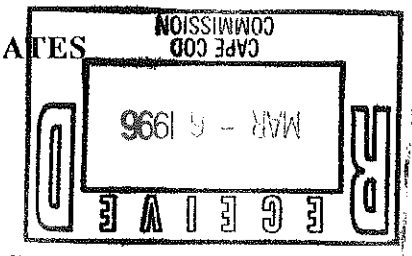
BARNSTABLE COUNTY ASSEMBLY OF DELEGATES

In the Year Nineteen Hundred Ninety Six

Ordinance No. 96-1



To establish a District of Critical Planning Concern pursuant to the Cape Cod Commission Act: Black Beach/Great Sippewissett Marsh, Falmouth, Massachusetts

Barnstable County hereby ordains:

SECTION 1. SOURCE OF AUTHORITY AND GENERAL PURPOSES

As authorized by Sections 10 and 11 of the Cape Cod Commission Act, Barnstable County hereby designates the Black Beach/Great Sippewissett Marsh area, as hereinafter described, as a District of Critical Planning Concern ("District" or "DCPC"). The purposes of this District shall be to maintain the integrity of the Black Beach/Great Sippewissett Marsh barrier beach system; to preserve the habitat value of the marsh/beach area; and to improve/upgrade septic systems and stormwater discharges and employ other means to alleviate shellfish bed closures and improve the water quality of the marsh. This area is hereby designated as a Wildlife/Natural/Scientific/Ecological/Hazard District.

SECTION 2. EFFECTIVE DATE

This Ordinance shall take effect upon the effective date of this Ordinance or upon recording of this Ordinance at the Barnstable County Registry of Deeds, whichever occurs later.

SECTION 3. WRITTEN DESCRIPTION OF THE AREA

The area nominated for District designation is as follows:
Northern boundary: follows Little Neck Bars Road, where it intersects with Route 28A to its end at Chapoquoit Road. The boundary then follows Chapoquoit Road to the northern boundary of the town-owned Chapoquoit Beach.

The western boundary follows the natural coast line from the town-owned Chapoquoit Beach south along the barrier beach, encompassing both barrier spits north and south that protect the opening into Great Sippewissett Marsh.

The southern boundary follows the 100 year floodplain, which coincides very closely with existing roads. The southern boundary will be Arnold Gifford Road east to Wigwam road in Saconessett Hills to the railroad tracks. It then continues, following the flood plain to Old Homestead Lane and the junction of Route 28A.

The eastern boundary once again follows the 100 year floodplain. Route 28A coincides very closely with this floodplain. The eastern boundary will extend from Old Homestead Lane north on Route 28A to Little Neck Bars Road extension, thereby closing the boundary loop of the proposed District.

A Map showing this boundary is appended hereto as ***Appendix A*** for the use of the town and property owners and is hereby incorporated by reference. The District boundary shall be based upon the narrative description set forth in this Section which shall control over any map. These boundaries coincide with legal boundaries that are both convenient and recognizable. The District shall consist of three subdistricts, as described below, to address the various issues of concern within the DCPC. Therefore, all implementing regulations adopted by the Town of Falmouth (the "Town") may not be applicable on all lots within the District.

SECTION 4. TYPE OF DISTRICT/REASONS FOR DESIGNATION

The Black Beach/Great Sippewissett Marsh area described above qualifies under Section 10(a) of the Cape Cod Commission Act for designation as a District due to the following factors:

- the presence of significant natural, coastal, and scientific resources; and

- the presence of substantial areas of sensitive ecological conditions which render the area unsuitable for development.

As proposed by the Town, and in accordance with the Commission's DCPC Guidance Document, dated December 1990, this District is designated as:

4.1) a Wildlife, Natural, Scientific and Ecological District - The District contains a important and identifiable wildlife, natural, scientific and ecological resources including but not limited to, plant, animal and marine life and their habitats, as well as unusual geological features; and

4.2) a Hazard District - The District is highly susceptible to hazards due to natural or man-made conditions including but not limited to, marginal soil, or topographic conditions which render it unsuitable for intense development, flooding, waste treatment, groundwater, erosion, construction problems, salt water intrusion and pollution.

The Black Beach/Great Sippewissett Marsh District is of regional importance and controlled development of lands and waters within the Black Beach/Great Sippewissett Marsh Proposed District is important to the protection of shellfish and wildlife habitat and in order to maintain the integrity of the Black Beach barrier beach system. Set forth below are the reasons why the area is of critical concern to the region, the problems associated with uncontrolled or inappropriate development, and the advantages to be gained by the development of the area in a controlled manner.

Wildlife, Natural, Scientific and Ecological Resource District
The area proposed for designation contains nationally significant ecological and natural resources including freshwater and tidal wetlands, waterfowl, shorebird and migratory bird habitat, rare species, shellfish and finfish, mud and sand flats, and a barrier beach/dune/marsh system which possess recreational, scientific, and educational values. The water quality of the Great Sippewissett Marsh has been studied extensively as a result of research projects by various scientific institutions including the Woods Hole Oceanographic Institution, Marine Biological Laboratory and the Boston University Marine Program. As noted in the District nomination, well over one hundred publications have resulted from the nutrient retention/transformation studies in the area.

In recognition of the presence of these resources, the federal Fish and Wildlife Service recently completed an Environmental Assessment which proposed federal designation of the Sippewissett Marshes National Wildlife Refuge, encompassing a portion of the area. The District is also located on Buzzards Bay which has been designated by the Environmental Protection Agency as an estuary of national significance leading to a five year program to enhance water quality and natural resources through the Buzzards Bay Project.

The Marshes are designated by the Association for the Preservation of Cape Cod as critical habitat due to their many functional values. In addition, the Sippewissett Marshes have been identified by the Northeast Coastal Areas Study as one of seven sites from the Cape and Islands Region that provide significant coastal habitat. According to the Fish and Wildlife Service, five coastal habitat types and approximately 40 species of special emphasis or management concern are supported by the Sippewissett Marshes ecosystem. These marshes provide breeding/spawning, nursery, feeding/staging, wintering and migratory habitat of importance to several species of regional or national significance.

The area is home to several state-listed rare and endangered species. The Massachusetts Natural Heritage and Endangered Species program has designated and mapped the area as a "high priority site of rare species habitat and exemplary natural community" and noted the presence of two state listed species within the proposed District: the federally listed piping plover (*Charadrius melodus*) and Arethusa (*Arethusa bulbosa*) -- a perennial orchid. In addition they noted a record of the New England Blazing Star (*Liatris scariosa v. novae-angliae*) which is proposed for listing in Massachusetts. The Fish and Wildlife Service identify the presence of a number of state and federally listed species within the area including Least Terns (*Sterna albifrons*), Northern Diamondback Terrapin (*Malaclymys terrapin*), Saltpond Grass (*Diplachne maritima*), Bushy Rockrose (*Helianthemum dumosum*) and Linear-Rowed sundew (*Drosera filiformis*) in the area.

In addition to rare species present within the proposed District, the Fish and Wildlife Service has conducted a more extensive survey of the plant and wildlife habitat that is found within the Sippewissett Marshes area (see the Final Environmental Assessment cited in the bibliography.) Their analysis notes that the area provides feeding and overwintering habitat for American Black Duck (*Anas Rubripes*), Snow Geese (*Chen caerulescens*), Canada Geese (*Branta canadensis*), forage for terns, herons, egrets, and bitterns, nesting habitat for osprey and various songbirds, and migratory bird habitat for neotropical migrating birds. The marshes and associated creeks and shallows provide nursery areas for commercially important fish species including winter flounder, bluefish, striped bass and tautog. Menhaden and American sandlance use the marsh as a nursery area and a variety of smaller resident species provide a food source for larger sport and commercial fish species. Soft shell and hard shell clams occur on the mud flats and along the outer beach, and the area has supported occasional bay scallop family fisheries providing a potential commercial and recreational shellfishing resource. Historically this area has been closed to shellfishing from time to time due to oil spills. The first closures of the area due to bacteriological contamination occurred in approximately 1983. The area is currently classified as "seasonally approved" and shellfishing is permitted during winter months.

It is important to maintain the features of the beach which make it critical habitat, and a natural heritage high priority site for these species, as well as essential habitat for all species that depend upon the marsh/barrier beach complex. However, the water quality and ecological values of the marsh/beach complex are threatened by increasing development and current management practices.

According to the Division of Marine Fisheries Sanitary Survey Report for the area, conducted in 1993, stormwater runoff, coupled with poor flushing, is one of the primary sources of shellfish contamination problems in the Great Sippewissett system. Site preparation and development activities including grading, clearing, alteration of topography and the construction of structures, roads and driveways may alter drainage patterns and introduce pollutants and sediment to the marsh through runoff. Grading and filling activities increase the compaction of subsurface soils, decrease soil fertility and change permeability and drainage characteristics. Grading of areas contributing direct discharge to the marsh also causes increased turbidity, decreased pH, changes in salinity and reduced dissolved oxygen levels that will adversely affect fish and invertebrate populations. The Massachusetts Highway Department (MHD) storm drainage system on Route 28A has two drainage pipes that lead directly to the Marsh. Stormwater runoff has been indicated to be a primary source of fecal coliform contamination in the Marsh -- an important indicator of shellfish quality according to the 1993 Sanitary Survey. High fecal coliform counts have been particularly prevalent during the summer months.

Runoff from developed upland areas other than roads can also contribute significant amounts of contaminants to the marsh. Runoff from upland areas can contain fertilizers and pesticides from lawns and contaminants from precipitation on roofs and driveways. Natural buffer strips can significantly reduce contaminant loads from developed areas. The efficiency of buffer strips depend on their width, slope and vegetation.

Buffer strips are also important for the role that they play in protecting and maintaining wildlife habitat. According to the Fish and Wildlife Service study for the area, "the alteration or elimination of

surrounding upland and backdune habitat, and associated transition zones has a pronounced adverse impact on resident and migratory wildlife." (p. 18) Additional development within the District is likely to result in the removal of vegetation, particularly the wooded buffer areas bordering the Marsh and associated wetlands. This will result in alteration of vegetative structure, species composition and distribution patterns, and habitat fragmentation contributing to the direct loss of wildlife habitat and biodiversity.

According to the Fish and Wildlife Service, disturbance of piping plover and least tern nesting areas by human and domestic animal incursions is a serious problem throughout the region, and has led to the abandonment of many former piping plover and tern colonies. Human/animal disturbances are likely to have an adverse impact on many other species as well.

At present, there is the potential for development of many undeveloped lots within the District. According to the Falmouth Conservation Commission, development pressures have increased in the Black Beach/Great Sippewissett Marsh area. The District nomination states that "the Black Beach area had experienced very little developmental change over the last 15-20 years. The last total house reconstruction . . . was permitted in 1985. In fiscal year 1994-1995, the Conservation Commission has reviewed eight Notice of Intent filings on Black Beach or properties adjacent to the Sippewissett Salt Marsh, with more filings pending." The Falmouth Conservation Commission currently regulates any activity within 100' of wetlands, however, town regulations currently only provide for a 25' undisturbed buffer strip around wetland resource areas as defined by the Falmouth Wetland Bylaw and regulations. As noted above, such a buffer is likely to be inadequate, in many cases, to provide protection for nesting waterfowl and other wildlife that utilize the marsh for feeding, nesting and breeding.

Hazard District

The area proposed for designation as a District contains two barrier spits. These are known as Black Beach and the Saconessett Hills Barrier Spit. They are designated as Fm-31 and Fm-30 respectively by Coastal Zone Management's 1982 Barrier Beach Inventory Project. Black Beach is also a federally designated unit of the Federal Coastal Barrier Resource System.

The barrier spits protect both the Great Sippewissett Marsh and the shoreline areas behind the marsh by serving as a buffer to storm waves and storm surges. It is a dynamic area where the beach and dunes are constantly changing as a result of wind and wave action, influenced by natural and human activities as well as relative sea level rise. Like most barrier beaches, Black Beach is attempting to move landward, as indicated by visible storm overwash fans in the marsh behind the dunes deposited during Hurricane Bob. This landward migration is part of the natural cycle of barrier beaches and the process of overwash plays an important role in the dissipation of wave energy and protection of upland areas behind the barrier beach. As storm waves erode the seaward side of the barrier beach, overwashed material is carried into the marsh and provides a substrate for the formation of new dune areas, shifting the barrier beach landward.

On an undeveloped barrier beach, this process can occur unimpeded, however, development on barrier beaches including buildings, septic systems, roadways, seawalls, revetments, and groins alters this natural cycle. Such structures prevent overwash and interfere with beachgrass and dune growth, contributing to erosion in surrounding areas. These disturbances are damaging to the stability and function of the system as a whole and over the long term will interfere with the landward migration of the barrier beach and make the beach increasingly susceptible to breaching. According to recently published "Guidelines for Barrier Beach Management in Massachusetts, "once the natural beach and dune rebuilding processes are interrupted, the barrier beach defenses against future storms are diminished. In an attempt to "stabilize" the barrier beach through armoring, such as building a seawall or revetment, the beach areas adjacent to and in front of the armoring erode or scour at an accelerated rate and may entirely disappear over time." (p. 13) The Guidelines recommend that "whenever possible, coastal banks serving as sediment sources for adjacent barrier beaches remain or be returned to an undeveloped, unarmored state in order to allow for healthy beaches and dunes." (p.15) The

same is true for coastal dunes that function in the same manner.

Since they would become vulnerable to direct wave attack, a breach in Black Beach could have catastrophic impacts on existing houses and the marsh itself landward of the breach. Protecting the integrity and function of the barrier beach system requires attention to three components -- ensuring sediment supply to the area, maintaining vegetative cover and maintaining the beach elevation. This will require both management and regulatory measures.

As noted above, existing and future development will continue to adversely affect the natural process of erosion and migration on the barrier beach. Expansion of existing houses and increased use of a property on the primary dune or barrier beach may weaken the integrity and elevation of the barrier itself. Septic systems and cesspools within this area may result in the introduction of bacteria and viruses to the marsh due to shallow depth to groundwater and periodic flooding. Development on the beach also results in the removal of stabilizing vegetation. The continued reliance on revetments, seawalls and jetties to protect property on the beach, will further starve downdrift areas of sediment and further weaken the barrier beach.

In addition, most of the District is within FEMA V and A flood zones. Approximately 50% of the District is in the mapped FEMA Velocity zone. This is an area which is subject to hazardous flooding, wave impact, and erosion as a result of storm wave impact and scour. Development in these areas is at extreme risk -- and can pose a hazard to nearby areas. For example, dredging or removal of materials within V zones acts to increase the landward velocity and height of storm waves, thereby allowing them to break further inland and to impact upland and wetland areas which might not otherwise be impacted. Filling and the placement of solid structures within V zones may cause the refraction, diffraction and/or reflection of waves, thereby forcing wave energy onto adjacent properties, natural resources, and public or private ways potentially resulting in otherwise avoidable storm damage and/or increased rates of erosion and scour. (U.S. Army Corps of Engineers, 1984)

Most of the remainder of the District is located in the FEMA A zone. Alteration of land surfaces in FEMA A zones will change drainage characteristics that can result in increased flood damage on adjacent properties. In addition, flooding within these areas leads to property damage. Loss of property resulting from wave and wind damage in V zones, as well as from still-water flooding within A zones, is responsible for millions of dollars in flood insurance claims and taxpayer costs in Massachusetts. As a result of just three storms in 1991-1992, the repair of public roads, seawalls, sewer and water lines, buildings and other public facilities in Massachusetts cost taxpayers over $50 million (over and above monies paid from the National Flood Insurance Program) (Massachusetts Barrier Beach Task Force, 1994).

The area within the District received a significant amount of storm damage as a result of Hurricane Bob. In addition, the elevation of the dunes was lowered due to lack of sediment supply as a result of revetments and groins along the coastline and redistribution of sand from Hurricane Bob, leaving the area vulnerable to future storms. Future hurricanes will likely affect this area in a similar manner.

Finally, storm damage in the future is likely to be even more devastating as a result of relative sea level rise. Historical sea level measurements indicate that relative sea level is rising at approximately 1 foot every 100 years (Giese, et al., 1987). As a result, the Massachusetts Coastal Zone Management Program and the Barnstable County Regional Policy Plan both recommend that buildings, septic systems, and other structures be designed to accommodate a relative sea level rise of at least 1 foot within FEMA A and V zones. More recent research, indicates that a 2 foot increase in elevation within V zones is likely to be necessary due to increases in wave height within these areas. Research by the Cape Cod Commission on buffer zones to wetlands and waterbodies notes the importance of maintaining fringing upland areas around these resources in order to allow landward migration of both inland and coastal wetlands in response to sea level rise. If these areas are not protected, wetlands are likely to become flooded and lost as sea level rises.

SECTION 5. GUIDELINES FOR DEVELOPMENT

The following guidelines shall serve as the basis for DCPC implementing regulations to be adopted by the Town pursuant to Section 11 of the Cape Cod Commission Act to control development within the Black Beach/Great Sippewissett Marsh District.

5.1. Introduction

These guidelines shall govern the future establishment of implementing regulations concerning development and activities in the District. An important aspect of these guidelines and pursuant regulations is the use of minimum standards that a development and/or activities must meet or exceed. The principal factors in determining the standard(s) to be used shall be the minimum performance standards in the Regional Policy Plan and the body of current, published scientific data that ensures full protection of the Goals and Interests of the District. Other factors to be considered may include, but are not limited to, the following: currently used standards, Best Management Practices (BMPs), lot area, location, and whether new development, redevelopment or reconstruction are involved. Nothing herein shall be interpreted to restrict the authority of the Town to adopt implementing regulations which are more stringent that the Minimum Performance Standards contained in the Regional Policy Plan.

5.2 Goals and Interests

5.2.1. Goals:

DCPC implementing regulations shall ensure full protection of the following Goals and Interests of the District.

Goal 1. To protect the Interests of the District.
Goal 2. To provide guidelines for development which protect these interests.
Goal 3. To provide guidelines which allow for integration of regulations concerning environmental, health, planning, construction, historical /cultural and other issues which could impact the interests named below.
Goal 4. To provide guidelines for the establishment of regulations which can be applied in a fair and consistent manner.
Goal 5. To provide specific guidelines for choosing criteria whereby such regulations may be amended.

5.2.2. Interests:

The interests that are to be protected by this District are as follows:

- To prevent flood damage by limiting development in flood hazard areas;
- To prevent damage to structures and natural resources as a result of erosion;
- To improve water quality by preventing new sources of pollution and remediating existing pollution sources;
- To protect and enhance existing vegetative cover in order to maintain water quality and wildlife habitats;
- To protect wildlife, waterfowl, and plant habitat and to maintain existing populations and species diversity;
- To prevent loss or degradation of critical wildlife and plant habitat;
- To prevent new stormwater runoff discharges and to improve existing stormwater runoff discharges;
- To protect coastal ecosystems which support the continued viability of harvestable shellfish and finfish habitat;
- To provide for management of public access to water and land;
- To improve groundwater recharge;
- To minimize the impact of new development, reconstruction and/or expansion on the interests listed above.

Stormwater drainage is adversely impacting the resources to be protected by the District. The Cape Cod Commission and the Town shall work with state officials to develop a management plan for the remediation of stormwater drainage flows. The stormwater drainage flows at issue include runoff from private roads into the state highway drainage system and direct discharges from the state highway system into the marsh at two points within the nominated area.

5.3. Definitions

Developed Lot: A lot containing a residence or business or other principal structure used to temporarily or permanently contain, shelter or house people and which was lawfully constructed prior to the date of designation of the District.

Undeveloped Lot: A lot which, as of the date of designation of the District, did not contain a residence, business or other principal structure used to temporarily or permanently contain, shelter or house people lawfully constructed prior to the date of designation of the District; or a lot created after the date of designation which does not contain such a residence, business or other structure used to temporarily or permanently contain, shelter or house people, lawfully constructed prior to the date of designation of the District.

Expansion: Any increase in the gross floor area of a Principal Structure as defined in the Falmouth Zoning By-laws. See also 5.4.1.11.

Change in Intensity: A different or increased impact on the Goals and Interests provided in Section 5.2.

Flood Hazard Zone: This zone is an overlay district and shall encompass all land and water areas within the FEMA V and A Zones as determined by reference to the most recently available flood data prepared for the Town of Falmouth under the National Flood Insurance Program. For the purposes of this District the flood hazard zone as defined herein does not include the FEMA C Zone. If this boundary is in doubt or in dispute, the boundary may be modified in accordance with the procedures set forth by the National Flood Insurance Program.

Gross Floor Area: See Article III, Definitions, Falmouth Zoning By-Laws.

Redevelopment: The reconstruction, reuse or change in use of any developed property including but not limited to the following: any increase in the intensity of the use of already developed land, such as an increase in the number of dwelling units in a structure or change to a commercial or industrial use from a less intensive use; enlargement of a structure; additions to usable interior floor area within residential, commercial and industrial buildings; and the conversion of a seasonal use or dwelling to year-round use.

Principal Structure: See Article III, Definitions, Falmouth Zoning By-Laws.

Substantial Damage: See Article III, Definitions, Falmouth Zoning By-Laws.

Substantial Improvement: See Article III, Definitions, Falmouth Zoning By-Laws.

Water Quality Protection Zone: This zone is an overlay district consisting of all areas within the boundary of the Black Beach/Great Sippewissett Marsh District.

Wildlife Habitat Protection Zone: This zone is an overlay district consisting of all areas within the boundary of the Black Beach/Great Sippewissett Marsh District.

5.4. Application of Guidelines

General Guidelines (Section 5.4.1) are guidelines which are intended to apply throughout the District. In subsequent sections, guidelines are presented which apply separately to the three proposed, largely overlapping, zones of the District: Water Quality Protection Zone (Section 5.4.2), Wildlife Habitat Protection Zone (Section 5.4.3) and Flood Hazard Zone (Section 5.4.4.).

5.4.1. General Guidelines:

This section provides general guidelines for the preparation of regulations, administration and management of the District. Also included are guidelines which pertain to development in all three Overlay Zones of the District because they protect the overall purposes of all three Overlay Zones: protection of water quality, protection of habitat, and flood/erosion prevention.

The general format includes a statement of the topic to be addressed by the Town in drafting the implementing regulations. It also suggests the use of Minimum Standards or where these are not available, Best Management Practices (BMPs). The minimum standards or BMPs may be cited in these guidelines, or where this is not possible, the Town shall investigate standards and/or BMPs to address the issue. In the establishment of a standard(s) or where a range of standards is to be used, the principal factor determining said standard(s) shall be at a minimum, consistency with the relevant Minimum Performance Standards of the Cape Cod Commission Regional Policy Plan unless available published scientific data show that a less restrictive standard will ensure full protection of the Goals and Interests of the District. Other factors to be considered may include, but are not limited to, the following: currently used standards, BMPs, lot area, location, and whether new development, redevelopment or reconstruction are involved.

5.4.1.1. Drafting of regulations:

The Falmouth Board of Selectmen and Falmouth Conservation Commission shall oversee the development and adoption of the various implementing regulations consistent with the Guidelines described herein, to protect the Goals and Interests of the District as described in Section 5.2. The Falmouth Conservation Commission and Falmouth Board of Selectmen shall appoint a DCPC Advisory Committee as described in Section 5.4.1.7 to write the implementing regulations. Advice from Federal, State and local organizations, interested citizens and Commission shall be sought.

5.4.1.2. Commission review:

The Commission shall review the implementing regulations and may certify regulations which are different than those suggested by the Minimum Standards given in this Guideline if the Commission finds that such regulations will carry out the purpose of the Cape Cod Commission Act and the Regional Policy Plan and the goals /interests of the District as described in Section 5.2. The Commission shall determine whether the implementing regulations proposed by the Town are sufficient to protect the Goals and Interests of the District and may then issue a Certificate of Consistency. Upon the adoption of certified implementing regulations, local permitting previously stayed by the District nomination may proceed consistent with the newly adopted implementing regulations.

5.4.1.3. Review of Developments of Regional Impact (DRIs) within the District:

The regulations adopted pursuant to these Guidelines in no way alter the process for referral of Developments of Regional Impact according to the Cape Cod Commission Act.

5.4.1.4. Flexibility in application and property equity:

Variances should be issued only when necessary to meet constitutional requirements. The Town may, as permitted by law, decide on a case-by-case basis how the pursuant regulations will be applied, in order to take account of differences in lot area and type, the particular nature of the resources at stake, the type of development, reconstruction or redevelopment proposed.

The Town may, as permitted by law, adopt regulations which provide separate and different performance standards for preexisting versus new construction and reconstruction, and for undeveloped lots versus developed or redeveloped lots.

The implementing regulations shall address the issue of property equity and shall be directed towards avoiding regulatory takings. The implementing regulations shall investigate methods of addressing property equity, with a strong preference for the use of Transfer of Development Rights (TDR).

5.4.1.5. Integration of Town By-Laws and Regulations:
Within the District, the applicable existing regulations and bylaws of the various Falmouth Boards, Commissions and Committees which have jurisdiction within the District shall be made consistent with the applicable implementing regulations.
These regulations shall address the Goals and Interests of this District as described in Section 5.2.

5.4.1.6. Maps and figures to be included:
The implementing regulations shall include suitable maps and figures describing the area and nature of the entire District, the Water Quality Protection Zone, the Wildlife Habitat Protection Zone, the Flood Hazard Zone, and other resources or Interests. Such maps and figures must originate from either the Cape Cod Commission, the Town of Falmouth or other local, regional, state or federal authority.

5.4.1.7. DCPC Advisory Committee:
The Falmouth Board of Selectmen and the Conservation Commission shall appoint a DCPC Advisory Committee, composed of representatives of such Town Boards, Commissions and Committees as Conservation, Planning, Health, Building, Zoning Boards, other boards and committees, and private citizens, to prepare the various implementing regulations and a management plan for the District within one (1) year of designation of the District of Critical Planning Concern. This committee shall be chosen for their ability to provide technical expertise and/or their ability to fairly and fully represent the various groups and private citizens who reside or work within the District, and shall also include public officials with demonstrated responsibilities or technical expertise in issues affecting the District.

The management plan shall, at a minimum, examine and make recommendations on the issues listed below. Other issues may be examined as they are found necessary to protect the Goals and Interests of the District.

a) Development and implementation of a public education program for property owners, visitors, and others, which will identify real and possible impacts on the habitats in the District and provide suggestions for reducing or eliminating such impacts;
b) Development of a public access management program;
c) Identification of priority acquisitions, conservation easements or restrictions within the District;
d) Identification of remediation measures for existing direct discharges within the District and a plan to work with the Town and other local, regional and state authorities to implement such measures; and
e) Development of a beach nourishment/vegetation program to replenish dunes at the end of Black Beach.

The Cape Cod Commission may provide technical assistance to this committee at the request of the Town. The management plan developed by this committee shall not be considered "implementing regulations" under the Cape Cod Commission Act. The committee may recommend proposed implementing regulations to promote the Goals and Interests of the District.

5.4.1.8. Clearing and surfacing throughout the District:
The implementing regulations shall address the construction, alteration, expansion and reconstruction of roads, driveways and parking areas within the District. The implementing regulations shall discourage the expansion of roads in the District and shall discourage the use of impervious surfaces for roads, driveways and parking areas. The implementing regulations shall provide for limits on the

amount and type of surface to be used for roads, driveways and parking areas as is necessary to protect the Goals and Interests of the District.

a) For all undeveloped lots, the implementing regulations shall provide for limits on the amount and type of clearing that may be done in order to construct dwellings, septic systems, roads, lawns, other structures and related activities.

b) On developed lots, the implementing regulations shall provide for revegetation of areas disturbed by construction, reconstruction, alteration, development, redevelopment, or expansion. The implementing regulations shall at a minimum encourage replanting of an equal area, but a greater area of replanting may be specified. Such regulations shall be consistent with other vegetated buffer strip requirements described in Section 5.4.1.10.

5.4.1.9. Wetland or Resource Area alteration:
The implementing regulations shall prohibit or limit alteration of vegetated wetlands, water bodies, ACEC, habitats listed in the APCC Critical Habitat Atlas, State or locally listed Rare and Endangered Species Habitats or Resource Areas defined in the Falmouth Wetland Regulations. The implementing regulations shall ensure full protection of the Goals and Interests of the District.

5.4.1.10. Buffer strips:
Contiguous buffer strips are extremely important for protecting the Goals and Interests of the District and for protecting the specific Interests of the three Overlay Zones: water quality protection, wildlife habitat protection, and flood/erosion damage prevention. Since the width of buffer strips needed to protect different resources differs, buffer strips in the three Overlay Zones may be addressed separately. However, some common principles governing buffer strips apply to all three Overlay Zones and hence throughout the District and are as follows:

a) Different buffers for new development versus redevelopment/reconstruction:
Where new development of a previously undeveloped lot is involved, the buffer strip may be wider than where redevelopment or reconstruction are involved. Where a developed lot cannot provide the required buffer and where no development alternatives exist, the permitting authority may modify the buffer strip requirement, so long as the maximum feasible buffer is provided and mitigating measures are made on-site to enhance wildlife habitat, minimize flood and erosion damage and to protect water quality.

b) Integrating buffer strips for protection of different zones:
The implementing regulations shall address different buffer strip widths which are meant to protect different resources (e.g., flooding, wildlife habitat, and water quality) and how they may be integrated into a single buffer strip that addresses all concerns.

c) Activities and alterations within buffer strips:
The implementing regulations shall address access, alterations, activities and modifications to vegetation within the buffer strip.

In determining the width of the buffers or alterations within the buffer area, the minimum buffer width shall be consistent with the Regional Policy Plan unless a body of current, published scientific data (e.g. Wetland Buffer Zones, Massachusetts Association of Conservation Commissions, October/November 1995) indicates that wider buffer strips would be needed to ensure full protection of the Goals and Interests of the District. Other factors to be considered may include, but are not limited to, the following: currently used standards, BMPs, lot area, shape, topography, location, and whether new development, redevelopment or reconstruction are involved.

5.4.1.11. Expansion or alteration of structures:
In accordance with Section 22(c) of the Cape Cod Commission Act, expansions and alterations of single-family residential dwellings in existence as of July 1, 1989 are not subject to DCPC

implementing regulations so long as the total gross floor area of such expansion or alteration does not exceed 25% of the total gross floor area of the dwelling in existence as of July 1, 1989. Additions which exceed this threshold are subject to the DCPC implementing regulations. Single-family dwellings constructed after July 1, 1989, multifamily dwellings, and nonresidential structures are subject to the DCPC implementing regulations regardless of the size of the expansion or alteration. The implementing regulations shall address the issues of expansion and/or alteration in a manner that ensures full protection of the Goals and Interests of the District.

5.4.1.12. Change in Intensity of use:
The implementing regulations shall address the issue of change of use and/or change in intensity of preexisting structures in a manner that ensures full protection of the Goals and Interests of the District.

5.4.1.13. Rehabilitation, remediation and restoration of resources:
The implementing regulations shall address how rehabilitation, remediation and restoration of the natural resources in this District may be carried out over the long term (e.g., next 20-50 years). Falmouth shall consider adopting regulations addressing eventual restoration of these resources. Both small-scale, short-term and large-scale, longer-term approaches may be considered. The implementing regulations shall also address the remediation or removal of existing drainage structures which discharge stormwater directly to the marsh.

5.4.1.14. Amendment:
The Town may consider proposing to amend its implementing regulations concerning the District under the following circumstances:

a) If a new and significant body and consensus of scientific knowledge, regulations or administrative review becomes available or is provided whereby the interests would be served better by amendment to include the new information; or

b) Where scientific, planning and administrative review concur to find that the Interests would be served by relaxation of Minimum Standards and where it can be demonstrated that not to relax such standards would result in a regulatory taking or present undue hardship on residents and occupants of the District.

These amendments shall be forwarded to the Cape Cod Commission for review and approval as described in Section 5.4.1.2.

5.4.2. Guidelines for the Water Quality Protection Zone:

In this and the following two Sections, guidelines governing development and activities within the three Overlay Zones of the District are described in Section 5.4.2, 5.4.3 and 5.4.4.

The definition of the Water Quality Protection Zone of the District is given in Section 5.3. An individual lot may be exempted from the guidelines provided in this Section and the pursuant regulations if it can be shown by a registered professional engineer or qualified hydrologist, using accepted professional standards, that the lot does not contribute surface runoff or groundwater to wetlands or waterbodies within the District.

Implementing regulations governing development in the Water Quality Protection Zone shall be developed as described below. The principal factors in determining the standard(s) to be used shall be the minimum performance standards in the Regional Policy Plan and the body of current, published scientific data that ensures full protection of the Goals and Interests of the District. Other factors to be considered may include, but are not limited to, the following: currently used standards, Best Management Practices (BMPs), lot area, location, and whether new development, redevelopment or reconstruction are involved.

5.4.2.1. Erosion and sedimentation control:
The implementing regulations shall provide for erosion and sedimentation control. Factors which may be considered in adopting regulations include lot area and relative area of disturbance. The implementing regulations shall adopt regulations that ensure full protection of the Goals and Interests of the District and include erosion control practices of the U.S. Natural Resource Conservation Service and/or Coastal Zone Management.

5.4.2.2. Stormwater management:
The implementing regulations shall provide standards for stormwater management and the remediation of existing drainage which have direct discharges of stormwater. The minimum factors to be considered in adopting regulations for stormwater management include the full protection of the Goals and Interests of the District, the resource(s) and Interest(s) that may be impacted, the need for preventing any new direct discharges of stormwater into marine and fresh surface waters and/or wetlands within the District, possible effects of long-term sea level rise, remediation of existing direct discharges. Examples of minimum performance standards that may be applied to stormwater management include but are not limited to U.S. EPA Best Management Practices (BMPs) for stormwater management and Buzzards Bay Project BMPs soon to be released by DEP and Coastal Zone Management.

5.4.2.3. Buffer strips in the Water Quality Protection Zone:
The implementing regulations shall provide for vegetated buffer strips that ensure full protection of the Goals and Interests of the District. These buffer strip regulations for water quality protection are to be integrated with buffer strip regulations which address the other Interests (wildlife, plant, shellfish, and fish habitat) as described below under Section 5.4.3. In determining the width of the buffers or alterations within the buffer area, the principal factor shall be the minimum performance standards in the Regional Policy Plan and the body of current, published scientific data that ensures full protection of the Goals and Interests of the District. Other factors to be considered may include, but are not limited to, the following: currently used standards, BMPs, lot area, shape, topography, location, and whether new development, redevelopment or reconstruction are involved.

5.4.2.4. Septic systems:
The implementing regulations shall provide for protection of water quality from bacterial and viral contamination due to septic leakage, septic leaching, or septic failures. The principal factor in determining the standard(s) shall be based on a body of current, published scientific data that ensures full protection of the Goals and Interests of the District. Other factors to consider include the resource or Interest that may be impacted, residence time of viruses and enteric bacteria in water, groundwater and soil, including but not limited to, fecal coliform; the travel distances of pathogens in groundwater in soil and sediments; and other bodies of scientific knowledge concerning septic system impacts. The minimum standards for new development or upon transfer of ownership shall be at least as stringent as those of the current Title 5 regulations with respect to bacteria and viruses (excluding nitrogen) and may be stricter. The Falmouth Board of Health and the Conservation Commission are to work together with the DCPC Advisory Committee to produce the implementing regulations.

5.4.2.5. Pollution prevention:
The implementing regulations shall address prevention of pollution of surface and groundwater and sediments by sources of pollution other than the above-named sources. The Town may express a strong preference for prohibiting the use of herbicides due to enforcement issues. These may include, but are not limited to, the following possible sources of pollution: underground oil tanks, poor waste disposal practices, business or household activities which release otherwise contained pollutants, the use of lawn care products, fertilizers, pesticides and herbicides, solid waste disposal practices likely to result in groundwater contamination, and the use of road deicers. The principal factor in determining the standard(s) of this Section shall be based on a body of current, published scientific data that ensures full protection of the Goals and Interests of the District. Other factors to be considered may include, but are not limited to, the following: currently used standards, BMPs, lot area, shape, topography, location, and whether new development, redevelopment or reconstruction are involved.

The minimum standards will be adopted which may refer either to BMPs to limit such sources of pollution (most general case) and/or to specific water and sediment quality standards (most specific). Although nitrogen loading is not an Interest in this District, measures to limit or eliminate nitrogen will serve to address many other Interests of this District.

5.4.3. Guidelines for the Wildlife Habitat Protection Zone:

As defined in Section 5.3, the Wildlife Habitat Protection Zone is an overlay district. Implementing regulations governing development in the Wildlife Habitat Protection Zone shall be developed as described below. The principal factors in determining the standard(s) to be used shall be the minimum performance standards in the Regional Policy Plan and the body of current, published scientific data that ensures full protection of the Goals and Interests of the District. Other factors to be considered may include, but are not limited to, the following: currently used standards, Best Management Practices (BMPs), lot area, location, and whether new development, redevelopment or reconstruction are involved.

5.4.3.1. Vegetated buffer strips in the Wildlife Habitat Protection Zone:
The implementing regulations shall include regulations concerning the width and type of vegetated buffer strip needed to protect the Wildlife Habitat Protection Zone or specific populations within said Zone and District. Contiguous buffer strips to protect wildlife, waterfowl, fish or shellfish habitat must be integrated with buffer strips designed to be protective of water quality and buffer strips addressing flood and erosion prevention. The principal factor determining how this buffer strip width shall be determined shall be the minimum performance standards in the Regional Policy Plan and the body of current, published scientific data on buffer zone widths and minimum areas needed for stabilization or increase of the particular wildlife populations to be protected. The same principle should also apply to buffer strips designed to address water quality in the Water Quality Protection Zone. Other factors to be considered may include: currently used standards, BMPs, lot area, location, and nature of existing or proposed development or redevelopment.

5.4.3.2. Consider specific protection of micro habitats:
The Town may consider and adopt regulations providing for the protection of specific microhabitats within the Wildlife Habitat Protection Zone, if it is apparent from a reasonable body of scientific evidence that these microhabitats are distinct from surrounding overall habitat.

5.4.4. Guidelines for the Flood Hazard Zone:

The Flood Hazard Zone is defined in Section 5.3. If this boundary is in doubt or dispute, the boundary may be modified in accordance with procedures described in the National Flood Insurance Program. Implementing regulations governing development in the Flood Hazard Zone shall be developed as described below. The principal factors in determining the standard(s) to be used shall be the minimum performance standards in the Regional Policy Plan and the body of current, published scientific data that ensures full protection of the Goals and Interests of the District. Other factors to be considered may include, but are not limited to, the following: currently used standards, Best Management Practices (BMPs), lot area, location, and whether new development, redevelopment or reconstruction are involved.

5.4.4.1.Septic systems:
The implementing regulations shall address the current and potential impacts of septic systems on the District. The principal factor in determining the standard(s) shall be based on a body of current, published scientific data that ensures full protection of the Goals and Interests of the District; variances to Title 5 requirements shall be discouraged. Other factors include, but are not limited to, the following:

a)possible different minimum standards for preexisting versus new construction, reconstruction, alteration or new development and for seasonal versus year-round use;

b) possible different standards for the different velocity and flood zones (A,V);
c) private sewage treatment facilities, mounded septic systems, alternative septic systems, and the issue of substandard septic systems.

The minimum standards include Title 5 and/or local Falmouth Bylaws and Regulations concerning septic system performance regarding Flood Hazard issues such as: erosion and the preventing of pollution through surface biological contamination. Other standards may also be considered.

5.4.4.2. Coastal armoring and shoreline protection structures:
The implementing regulations shall include regulations concerning new and preexisting coastal armoring structures (revetments, seawalls, riprap) and other shoreline protection structures (groins, jetties, etc.) within the District. The principal factor in determining the standard(s) shall be based on a body of current, published scientific data that ensures full protection of the Goals and Interests of the District. The Town may adopt regulations that prohibit new construction of such structures within the Flood Hazard (V) Zone of the District.

5.4.4.3. Docks, piers, and other boating structures:
The implementing regulations shall include regulations concerning docks, piers, floats, boat lifts, moorings and other structures relating to boating, and the concomitant issue of public access, in the District. The principal factor in determining the standard(s) shall be the body of current, published scientific data that ensures full protection of the Goals and Interests of the District. Other issues to consider in these regulations may include, but are not limited to, the following: impact(s) on the shellfish habitat, the use of community docks, size and impact of structures on shellfish habitat and other resources, and preexisting versus new structures. The Town may adopt regulations that prohibit new construction of such structures in the District.

5.4.4.4. Velocity zones (V zones), flood zones (A zones) and primary/secondary dunes:
The implementing regulations shall include regulations concerning whether new construction, septic systems, reconstruction, alteration and activities are to be permitted in these areas, and if so, what types may be permitted. The principal factor in determining the standard(s) shall be the body of current, published scientific data that ensures full protection of the Goals and Interests of the District. The Town may adopt regulations that prohibit new construction, septic systems, reconstruction, alteration and activities in the velocity zones (V) or primary or secondary dunes. The Town may adopt regulations that require all new structures to be designed to accommodate sea level rise over the next 100 years and shall not permanently alter topography in a manner that will increase flooding or storm damage on surrounding lots. Different minimum standards may be specified for these different areas.

5.4.4.5. Reconstruction of structures damaged by storms:
The implementing regulations shall include regulations addressing reconstruction of preexisting structures proposed as a result of storm damage, as storm damage is defined in the Falmouth Zoning By-Laws. The principal factor in determining the standard(s) shall be the body of current, published scientific data that ensures full protection of the Goals and Interests of the District.

The Town may adopt implementing regulations providing that single family dwellings in FEMA A and V zones that are substantially damaged, may be reconstructed provided there is no expansion that exceeds 25% of the total gross floor area of the dwelling as provided in Section 22(c) of the Cape Cod Commission Act. For construction not exempt under Section 22(c) of the Act, the Town may adopt regulations providing that there be no change in footprint, or intensity of use and further providing that structures be reconstructed on open pile foundations that allow for the movement of sand and waves under the structure and are designed to accommodate sea level rise over the next 100 years.

The Town may adopt regulations providing that at the time of reconstruction of a substantially damaged principal structure, any revetments, seawalls, groins, and other shoreline protection structures, shall be required to be removed and the associated beach area shall be restored. The

principal factor in determining if said shoreline protection structure is to be removed, shall be based on a body of current, published scientific data that ensures full protection of the Goals and Interests of the District.

Adopted on January 3, 1996 by the Assembly of Delegates.

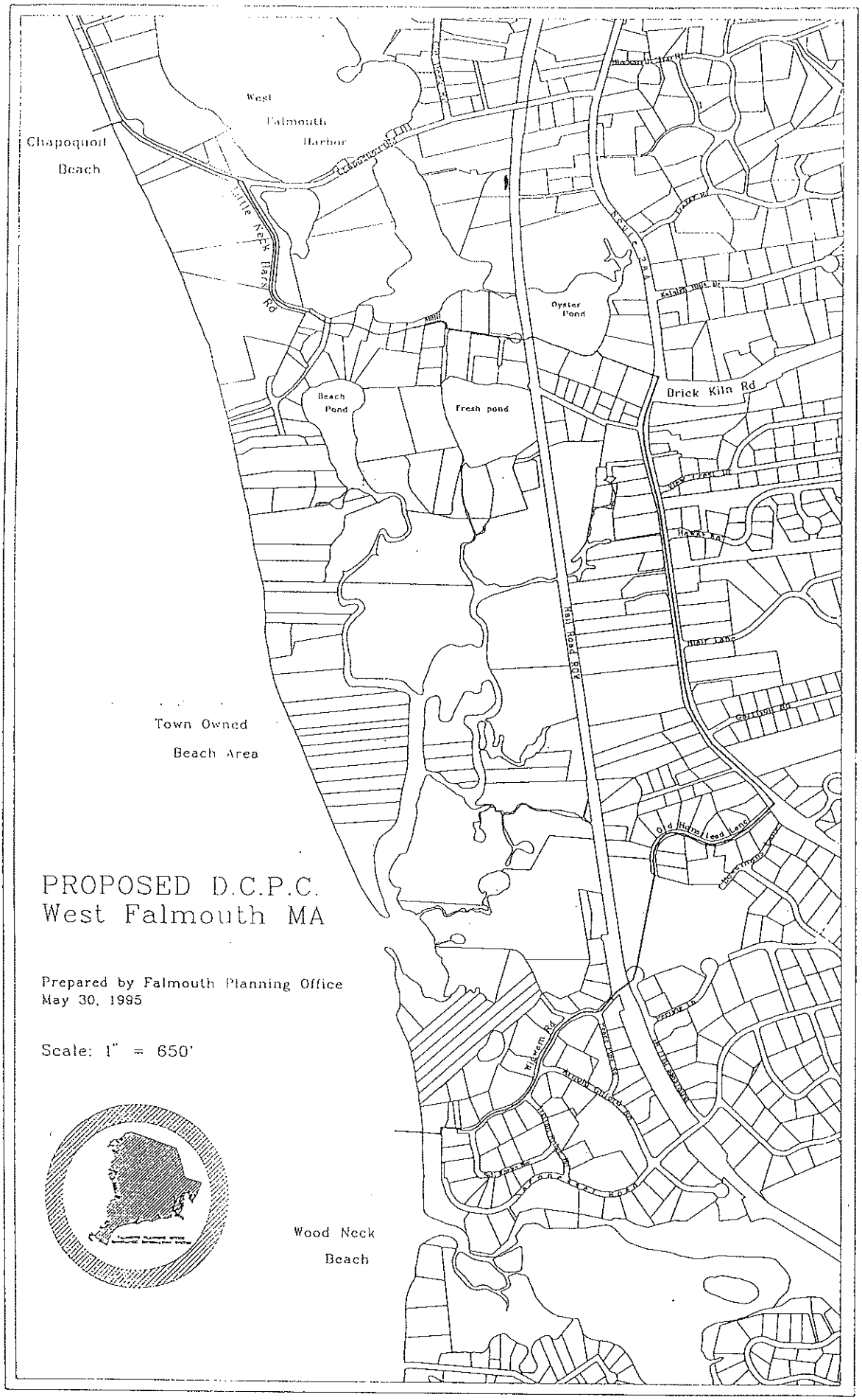
Roland J. Dupont

Roland J. Dupont, Speaker

Approved by the Board of County Commissioners, 1/17/96 , at, 3:01 p.m.
Date **Time**

Victoria A. Lowell

Appendix A



PROPOSED D.C.P.C.
West Falmouth MA

Prepared by Falmouth Planning Office
May 30, 1995

Scale: 1" = 650'

References

Cape Cod Commission, "Outer Cape Carrying Capacity Analysis - Natural Resources - DRAFT", 1995.

DCPC Nomination & Supporting Documentation

Executive Office of Environmental Affairs, Massachusetts Coastal Zone Management, Barrier Beach Inventory Project, 1982. (MAP)

Massachusetts Barrier Beach Task Force. "Guidelines for Barrier Beach Management in Massachusetts." February 1994.

Mendes, John. "Sanitary Survey Report of Great Sippewissett Marsh in the Town of Falmouth." Massachusetts Division of Marine Fisheries, 1993.

Massachusetts Natural Heritage and Endangered Species Program (ATLAS)

U.S. Army Corps of Engineers, Shore Protection Manual, Coastal Engineering Research Center, 1984.

U.S. Department of the Interior. "Sippewissett Marshes National Wildlife Refuge: A Proposal." Final Environmental Assessment and Land Protection Plan. 1994.

VanLuven, David. Cape Cod Critical Habitats Atlas. Association for the Preservation of Cape Cod, Orleans, MA. 1990.