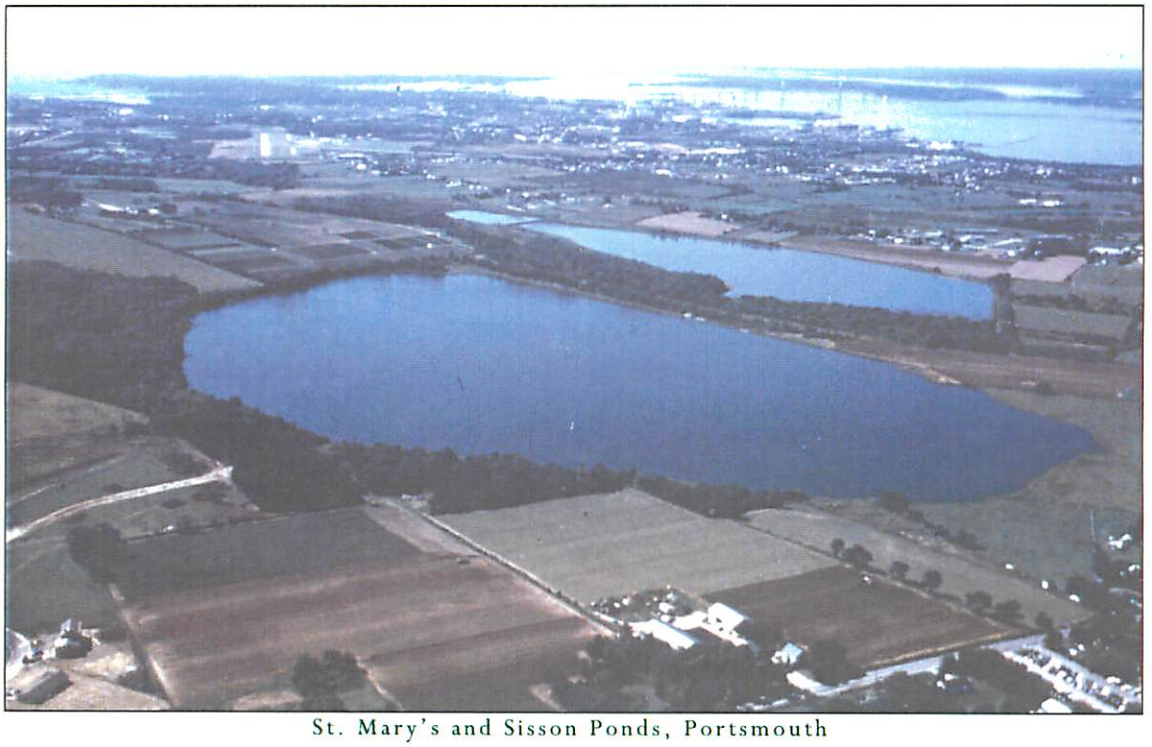
CRITICAL PARCEL IDENTIFICATION FOR WATERSHED PROTECTION IN NEWPORT COUNTY, RHODE ISLAND



St. Mary's and Sisson Ponds, Portsmouth

AQUIDNECK ISLAND PARTNERSHIP

"One Shared Future for One Island Community"

CRITICAL PARCEL IDENTIFICATION FOR WATERSHED PROTECTION IN NEWPORT COUNTY, RHODE ISLAND

By the members of
The Safe, Sustainable, Drinking Water Subcommittee

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AQUIDNECK ISLAND PARTNERSHIP COASTAL MANAGEMENT REPORT #3306

FEBRUARY 2000

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Although the entire Safe, Sustainable, Drinking Water Subcommittee was critical to the completion of this document, all errors or omissions are the sole responsibility of the editors.

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Table of Contents

Introduction

People living and working on Aquidneck Island have expressed a vision for their future that links economic development, social well-being, and an enhancement of the natural environment. The Aquidneck Island Partnership (AIP) is coordinating a series of initiatives to implement this island vision, including the development of a Land Conservation Strategy.

The Land Conservation Strategy began in February and March of 1999 when the AIP hosted a series of workshops that brought islanders together with state experts to devise and implement strategies for land conservation on the island.[1] Over 60 participants were divided into subcommittees to focus on land conservation for five significant island issues:

- Safe, Sustainable, Drinking Water Supply
- Linked Open Space
- Protected Habitats
- Active Farmland
- Alternative Modes of Transportation

The towns of Newport, Middletown, and Portsmouth and the Aquidneck Island Land Trust asked the AIP to identify priority conservation areas on the island. The recommendations contained in this report are a response to this request. They are also a challenge to islanders to work together with partners in Tiverton and Little Compton to conserve these key areas for water supply protection and linked open space.

The Safe, Sustainable, Drinking Water Supply subcommittee focused on identifying priority parcels for protection of the island's surface water supply. The list of identified parcels was provided to the Linked Open Space (LOS) subcommittee for review. The LOS subcommittee chose specific parcels from this list that are also critical to furthering its goal of creating an open space linkage throughout the island.

This report summarizes the methods used by the Safe, Sustainable, Drinking Water Supply subcommittee to identify priority parcels for protecting surface water and the recommendations for conservation and preservation that resulted from the analysis.

Water Supply on Aquidneck Island

The Newport Water Department (NWD) maintains nine surface water reservoirs located in Little Compton (Watson Reservoir), in Tiverton (Nonquit Pond), and on Aquidneck Island (Lawton Valley Reservoir, St. Mary's Pond, Sisson Pond, Nelson Pond, Gardiner Pond, and North and South Easton reservoirs) (Map 1). This system supplies water to all of Newport, 70 percent of Middletown, and 67 percent of Portsmouth (under contract with the Portsmouth Water and Fire District). Private or community wells supply the rest.

[1] Land conservation includes both land protection and creation of active areas that are protected for a specific use, such as a trail system.

Water supply watersheds on Aquidneck Island contain substantial areas of developed and agricultural lands. Runoff from these areas can carry pollutants such as sediment, pesticides, and nutrients (nitrogen and phosphorus) from lawns and farmed lands, as well as metals, oil, and other toxic substances from roads and parking lots to the streams that deliver water to the system. Vegetated buffers—strips of undisturbed land adjacent to streams, lakes, or wetland areas—can serve as effective filters for this runoff. Establishment of vegetated buffers also provides other benefits such as wildlife habitat, recreational areas, visual diversity, and enhanced flood zone management. The Safe, Sustainable, Drinking Water Supply subcommittee determined that buffer areas along all the water supply streams are a high priority for conservation. Further analyses using Geographic Information Systems (GIS) mapping identified areas where existing patterns of development pose an additional threat to water quality. These areas are considered the highest priority for protection.

The subcommittee recognizes that the towns of Middletown and Portsmouth have watershed overlay districts in place, which require a 200-foot buffer around all water supplies. Since enforcement of the buffer overlay is difficult, the subcommittee recommends that conservation of these areas remains a priority.

Aquidneck Island Watersheds

Parcel Identification Process

1. Preferred Preservation Maps (PPM), developed by the AIP, and other GIS maps prepared by using MANAGE (see appendix) were analyzed to identify general areas of concern.

2. Critical areas were transferred onto plat maps to identify individual properties and their corresponding plat and lot numbers.

3. Parcels were prioritized. Information on sewer availability and land development potential was collected from town planners. Priority was given to parcels without sewer service as well as to those likely to be developed.

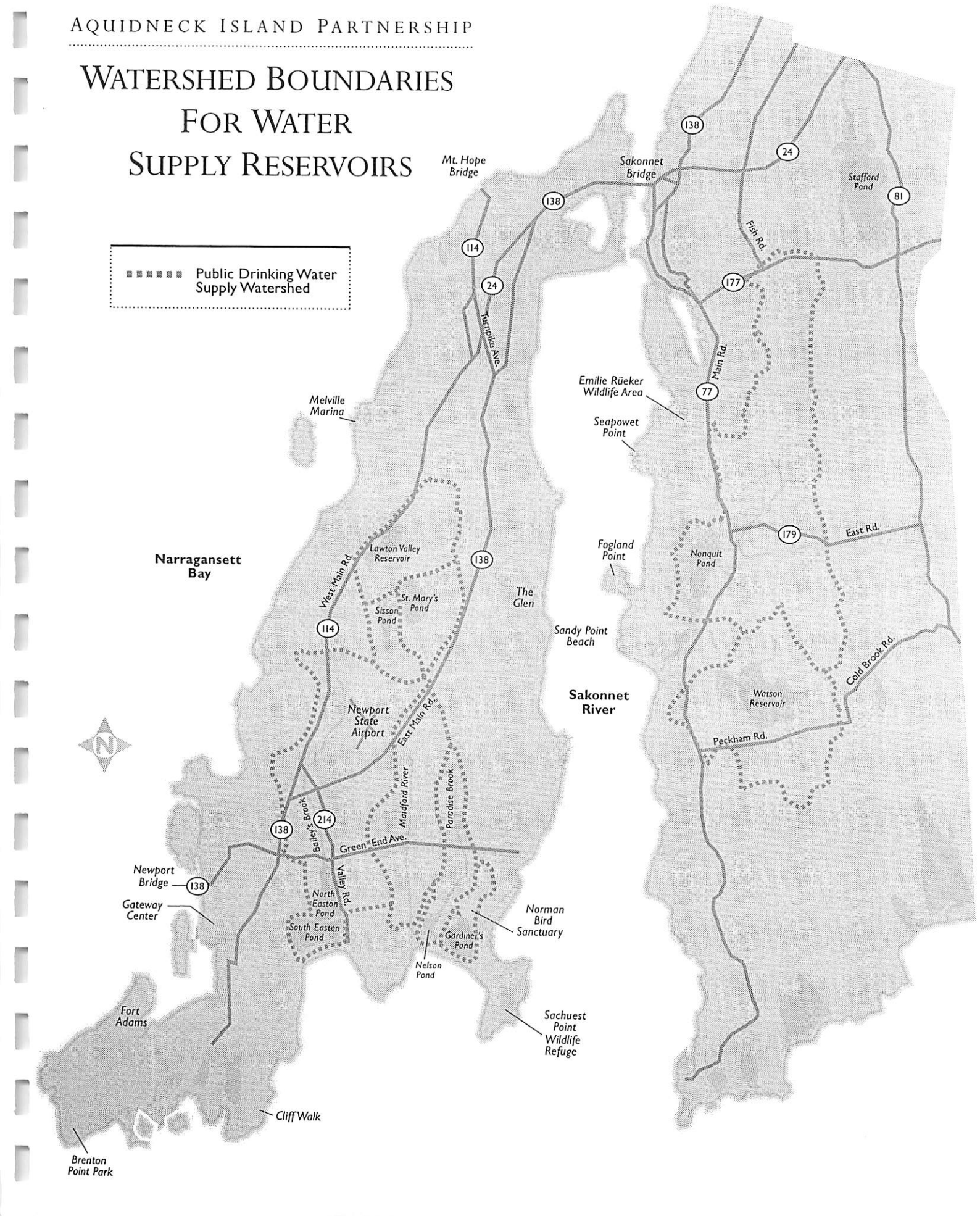
Conservation Recommendations

Nelson Pond Watershed

The GIS map analyses identified lands immediately adjacent to Paradise Brook and an area just north of Nelson Pond as critical for conservation. According to the maps, wetlands and soils with high water tables bound most of Paradise Brook. Residential and commercial development exists immediately adjacent to the stream.

AQUIDNECK ISLAND PARTNERSHIP

WATERSHED BOUNDARIES FOR WATER SUPPLY RESERVOIRS



Recommendations:

- *Protect at least a 200-foot buffer along the mid portion of the Paradise Brook.* Land use maps show residential and commercial development immediately adjacent to the brook. These areas are the highest priority for land conservation to assure the creation of vegetated buffers or stormwater treatment areas to filter runoff from developed lands.

- *Protect at least a 200-foot buffer along the upper portion of Paradise Brook.* Field investigations should be conducted to verify whether wetlands are present, how much protection they provide, and whether agriculture is occurring immediately adjacent to the brook (as indicated on the land use map). Land acquisition may not be necessary if wetlands are intact and acting as a buffer for runoff from agricultural land uses.

- *Protect at least a 300-foot buffer around Nelson Pond.* Land acquisition may be necessary where the NWD does not own the land and if local ordinances do not provide protection.

- *Consider the following parcels within the Nelson Pond Watershed as priority areas for conservation:*

Nelson Pond Watershed – Middletown			
Plat, Lot#	**# Acres**	**Sewage Disposal**	**Property Importance**
124 36	18.00	Septic	Provides buffer area along brook *Identified as critical for open space path*
124 38A	19.43	Septic	Buffer area along brook *Identified as critical for open space path*
124 38	19.13	Septic	Buffer area along brook *Identified as critical for open space path*
124 38B	12.30	Septic	Buffer area along brook
125 7	2.00	Septic	Small parcel providing critical buffer along creek *Identified as critical for open space path*
125 44A	5.36	Septic	Small parcel providing critical buffer along creek *Identified as critical for open space path*
125 71	3.65	Septic	Small parcel providing critical buffer along creek *Identified as critical for open space path*
125 149	2.41	Septic	Small parcel providing critical buffer along creek *Identified as critical for open space path*
125 83	4.37	Septic	Frontage portion facing road *Identified as critical for open space path*
126 51	3.83	Sewer	Includes both shores of creek making whole parcel critical *Identified as critical for open space path*
126 11	24.00	Sewer	Back, eastern portion of parcel
126 36A	23.10	NA	Parcel provides buffer around Nelson Pond continuing the protection provided by the Norman Bird Sanctuary

* These parcels were identified by the LOS subcommittee as being critical to further its goal of planning a trail system for the island. See attached appendix for more information on the trail system.

Maidford River Watershed

The GIS maps identify parcels adjacent to the river in the upper third and lower third of the Maidford River as critical for preservation. Wetlands abut the river along its upper reaches. Lands in the vicinity of the lower reaches of the watershed are characterized by medium density (1/4-acre to 1-acre lot sizes) and high density (< 1/4-acre lots) residential development, with little or no wetlands.

Recommendations:

- *Protect at least a 200-foot buffer along the lower half of the Maidford River.*
- *Evaluate impacts from the high-density development along Green End Avenue and road runoff along Paradise Avenue to determine if buffers are sufficient to treat pollution from land uses and runoff. Recommend installation of stormwater treatment as necessary.*
- *Protect a 200 foot buffer along the upper half of the Maidford River, preferably outside the wetland area.*
- *Consider the following parcels within the Maidford River Watershed as priority areas for conservation*:

Maidford River Watershed – Middletown			
Plat, Lot #	**# Acres**	**Sewage Disposal**	**Property Importance**
119 8	NA	Sewer	Critical buffer area along creek *Identified as critical for open space path*
119 34	11.10	Septic	Parcel provides buffer area along creek
119 34A	9.95	Septic	Buffer along stream and rear of lot *Identified as critical for open space path*
119 19	11.10	Septic	Conservation needed along river
120 68	14.30	Sewer	Conservation needed along river
120 70A	15.86	Sewer	Conservation needed along front of lot
120 65A	1.30	Sewer	Lot provides buffer for Maidford River
120 66	1.20	Sewer	Lot provides buffer for Maidford River
126 13	4.64	Sewer	Lot provides buffer for tributary connecting to Maidford River
126 17	11.76	Sewer	Lot provides buffer for tributary connecting to Maidford River

St. Mary's Pond, Sisson Pond, and Lawton Valley Reservoir

The GIS maps show critical areas on the eastern shore of St. Mary's Pond, in the southern portion of the Sisson Pond watershed, and along the southwestern and northeastern shores of the Lawton Valley Reservoir. Land use maps show areas of agriculture adjacent to St Mary's Pond (northern and southern shores) and Sisson Pond (southern shore).

Recommendations:

- *Evaluate the level of protection provided to the reservoirs within the Portsmouth Watershed Protection District.* These areas require only a 95-foot buffer around the reservoir.

- *Make the lands along the eastern shore of St. Mary's Pond the highest priority for conservation.* These lands are a priority for preservation because they contain agricultural land and residential development in close proximity to the shore.

- *Investigate the agricultural activities occurring on the southwestern shore of Sisson Pond.* This may be an area where buffers should be widened above the required 95 feet.

- *Consider the following parcels as priority areas for conservation*:

St. Mary's Watershed – Portsmouth			
Plat, Lot #	**# Acres**	**Sewage Disposal**	**Property Importance**
61 3	69.00	Septic	Buffer strip along edge of reservoir
57 18	17.91	Septic	3.8 acres in the southwest corner closest to reservoir are a priority
57 112	1.0	Septic	House with undeveloped portion

Sisson Pond Watershed – Middletown			
Plat, Lot #	**# Acres**	**Sewage Disposal**	**Property Importance**
117 3	21.21	Sewer	Conservation needed along shores of tributary stream
117 4	11.36	NA	Conservation needed along shores of tributary stream

Lawton Valley Watershed – Portsmouth			
Plat, Lot #	**# Acres**	**Sewage Disposal**	**Property Importance**
56 16	NA	Septic	Creates contiguous buffer between reservoir and country club
51 55A	NA	Septic	Creates contiguous buffer between reservoir and country club
51 264	5.40	Septic	Creates contiguous buffer between reservoir and country club
56 14	3.75	Septic	Parcel provides buffer for stream tributary to Lawton Valley Reservoir

Gardiner Pond Watershed

According to the GIS maps, most of the Gardiner Pond watershed is committed to recreation, conservation, and open space. Small parcels adjacent to the stream that surround the pond have been identified as critical. The GIS land use map shows wetland areas surrounding the southern end of the pond. Since wetlands filter runoff, this suggests that land protection is less critical there.

Recommendations:

- *Parcel acquisition in the Gardiner Pond Watershed is a lower priority than in other watershed areas.*

Bailey Brook Watershed

The Bailey Brook Watershed is highly developed and therefore needs remediation rather than acquisition.

Recommendations:

- *Encourage installation of stormwater remediation structures where stormwater from roads and other paved areas is channeled into the brook.*

Little Compton and Tiverton Watersheds

Parcel Identification Process

1. Critical land identification work centered on the Nonquit Watershed. Three parameters were used to identify critical lands in Little Compton and Tiverton:

   - ❖ Current agricultural use. Agricultural parcels are present in the southern end of the reservoir. Priority was given to parcels contiguous to the lake that are characterized by land uses that threaten water quality (e.g. intensive livestock).

   - ❖ Current commercial enterprises that pose a threat to water quality (garages, dumps, etc.). Parcels around the Tiverton Four Corners area were identified as priority because they area adjacent to Borden Brook, a reservoir tributary.

   - ❖ Lot size. Large parcels were selected because they have a higher threat of development.

2. Critical areas were transferred onto plat maps to identify individual properties and their corresponding plat and lot numbers.

Recommendations:

- ❖ *Consider the following parcels as priority areas for conservation*:

Parcels Bordering Nonquit Pond – Tiverton		
Plat, Lot #	**# Acres**	**Property Importance**
122 1	NA	Lot borders pond
122 3	29.00	Lot borders pond – currently in agricultural use
122 4A	12.68	Lot borders pond
120 38	31.50	Lot borders pond – currently in agricultural use
122 16	8.80	Lot borders pond – currently in agricultural use
122 15	9.20	Lot borders pond – currently in agricultural use
122 17	9.73	Lot borders pond – currently in agricultural use
122 17E	2.65	Lot borders pond
122 17F	2.80	Lot borders pond
122 17G	4.12	Lot borders pond
122 17D	2.58	Lot borders pond
122 21	8.50	Lot borders pond
122 19	34.40	Lot borders pond – currently in agricultural use
122 18	7.60	Lot borders pond

Parcels Bordering Borden Brook – Tiverton		
Plat, Lot #	**# Acres**	**Property Importance**
119 2	236.00	Parcel in upper watershed (Matta Farm)
119 6	32.00	Parcel in upper watershed–Conservation along Borden Brook is a priority
119 6B	17.82	Parcel in upper watershed–Conservation along Borden Brook is a priority
119 9	113.30	Conservation along Borden Brook is a priority
119 12	33.00	Conservation along Borden Brook is a priority
119 19	24.00	Conservation along Borden Brook is a priority

Parcels South of Tiverton Four Corners – Tiverton		
Plat, Lot #	**# Acres**	**Property Importance**
125 2	9.55	Agricultural use within watershed
125 7C	16.25	Near brook and in Nonquit watershed
125 20A	NA	In proximity to Nonquit Pond
125 20M	NA	In proximity to Nonquit Pond
125 20N	NA	In proximity to Nonquit Pond
124 2A	13.20	Large developable parcel in watershed
124 4	12.20	Agricultural use within watershed
124 5	31.00	Large developable parcel in watershed
124 6	114.00	Agricultural use within watershed
124 25	142.75	Large developable parcel in watershed
124 18	NA	Agricultural use within watershed
125 8	10.00	Conservation along Borden Brook is a priority
125 16A	12.50	Conservation along tributary stream is a priority
213 1B	35.60	Conservation along tributary stream is a priority
213 1A	14.00	Of less priority because it does not border tributary streams
125 24	63.66	Of less priority because it does not border tributary streams
125 27A	31.00	Small portion of lot borders tributary stream
125 28	67.00	Currently in agricultural use–Does not immediately border the pond or tributary streams
125 29	145.00	Currently in agricultural use–Does not immediately border the pond or tributary streams

Parcels Affecting Water Quality in Watson Pond – Little Compton		
Plat, Lot #	**# Acres**	**Property Importance**
22 1 1	77.30	Lot adjacent to NWD easement around Watson Reservoir
22 8 1	115.00	7.9 acres currently under easement on east end–possibility of further easements
22 15 1	41.10	Possible conservation on portion of lot around Watson Reservoir adjacent to NWD easement
27 3	9.60	Lot adjacent to NWD easement around Watson Reservoir

Appendix A:

Sources of Information

In selecting priority parcels, the water subcommittee used data from two sources: 1) analyses and GIS maps prepared for the Aquidneck Island Partnership Preferred Preservation Mapping Project (PPM) by Mapping and Planning Services and 2) preliminary GIS maps prepared by URI Cooperative Extension using the MANAGE methodology. The latter are used to analyze land use related threats to water supply watersheds.

The PPM was completed in 1998. The purpose of the PPM project is to provide Aquidneck Islanders with a tool to help them identify and prioritize important land preservation areas on Aquidneck Island. Six maps, representing surface water, farmland, coastal, recreation, cultural/historical, and biodiversity themes were created using GIS technology.

The evaluation criteria for the Surface Water Resources map were developed in accordance with the Water Quality Protection Plan for City of Newport (December 1989), Aquidneck 2000 Water Quality Management Report (September 1991), Town of Portsmouth Comprehensive Community Plan (September 1992), and other conservation area projects. The primary goal is to preserve water quality and protect water supply watersheds. The seven data layers used as the evaluation criteria are:

- 300-foot buffers around the seven surface water reservoirs
- 200-foot buffers along all streams and tributaries within the watersheds
- Soils with 0' to 3' depth to water table (from RIGIS/SCS Soils, 1988)
- Soils with slope with greater than 8 percent (from RIGIS/SCS Soils, 1988)
- All freshwater wetlands (from RIGIS/RIDEM, 1988)
- Vegetated wetlands and naturally vegetated areas (from RIGIS/RIDEM Wetlands, 1998 and AIGIS Land Use/Cover, 1997), and
- Areas within/outside Bailey Brook watershed.

The results are categorized and mapped as follows: Important – presence of one or two criteria; Very Important – presence of three or four criteria; Critical – presence of five or more criteria.

MANAGE is a watershed risk-assessment tool using computer-generated maps to evaluate pollution risks of land use and landscape features. Designed as a decision support system, MANAGE generates site-specific information needed to support local land management actions. The following preliminary GIS maps for Aquidneck Island, Little Compton, and Tiverton were used to identify areas where current land use adjacent to surface drainage pose potential threats to the water supply:

- High intensity land use on high water table soils with extended drainage network and wetlands
- High intensity land use (1995) on high water table soils
- Soil hydrologic group and water table depth

Appendix B:

A Proposed Linked Open Space Trail System for Aquidneck Island

Participants in the AIP Land Conservation Strategy propose to develop an open space trail that will allow public access throughout protected areas on the island. The LOS subcommittee has named priority areas for conservation so that access is allowed in certain locations, as identified in this report.

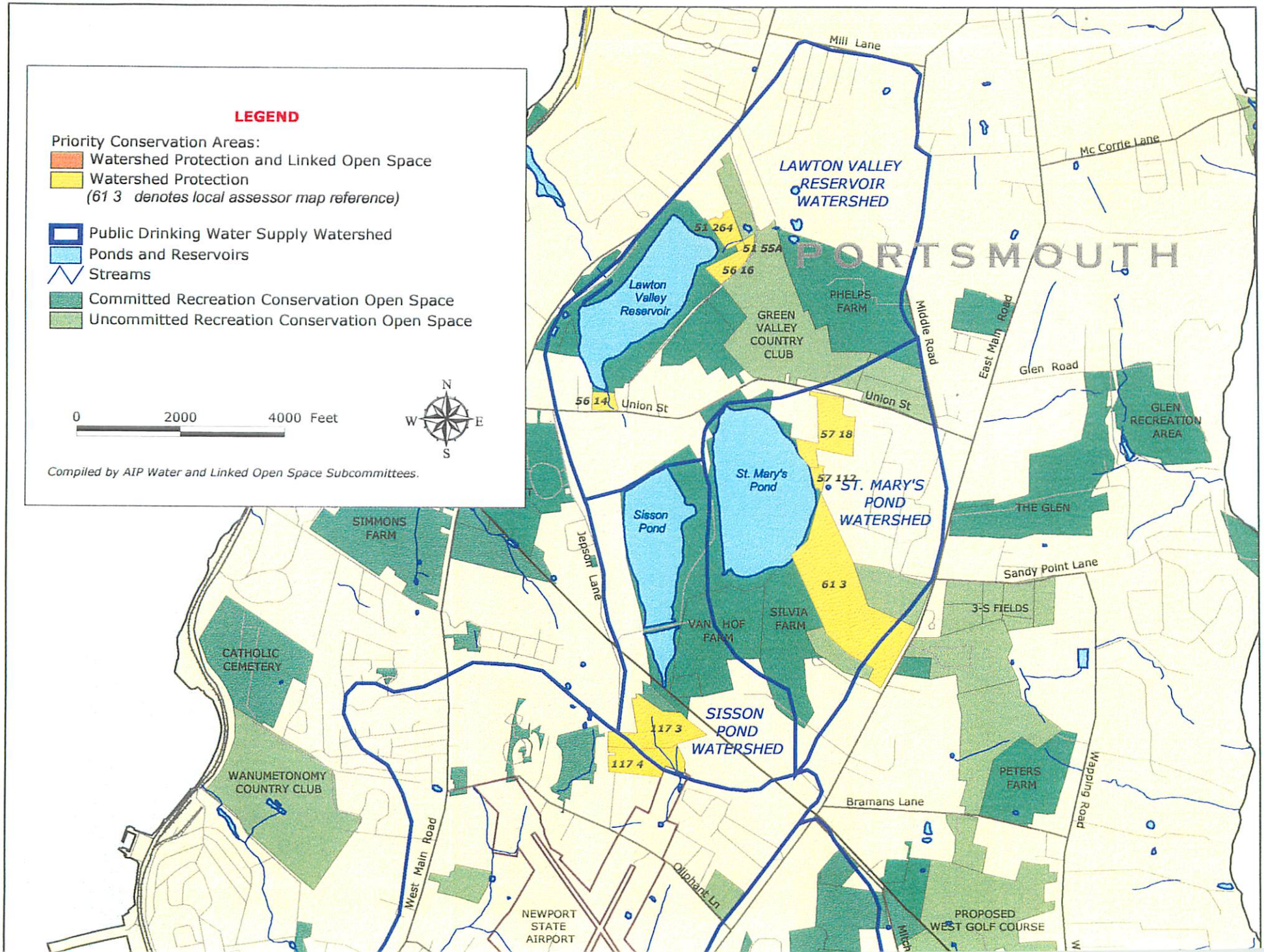
The trail concept had originated over 10 years ago, but with the recent surge of development, islanders are becoming increasingly concerned about the loss of critical open spaces. Unmanaged development has already fragmented open spaces, thus restricting public access, separating wildlife corridors, and eliminating beautiful landscapes.

The trail is envisioned to provide environmental, social, and economic benefits for islanders. The proposed trail system would allow the public to access their favorite spots or explore new ones by non-motorized forms of travel, including walking, hiking, horseback riding, and biking. A goal is to link all major paths and points of interest throughout the island. The trail would wind through scenic vistas, watershed areas, farmland, and urban areas.

Planning has begun for the first segment of the trail that will cross between The Glen and Braman Lane in Portsmouth.

The following are the major steps involved in creating the trail:

- Construct an island-wide greenway system that links existing open space, protects critical resources, and provides opportunities for recreation, agriculture, and wildlife.
- Take remediation measures, such as easements, footbridges, or pedestrian crosswalks for these locations. Some locations are easily accessible by foot or bike; other locations are either too dangerous or impossible to cross.
- Work with municipalities and developers to apply creative development techniques, which support the linking of open space.
- Identify and promote creative funding strategies within communities to support the preservation and linkage of open space.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Priority Conservation Areas:
Watershed Protection and Linked Open Space
Watershed Protection
(61 3 denotes local assessor map reference)
Public Drinking Water Supply Watershed
Ponds and Reservoirs
Streams
Committed Recreation Conservation Open Space
Uncommitted Recreation Conservation Open Space
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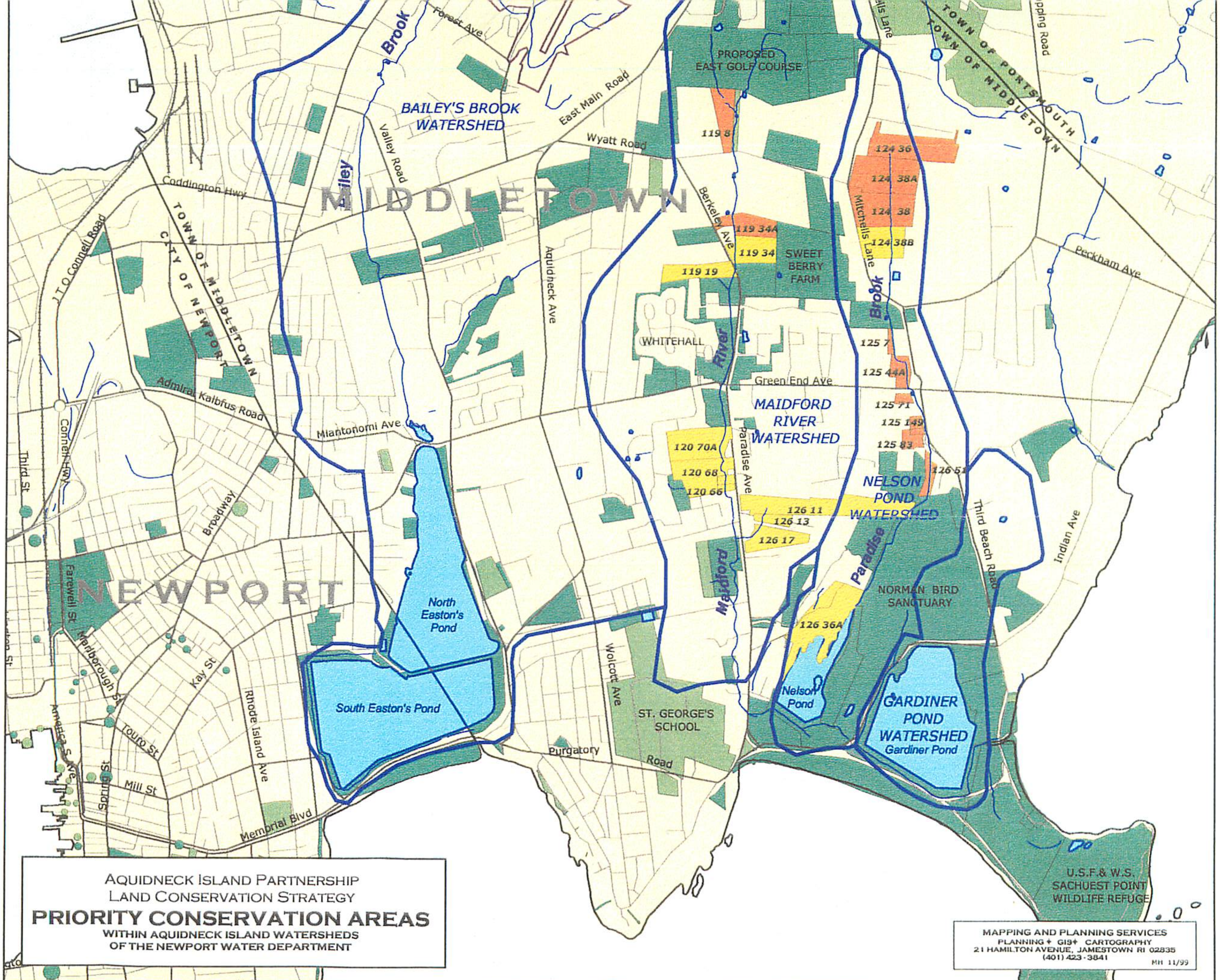
W
E
S
Compiled by AIP Water and Linked Open Space Subcommittees.
Mill Lane
Mc Corrie Lane
LAWTON VALLEY RESERVOIR WATERSHED
PORTSMOUTH
51 264
51 55A
56 16
Lawton Valley Reservoir
GREEN VALLEY COUNTRY CLUB
PHELPS FARM
Middle Road
East Main Road
Glen Road
56 14
Union St
Union St
57 18
GLEN RECREATION AREA
St. Mary's Pond
57 112
ST. MARY'S POND WATERSHED
Sisson Pond
THE GLEN
SIMMONS FARM
Jepson Lane
Sandy Point Lane
61 3
3-S FIELDS
VAN HOF FARM
SILVIA FARM
CATHOLIC CEMETERY
SISSON POND WATERSHED
117 3
117 4
PETERS FARM
Wapping Road
WANUMETONOMY COUNTRY CLUB
West Main Road
Bramans Lane
Oliphant Ln
NEWPORT STATE AIRPORT
PROPOSED WEST GOLF COURSE



AQUIDNECK ISLAND PARTNERSHIP
LAND CONSERVATION STRATEGY

PRIORITY CONSERVATION AREAS

WITHIN AQUIDNECK ISLAND WATERSHEDS OF THE NEWPORT WATER DEPARTMENT

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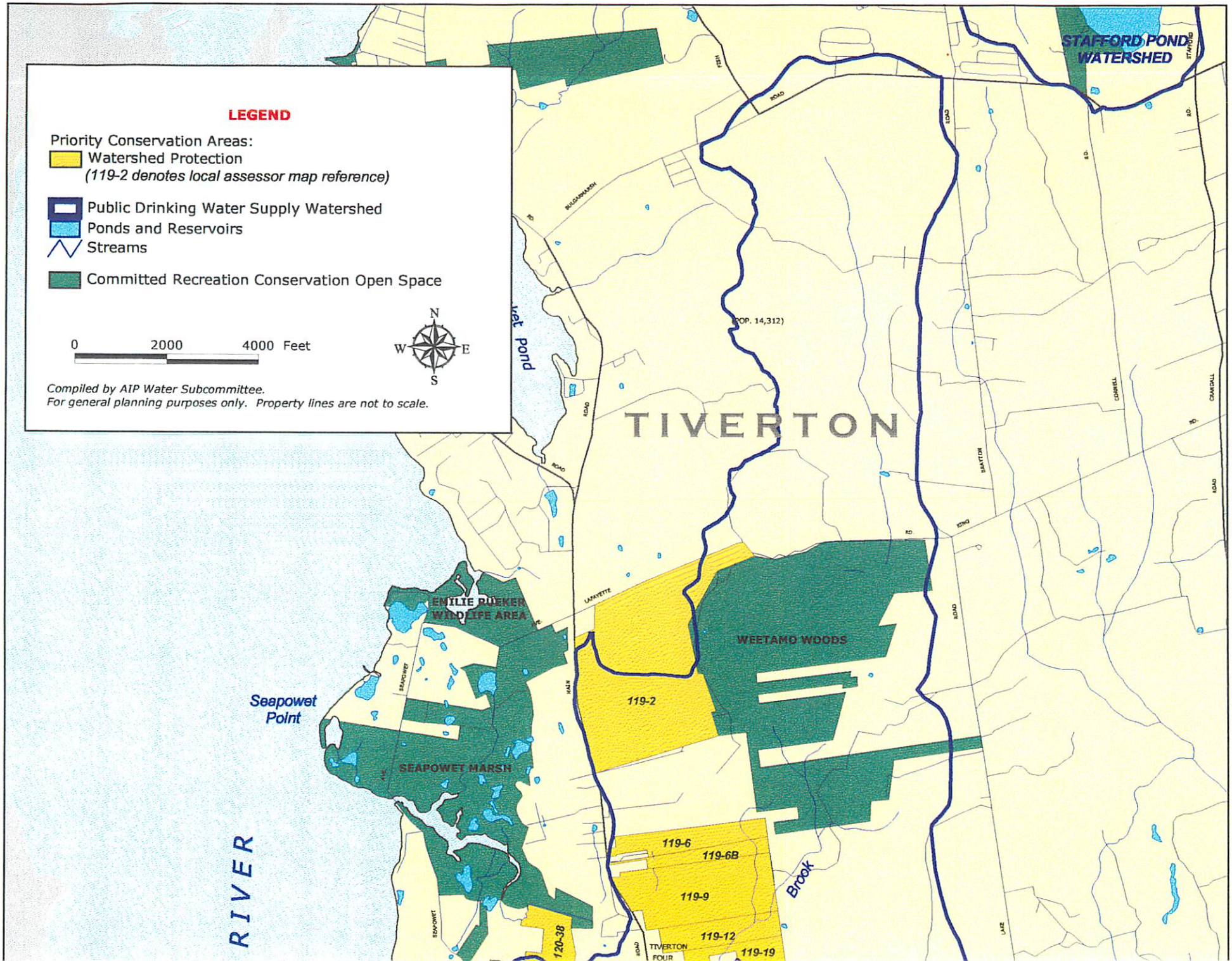
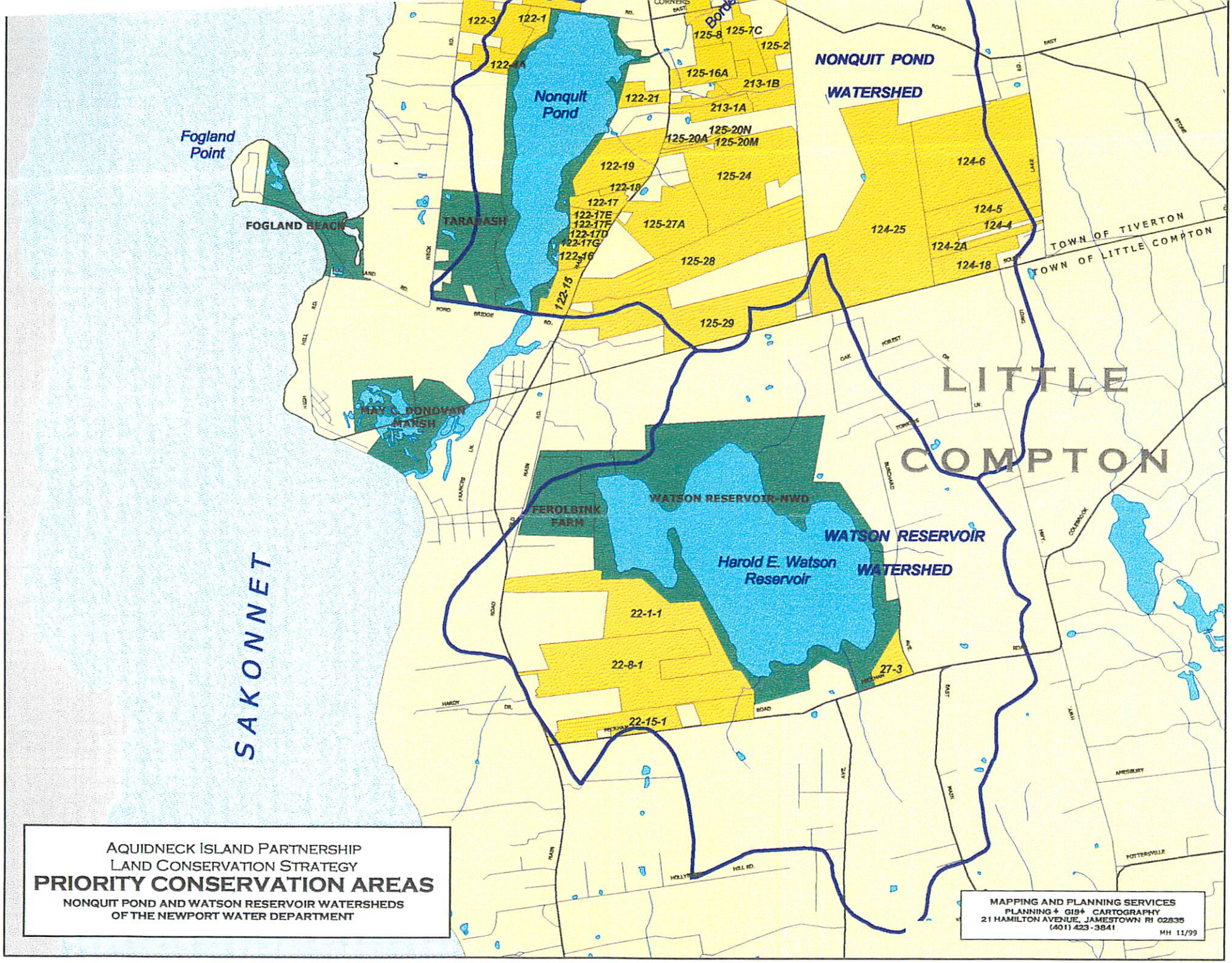

LEGEND
Priority Conservation Areas:
Watershed Protection
(119-2 denotes local assessor map reference)
Public Drinking Water Supply Watershed
Ponds and Reservoirs
Streams
Committed Recreation Conservation Open Space
0 2000 4000 Feet
N
W E
S
Compiled by AIP Water Subcommittee.
For general planning purposes only. Property lines are not to scale.
STAFFORD POND WATERSHED
TIVERTON
(POP. 14,312)
EMILIE RUECKER WILDLIFE AREA
WEETAMO WOODS
Seapowet Point
SEAPOWET MARSH
119-2
119-6
119-6B
119-9
119-12
119-19
120-38
TIVERTON FOUR
RIVER
Brook



AQUIDNECK ISLAND PARTNERSHIP
LAND CONSERVATION STRATEGY

PRIORITY CONSERVATION AREAS

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