

Town of Lakeville



Priority Development & Protection Areas June 2008

SOUTH COAST RAIL PROJECT

Southeast Regional Planning and Economic Development District

PRIORITY DEVELOPMENT AREAS PRIORITY PROTECTION AREAS

INTRODUCTION

Southeastern Massachusetts is growing rapidly. As a region, we are developing nearly 8 acres each and every day, or about 4½ square miles a year. This is equivalent to fully developing an area the size of the Town of Somerset every 21 months.

Development is inevitable — our region is a desirable place to live and work, and a certain amount of new growth is healthy. But in the past, we have not always planned well for development, and the result has not always been an asset for our communities and region.

Good development should take place on sites that are matched to their intended uses. Sites for more intensive development need good access, compatible abutting land uses, public water and sewer service nearby, and minimal environmental constraints. These areas need to be located, mapped and appropriately zoned.

Likewise, we need to plan to protect our most important natural areas. These are the areas that contribute to our water supply, contain threatened or endangered species or are special due to their scenic or historic features. These areas also need to be located, mapped and appropriately protected.

We must steer development toward the appropriate (priority development) areas and away from the critical (priority protection) areas in order to achieve the vision that we have for our communities.

In conjunction with the South Coast Rail project and the Southeastern Massachusetts Commuter Rail Task Force, SRPEDD will be working with municipal officials and citizens in southeastern Massachusetts' communities to identify Priority Development Areas (PDAs) and Priority Protection Areas (PPAs) in each of the region's twenty-seven cities and towns.

WHAT ARE PRIORITY DEVELOPMENT AREAS?

These are areas within a city or town that are capable of handling more development due to several factors, including good access, available infrastructure (primarily water and sewer), an absence of environmental constraints, and local support. PDAs can range in size from a single lot to many acres. Areas designated under state programs such as Chapter 43D (expedited permitting), Chapter 40R (smart growth zones) or Economic Opportunity Areas can be examples of PDAs. Included in these designations will be the local recommendations for how these sites should be developed.

WHAT ARE PRIORITY PROTECTION AREAS?

These are areas within a city or town that deserve special protection due to the presence of significant environmental factors and natural features, such as endangered species habitats, areas critical to water supply, scenic vistas, or areas of historic significance. Like PDAs, the protection areas can vary greatly in size. Areas of Critical Environmental Concern (ACECs), aquifer recharge areas or designated priority habitats can be examples of PPAs.

WHAT IS THE PURPOSE OF THE PDA/PPA DESIGNATIONS?

This work is useful to all communities in making land use and zoning decisions. But it may also be helpful when considering potential mitigation for the commuter rail project, and can be utilized if a regional system of transfer of development rights is created. The PDA/PPA information that is developed will also be integrated into the corridor plan for the South Coast Rail project.

HOW DOES THE PROCESS WORK?

SRPEDD assembled known data, local zoning bylaws, master plans and open space plans and worked with local planners, conservation agents, economic development officials, elected officials, interest groups, local organizations and citizens to review this information and refine it with local knowledge. This process took several months in each community. State officials will be consulted for their input and final recommendations will be brought before local officials and the Southeastern Massachusetts Commuter Rail Task Force.

HAS THIS BEEN DONE BEFORE?

Similar efforts undertaken in 1997 by SRPEDD and The Coalition for Buzzards Bay have completed pieces of this process, and that work will be incorporated into this effort.

Lakeville Priority Protection & Development Areas

The following pages reveal the locations that the Town of Lakeville Priority Protection and Development Committee identified as Priority Protection and Priority Development Areas in the summer of 2008.

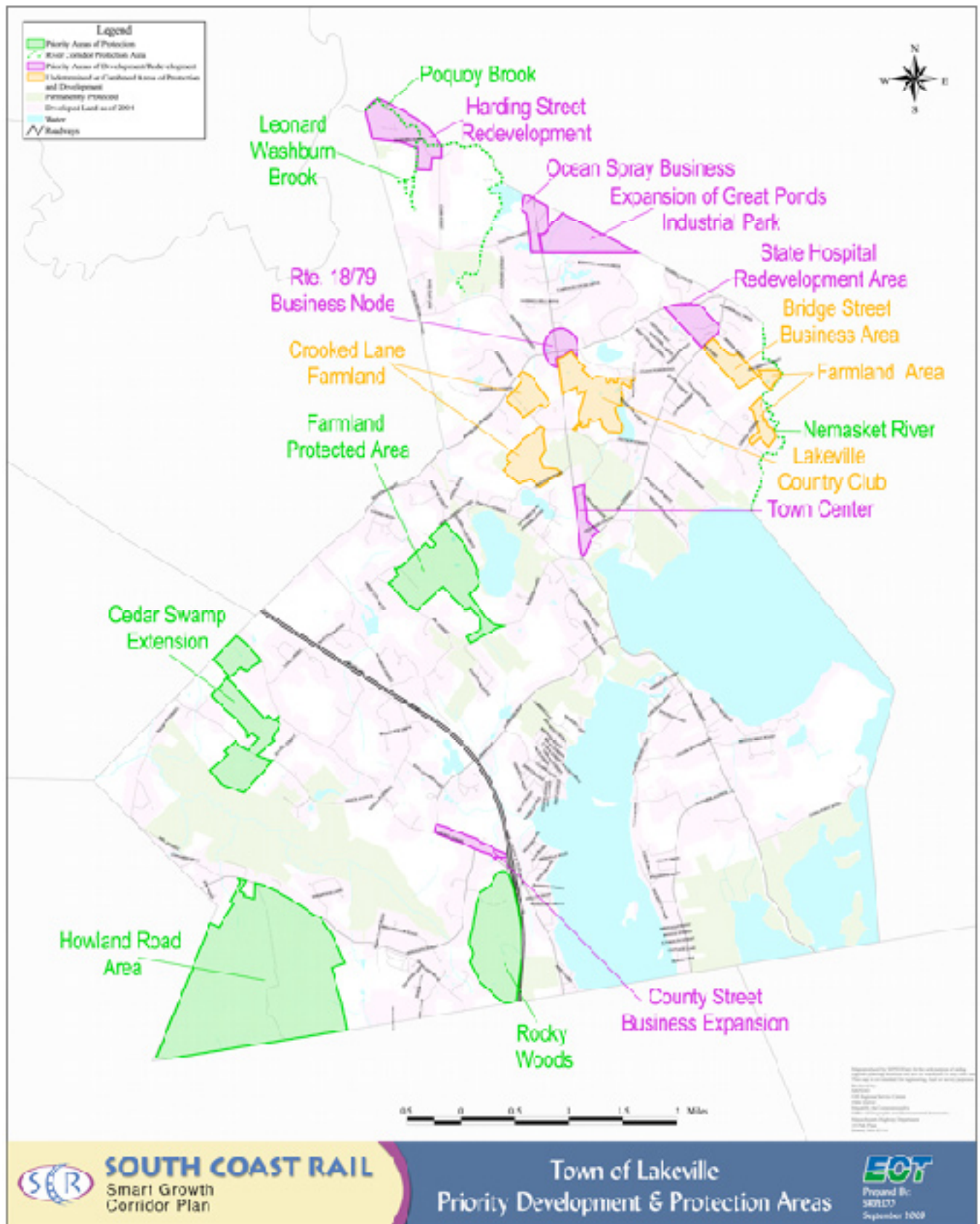
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Community Profile

The Town of Lakeville is an inland suburban town in the north central portion of southeastern Massachusetts. Lakeville is bordered by Rochester and Freetown on the south, Berkley and Taunton to the west and Middleboro on the north and east. Lakeville was part of Middleboro until 1853. The town is almost entirely located in the Taunton River watershed basin. Circa 1686 the first Europeans, members of the Richmond and Red families from Taunton, settled in what is now Lakeville and built their homes in the Poquoy Brook area to process bog ore from that brook. Other industrial development in the 19th century included a tack and nail factory, a tannery and a shoe manufacturing industry. Due to the lack of major waterways, the town remained primarily agricultural through the first half of the 20th century. Lakeville's Great Ponds (Assawumpset Pond Complex) were a major draw for cottage and recreational use that continues today.

Lakeville Priority Protection & Development Areas



Town of Lakeville Priority Development/Redevelopment and Protections Areas

I. Priority Development/Redevelopment

The Town of Lakeville recently received a \$375,000 Massachusetts Opportunity Relocation and Expansion (MORE) grant to conduct a feasibility study for installation of a water tower to provide much needed infrastructure improvements along Route 105. The town is planning to apply for a State Revolving Fund loan to build the projected \$2.4 million improvements in support of economic development.

The Assawumpset Pond Complex provides drinking water to nearly a quarter million people in Southeastern Massachusetts. This puts an extra burden on Lakeville to protect the lands surrounding the ponds. Recently the City of Taunton agreed to provide 150,000 gallons per day from the city's total allotment to the Town of Lakeville. Should the installation of the water tower come to fruition, the City of Taunton would be willing to discuss the option of providing more drinking water to the town in the future.

1. State Hospital Redevelopment Area

The Lakeville State Hospital area (Lakeville Commons) is located between the eastern segments of Routes 79 and 105 heading toward the Middleboro line with the entrance to the facility situated on Route 105 across from Bridge Street. National Development currently owns this 72-acre site, which was closed in 1992. The hospital buildings are scheduled for demolition for mixed-use redevelopment including restaurants, retail, and office space. More dense housing than is currently allowed is being proposed. The site has been designated as an Economic Opportunity Area (EOA).

State Hospital Redevelopment Area

<i>Protected Parcels</i> <i>• None</i> <i>Historical Significance</i> <i>• Archaeological significance</i>	<i>Water Resource</i> <i>• Medium Yield Aquifer</i>
<i>Natural Resource Protection Areas</i> <i>• Priority & Estimated Habitat</i> <i>• Globally rare</i> <i>• Certified vernal Pool</i>	<i>Soils</i> <i>• Sand and Gravel</i>
<i>Zoning</i> <i>• Mixed Use</i> <i>Municipal Water/On-site Septic System*</i>	<i>Development Area</i> <i>• Route 79</i> <i>• Some residential</i> <i>21E Site/Brownfield</i> <i>• None</i>

**** National Development plans to have on-site septic available at this site.***

2. County Street Business Expansion

Located in south Lakeville, this area extends from the intersection of Highland Street and County Street (Canedys Corner), heading south along County Street to the Route 140 interchange, Exit 9. The area contains residential properties and business uses and has been identified by the town for business expansion and/or mixed-use redevelopment. The area offers good highway access, but there is currently no municipal water or sewer available.

County Street Business Expansion

<i>Protected Parcels</i> • <i>Potential Chapter 61 Historical Significance</i> • <i>Several historic homes</i> • <i>Cemeteries</i>	<i>Water Resource</i> • <i>Zone A, B and C</i> • <i>Hathaway Brook</i> • <i>Wetlands</i>
<i>Natural Resource Protection Areas</i> • <i>Globally rare</i> • <i>BioCore Habitat</i>	<i>Soils</i> • <i>Floodplain Alluvium</i>
<i>Zoning</i> • <i>Business</i> • <i>Residential</i>	<i>Development Area</i> • <i>County Street</i> • <i>Route 140</i>
<i>No Municipal Water/No Sewer System</i>	<i>21E Site/Brownfield</i> • <i>None</i>

3. Expansion of Great Ponds Redevelopment Area

This site comprises approximately 116-acres located on Route 18, north of and adjacent to the existing 175-acre Great Ponds Industrial Park. The Town of Lakeville proposes expansion to attract new commercial, industrial and office development opportunities. The site offers good access to Routes 18 and 79 and has water service and on-site septic. The CSX freight rail line runs between



Lakeville Priority Protection & Development Areas

Middlebury and Taunton, separating the Great Ponds Industrial Park. A rail crossing would be required to connect these two sites, and potential exists to create a spur to industries.

Expansion of Great Ponds Redevelopment Area

<i>Protected Parcels</i> • <i>Potential Chapter 61</i> <i>Historical Significance</i> • <i>Archaeological significance</i> • <i>Tack Factory District</i>	<i>Water Resource</i> • <i>High and Medium Yield Aquifer</i> • <i>Coldwater Brook</i> • <i>Extensive wetlands</i> • <i>IWPA</i> • <i>100-year Floodplain</i>
<i>Natural Resource Protection Areas</i> • <i>Priority & Estimated Habitat</i> • <i>Globally rare</i>	<i>Soils</i> • <i>Floodplain Alluvium</i> • <i>Till or Bedrock</i> • <i>Sand and Gravel</i>
<i>Zoning</i> • <i>Residential</i>	<i>Development Area</i> • <i>Route 18</i> • <i>Taunton Street</i>
<i>Municipal Water/ Septic System on-site</i>	<i>21E Site/Brownfield</i> • <i>None</i>

4. *Ocean Spray Business*

The site is located on Route 18 just south of Route 44 in the northern portion of Lakeville and consists of 310-acres, of which 250-acres are situated in Lakeville and 60-acres in Middlebury. The 310,000 square foot Campus contains Ocean Spray's Corporate



Headquarters, a research and development center and the Cranberry Museum. The site offers excellent transportation access to Routes 18 and 44 and I-495. In addition, water and on-site septic are provided. Lakeville has designated the site as an Economic Opportunity Area (EOA). Opportunities may exist for expansion and/or mixed-use redevelopment.

Ocean Spray Business

<i>Protected Parcels</i> • <i>Potential Chapter 61</i> <i>Historical Significance</i> • <i>Archaeological significance</i> • <i>Tack Factory</i>	<i>Water Resource</i> • <i>IWPA</i> • <i>Trout Brook</i> • <i>Extensive wetlands</i> • <i>100-year Floodplain</i>
<i>Natural Resource Protection Areas</i> • <i>Globally rare</i> • <i>Priority & Estimated Habitat</i>	<i>Soils</i> • <i>Floodplain Alluvium</i> • <i>Till or Bedrock</i>
<i>Zoning</i> • <i>Business</i> • <i>Planned Purpose Overlay District</i>	<i>Development Area</i> • <i>Taunton Street</i> • <i>Route 18</i>
<i>No Municipal Water/No Sewer System</i>	<i>21E Site/Brownfield</i> • <i>None</i>

5. Harding Street Redevelopment

Located in the northern portion of Lakeville, the Harding Street (Rte 44 Corridor) Redevelopment area represents the business corridor that includes the industrial area consisting of the 65-acre Lakeport Business Park and a business area at the eastern end of Route 44 running south parallel to Cross Street. The business area contains the 34-acre Harding Nurseries property. The entire area offers redevelopment opportunities including business and office park development and potential mixed-use. The area provides excellent highway access to Route 44 and direct access to I-495; municipal water is available, but sewer is not available. The corridor industrial area is designated as an Economic Opportunity Area.

The Harding Street priority development area includes part of the Poquoy and Leonard Washburn Brooks sub-watershed, where there are several protected parcels mixed in with the business development area already in place. Though the Town of Lakeville envisions development within the Poquoy and Leonard Washburn Brook area, they are interested in preserving the value and integrity of the brooks themselves.

6. Route 79/18 Business Node

This area is located at the intersection of Routes 18 and 79 in north central Lakeville, which represents the primary intersection for two (2) of the three major transportation corridors running through the Town of Lakeville (I-495

being the exception). The Town has identified this business node and prefers maintaining the existing level of retail, service and other business activity in the area.

II. Priority Areas of Protection

1. Nemasket River

The Nemasket River is one of the area's finest natural, ecological and scenic resources. Flowing north out the Assawumpsett Pond, the Nemasket River acts as the town boundary line between Lakeville and Middleboro until turning to the northeast into Middleboro on its way to the Taunton River. In the Wampanoag language Nemasket means "place where the fish are," due to the regionally significant herring run. This portion of the river is also a sensitive archeological area and contains several mill sites. The Wampanoag used this as a major route for travel. The Lakeville Open Space Committee is interested in collaborating with the Town of Middleborough in hopes of preserving the river. The Department of Conservation and Recreation Heritage Landscape Program identified The Nemasket River as a Heritage Landscape. Though the Town of Lakeville envisions development within close proximity to the Nemasket River they are interested in preserving the value and integrity of the river itself.



Nemasket River

<i>Protected Parcels</i> •	<i>Water Resource</i> • <i>High and Medium Yield Aquifer</i> • <i>Nemasket River</i> • <i>Extensive wetlands</i> • <i>100-year Floodplain</i> • <i>500-year Floodplain</i>
<i>Historical Significance</i> • <i>Archaeological significance</i>	
<i>Natural Resource Protection Areas</i> • <i>Priority & Estimated Habitat</i> • <i>Globally rare species</i>	<i>Soils</i> • <i>Floodplain Alluvium</i> • <i>Sand & Gravel</i>
<i>Zoning</i> • <i>Residential</i> • <i>Industrial</i>	<i>Development Area</i> • <i>None</i>
<i>No Municipal Water/Sewer System</i>	<i>21E Site/Brownfield</i> • <i>None</i>

2 *Rocky Woods*

Rocky Woods is located in the southern portion of Lakeville and is a two-community resource, shared by Lakeville and Freetown. This site contains one of the largest bedrock outcroppings in Southeastern Massachusetts. It offers unusual rock formations, King Philip's cave, and old house foundations that are scattered throughout the area. Steep ledges intersperse mesic to wet woodlands, and may be unique in Lakeville, which is almost entirely made up of glacial sands. There could be significant impacts to the groundwater should the area become developed.

Rocky Woods may have been a significant site for the Native people since it is the dividing line between two sub-watersheds, the Assonet River draining to the southwest and the Assawumpset/Nemasket River draining to the north. The area shows signs of enhanced landscapes. Rocky Woods is the headwaters of the Assonet River (Cedar Swamp River).

The Town of Freetown Open Space Committee, in coordination with the Manomet Center for Conservation Sciences, gave this site a high rating due to the various flora and fauna found here. The Massachusetts Department of Conservation and Recreation (DCR) has also identified Rocky Woods as a Heritage Landscape.

Rocky Woods

Protected Parcels • None	Water Resource • Zone C • Wetlands • Medium yield aquifer • 100-year Floodplain
Historical Significance • Archaeological site	
Natural Resource Protection Areas • Priority & Estimated Habitat • Globally Rare, Tier 1 & 2 • Vernal pools	Soils • Till and Bedrock • Floodplain Alluvium
Zoning • Residential	Development Area • Route 140
No Municipal Water/Septic System	21E Site/Brownfield • None

3 *Poquoy Brook and Leonard Washburn Brook*

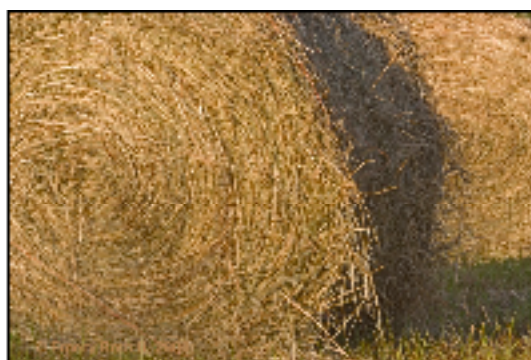
Poquoy Brook is located in the northwest portion of Lakeville. The brook forms the northern boundary between the towns of Lakeville and Middleboro. European

settlement occurred along the brook circa 1686. A dam was constructed around 1698 for a sawmill, forge, grist mill and later a tack factory. The CSX Taunton/Middleboro freight rail line runs through the Poquoy Brook sub-watershed in an east/west direction. Poquoy Brook and Leonard Washburn Brook are cold-water streams that support native brook trout. Leonard Washburn Brook is unusually pristine, and is partially protected by land.

Poquoy Brook and Leonard Washburn Brook

<i>Protected Parcels</i> <i>The Wildlands Trust property</i> <i>Historical Significance</i> <i>Yes</i>	<i>Water Resource</i> <i>Wetlands</i> <i>Medium yield aquifer</i> <i>100-year Floodplain</i> <i>Coldwater stream</i> <i>Poquoy Brook</i> <i>Leonard Washburn Brook</i>
<i>Natural Resource Protection Areas</i> <i>Priority & Estimated Habitat</i> <i>Globally Rare, Tier 1 & 2</i> <i>Vernal pools</i>	<i>Soils</i> <i>Fine grain deposits</i> <i>Floodplain Alluvium</i>
<i>Zoning</i> <i>Industrial</i> <i>Planned Special Purpose Overlay Dist</i> <i>Business</i> <i>No Municipal Water/Septic System</i>	<i>Development Area</i> <i>Harding Street</i> <i>21E Site/Brownfield</i> <i>None</i>

4. *Farmland Protection Areas*



In the early 1970's, rising property values forced many farmers and forestland owners to sell their land because the tax burden was so great. Farmers, conservationists, and landowners formed a coalition to promote an amendment to the Massachusetts Constitution allowing preferential assessment of property. The constitutional referendum passed

in 1973 and Massachusetts's voters approved legislation known as Chapter 61...the Forestland Act, Chapter 61A...The Farmland Assessment Act, and Chapter 61B...The Open Space Act.

Lakeville Priority Protection & Development Areas

These new laws required cities and towns to reduce assessments on farm, forest, and open space lands, provided the owners made a commitment to keep their land in one or more of those uses. It is a voluntary form of conservation.

A provision of these statutes grants cities and town's right of first refusal on lands classified under Chapter 61 if such lands are sold for residential, commercial or industrial purposes. The right of first refusal is a legal interest in the property that grants the city or town the right to match a bona fide offer for conversion of the property from its forest, agricultural or recreational use. There are three farms in the north end of town that are currently under the Chapter 61A Farmland Assessment Act. Should the landowners wish to sell their properties due to unforeseen circumstances, the Town of Lakeville may want to purchase to Chapter 61 land in order to preserve it for the future.

Town of Lakeville Chapter 61 Priority Properties by arm (see priority map for locations):

<i>Farmland</i>	<i>Total Acres</i>	<i>Chapter Type</i>
<i>Elders Pond*</i>	<i>261.8-acres</i>	<i>Chapter 61A</i>
<i>Crooked Lane/Old Main Street</i>	<i>146.3-acres</i>	<i>Chapter 61A & 61B</i>
<i>Assonet Cedar Swamp</i>	<i>247.7-acres</i>	<i>Chapter 61A & 61</i>
<i>Nemasket River</i>	<i>45-acres</i>	<i>Chapter 61A</i>

****Elders Pond Farmland Area:***

Elders Pond is a Great Pond. The City of Taunton pumps water from Assawomasset to Elders Pond, where it is treated. The Natural Heritage and Endangered Species Program, through the Living Waters Program, considers the area to the south of Elders Pond a Supporting Watershed. (For more information on Crooked Lane, Assonet Cedar Swamp, Nemasket River see Priority Areas of Protection section related to sites)

5. Howland Road Area

The Howland Road area is located in the southwestern portion of Lakeville. The Town of Freetown bounds this triangular shaped protection area to the south and west, Howland Road bounds it to the north and the CSX freight line to the east. It has potential to link the Binnreserve, Freetown/Fall River State Forest to the Assonet Cedar Swamp creating a green corridor north and south. The Town of Lakeville owns a 636-acre parcel surrounding 560-acres of farmland. The State of Massachusetts Natural Heritage and Endangered Species Program also considers this area a BioCore Habitat. The Town portion of this priority area will have a small conservation restriction (23-acres) in place for turtle habitat protection in exchange for lost habitat on Route 79 and 105.

6 Cedar Swamp Extension

The Assonet Cedar Swamp is located in the southwest portion of Lakeville near the Berkley and Freetown town lines. The majority of the Assonet Cedar Swamp is under the care and ownership of the Massachusetts Audubon Society. The swamp itself is a rare community of Atlantic white cedar and red maple largely invisible to the public due to lack of access. The Assonet Cedar Swamp supports an array of natural communities and rare species populations, such as the Hessel's Hairstreak butterfly and Water-willow Stem-borer moth. The upper reaches of the Assonet River (Cedar Swamp River) is a coldwater brook that supports brook trout, while a drumlin on the southeastern side of the swamp hides a Harford Climbing fern. The area surrounding the Assonet Cedar Swamp is bordered by uplands rich with historic houses and barns, stonewalls and open fields. Further development to connecting landscapes' surrounding the swamp would threaten the fragile ecological system. The CSX rail line expansion to Fall River and New Bedford runs through the Assonet Cedar Swamp.

Pierce Avenue has been designated a scenic roadway due to the many Chapter 61 properties located there. Two parcels of farmland currently in the Chapter Land Program with the State of Massachusetts have been identified as priority protection areas in Lakeville. Acquiring parcels in the south end of Lakeville will help strengthen the expansive greenbelt from the Bioserve, Freetown/Fall River State Forest and Assonet Cedar Swamp.

Cedar Swamp Extension

Protected Parcels • Assonet Cedar Swamp	Water Resource • High and Medium Yield Aquifer • Assonet River (coldwater trout) • Extensive wetlands • IWPA • 100-year Floodplain
Historical Significance • Archaeological significance • Over 20 MHC inventoried properties including buildings, objects, structures and a cemetery	
Natural Resource Protection Areas • Priority & Estimated Habitat • Globally rare	Soils • Floodplain Alluvium • Till or Bedrock
Zoning • Residential	Development Area • Minimal
No Municipal Water/Sewer System	21E Site/Brownfield • None

III. Unresolved/Combination Priority Development and Priority Protection Areas

Some areas within the Town of Lakeville have yet to be determined as to whether they will become areas of development, protection, or a combination of both. The sites listed below represent those areas:

1. Nemasket River Farmland & Bridge Street Business Area

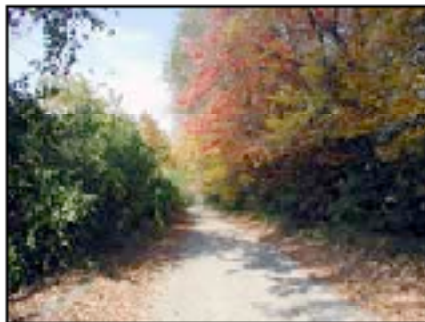
Nemasket River Farmland

There are two privately owned active farms along the Nemasket River totaling approximately 40-acres, and two State Hospital fields totaling 64-acres. The State owned fields are currently leased. The Bridge and Vaughn Street farms grow vegetables and the State fields (off Bridge Street) are used to grow feed for livestock. The Town of Lakeville envisions development within close proximity to the Nemasket River, though they are interested in preserving the value and integrity of the farms and the river. (For more information related to the Nemasket River see Priority Protection Areas)

Bridge Street Business Area

This area is located on Route 105 adjacent to the existing Lakeville Corporate Park and the commuter rail station between Bridge Street and Lori Lane. The area has existing commercial development fronting Route 105 with the State Hospital field property in the rear. This area has been identified for potential business and mixed-use development. The area offers good access, with the potential for municipal water and sewer.

2. Crooked Lane Farmland Protection



A portion of Crooked Lane is still a dirt road, which preserves the rural charm that keeps Lakeville special. The Wilkie/Schobel 200-acre farm located on Crooked Lane and Route 18 was the first Agricultural Preservation Restriction (APR) in the State of Massachusetts and is actively growing feed for livestock. The Elliott Farm is situated across from the Wilkie/Schobel Farm and presently grows vegetables that are sold at their farm

stand on Main Street. The soil in this area is considered prime agricultural soil. Crooked Lane and Old Main Street has been identified as a Heritage Landscape by the Department of Conservation and Recreation. The Town of Lakeville would

like to preserve the agricultural integrity along Crooked Land and Old Main Street.

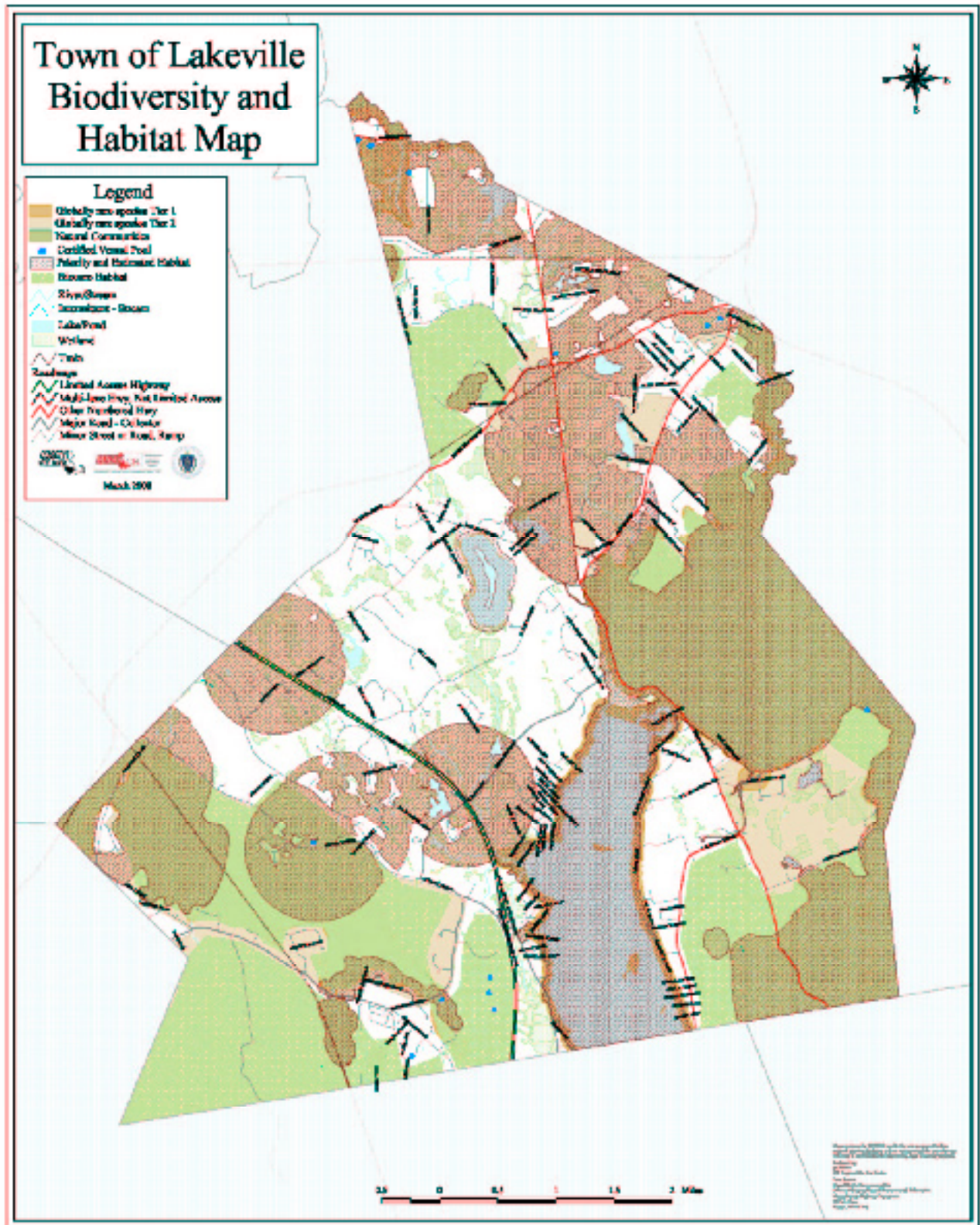
3. *Lakeville Country Club*

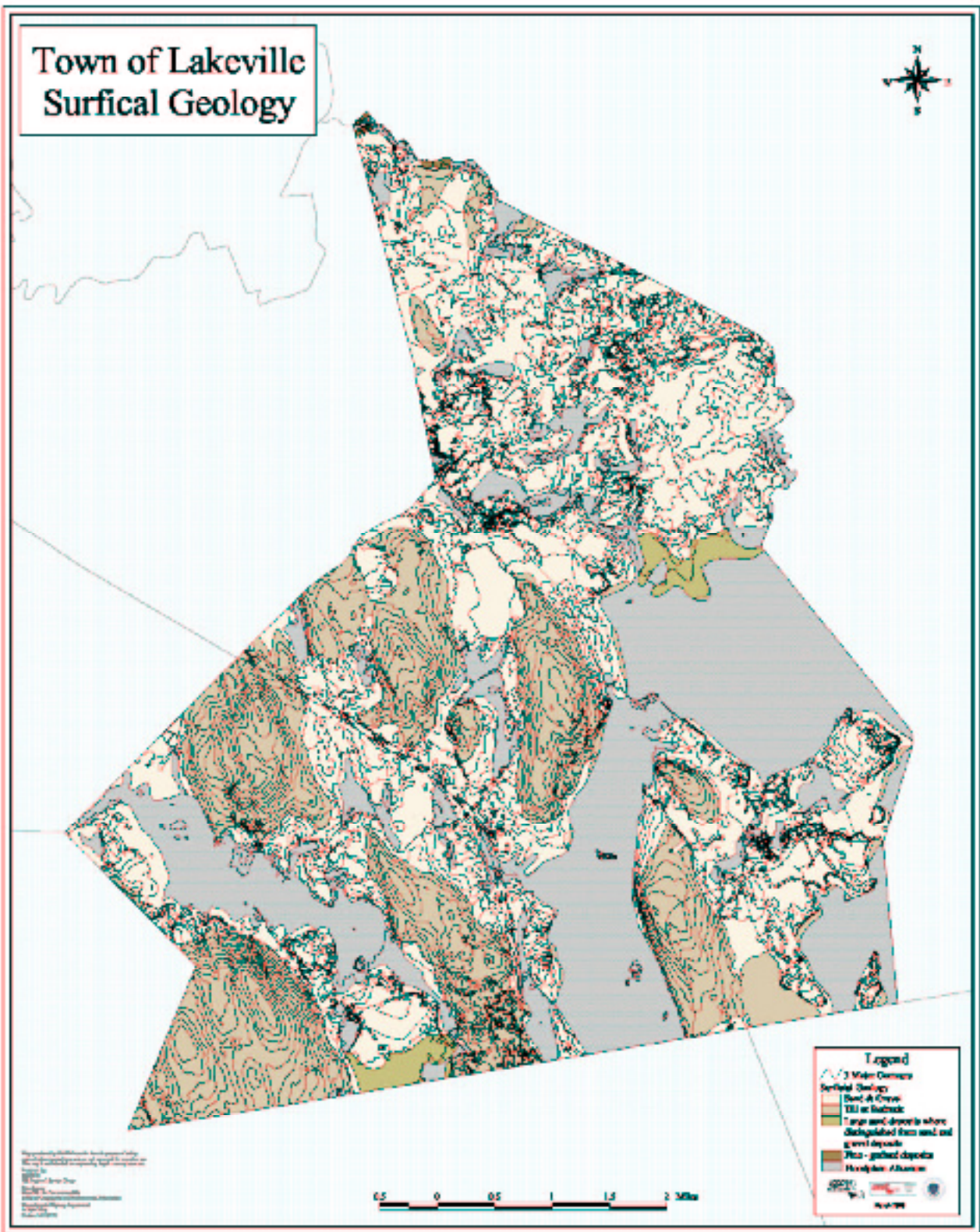
The Lakeville Country Club opened in 1970 and is located off Clear Pond Road in the northeastern portion of town. The country club offers a wide range of activities, functions, tournaments and outings. The country club's prime location, approximately one mile from Routes 79 and 105, I-495 and the Middleboro/Lakeville Station, may induce new development. The Town

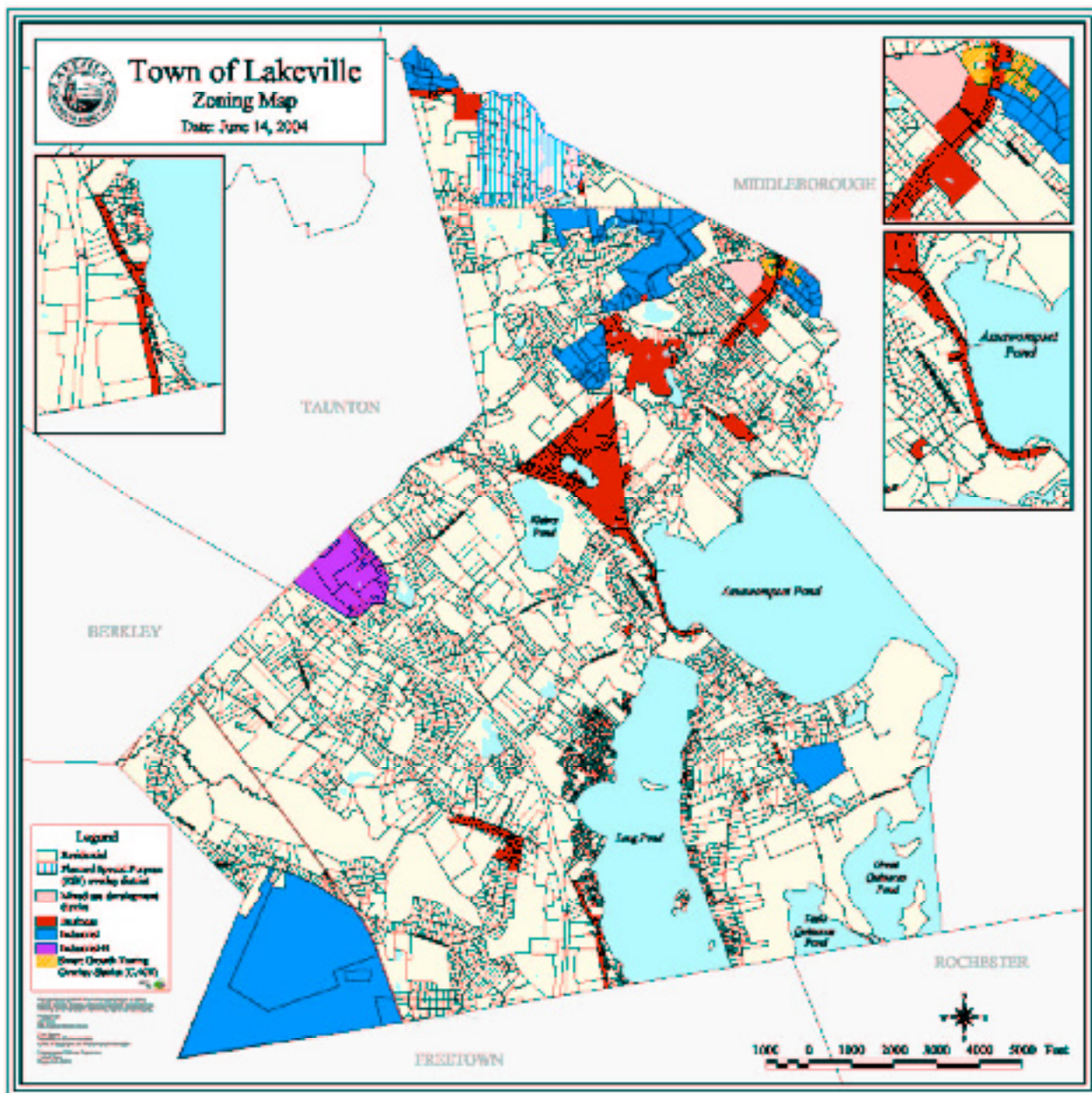


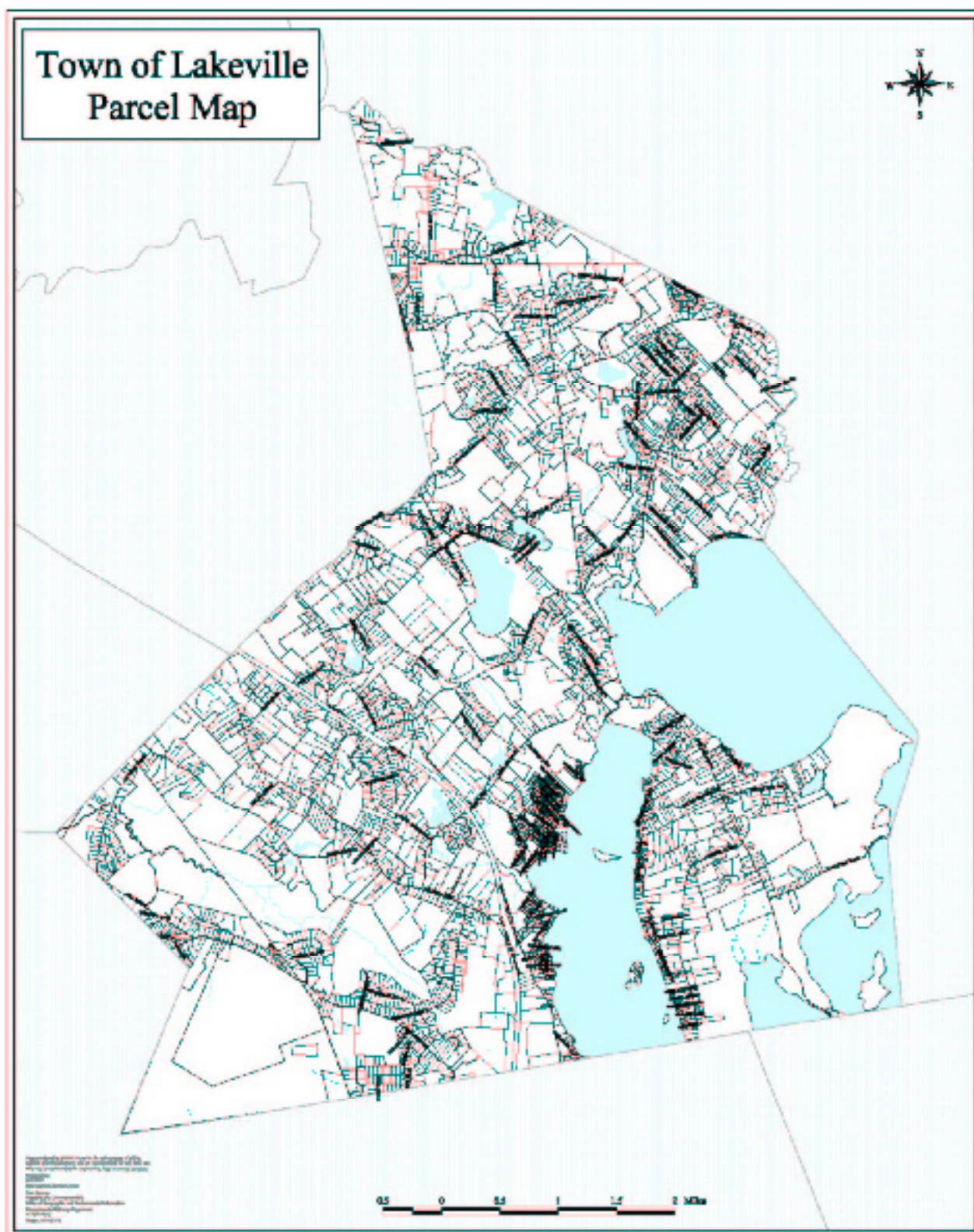
of Lakeville is currently considering both preservation and development within this approximately 180-acre area. The Natural Heritage and Endangered Species Program has identified this area as priority and estimated habitat. The Nature Conservancy has found globally rare species on the site.

The Lakeville Country Club is adjacent to the intersection of the Route 18/79 Business Node. This site has been identified for potential mixed-use and residential development expansion opportunities.









Preserving the Night Sky in Lakeville

*"The stars are the jewels of the night,
and perchance surpass anything which
day has to show." - Henry David Thoreau*



Horsehead Nebula in Orion. Taken at the Starhoo Observatory.

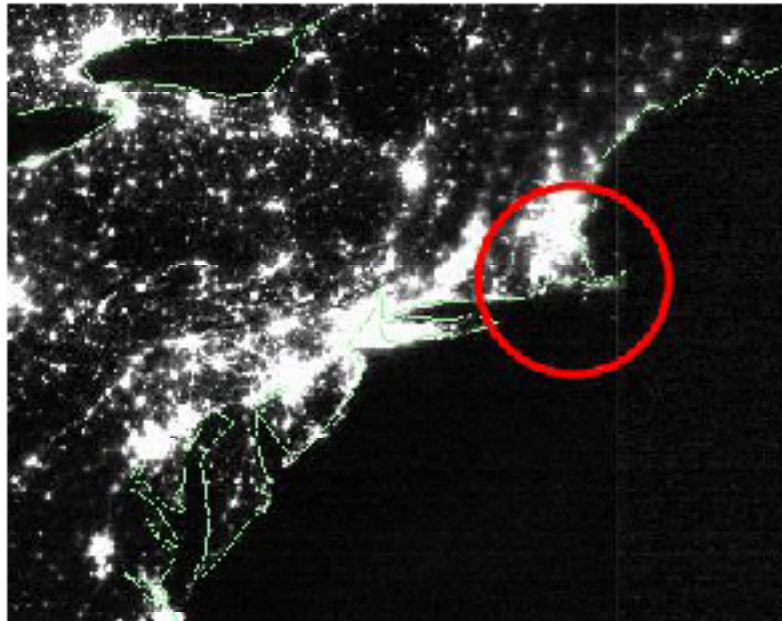
1 Overview

Dear Members of the Planning Board, Building Inspector, Selectmen, and Interested Citizens and Officials of the Town of Lakeville:

Without enforcement, Lakeville's outdoor lighting by-law is meaningless. As a citizen concerned about the negative impact of light pollution on the environment and the quality of the night sky, I hope to bring the subject of light pollution to a focus, so that we can take the matter seriously and use the by-law for its intended purpose. It is not my goal to put up barriers to builders and industry in Lakeville, but simply to urge that we employ a bit of wisdom and science in the planning of construction projects, both

residential and commercial, with regard to the implementation of lighting fixtures. Some of the benefits for having the outdoor lighting by-law include:

- Energy/cost savings.
- Preserving the night sky as an educational resource for recreational and professional-level astronomy for present and future generations.
- Protecting the nocturnal environment by minimizing the negative impact of outdoor lighting on sensitive habitats and ecosystems (owls, frogs, and other fauna).
- Preventing potential adverse health risks to people. (See <http://www.medicalnewstoday.com/articles/618008.php>).



Satellite image showing light pollution in the north east 16 years ago.
(NOAA Data Archive, 1994.)

2 Lakeville's Outdoor Lighting By-Law

Like Lakeville, many communities across the country have recognized the destructive impact of excessive outdoor lighting on the night sky, on the environment, and on security as well.

If followed, Lakeville's Outdoor Lighting By-Law and other Zoning by-laws do provide reasonable guidelines for implementing outdoor residential light fixtures. Unfortunately, the enforcement and compliance of the by-law is another matter. When it comes to new residential construction, the by-law it seems that the by-law may as well not even exist, even though sections 5.0 - 5.3 of the Outdoor Lighting By-Law specifically require compliance with the by-law prior to issuing building permits.

For example, within the Cedar Pond Preserve development (where I live), there are about fifteen or so additional lots where new homes may be built. It concerns me that the developer(s) may not

abide by Lakeville's Outdoor Lighting By-Law, which will unnecessarily have a negative impact on the night sky and environment.

The developer, QBI Homes (and others), have installed outdoor lamps along the driveways of each house in the neighborhood. The light fixtures within the lamps are poorly designed, allowing bright light and glare to radiate laterally throughout the neighborhood. This glare serves no purpose - it does not provide quality lighting of surrounding areas - and it obviously deteriorates the quality of the night sky and nocturnal environment. Also, outdoor garage lights and porch lights that have been installed in the homes are completely unshielded, giving off bright glare. Unshielded light fixtures allow the light to radiate laterally, causing glare and unnecessary light pollution. Key point: "glare," which is a blinding side effect of poor lighting, is not the same as illumination, which allows for ambient seeing.

2.1 Full or Partial Cutoff Fixtures

By using full cutoff, or even partial cutoff fixtures, much of the glare from residences would be eliminated, while still providing adequate illumination for security etc. As it is now, I can literally see my shadow from my neighbor's light as I walk to my observatory at night. The cumulative effect of all this wasted light erodes the contrast in the sky. Notable objects such as the Andromeda Galaxy (nearest major galaxy 2.4 million light years away) should be fairly easy to see, but this is not the case as it fades into a dome of local light pollution. Other patches of sky, instead of being rich with star clusters, disappear in a brown light.

2.2 The Spirit of the Outdoor Lighting By-Law: Being a 'Good Neighbor'

In the Outdoor Lighting section of Lakeville's By-Law (Section 1.0, page 54) it states:

"All business, residential, and community driveway, sidewalk and property luminaries should be installed with the idea of being a 'good neighbor', with attempts to keep unnecessary direct light from shining out abutting properties or streets."

If the above guideline were truly enforced, most light pollution problems would be solved. This is unfortunate, considering the fact that the enforcement of the outdoor lighting by-law is really a win-win all the way around. Better lighting with more safety (as has been studied, and noted in some of the references that follow), lower energy costs, and a night sky that Lakeville can be proud of.

In the spirit of the "good-neighbor" policy of the by-law, I would like to express the following request:

1. *Before issuing a building permit for new homes or construction, have the builder/developer sign a document stating that outdoor lighting fixtures are compliant with the town by-law. There are many companies that manufacture such fixtures and I would be glad to provide additional information about this if necessary.*
2. *Member(s) of the Planning Board and Building Inspector make periodic "inspections" or at least observations of residential lighting throughout the town so that they can see the impact of run-away outdoor lighting on the night sky and environment.*

3 Light Pollution in a Historical Context

In the course of human history, light pollution is a new phenomenon. During the 19th century people were thrilled to be able to transition from volatile gas lamps to electrical lighting, as typified in the Chicago World's Fair in the 1890's. With cheap electricity, the lighting industry and over the next ten or so decades, the nocturnal environment of the planet changed dramatically.

Within the last 30-40 years it has become apparent that a course correction is needed with regard to lighting technology so that we can enjoy the benefits of artificial light while retaining the value of nocturnal environments and preserving the night sky. Little thought was given towards energy efficiency, stray light, glare in the development of lighting fixtures. But as we now know, almost overnight, we have all but destroyed our view of the Milky Way and adversely affected nocturnal habitats. As stewards of this town, we can do our part to take corrective and preventative action regarding our outdoor lighting, and there need not be any downside about it. Our generation will come and go, and another will succeed us. We owe it to them to leave this world at least as good or even better than we found it.

We find ourselves today in the modern era, with technology to address seemingly every need. And the stars and the heavens are still above us, beautiful and brilliant, full of meaning and knowledge, awaiting the gaze of the only creatures on Earth capable of grasping their significance. Unlike the Algonquin and other ancient peoples who were treated to the richest, clearest skies ever, with the excesses of outdoor lighting so prevalent these days, we are not so fortunate. Indeed, our untamed technology hinders our ability to appreciate the sky as we would any other natural resource, such as the lakes, rivers and forests.

Much of man's imagination and ideas derive from looking up into a night sky filled with constellations blazing with the rich light of the Milky Way. Our connection to the stars is not merely a flight of fancy; we are literally made from the stuff of stars. Our very existence depends on our nearest star, the Sun - but the Sun's existence depended upon the stars that preceded it, that formed the very elements, iron, oxygen, carbon, hydrogen, from which the Sun and Earth, and hence, we ourselves, are made.

Such a deep and ancient connection may be lost in the shuffle of day to day life. Those of us who wish to explore this connection, and to study at the great "university" above us, should not be denied the opportunity. But how are we to keep this vital connection alive? How are we to feed our sense of discovery about the heavens if we carelessly make it disappear through the excessive utilization of artificial light?

3.1 Lakeville

With its rural farmlands, parks, conservation lands, and its spacious lakes and ponds, Lakeville is geographically unique. It is relatively close to several cities - Providence, New Bedford, Boston - and yet it is surrounded by large open spaces, away from commercial and residential lights. As such, Lakeville has a number of ideal locations where one can observe the night sky on a recreational level (stargazing), as well as for astronomical research (photometry and astrometry - variable stars, supernovae, asteroid

and comet discovery). There is in Lakeville a rich cultural history dating back to the indigenous Native Americans that once inhabited this area and surrounding parts. Native Americans placed great importance on the stars and heavens. There is substantial historical evidence showing that they not only revered celestial phenomena and events, but went out of their way to study it in detail and to incorporate it into their culture and belief systems. They built wide area calendars comprised of cairns and boulders precisely aligned with the equinoxes, solstices, lunar phases and other positions of the sun and stars.

4 Lakeville Dark Sky Survey

This survey was conducted by M. Renzi and K. Leonard 03-10-10, 9-11 PM; apparent sky condition: good to excellent. The *Limiting Magnitude at the Zenith (LMZ)* is an overall measure of the light pollution at a site. The theoretical limit for sea level in New England is about 6.5. This is a measure of the faintest stars visible to the naked eye that are above 60 degrees in elevation. The winter milky way, about 1 magnitude fainter than the summer milky way, is faintly visible at LMZ=5.0, and clearly so at LMZ=5.5. "Intrusion" is horizon glow and refers to anomalous brightening of the sky up to 30 degrees above the horizon.

Five sites were monitored. These sites, known to be relatively local-light free, were selected at locations evenly spaced around town. It is assumed that each will be most strongly influenced by local lighting within one and one-half miles of it. As shown on the map, this affords little over lap and covers the entire town rather well. These sites were:

	<u>LMZ</u>
1. Assawampsett Neck / Great Ponds	≥5.0
2. Nemasket River / NE Lakeville	≤5.0
3. Poquoy Brook / N Lakeville	≥4.0
4. Central Lakeville / Pickens St. at Hill St.	~4.5
5. Assonet Swamp / Beechwoods	~5.5

Detailed observation notes:

4.1 Site 1, Assawampsett Neck:

LMZ was a good solid 5.0. A moderate intrusion was noted between NW and N that extended to 20 degrees elevation. W horizon effected by very local lighting glare. Milky way was faintly visible. This site is significantly advantaged by the Great Ponds that surround it. It is impacted primarily by badly directed local development lighting and that in central Lakeville to the NE.

4.1.1 Primary Threat:

Placement of any additional badly directed development lighting on Assawampsett Neck

4.2 Site 2. Nemasket River:

LMZ approached 5.0 at the true zenith, however, there was a significant intrusion in the NW quadrant extending up to 30 degrees elevation, but the milky way was still slightly visible high to the SW. This site is significantly advantaged by the Great Ponds to its south and the lack of development in S. Middleboro across the river to the E. It is impacted almost exclusively by commercial development lighting near the commuter rail station and in Middleboro to its N.

4.3 Primary Threat:

Potential placement of badly directed commercial lighting at the Lakeville hospital site and in any nearby development.

4.4 Site 3. Poquony Brook:

LMZ was noticeably poor, approaching 4.0 only very high in the sky. A significant all-over red sky glow was noticed, particularly to the N. There was a severe intrusion extending between NW and NE, which reached well over 30 degrees in elevation. There were significant intrusions to the SW and E as well. This site is severely impacted by the Route 44 commercial zone to its N, and further impacted by badly directed development and/or commercial lighting to the E and SW.

4.4.1 Primary Threat:

Public and/or official apathy to the existing problem.

4.5 Site 4. Central Lakeville:

LMZ was fair, about 4.5, with significant intrusions to the N and especially to the SW, with modest additional intrusion to the E. This site is significantly effected by the poorly directed development lighting to its immediate SW, and to a lesser extent by the overall lighting in central Lakeville.

4.5.1 Primary Threat:

Installation of additional badly directed development lighting, especially to the SW and W.

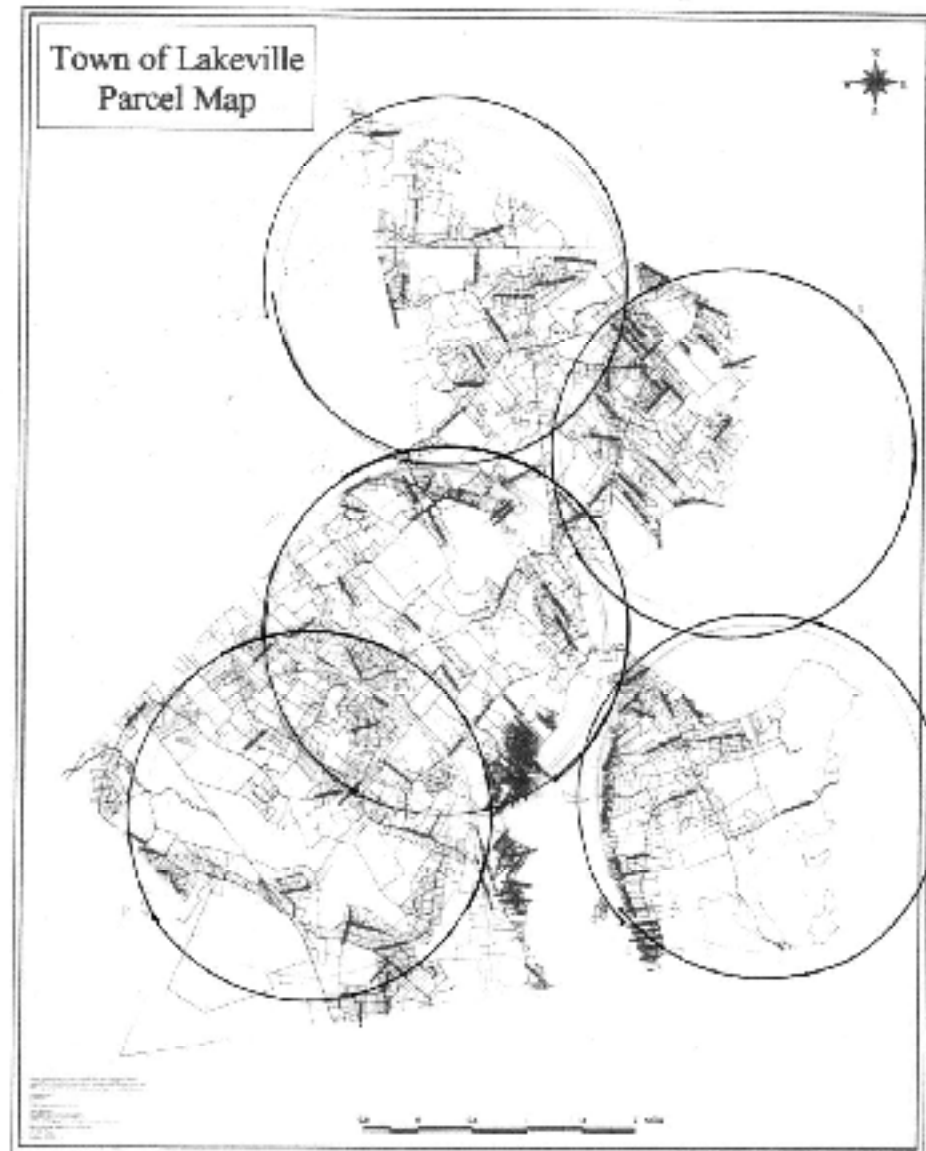
4.6 Site 5. Assonet Cedar Swamp:

LMZ was superior, about 5.5, with the milky way clearly visible overhead extending downward to the SSW. There was a modest intrusion visible to the NNW reaching upwards about 15 degrees. This site is significantly advantaged by the Assonet Cedar Swamp to the S and W, and additionally by the Howlands wildness area and Freetown State Forest further to the S. It is favored to a lesser extent by the Great Ponds to the E., being impacted primarily by the commercial development south of Taunton.

4.6.1 *Primary Threat:*

Additional commercial development spreading southward from its core in E. Taunton / Berkley. It should be noted that this site had an estimated LMZ= 6.0 in 2001, per the original Lakeville Open Space Plan.

Lakeville Priority Protection & Development Areas



South Coast Rail Project
Southeastern Regional Planning and Economic Development District

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5 Outdoor Lighting Photos in Cedar Pond Preserve

The following pictures were taken in May, 2010, between 10:00PM and 12:00AM, from Ron Circle in the Cedar Pond Preserve subdivision:



*Figure 1. Looking toward Cedar Pond Road - lots 5 - 8.
Glare is the chief culprit here, representing wasted and bleeding light.*



Figure 1. Looking toward Cedar Pond Road – lots 5 - 8.

6 References

- Lakeville General By-Laws: <http://www.lakevillema.org/MASTER%202009%20General.pdf>
(See Outdoor Lighting Section).
- Lakeville Open Space Plan (working draft):
http://www.starhoo.com/1-10-102010osplan_formatted_013110.pdf
- Rated Output (watts/lumens) of Common Lamps
<http://www.cfa.harvard.edu/nelpap/lamps.html>
- NASA/JPL Near Earth Asteroid Detection Program: <http://near.jpl.nasa.gov>
- National Geographic Article: Our Vanishing Night:
<http://ngm.nationalgeographic.com/2008/11/light-pollution/klinkenberg-text>
- Affects of Light Pollution on Wild Life:
http://docs.darksky.org/Docs/ida_wildlife_brochure.pdf
- Light pollution and safety: http://docs.darksky.org/Docs/ida_safety_brochure.pdf
- Robert Burnham's *Celestial Handbook* - an excellent 3 volume set describing the key features of every constellation, with many quotes and references to ancient, cultural texts.
- International Dark Sky Association - <http://www.darksky.org>
- Starry Night Lights: <http://www.starrynightlights.com/>
- Nightscape: <http://docs.darksky.org/Nightscape/NS79hr.pdf>