning goals and the extension of water services for both domestic and economic development purposes.

State Guide Plan Element 140, *State Historical Preservation Plan*

The Natural and Cultural Resources Element is consistent with the surveys, plans, policies and register listings of the Rhode Island Historical Preservation Commission with respect to historic places and archaeological resources.

Inventory of Resources: The existing resources are summarized with references to the completed inventories.

Preservation Activities: Completed activities such as National Register and Landmark nomination and Historic District Zoning as well as ongoing educational efforts are described.

Gaps in the Protection of Resources: These gaps are noted with recommendations made for their remedy.

Influences Threatening the Resources: The chief changes in North Smithfield affecting the resources are noted.

Goals, Policies, Actions: A list of goals, policies, actions, and funding sources are fully described for local implementation.

The Town supports the efforts of the local Historic District Commission to designate other areas, especially those on the National Register, as local historic districts. The Town encourages the rehabilitation of historic structures through the CDBG Housing Rehabilitation program.

State Guide Plan Element 131, *Cultural Heritage and Land Management Plan for the Blackstone River Valley National Heritage Corridor*

The North Smithfield Comprehensive Plan is designed to:

- Protect the Valley's resources in an integrated manner.
- Educate and interpret the Corridor's importance to the people.
- Establish greenways.
- Encourage public and private investment.
- Stimulate research necessary to understand the Valley's historical role.

Coordinate and encourage appropriate partnerships for the realization of the above goals.

State Guide Plan Element 155, *A Greener Path ... Greenspace and Greenways for Rhode Islands Future*

Greenways along the Branch and Blackstone Rivers are encouraged.

Conservation Development, currently being considered, for new subdivisions could encourage the preservation of natural areas, while a new Village Residential District or mixed use district(s) will support infill and reuse in village centered rural growth.

A diverse array of land protection techniques will be sought in cooperation with local and regional partners such as the BRVNHCC, Land Trust and Audubon Society.

State Guide Plan Element 156, *Urban and Community Forest Plan*

Vacant, publicly-owned rights-of-way should be maintained by the Town as part of a trail system.

The Subdivision Regulations will protect tree resources and will require the planting of street trees in the right-of-way. Conservation Development Design is being considered as another means by which resources will be protected. Tree resources were mapped through the Woonasquatucket mapping project and were identified as a critical resource worthy of protection.

The Plan calls for strengthening partnerships with organizations such as the Land Trust to protect contiguous tracts of forest.

State Guide Plan Element 162, *Rivers Policy and Classification Plan*

The Town will work with the Woonasquatucket and Blackstone River Watershed Councils to clean up and preserve the quality of major rivers in Town.

State Guide Plan Element 722, *Water Supply Plan for Rhode Island*

The Town recognizes the need to plan for its future water needs and has already consolidated several systems, created a Water Authority, and is continuing discussions with the neighboring community of Woonsocket to ensure supply adequacy. A more extensive regional solution of interconnections is being explored from feasibility and cost benefit perspectives.

MAP G-1

SOILS SUITABILITY FOR DEVELOPMENT

Legend

- Group A - *Moderate Constraints*
- Group B - *High Water Table Constraints*
- Group C - *Slopes Over 15% and/or Shallow Bedrock*
- Group D - *Hydric Soils Constraints*
- Lakes & Ponds
- Streams
- Town Boundary

0 1,500 3,000 6,000 9,000 Feet

1 inch equals 3,041 feet



This map was prepared for the inventory of real property within the Town of North Smithfield. Users of this tax map are hereby notified that the public primary information sources, including record deeds and plats, should be consulted for the verification of the information contained on this map. The Town of North Smithfield and its mapping contractors assume no legal responsibility for the information contained herein.

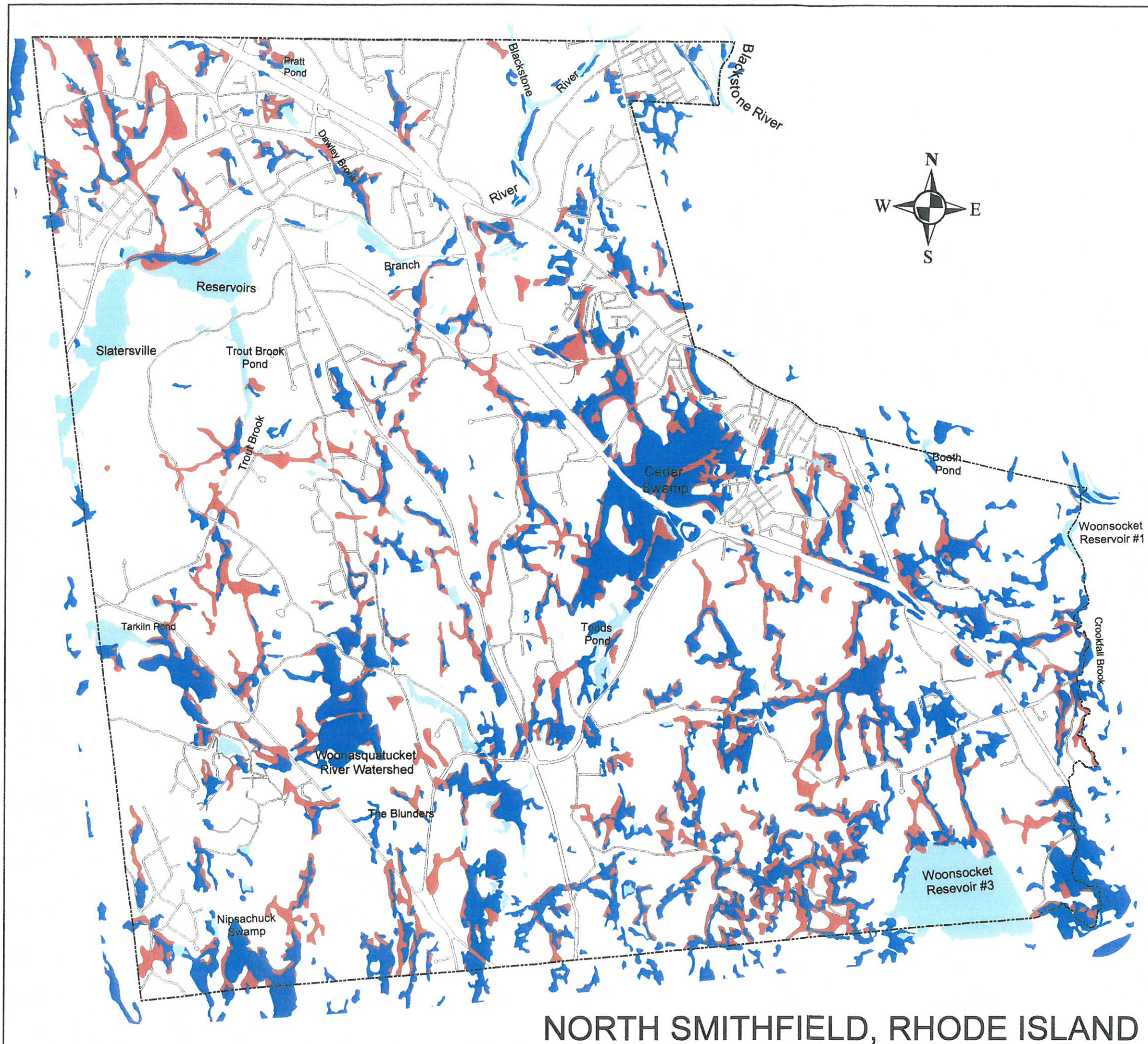
Base-map and hydrographic features were provided by Rhode Island GIS as 1"=400' features derived from the 1997 National Grid USA/RIDOT Orthophoto Project.

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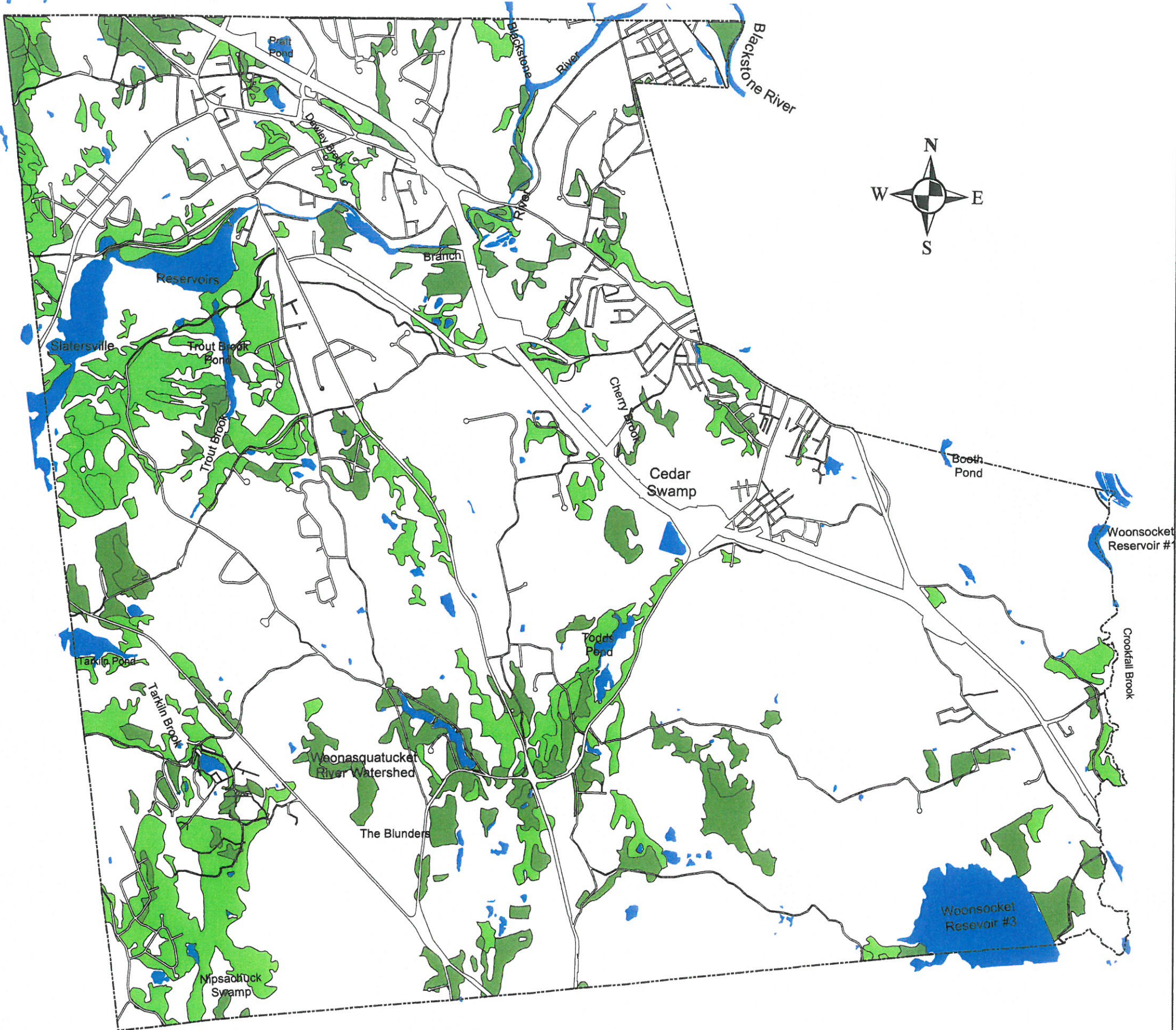
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NORTH SMITHFIELD, RHODE ISLAND

MAP G-2 WETLANDS & HYDRIC SOILS



MAP G-3 AGRICULTURAL SOILS



Legend

- Prime Agricultural Soils
- State Important Soils
- Town Boundary
- Lakes & Ponds



RI Dept. of Administration
Division of Planning
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AS 02/22/96



1 inch equals 3,042 feet

Soils as Classified by USDA/SCS



Town of
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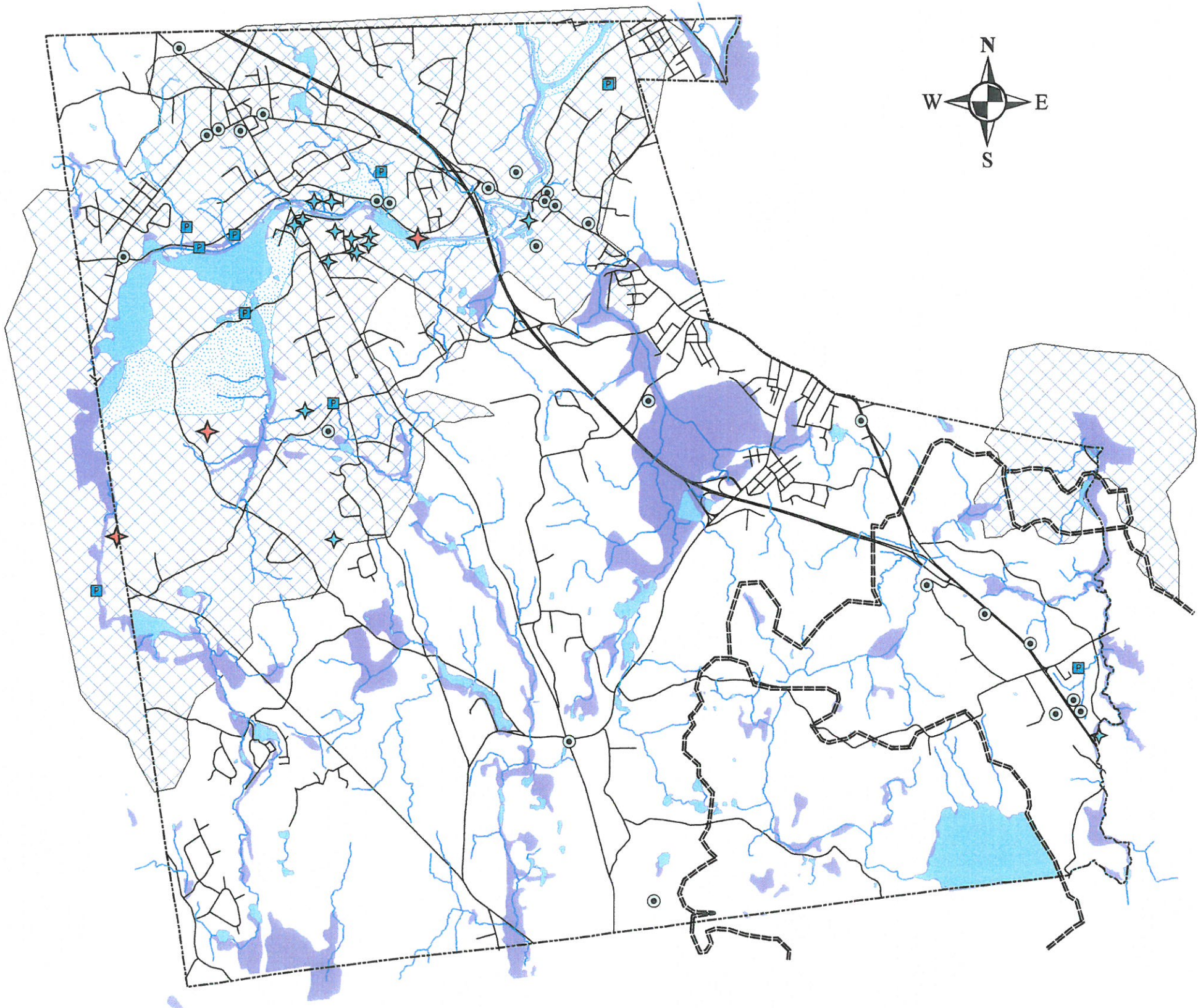
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NORTH SMITHFIELD, RHODE ISLAND

MAP G-4 WATER RESOURCES



NORTH SMITHFIELD, RHODE ISLAND

Legend

- Community Wells
- Non-Community Wells
- Groundwater Reservoir
- Groundwater Recharge Area
- Water Supply Basin Boundary
- flood
- EPA - CERCLIS Site
- EPA - CERCLIS Superfund Site
- Town Boundary
- Streets
- Lakes & Ponds
- Streams



1 inch equals 3,621 feet



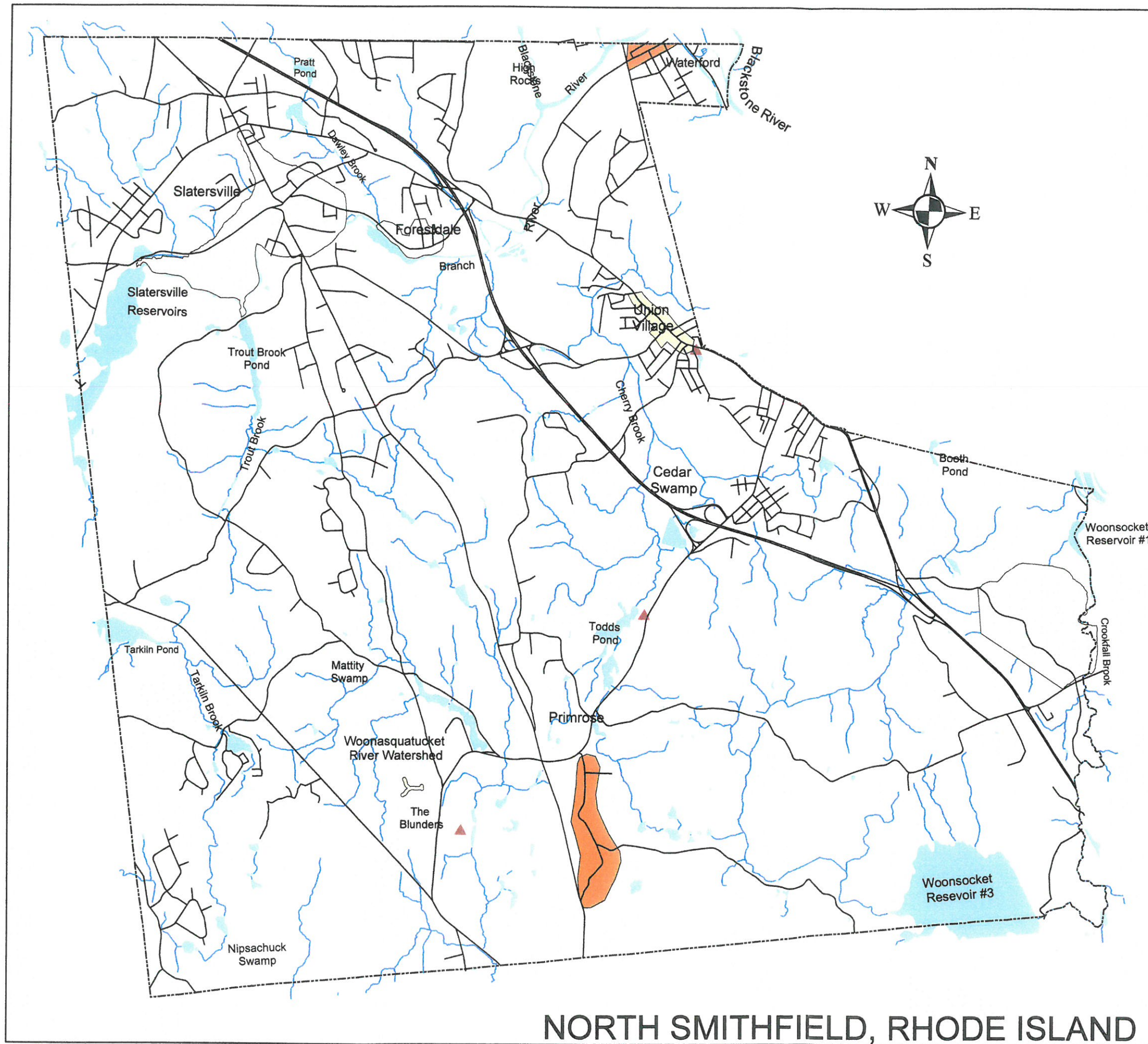
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







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MAP G-5 CULTURAL AND HISTORIC RESOURCES



Legend

-  Town Historic District and Listed on State and National Registers of Historic Places
-  Historic District Listed on State and National Registers of Historic Places
-  Historic District Nominated for State and National Registers of Historic Places
-  Historic Structure on State and National Registers of Historic Places
-  Lakes & Ponds
-  Streams
-  Roads
-  Town Boundary

0 1,500 3,000 6,000 9,000
Feet

1 inch equals 3,042 feet



Town of
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