STATE GOAL

To protect the quality and manage the quantity of the State's water resources, including lakes, aquifers, great ponds, estuaries, rivers and coastal areas.

To protect the State's other critical natural resources, including without limitation, wetlands, wildlife and fisheries habitat, sand dunes, shorelands, scenic vistas and unique natural areas.

To protect the State's marine resources industry, ports and harbors from incompatible development to promote access to the shore for commercial fisherman and the public.

To safeguard the State's agricultural and forest resources from development which threatens those resources.

INTRODUCTION

Natural resources information is useful in identifying opportunities and constraints for development and for protecting environmentally sensitive areas. Clifton is a typical rural Maine town and the natural resources contribute greatly to the quality of life. Water pollution, high cost and maintenance of public services, and the destruction of existing wildlife and scenic values are just a few of the existing ways that a community ends up paying for improper land use; therefore, it is extremely important to identify and protect these areas.

Natural resources include the topography, land cover, and wildlife of Clifton. Land cover includes water resources, wetlands, soils, and unique natural areas. Natural resources information is useful in identifying opportunities and constraints for development and needs for protecting sensitive areas.

THE NATURAL RESOURCES PROTECTION ACT

The Natural Resources Protection Act (NRPA) establishes a permit review process designed to provide protection of natural resources of statewide importance. The Act applies to the following protected natural resources: coastal wetlands and sand dunes; freshwater wetlands; great ponds; rivers, streams and brooks; fragile mountain areas, and significant wildlife habitat. The NRPA recognizes the State significance of these natural resources in terms of their recreational, historical, and environmental value to present and future generations. The NRPA's intent is to prevent any unreasonable impact to, degradation of or destruction of the resources and to encourage their protection or enhancement.

GEOGRAPHIC LOCATION

The Town of Clifton is relatively small, approximately 21,800 acres. A majority of Clifton's landmass consists of undeveloped natural areas, water bodies, streams and related wetlands.

Clifton is bounded by Eddington on the west, and Amherst and Mariaville on the east. Bradley borders the town on the north and Dedham and Otis form the southern boundary.

TOPOGRAPHY

The landscape of Clifton is hilly with elevations between 140 and 1,152 feet above sea level. The lowest elevations (less than 280 feet) are in the north-northeastern portion of the town near Chemo Pond, and account for approximately one third of the Town's area. The highest point, Peaked Mountain, is located on the eastern border with Amherst. Most elevations above 700 feet are located along the Town's southern and eastern borders. These same areas contain many slopes of 15 % or more, making a large portion of this section of town less desirable for development. Table E-1 shows the maximum elevation of the major peaks in Clifton. A map showing Clifton's topography can be found in Section D (Map D-2).

Table E-1

TOWN OF CLIFTON
MAXIMUM ELEVATION OF MAJOR PEAKS

Mountain	Elevation	Location
Woodchuck Hill	834	SW
Pisgah Mountain	791	S
Eagle Bluff	700	E
Parks Pond Bluff	660	E
Little Peaked Mountain	900	E
Peaked Mountain	1,152	E

Source: United States Geological Survey Topo Maps

SOILS

Soils influence a community in many ways. They impact the viability of agriculture, forestry, and other natural resource industries. They are a factor in determining wildlife habitats and influence the type of development, which can take place. The various soil characteristics present several different limitations to development, which can often be overcome through special design, construction, and planning.

The United States Department of Agriculture (USDA) Soil and Water Conservation District (SWCD) has prepared soil classification maps by county for the State of Maine. Land suitability analysis or soil surveys can be used to produce maps depicting the appropriateness of land areas to various land uses. The survey consists of an inventory, description, and evaluation of the soils within each county. The survey classifies all soils within a county into soil series. The classification is based on characteristics of the soil, including texture (percentage of sand, silt, clay), permeability, slope, wetness, and so on. The Clifton portion of the Penobscot County soil survey map and interpretations of the soil survey can provide information on potential ratings reflecting the potential use rather than the limitations of use (Appendix A).

Several soil characteristics can present challenges to land development, including shallow depth to bedrock, shallow depth to water table, flooding potential, and high erosion potential. Consequences from improper development in these soil conditions can include damage to personal property resulting from erosion and flooding, contamination of groundwater from septic systems, and adverse impacts to surface water quality from sedimentation. Soils with a fluctuating water table and frost heaving, for example, may damage roads and buildings that are constructed in an area where those soils are present.

Poorly drained soils have less than 7" to water table and usually place severe limitations on land development. Somewhat poorly drained soils have 7" to 16" to water table. Moderately well drained soils have 16" to 40" to water table and have moderate limitations to development, while well-drained soils with over 40" to water table have few, if any, limitations.

There are five soil associations located within the Town of Clifton as shown on map E-1. Soil associations consist of a few major soils and several minor soils, in a pattern that is characteristic although not strictly uniform. The soils within any one association are likely to differ greatly among themselves in some properties; for example, slope, depth, stoniness, or natural drainage. Thus the soil associations do not show the specific type of soil at any particular place, but rather several patterns of soils. Clifton's sculpted post-glacial landscape is clearly reflected in its predominant soil associations.

The Dixfield-Marlow-Colonel soil association covers a large portion of Clifton. This soil association occurs in areas of dense, poorly-drained to well-drained glacial till with a substantial depth to bedrock, and is typically found on drumlins and till ridges.

The Hermon-Brayton-Monadnock soil association is the second most common soil type in Clifton and is associated with most of the town's higher elevations. This soil association also occurs in dense, deep glacial till and typically forms along the sides and base of glaciated slopes.

The Colonel-Dixfield-Brayton soil association is located in the northern diagonal corner of Clifton, in the vicinity of Great Works Stream and Intervale Brook. This association forms in deep and compacted glacial till on glaciated uplands.

The Vassalboro-Sebago-Cathro soil association is located along the middle of the northern diagonal border with Bradley. This soil association is a very deep, poorly drained organic soil (peat) found in bogs, swamps, and kettleholes.

The Colton-Adams-Lamoine soil association surrounds Springy Pond at the southern border of Clifton with Otis. This soil association is a very deep silt-sand outwash soil, typically found along eskers and glaciated terraces.

With the exception of the peat deposits along Chemo Pond near the Bradley border, the soil associations found in Clifton do not in themselves present major roadblocks to development.

Frost heave is very common in dense glacial tills, but there are standard construction techniques for road building and structural foundations that tend to reduce or eliminate the problem.

STEEP SLOPES

Slope is one of the most noticeable of soil properties. It is a major component of the landscape and is one of the most significant soil properties governing land use. Most land use and development takes place on the less sloping areas, areas with slopes of less than 15 percent (representing an average drop of 15 feet or more in 100 feet horizontal distance). On steep slopes, areas with slopes of 15 percent or more, soils present problems for buildings, roads, and septic systems. The costs of engineering foundations and installing septic or sewer and other utility systems increase.

The Steep Slopes Map (MapE-2) provides some readily available information on the location of steep slopes in Clifton. Slopes of greater than 15% grade preclude extensive development because of problems with erosion, runoff, and construction limitations such as allowable road grades, suitability for septic sewage disposal, and stability of foundations. Steep slopes (15 percent or more) are found throughout the entire town and will be a significant factor in limiting development. These areas are often associated with elevations greater than or equal to 700 feet which occupy much of the southern half and eastern border of Clifton. Permits for building on properties with slopes between 15% and 20% should be issued after ensuring that proper measures have been or will be taken to address issues of water run-off.

HIGHLY ERODIBLE SOILS

The removal of surface vegetation from large areas of land results in erosion, which is a major contributor of pollution to lakes and ponds. Highly erodible soils are those soils that have a potential to erode more rapidly than what is considered a tolerable loss. Rainfall and runoff, susceptibility to erosion, and the combined effects of slope length and steepness are taken into consideration when identifying highly erodible soils. Highly erodible soil has a potential that would cause a considerable decline in long-term productivity of that soil, as well as possible negative effects on water quality. A listing of highly erodible soils is located on page 17 of the Soil Survey Data for Growth Management in Penobscot County, Maine in Appendix A.

FORESTS

The forests of Maine are mostly third- and fourth- generation stands that resulted from cutting original trees. Forested lands supply job opportunities while also harboring a diverse array of wildlife. Many forested areas are critical links in the survival of important land and aquatic species. And for generations, Mainers have pursued recreational opportunities and sought solitude in privately owned, yet quasi-public woodlands.

Wood harvesting was important to Clifton's early economy. R. Leon Williams Lumber Mill is the present heirs to a legacy of many sawmills dating from as early as the 1840s. Williams specializes in white pine lumber. Some of the items manufactured in the Town in the past were shingles, laths, clapboards, blueberry boxes, cue sticks and trays. In addition to the mill, many residents either make their living or supplement their income by harvesting trees. Forest resources are a significant part of Clifton's identity as a community.

The State Forest Practices Act regulates timber harvesting activities throughout the State. Working forests are protected and maintained through tax incentives to owners of lands that meet the appropriate definitions. However, forest resources adjacent to residential development should be provided with additional timber harvesting standards, in order to preserve the residential character of the area. Map E-3 shows Clifton's forest cover.

TREE GROWTH TAX LAW

The Town of Clifton's Tax Assessor reports 64 parcels of land listed under the Tree Growth Tax Law in 2002. These parcels contain a total of 13,269 acres: Softwood, 3,360 acres, Hardwood, 4,901 acres and Mixed Wood, 5,007 acres. This represents only 9% of the total parcels, but over 60% of the total acreage in the town. These lands are not available for development, but they do contribute to Clifton's tax income as directed by the State of Maine. However, in a sense they enhance the wild and scenic beauty of the town. Wherever possible, town officials should work with cooperative landowners to establish and maintain quasi-public trail systems over these private lands. This would greatly enhance Clifton's attractiveness as an outdoor recreation destination close to Bangor.

AGRICULTURE

The land in Clifton is not well suited for high-yield agriculture, being primarily a dense glacial till filled with rock sizes ranging from cobbles to huge boulders. Many people have family garden plots and some keep a few hens or other livestock, but the only commercial-scale agricultural activities are blueberry barrens and a nursery/greenhouse specializing in perennial plants and wholesale organic vegetables.

While some landowners maintain large open fields, they are not currently being harvested for hay. In the past, some Clifton residents have maintained orchards and kept small fruit stands. The future land use plan should include the blueberry barrens in a district with restrictions on development. Where agricultural activities exist within residential districts, performance standards should be proposed to protect the residential character of the district and provisions should be included to preserve the agricultural land.

WATER RESOURCES

Water resources include surface water bodies (lakes, ponds, brooks, streams) and known sand and gravel aquifers (groundwater). These resources are illustrated on the Aquifers, Watersheds and Wetlands Map E-4. The Town's water resources are protected by the

Clifton Shoreland Zoning Ordinance. First adopted in 1992 and amended in 1998 and 2004, the Ordinance is still awaiting full approval from the State Department of Environmental Protection. The 1998 conditionally approved map is included here as Map E-4a. At this writing, the Planning Board is working on an updated map. A thorough review of the Ordinance and map needs to be done as soon as possible. Appropriate action needs to be taken to acquire full DEP approval. Table E-2 shows the current zone types and their locations.

Table E-2

TOWN OF CLIFTON
LOCATION AND ZONING OF SHORELAND

NAME	WATERSHED MUNICPALITIES	LOCATION	ZONE TYPE
Chemo Pond	Clifton, Bradley, Eddington	Northwest corner	LR, RP
Parks Pond	Clifton	Central/South of Rte. 9	LR,LC, RP
Hopkins Pond	Clifton, Amherst, Mariaville	Southeast corner	LR,RP
Cranberry Pond	Clifton	Central/E of Rte. 180	LR,RP
Cedar Swamp Pond	Clifton	Central/E of Rte.180	LR
Springy Ponds (Upper, Middle, Lower)	Clifton, Otis	South central/ West of Rte. 180	LR,RP
Burnt Pond	Clifton, Dedham, Otis	Southwest border	LR
Little Burnt Pond	Clifton	Southwest border	LR,RP
Fitts Pond	Clifton, Dedham, Eddington	Southwest border	LR,RP
Snowshoe Pond	Clifton	Southwest	LR
Snowshoe Pond Brook	Clifton	Southwest	SP
Fitts Pond Brook	Clifton	Southwest	SP
Woodchuck Hill Brook	Clifton	Southwest	SP
Plank Bridge Brook	Clifton	Southwest	SP
Sibley Brook	Clifton	Central	SP
Parks Pond Brook	Clifton	North	SP
Mud Pond Brook	Clifton	North of Rte. 9	SP
Otter Creek Brook	Clifton	North of Rte. 9	SP
Bradbury Brook	Clifton	North of Rte. 9	SP
Chick Hill Stream	Clifton	North of Rte. 9	SP
Goodwin Brook	Clifton	North of Rte. 9	SP
Intervale Brook	Clifton	North of Rte. 9	SP
Great Works Stream	Clifton	North of Rte. 9	SP
Saddleback Brook	Clifton	North of Rte. 9	SP
Little Burnt to Burnt Pd. Bk.	Clifton	South	SP
Floods Pond Brook	Clifton	South	SP
Sucker Brook	Clifton	South	SP
East Dunn Brook	Clifton	South	SP
Upper Springy Pond Brook	Clifton	South	SP
Dumb Brook	Clifton	Southeast	SP
Smart Brook	Clifton	Southeast	SP
Cedar Swamp Brook	Clifton	Central	SP
Cranberry Pond Brook	Clifton	Central	SP

Source: Town of Clifton Shoreland Zoning Ordinance

Zone Types: Resource Protection (RP) Limited Residential (LR) Limited Commercial (LC) Stream Protection (SP)

WATER QUALITY CLASSIFICATION

The State has four classes for freshwater rivers, three classes for marine and estuarine waters, and one class for lakes and ponds. A close comparison of the standards will show that there is actually not much difference between the uses or the qualities of the various classes. All attain the minimum fishable-swimmable standards established in the Federal Clean Water Act. Most support the same set of designated uses with some modest variations in their descriptions.

The classification system should be viewed as a hierarchy of risk, more than one of use or quality, the risk being the possibility of breakdown of the ecosystem and the loss of use due to either natural or human-caused events. Ecosystems that are more natural in their structure and function can be expected to be more resilient to a new stress and show more rapid recovery. Classes AA, GPA, and SA involve little risk since activities such as waste discharge and impoundment are prohibited. The expectation to achieve natural conditions is high and degradation is unlikely. Class A waters allow impoundments and very restricted discharges, so the risk of degradation while quite small, does increase since there is some small human intervention in the maintenance of the ecosystem. Classes B and SB have fewer restrictions on activities but still maintain high water quality criteria. Classes C and SC waters are still good quality, but the margin for error before significant degradation might occur in these waters in the event of an additional stress being introduced, (such as a spill or a drought) is the least.

The reclassification of waters of the State is governed by Title 38 Sections 464(2), 464(2-A) and 464(3). This statute requires the Department of Environmental Protection to conduct water quality studies, and the Board of Environmental Protection to hold hearings and propose changes to the water classification system to the Legislature for final approval. This is to be conducted from time to time, but at least every three years. The last reclassification resulting in changes enacted in 1999. Map E-5 shows Clifton's rivers and streams are all classified as Class A or Class B.

WATER QUALITY MONITORING REPORT

The Department of Environmental Protection (DEP) provides monitoring reports for variables most often used to measure the water quality of Maine's lakes and ponds. These variables are monitored by volunteers in the Volunteer Lake Monitoring Program and staff from DEP.

Total phosphorus is one of the major nutrients needed for plant growth. It is generally present in small amounts and limits the plant growth in lakes. It is measured in parts per billion (ppb). As phosphorus increases, the amount of algae also increases. Total Phosphorus varies from 1 ppb to 110 ppb with the average being 14 ppb.

Secchi Disk transparency is a measure of the water clarity, or transparency of the lake. All Secchi Disk readings are in meters. Factors which reduce clarity are algae, zooplankton,

water color and silt. Since algae are the most abundant item, measuring transparency indirectly measures the algal productivity. Secchi disk readings can be used to track change in water quality over time. Transparency values in Maine vary from .04 meters to 20.0 meters, with the average being 4.9 meters. Unless a lake is highly colored (high concentration of natural dissolved organic acids such as tannins and lignins, which give water a tea color) , a transparency of 2 meters or less indicates a water quality problem that has resulted in an algal bloom. In Maine, the mean secchi disk readings are related to algal productivity using the following guidelines: Productive – 4 meters or less; Moderately Productive – 4-7 meters; Unproductive 7 meters or greater.

Trophic State Index (TSI) is a scale which ranks lakes from 0 to 100+ being very productive. TSI can be calculated from the Secchi disk, Chl a or total phosphorus results. TSI for a year is only calculated when there are at least five months of data. Lakes with TSI values greater than 60 may support blooms (less than 2 meters Secchi disk reading). Lakes with TSI values over 100 indicate extreme productivity and annual algae blooms. TSI values can be used to compare lakes with similar water color and track water quality trends within a lake.

WATERSHEDS

The watershed is defined as a geographic region within which water drains into a particular river, stream or body of water and includes hills, lowlands, and the body of water into which the land drains. Approximately 50% of the land area in the State of Maine is located in a lake watershed.

All waters are connected; pollution to one source will affect another within a watershed. It is important to remember that everything occurring in a watershed and everything that can be transported by water will eventually reach and impact the water quality of a water body. In other words, these activities may disturb the watershed. The disturbed and developed land contributes pollutants and other substances to a lake. Therefore, lake water quality is degraded. Activity anywhere in a watershed, even several miles away, has the potential to impact lake water quality.

Because Clifton has within its boundaries 23 brooks and 11 Great Ponds, it is possible to delineate 28 watersheds or drainage areas within the town as shown on Map E-4. Note that there is a major drainage divide bisecting the town. All surface water north of the divide flows north and west toward the Penobscot River, while all surface water south of the divide flows south and east toward the Union River. Of the eleven ponds, over half (Parks, Cranberry, Cedar Swamp, Little Burnt, Snowshoe, and Upper/Middle Springy) have their entire direct watersheds within the boundaries of Clifton. The remaining pond watersheds are shared with the municipalities bordering Clifton.

LAKES AND PONDS

Table E-3

TOWN OF CLIFTON
WATER QUALITY

WATER BODY	WATER QUALITY
Burnt Pond	Good
Little Burnt Pond	Moderate/Sensitive
Cedar Swamp Pond	Moderate/Sensitive
Chemo Pond	Moderate/Stable
Cranberry Pond	Moderate/Sensitive
Fitts Pond	Good
Hopkins Pond	Moderate/Stable
Springy Ponds (Upper/Middle and Lower)	Moderate/Sensitive
Parks Pond	Moderate/Stable
Snowshoe Pond	Moderate/Sensitive

Source: Department of Environmental Protection

Among Maine's most significant natural resources are its lakes and ponds. Fisheries, wildlife, recreation, scenic views and water supply are all benefits that the citizens of Maine and its visitors derive from the 5,779 lakes and ponds here. Development activities, such as house and road construction, timber harvesting and agricultural practices, disturb the land that is drained to a lake by streams and ground water (the watershed). Map E-4 shows the water resources in Clifton.

Burnt Pond

Burnt Pond has an area of approximately 316 acres, an elevation of 320 feet and a maximum depth of 27 feet. Secchi disk readings estimate an average of 6 ppb for total phosphorus; with minimum average Secchi disk readings of 5.4 meters and maximum average Secchi readings of 7.5. The average trophic state index is 36. More detailed information about interpreting Secchi disk data can be found under Water Quality Monitoring Report section of this plan on page E-7. Although most recent data is from 1990, so the status of the Pond may have changed in that time, available data indicates that Burnt Pond has clarity that indicates algal blooms are moderately productive to unproductive.

Chemo Pond

Chemo Pond has an area of approximately 1,146 acres, an elevation of 126 feet and a maximum depth of 24 feet. Chemo Pond is a shallow warm water pond that should be managed for the bass, white perch, and pickerel fishing. Different fish species that can be found in Chemo Pond include brook trout, smallmouth bass, white perch, yellow perch, chain pickerel, hornpout, eel, white sucker, minnows and sunfish. The production of bass food is high and suitable spawning areas are present. Occasional trout are reported to be taken. No stocking of any kind is recommended by Penobscot County USGS. Secchi Data summary

for Chemo Pond indicates that historically (from 1984-1995) readings estimate an average of 25 ppb for total phosphorus; with minimum average Secchi disk readings of 2.5 meters and maximum average Secchi readings of 4.1. More detailed information about Secchi disk data can be found under Water Quality Monitoring Report section of this plan on page E-7. Although most recent data is from eight years ago, so the status of the Pond may have changed in that time, available data indicates that Chemo Pond has clarity that indicates algal blooms are productive to moderately productive.

Fitts Pond

Fitts Pond has an area of approximately 106 acres, an elevation of 320 feet and a maximum depth of 64 feet. Fitts Pond is a small, deep, oligotrophic lake, which lies at the base of Blackcap Mountain in Clifton. Access to the Pond is via the road to the Katahdin Area Boy Scout Camp on the western shore. Although chain pickerel are present in the Pond, they are small and habitat for them is limited. Other fish species found in the Pond include splake, smelt, eel, minnows, ninespine stickleback, pumpkinseed sunfish and redbreast sunfish. This pond supports a principal fishery for splake which are stocked each spring. Restrictive regulations are in effect to take advantage of the ponds potential to grow larger then average splake. Anglers have caught some 3 to 3 1/2 lb fish. Pickerel, most of which are small, are scarce due to lack of suitable habitat. The pond receives moderate use in the winter and spring. The outlet drains into Chemo Pond, and a few splake, which periodically drop down out of Fitts Pond, may be caught in the stream or Chemo Pond.

Parks Pond

Parks Pond has an area of approximately 124 acres, an elevation of 257 feet and a maximum depth of 28 feet. Water quality testing has have shown an historical average of 8 ppb for total phosphorus; with minimum average Secchi disk readings of 3.4 meters and maximum average Secchi readings of 6.4. The average trophic state index is 51. More detailed information about interpreting Secchi disk data can be found under Water Quality Monitoring Report section of this report on page E-7. Available data indicates that Parks Pond has clarity that indicates algal blooms are productive to moderately productive.

In addition to those Ponds listed above, Clifton has several other ponds as mentioned in the table below.

Table E-4

TOWN OF CLIFTON
LAKE AND POND RECREATIONAL RESOURCE

Name	Elevation	Acres	Max. Depth	Splake	Brook Trout	Lake Trout	Smelt	Small-mouth Bass	White Perch	Pickerel	Public Boat Launch	Private Boat Launch
Burnt Pond	320+	316	27		X							
Chemo Pond	126	1,146	24					X	X	X		X
Fitts Pond	318	106	64	X			X			X		X
Hopkins Pond	361	442	65		X	X	X					
Little Burnt Pond	378	15	3									
Lower Springy Pond	277	114	44	X	X		X		X	X		X
Parks Pond	257	124	28					X	X	X		X
Cedar Swamp Pond	310+											
Cranberry Pond	340											
Snowshoe Pond	367											
Upper & Middle Springy Pond	277											

Source: Inland Fisheries and Wildlife (1973 & older surveys) and DeLorme Mapping Co.

FLOODPLAINS

The primary function of flood plains is to accommodate floodwater. A floodplain may also absorb and store large amounts of water, later becoming a source of aquifer recharges. Flood plains also serve as wildlife habitats. The Federal Emergency Management Agency (FEMA) has mapped flood plains as defined by the 100-year or base flood, which has a 1% chance of being equaled or exceeded in a given year. Floodplain soils indicate where flooding has occurred in the past. Unless a hydro geological study is undertaken to prove that flooding has not occurred in recent times, areas of flood plain soils should be regulated the same as flood plains. All floodplains are already protected by Clifton's Shoreland Zoning Ordinance and by the 1991 FloodPlain Ordinance. They are not well suited for industrial or commercial development, and will support residential development only within the zoning restrictions already in place. Intensive development in floodplains, floodprone areas and "special flood hazard areas" should be avoided. In addition, existing development and incompatible land use activities should not be permitted to expand and should be amortized for their eventual elimination, to the maximum extent possible. The State Planning Office reports that Clifton has two properties within the A Zone that have flood insurance policies. The State Planning Office further reports that no claims have been made on these policies to date. The Town began participation in the National Flood Insurance Program in May 1994. Map E-6 depicts the approximate location of Clifton's flood areas.

FRESHWATER WETLANDS

The term "wetlands" is defined under both state and federal laws as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support prevalence of vegetation typically adapted for life in saturated soils." Wetlands include freshwater swamps, bogs, marshes, heaths, swales, and meadows.

Wetlands are valuable not only for their beauty and their recreation opportunities they support, but also for critically important functions they perform in our environment. Wetlands are important to natural systems including water storage, flood conveyance, groundwater recharge and discharge, shoreline erosion control and water quality improvement. Wetlands are important to the public health, safety and welfare because they act as a filter, absorb excess water, serve as aquifer discharge areas, and provide critical habitats for a wide range of fish and wildlife.

Wetlands are fragile natural resources. Even building on the edge of a wetland can have significant environmental consequences. Some wetlands have important recreational and educational value providing opportunities for fishing, boating, hunting, and environmental education. Planning efforts should take into account the constraints of these areas.

The DEP has identified freshwater wetlands located within Clifton, as illustrated on Map E-4. These wetlands were identified as wetlands by air photo interpretation. Interpretations were confirmed by soil mapping and other wetland inventories. Field verification of the location and boundaries of the wetlands should be undertaken prior to development. Wetland alterations can contribute to wetland loss. Most common source of alterations include commercial, residential and urban development; transportation and roads; floodplain development; pollution; timber harvesting; and agriculture.

There are three separate designations for wetlands: Lacustrine, Palustrine, and Riverine. The Lacustrine System includes wetlands and deepwater habitats with all of the following characteristics: (1) situated in a topographic depressions or a dammed river channel; (2) lacking trees, shrubs, persistent emergents, emergent mosses, or lichens with greater than 30% areal coverage; and (3) total area exceeds 20 acres. Similar wetland and deepwater habitats totaling less than 20 acres are also included in the Lacustrine System if an active wave formed or bedrock shoreline feature makes up all or part of the boundary, or if the water depth in the deepest part of the basin exceeds 6.6 feet at low water. Lacustrine waters may be tidal or nontidal, but ocean- derived salinity is always less than 0.5 parts per thousand (ppt).

The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 20 acres; (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part

of basin less than 6.6 feet at low water; and (4) salinity due to ocean-derived salts less than 0.5 ppt.

The Riverine System includes all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean-derived salts in excess of 0.5 ppt. A channel is "an open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water."

All wetlands in the Town are illustrated on the Shoreland Zoning Map E-4a and are protected by 250-foot setback zones.

THREATS TO WATER QUALITY

Point Source Discharge

Point Source discharges of pollution originate from municipal and industrial facilities, bypasses and overflows from municipal sewage systems, unpermitted and illegal dischargers, and produced water from oil and gas operations.

Non-Point Source Pollution

Pollution from non-point source include agricultural run-off, both animal wastes and fertilizers, landfills, sand and salt storage, waste lagoons, roadside erosion, leaking underground storage tanks, and hazardous substances. Identification and regulation of these sites are important in safeguarding both surface and ground waters.

Phosphorus is a major threat to the quality of Maine's water resources. Phosphorus is a natural element found in rocks, soils, and organic material. However, human activities (especially lawn and garden fertilization) contribute much higher levels of phosphorus to water bodies than nature does. Phosphorus overloading and the resulting algal blooms have been a major cause of eutrophication in lakes and ponds throughout Maine.

Phosphorus does not pose a significant threat to the water bodies in Clifton at this time. As shown in Table E-3, most of the ponds located within Clifton have average water quality and are categorized by the DEP as moderate/stable or moderate/sensitive (Table E-5). Burnt and Fitts Ponds, located in the southwestern corner of the town, have been placed in the "good" category due to above average water quality. Nonetheless, the population and development patterns in Clifton over the past ten to twenty years suggest that the town may want to implement phosphorus control measures to ensure that water quality does not degrade below the present levels. One attempt to control development's effects on the Town's water resources, has been made by adopting an Excavation Ordinance.

Table E-5 Per-Acre Phosporus Allocations

Lake	Town	DDA	ANAD	AAD	GF	D	F	WQC	LOP	C	P
Burnt Pond	Clifton	526	50	476	0.2	95	7.56	Good	h	1.00	0.079
Little Burnt Pond	Clifton	286	40	246	0.2	49	2.27	Mod-Sen	m	1.00	0.046
Cedar Swamp Pond	Clifton	847	80	767	0.15	115	5.6	Mod-Sen	m	1.00	0.049
Chemo Pond	Clifton	6810	1500	5310	0.25	1328	67.8	Mod-Sen	h	0.75	0.038
Cranberry Pond	Clifton	457	150	307	0.15	46	3.74	Mod-Sen	m	1.00	0.081
Debec Pond	Clifton	244	150	94	0.2	19	2.13	Mod-Sen	h	0.75	0.085
Fitts Pond	Clifton	395	60	335	0.2	67	4.25	Good	h	1.00	0.063
Floods Pond	Clifton	551	125	426	0.2	85	11.22	Good	h	1.00	0.132
Graham Lake	Clifton	869	80	789	0.2	158	12.43	Good	m	1.50	0.118
Hopkins Pond	Clifton	1025	100	925	0.3	185	17.75	Mod-Sen	h	1.00	0.096
Lower Springy Pond	Clifton	1158	250	908	0.2	182	13.49	Mod-Sen	h	0.75	0.056
Middle Springy Pond	Clifton	69	35	34	0.2	7	0.79	Mod-Sen	m	1.00	0.116
Parks Pond	Clifton	966	135	831	0.25	208	10.91	Good	h	1.00	0.053
Snowshoe Pond	Clifton	81	8	73	0.2	15	0.68	Mod-Sen	m	1.00	0.047
Upper Springy Pond	Clifton	672	120	552	0.2	110	5.4	Mod-Sen	m	1.00	0.049
Unnamed Pond 9558	Clifton	108	8	100	0.15	15	0.97	Mod-Sen	m	1.00	0.065
Unnamed Pond 9520	Clifton	343	40	303	0.15	45	2.22	Mod-Sen	m	1.00	0.049

Source: Maine Dept of Environmental Protection

DDA	Direct land drainage area in Township in acres
ANAD	Area not available for development in acres
AAD	Area available for development in acres (DDA-ANAD)
GF	Growth Factor
D	Area likely to be developed in acres (GF x AAD)
F	lbs phosphorus allocated to towns share of watershed per ppb in lake
WQC	Water quality category
LOP	Level of protection (h=high, m=medium)
C	Acceptable increase in lakes phosphorus concerntration in ppb
P	lbs. per acre phosphorus allocation (FC/D)

Many seemingly harmless activities added together can cause phosphorus overloads. A residential housing development, for example, may contribute up to ten times the natural concentration of phosphorus to stormwater runoff during not only the construction phase, but also long after the development has stabilized. The higher levels of phosphorus result by eliminating natural filters and sponges (such as trees, bushes, and grassy surfaces) and by creating impermeable surfaces such as driveways, rooftops, and roads. The solution is to create smaller developments and leave a vegetated "buffer" zone around the water body to filter out phosphorus and other dangerous contaminants from the stormwater runoff.

AQUIFERS

An aquifer is defined by the Maine Department of Conservation (DOC) as a geological unit capable of containing a usable amount of ground water. Aquifers are subsurface water supplies that yield useful quantities of ground water to wells and springs. Aquifers may be of two types: bedrock aquifers and sand and gravel aquifers.

In a bedrock aquifer, ground water is stored in fractures in the rock and areas with a large number of fractures may contain significant amounts of water. A bedrock aquifer is adequate for small yields. Fractures are sufficiently abundant to provide enough water for a single-family home most everywhere in Maine, and most domestic water supplies are wells drilled in bedrock.

A sand and gravel aquifer is a deposit of coarse-grained surface materials that, in all probability, can supply large volumes of groundwater. The sand and gravel deposits of Maine result from the action of glacial ice and melt water. Boundaries are based on the best-known information and encompass areas that tend to be the principal groundwater recharge sites. Recharge to these specific aquifers, however, is likely to occur over a more extensive area than the aquifer itself.

It is important to protect groundwater from pollution and depletion. Protecting groundwater resources and preventing contamination are the most effective and least expensive techniques for preserving a clean water supply for current and future uses.

There are four significant freshwater aquifers within the boundaries of Clifton (see Aquifers, Watersheds and Wetlands Map E-4). All of these significant aquifers pump between 10 and 50 gallons per minute. One of the aquifers is located along Bradbury Brook and underlies a section of the Chick Hill Road and a small portion of Route 9. Two of the aquifers underlie the Rebel Hill Road (Route 180). The first Rebel Hill aquifer follows the gravel ridge between Sibley Brook and Clewley Hill Road for approximately 1.5 miles. The second Rebel Hill aquifer begins nearly 2.25 miles from Route 9 on Route 180 and continues for 0.7 miles, ending just before the Springy Pond Road junction with Route 180. The fourth aquifer runs along the western shore of Upper/Middle Springy Pond.

Clifton also has a saltwater aquifer under Chemo Pond in the area of the Scott Point and Getchell roads. The saltwater was trapped in blue clay deposits when the ocean covered

coastal Maine after deglaciation (ca. 13,000 years ago). Residents attempting to drill wells through the blue clay have repeatedly tapped into this trapped seawater, finding sodium levels as high as 2,000 parts per million (250 is the drinking water limit). Wells with high salt content are typically located on lake front property below 250 feet elevation, or near wetlands (also below 250 feet). Much of the region to the immediate east and southeast of Chemo Pond is underlain by this aquifer and is therefore less suited to development, unless and until fresh water can be piped into the area.

DAMS

One dam is known to exist at this time within the town of Clifton. It is located on Parks Pond Stream just as it exits from Parks pond and maintains the water level in Parks Pond. It is not known when the present dam was constructed but a dam has existed at or near this location since the first "mill" was built during the mid 1800s by S. Hammond. Without this dam Parks Pond would be smaller and shallower, thereby reducing the value of its shoreline. At this time there is no hydrological data indicating the quantity of water held back by the dam, nor what impact a breach in the dam would have on the downstream area. Several residences are located a short distance downstream of the dam and may be affected by a sudden breach. Also a downstream beaver flowage has already flooded part of the area that would normally dissipate water from a dam breach.

POTENTIAL CONTAMINANTS TO GROUNDWATER

The majority of the groundwater resources within the Town of Clifton are protected by the current Shoreland Zoning Ordinance. The freshwater aquifers are the resource most threatened at this time, especially since these aquifers supply private wells throughout the Town. Over development or improper development within an aquifer's recharge area may allow contaminants to enter the groundwater. Paved roads, gravel pits, and disruption or deforestation of large tracts of land are examples of development activities that can threaten water quality if not strictly controlled. Clifton's Shoreland Zoning Ordinance and future land use ordiannce will help to ensure that development in these sensitive areas will not contaminate or degrade the underlying freshwater aquifers.

Once groundwater is contaminated, it is difficult, if not impossible, to clean. Possible causes of aquifer contamination include faulty septic systems, road salt leaching into the ground, leaking above ground or underground storage tanks, agricultural run-off of animal waste, auto salvage yards, and landfills.

MAINE DRINKING WATER PROGRAM

The State of Maine Drinking Water Program (DWP) is responsible for enforcing the Federal Safe Drinking Water Act in Maine and has primary responsibility for administering the State's Rules Relating to Drinking Water. The DWP receives funding from both the United States Environmental Protection Agency and the regulated community. Public water suppliers pay an annual fee which was developed by the DWP, Maine Rural Water

Association (MRWA), and the Maine Water Utilities Association (MWUA). This cooperative funding effort was developed to allow Maine companies to be regulated by Maine regulators. The DWP regulates over 2,200 public water systems in Maine.

PUBLIC DRINKING WATER SUPPLY

The Town of Clifton does not have a municipal public drinking water supply. However, there are two wells classified by the Maine Drinking Water Program as public supply sources. One of the wells is located at the Katahdin Scout Reservation, Camp Roosevelt. This is a 140 foot drilled well, with a groundwater source. The second is a 400-foot drilled well, also with a groundwater source. This source is located at the Parks Pond Campground. Map E-7 shows the location of these wells.

CRITICAL AND NATURAL HABITATS

Conserving an array of habitats and their associated wildlife species helps in maintaining biological diversity and ensuring that wildlife and human populations remain healthy. To feed and reproduce, wildlife relies on a variety of food, cover, water and space. Development often has a negative impact, resulting in the loss of habitats and diversity, habitat fragmentation and loss of open space, and the loss of travel corridor.

The Growth Management Act encourages municipalities to develop a comprehensive growth management plan to guide their future development and specifically requires that each plan address important wildlife habitats. The Maine Department of Inland Fisheries and Wildlife (MDIFW) has identified, evaluated and mapped habitats for endangered, threatened, or rare wildlife species and significant wildlife habitat, which includes deer wintering areas (DWAs) and waterfowl and wading bird habitat. The Growth Management Act encourages municipalities to consider critical natural resource locations in their comprehensive plans.

UNIQUE NATURAL AREAS

There are no areas that are applicable to the Natural Heritage Program within the Town of Clifton.

The Maine Natural Areas Program (MNAP) is responsible for conserving Maine's natural heritage by maintaining information on the State's important natural features. MNAP maps and tracks populations of rare, threatened, or endangered plants and rare or exemplary natural communities. There are no areas that are currently tracked by NMAP within the Town of Clifton.

MNAP has information on two rare or exemplary botanical features of interest to the Town of Clifton. The first is the raised level bog ecosystem located in Bradley along Clifton's northwestern border. This feature is considered an exemplary ecosystem due to its size and setting within a relatively undeveloped landscape. The second feature, the Smooth Sandwort (*Minuartia glabra*), has not been documented in the town since 1897, but its natural habitat of open granitic ledges is present. The plant is considered "imperiled" in Maine.

While Chemo Pond is currently in very good condition, the ecological integrity of this ecosystem is related to its connections with adjacent wetlands, as well as the surrounding forest, which protects the water quality in the bog. Thus maintaining compatible land use in the surrounding area is important to protecting the health of the bog.

SCENIC AREAS

The views from the top of Peaked Mountain, Parks Pond Bluff, Eagle Bluff, and Woodchuck Hill have for centuries attracted residents and visitors alike. These are scenic resources, which are as valuable to our town's culture as its forest industry and community character. Although the private landowners have always been gracious about sharing their properties with the public, there is no legal guarantee that the land will forever remain open to public use. The Town of Clifton should look into the possibility of obtaining easements from private landowners to ensure that these views (as well as the trails and sheer rock faces which grant hikers and climbers access to them) will remain open and available to the public in perpetuity.

WILDLIFE HABITATS

Deer Wintering Areas

In early winter, deer normally migrate to preferred wintering habitat, in some cases more than 20 miles from summer range. Without the protection of wintering habitat, deer are particularly vulnerable to severe winter weather and predators. It is essential to maintain sufficient amounts of high-quality wintering habitat in order to minimize the effects of severe winters, reduce deer losses during normal winters, and provide for a more sustainable population of deer to be enjoyed by all of Maine's people.

Because deer in Maine exist near the northern limit of the species' range, abnormally severe winters will inevitably cause periodic declines in deer abundance. In nearly all parts of Maine, deer populations are normally kept well below the capacity of the habitat to support deer. This ensures that deer remain productive, that they have access to high quality forages, and that they achieve near-optimum body size and condition prior to winter. MDIFW encourages landowners to develop a management plan for their lands to provide optimal winter and summer habitat for deer. MDIFW's has identified DWAs to ensure that town governments adequately address the protection of special habitats, such as deer wintering

areas, at the town-level during the comprehensive planning process. These habitats have been identified by IF&W and are shown on the Critical Wildlife Resources Map (Map E-8).

There are two significant deer wintering areas in Clifton, as identified and cataloged by the Maine Department of Inland Fisheries and Wildlife (MDIFW). The larger area is located near Cedar Swamp Pond (MDIFW# 040601). The second area is on the eastern side of Pisgah Mountain. (MDIFW# 040602). At present, neither area is fully protected from development.

Inland Wading Bird and Waterfowl Habitats

Waterfowl and Wading birds occupy areas of Maine for all or a portion of the year so it is necessary that efforts be taken to conserve their habitats. Populations of migratory waterfowl and wading birds in tidal habitats are surveyed annually by MDIFW biologists for various purposes. Nesting colonies are visited to determine presence or absence of birds, estimate numbers of breeding pairs, and evaluate condition of habitat. Populations for most species are either increasing or within the range of recently observed estimates. Nationwide waterfowl harvests have been declining since 1978, this has been partly by design as regulations have become more restrictive, but it also reflects declining hunter numbers and lower populations of some species.

At the time of this writing, there are approximately fourteen (14) waterfowl and wading bird habitats in Clifton, all of which are protected within the Shoreland Zoning Ordinance of the Town. These currently identified habitats are on the Critical Wildlife Resources Map (Map E-8). The MDIFW has rated three of the areas as being of "high value," while the others are considered "moderate" (Table E-6).

Table E-6

TOWN OF CLIFTON
WATERFOWL AND WADING BIRD HABITAT RATINGS

MDIFW #	Location	Rating
051313	W. Chemo Pond Inlet	High
051317	Parks Pond Brook	Moderate
051320	Bradbury Brook	Moderate
051321	Parks Pond Brook	High
051322	Sibley Brook	Moderate
051323	Clifton Corners Marsh	Moderate
051324	Little Burnt Pond	Moderate
051325	Burnt Pond Inlet	Moderate
051329	Intervale Brook	Moderate
051330	Lower Intervale Brook	Moderate
051331	Goodwin Brook	Moderate
051332	Bradbury Brook	Moderate
051337	Cedar Swamp Brook	Moderate
051342	Lower Springy Outlet	High

Source:Maine Department of Inland Fisheries and Wildlife

Significant Fisheries

MDIFW considers Hopkins Pond to support a significant fishery for wild lake trout (togue) and, of lesser importance, for wild brook trout.

ENDANGERED AND THREATENED SPECIES

Peregrine Falcon

In the 1940s peregrine falcons nested in the Eagle Bluff area. A male peregrine was observed in 1994 staking out a nesting territory on Eagle Bluff and driving away ravens from the area, but no female peregrine came to join him and after three weeks he departed. Residents reported a pair of peregrine falcons in the vicinity of Peaked Mountain during 2001. Peregrine falcons are listed as "endangered" in both Maine and the United States and are making a slow recovery after being reintroduced along the eastern seaboard in the last 10-20 years. Map E-8 shows the location of a nest site that was utilized approximately 50 years and currently is not used as an active next site.

Tidewater Mucket

In 1995 the tidewater mucket, a freshwater mussel, was observed in Chemo Pond. The tidewater mucket is listed as "threatened" in Maine because its range-wide population trend is marked by widespread declines; its range in Maine is restricted to 3 midcoast drainages, and its distribution within these drainages is limited to 9 discrete, disjunct areas; the major proportion of its population is found in only five of those areas; it is found in very low numbers at nearly all locations where it occurs; and its population distribution is fragmented, both within and between drainages, by dams and geographic isolation. In fact, many of America's freshwater mussels are listed as threatened and endangered species because of similar circumstances. Elsewhere, the tidewater mucket is listed as "endangered" in Connecticut and "of special concern" in Massachusetts; it is being considered for listing by other states within its range (which extends along the eastern seaboard as far as Georgia). Map E-8 shows this habitat.

Bald Eagle Nest Sites

Historically, Maine was home to hundreds of pairs of bald eagles nesting along undisturbed shorelines of the coast, lakes, and major rivers. However, largely due to DDT contamination, eagle populations declined so drastically that they were listed as an Endangered Species in 1978. As DDT residues in the environment dropped, bald eagles began to recover in Maine. Increasing losses of undisturbed nesting sites during the late 1980s, however, threatened further population growth and recovery of the species. Adequate numbers of young eagles must be produced from Maine's traditional eagle nesting sites if the population is to achieve a lasting recovery from Endangered or Threatened status. Loss of undisturbed nesting sites is now the greatest danger to Maine's eagle population. For this reason, designation of nest sites

as essential habitat plays an important role in the recovery of Maine's bald eagle population. Across Clifton's border to the west, in the Town of Eddington, a bald eagle nesting site has been identified by the Department of Inland Fisheries and Wildlife. Because of the nest's proximity to Clifton, Chemo Pond residents often observe the eagles fishing in the lake. Map E-8 shows the nest site.

OTHER WILDLIFE

Other wildlife habitats of note in Clifton include large, undeveloped habitat blocks, riparian habitats, and vernal pools. Undeveloped blocks of forest and wetlands provide habitat for wide ranging mammals such as those listed below. Vernal pools are significant wetland resources that are not often protected under general wetland regulations due to their small size. Riparian areas offer habitat for many plants and animals and can also serve as wildlife travel corridors, as well as playing an important role in protecting water quality.

The Town of Clifton, because of its landscape and rural nature, is home to many other types of wildlife. Some wildlife that have been observed within the town include:

- Loons
- Hawks
- Bear
- Bobcat
- Wild Turkey
- Song Birds
- Owls
- Moose
- Coyote

BEGINNING WITH HABITAT PROGRAM

The Beginning with Habitat Program (BwH) provides objective and comprehensive habitat information to equip decision-makers with the necessary tools to make informed and responsible decisions. The Program can provide educational presentations, technical assistance on municipal land use planning, as well as the most current plant, animal, and natural community data maintained by MNAP and IF&W. BwH also provides maps and information on riparian areas, undeveloped blocks of land, conservation areas, wetlands, characterization and focus areas of statewide ecological significance. The Town may contact the Program Coordinator for assistance.

SOIL AND WATER CONSERVATION DISTRICT

Maine's 16 Soil and Water Conservation Districts (SWCD) are subdivisions of state government that are run by locally elected and appointed volunteers. Generally their jurisdiction follows county boundaries. The SWCD purpose is to solve local natural resource conservation problems (both urban and agricultural) as determined by local stakeholders. Not only do districts work with their partners to identify natural resource problems at the local level and develop solutions, they also assist in getting those measures applied to the

land. This is accomplished by a unique partnership with the United States Department of Agriculture, Natural Resources Conservation Service (NRCS) and the Maine Department of Agriculture, Food and Rural Resources (MDOAFRR). NRCS provides technical support of district programs and MDOAFRR is the state agency that provides administrative oversight of district programs and administers basic state funding grants to districts. The Penobscot County SWCD is located in Bangor.

NATURAL RESOURCES CONSERVATION SERVICE

The Natural Resources Conservation Service (NRCS) is an agency of the U.S. Department of Agriculture. NRCS offers help to individuals, groups, towns and other units of government to protect, develop and wisely use soil, water and other natural resources. NRCS is to provide leadership and administer programs to help people conserve, improve and sustain our resources and environment. The mission of the Natural Resources Conservation Service in Maine is to "provide technical assistance to help people conserve, improve and sustain our natural resources."

FARM SECURITY AND RURAL INVESTMENT ACT OF 2002 (2002 FARM BILL)

The Farm Security and Rural Investment Act of 2002, signed into law by President Bush on May 13, 2002, is landmark legislation for conservation funding and for focusing on environmental issues. This legislation simplifies existing programs and creates new programs to address high priority environmental and production goals. The 2002 Farm Bill enhances the long-term quality of the environment and conservation of natural resources. Some of the programs that the Natural Resources Conservation Service (NRCS) administers which were authorized or re-authorized in the 2002 Farm Bill include:

Farmland Protection Program

The Farmland Protection Program is a voluntary program that helps farmers and ranchers keep their land in agriculture. The program provides matching funds to State, Tribal, or local governments and nongovernmental organizations with existing farmland protection programs to purchase conservation easements or other interests in land.

National Natural Resources Conservation Foundation

The National Natural Resources Conservation Foundation (NNRCF) promotes innovative solutions to natural resource problems and conducts research and educational activities to support conservation on private land. The NNRCF is a private, nonprofit 501(c)(3) corporation. The foundation builds partnerships among agencies and agricultural, public, and private constituencies interested in promoting voluntary conservation on private lands.

Resource Conservation and Development Program

The Resource Conservation and Development Program (RC&D) encourages and improves the capability of civic leaders in designated RC&D areas to plan and carry out projects for resource conservation and community development. Program objectives focus on "quality of life" improvements achieved through natural resources conservation and community development. Such activities lead to sustainable communities, prudent land use, and the sound management and conservation of natural resources.

Wetlands Reserve Program

The Wetlands Reserve Program is a voluntary program that provides technical and financial assistance to eligible landowners to address wetland, wildlife habitat, soil, water, and related natural resource concerns on private land in an environmentally beneficial and cost-effective manner. The program provides an opportunity for landowners to receive financial incentives to enhance wetlands in exchange for retiring marginal land from agriculture.

Wildlife Habitat Incentives Program

The Wildlife Habitat Incentives Program (WHIP) is a voluntary program that encourages creation of high quality wildlife habitats that support wildlife populations of National, State, Tribal, and local significance. Through WHIP, NRCS provides technical and financial assistance to landowners and others to develop upland, wetland, riparian, and aquatic habitat areas on their property.

WATER QUALITY PROTECTION RESOURCES

The following is an abbreviated listing of water protection funding and assistance programs and descriptions of those programs. A more inclusive list outlining sources of state, federal and private funding and technical assistance can be found in Appendix B.

Small Community Grant Program

The Small Community Grant Program provides grants to towns to help replace malfunctioning septic systems that are polluting a waterbody or causing a public nuisance. Grants can be used to fund from 25% to 100% of the design and construction costs, depending upon the income of the owners of the property, and the property's use. An actual

pollution problem must be documented in order to qualify for funding. The highest priority is given to problems which are polluting a public drinking water supply or a shellfishing area. DEP grants are not available to provide septic systems for new homes, and any home constructed since October, 1974 must show evidence that a septic system was previously installed which complied with the Maine Subsurface Wastewater Disposal Rules. Grant applications must be submitted by the municipality in which the property owner resides. Applications must be sent to the Department of Environmental Protection by January 31 in order to receive funding in that year except under special circumstances.

Individual families may qualify for the grant program if their federal taxable income for the previous year was $40,000 or less. Commercial establishments may qualify if their gross profit for the previous year was $40,000 or less. Potential applicants are not eligible for grant assistance if their income exceeds these figures. Applicants are required to show proof that they meet the income limit. A sliding-scale grant percentage applies depending on the amount of income or profit. Participants in the program are also required to grant an easement to the town allowing construction and inspection of the system.

Maine State Revolving Loan Fund (SRF)

The SRF provides low interest loans to municipalities and quasi-municipal corporations such as sanitary districts for construction of wastewater facilities. The SRF is funded by a combination of federal capitalization grant and state bond issue funds equal to 20% of the federal grant. State bond issues are approved by the voters in the State of Maine. The Maine Municipal Bond Bank (MMBB) is the financial manager for the SRF program. The MMBB combines federal and state funds with MMBB bond funds to create attractive interest rates; 2% below the market rate.

The DEP Division of Engineering and Technical Assistance (DETA) administers the technical aspects of the program and the projects funded by it. The primary purpose of the fund is to acquire, plan, design, construct, enlarge, repair and/or improve publicly-owned sewage collection systems, intercepting sewers, pumping stations, and wastewater treatment plants. The long-term goal of the SRF is to establish a self-sufficient loan program that will maintain and improve Maine's inventory of municipal sewage facilities in perpetuity. This will ensure preservation of the water quality gains that were realized by the initial construction of them.

State law also gives the DEP flexibility, through the related Construction Grant Program, to use bond issue funds with other sources of funding to provide affordable financing of municipal and quasi-municipal wastewater facilities. The Board of Environmental Protection has established a goal for residential users of 2% of the Medium Household Income (MHI). The DEP attempts to reach this goal by combining grant funds, SRF loan funds, and other sources of funds such as Community Development Block Grants, Rural Development loans and grants, and grants or loans from the Economic Development Administration.

State participation is limited to 80% of the project costs for wastewater treatment facilities, interceptor systems and outfalls. The word "expense" does not include costs relating to land acquisition or debt service, unless allowed under federal statutes and regulations. The commissioner is also authorized to grant an amount not to exceed 25% for preliminary planning or design of a pollution abatement program.

Watershed Protection Grant

Teachers or Advisors of grades 6 through 12 can apply for a maximum of $1000 for support of a service learning project. Teachers are responsible for obtaining the appropriate permission from their school or school board before applying. Preference will be given to schools who involve community members and in-kind matches of plants or other materials that will be used to control erosion or stormwater run-off or moderate temperature (streams only). Cost sharing with landowner is highly encouraged if project is on private land. Funds can be used for materials to restore or improve the site, to transporting students to the site, for a sign at the site and for expendables related to public education.

Action Projects must restore or protect a local freshwater resource (lake or stream that feeds a lake), to be named in the application. Projects must involve lake or stream watersheds; no purely coastal applications can be funded. The focus of this program is to protect water quality of a lake or stream and to educate the public about the relationship between land use and water quality. Projects should prevent soil erosion, reduce polluted stormwater or moderate temperature (streams only). A typical project would begin with classroom activities that help the students learn about the habitat, followed by a field survey, and culminate in a service learning project such as planting of a vegetated buffer, repairing eroded shorelines, ditches, or roads.

Public Education projects will educate the public about the knowledge gained through the classroom watershed protection project. Some examples would be publishing articles by students in local newspapers, hosting a public event at the site upon completion, conducting a workshop to teach others in the community or lake association about how to complete a similar project on their property, and making a presentation to the conservation commission or other municipal group that has the authority to make changes to protect the lake or stream watershed.

Surface Water Protection Projects

Maine has thousands of surface water bodies such as lakes, ponds, rivers, streams, and coastal waters within its boundaries. Many of them are adjacent to or near highways. To help reduce pollution and other damage from those highways, the Maine Department of Transportation has created a Surface Water Quality Protection Program (SWQPP). This program is funded under the Surface Transportation Program (STP), which is part of the federal Transportation Equity Act for the 21st Century (TEA-21) of 1998.

The funding can be used on what MDOT refers to as arterial, major and minor collector highways, which include most of the major highways in Maine. The SWQPP has two purposes. First, to identify potential project locations where surface water quality is being adversely impacted by runoff from highways, and, second, to select and prioritize potential pollution elimination projects for funding under this program.

Working with the Department of Environmental Protection, MDOT has developed a list of thirteen criteria for evaluating potential projects. That list includes requirements that work funded under this program not involve non-MDOT property unless it is essential to eliminating runoff pollution, that projects consist of actions not included in normal routine highway maintenance or construction activities, and that high priority be given to projects which are actively supported by the municipality, local environmental groups, conservation commissions, planning boards, soil and water conservation districts and similar groups.

Nominated projects are screened, selected and prioritized by a team of representatives from MDOT, the Maine Department of Environmental Protection and the Federal Highway Administration. While there is no deadline for applications to be considered, they will be reviewed and selected in the order in which they are received, so the earliest submissions will have an advantage.

Nonpoint Source Water Pollution Control Grants

The primary objective of NPS projects is to prevent or reduce nonpoint source pollutant loadings entering water resources so that beneficial uses of the water resources are maintained or restored. Maine public organizations such as state agencies, soil and water conservation districts, regional planning agencies, watershed districts, municipalities, and nonprofit (501(c)(3)) organizations are eligible to receive NPS grants.

This program invites proposals for the following three types of NPS projects:

> **NPS Watershed Project**. This project is designed so that BMPs are implemented in a manner that leads to a significant reduction in NPS pollutant load to a waterbody. The load reduction is intended to restore or protect water quality.
>
> **NPS Watershed Survey**. This project focuses on finding, describing, and prioritizing NPS pollution sources in a watershed, and recommends BMPs for correcting identified pollution sources.
>
> **Watershed Management Plan Development**. This project is to develop and produce a locally supported "Watershed Management Plan." The plan is intended to be a comprehensive plan of action to prompt use of BMPs to prevent or abate NPS pollution sources within a watershed or subwatershed.

Wellhead Protection Program

In 1991, the Maine Drinking Water Program (DWP) began the process of developing and implementing a wellhead protection program for all of the public water supplies statewide. This included all of the community, non-transient non-community and transient non-community water systems. Nearly all of the community and non-transient non-community systems have completed self-evaluation forms designed to familiarize operators with the threats their system faces, and to provide the drinking water program with the information required to evaluate the level of risk present at each source (source water assessments). Completion of a self-evaluation form is considered as satisfying the first two steps in a complete wellhead protection plan, delineation of the protection area and an inventory of potential sources of contamination. Therefore, systems that have successfully completed these self-evaluations are half way to completing wellhead protection plans. The next steps will be for systems to complete management and contingency plans, which will be requested after the Source Protection Section completes assessments for each well.

A community and non-profit noncommunity public water systems can apply for a grant of up to $5,000 to plan or implement projects designed to protect their groundwater supply from contamination. Projects such as the development or implementation of a wellhead protection plan, developing public educational materials, or developing useful base maps are eligible for funding. All projects are evaluated and ranked based on several specific criteria and awards will be made beginning with the highest ranked project and working down the list until all grant funds are exhausted. In general, projects with a demonstrated need, which build on previous source protection work, and which involve other municipal or volunteer partners are more likely to be approved.

NATURAL HAZARDS AND HAZARD MITIGATION

Because of geographic and weather conditions, all Maine communities are vulnerable to natural hazards. Of all natural hazards floods generate the most extensive damages in the state. Severe winds, winter storms, earthquakes, and other natural events also put lives and property at risk. As costs of disasters continue to rise, the need to act before a disaster occurs to reduce the potential for losses becomes more and more evident.

In 1994, and again in 1998, Clifton applied for and received FEMA funds to help with the added cost of repairing town roads due to unanticipated storm damage. In 1988, the Town applied for and was awarded a Hazard Mitigation Grant of $59,946 to remedy ongoing problems with storm water erosion of the Chick Hill Road. The project was bid out in September 2001 and the work completed October 2001. The success of the project has not yet been put to the test.

Floods

A flood is a temporary overflow of water onto lands not normally covered by water and that are used or usable by man, producing measurable property damage/destruction or forcing evacuation of people and vital resources.

About 90 percent of presidential disaster declarations in the State of Maine are related to damages caused by floods and coastal storms. For this reason, it is very important to gain a clear understanding of the hazards faced by each community in this regard

Flooding as a hazard was evaluated in the early 1990s and Clifton adopted a Floodplain Management Ordinance in 1991 and began participating in the National Flood Insurance Program in May 1994, at which time Flood Insurance Rate Maps (FIRM) were also created.

Hurricanes and Severe Winds

A hurricane is a tropical storm with winds that have reached a constant speed of 74 miles per hour or more. Hurricane winds blow in a large spiral around a relative calm center known as the "eye." The "eye" is generally 20 to 30 miles wide, and the storm may extend outward 400 miles. As a hurricane approaches, the skies will begin to darken and winds will grow in strength. As a hurricane nears land, it can bring torrential rains, high winds, and storm surges. A single hurricane can last for more than 2 weeks over open waters and can run a path across the entire length of the eastern seaboard. August and September are peak months during the hurricane season that lasts from June 1 through November 30.

Every few years, between May and November, a storm of tropical origin affects Maine. Even though most times they have reached the state with winds of 74 mph (post-hurricane stage), a few full-blown hurricanes have hit Maine creating substantial property and crop damage inland and flooding along the coastline and rivers. The entire state is vulnerable.

Forest Fires

The State of Maine has several million acres of woodlands. Consequently, forest fires are a major concern, particularly during dry summers when the fire danger increases.

Forest fires are not only a potential hazard for Clifton, but a recurring issue. Unanticipated expenditures for fires in 1983 ($845, $422 reimbursed by the State), in 1985 ($1394, $697 reimbursed by the State), in 1991 ($980, $490 reimbursed by the State), and in 2001 ($5,036, taken from Surplus), are an expense that the town has little control over.

In March, 2002, voters authorized a new continuing 'Forest Fire Protection Account' and transferred $1,000 that was donated by the McLaughlin Trust Fund after the August 2001 forest fire into that account.

Droughts

Drought is a condition of moisture deficit sufficient to have an adverse effect on vegetation, animals, and man over a sizeable area.

During the mid sixties and in the summers of 1995 and 1999, and 2002 droughts have endangered the economy of farms and the last of rain affected some ground water sources exploited by dug wells.

Earthquakes

An earthquake is a sudden, rapid shaking of the Earth caused by the breaking and shifting of rock beneath the Earth's surface. For hundreds of millions of years, the forces of plate tectonics have shaped the Earth as the huge plates that form the Earth's surface move slowly over, under, and past each other. Sometimes the movement is gradual. At other times, the plates are locked together, unable to release the accumulating energy. When the accumulated energy grows strong enough, the plates break free causing the ground to shake. Most earthquakes occur at the boundaries where the plates meet; however, some earthquakes occur in the middle of plates.

Maine has measurable earthquakes most years. Due to the sparse population in the areas of occurance and their usual low intensity, damage rarely occurs. However, it is important to address.

Winter Storms

A major winter storm can be lethal. Preparing for cold weather conditions and responding to them effectively can reduce the dangers caused by winter storms.

Clifton residents seem to have fared better than most Maine communities with respect to the 1998 ice storm. Most residents seem to be prepared with supplemental heat, light and food for emergencies; although, this ice storm strained even the best prepared.

The Clifton Country Store has an emergency generator, so residents were able to acquire some basic supplies. There has been some discussion of designating the Baptist Church as a temporary emergency shelter and acquiring a generator. However, no further plans have been made at this time.

DISASTER MITIGATION ACT OF 2000

On October 30, 2000, the President of the United States signed into law the Disaster Mitigation Act of 2000 (Public Law 106-390) to amend the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988. This new legislation reinforces the importance of pre-disaster mitigation planning to reduce the Nation’s disaster losses, and is aimed primarily to control and streamline the administration of federal disaster relief and mitigation programs.

The Act encourages and rewards local and state pre-disaster planning, promotes stability as a strategy for disaster resistance and is intended to integrate state and local planning with the

aim or strengthening statewide mitigation planning. However, it also indicates that for disasters declared after November 1, 2003, a local government must have a mitigation plan approved pursuant to this section in order to receive HMGP project grants. Until November 1, 2003[1], local mitigation plans may be developed concurrent with the implementation of the project grant.

POLICY AND IMPLEMENTATION PLAN

In order to protect the quality and manage the quantity of the State's water resources, including lakes, aquifers, great ponds, estuaries, rivers and coastal areas; protect the State's other critical natural resources, including without limitation, wetlands, wildlife and fisheries habitat, sand dunes, shorelands, scenic vistas and unique natural areas; and safeguard the State's agricultural and forest resources from development which threatens those resources, the Town of Clifton has developed the following policies and implementation strategies:

E1. Policy

The Town will identify and restrict development in natural hazard areas.

Short Term Implementation Strategies

A. The future land use ordinance will contain provisions to regulate activities that could increase flooding or create threats to public safety or water quality.

B. The Board of Selectmen, or their designee(s), will adopt a local hazard mitigation plan, which prevents inappropriate development in natural hazard areas, specifically the identified flood areas.

E2. Policy

The Town will ensure that ground and surface waters remain high quality resources.

Near-term Implementation Strategies

A. The Code Enforcement Officer will identify failing systems and apply for the Department of Environmental Protection Small Community Grant for the replacement of failing septic systems.

B. The Code Enforcement Officer will provide residents with educational materials about the effects of and prevention of nonpoint source pollution.

C. The Board of Selectmen, in conjunction with the Code Enforcement Officer, will notify and educate current and potential property owners in the Chemo Pond area about the saltwater aquifer which supplies water to the homes in that area which may be unsuitable to be used as a drinking water supply.

D. The Board of Selectmen will ensure that the Town's Shoreland Zoning Ordinance and map are in compliance with State law.

Short-term Implementation Strategies

E. The Board of Selectmen will investigate funding sources and site availability for providing a municipal public water supply well, where residents may obtain clean drinking water.

F. The Board of Selectmen will seek technical assistance from the University of Maine in providing low to no-cost water salinity tests for residents in the Chemo Pond area to ensure wells are within the proper limits of salinity.

G. The future land use ordinance will delineate aquifer protection districts for each aquifer within the Town.

H. The Planning Board will draft an aquifer and wellhead protection ordinance and provide educational materials about aquifer protection to the Town's residents.

I. The Planning Board and/ or the Code Enforcement Officer will acquire from the DEP the "Lake Watershed Survey Manual", seek grant funding to perform a survey and address any problems identified by the survey.

J. The Planning Board and/or the Code Enforcement Officer will acquire from the DEP guidance in implementing procedures that will mitigate catastrophic stormwater phosphorus increase during development construction.

K. The Planning Board and/or the Code Enforcement Officer will acquire from the DEP the manual, "Phosphorus Control in Lake Watersheds: a Technical Guide for Evaluating New Development". The Planning Board will propose for adoption standards for designing and evaluating proposed new development in lake watersheds; and for limiting lake-specific long term increase in stormwater phosphorus. Phosphorus loading to great ponds will be a specific review criteria for issuance of a subdivision permit.

Long-term Implementation Strategies

L. The Board of Selectmen will encourage the formation of a Volunteer Lake Monitoring Committee to work with the training and assistance of the Maine Volunteer Lake Monitoring Program.

M. The Board of Selectmen, or their designee(s), will approach the neighboring communities of Bradley, Eddington, Mariaville, Holden and Otis, who share water resources, to jointly prepare phosphorus loading calculations for great ponds within the Town.

E3. Policy

The Town will ensure that environmental resources of all types are taken into account during the development review process.

Near-term Implementation Strategies

A. The Board of Selectmen will provide residents and developers with educational materials on how to protect the Town's natural resources and encourage the use of DEP recognized Best Management Practices during development.

Short-term Implementation Strategies

B. The proposed land use map and the future land use ordinance will identify critical areas and provide assurance of protection by including those areas within resource protection districts.

C. The future land use ordinance will require that proposed development in or near a site identified as an essential, critical or significant wildlife habitat, shall require the permit applicant to consult with the Department of Inland Fisheries and Wildlife Biologist for immediate advice in order to avoid conflicts.

D. The Planning Board and Board of Selectmen will provides protection in the future land use ordinance for blueberry barrens and established agricultural uses to prevent loss of these traditional rural resources.

E. The Planning Board and Board of Selectmen will develop performance standards that foster mutual respect between landowners where forest and agricultural activities border residential areas.

Long-term Implementation Strategies

F. The Planning Board and Board of Selectmen will develop erosion control standards and a permitting process for development on steep slopes.

G. The Planning Board will investigate the possibility of creating a timber harvesting ordinance with standards for residential areas.

E4. Policy

The Town will ensure that natural resources are protected while encouraging a recreation-based driving force for the town's economy.

Short-Term Implementation Strategy

A. The Board of Selectmen will encourage the creation of a Nature Conservancy Group to assess the health and viability of the Town's natural resources and make recommendations to the Board of Selectmen in regards to alleviating or providing additional protection measures for forestry, wildlife, natural habitats, water, and open space resources.

B. The Board of Selectmen, or their designee(s), will educate residents and visitors, through workshops and written materials, on conservation measures and services.

E5. Policy

The town will prepare for hazards and emergencies.

Short –Term Implementation Strategies

A. The Select Board will raise funds and seek additional available funding to research and prepare a hazard mitigation plan.

B. The Select Board will assemble a Disaster Plan Committee to oversee the preparation of the Plan.
C. The proposed Disaster Plan Committee will verify, review, and update local hazard mitigation plans and report any changes or additions to the Penboscot County Emergency Management Agency.

E6. Policy

The Town will protect fragile shorelands from potential negative effects of residential development.

Short-term Implementation Strategies

A. The future land use will designate growth, rural and conservation areas which will direct development away from shoreland zones by establishing significant differences in minimum lot size, road frontage requirements, and by instituting differential impact fees.

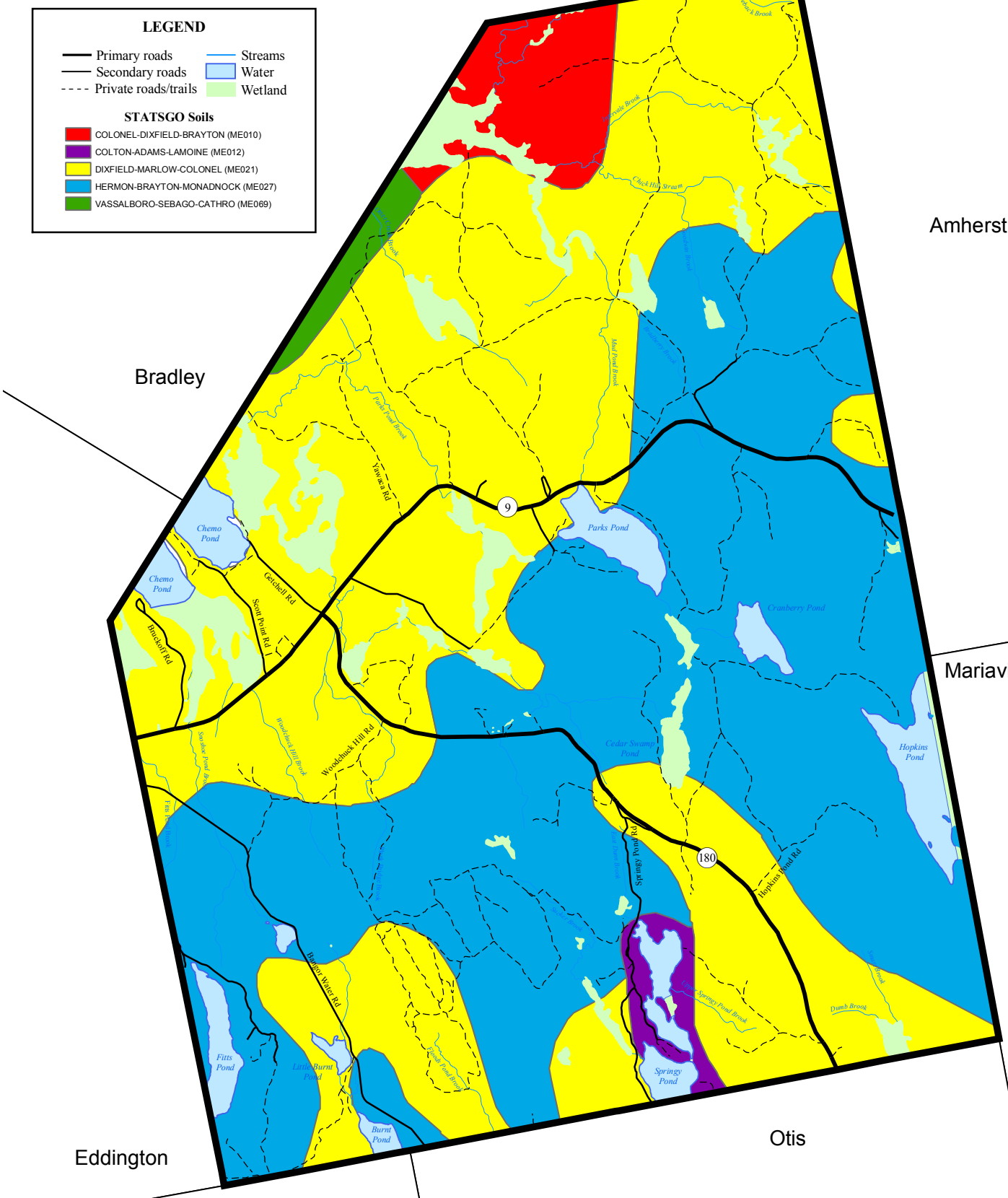
B. The Code Enforcement Office will continue to enforce the current shoreland zoning regulations and the Planning Board will review and delineate additional resource protection shoreland zones when the shoreland zoning ordinance and map is next updated.

C. The Select Board will formally communicate the Towns intentions and coordinate efforts to regulate shoreland areas with neighboring communities that share the affected waterbody(ies). (The Towns of Eddington, Bradley, Mariaville, Otis, and Dedham.)

D. The Town will seek input and assistance from existing home and camp owner associations and encourage the creation of new associations in residential areas around waterbodies to assist the Town in protecting these resources.

Clifton Comprehensive Plan

STATSGO Soils



Penobscot Valley Council of Governments
Eastern Maine Development Corporation
One Cumberland Place, Suite 300
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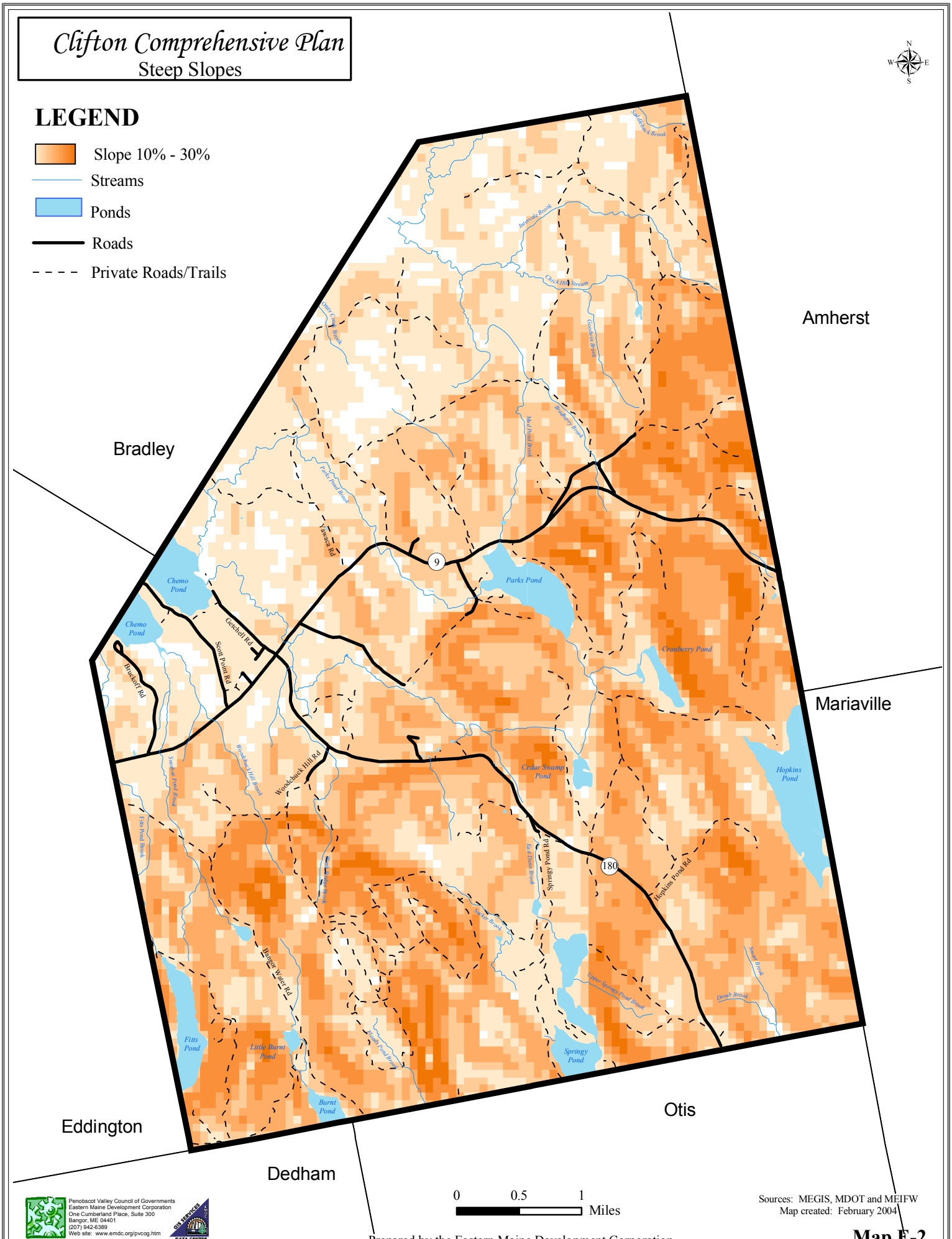
Web site: www.emdc.org/pvcog.htm

Sources: MEDEP, Town of Clifton and MEGIS
Map created: July 2003

Prepared by the Eastern Maine Development Corporation

Map E-1

Clifton Comprehensive Plan
Steep Slopes



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Sources: MEGIS, MDOT and MEIFW
Map created: February 2004

Prepared by the Eastern Maine Development Corporation

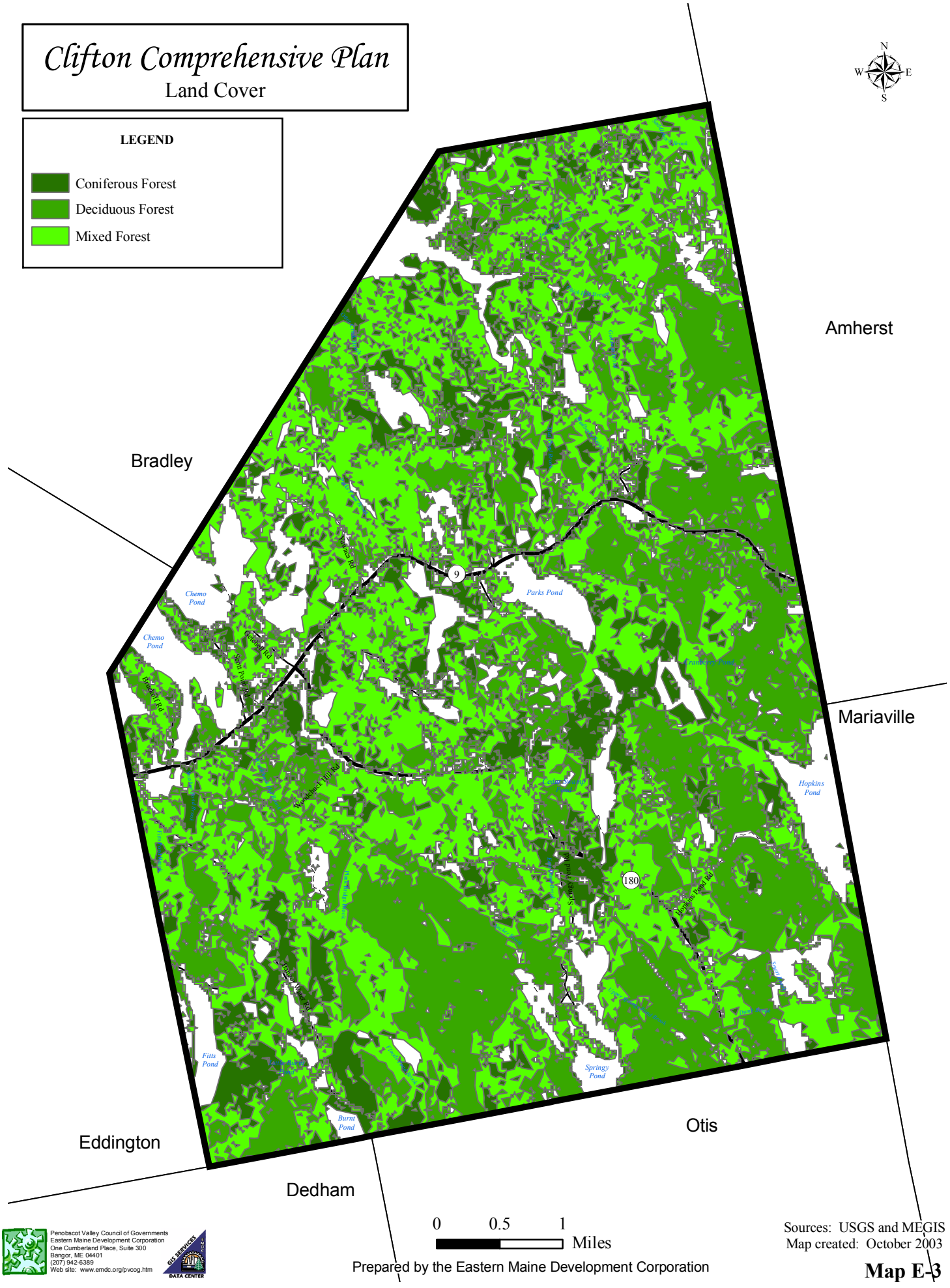
Map E-2

Clifton Comprehensive Plan

Land Cover

LEGEND

- Coniferous Forest
- Deciduous Forest
- Mixed Forest



0 0.5 1 Miles

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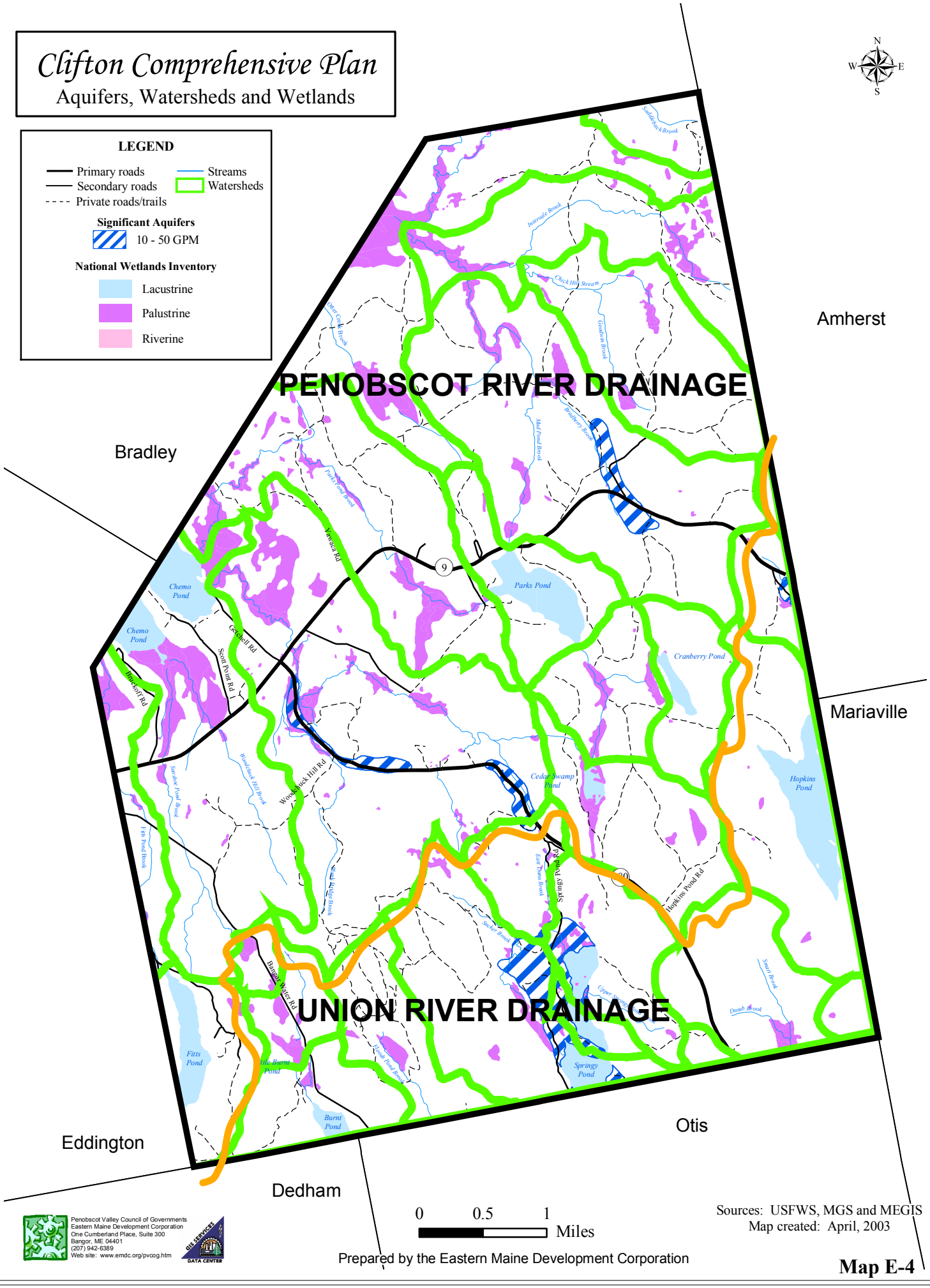
Sources: USGS and MEGIS
Map created: October 2003

Map E-3

Clifton Comprehensive Plan

Aquifers, Watersheds and Wetlands



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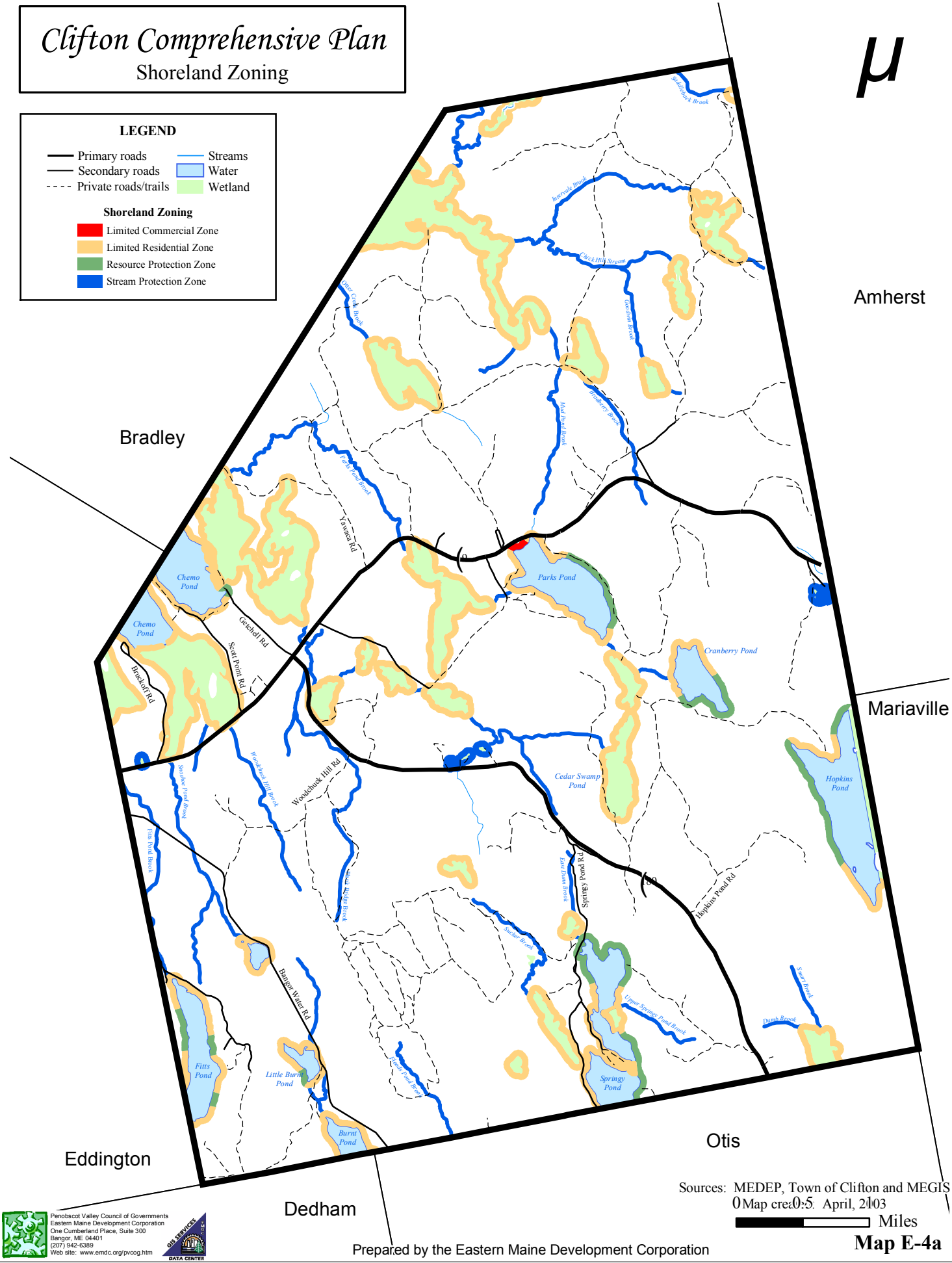
Sources: USFWS, MGS and MEGIS
Map created: April, 2003

Prepared by the Eastern Maine Development Corporation

Map E-4

Clifton Comprehensive Plan
Shoreland Zoning



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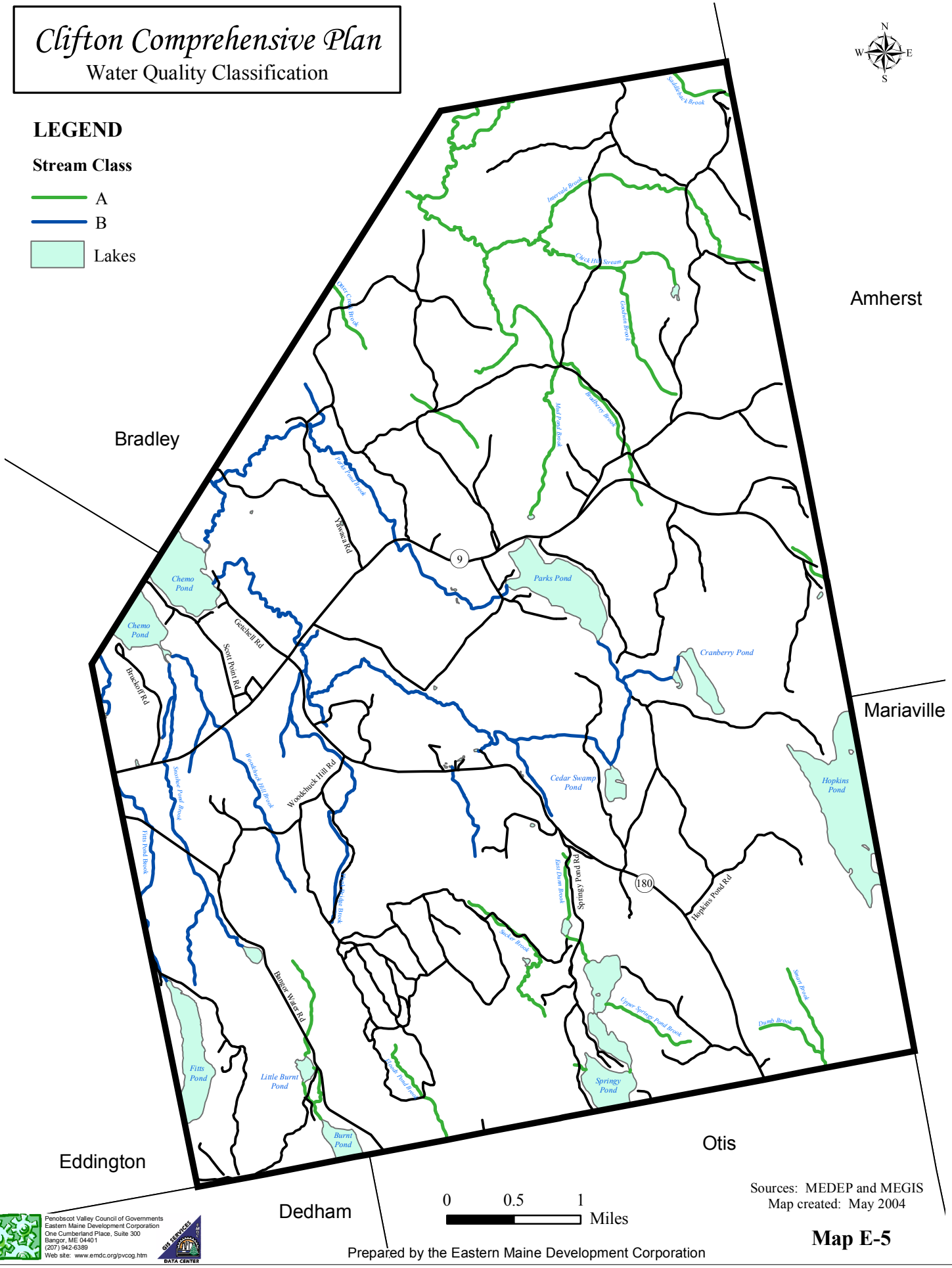
Map E-4a

Clifton Comprehensive Plan

Water Quality Classification



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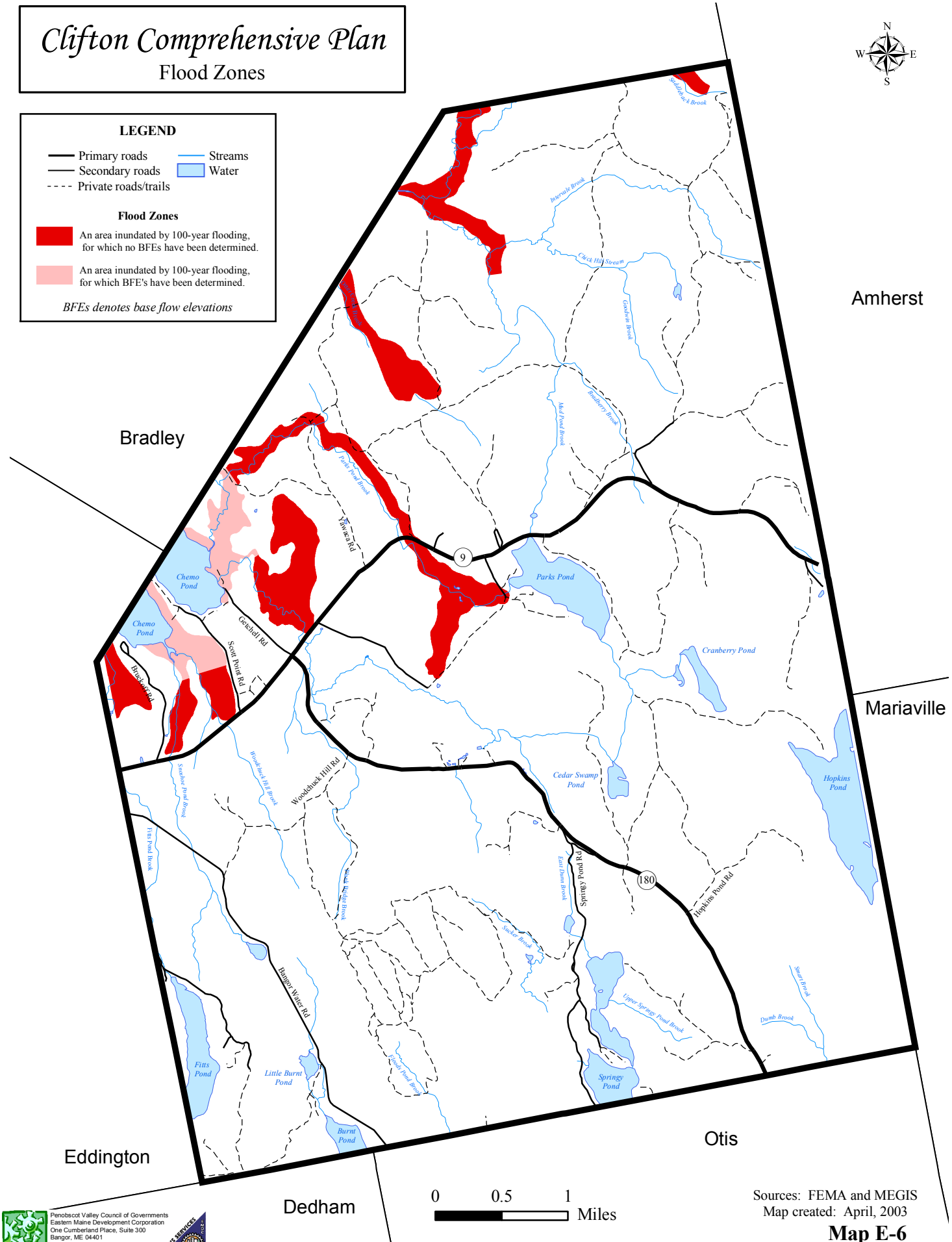
Clifton Comprehensive Plan

Flood Zones



Sources: FEMA and MEGIS
Map created: April, 2003

Map E-6

Penobscot Valley Council of Governments
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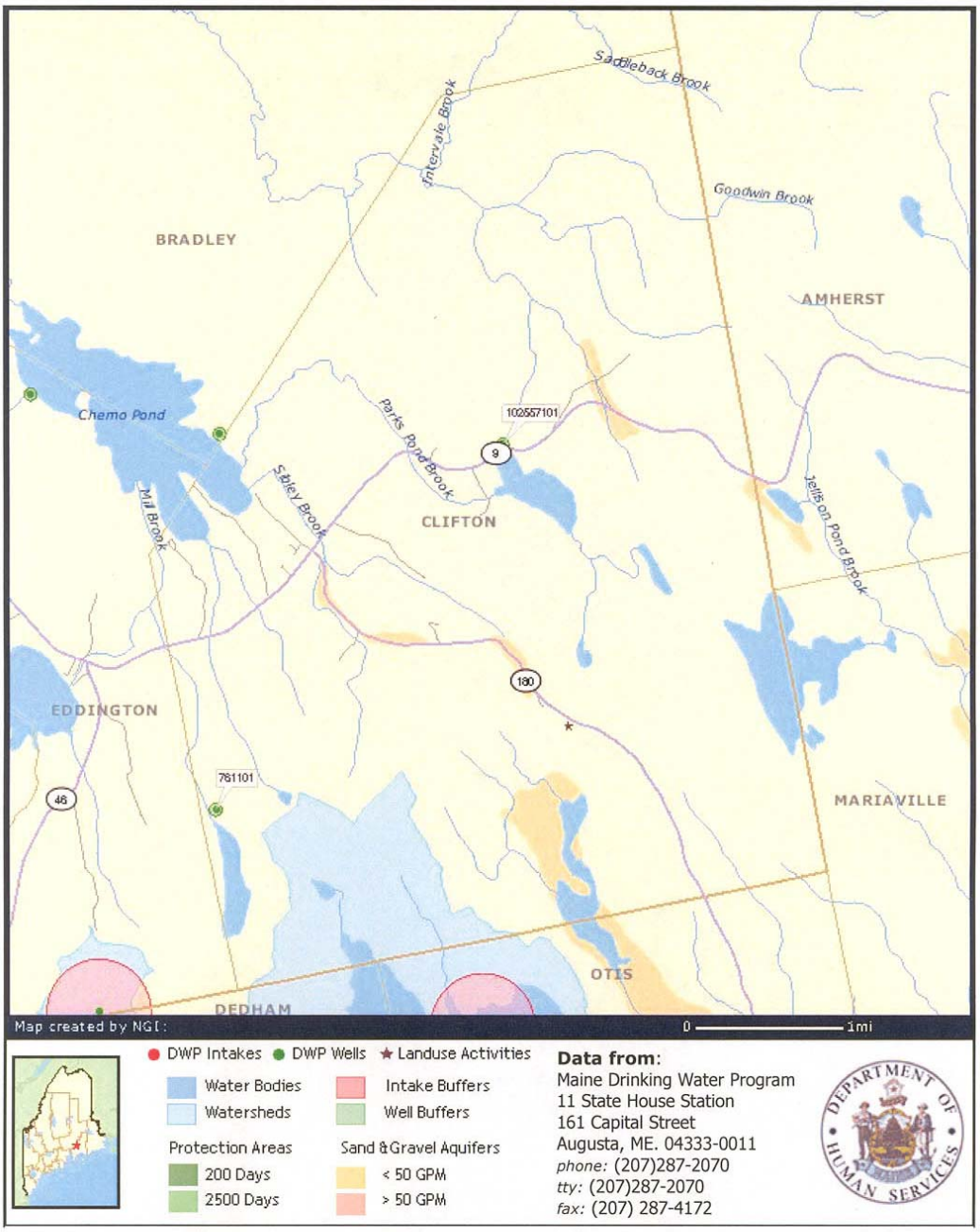
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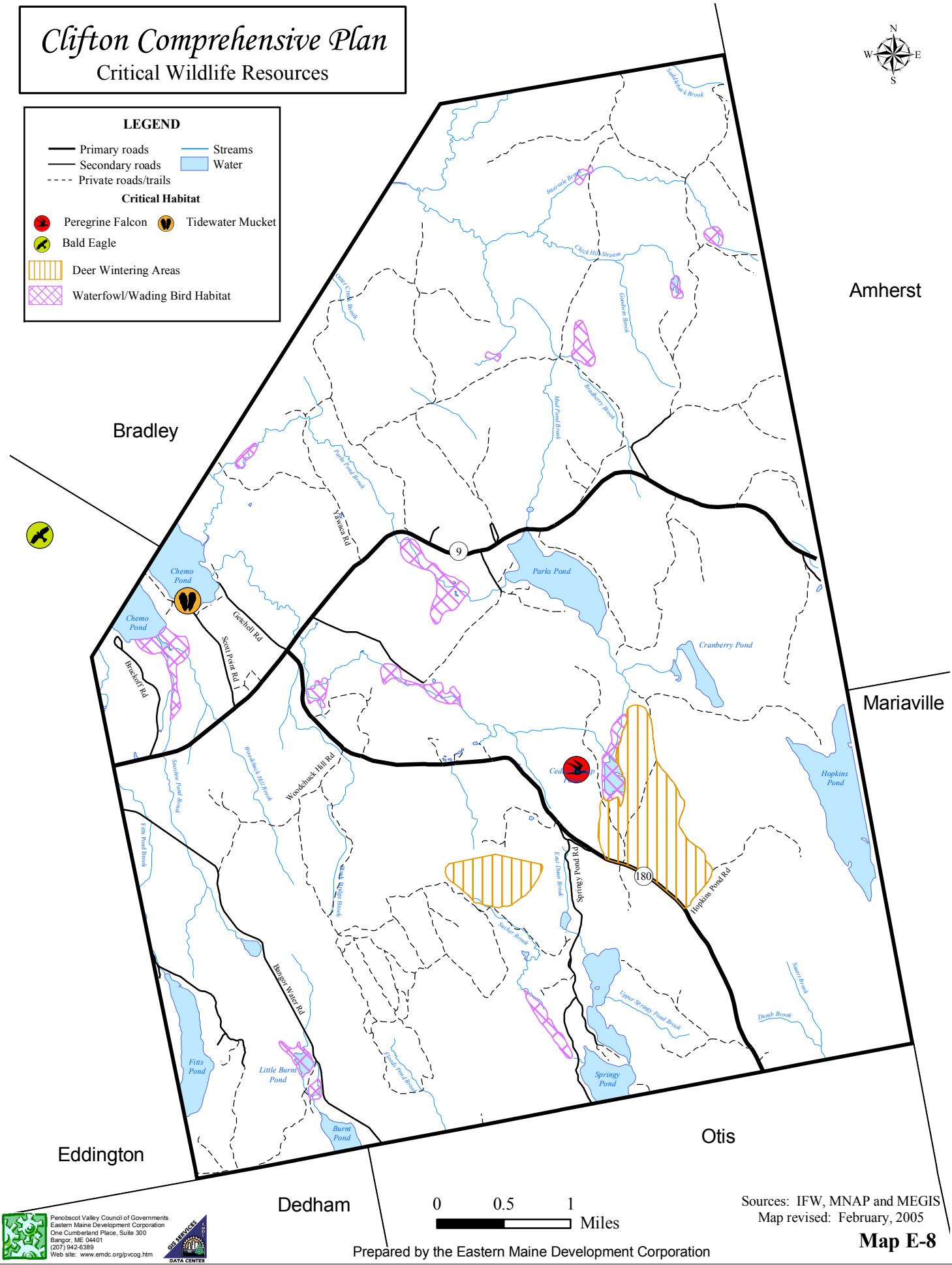
Intervale Brook
Goodwin Brook
BRADLEY
AMHERST
Chemo Pond
Parks Pond Brook
102557101
9
Sibley Brook
Mill Brook
CLIFTON
Jellison Pond Brook
180
EDDINGTON
761101
46
MARIAVILLE
OTIS
DEDHAM
Map created by NGI:
0
1mi
DWP Intakes
DWP Wells
Landuse Activities
Water Bodies
Watersheds
Intake Buffers
Well Buffers
Protection Areas
200 Days
2500 Days
Sand & Gravel Aquifers
< 50 GPM
> 50 GPM
Data from:
Maine Drinking Water Program
11 State House Station
161 Capital Street
Augusta, ME. 04333-0011
phone: (207)287-2070
tty: (207)287-2070
fax: (207) 287-4172
DEPARTMENT OF HUMAN SERVICES

Clifton Comprehensive Plan

Critical Wildlife Resources



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GIS SERVICES DATA CENTER

Sources: IFW, MNAP and MEGIS
Map revised: February, 2005

Map E-8

Prepared by the Eastern Maine Development Corporation