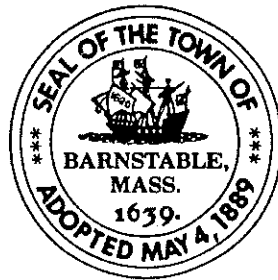


Town of Barnstable

Local Comprehensive Plan



Adopted: Barnstable Town Council, October 30, 1997

Approved: Cape Cod Commission, February 12, 1998



Acknowledgments:

The Local Planning Committee for the Comprehensive Plan

Lynne Turner, (Chairman)
Douglas Bill, (former Chairman)
Otto Schaefer, (Vice Chairman)
George Zoto (former Chairman)
Patricia Anderson, Clerk
Mel Brilliant
Elisabeth Clark
Carl Cooperrider
Ann Jane Eshbaugh
Emmett Glynn
Robert Freedman, DMD
Brian Grady
John McKenna
Frederick Presbrey
Steven Shuman
Nancy Trafton
John Tzamorangas

The Local Planning Committee wishes to thank the following who contributed to this plan:

Members of Town Boards and Committees
Village Associations
Barnstable Economic Development Commission
Hyannis Area Chamber of Commerce
Hyannis Area Economic Development Corporation
Cape Cod Economic Development Council
Cape Cod Commission
Town Department staff

And a special thanks to all the residents of the villages of Barnstable who have participated in this process

Town of Barnstable Planning Department

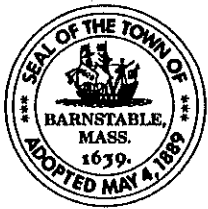
Robert Schernig, AICP, Director
Anna Brighman-Janowicz, Associate Planner
Jacqueline Etsten, Principal Planner
Sean Ghio, Associate Planner
Keith Hamre, Principal Planner
Laura Harbottle, Associate Planner
Larry K. Ludwig, Graphic Assistant
Dominic Modicamore, Associate Planner
David Palmer, Principal Planner
Mohammed Tariq, Associate Planner
Arthur Traczyk, Principal Planner
Patricia Mackey, Secretary

Town Department Heads and Staff

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Town of Barnstable

Office of Town Clerk

367 Main Street, Hyannis MA 02601

Office: 508-790-6240
Fax: 508-775-3344

Linda E. Hutchenrider, CMC/AAE/CMMC
Town Clerk

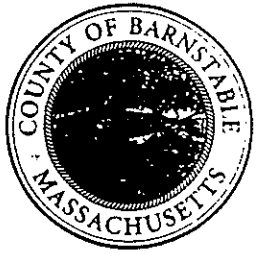
March 23, 1998

I, Linda E. Hutchenrider, Town Clerk of the Town of Barnstable, hereby certify that the Barnstable Town Council, at a duly advertised meeting of the council on October 30, 1997, per item #98-033, did by a unanimous vote of the 10 members present, approve the following:

ORDERED: That the Town Council hereby adopts the Town of Barnstable Local Comprehensive Plan, on file with the Town Clerk, pursuant to Chapter 716 of the Acts of 1989 (Cape Cod Commission Act), and that the Town Clerk is hereby instructed to submit the same for certification thereunder.

I, Linda E. Hutchenrider, Town Clerk of the Town of Barnstable, also state that I did submit same for certification per the above order.

Linda E. Hutchenrider, CMC/AAE/CMMC
Town Clerk



CAPE COD COMMISSION

3225 MAIN STREET
P.O. BOX 226
BARNSTABLE, MA 02630
(508) 362-3828
FAX (508) 362-3136
E-mail: 74260.3152@compuserve.com

Barnstable Local Comprehensive Plan Final Certification Review February 12, 1998

Procedural History

Barnstable entered into an agreement with the Cape Cod Commission to develop a Local Comprehensive Plan on May 13, 1992. The Town received \$95,335.00 from the Cape Cod Commission for the development of its LCP. Of that money the town used \$33,000.00 to hire a transportation consultant to develop the transportation section of the plan. On June 22, 1994, Barnstable and Yarmouth received a \$50,000.00 grant from the Commission for a joint Barnstable and Yarmouth transportation study. This money was used by the towns consultant to conduct this study. The rest of the plan was completed by the Planning Department.

The final draft plan was completed in July of 1995 and after several public hearings it was amended with an addendum dated May 8, 1996. The Commission noticed a 30 day public comment period on the Barnstable LCP for contiguous municipalities which commenced on June 28, 1996 and ended on July 28, 1996. The Commission received comments from the Sandwich Planning Board and an attorney representing the Davenport Realty Trust. The Commission's Planning Committee held meetings to discuss the plan on July 22nd, August 19th, September 3rd, October 24, 1996 and January 21, 1997. The Commission and the Town agreed to a 60 day extension for the transmittal of comments on the preliminary certification review to November 4, 1996. On October 28, 1996 the Commission and the Town agreed to an additional 90 day extension for the transmittal of comments on the preliminary certification review to February 1, 1997. During the preliminary certification review the Local Planning Committee proposed some amendments to the LCP to address potential inconsistencies with the RPP.

The main issue that was raised in the Commission's preliminary review of the Barnstable Local Comprehensive Plan regarding land use was growth capacity. The Commission was concerned that a buildout analysis was needed to understand how much growth is possible under current regulations and how future residential, commercial and industrial growth will affect the town's natural resources and municipal infrastructure. In response to the Commission's comments, the Town

prepared a town-wide buildout analysis, which has been incorporated into the LCP. The study is thorough, detailed, and carefully researched and documented. It represents a lot of careful analysis and it provides a solid foundation for assessing the impacts of future growth in the town.

The Barnstable Planning Department and Local Planning Committee presented a final draft of the LCP to the Town Council on September 18, 1997, which was continued at the next Town Council meeting on September 25, 1997. At these meetings several amendments to the plan were considered. After approval of some amendments to the plan, the Town Council voted to approve the plan. Based on that approval, the Town Clerk forwarded the final plan to the Cape Cod Commission for final consistency review on December 4, 1997. The public hearing was opened on December 29, 1997 at the Cape Cod Commission offices and continued to January 5, 1998 at the Barnstable Town Hall in Hyannis. The Planning Committee met to discuss the final plan on January 12, January 26, and February 9, 1998, and it was forwarded to the full Commission for consideration at the meeting of February 12, 1998.

Review Standards:

The requirements for Local Comprehensive Plans are contained in regulations adopted by the Cape Cod Commission on February 18, 1993. LCPs are required to include each of the issue areas in the Regional Policy Plan (RPP). For each of these issue areas, LCPs should contain goals and policies, inventory and analysis, graphics, actions, and an implementation schedule. LCPs are also required to include a description of the process used to develop the Plan and a coherent statement of a vision for the future of the municipality.

In order to be certified, a LCP shall include the following items:

- The Goals and Minimum Performance Standards identified in the RPP. If a municipality demonstrates through the inventory and analysis sections of its LCP that a particular Goal or Minimum Performance Standard is not applicable to that municipality, the Commission may waive its inclusion in the LCP. In such cases, the municipality is required to demonstrate the unique or special local circumstances that prevent attainment of a Goal or application of a Minimum Performance Standard. If a particular Goal or Minimum Performance Standard is waived, the LCP is required to identify alternative Minimum Performance Standards that would achieve the intent of the waived regional Goals and/or Minimum Performance Standards. Towns are not required to incorporate the RPP's Development Review Policies in LCPs.

- Each of the RPP's Recommended Town Actions. As an alternative the town can indicate that the action has already been completed or explain why such an action may be inappropriate for the municipality to undertake.
- Documentation that the LCP is compatible with the LCPs of contiguous municipalities and internally consistent in its policies, forecasts and standards.

The Commission has reviewed the Barnstable LCP under the 1991 Regional Policy Plan. The 1996 RPP contains numerous new standards that will still apply to Developments of Regional Impact (DRIs) in Barnstable, regardless of whether or not such projects are located in certified growth/activity centers. While the Commission will consider the LCP's goals, policies and strategies during any review of a DRI in Barnstable, the applicable RPP standards must also be met.

Findings

1.) The Commission finds that the goals and policies of the plan are consistent with the Regional Policy Plan in all of the following areas:

- 1.0 Land Use
- 2.1 Water Resources
- 2.3 Wetlands
- 2.4 Wildlife and Plant Habitat
- 3.0 Economic Development
- 4.2 Solid Waste and Hazardous Waste Disposal
- 4.3 Capital Facilities and Infrastructure
- 4.4 Energy
- 5.0 Affordable Housing
- 6.0 Open Space and Recreation
- 7.0 Historic Preservation/Community Character

2.) A number of the Town Actions recommended in the RPP were not addressed in the earlier draft of the Barnstable LCP. While the Town is not obligated to carry out all of these actions, they must be considered in the LCP. The plan now includes a chart that satisfactorily explains how these recommendations have been incorporated in the plan.

3.) The buildout study indicates that there is substantial potential for additional growth in Barnstable under current zoning. The amount of retail trade and services could almost triple, industrial space could increase by five times, and there is potential for more than 10,000 new dwelling units in town. The impacts of such growth on traffic, water quality, open space and community character would be enormous. The LCP recommends a number of specific strategies to manage growth.

4.) The Land Use Growth Management section of the Barnstable LCP identifies a series of different types of Growth/ Activity centers. These Growth/ Activity centers are broadly drawn and include most of the existing commercial corridors in town. The Plan recommends that the RPP's level of service (LOS) standards for roads be reduced in these Growth/Activity centers: to LOS D on regional roadways and in village, marina and recreational activity centers; to LOS E in regional Growth/ Activity centers. The Town has argued that reduced levels of service are needed because Hyannis is the regional hub of the Cape and is providing services to all Cape residents. The town cannot afford and does not wish to widen its roads to accommodate all of the projected traffic. While the RPP provides for such flexibility for Growth/ Activity centers, Barnstable has included some very large areas within its Growth/ Activity center boundaries. Given the LCP's recommended standards, traffic congestion will continue to be a problem in these areas.

5.) The map "Town of Barnstable Activity Centers" dated 1/7/98 is considered the definitive map delineating the Growth/ Activity Centers defined in the Barnstable LCP for the purposes of this review, and is incorporated herein by reference.

6.) The Coastal Resources section of the LCP is not consistent with RPP Minimum Performance Standards (MPS) 2.2.2.2 and 2.2.2.5 in that the Barnstable Plan has provided blanket exceptions for water dependent uses from these policies.

7.) The transportation section of the LCP remains inconsistent with a number of Minimum Performance Standards from the 1991 Regional Policy Plan. Most notably, it is inconsistent with MPS 4.1.1.1 and 4.1.1.4. These inconsistencies are as follows:

- a. MPS 4.1.1.1: This standard describes the permissible levels of service along roads and at intersections near development and redevelopment sites. Specifically, it says that the levels of service (LOS) shall not fall below LOS C based on summer peak hour conditions unless located within a designated growth center. In such growth centers, LOS E is permissible.

The Barnstable Local Comprehensive Plan permits LOS D or E in various Growth/ Activity centers, and the roadways connecting these centers, provided that provision is made for safe pedestrian traffic. It is important to note that these Growth/ Activity centers are based on the same concept as Growth centers from the 1991 Regional Policy Plan but are not the same type of location. "Barnstable's Local Planning Committee believes that the term 'growth centers' is too aggressive for this concept. Hence the term 'activity center' was developed to indicate that these centers can 'shrink' or be reduced in size, be maintained as they are (no-growth), or be allowed to expand to accept new

development. Also, other types of activity centers are possible, such as community, recreational, and regional facilities." (p. 1-44.)

- b. MPS 4.1.1.4: This RPP standard states that constructing new regional roads or widening of major road segments "shall be undertaken only where other alternatives have been demonstrated to be ineffective or infeasible," and that such projects shall be consistent with a town's LCP. The Barnstable LCP recommends numerous structural improvements to roadways in town. It is not clear that there are no other feasible or effective alternatives to these road improvements as called for in the RPP.

- c. Hyannis Village Plan: Some of the policies and strategies in the Hyannis Village Plan may conflict with other sections of the plan. For example, Policy 5.4 (p. 1-149) reads "Extend Independence Drive to Willow Street on the east and Bearses Way on the west and provide for a four lane esplanade with limited turning movements. Policy 5.5 (p. 1-150) reads "Extend a public access road from Route 28 through the airport to Independence Park and connect to a new access point on Route 6 ..." Identical language is contained in Strategies 10.2.1 and 10.2.2. on p. 1-155. Both of these roadways would have a direct, adverse impact on the Hyannis Ponds Complex, arguably the most significant natural habitat on Cape Cod, and would fragment the lands newly acquired by the Department of Fisheries and Wildlife for the purposes of conservation of rare species. Construction of these roadways is inappropriate and inconsistent with other sections of the plan (Wetlands, Wildlife and Open Space) that identify this area as a high priority for natural resource protection. In addition, these policies conflict with the transportation minimum performance standard 4.1.1.4 as mentioned above.

- d. Route 6: The Barnstable LCP proposes to permit Route 6 to degrade to Level of Service D during the peak summer hour. Route 6 in Barnstable is a Major Regional Roadway (Class A) in the 1991 Regional Policy Plan. It is a critical link in the regional transportation infrastructure. Currently at the summer peak hour it operates at Level of Service C.

8.) Barnstable's adjoining towns (Mashpee, Sandwich and Yarmouth) are still completing their LCPs. The Town of Sandwich has submitted a comment letter on the Barnstable LCP, questioning the compatibility of projected development in the Hyannis area with the region's infrastructure and character. However, since the abutting towns do not yet have certified LCPs, the Commission finds no inconsistencies between the Barnstable LCP and those of contiguous municipalities.

Conditions

1.) The Town of Barnstable shall actively pursue implementation of the growth management strategies outlined in the LCP, including, but not limited to:

- land acquisition for open space protection;
- increased lot sizes in selected locations;
- building permit phasing (i.e. a limit of 224 residential building permits annually);
- the use of impact fees to help finance infrastructure improvements;
- consideration of growth phasing for office and retail development tied to vacancy rates;
- adoption of an adequate public facilities ordinance for commercial and industrial development to require that needed infrastructure be in place or under construction prior to issuance of a building permit; and
- restriction of retail uses in the industrial zone, and a number of other specific zoning changes for the different villages.

2.) The Local Planning Committee and Planning Department have said that they desire to provide for water dependent uses in the areas described in Finding #6 above, and the Commission is satisfied that, for this reason, this inconsistency is acceptable.

3.) The Activity Centers and proposed levels of service permissible in and between said Activity Centers, as documented in the map titled "Town of Barnstable Activity Centers" and dated 1/7/98, are permitted with the following exceptions:

- a. Route 6 shall not be allowed to deteriorate to Level of Service (LOS) D. All development review shall be required to maintain Route 6 from the Sandwich town line to the Yarmouth town line at LOS C or better during the summer peak hour.
- b. Any roadway for which LOS is improved in the future due to structural improvements shall not be allowed to deteriorate due to new development below the Levels of Service measured in the period after the improvements, or below LOS C, whichever is lower, during the average annual peak hour. This criterion shall apply whether the structural improvements occur to the road in question, to alternative routes, or involve the construction of new alternative routes (eg. Attucks Lane Extension as a new alternative to Route 132.)
- c. All other roadways shall be held to the standards from the map. These standards are LOS E for roads in Regional Activity Centers; LOS D for roads in other Activity Centers, and sections of Route 132, Route 28 and West Main Street outside of regional activity centers (unless improvements occur as

mentioned in b. above); and LOS C for all other roads. All of these Levels of Service are measured during the summer peak hour. Any road that is held to a LOS standard below C shall be required to make safe provision for pedestrian traffic through the use of sidewalks, crosswalks, and other amenities. If such provision is not made, the road must meet a LOS C standard.

General Provisions

- 1.) The Cape Cod Commission shall continue to apply all of the Minimum Performance Standards in the Regional Policy Plan to projects reviewed as Developments of Regional Impact within the Town of Barnstable. However, the LCP goals, policies and actions shall be considered by the Commission during any DRI review.
- 2.) Pursuant to Section 9(c) of the Cape Cod Commission Act and Section VI (C) of the Local Comprehensive Plan regulations, in order to maintain certification of the Local Comprehensive Plan, the Town of Barnstable shall insure that its development by-laws and regulations are consistent with its Local Comprehensive Plan within two years of the date of certification of this Plan. This period may be extended at the discretion of the Commission where the Town has made a good faith effort to comply with this requirement. Two years following the date of certification of the Plan, the Town shall provide the Commission with a written report on the status of implementation of actions contained in the plan, including the status of proposed revisions to the bylaws and regulations.
- 3.) Pursuant to Section VI (A) of the Local Comprehensive Plan regulations, the Barnstable Town Council is responsible for implementation of the actions and recommendations contained in the LCP. This authority may be delegated to another board or commission in accordance with the LCP Regulations.
- 4.) Pursuant to Sections 9, 14 and 15 of the Cape Cod Commission Act, the Town of Barnstable may enter into development agreements and may impose impact fees as long as the Town has a certified Local Comprehensive Plan.
- 5.) The Town of Barnstable shall review and update its LCP within five years of certification of the LCP. In the event of amendment of the Regional Policy Plan, the LCP must be brought into conformance with the amended RPP pursuant to the Act and LCP regulations. Any revisions or amendments to the LCP must be reviewed and certified for consistency with the RPP in accordance with the Act and LCP regulations.
- 6.) In the capital facilities and transportation sections of the Barnstable LCP, there are numerous public works projects suggested for consideration. Many of these projects

could have significant impacts on transportation, natural resources and other regional resources and will require separate evaluation through state, local and regional permitting processes. The Cape Cod Commission will work with the Town to coordinate the planning and development of such public facilities. Each will need to be reviewed on its own merits through the normal review processes, including review under the Massachusetts Environmental Policy Act and development of the Transportation Improvement Program and Regional Transportation Plan.

Conclusion

Based on the conditions above, the Cape Cod Commission hereby certifies the Barnstable Local Comprehensive Plan.

Madeline Bebout
Madeleine Bebout, Chair

2-12-98
Date

COMMONWEALTH OF MASSACHUSETTS
Barnstable, ss.

Subscribed and sworn to before me this 12th day of Feb, 1998

Katharine L Peters
NAME, Notary

My Commission expires _____



Town of Barnstable Local Comprehensive Plan

Overview of Plan

1. Executive Summary: The Challenge Ahead: Development Issues and Growth Management

In recent decades, Barnstable has experienced extraordinary growth and change. The town has been transformed from a rural fishing and farming community of seven villages, with a seasonal tourist industry, to a thriving regional center for the entire Cape. A portion of the town has now been designated a Metropolitan Statistical Area by the United States Census. Population has grown from 13,465 in 1960 to 19,842 in 1970, 30,898 in 1980, and 40,494 in 1990. This growth has had a major impact on the town's natural resources, and upon its historic character; it has also had a far reaching impact on the town's infrastructure and services, its roads, schools, fire, water, wastewater and government facilities.

The buildout analysis in Section 1.4 reveals that there is substantial potential for additional growth, both residential and non-residential, built into the Zoning Ordinance. Based on existing zoning, the population could increase from a total of 67,921, including seasonal residents, to 81,819, an increase of 57%. There is even greater growth potential inherent in non-residential zoning: building square footage of commercial and industrial uses could increase an estimated 227%, from 8,252,692 sq. ft of space, to 27,014,670 sq. ft. All of these projected figures are high, since they are based on the assumption that each parcel would be built out to the maximum permitted. While unlikely to occur at this magnitude, it is an indication of the potential development permitted by the Zoning Ordinance.

The amount of growth that has occurred over the past three decades has had a major impact on the town's roads. Many roads now have an unacceptable level of service, with long backups and delays, especially the major arterials such as Rt. 28 and Rt. 132. Residential areas are being adversely affected by through traffic avoiding clogged major routes, and commercial areas are also being affected by crowded access roads. The Barnstable Yarmouth Transportation Plan estimates road construction and major transportation related costs of 32.6 million dollars over 20 years. These improvements include new roads and improved intersections in the Hyannis area and adjacent areas of Yarmouth. A substantial proportion of the costs of the BYTS program will be funded from State and Federal sources. However, BYTS does not include improvements needed in other areas of town, improvements that may not be acceptable on designated scenic roads. The villages are proud of their scenic roads and vistas, and substantial widening would be controversial and contrary to many recommendations of this plan aimed at maintaining community character. Road improvements need to be directed to improving safety and intersection capacity on major arterials. In addition, there are many miles of private subdivision roads that will need improvement with pressure from

citizens to accept these roads as town roads. Funding at present, however, is inadequate to maintain existing town roads in their present condition. Expansion of the network of town roads without additional financing will cause further deterioration in roadway conditions.

The school population is expected to increase 20% over the next 10 years, and 55% over the next 30 years. In response the school system has embarked upon a building program, the first phase of which will cost 60 million dollars, of which 64% is reimbursable by the State. The other 36% has to be raised by local taxation.

Wastewater management is one of the communities greatest challenges. The balance of maintaining our natural resources while accommodating healthy growth is an essential component in sustaining our prosperity in the future. The Town is completing a Wastewater Facilities Plan that focuses on providing wastewater facilities in an effort to resolve existing problems, protect natural resources and accommodate residential and commercial growth over the next 20 years. The financial implications of remediating wastewater areas of concern which include areas with individual on-site system failures, zones of contribution that reach the 5 ppm planning standard over the next 20 years, and activity centers can be broken into two areas of cost: wastewater facilities upgrades and sewer expansion. Remediating these wastewater areas of concern would double the current maximum day flow from 2 MGD to 4 MGD. The projected expense of expanding the Hyannis Water Pollution Control facility over the next 20 years to treat a total flow of 4 MGD is estimated to range between \$19.3M (8-10 ppm nitrogen removal) to \$21.7M (3-5 ppm nitrogen removal). The projected cost of sewer expansion into the areas of concern is estimated at \$29.9M.

These figures do not include the cost to remediate areas of concern identified in Osterville, Cotuit, Marstons Mills, Barnstable and West Barnstable. Individual on-site Title 5 systems can address all the areas of concern identified in these villages with the exception of downtown Osterville, the Sandy Neck Cottage Colony, and the Cape Cod Village Condominium area. These figures also do not include the cost of remediating the effect that wastewater effluent is having on water quality in embayments along the south shore. Title 5 systems do not remove nitrogen that is traveling in groundwater, from the center of the town to the shore. At present, estimated costs with current technology are too high to require wastewater systems with nitrogen removal for all lots within coastal recharge areas.

The cost of remediating the impact of development and growth is extraordinarily high. The five year capital improvement program detailed in this plan estimated costs of \$16,164,000 for growth related costs, and a total of nearly 32 million dollars for all projects, not including the longer term wastewater facilities plan and school building program. Unless the true costs of growth are made the responsibility of the developer, a substantial proportion of the costs will have to be born by the local tax payer. Unlike previous decades, funding from the Federal and State government has been greatly reduced. Development should be required to pay impact fees or other fiscal contributions to mitigate the need for additional infrastructure. However, the amount charged rarely covers true costs, and the cost of on-going services, especially for residential development, has to be raised through taxation.

Given the amount of growth that has occurred and the substantial cost of improvement and expansion necessary to the town's infrastructure, the town needs to embark on a growth management program to control both the rate and ultimate amount of growth.

Residential Growth Management

Strategies are outlined in detail in Section 1.8 Residential Land Use.

Except for the most expensive development, most residential development costs more in services than it generates in taxes. Furthermore, since most land is zoned for residential development, wide spread single family residential development has the greatest impact on the town's open spaces. At present growth rates, in less than 20 years most of the land available for single family residential use will be developed. The following residential growth management strategies need to be promptly implemented:

1. Land acquisition. With time, such acquisition becomes cost effective. Preservation of open space eliminates the need for new infrastructure such as school buildings, widening of roads, and wastewater facilities. Furthermore, annual cost savings for services such as school staffing for instance, or Fire and Police services, is cumulative over time. If adopted, the Land Bank legislation would have generated \$1,465,097 in 1996. At \$40,000 an acre, this amount would purchase 366 acres in 10 years, 732 acres in 20 years, and approximately half of the vacant land over 5 acres in size, in 24 years.
2. Increase in lot sizes where there are existing larger lots, and where there are other natural resource protection issues. An increase in lot sizes is recommended in Section 1.8 for groundwater protection, for coastal resource and pond protection, in areas of steep slopes or impervious soils, and where access is poor. An increase in lot size also has the effect of reducing growth potential in residential areas. If half the estate parcels (larger, partially developed) were re-zoned to require a two acre minimum lot size, the number of developable lots would be reduced from 2,277 to 1,593, a reduction of 684 lots, or 30%.
3. Growth phasing. Growth phasing does not reduce growth potential but extends the period of time over which growth occurs, thereby allowing the town additional time to improve infrastructure and purchase open space. If growth continues at the current 1997 five year average of 224 dwelling units a year, vacant lots will all be developed within 27 years. If that rate was reduced to 200 lots per year, growth will be extended over 31 years.

Commercial Growth

The town has zoned broad areas for commercial and industrial growth, far greater than is actually required to serve the needs of local villages and the town in general. Commercial areas are widespread and have resulted in strip development, especially in Hyannis, where 59% of the non-residentially zoned land is located, 89%, if all of the IND Industrial Zoning districts are added to the Hyannis area.

Non-residential growth appears to be more cost effective than residential growth: this type of development generally produces more in taxes than it requires in services. However, substantial investment is now needed in road widening in major commercial areas, and in the provision of new road access. Attucks Way has now been funded to improve access into the industrial zone, and Exit 61/2 is a goal of the BYTS study. Some of these costs can be off-set by impact fees; however, 30 years of commercial growth has occurred without impact fees and major improvements to roadways are now needed.

Under existing zoning, commercial and industrial building square footage could increase 227%. Section 1.7 of this plan, which is summarized from the individual village plans, has growth management strategies for each of the designated 29 activity centers. These strategies indicate appropriate land uses and densities, and direct growth to the most suitable areas. If implemented, these strategies will reduce the impact of growth upon infrastructure and upon natural and historic resources. Most of these strategies will require changes to the town's Zoning Ordinance, which are not easily approved. Most of the town's non-residential districts allow an unusually wide range of uses, many of which are not compatible, and density guidelines are minimal or inappropriate. Landscape buffer requirements are lacking in many districts.

It is important that the activity center growth management strategies be adopted promptly before development precludes and renders such strategies moot and before any improvement to infrastructure is made. Improvements to wastewater facilities and roads are two potent growth stimulants. Without adequate land controls ahead of such construction, inappropriate uses or location of development, or development that is too dense will probably offset the benefit for example, to improvements to roads or wastewater facilities.

Realistic land use controls need to be implemented in all commercial, industrial and multi-family zoning districts to establish density and improve the appearance of development. Establishment of density limitations such as floor area ratios will serve to reduce the impact of development upon roads and groundwater quality while allowing the developer flexibility. Landscaping of parking lots and building setback buffers should be required for most non-residential and multi-family zoning districts. Less dense development outside of village centers will result in retention of natural or landscaped areas thus ensuring more attractive development.

The cost of funding improvement to infrastructure is extraordinary. At present the town's budget has been limited to very small expenditures for capital infrastructure. In fiscal year 1998, over 14 million in capital needs were identified, but only \$1,530,000 was approved for FY 98, with one million of that total for a pavement management program. It is expected that given fiscal trends, that the portion of the town's budget devoted to capital facilities will not improve, and will probably be decreased because of increasing pressure on fiscal resources. The town needs to adopt and implement vigorous growth management mechanisms.

It is understood and acknowledged that growth control mechanisms require the adoption of specific ordinances and regulations (zoning and otherwise) and that the policies described herein dealing with growth control management are intended to provide guidance for such adoption.

Growth Management Policies

Residential Development

1. Acquire land as a long term, cost effective means of growth control.
2. Increase lot sizes where there are existing larger lots, and there are also other, natural resource protection issues.
3. Implement a residential growth phasing mechanism to extend the time period over which single family residential development occurs, thus allowing re-building of the towns infrastructure.
4. Consideration should be given to exempting long term affordable housing from growth phasing, as a public benefit.

Commercial and Industrial Development

1. The growth management strategies in Section 1-7 should be promptly instituted, prior to development precluding such actions.
2. Improvements to infrastructure should be made only to achieve the levels of service set forth in this plan, but not to enable new growth until changes have been made to implement the growth management strategies outlined in Section 1-7.
3. Developers will need to pay impact fees to cover the direct costs of their development recognizing that these fees rarely of-set the full costs.
4. An adequate public facilities ordinance should be adopted to require the levels of service established by this plan to be maintained as a condition of obtaining a building permit.
5. Growth phasing of non-residential development should be considered to stabilize growth rates and to allow time to improve the town's infrastructure. Light industrial and research facilities should be exempt from phasing - such development usually generates more in taxes than it costs in services and is consistent with the town's goal of providing more jobs, including higher paying jobs.

2. Preface

The Barnstable Local Comprehensive Plan (LCP) is the official documentation and statement of the town's land use and development policy. The magnitude and scope of the plan is a reflection of the size and diversity of the town. Barnstable is the largest Cape Cod town in terms of population, and one of the largest towns in the Commonwealth in terms of area. It is the regional center of the Cape and as such is the center for government, employment and retailing. It also has valuable natural and historic resources. The town is composed of seven villages, each with strong community identities; it is however one town with needs and problems in common. This plan seeks to chart a course for the town's future development, and the needs of its residents.

This Local Comprehensive Plan (LCP) serves to update the goals and policies for the Town of Barnstable delineated in a "Guide to Decision Making, Final Report March 28, 1983", by Lozano, White & Associates and Kaufman Communications. It is the further goal of the LCP to be consistent with the Cape Cod Commission Regional Policy Plan ("RPP"), as noted below, to comply with the Memorandum of Agreement between the Town of Barnstable and the Cape Cod Commission to develop a LCP in accordance with Cape Cod Commission Guidelines, and, upon approval by the Town Council of the Town of Barnstable in accordance with Section 9 of the Cape Cod Commission Act, to then be certified by the Cape Cod Commission as soon as expeditiously possible.

Goals contained in this LCP are long range aspirations that are intended to direct a general course of action or set direction towards an ideal end state that may or may not be achieved. Goals provide the basis for action oriented Policies and alternative Strategies to more specifically define the programs, regulations and projects that are necessary to achieve the Goals.

3. Plan Overview

The work program for this LCP has resulted in a set of Village Vision Plans (one for each of the seven villages of Barnstable), and a set of issues, goals, policies and strategies for each of the following eight sections of the LCP:

- 1.0 Land Use and Growth Management, including Village Plans
- 2.0 Natural Resources
- 3.0 Economic Development
- 4.0 Community Facilities and Services
- 5.0 Affordable Housing
- 6.0 Open Space and Recreation
- 7.0 Historic Preservation and Community Character
- 8.0 Health and Human Services

Each Section contains Goals, Policies and Strategies covering each issue area. Each Section also contains background information that defines the scope of the issues and the nature of the problems to be addressed and are the basis for the stated Goals. Policies are intended to further the issues stated in the Goals and be action oriented. In

all Sections, recommended Strategies are listed as alternatives to be considered for implementation actions that may be taken in the form of ordinances or regulations by the Town of Barnstable. Therefor, the LCP includes broad Goals which will set the direction for the future, more detailed Policies that specify how these goals can be accomplished, and specific Strategies that serve as alternate methods to implement a Policy.

4. Use and Interpretation of the Comprehensive Plan

The Goals, Policies and Strategies of this Comprehensive Plan may be used to defend or promote official town policies and positions regarding land use, the provision of capital facilities, social and community needs, and growth. A decision based on the LCP is more defensible than one that contradicts the LCP.

This Comprehensive Plan, after being certified as consistent with the Regional Policy Plan (RPP), allows the Town of Barnstable to enter into development agreements with landowners as a way of individually refining projects to the advantage of the landowner and the town. The certified Plan also allows the town to adopt impact fees, which would allow the town to assess a developer for costs which are directly attributable to the proposed development.

The Barnstable Comprehensive Plan may be amended at any time in the same manner it was adopted, through the process outlined in the Cape Cod Commission Act. The Comprehensive Plan shall be reviewed and updated every five years.

Regional Review

It is the specific and express intention of the Town of Barnstable that the Goals, Minimum Performance Standards (MPS) and Other Development Review Policies (ODRP) within the Regional Policy Plan (RPP) that must be incorporated within the Barnstable LCP for consistency are to be found in the Goals, Policies and Strategies contained within this plan. Within this LCP such Goals, Policies and Strategies are identified by the use of the mandatory word "shall". Further, that after certification of consistency of this LCP by the Commission, that such LCP Goals, Policies and Strategies shall be considered by the Commission during any DRI review pending before the Commission.

Local Review

In situations where contradictions appear between existing ordinances and regulations of the Town of Barnstable and the LCP, the regulations and ordinances as adopted by the town shall take precedence. The LCP shall provide guidance for the amendment of said ordinances and regulations, but shall not supersede such ordinances and regulations. Boards and Commissions that have discretionary decision making power, may however, prior to such amendment, make reference to and use of the Plan in support of their decisions to the extent that such reference and use is rationally and reasonably related to the decision in question.

The use of the Policies and Strategies contained in this LCP by a Board or Commission that has discretionary decision making power, may be flexibly applied if it can be demonstrated by an applicant that the intent of the applicable Goal and the interest(s) protected by a particular Policy or Strategy can be served by the alternate approach. In approving such approach, the local permitting agency must make a finding that the proposed modification meets the intent of the Goal and that it will further the interest(s) of the specific Policy or Strategy as well as or better than the original Policy or Strategy. The burden of proof to demonstrate that such a modification is acceptable shall be on the applicant.

Conflicts

In the event of any conflict by and between the Goals, Policies and Strategies set forth within this Plan, the most specific shall apply, provided however, that the area specific recommendations of Section 1.0, Land Use and Growth Management, including the Village Vision Plans, are respected and given primacy in the interpretation of this plan.

5. Definitions

Activity Centers: Existing and/or new areas designated in this plan which respond to the Cape Cod Commission requirement to designate "growth centers" as suitable locations for appropriate development, redevelopment and expansion of commercial, industrial, or mixed uses, as well as institutional, governmental or recreational uses. Activity Centers are classified based on type, as described in the Section 1.0 as listed below:

Section	Type	I. D. Number
1.7.1	Village and Town Centers	1 through 7
1.7.2	Commercial Activity Centers	8 through 12
1.7.3	Industrial Activity Areas	13 and 14
1.7.4	Redevelopment Activity Areas	15 through 17
1.7.5	Marinas and Harbors	18 through 20
1.7.6	Major Recreational Areas	21 through 23
1.7.7	Regional Facilities	24 through 29

Affordable Housing: Dwellings available at a cost of no more than 30% of gross household income to households at or below 80% of the County median income as reported by the U.S. Department of Housing and Urban Development (HUD), including units listed under MGL c. 40B and the state's Local Initiative Program.

Archaeological Site: Any area where artifacts, remains or any other evidence of a historical or prehistorical nature of 100 years old or more are found below or on the surface of the earth. These artifacts must have archaeological significance as determined by the Massachusetts Historical Commission or other knowledgeable

persons or agencies. Artifacts may include, but are not limited to: objects of antiquity, Native American, colonial or industrial relics, or fossils.

Cluster Development: A form of development that permits a reduction in lot area requirements, frontage and setbacks to allow development on the most appropriate portions of a parcel of land in return for provision of a compensatory amount of permanently protected open space within the property subject to a development application.

Coastal Bank: The seaward face or side of any elevated land form, other than a coastal dune, which lies at the landward edge of a coastal beach, floodplain, or other wetland. Any minor discontinuity of the slope notwithstanding, the top of the bank shall be the top of the face of the bank or break in slope above the relevant 100-year floodplain elevation.

Development: Any of the following undertaken by any person: any building, construction, mining, extraction, dredging, filling, excavation, or drilling activity or operation; the division of land into parcels; the clearing of land as an adjunct of construction; or the deposit of refuse, solid or liquid waste or fill on a parcel of land or in any water area.

Goal: A Long range aspiration that is intended to direct a general course of action or set direction towards an ideal end state that may or may not be achievable. LCP Goals are intended to be consistent with both Town issues and the RPP Goals.

Hazardous Material: As defined in the Town of Barnstable General Ordinance Article 39, Control of Toxic and Hazardous Materials.

Hazardous Waste: As defined in MGL Chapter 21C.

Historic Structure: Any building, structure or site which is now listed or is qualified to be listed on the National or State Registers of Historic Places as determined by the State Historic Preservation Officer in consultation with the applicable local historical commission. Qualifications for listing shall be those administered by the Massachusetts Historical Commission, including but not limited to:

1. association with events that are historically significant;
2. association with person(s) significant in our past;
3. embodiment of distinctive characteristics of a type, period, or method of construction; and
4. likelihood of yielding information significant in history or pre-history.

Infill: The development of new housing, commercial or other buildings on scattered vacant or underutilized sites within existing substantially built-up areas.

Infrastructure: Facilities and services needed to sustain residential, commercial and industrial development including, but not limited to water supply and distribution facilities, sewage collection and treatment facilities, streets and roads, communications, energy, and public facilities such as schools and fire stations.

Level of Service (LOS): A standardized, qualitative measure usually applied to vehicle operating conditions on a roadway based on criteria including speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience and operating costs. LOS shall be determined based on the most recent edition of the Transportation Research Board's Highway Capacity Manual. LOS for other municipal services may also be used.

Mitigation: Appropriate measures which, at a minimum, offset any adverse impacts of a proposed development.

Open Space: Land set aside and permanently restricted for conservation, agriculture or recreation purposes by a municipality, nonprofit conservation organization or land trust, homeowners association, or person. Open space may include woodlands, pasture, landscaped yards, gardens or play areas, golf courses, walking and riding trails, historic sites and similar areas as appropriate to the site, but shall not include structures such as tennis courts, buildings, or swimming pools. Open Space may be open for public use or access to such areas may be restricted.

Policy: An action oriented statement that is intended to further a Goal by setting forth one or more of the following descriptors: who, what, when, where, and/or how. A Policy may include the RPP Minimum Performance Standards (MPS) and Other Development Review Policies (ODRP). In addition, RPP Recommended Town Actions may be included as well. At the local level, a Policy is also intended to guide town implementation, as well as to be used by decision makers as justification for actions to be taken.

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 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.

Regional Facilities: Publicly or privately owned facilities and services used by residents of more than one town including but not limited to streets, schools, parks, recreational facilities, water supplies, waste disposal facilities, social services, health care facilities, transportation facilities and emergency services.

Seasonal Use or Seasonal Dwelling: A residential, commercial or industrial structure or use that lacks one or more of the basic amenities or utilities required for year-round occupancy such as a permanent heating system, insulation, and/or year-round usable plumbing.

Strategy: A specific alternative action to further describe the method(s) of implementing a Policy. Strategies may include the RPP Minimum Performance Standards (RPP), but more often will address Other Development Review Policies and Recommended Town Actions that must be included in the LCP. At the local level, a

Strategy defines other specific actions that should be considered as a means of implementing the LCP.

Strip Commercial Development: Continuous or intermittent linear roadside development located outside designated growth centers, generally one store deep, generally characterized by multiple roadway access points, highly visible off-street parking, an assortment of commercial uses with direct access to abutting roads.

Vernal Pool: A vernal pool is a seasonal fresh water body contained in an isolated depression that holds water for at least two consecutive months in most years, is free of adult fish populations and provides breeding habitat for amphibians and invertebrates. Vernal pools must be mapped and certified by the Massachusetts Natural Heritage and Endangered Species Program or identified in the field as eligible for certification by a professional wildlife biologist.

Water-Department Use: Any use that requires direct access to or location in fresh and marine waters and therefore cannot be located away from said waters including but not limited to those uses identified by Chapter 91 regulations. Examples include: commercial or recreational boating and fishing facilities, water based transportation and recreational facilities, pedestrian facilities that promote public use and enjoyment of the shoreline, facilities that are related to marine research and education, aquaculture facilities and cranberry bogs, beach nourishment, dredging, shoreline protection structures, water level control facilities, and any other uses or facilities that cannot be reasonably located away from the shoreline.

Wetland: An inland area of 500 square feet or greater or a coastal area including wet meadows, marshes, swamps, bogs, and areas of flowing or standing water, such as rivers, streams and ponds. Wetlands are characterized by the presence of wetland vegetation and hydrology as generally described in the Wetlands Protection Act and these areas shall be delineated in accordance with the Act and regulations in 310 CMR 10.00.

Section 1.0 Land Use and Growth Management

1.1 Introduction

The overall growth policy for the Town of Barnstable emphasizes preserving the "quality of life" through elimination of adverse impacts on natural resources, particularly water resources, and by directing growth to "suitable designated areas". This policy is intended to avoid low density "urban sprawl", by protecting environmentally sensitive open space and guiding commercial development to "activity centers". Both public and private improvements in these areas need to be of the highest quality in both planning and design.

The planning process included a buildout analysis based on 1990 census and assessors data, to give input into the village vision plans, the BYTS transportation planning efforts and similar analysis for the Wastewater Facilities Plan. After the Draft LCP was approved by the Barnstable Town Council for transmission to the Cape Cod Commission, an update to the buildout analysis was performed with the use of the Town GIS system and 1996 assessors data. This work shows that in the town as a whole, commercial and industrial uses offer the greatest potential for growth.

Office/professional, under the commercial land use category, offers the greatest potential among commercial uses, with a potential growth of roughly 275% in building area, while industrial uses have a potential growth of roughly 398% in building area.

The dominant growth areas within the Town are located in the commercial and industrial areas of Hyannis, particularly in and around the Independence Park area and the Hyannis Sand and Gravel lands. The commercial area along route 132 and in Downtown Hyannis have moderate to low growth potential respectively, since substantial growth has already occurred in these areas. The areas of the town with the greatest potential for growth in single family residential uses include West Barnstable and Marstons Mills. The area of the town that has the greatest growth potential in multi-family residential uses is the West Main Street area in Hyannis, and the Industrial District in Hyannis/Barnstable Village.

Section 1.4 describes the buildout analysis, as well as an historical analysis of the rate of growth in greater detail. Either based on buildout analysis or the projection of historical growth rates, the need for growth management strategies becomes apparent. Section 1.10 addresses options available to the Town to respond to the growth management issues raised in this and the other Sections of the LCP. From a fiscal perspective, any increase in residential growth rates will cause a rapid expansion in educational operating and capital costs. This Section recommends adoption of a growth phasing regulation for residential dwelling units.

One of the most directly evident impacts of growth is on the transportation system. Section 4.1 of the LCP is focused on traffic and transportation Policies and Strategies, based on the BYTS findings. This Study covers both short and long-range

transportation solutions that will be required to eliminate congestion, particularly in the village of Hyannis. The estimated cost of the major recommendations for implementing the BYTS findings is approximately \$32 million over the next 20 years. Some proposals to accomplish this have land use implications including reducing the number of through traffic trips, better management of parking facilities and reduced reliance on the automobile through promoting alternate modes of transit opportunities. The Town of Barnstable, especially the village of Hyannis, was also recognized as the Cape's Regional Activity Center. Hyannis contains major traffic generators including the following regional services and facilities: Cape Cod Hospital; Barnstable Municipal Airport; commercial bus lines; freight and passenger railways; ferry lines to the islands; and regional shopping facilities. Other regional facilities in the Town include Cape Cod Community College, the Barnstable County Court House, County Jail and the service complex in Barnstable village, which serves as the County seat of government.

A second major impact of growth will be the need for wastewater facilities. The LCP has coordinated with the detailed planning efforts of the Facilities Plan developed through the Department of Public Works and a Citizens Advisory Committee (CAC). While this effort is not yet complete the long range land use and fiscal implications need to be consistent with the LCP. If the completion of the Facilities Plan shows the need to modify the LCP, then an amendment should be considered.

The Future Land Use Section is a summary of many of the other Sections of the Comprehensive Plan as they affect the future land use of the Town. It serves to balance environmental and community character issues with economic development and facility service needs. The best summary of issues is graphically provided by the illustrations which follow, of Environmentally Sensitive Areas, and Activity Centers. For more detailed information on the many issues presented in this document, the reader should refer to the other sections of the Comprehensive Plan, including the individual village plans at the end of Section 1.

1.1.1 Village Plans

In recognition of the unique character of the Town's villages, separate village plans were prepared for each village. Many of the recommendations for activity centers summarized in Section I, Future Land Use, were developed in the village plans, with the village associations and residents. The village plans examine the character of each village and develop recommendations to preserve this character. Plans were developed to enhance focal areas that villagers identified as important centers of activity. Input was taken and recommendations developed on a wide range of issues including issues which are addressed in the general Sections of the overall plan. Every effort has been made to achieve consistency between the general Sections and the village plans. Area specific recommendations are an important aspect of the village plans and should be respected during the implementation of this Comprehensive Plan. Where policies and plans are not addressed in the main Sections, the village plans shall provide direction for town policies and actions.

The village plans are an integral part of the overall Local Comprehensive Plan and a reflection of the diversity of character of the town. Village plans were developed as follows:

Barnstable Village Plan
Centerville Village Plan
Cotuit Village Plan
Hyannis Village Plan
Marstons Mills Village Plan
Osterville Village Plan
West Barnstable Village Plan

The staff of the Planning Department and the members of the Local Planning Committee wish to express their gratitude to the village associations and countless individuals from all the villages of Barnstable who contributed to this successful planning program and the development of a consensus for the future of the town.

1.1.2 Overview

This LCP has a primary mission to accomplish the following:

1. Update the "Goals and Policies for the Town of Barnstable: A Guide to Decision Making", Final Report, March 28, 1983, by Lozano, White & Associates and Kaufman Communications;
2. Comply with the Memorandum of Agreement between the Town of Barnstable and the Cape Cod Commission (CCC) to develop a Local Comprehensive Plan in accordance with the CCC guidelines;
3. Be consistent with the CCC Regional Policy Plan (RPP) and be certified as such as expeditiously as possible;
4. Serve as a land use and growth management guide for the development of infrastructure and programmatic implementation strategies.

1.1.3 Background and Context

The Lozano, White Associates report stated the major concerns and comments within the community that should be reflected in the final Goals and Policies including:

1. Preservation of Barnstable's unique quality of life by controlling changes in size, scale, visual appearance and character caused by growth. Quality of life issues revolved around the town's seven villages, each with its own identity, physical attributes and sense of place.
2. Maintenance of the existing village centers through resources which emphasize economic viability while mitigating congestion caused by excessive growth.
3. Greater emphasis on water supply as a potential limiting factor of growth.
4. Recognition of the limited potential for higher density multi-family housing due to the concern for wastewater disposal and its impact on water resources. This limitation affects affordable housing options.

-
5. Recognition of water quality considerations regarding development of Independence Park.
 6. The tourist oriented economy was recognized as being dependent on preserving the natural environment. Economic development opportunities are enhanced by the Town's "quality of life". A public/private partnership is recommended to develop facilities geared to recent and emerging market trends.

While the Lozano, White Associates proposal mirror current concerns of the Town of Barnstable, the text was endorsed but was never vigorously implemented in regulatory bylaws. Infrastructure programs or other actions that would have changed the direction of growth and development during the "boom" years of the 1980's were not implemented. One of the major paradoxes was that while the environmentally sensitive areas were being identified, it was recognized that many of these areas were already developed in excess of the recommended goals and policies. This realization highlighted remediation of existing problem areas and raised concerns over historic development patterns, the deterioration of community character and should "developed" areas be allowed to intensify.

1.1.4 Cape Cod Commission Regional Policy Plan

The Regional Policy Plan (RPP) was adopted by the Cape Cod Commission and approved by the Barnstable County Assembly of Delegates on July 31, 1991, and the Barnstable County Commissioners on August 7, 1991. This policy plan sets forth a set of goals and policies, as well as minimum performance standards applied to growth and development.

The RPP states in part that, "It is not the intention of the Regional Policy Plan to set a maximum desirable population level for the Cape". The amount of growth which can be accommodated on Cape Cod will depend in large part on natural resource constraints, and infrastructure and public investment decisions by the towns and county over the coming years. Levels of growth may vary considerably from one part of the Cape to another. To that end the following broad principles will apply:

- **Growth Rate:** The rate of growth should be dependent on the ability to provide the services necessary to support the growth. New development and redevelopment should be required to pay it's fair share of the necessary public facilities and services in order to manage the demands created by the development. The provision of these facilities and services should be phased to meet the demand prior to the impact of new development. The regulatory tools and incentives needed to control the rate of growth and direct new development into appropriately designated locations should be enacted promptly.
- **Nature of Growth:** Population growth and economic development should not damage the natural environment or the character of the Cape's historic communities. Sensitive resources such as the quantity and quality groundwater, surface water, wetlands, plant and wildlife habitat should be identified and protected. New development should respect the integrity of the Cape's scenic, historic, cultural and architectural character. Economic development efforts should enhance the Cape's environmental and cultural strengths and provide a diversity of employment

opportunities for Cape residents. Ultimate buildout levels for each town should be based not only on the carrying capacity of the natural environment, but on the vision of the residents of each community to define the character, style or ambiance of their towns and villages. The Town of Barnstable's Local Comprehensive Plan is designed to be consistent with the RPP. This document is structured in accordance with the "Guidelines" adopted by the Cape Cod Commission.

1.1.5 Regional Policy Plan, Recommended Town Actions

The Local Planning Committee considered the Regional Policy Plan Recommended Town Actions during the planning process. The majority of these actions have already been implemented by the town or are included in the LCP for implementation, as set forth in the following Town Actions Matrix. During the implementation process, the town will prioritize the "Recommended Town Actions" for implementation.

1.2 Protecting Natural Resources

Identifying, evaluating and protecting environmentally sensitive areas in order to provide for balanced growth is the basis upon which this plan is structured. Preservation of community character and ecosystems is the key to defining the quality of life on Cape Cod. If this plan is not implemented, unplanned growth and incompatible uses will take their toll on the environmental systems of the Town. In 1985, the Association for the Preservation of Cape Cod called for an approach to growth management as follows:

"An appropriate policy is not 'no growth,' but 'caring growth', growth which is equitable to property owners, environmentally supportable, and socially constructive. That choice is available to Cape Cod."

Preserving the quality of life and the "essence" of Cape Cod requires the identification and preservation of key areas of environmental sensitivity. These areas have been identified in the Natural Resources and Open Space/Recreation sections of this plan and are further described in the Historic Preservation and Community Character section. While protecting the town's environmental resources is paramount, traditional waterfront uses such as marinas should be accommodated in coastal areas, so these can be preserved. Critical environmental resources include the following:

1.2.1 Extremely Sensitive Areas

These are critical resource areas which should be maintained in their natural condition in perpetuity through purchase, and protected through conservation restrictions.

- **Barrier Beaches.**

These unique areas are subject to erosion and deposition and provide vital habitats to many rare and endangered species. Sandy Neck, Barnstable's largest barrier beach, is also an important archeological resource area. In 1978 the area was designated an Area of Critical Environmental Concern (ACEC) together with Barnstable Harbor and the Great Marshes.

- **Wetlands, Vernal Pools and Waterbodies.**

Filling and development of these areas are no longer permitted. A buffer area of at least 100 feet is desirable to retain ecological integrity of these ecosystems.

-
- **FEMA Velocity (V) Zones.**
Velocity Zones are coastal areas subject to flooding and wave action in major storms.
 - **Wellhead buffer zone to all public supply wells.**
DEP requires the water supplier to protect a 400 foot radius around public supply wells. The following existing and future wellheads are unprotected: BW15-75, COMM MC, BW HY and CT E3 wells.
 - **Rare and Endangered species habitat**
A 300 foot buffer zone to identified habitats for rare and endangered species should be provided. Such areas include the Hyannis Coastal Plain Ponds, Santuit River, the Great Marshes, Halls and Snow's creek, etc. These are unique environmental habitats which are home to a variety of rare and endangered species. All identified areas should be protected from development, and access restricted in the most vulnerable areas.

Town of Barnstable Extremely Sensitive Areas

- Barrier Beaches
- Wetlands, Vernal Pools and Water Bodies
- FEMA Velocity (V) Flood Zones
- 400' Wellhead Buffer Zone to all public supply wells
- Rare and Endangered Species Habitat: 300' Buffer to Hyannis Coastal Plains Ponds and other unique environmental habitats

These areas need the greatest protection



1.2.2 Very Sensitive Areas

Conservation restrictions, Town purchases, gifts, buffer zones, cluster development and other land use mechanisms should be used to locate development outside these areas wherever possible. Zoning designation for very sensitive areas should be for very low density, preferably residential development. Areas already designated or developed for uses involving hazardous materials need to be prioritized for enforcement of storage controls. These areas include;

- **Well Protection Zones (WP)**

This is the five year time of travel zone to public supply wells.

- **300 foot buffer to all ponds, lakes and streams**

This is the distance to protect freshwater bodies from phosphorous impacts. Phosphorus can travel approximately 300 feet in groundwater from septic system effluent and fertilizer.

- **100 year flood plain (FEMA A zone)**

These low lying areas are close to groundwater, adjacent to wetlands and surface water bodies. They are vulnerable to flooding and development may result in contamination of wetlands and surface water bodies. Wherever possible, development should be located away from these areas.

1.2.3 Sensitive Areas

These areas are valuable for the protection of groundwater or important ecosystems, requiring a moderate degree of protection principally by limiting density and sewage discharge to the ground. The preferred zoning designation is low-density, residential zoning. Areas already designated or developed for uses involving hazardous materials need to be prioritized for enforcement of storage and disposal of hazardous materials. These areas include;

- **Zone of Contribution to Public Supply Wells**

Groundwater from these areas contribute to public water supplies. While five water/fire districts (and one private company) manage and distribute the town's water supply, the Town is required to protect the resource. Groundwater Protection Overlay Districts were first adopted in 1987. Data regarding these districts is currently being upgraded by Geraghty and Miller, Inc., and will serve as the basis for future regulatory actions.

- **Coastal Recharge Areas**

North coast and south coast recharge areas extend to the groundwater divide at the highest elevations of the Cape which run in an east to west direction. Due to the great distance that nitrogen travels from septic systems and fertilizers, it is associated with the growth of algae and the creation of a polluted environment in which bacteria and viruses can flourish in coastal waters.

- **Impervious soils - lake bottom deposits along the northern shore**

The low lying areas along Route 6A bordering the Barnstable Marshes have a complex geology of clays, silts and fine sands which in some instances, create pathways for contamination to reach the groundwater. In other areas, these soils prevent proper disposal of drainage and sewage effluent.

- **Areas dependent on private wells**

In West Barnstable, all development is dependent on private wells. Sections of Marstons Mills and Cotuit are also dependent on private wells. Maintenance of water quality is primarily dependent on controlling density of development and sewage generation, especially commercial developments which are commonly high sewage generators.

Mapping of these environmentally sensitive areas is a very useful planning tool and graphically depicts their location. Combining (or overlaying) the maps illustrates the need to manage growth. The concept of overlay districts can be expanded to describe the implications of the goals and policies of the Natural Resources section of this plan for the Land Use and Growth Management Section.



These areas need the greatest protection

Extremely Sensitive Areas



These areas need a greater degree of protection than Sensitive Areas

- Well Protection (WP) Zones
- 300' buffers to all ponds, lakes and streams
- 100 year flood plain (FEMA A zones)

**Town of Barnstable
Very Sensitive Areas**





**Town of Barnstable
Sensitive Areas : Map 1***

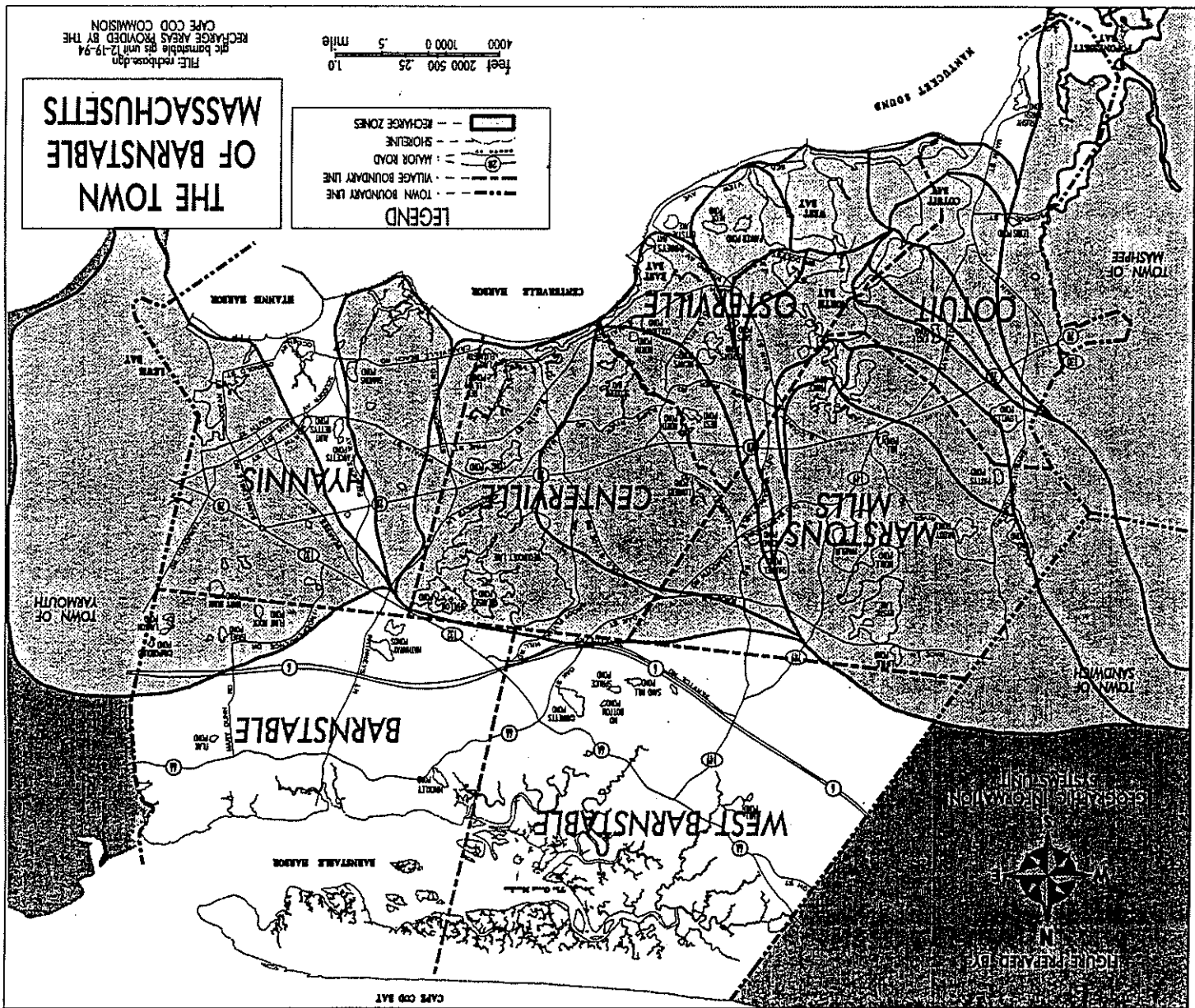
- Zones of Contribution to Public Wells
- Impervious Soils - Lake Bottom Deposits
- Areas Dependent on Private Wells

These areas need a moderate degree of protection
* See additional Sensitive Areas on Map 2, Coastal Recharge Areas

Very Sensitive Areas

Extremely Sensitive Areas

These areas need a greater degree of protection than Sensitive Areas



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1.3 Historical Development Patterns & Activity Centers

An important planning goal is to identify land uses appropriate for the commercial, business and industrial zoning districts and direct these uses into areas with the least environmental sensitivity. However, this goal has not been achieved in past development of the Town.

On the following pages, a series of graphics depicts development patterns since 1850. By 1840 village centers were well established close to the major ports in the Town, and development had spread along the historic routes. By 1940 development had spread out from Hyannis along the south coastal areas; the north side remained much the same.

By 1960, major changes had occurred. With the construction of the Mid-Cape Highway, development occurred rapidly, continuing to spread out from Hyannis along Routes 132 and 28. Development began to infill areas in the villages.

By 1990 development had spread throughout all the villages. Hyannis, Centerville and Osterville are largely built-out. The village centers are no longer distinct centers. Most of the remaining developable land is in the villages of Barnstable, West Barnstable and Marstons Mills.

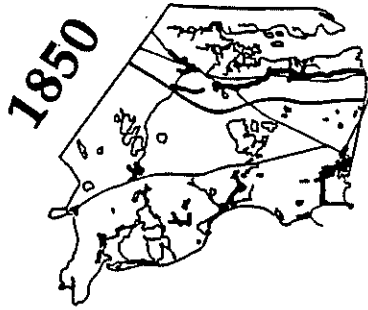
Today's development pattern requires that the Town preserve the remaining extremely sensitive vacant lands through regulation or land acquisition, if and when funds are available. The very sensitive areas should be regulated to ensure compatible, low impact development. Sensitive areas may be considered for development but should also be regulated to achieve a low density of development. This approach, advocated in the 1984 Lozano, White and Associates Plan, would have eliminated many current land use conflicts between environmental, transportation and economic development activities. The goals, policies and strategies contained in this land use Section are intended to direct economic development into appropriate activity centers and rectify past conflicts. Problematic issues with the Town's regulations must be addressed if we are to preserve our traditional relationship with the environment.

Historic Development Patterns of Barnstable

Settlement Pattern 1850

By 1850, development within the town had established linear patterns along Route 6A and along the early crossroads of Church Street in West Barnstable, Sea Street in Hyannis and to a lesser degree in spotted areas along Phinney's Lane in Centerville and West Main Street in Hyannis. By this time, clusters of developed areas also established the village centers, which in 1850 numbered eleven and included Ponds ville, Cotuit Port, Cotuit Highland (High Ground) and Hyannis Port. Settlement clusters are noticeable at each of the rail stations and the major seaports of that era.

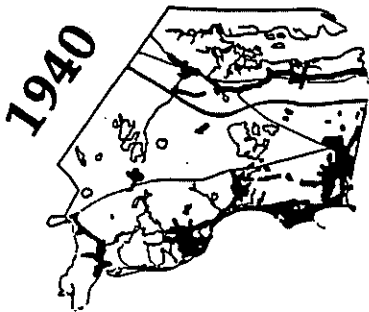
1856 - H.F. Walling, 1856 Map of the Town of Barnstable



Settlement Pattern 1940

By 1940, development had spread outwards from Hyannis and along the south coast in the areas of Hyannis Port, Centerville and Osterville. The north side of the town remained relatively similar to early years with only slight expansion at rail station and along Route 6A. Development has linked Santuit with Cotuit Port and the Highland (High Ground) along Main Street. Hyannis' radial pattern emanates from the rail station and Main Street. The settlement patterns also depict initial development of golf courses and the airport. Overall growth patterns still follow early roads especially South County and Craigville Roads.

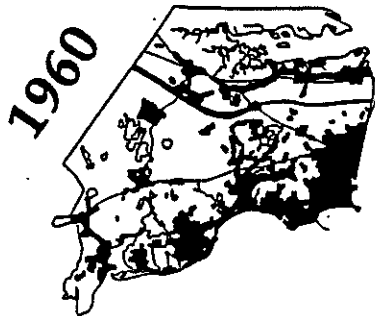
1942 - U.S. Department of the Interior Geological Survey Map



Settlement Pattern 1960

By 1960, major changes had occurred in the development patterns of the town. With the dominance of the private automobile, development of the town was spurred by the construction of the Mid Cape Highway to Route 132. Development occurred along the shores of Wequaquet Lake and along the roads to Centerville. Development in Hyannis continues to spread radially outwards and along Routes 28 and 132. The other villages show continuous infilling and spread of development. Recreational golf courses continue to be developed as do other major land uses including the Cape Cod Airport and the Barnstable Fairgrounds.

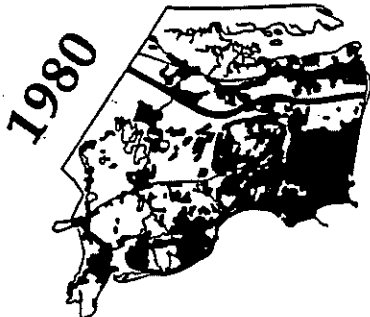
1962 - Town of Barnstable Generalized Land Uses Map



Settlement Pattern 1980

The 1980 pattern shows the filling in of development between the village of Hyannis and Centerville, development along Route 132 and expansion into the Industrial Park area. The Mid-Cape Highway has been completed through the town. Marstons Mills is beginning to show signs of its initial growth along major roads and in areas of its freshwater ponds. The northern half of the town, although mostly undeveloped, has grown in the areas surrounding the village centers, in Cummaquid and in the Barnstable Harbor Area. Spot development can also be seen along and adjacent to Route 28.

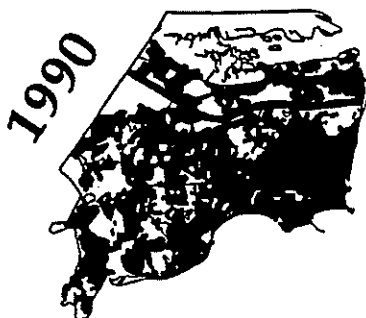
1977 - U.S. Department of the Interior Geological Survey Map



Settlement Pattern 1990

The 1990 map shows the extent of present development within the town. The village centers are no longer recognizable as separate settlement entities, as development has spread throughout all sections of the town. Much of the undeveloped lands that remains is due, in large part, to publicly held land and to unusable wetlands. Most of the larger areas remaining for development exist in the villages of Barnstable, West Barnstable, and Marstons Mills. The other villages contain only isolated areas for new development, and scattered sites for infill and redevelopment in the future.

1988 - Town of Barnstable Air Photos



1.4 Buildout Analysis and Population Projections

Buildout Analysis

A buildout study calculates and analyzes how many properties and the amount of building area that can be developed, given existing zoning regulations. The purpose of the study is to determine the consequences of existing zoning, and to measure the maximum capacity allowable under current zoning, based on the scenario that every parcel is used to its maximum utility. It should be stated, however, that this scenario is unlikely to occur at the degree assumed in this study, and that it is only used as a measure of capacity under current zoning.

The Town of Barnstable Buildout study revealed the possible consequences of the Town's existing zoning. Based on this study, the growth potential of specific areas within the town and for specific land uses vary greatly.

Commercial / Industrial

In the town as a whole, commercial and industrial uses offer the greatest potential for growth. Below is a summary table of the commercial and industrial buildout. As the table displays, office/professional offers the greatest growth potential among the commercial uses; roughly a 275% increase in building area. Industrial uses has a potential growth of roughly 398% in building area, the highest among all major uses. As a whole, commercial/industrial uses have the potential to grow 227% in total building area.

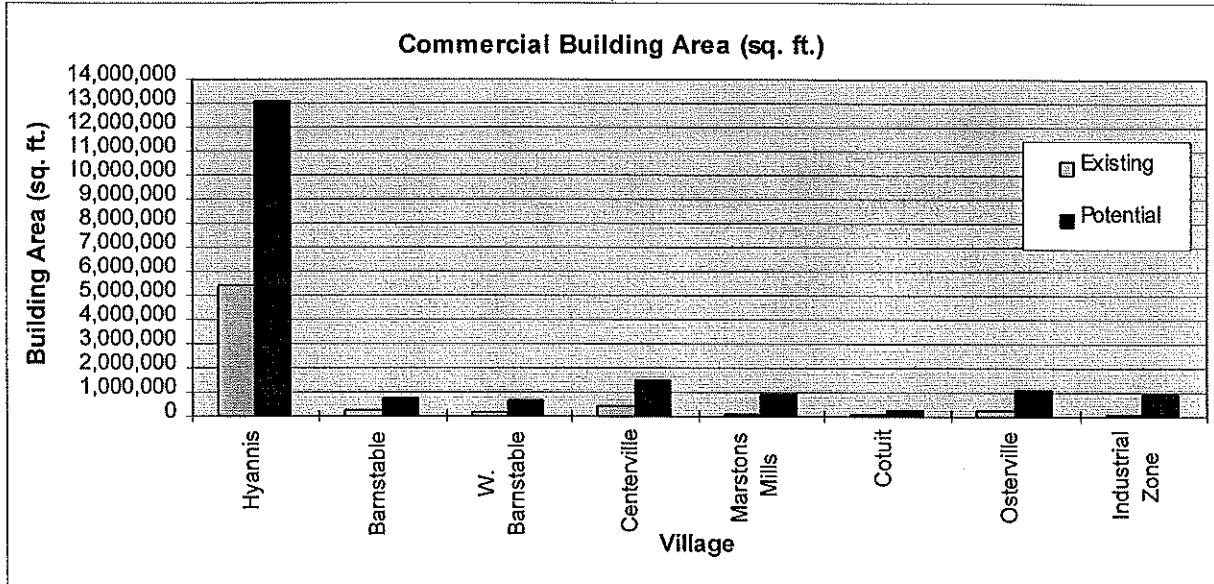
Commercial/Industrial Buildout Summary (Building sq. ft.)

Land Use Code	Existing	Projected	% Change
Hotel/Motel/Motor Inn	1,135,177	2,475,987	118%
Retail Trade & Services	4,142,884	11,647,964	181%
Office/Professional	1,105,597	4,147,676	275%
Medical	286,212	857,396	200%
Industrial	1,582,822	7,885,646	398%
Total	8,252,692	27,014,670	227%

The areas of the town which have the greatest potential for growth in commercial and industrial uses are located in the industrial areas of Hyannis and Barnstable Village, in and around the Independence Park area and the Hyannis Sand and Gravel lands. The commercial area along Route 132 and in Downtown Hyannis have moderate and low growth potential, respectively, since substantial growth has already occurred in these areas. Also of note, is the significant growth potential of the S&D zone in Marstons Mills, where there is currently 40 acres of developable vacant land and much additional land which is under-utilized.

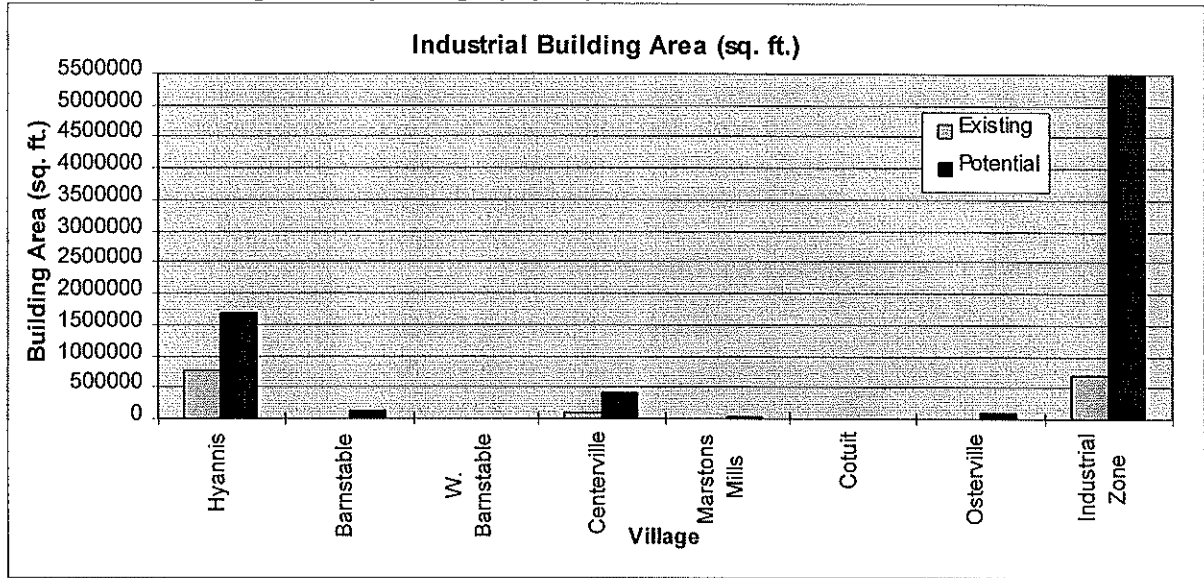
Since there are specific areas within the town which have a much higher growth potential than the town as a whole, there are significant variations in the amount of potential commercial growth among the seven villages in Barnstable. The chart below displays the existing and potential commercial building area by village. Much of the total existing commercial building area and potential growth is concentrated in Hyannis. Currently there is roughly 5.4 million square feet of commercial building area in Hyannis and a potential for roughly 13 million square feet at buildout; an increase of 141%.

Commercial Building Area by Village (sq. ft)



The chart below displays the industrial building area by village. In addition to each village, the industrial zone in Hyannis/Barnstable Village is also included. Much of the total growth in industrial building area is projected to occur in the industrial zone, which can grow from the present 688,708 square feet to a potential of roughly 5.5 million square feet at buildout; an increase of 699%. Hyannis, currently containing roughly 757,136 square feet of light industrial building area, can potentially grow to 1.7 million square feet, an increase of 123%. The character of the uses in the industrial zone, however, can change to a light industrial-retail-office mix, since these uses are permitted in the zone. All other villages have a relatively small amount of industrial uses.

Industrial Building Area by Village (sq. ft.)



Implications of Buildout Analysis - Commercial and Industrial Areas

The town will not be able to support the magnitude of growth that has been built into its land use regulations, principally the Zoning Ordinance. Extensive areas have been zoned for commercial and industrial development. Despite land use policies developed over the last 30 years to direct and define growth, land uses and densities are defined with little awareness of the build-out potential and its affects on infrastructure and community character. Also, as currently defined, there are little differences between commercial areas and industrial areas. The principal commercial and industrial districts all allow multi-family residential use, retail, and offices uses. There are only minimum requirements for amenities such as landscape buffers, parking lot landscaping and design controls.

Specific strategies to manage and define future growth have been summarized for each of the activity centers in Section 1.7 below; these recommendations should define the type of development that the town has articulated in the goals and policies of the Village Vision Plans, in various Sections of this Local Comprehensive Plan, and in prior planning efforts, including Goals and Policies for the Town of Barnstable, Lozano, White and Associates, 1983. Policies and strategies to ensure that future development and re-development is designed in sympathy with the town's traditional and historic character have also been articulated in Section 7 of this document, Historic Preservation and Community Character. Thus, implementation of this Plan should ensure that development will continue to have long term viability and enhance not only the town, but the Cape, of which it is the regional center.

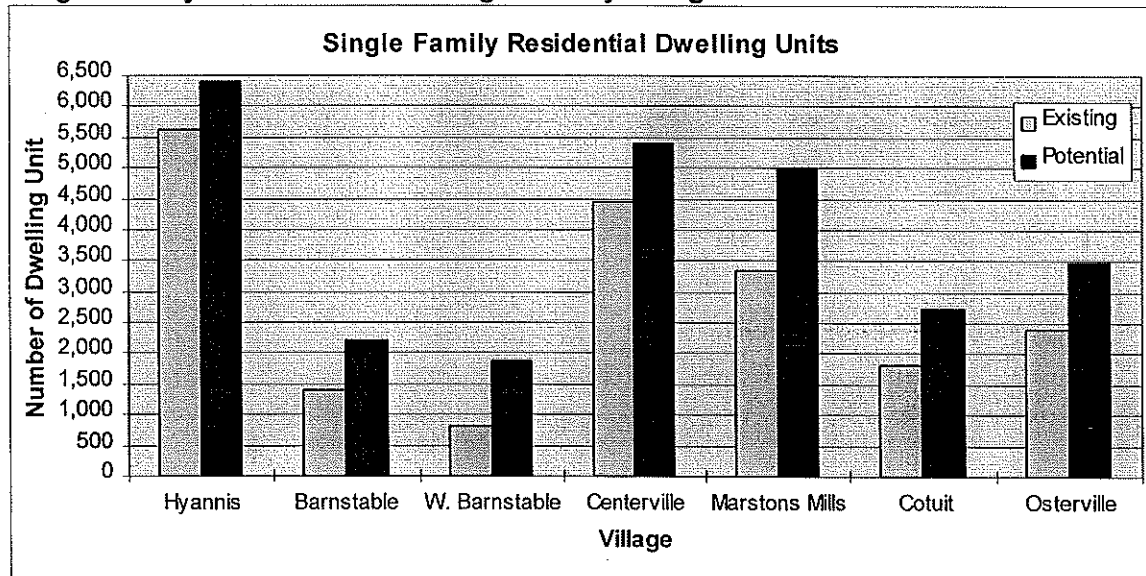
Implementation of the growth management goals, policies and strategies included within this plan will require a concerted effort on part of many groups to review and revise

significant portions of the town's land use regulations, capital improvement programs for infrastructure development, and design controls for new commercial development and redevelopment. The rate at which these actions are accomplished, and the priority given to them, should be directly related to the rate of growth. In stating these goals and policies, and developing strategies for implementation, Barnstable has taken the first step to guide and direct growth in its commercial areas.

Residential

The areas of the town with the greatest potential for growth in single family residential dwelling units include West Barnstable and Barnstable Village, which can grow by 129% and 49%, respectively. The chart below displays the number of existing and potential single family dwelling units by village. Hyannis has the greatest number of potential single family dwelling units at buildout, with 6,398. Hyannis is followed by Centerville and Marstons Mills, with 5,408 and 4,996 potential single family dwelling units, respectively. The largest increase in the actual number of single family dwelling can potentially occur in Marstons Mills, where 1,650 units can be added. Hyannis can potentially add the fewest number of single family dwelling units at 764. This is due to the lack of developable vacant land in the village. It should be noted, however, that these numbers are high; wetlands could not be entirely removed from the developable area of parcels, and small undersized lots were assumed to be grand fathered, therefore developable, which in reality may not be the case.

Single Family Residential Dwelling Units by Village



Single family residential uses offer the least amount of growth potential among all land uses in the town as a whole. The table shown below summarizes the results of the single family residential buildout. There are approximately 19,891 single family dwelling units in the town and an additional 7,198 lots which can be developed, representing a 36.2% growth rate. Most of the growth in single family dwelling units can occur on vacant parcels of one acre or more. Substantial growth can also occur on "estate "

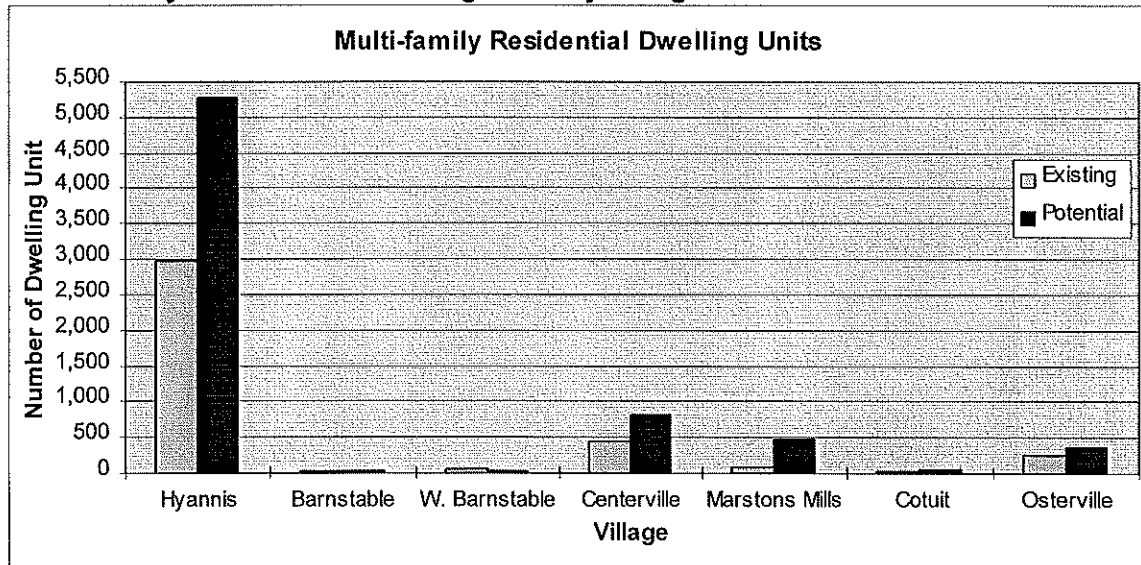
parcels - lots two acres or more in size with some existing development, which can be further subdivided.

Single Family Residential Buildout Summary

Existing Single Family DU's	Potential DU's (estate parcels)	Potential DU's (vacant parcels 1 acre or more)	Potential DU's (vacant parcels 5000-43559 s.f.)	Total Projected DU's	Percent Change
19,891	2,277	3,168	1,753	27,089	36.2

The growth potential in Multi-family residential was based on the existing proportion of said land use, and the projected maximum development on each parcel. Projected numbers are, therefore, very high. The potential for growth in multi-family dwelling units varies considerable among the town's villages. As the chart below displays, Hyannis has the greatest concentration of multi-family dwelling units and the greatest potential for growth of additional multi-family units; an increase from the current 2,963 units to 5,267 units. The area within Hyannis where much of the growth in multi-family residential can occur is the West Main Street area and the industrial district. In the town as a whole, the number of multi-family dwelling units can potentially increase by 82%; from the existing 3,869 units to 7,044 units.

Multi-Family Residential Dwelling Units by Village



When all areas of the town and all land uses are considered, the area immediately south of the Mid-Cape Highway, between Route 132 and Mary Dunn Road, in Barnstable Village, offers the greatest potential for growth in the Town. This is a result of the large amounts of developable vacant land in the area, which is zoned for a broad variety of uses. The eastern part of this area has great potential for growth in industrial, commercial, and multi-family uses, while the western portion of the area can accommodate significant growth in single family residential uses. As mentioned earlier,

the S & D zone in Marstons Mills also has significant growth potential due to its large amount of vacant and underutilized land which is zoned for a variety of commercial uses.

Implications of Buildout Analysis - Residential Areas

The town has experienced very rapid residential growth over the last 30 years. This has had a major impact on roads, schools and groundwater and surface water quality. Overall, such growth has negative implications on the town's tax structure - except for the most expensive development, residential development generally costs more to service that it generates in tax revenues. Specific recommendations have been developed in Section 1.10 to manage and reduce the impact of residential growth. Given the historic rate of growth, if these recommendations are not implemented within the next two decades, most of the town's single family residential lots will have been developed. This fact indicates that any purchases of land for open space, parks, schools and to protect important natural resources should be made in the very near future.

Population Projections

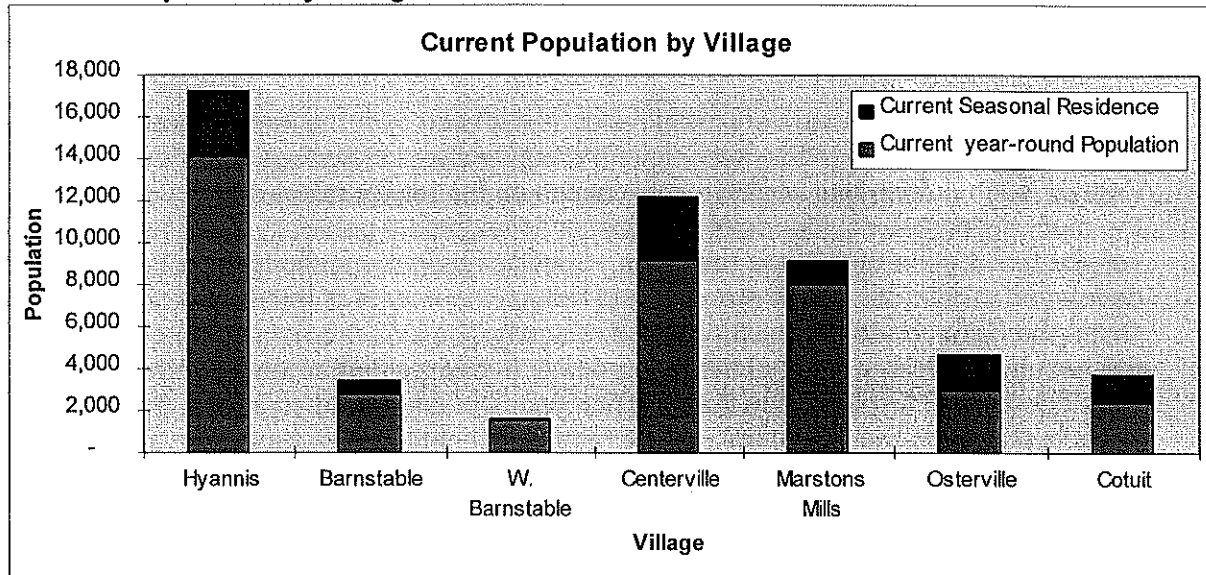
The population projections at buildout are based on the 1990 census and the residential buildout analysis. The present (1990) year-round population of the town is 40,958, with a seasonal population of 11,118 and a total population of 52,076. According to the buildout study, the Town has an estimated total year round population potential of 67,921, with a seasonal population of 13,898 and a total population of 81,819; approximately 57% more people than it currently supports. The seasonal population was arrived at by multiplying the number of seasonal housing units by the average number of persons per household for each village.

Under current zoning, the largest population increases by percentage can potentially occur in the villages of West Barnstable, Osterville, and Cotuit, where they are projected to be 216%, 83%, and 75%, respectively. The largest actual population increase, however, can potentially occur in Hyannis, Marstons Mills, and Centerville, which can potentially add 8,744, 6,019, and 2,791 people at buildout. Most of the potential population increase in Hyannis is due to the large amount of multi-family residential development that can occur under current zoning in the village. As mentioned earlier, however, the multi-family residential estimates are very high.

At buildout, Hyannis would contain the largest population of the town's villages at 26,013, or 32% of the town's total. Hyannis would be followed by Marstons Mills, which currently ranks as the third largest village in the town, with a buildout population of 15,199; 18% of the town's total. Centerville, currently ranking second, would be the third largest village at buildout, with a population of 15,023. Although, West Barnstable has the greatest population increase potential by percentage among the town's villages, it would remain the least populous village at buildout, with a maximum potential population of only 5,203; 6% of the town's total buildout population.

Population and Housing Buildout Data

Current Population by Village



Potential Population at Buildout by Village

Village	Potential year-round population	Potential Seasonal Residence*	Potential Total Population	Percent change in total Pop
Hyannis	22,077	3,936	26,013	51%
Barnstable	4,645	741	5,386	59%
W. Barnstable	5,102	101	5,203	216%
Centerville	11,220	3,803	15,023	23%
Marstons Mills	13,745	1,454	15,199	66%
Osterville	6,317	2,183	8,500	83%
Cotuit	4,815	1,680	6,495	75%
Town Totals	67,921	13,898	81,819	57%

* Estimate based on current growth trends

Town Wide 1990 Census Data

Current Population	40,958
Total Housing Units	23,337
% Occupied Units	71.04
Occupied Housing Units	16,607
Occupants per Household	2.4
Seasonal Units	4,797
Seasonal Population	11,181
Total Population	52,076

Town Wide Buildout Data

Potential year-round Population	67,921
Potential year-round Housing Units	28,300
Potential Seasonal Population*	13,898
Potential Seasonal Housing Units*	5,700
Total Potential Housing Units	34,000
Total Potential Population	81,819

Additional population projections for the town have been made for the time period between 1990 and 2020. These projections use "extrapolation" and "cohort survival" models to project population. The extrapolation model uses a series of mathematical curve fitting methods to show trends. The cohort survival model determines migration and survival rates from past cohort, fertility, and mortality data. The chart below displays the results of these population projections. The three projections using extrapolation models were performed by the Massachusetts Institute for Social and Economic Research (MISER) from the University of Massachusetts at Amherst, The Cape Cod Commission (CCC) the county's regional planning agency, and the Association for the Preservation of Cape Cod (APCC). The cohort survival projection is represented by "cohort", the average of the three extrapolation models is represented by "Avg", and the mean projection is the mean of all four projections. The above methodologies were used for the years between 1990 and 2000. Projections for all years beyond 2000 are linear extrapolations of the projected growth rate for the years between 1990 and 2000; the same growth rate is assumed over the entire time period.

CHART POPN PROJ

Effects of Growth Management Policies

The establishment and implementation of growth management policies can be effective in managing the pace of growth in the Town. Several different policies were examined and their effects on residential development analyzed. The policies and their impacts are described below.

Rezoning Single Family Residential Estate Parcels

One policy that was analyzed is the rezoning of single family estate parcels. Estate parcels are parcels of land two acres or greater in size with at least one dwelling unit. The chart below displays the number of single family dwelling units (DU's) that can be built on estate parcels under various zoning scenarios. Under current zoning (one acre per lot) 2,277 DU's can be developed from estate parcels. If all estate parcels were developed at 2 acres per lot, 911 additional DU's can be built. If all estate parcels were developed at 2.5 acres per lot, 652 additional DU's can be built. A more realistic scenario, where 50% of the estate parcels would remain under the current zoning of one acre per lot and 50% would be rezoned for two acre lots, would produce a maximum of 1,593 DU's; a decrease of 684 DU's from the current zoning scenario. The final scenario, where 50% of the estate parcels would remain at one acre per lot and 50% would be rezoned for 2.5 acre lots, produces a maximum of 1,464 DU's; a decrease of 813 DU's from the current zoning total. Rezoning half of the estate parcels in the Town rather than all is a more realist scenario since many of the estate parcels are scattered throughout the town and not concentrated in one continuous area.

Effects of Rezoning Estate Parcels

Zoning Scenario	No. of parcels	No. of Potential DU's
1 acre lots	820 (2 ac.+)	2,277
2 acre lots	419 (3 ac. +)	911
2.5 acre lots	308 (3.5 ac.+)	652
1/2 @ 1 acre & 1/2 at 2 acres		1,593
1/2 @ 1 acre & half at 2.5 acres		1,464

Growth Phasing of Single Family Residential Dwelling Units

Another growth management policy that was analyzed was growth phasing of single family residential dwelling units (DU's). This includes setting a limit to the number of single family dwelling units that can be built over one year time periods. Below is a chart displaying the number of building permits issued for single family DU's between 1983 and 1997. As the chart shows, the number of building permits for DU's has steadily declined from it's peak in 1984 at 858, however, did increase again between 1993 and 1994 before leveling off. The average number of building permits issued for single family DU's over the past five years is 224 DU's per year.

Number of Single Family Residential Building Permits Issued 1983-1997 (DU's)

1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
705	858	794	729	516	347	303	207	184	187	178	241	246	233	224*

*Estimate based on the actual total of 166 permits issued between 1/1/97 and 9/24/97.

The growth phasing analysis calculates the number of years it would take to reach buildout in single family residential DU's at various given numbers of DU's built per year. The results are displayed in the table below. Under the current five year average of 224 DU's constructed per year, it would take 27 years to reach full buildout of single family DU's. If 200, 175, and 150 DU's were constructed per year, it would take 31, 35, and 41 years to reach buildout, respectively.

Effect of Growth Phasing on Single Family DU's

No. of DU's per year	Years to Buildout
224*	27
200	31
175	35
150	41

* Represents the 1997 five year average

Rezoning Multi-family Residential

Another growth management policy that was analyzed was revising zoning for multi-family uses. The chart below summarizes the results of the multi-family buildout study using two zoning scenarios; the current zoning and a revised zoning scenario. The revised zoning scenario includes rezoning to allow multi-family residential uses only in certain districts. The districts that would retain multi-family as a permitted use are located in areas where there are currently concentrations of multi-family DU's, such as the West Main Street area, and the Barnstable Rd. and North St. corridors. Areas such as the industrial district and the business district along Route 132, where multi-family uses are currently allowed, would be rezoned to exclude this as a permitted use. In these areas, it is assumed under a revised zoning scenario, that no additional growth in multi-family DU's will occur. Under current zoning, the total number of potential multi-family DU's at buildout is 7,044; an 82% increase from the current total. Under the revised zoning scenario, the number of total multi-family DU's at buildout is 5,014; a 30% increase from the existing total and 2,030 DU's less than the potential under present zoning.

Multi-family Residential Buildout Zoning Scenarios

Number of existing multi-family DU's		3,869
Existing Zoning Scenario		
Number @ buildout under existing zoning		7,044
Potential increase under existing zoning		3,175
Potential growth rate under existing zoning		82%
Revised Zoning Scenario		
Number @ buildout under revised zoning		5,014
Potential increase under revised zoning		1,145
Potential growth rate under revised zoning		30%

Land Acquisition

The final growth management policy that is analyzed is land acquisition. This involves the Town purchasing parcels of land for recreation, and conservation. The chart below displays the number of acres that could be acquired if a Land Bank is adopted by the Massachusetts Legislature. Only Parcels five acres or greater in size are used in this analysis because this is the most likely size range that the Town would consider for purchasing. According to the Association for the Preservation of Cape Cod (APCC), \$1,465,097 would have been generated in the Town in 1996 for land acquisition. Based on a average value of \$40,000 per acre, roughly 36.6 acres can be purchased each year. As the chart below displays, this is equivalent to roughly 183, 366, and 732 acres over a five, ten, and twenty year period, respectively. Assuming the ratio between revenues and land cost remain the same, it would take roughly 24 years to purchase 50% of the available vacant land from parcels 5 acres in size and over.

Land Acquisition Data

Vacant Parcels 5 acres+ in size		
No. of Parcels		142
Total Developable Acres		1,734
No. of acres acquired over time period & % of total		
5 years	183 acres	10.5%
10 years	366 acres	21.1%
20 years	732 acres	42.2%

1.5 Development Trends

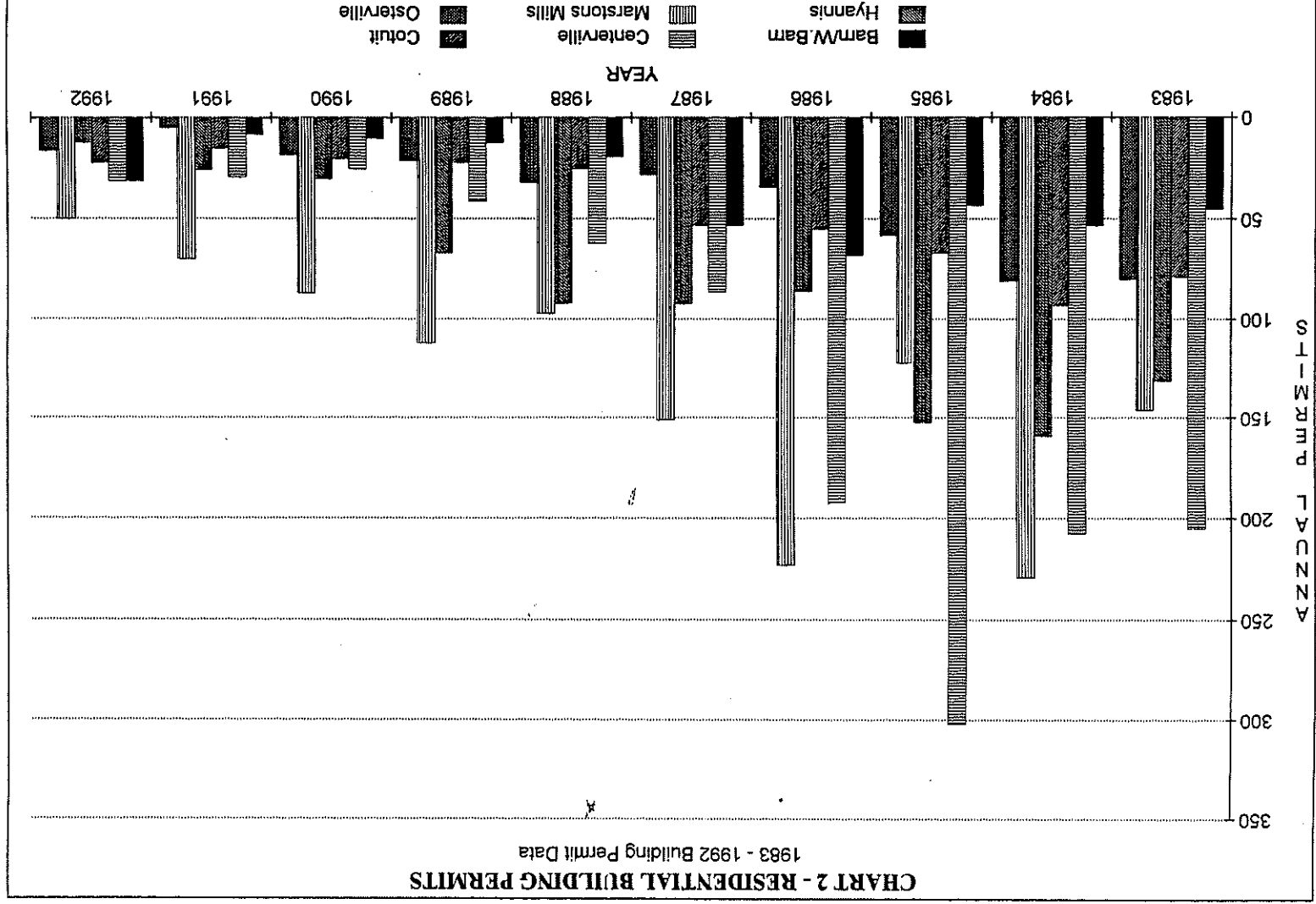
The Appendix of this Section contains a set of data covering the changes within the Town over the last ten to fourteen years. Both census data and building permit data are summarized. Some key trends illustrated include:

1. A general decrease in residential new construction occurred from a high of 858 units per year in 1984 to a low of 184 units in 1991. In 1997, the five year average was 224. Growth phasing, if adopted, should not exceed this number, and a lesser number should be considered.
2. Building permit activity does not occur uniformly within the Town. The highest growth in residential units occurred in Centerville in 1983 & 1985, and Marstons Mills in the other years, with a recent increase in the Barnstable - W. Barnstable area. See Chart 2 for village detail on this trend.
3. The cost of construction took a downturn, and hence the cost of homes, after the recession of 1987/1988. However, construction costs are on the increase again.
4. Commercial construction was not immune to the downward turn in construction, except in 1989, with the development of the Christmas Tree Shop. Chart 4 illustrates the total square footage of commercial construction (including office and industrial) from 1983 to 1992. This same data by village shows the village of Hyannis as the commercial center.

The above data can be used to overview density of population and development within the Town. The village of W. Barnstable has the lowest population density with 232 people/sq. mile. Hyannis, with 1,441 people per square mile, is the most densely populated. Centerville maintains a population density of 1,178 people per square mile. The other villages average one-half of this density as illustrated in Chart 5. The higher densities raise concerns for groundwater quality and the potability of public water supplies as well as surface water quality. Wastewater management is needed to prevent contamination of water resources.

5. Town-wide employment by industry is illustrated in Chart 6, which shows a surprising number of professional skills held by the residents. Chart 7 shows service, sales and clerical as a major component of the reported occupations by village. Taken together these charts show the need for continued training of those working in these fields while recognizing improved job opportunities for higher paying professionals.

In summary, it is expected that the rate of growth will continue at a rate approximately of 224 dwelling units per year (the five year average 1992 to 1997) and commercial construction at 100,000 - 150,000 sq. ft. per year.



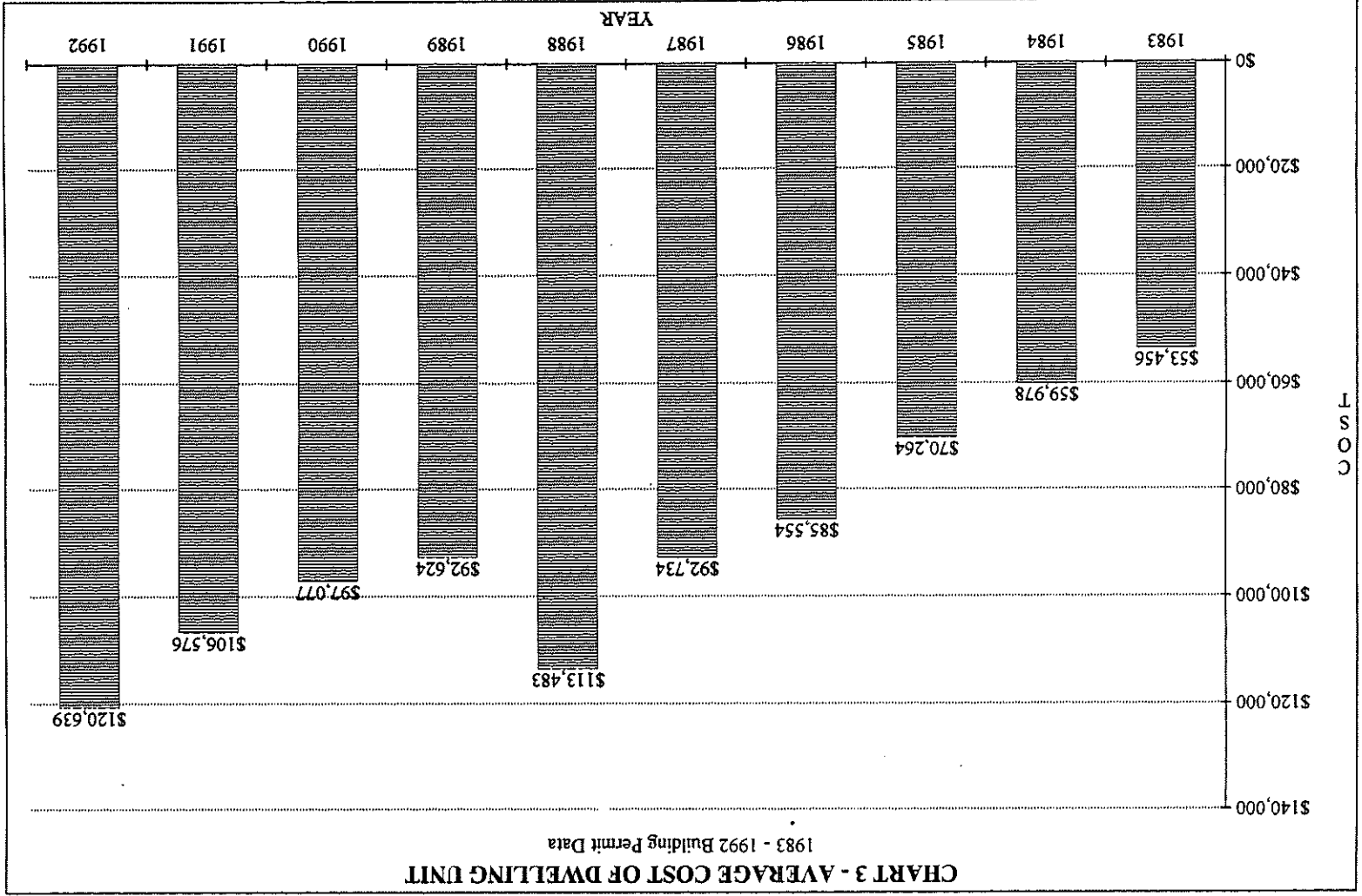
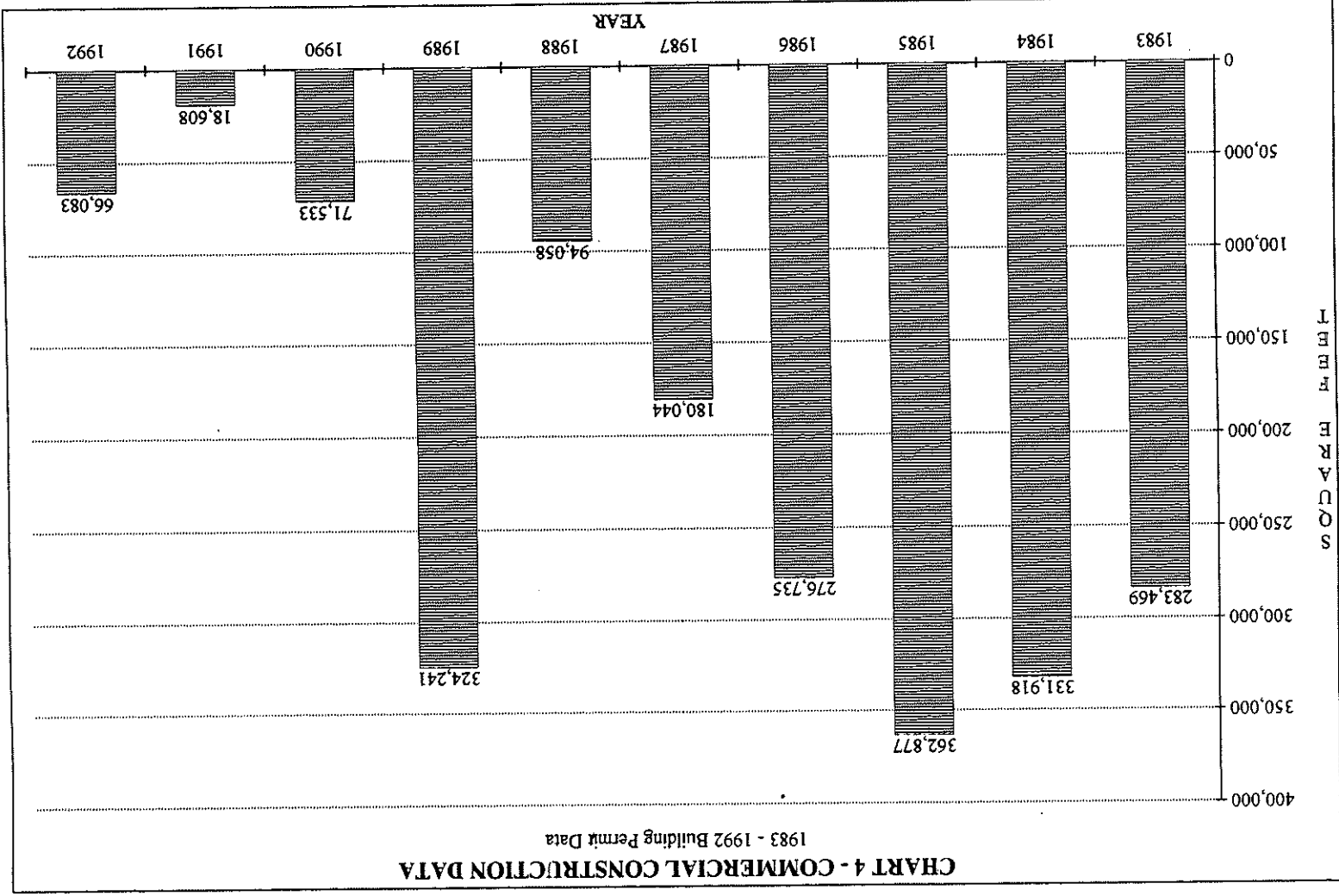
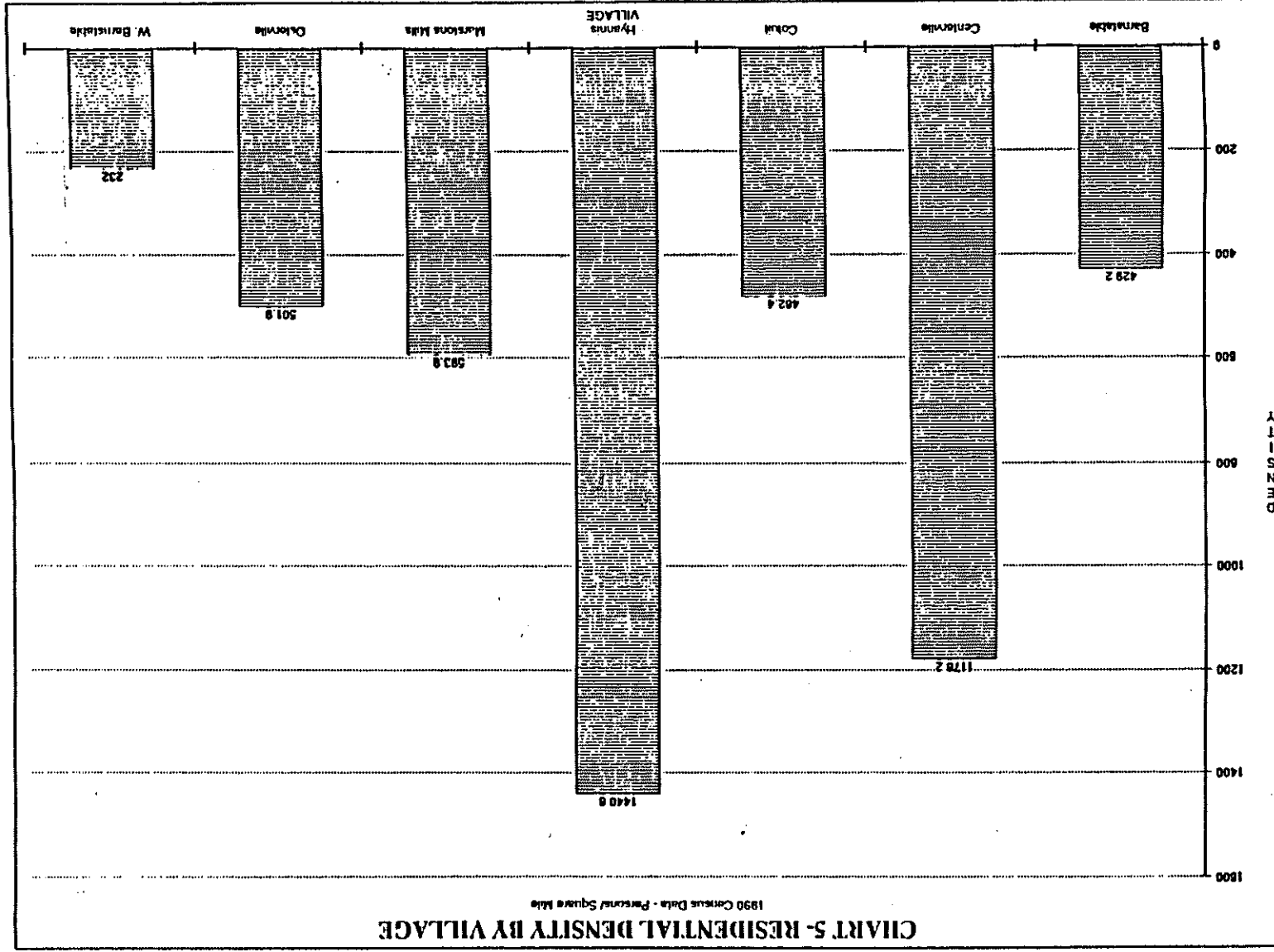


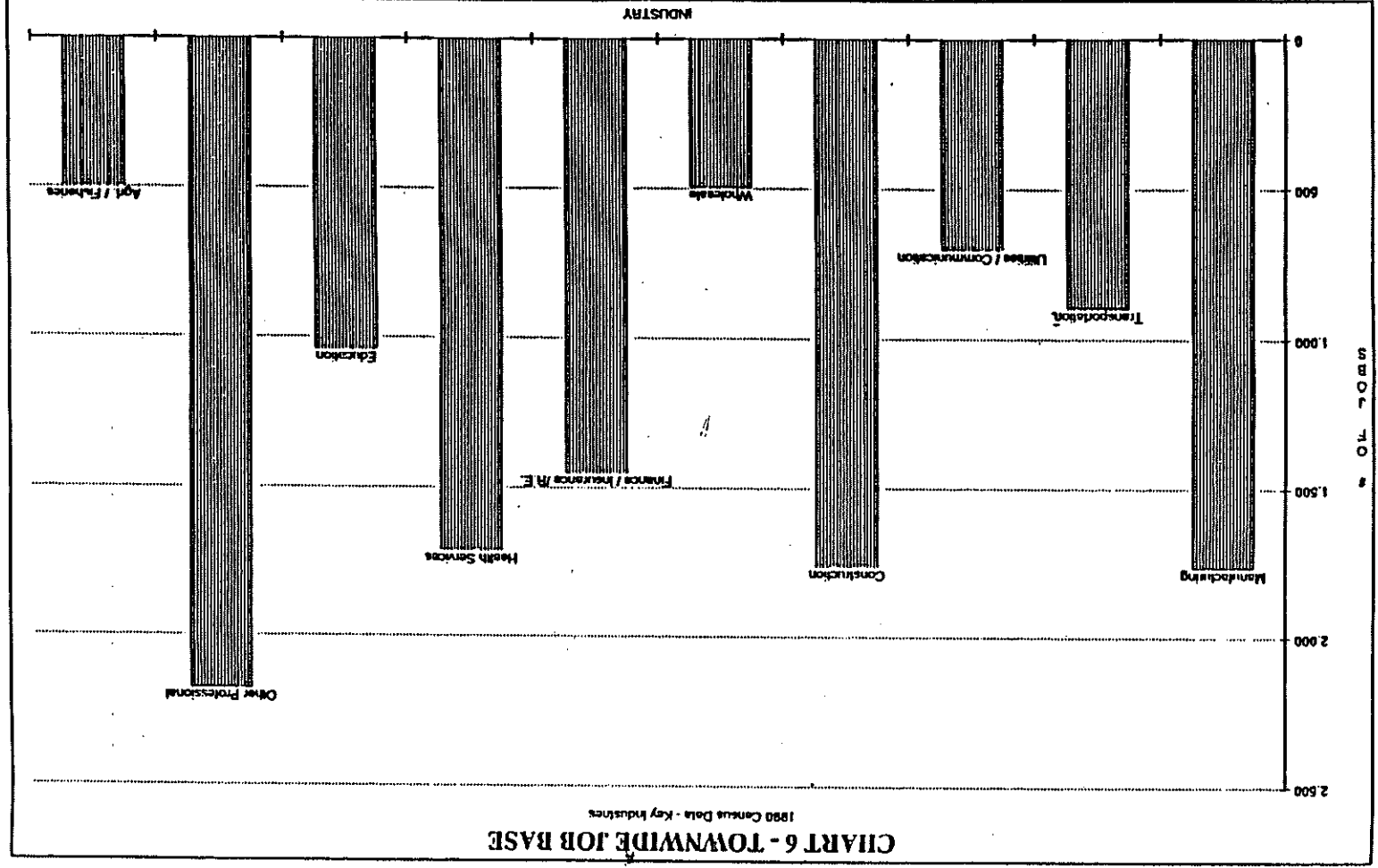
CHART 3 - AVERAGE COST OF DWELLING UNIT
1983 - 1992 Building Permit Data

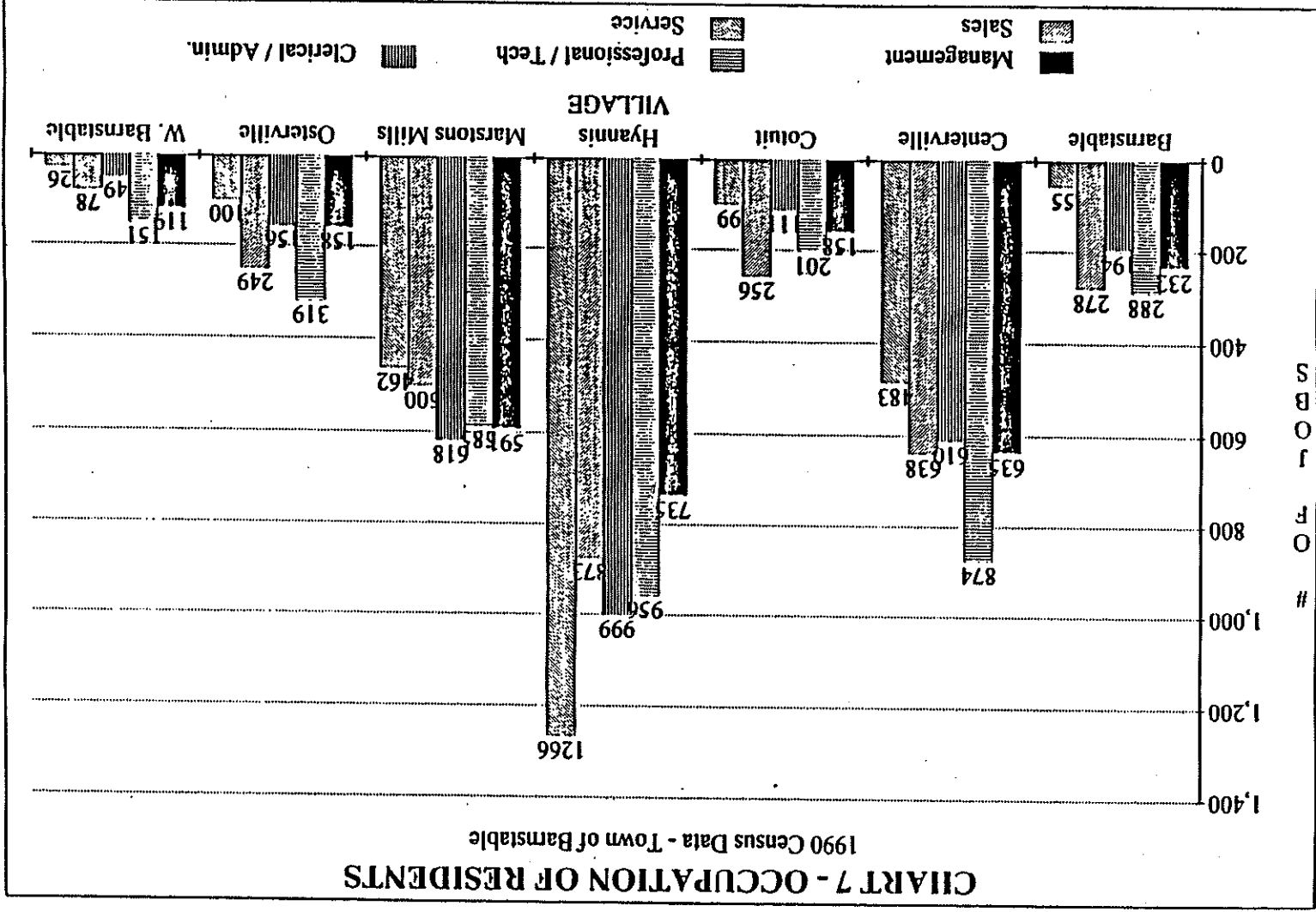
Note: Construction cost only. Does not include cost of land or other expenses.



Note: Sq. Ft. based on average construction costs reported. Cost of land or other expenses not included.







1.6 Economic Development in Activity Centers

The Town of Barnstable, like most other New England towns, has developed around clustered settlements. This pattern is a distinctive attribute in the definition of community character and it provides an efficient means of growth management.

These centers were developed to share resources, facilitate communication and maintain social relationships. The historic growth patterns displayed in the previous section show that the "suburban" pattern of sprawl and strip development appeared only within the last 20 years, but it happened quickly and will continue to affect our growth and development pattern. As a basic land use goal, the Town should return to this traditional settlement pattern, respect sensitive environmental areas and provide for efficient delivery of community facilities and services. The activity center is a logical solution to this goal.

In the Cape Cod Commission's 1990 survey of Cape Cod residents, 74% cited rural character as part of their decision to live on Cape Cod, and 71% cited small-town lifestyle. Environmental issues were also important, with 77% citing air and water quality as an attraction of the Cape and 73% citing proximity to the coast.

1.6.1 Relationship with the Regional Policy Plan

While it is not the intent of the County's Regional Policy Plan (RPP) to set a maximum population, it is the intent to direct growth based on natural resource constraints and public investment decisions. The Commission defines growth centers as "existing and/or new areas designated by the Commission and the Towns as suitable locations for new growth and development". Barnstable's Local Planning Committee believes that the term "growth centers" is too aggressive for this concept. Hence the term "activity centers" was developed to indicate that these centers can "shrink" or be reduced in size, be maintained as they are (no-growth), or be allowed to expand to accept new development. Also, other types of activity centers are possible, such as community, recreational and regional facilities.

1.7 Activity Centers

Village and Town Centers

1. Barnstable Village
2. Centerville Village Center
3. Cotuit Village Center
4. Hyannis Main Street
5. Marstons Mills Village Center
6. Osterville Village Center
7. West Barnstable Village Center

Commercial Activity Centers

8. Route 132 (Regional Commercial Center)
9. Hyannis W. Main Street Corridor
10. Route 28 Centerville HB Zoning District
11. Service and Distribution District, Star Market and the Windmill Shopping Center, Marstons Mills
12. The Santuit Business Area

Redevelopment Activity Centers

13. The Industrial Zone (Regional Employment Center)
14. Landfill and Surrounding Area
15. Route 28 Redevelopment Area
16. PRD and RB-1 Zoning Districts, Hyannis
17. Stevens Street to Barnstable Road

Marinas and Harbors








18. Barnstable Harbor
19. Hyannis Inner Harbor
20. Osterville Marina District

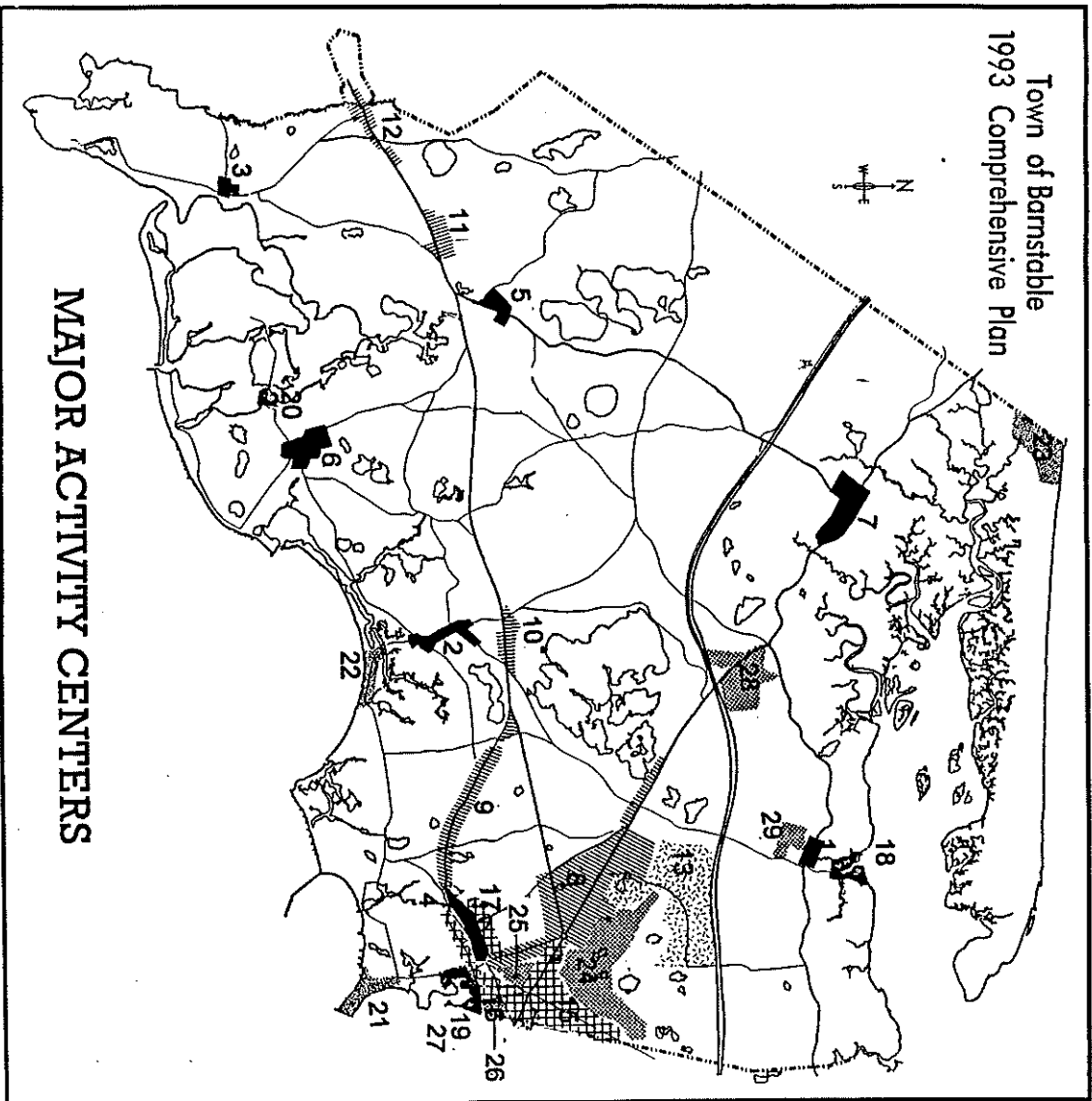
Major Recreational Areas

21. Kalmus Park and the Hyannis Harbor Parks
22. Craigville Beach Area
23. Sandy Neck Beach/Area of Critical Environmental Concern (ACEC)

Regional Facilities

24. Municipal Airport
25. Regional Transportation Center, Hyannis
26. Cape Cod Hospital
27. Port Activities, Steamship Authority and the Hyline
28. College and Institutional Uses (expansion area)
29. County Complex

- ACTIVITY CENTER
TYPE:**
-  VILLAGE/TOWN CENTER
 -  COMMERCIAL
 -  INDUSTRIAL
 -  MARINAS/HARBORS
 -  RECREATIONAL
 -  REDEVELOPMENT
 -  REGIONAL FACILITIES



1.7 Activity Centers

The Goals, Policies and Strategies listed in the individual Village Vision Plans should be consulted for specific details. Within this Section, specific Growth Management initiatives are offered as Goals, Policies and Strategies for future land use actions within the Town of Barnstable on an area specific / Activity Center basis. The consistent theme found throughout this section is consistent with the RPP Goal 1.1 which is supported by the town.

Goal 1.7: "To encourage sustainable growth and development consistent with the carrying capacity of the Barnstable's natural environment in order to maintain the Town's economic health and quality of life, and to encourage the preservation and creation of village centers, downtown areas and industrial zones that provide a pleasant environment for living, working and shopping for residents and visitors"

In addition, the Town also has defined a set of broad Goals for land use:

1. Promote land uses that are environmentally compatible with natural resources systems;
2. Define Activity Centers for retail, commercial and industrial uses that provide jobs and services for residents and visitors;
3. Protect residential areas from commercial encroachment, through strictly enforced buffer zones;
4. Encourage affordable housing opportunities; and
5. Preserve and enhance community character, historic buildings and districts, and the open space pattern that has defined the quality of life on Cape Cod, the Town of Barnstable and its Villages.

In order for these land use/growth management goals to be implemented, the following action oriented policies are recommended:

Policy 1.7.1: Development and redevelopment should be directed to village, regional and industrial "activity centers" that have sufficient carrying capacity to sustain the impacts of growth, or where provisions are made for infrastructure prior to activity taking place. (RPP 1.1.4)

Policy 1.7.2: Compact forms of development such as cluster development and redevelopment within designated "activity centers," and, where appropriate, mixed use residential/commercial development shall be given preference in order to minimize further land consumption and to protect open space. (RPP 1.1.1)

Policy 1.7.3: Provide a high quality of design and community character compatibility within "activity centers".

Policy 1.7.4: To maintain community character, height limitations should remain at the current levels of two to two and one-half stories.

Policy 1.7.5: Extension or creation of new roadside "strip" commercial development outside of the designated "activity centers" shall be prohibited. (RPP 1.1.3)

Policy 1.7.6: Direct development and redevelopment away from the town's open space / greenbelt areas identified in this Plan and protect environmentally sensitive areas so as to maintain an open space / green belt system throughout the Town. (RPP 1.1.5)

Policy 1.7.7: Adequate infrastructure, including water and sewer, shall be provided by public and private means in designated Activity Centers to support the levels of density and development set forth in this Plan. (RPP1.1.6)

Strategy 1.7.7.1: Ensure that any other off-site impacts in addition to the above, which may be created by development and redevelopment, are addressed and mitigated.

Policy 1.7.8: Develop performance standards on the type and scale of development, including, but not limited to: open space; traffic; site; landscape; and architectural design.

Policy 1.7.9: Consider a phased growth ordinance to stabilize growth rates consistent with the community's ability to provide necessary infrastructure.

Policy 1.7.10: Streamline and simplify the permitting process for land uses that are consistent with the above themes.

These requirements have guided the Town's response to growth management. Through public input provided by the Village Vision planning process, a series of "activity centers" has been identified. The graphics on the following pages identify 29 "activity centers" in the Town of Barnstable. The information that follows describes general policies for each center and defines the parameters of "growth", "no-growth" and "shrink" in each center. These policies are then further developed as Growth Management Strategies that are intended to guide future land use patterns of the Town.

Village and Town Centers

The village and town centers provide central mixed use districts within each village, which provide for small scale retail and office services, bed and breakfast operations, community facilities and activities designed to address the specific needs of the village residents. The centers should also be assessed for small-scale affordable housing developments, especially for those residents who cannot drive. The village and town centers should allow for commercial and residential developments integrated into a dynamic mixed-use relationship.

1. Barnstable Village

This small village center has been the seat of County government since 1686. The center is fortunate in having retained its historic character; however it is in need of public improvements. Sidewalks are worn down, close to road grade level, and interrupted by a forest of utility poles and wires. The road is scheduled for re-grading.

Growth Management Strategies include:

- At the time the road is re-graded, utilities need to be placed underground, sidewalks re-built, historic lighting added, and trees planted. Grants need to be obtained. The Village Association will also raise funds.
- The zoning district is one of the few appropriate districts, however lines need to be delineated. There should also be a minor re-definition of uses.
- Work with county officials to develop a parking management plan for the County complex. Retain the high standard of landscape design in the County parking lot.
- Provide a mass transit linkage to other activity centers, which is particularly needed to serve the county complex and the harbor area.
- Provide for weekend and evening parking at the County complex for harbor users, linked by a seasonal shuttle bus service.

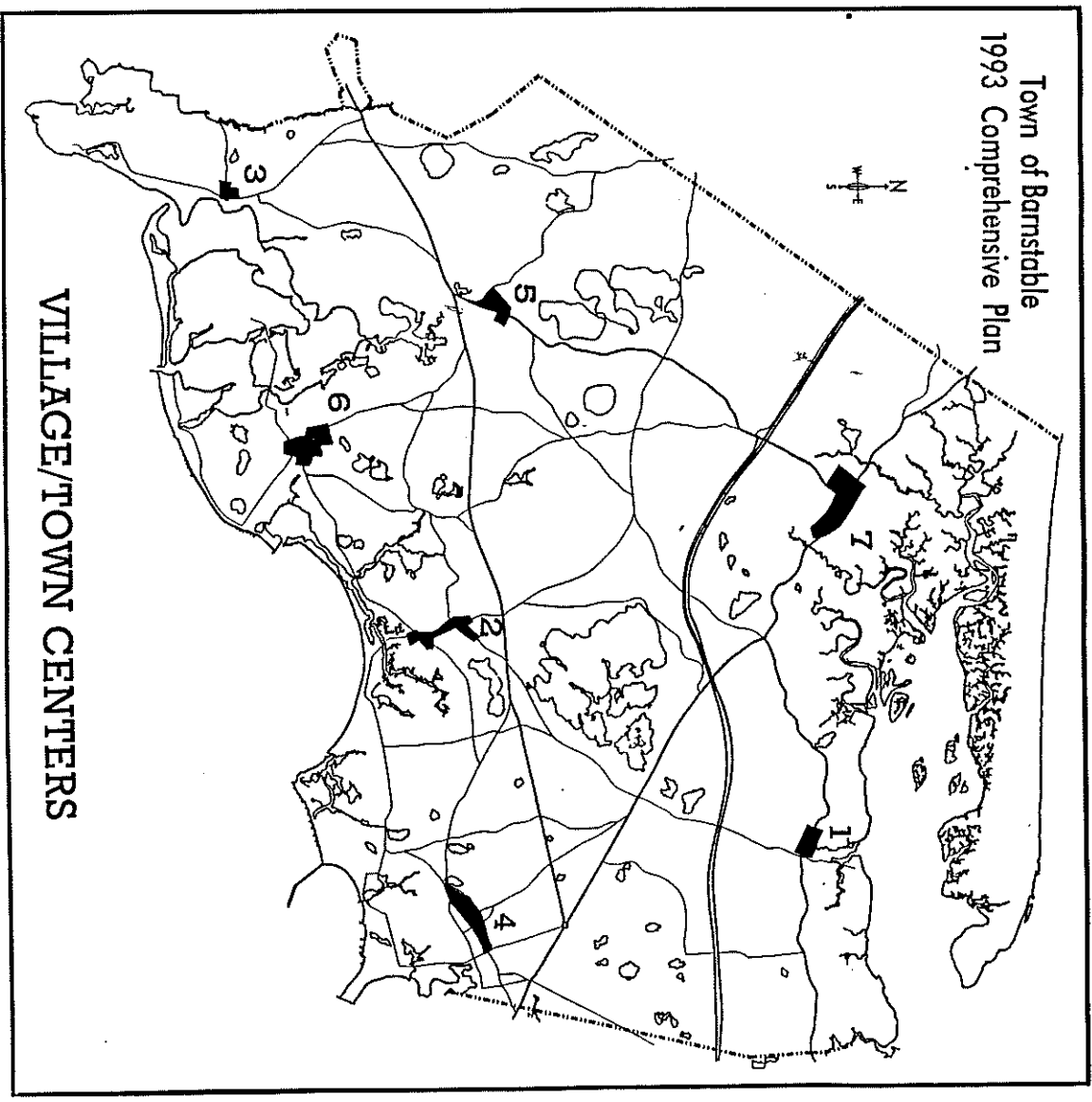
2. Centerville Village Center

The Village Center of Centerville, along Main Street, is one of the Town's most intact traditional New England settings. The one and one-half mile stretch of Main Street and Old Stage Road, located south of Route 28, is predominantly residential with scattered institutional, mixed residential, commercial and several bed and breakfast operations. Most of the structures are 1800's sea captains' homes fronting on Main Street and are listed in the State and National Registers of Historic Places. Protection of this area's aesthetic quality and uses, proper improvements to the roadway and neighboring green park spaces are critical.

Growth Management Strategies include the following land use and infrastructure actions:

- Residential zoning should remain along Main Street. The predominant residential setting and historic buildings must be protected from commercial pressures. Existing non-conforming uses along Main Street should be permitted to continue in an historically compatible manner adding to the preservation of the village character.
- Consideration should be given to limiting the expansive list of permitted uses within the Business A zoning district. Specifically, gas stations, restaurants, general business and wholesale stores should be eliminated. None of these uses now exist and the need is being satisfied in the Highway Business (HB) District on Route 28. Retail use in this area should be controlled to ensure community compatibility.
- Roadways, walks and landscapes need to be improved in an historically fitting manner along and around the village center.
- To ensure the preservation of larger historic structures, high quality and attractive bed and breakfast operations should be permitted as a special permit use. Some of these larger structures may be also be appropriate for conversion provided any change is linked to maintain a building's historic integrity and any historic register status. The special permitting process should include site plan review to ensure preservation of the architectural character and compatibility of the use with the neighborhood.

- VILLAGE/TOWN CENTERS:**
- 1 Barnstable
 - 2 Centerville
 - 3 Cotuit
 - 4 Hyannis
 - 5 Marston's Mills
 - 6 Osterville
 - 7 W. Barnstable



VILLAGE/TOWN CENTERS

-
- The Recreation/Community Center building needs to be rehabilitated and improved for both recreational use and community functions.
 - Reuse of the COMM fire station on Main Street needs to be restudied and appraised. A variety of community activities could be accommodated.
 - Provide for a mass transit link such as a bus linkage to other activity centers.

3. Cotuit Village Center

This small activity center is located around the intersection of Main and School Streets. The area is also partly within the proposed Cotuit Historic District and includes institutional and government uses permitted as-of-right. The desire is to maintain the businesses as they presently exist and to ensure the center's historic integrity both architecturally and functionally.

There is a strong desire to protect the village center and retain it "as it exists today". Existing businesses are seen as compatible because they fulfill the need for neighborhood convenience. Other uses that should be investigated to complement the needs of the village center include cultural uses and quality bed and breakfast lodging.

Mashpee Commons and the Cotuit Landing area provide community services and businesses which serve Cotuit residents. The village center is impacted by summer traffic and parking for its beaches.

Growth Management Strategies should consider the following:

- A zoning district should be carefully studied for this area only after the creation of a local historic district. The majority of the uses in this area should be conditional uses, limited in size and hours of operation. The special permitting process should ensure residential compatibility and together with ensuring that the quaint nature of the village center is being preserved.
- The need for parking should be minimized by restricting new traffic generators.
- The sidewalks and parking should be improved, and consideration given to "overflow parking areas" or off-site parking and shuttle bus service to the shore for use during the summer and blue fishing seasons.
- Provide for a mass transit link such as a bus linkage to other activity centers.

4. Hyannis Main Street

Hyannis is the Town center and center of government. Worldwide recognition has made the village a tourist destination. The area has been defined as a microcosm of Cape Cod in its architecture, ambiance and function. The multiple roles of village center, town center and regional center create complex problems and opportunities in planning for the future of this area. This area is of local and regional importance for transportation facilities - air, train, ferry, bus and automobile.

The recent organization of the Hyannis Main Street Waterfront Association is an encouraging sign of the new coordination, cooperation and consensus within the commercial community. This action was fostered by the Hyannis Vision Group to create a positive working relationship among all business owners in this area. Major goals have

been advanced by the Hyannis Area Economic Development Corporation (HAEDC) that focuses on this area.

Growth Management Strategies include growth for Main Street through redevelopment/reinvestment, and in-fill. Linkage of this area's historic character with the preservation of traditional maritime uses at Hyannis Harbor is a critical step. The Town's vision for this activity center includes:

- Preservation of traditional "Main Street" village atmosphere, expansion of businesses and redevelopment of under-utilized areas. Implementation of a "Walkway to the Sea" connecting Main Street with Hyannis Harbor visually and physically. Promotion of public events and activities. Improvement of parking and transportation.
- Implement a Hyannis Village Local Historic District.
- Improve and emphasize the pedestrian environment for both residents (linkage to the neighborhoods) and tourists (street furniture and landscaping).
- Tourist uses (retail) should be balanced with the needs of the village residents to maintain a year-round center. Office and professional uses should be encouraged in the PRD District to address medical service needs. A grocery store is also needed.
- A major opportunity for a performing arts center and/or a conference center should be explored based on a market study, fiscal analysis and on/off site impact mitigation.
- Integration of all transit providers within a multi-modal transportation system.
- Seek to decentralize residential and shelter facilities throughout the Cape and avoid further concentration in the Hyannis area.
- Provide activity centers for the young and the elderly, and create recreational open space areas in neighborhoods.
- Retain Town government offices in the downtown area to maintain Hyannis Main Street as the center of the Town. Town Hall is an important economic asset to the viability of this area.
- Provide for a mass transit link such as a bus linkage to other activity centers.
- Develop a physical area plan for the portion of activity centers 4 and 19 contained within the Hyannis Main Street Waterfront Historic District.

5. Marstons Mills Village Center

Approximately 4.2 acres of this small village center has been developed for commercial uses, 11.8 acres has been developed residentially, and 5.9 acres are vacant. The goal should be to encourage the development of this center for small-scale, compatible retail, office, business service uses, and residential uses serving local area needs.

Growth Management Strategies include:

- Evaluate the boundaries of the business zone to eliminate areas already developed residentially. Possibly create a village residential area permitting expanded home

occupations adjacent to the commercial center. Re-define permitted uses which now include the storage of oil, coal and lumber.

- Encourage the development of a small scale affordable housing development in the village center, particularly for the elderly.
- When Route 149 is re-surfaced, re-locate and extend sidewalks to create a linkage between the village center, Mill Pond and Burgess Park.
- Provide for a mass transit link such as a bus linkage to other activity centers.

6. Osterville Village Center and Main Street Business A Zoning District

Osterville has a traditional village center with a vibrant business community. The Main Street Business A Zoning District between Pond Street and Osterville West Barnstable Road strip zone is a concern. Of the 26 acres within the zoning district, 16.56 are in private ownership. Development may not be in the best interest of the village as a whole. It is estimated that full buildout of the district could create 144,000 to 187,000 sq. ft. of retail/office space. This buildout would highly impact traffic, roadways, utilities, existing user patterns and the village character.

Growth Management Strategies include maintaining the current level of commercial activity on Main Street and reduction in business zoning between Pond Street and Osterville West Barnstable Road.

- Rezone the BA zoning district between Pond Street and Osterville West Barnstable Road to less intensity of use and coverage. If commercial activities are permitted, it may best be in combination with a home occupation district zoning.
- Retain the retail, office and commercial mix of the center. Retain small-scale specialty shops; major retail stores shall be prohibited.
- Parking requirements for small business should be reduced and parking provided by expanding existing lots and multi-use of other lots such as neighboring church and school lots.
- The overall permitted building height should be reduced to reflect the existing character of the area.
- Implement a wastewater disposal district or other measures to assure protection of groundwater, lake, ponds and coastal resources.
- Preserve the remaining architectural character of buildings and quaintness of the village center through preservation.
- Provide for a mass transit link such as a bus linkage to other activity centers.

7. West Barnstable Village Center

This commercial district (VB-B) is oversized for village needs and market demands; it is the largest village commercial center outside of Hyannis with a total area of 60.47 acres. The 44.7 acres (excluding the Lombard Properties) as currently zoned, could generate a total of 390,000 square feet of retail and office space. Furthermore, the area is reliant

upon private wells for water supply. Along Route 6A and the marshes, the nature of the soils makes the area especially vulnerable to groundwater contamination.

Growth Management Strategies include reduction of the commercial district overall. The following actions were developed as options to be pursued:

- A reduction in the extent of the village commercial district.
- Creation of different village commercial districts within the existing commercial district with different uses and densities.
- Consider converting part of the commercial district to residential use as the principal activity with expanded home occupation, arts and crafts enterprises as accessory uses.
- Replacement of the present building coverage requirement with floor area ratio requirements which relate the amount of gross floor area to lot size.
- Ensure that the size, scale and design of new buildings is in close harmony to the surrounding historic structures, and building height does not exceed two stories.
- Screening/buffering of parking areas from Route 6A. Parking lots should be located at the side or rear of commercial structures.
- Provide for a mass transit link such as a bus linkage to other activity centers.

Commercial Activity Centers

- I. **Regional Commercial Activity Areas** provide for single centers that are designed for the concentration of large scale retail activities, such as a shopping mall or outlet store complex etc., that require a larger population base.
- II. **Town Commercial Activity Areas** provide moderate sized retail and service activities, which meet the needs of the Town residents.

8. Route 132 (Regional Commercial Center)

With 34,100 vehicle trips per day, Route 132 is the most utilized entrance to Barnstable. The road, also called Iyanough Road, was designed with two travel lanes by the state in the 1930s. The right of way (ROW) is at least 100 feet wide until it reaches Bearses Way, where it becomes a town way at 80 feet wide. Most of the length southeast of Bearses Way is commercially zoned, and it functions as the traffic distributor for most of the 1,923 acres of commercially zoned land in Hyannis. The roadway is in need of major improvements.

Four major shopping malls comprise the center of this commercial area. The Cape Cod Mall, opened in 1970, is the largest of the malls, followed by Cape Town Plaza, the Festival and Southwind Plazas. Other smaller retail, commercial and professional outlets, lodging and restaurants complete the remaining corridor activities. Originally developed piecemeal, this area has initiated disinvestment in Main Street, Hyannis. The piecemeal nature of development needs to be addressed to prevent the character of "anywhere USA", including improving access, retaining and increasing retail services and customers, and public and private amenities.

Growth Management Strategies include limiting commercial growth to the existing zoned area and encouraging infill and coordination between individual properties for access, design and marketing needs. The Town's vision for this activity center includes:

- Development of Iyanough Road parkway with vegetated medians and buffers, and two traffic lanes in each direction. Installation of turning lanes, traffic lights, cross walks and pedestrian/bicycle trails, and reduction of curb cuts.
- Provision of a Town shuttle bus service to link this area with the Hyannis Main Street Waterfront District and the Town's proposed mass transit system.
- Preservation of open space at Iyanough Hills Golf Course to protect groundwater resources; this area is in a Zone of Contribution to public supply wells.
- Maintain as a regional shopping and commercial center.
- Development and implementation of a Cape Cod design theme, including building design, landscaping and sign requirements for the area by a public-private partnership and implemented in the regulatory process.
- The vacant lands of this corridor southeast of Exit 6 should not be developed for commercial use, but should be considered for open space acquisition to maintain the character of the "Entryway to Hyannis". Alternatively, the area should be considered for low density, clustered residential development set back from the highway, adjacent to the golf course.

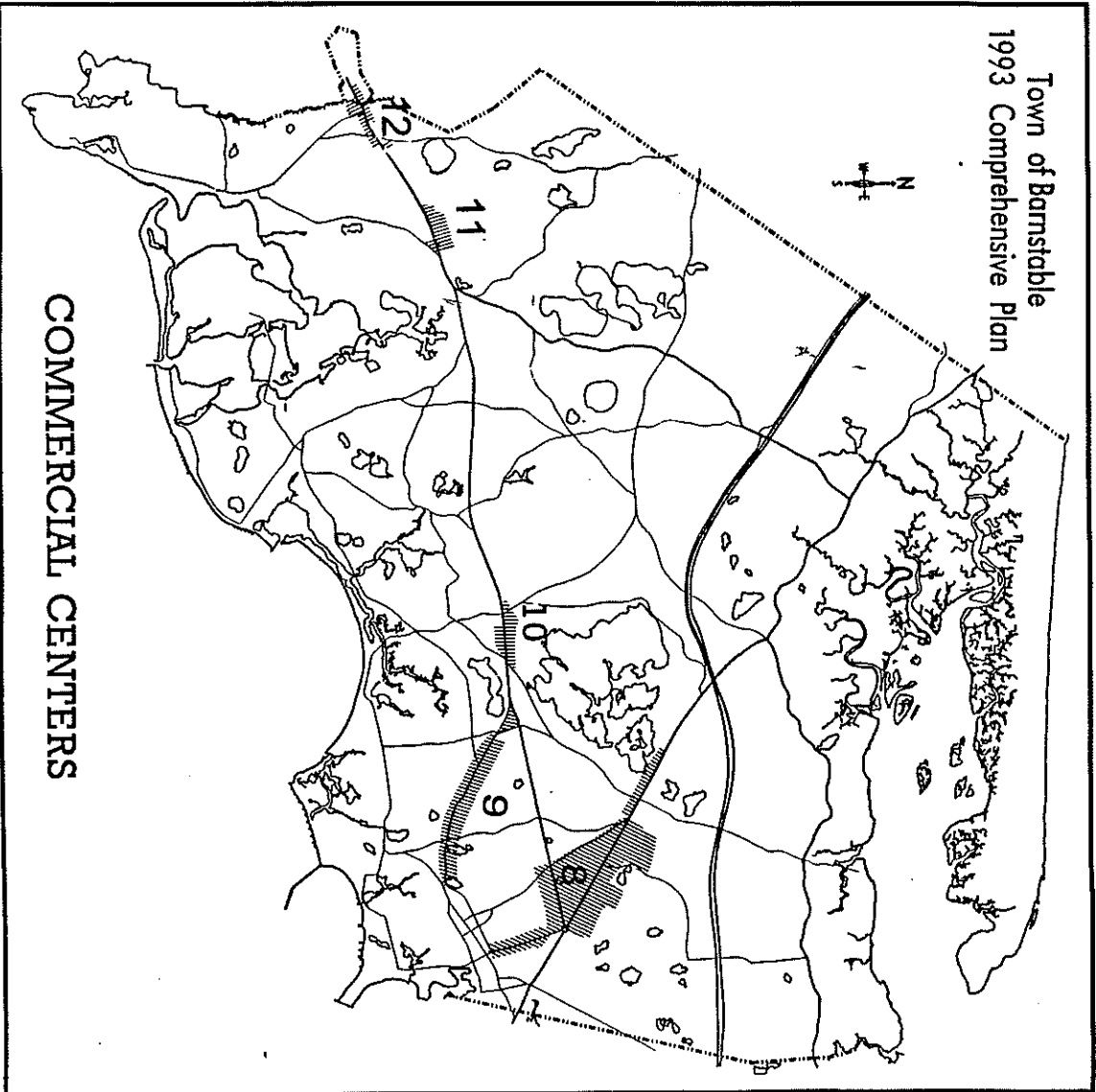
The limits of existing commercial uses should not be allowed to expand, in order to protect the adjacent residential neighborhoods. In-fill and redevelopment based on a uniform set of design standards and an adequate buffer zone should be encouraged and facilitated. This is the regional commercial center of Cape Cod and should serve as an example for user friendly design responses to architecture, transportation, landscaping and human engineering.

9. Hyannis W. Main Street Corridor

Apartments, condos, retail stores, gas stations and restaurants define this area as strip commercial. Off West Main Street are higher density, single-family detached homes. This mix of activities creates the need for a full set of supportive infrastructure. The location of both Barnstable Water Company and Centerville, Osterville, Marstons Mills (COMM) wells in Hyannisport and Craigville necessitated a public sanitary sewer system which was installed in 1973. This area is now established as a higher density housing area and is recognized as such. However, commercial activities should not be expanded in their current sprawl pattern. Rezoning should reflect the predominant multi-family uses already in existence. A multi-family designation should also be applied to commercial parcels with substantial redevelopment potential. Where there is no substantial expansion or redevelopment potential, existing high density commercial developments should be re-zoned to commercial use, to avoid creating a multitude of non-conforming uses.

- COMMERCIAL CENTERS:**
- 8 Route 132 Corridor
 - 9 West Main Street Corridor
 - 10 Route 28, Centerville
 - 11 Route 28/Putnam Ave.
 - 12 Route 28/Santuit

1-56



COMMERCIAL CENTERS

Growth Management Strategies include maintenance and in-fill of multi-family housing. Affordable housing should be considered since the infrastructure availability and existing neighborhood character is consistent with this higher density housing. Specific actions include:

- Completion of full service public sanitary sewer as part of the facilities plan for this area.
- Restrictions on non-conforming commercial uses that are not located at nodes created by the intersecting collector streets.
- Limitations of new curb cuts and the creation of left-turn lanes at the nodes.
- Direct access to the town-wide Mass Transit system.

10. Route 28 Centerville HB Zoning District

The half-mile stretch of Route 28 from Old Stage Road to Phinney's Lane is commercially developed with a total of 231,345 sq. ft. of office and commercial space. It is estimated that at full buildout, an additional 95,700 to 141,700 sq. ft. of new business and office space could be created on the remaining 6.59 acres of vacant or under-utilized HB zoned land.

Growth Management Strategies include the following actions designed to maintain the commercial viability of the area:

- General retail use should remain by Special Permit, based on the need for the proposed specific use.
- Major traffic generators should be discouraged until Route 28 is improved. The need for a large grocery store cannot be fulfilled until the traffic situation is alleviated. The roadway currently experiences 28,000 vehicle trips per day.
- The vacancy rate, now around 17% (not including the Centerville Nursing Home) indicates that new construction should be restricted until the vacancy rate approaches 5%
- Separate commercial malls and office developments should be linked by internal auto and pedestrian circulation. Access points (curb cuts) onto Route 28 should be kept to a minimum.
- Surrounding residential use should be buffered from commercial impacts. Neighborhood streets should be designed to discourage through commercial traffic.
- Bicycle and walking trails (sidewalks) are needed to link the commercial area with the traditional Village Center, along Old Stage Road and Phinney's Lane.
- Provide a mass transit link to other activity centers.

11. Service and Distribution District, Star Market and the Windmill Shopping Center, Marstons Mills

The north side of Route 28 is currently zoned for Service and Distribution uses. This district is the largest commercial district outside of Hyannis. Approximately 15.7 acres have been developed for retail use, including the Star Market shopping center, 13.4 acres have been developed residentially, and roughly 40 acres of land is vacant. The

vacant land to the east of Old Post Road should remain residential. The south side of Route 28 is zoned for business (VB-A) and contains the Windmill Village Shopping Center. This zoning district is virtually built-out.

The northern portion of the S and D area is located in a Zone of Contribution to public supply wells, and this whole commercial area is probably located within the recharge area to Prince Cove, which is being adversely affected by contamination. Densities need to be clarified and alternative wastewater treatment may be needed to serve areas of high density.

Growth Management Strategies. The Town's vision for this "activity center" includes the redefinition and/or change in the boundaries of the Service and Distribution District (S&D) to respond to the following:

- Existing residential subdivisions should be excluded from the commercial zone.
- Future uses were tentatively identified as retail, office and accessory residential.
- All uses and development densities need to be compatible with groundwater protection; part of the area is in the Zone of Contribution to the public supply wells in the Hayden wellfield. All of the area is in a recharge zone to Prince Cove, which is experiencing some contamination.
- Require landscaped buffers along Route 28, 60-100 feet wide, a parallel access road to individual properties, and limitation of curb cuts to Route 28 to an absolute minimum. Substantial development will require improvements to Rt. 28 including widening and turning lanes.
- Provide linkage to mass transit services.

12. The Santuit Business Area

The Santuit Business Area, including a section of Main Street, contains an estimated 26 businesses. The area, located along a 3/4 mile stretch of Route 28, has always been a low intensity business area that pre-dates the adoption of zoning or the 1983 rezoning of the area to residential use. Several businesses have a region-wide attraction due to the unique nature, quality and services provided.

Growth Management Strategies include recognizing this village activity center and providing the following:

- A zoning district(s) should be crafted which will bring a majority of the existing structures and uses into conformity. Regulations should be developed which provide both a degree of flexibility to the businesses and a mechanism to ensure the continuation of compatible uses within the district and to the surrounding neighborhoods. Types of businesses should be low intensity in terms of traffic generation. Overall intensity of development should not require the roadway to be expanded from the existing two lane design. Lot coverage by structures and pavement should remain minimal. The existing building coverage is estimated to average 17%.
- Prior to any rezoning in the area, a Historic District must be created in order to preserve both the aesthetic and design integrity of the area.

-
- Roadway and intersection improvements are needed along Route 28 at the intersections of Newtown Road- Santuit Road, Main Street and Route 130.
 - Pedestrian pathways should be considered along Route 28, linking these businesses.
 - A transit stop location should be provided.

Industrial Activity Centers

Industrial activity areas provide for manufacturing, warehousing, office complexes, high technology research facilities, light industry and limited commercial support facilities.

13. The Industrial Zone (Regional Employment Center)

A broad area of Hyannis and Barnstable Village is zoned for industrial development located north of Route 28 and South of the Mid Cape Highway, east of Phinneys Lane and west of Yarmouth Road. Within this zone are extensive public lands including the Barnstable Municipal Airport, public water supply lands belonging to the Barnstable Fire District and the Barnstable Water Company, and lands acquired by the State in 1994, east of Mary Dunn Road for the protection of environmentally sensitive habitats.

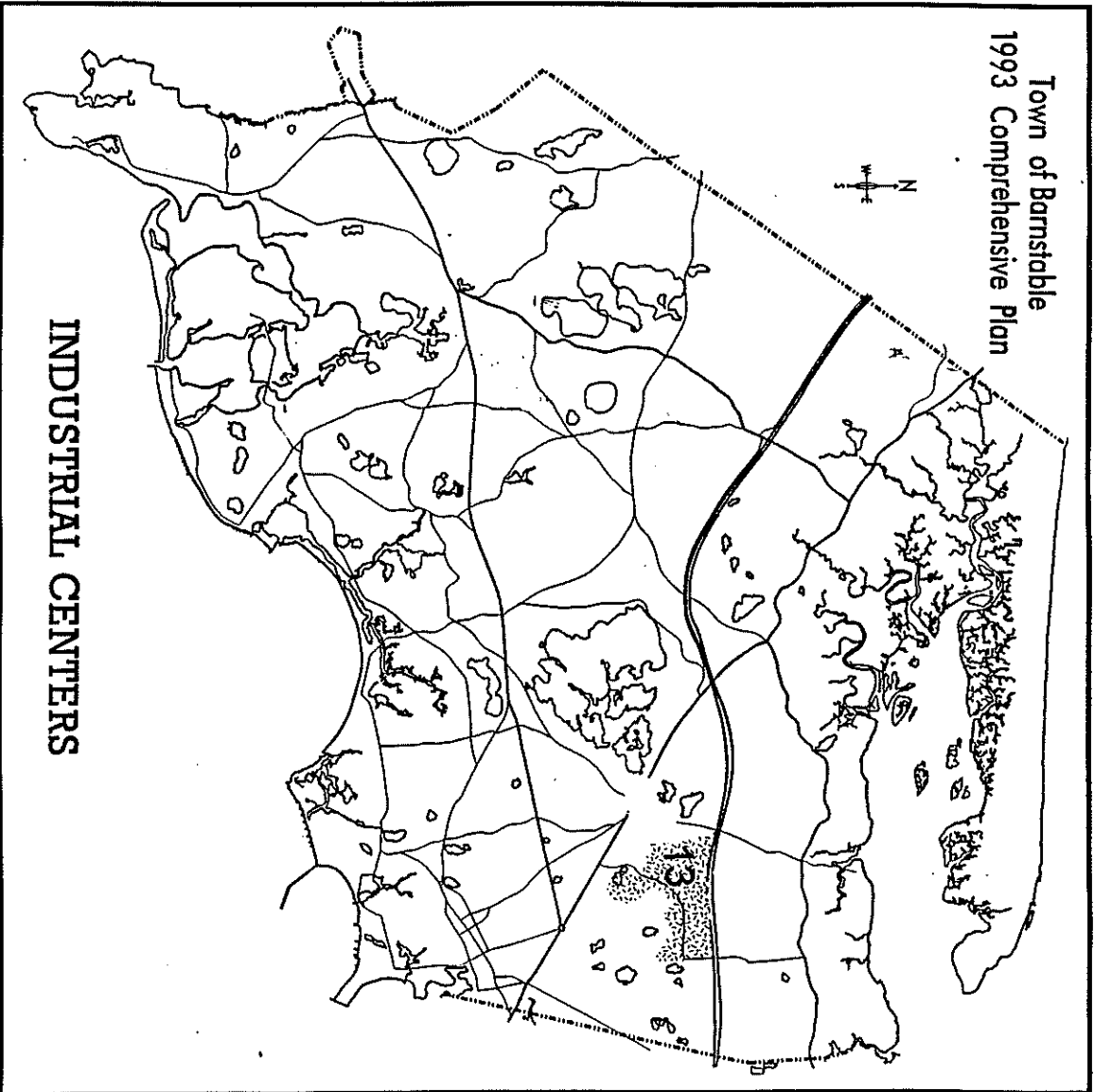
Approximately 335 acres remains available for development (1994). The area is one of the largest tracts of industrially zoned land on the Cape and was created to provide an enterprise zone for the creation of higher paying jobs. A substantial portion of the area is however, environmentally sensitive with rare and endangered species around shallow ponds and most of the industrial zone is within a Zone of Contribution to public supply wells. Public sanitary sewer is available however, to serve sites consistent with capacity limitations of the Wastewater Facilities Plan. Transportation infrastructure improvements are required for this area to achieve it's economic development potential.

Growth Management Strategies. The Town's vision for this activity center includes:

- Growth in the area west of Mary Dunn Road should be for office/research facilities with the potential to provide above average pay scales and year-round employment.
- Support the Economic Opportunity Area west of Mary Dunn Drive and provide incentives for economic development opportunities which create new jobs.
- Acquire lands east of Mary Dunn Road to protect the Hyannis Coastal Plains Ponds complex and the potable wells of the Barnstable Water Company and the Barnstable Fire District.
- Seek change in the Zoning Ordinance to restrict retail, hotel / motel and residential uses, in order to reserve industrial lands for job creation.
- Technological industries, limited manufacturing, and research institutions should be sought, linked to the rest of the nation by convenient air and rail transportation, and by electronic information lines.

INDUSTRIAL CENTERS:
13 Independence Park, Hyannis
Sand and Gravel

1-60



-
- New roadway options for industrial and commuter traffic: a Mid-Cape Highway parallel frontage road linking Route 132 (Exit 6), the Industrial Zone roads and Willow Street (Exit 7); a new Mid-Cape Highway interchange (Exit 6.5) providing access to the Industrial Zone, the airport, and the proposed Regional Transportation Center; and capacity improvements to Routes 132 and 28, or the extension of Old Route 132 to Independence Drive, a main artery of the Industrial Zone.
 - The regulation of uses not compatible with groundwater protection or the goals, policies and strategies of the Economic Development Section of this Local Comprehensive Plan.
 - Protection of ponds not purchased by the State needs to be addressed.

Develop and implement a management plan for the industrial zone to protect groundwater, public supply drinking water quality, coastal plains ponds and rare and endangered species. The management plan shall also address traffic issues and landscape design requirements.

14. Landfill and Surrounding Area

This area contains a number of service/industrial uses in a residentially zoned district located along Flint Street and Old Barnstable-Falmouth Road, which are major access roads to residential areas in Marstons Mills. Residents expressed a strong desire to see increased zoning enforcement in this area.

Growth Management Strategies: With the building of two new schools off Flint Street and with the capping of the landfill and creation of a large area of open space:

- No new industrial/commercial uses should be established, and no substantial expansion of existing uses should occur.
- Residential uses should be buffered from existing vehicle maintenance, parking, and material storage areas.

Redevelopment Activity Centers

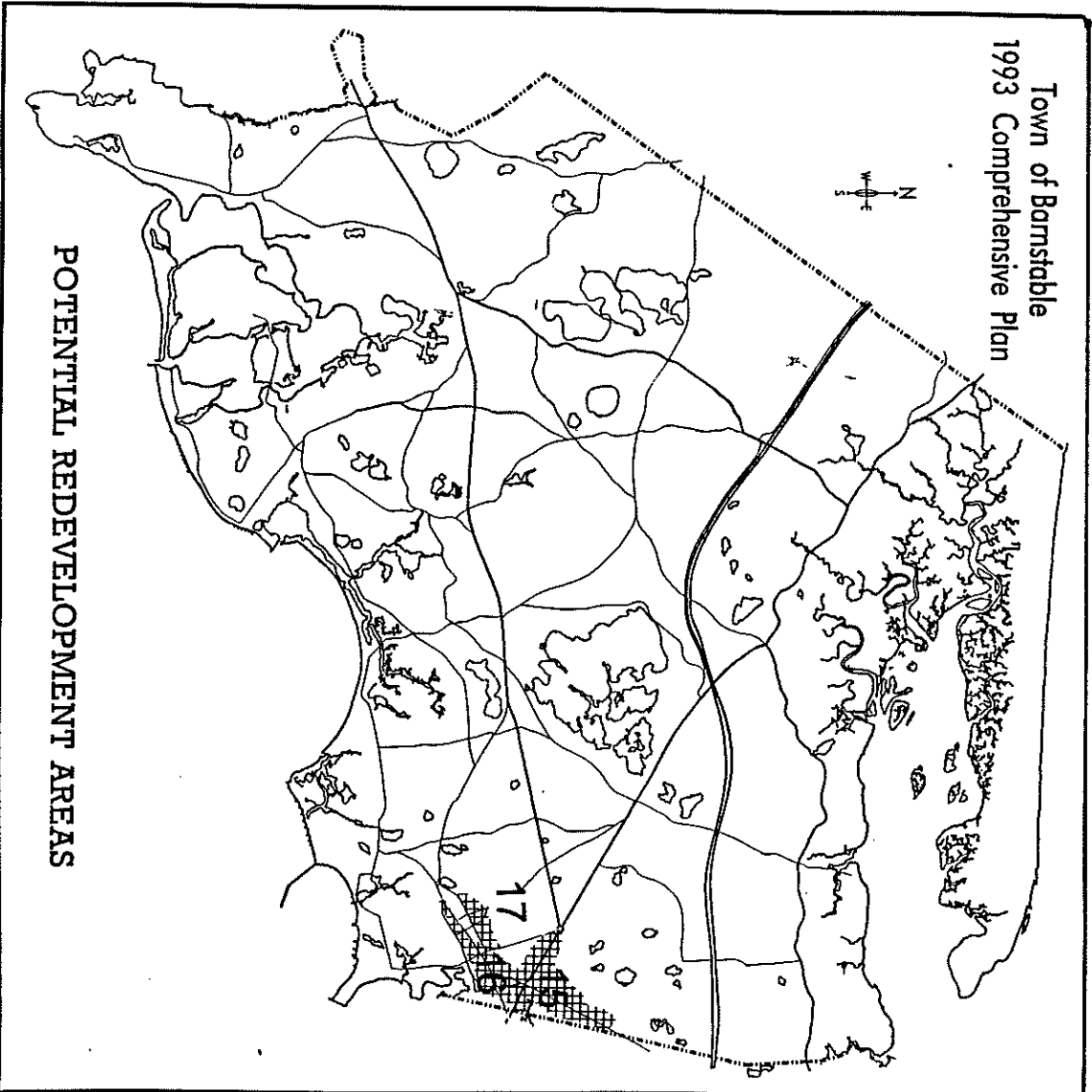
Redevelopment activity areas are old traditional business areas which have suffered from disinvestment, and may be in need of an economic stimulus to encourage redevelopment or reinvestment in the commercial properties. Redevelopment should maintain the Cape Cod architectural character, along with emphasizing adaptive re-use of existing structures as much as possible. These areas should be evaluated to determine their capacity to provide linkage with multi-modal transportation facilities. The current level of blight and decay causes these areas to be a priority for the Town's economic development program.

15. Route 28 Redevelopment Area

This area extends from the municipal airport and Yarmouth Road to the north, Route 132 and Barnstable Road to the west, the Regional Transportation Center to the south and the Yarmouth town line to the east. Generally, this industrial and business zone needs improvements in roadway, infrastructure, function and aesthetics. Yarmouth Road is in particular need of an improved access and land-use pattern, including design controls for improved appearance as an entry to Hyannis. This is a redevelopment area that may be positively influenced by the Regional Transportation Center and the

- REDEVELOPMENT AREAS:**
- 15 Yarmouth Rd. and surrounding area
 - 16 PRD District, Hospital to Main St.
 - 17 Stevens St. to Barnstable Rd.

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redesign of the airport facilities. Additional parking facilities, professional/medical office development/ redevelopment, and enhanced pedestrian facilities are needed. Connection to shuttle parking and improved circulation for emergency vehicles, medical office patients and tourists attempting to access the Main Street Harbor Front District is a primary need.

16. PRD and RB-1 Zoning Districts, Hyannis

This area extends from the hospital to Main Street, South Street, Camp Street, Cedar Street, Lewis Bay Road and Route 28. Large homes were developed around the harbor in the 19th Century when the maritime trade flourished. Many of these buildings still stand today in the Pleasant Street, School Street and South Street area which has been designated as an Historic District. Approximately 35 buildings are listed on the National and State Register of Historic Places as contributing properties. Today, many of the residences in this area have been adapted for use as medical offices, offices and apartments; both the PRD and RB-1 zoning districts allow mixed uses. Around the harbor, parking lots have developed serving the Hyline, Steamship Authority, and tourist-related needs. These uses have had a deteriorating effect on community character and the surrounding properties and should be phased out as shuttles go on line. These areas are part of the old, historic Hyannis. The Town needs to act promptly to retain the character of this area and to remediate and prevent further deterioration.

Growth Management Strategies include:

- Developing both regulatory and program improvements which will ensure the maintenance and upgrading of the historic buildings, while maintaining the mixed uses. Any conversion of an historic building needs to be linked to maintaining its historic integrity and any Historic Register status.
- The private parking lots serving the Steamship Authority and the Hyline need to be phased out through a parking management plan that includes remote satellite parking facilities and linkage to shuttle/mass transit services. This area should be prioritized for zoning enforcement.
- On-site parking for residential and office uses should be required to be located to the rear and side of buildings and screened from the road and surrounding properties.
- All uses should include landscaped space. Residential uses should include usable open space designed for passive recreation for residents in order to maintain a desirable environment.
- Planning initiatives should emphasize measures which will ensure the maintenance and enhancement of the many historic structures in this area.

17. Stevens Street to Barnstable Road

This is a small, mixed-use, commercial-residential zone currently zoned UB Business. Located adjacent to Main Street, it is in need of upgrading and visual improvement. Land parcels and most businesses are small in scale. A number of group homes and shelters have also been established in this area. A policy seeking decentralization of residential shelters throughout the Cape is included in the Growth Management Strategies for Activity Center #4, Hyannis Main Street.

Growth Management Strategies: The following actions should be implemented:

- The lines between residential neighborhoods and the commercial neighborhoods need to be defined with the creation of buffer zones to adjacent residential neighborhood.
- Improvement of blighted parcels should be pursued by establishing these areas as a priority for incentive programs.

Marinas and Harbors

Marinas and Harbors provide support services to traditional fishing and shellfishing activities and to the growing recreational boating public. Water-related support industries such as boat yards, sail lofts and small engine repair uses need to be retained and encouraged, and the land-side areas zoned accordingly. Non water-related uses should not be allowed in these areas.

18. Barnstable Harbor

This small, historic harbor was dredged in 1956 to create the present boat basin. Today the harbor functions as a center for local area fishermen and recreational and tourist boating interests on the northern bay shores.

Growth Management Strategies include retention of the traditional water-dependent fishing and related commercial activities around the harbor, allowing for their normal growth as permitted in the Zoning Ordinance, while minimizing the impact on the surrounding residential area. All of these activities occur in an area of limited size, accessed via narrow historic access roads. Specific activities include:

- Consider adding to the permitted uses non-tourist, marine science and aquaculture uses. Require a Special Permit for whale watch operations to ensure adequate parking. Enforce zoning requirements to maintain the integrity of the Marine Business District.
- Develop a management plan for parking and public facilities to be implemented by the harbor users and Town, working together, including delineation of no parking areas with enforcement. Permission to use the County parking lot on weekends for trailers and cars should be sought. Provide linkage to the Town's mass transit system. All development and redevelopment should provide adequate parking.
- Implement short term improvements to the harbor as outlined in the Barnstable Village Plan. These improvements are designed to increase both the function and appearance of the area.
- Long term improvements will require a design consultant and agreement on the nature of improvements to be made on part of both residents and businesses owners.

19. Hyannis Inner Harbor

This is the "other half" of the Main Street Waterfront District. In 1992, the ferry services transported 906,000 passengers, 66,000 automobiles and 24,000 trucks. In addition

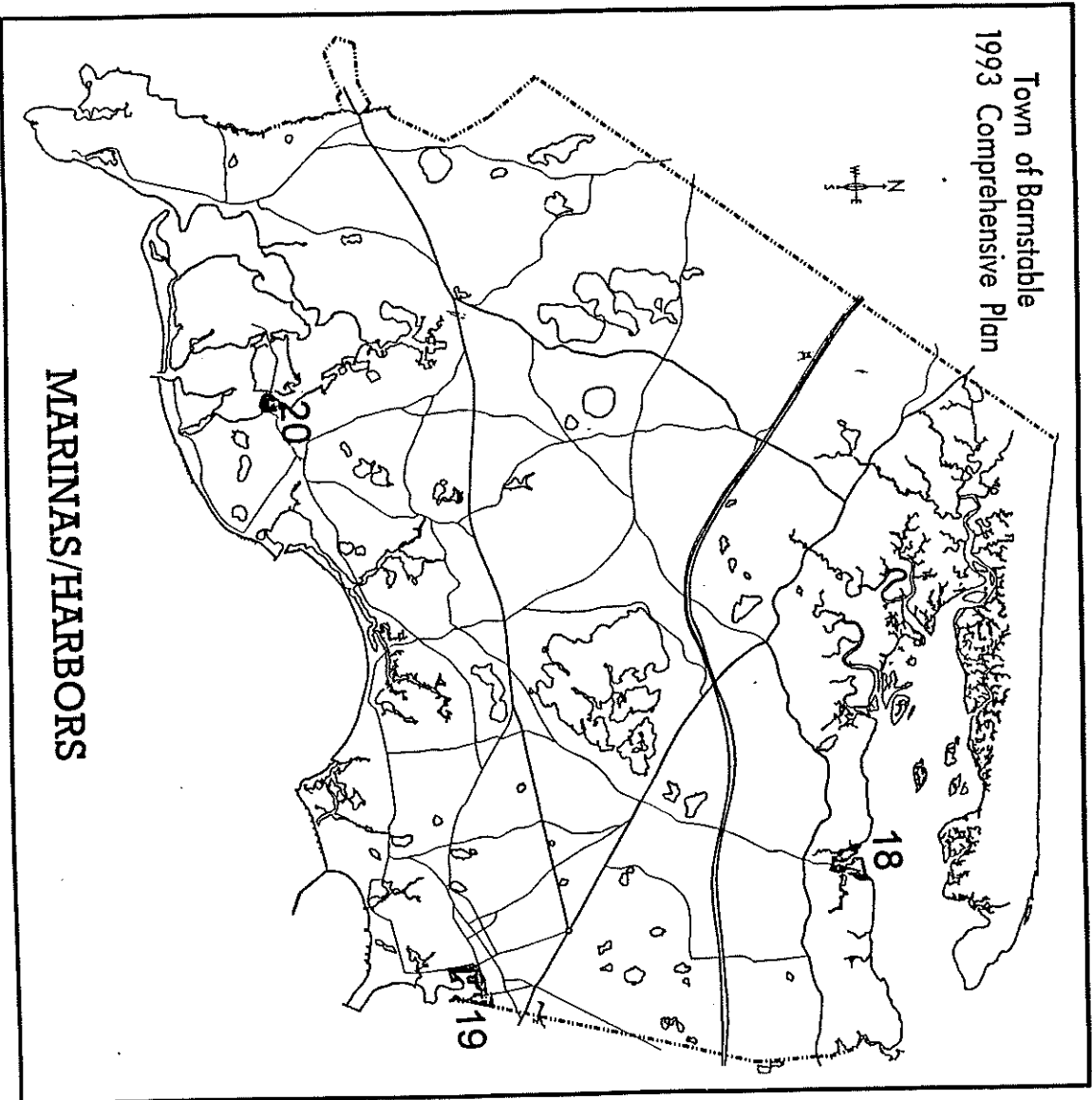
many tourists search out the harbor looking for Hyannis Port, home of the Kennedy Compound. Historically, most of the Steamship Authority traffic has passed through to the islands and is not focused on Hyannis as a destination. Recent events have attempted to redirect the traffic flow through the Main Street Waterfront District and recreate the area as a "microcosm of Cape Cod". The proposed Walkway to the Sea is seen as a critical link between the waterfront uses of the harbor, and the retail and restaurant uses of Main Street.

Growth Management Strategies include improving public and private amenities, particularly streetscape improvements and pedestrian access. Recognition of appropriate water dependent, water related uses and their accessory uses with a goal of reduction in surface parking lots (with shuttle bus linkage to other areas such as beaches and parks). Specific actions include:

- Acquisition, design and construction of the Walkway to the Sea.
- Purchase of identified key properties.
- Development of a "boardwalk" system along the water's edge for public access, harbor views and improved pedestrians;
- Ensure improvement of the land-side terminal facilities for the Steamship Authority with reduced parking on the waterfront, landscaping, buffering and a board walk.
- Promotion and encouragement of water dependent uses as a priority in the Business Limited B (BL-B) District.
- Recognition of the accessory/support role of limited, small scale retail uses such as electronics/communications, sail lofts, fish markets and marine hardware uses, as a component of some water dependent uses. Standards for location, design and support facilities need to be developed.
- Consistent with the Hyannis Vision Plan, provide for the reduction of the number of parking lots around the harbor while respecting the need for and rights of existing legal parking lot owners. Ensure the creation of adequate parking facilities away from this area, appropriately located, with a shuttle linkage.
- Provide for improved small boat access at the Lewis Bay Public Landing and at Pleasant Street.
- Maintain and improve public access to the water in any development or re-development of Harborfront uses.
- Exploration of a deeper and wider channel to link the inner harbor to Nantucket Sound.
- Promotion of a Maritime Museum at Asleton Park or on appropriately located private property and development of a visiting tall ship/cruise ship program that preserves our historical link to the sea.

- MARINAS/HARBORS:**
- 18** Barnstable Harbor and vicinity
 - 19** Hyannis Inner Harbor
 - 20** North Bay Marina District

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20. Osterville Marina District

The home of the Americas' Cup 1990 winner, yacht services and docking/mooring facilities, this area provides marine services for recreational boaters and a home port for many a Barnstable boating enthusiast. However, coastal management concerns for water quality and use need to be considered. Thirty-five percent of the coastal bays and estuaries are occupied by moorings, piers and docks. Mooring plans need to be developed and implemented as a priority action of the Coastal Resource Management Study. Public access to the coast is limited, water quality continues to deteriorate and commercial shellfishing has vastly decreased.

Growth Management Strategies: The Town's Coastal Resource Management Study contains the following Strategies;

- Preservation of traditional marina and boat building activities with provision of marine services. Improvement of water quality and efficiency in using water surface.
- A Coastal Protection District should be created. That district, encompassing both land and water surface, would preserve needed marine, boat building and boating service facilities, provide better and more efficient boat moorings that retract the amount of water surface area consumed, and increase shellfish harvesting and fin fishing opportunities. The mooring plan should include all of the Three Bay and East Bay areas.

Major Recreational Areas

The Town has three major recreational facilities which function to serve both Town residents and tourists. These are Sandy Neck, a major barrier beach system over six miles in length, Kalmus Beach and the harbor parks, and Craigville Beach. These areas need to be managed in such a way that the natural resources which attract so many people are maintained. Sandy Neck, which is designated as an ACEC and on the State and National Registers of Historic Places, is especially vulnerable to over-use and development.

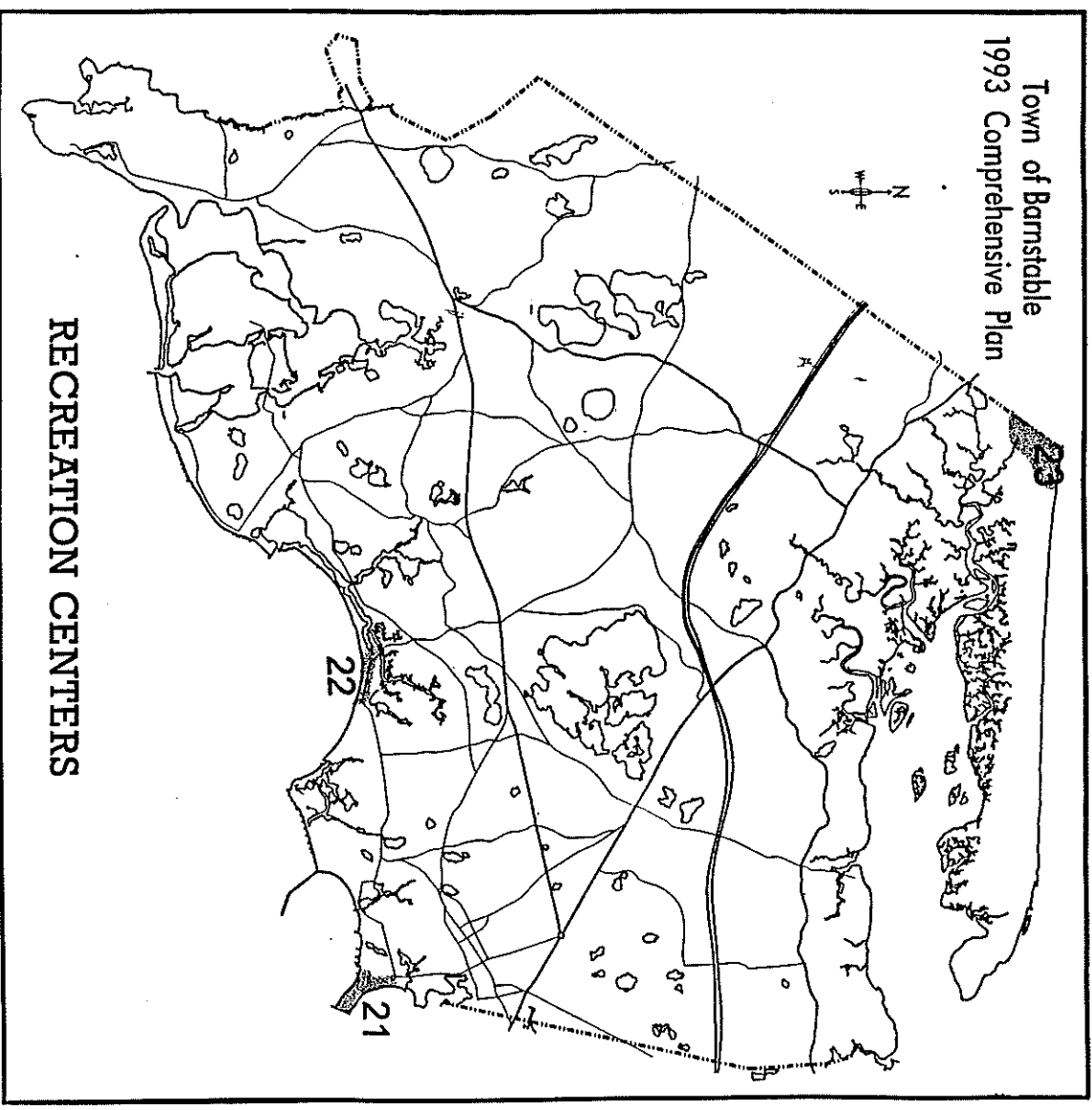
21. Kalmus Park and the Hyannis Harbor Parks

At the entrance to Hyannis Harbor is the 48.5 acre Kalmus Park. This park land is named after Herbert Kalmus, the inventor of Technicolor, and is one of the Town's most utilized parks. It provides access to both the open waters of Nantucket Sound and the protected waters of Lewis Bay. It attracts both local residents and visitors alike. The waters off Kalmus Park are a favorite spot for wind surfing. The park is the largest and southern-most recreation area along Hyannis Harbor. It is linked by Ocean Street with Veterans Memorial Park, Bismore Park and Aselton Memorial Park. and is accessible from downtown Hyannis.

Together the four parks total 66.1 acres and provide 1.38 miles of public access along the harbor. All facilitate regional and neighborhood activities. Aselton Park is the gateway to the Inner Harbor and is intended as a link to Main Street Hyannis. Bismore Park has private fishing and charter vessels while Veteran's Memorial Park has a bathing beach ideally suited for small children, and is adjacent to the Kennedy Memorial.

- RECREATION CENTERS:**
- 21** Kalmus Park, Veterans Memorial Beach and Kennedy Memorial
 - 22** Craigville Beach
 - 23** Sandy Neck

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RECREATION CENTERS

Growth Management Strategies include:

- The linkage of the five park areas along Ocean Street is essential. Tree lined pedestrian and bicycle paths need to be established along Ocean Street and into the public park lands.
- Major town wide festivals that are now located in these parks should remain there. Auto parking is limited in these parks and can not serve the needs of the peak population demands and the festivals that occur. Remote parking with a shuttle service has been provided for events and needs to be continued. A shuttle service to each of the five parks is needed on a regular basis, which should be linked to the Town's proposed mass transit system connecting other facilities.
- New boat launching facilities should not be considered for these parks due to shallow water conditions, limited parking spaces and the intensity of use by the public. Existing boat facilities should be improved.
- Public facilities are an important land use consideration. The location and maintenance of these facilities are directly related to community character and the quality of life. The following specific recommendations are offered:
 - With the expanding tourist seasons, accessible, well-situated restroom facilities are important to enhance tourist-related economic development, as well as the needs of residents. These facilities need to be well designed, in keeping with the character of the area.
 - Maintenance of the beaches and park areas should occur earlier than Memorial Day and be extended past Labor Day.
 - Given the population density in the surrounding neighborhoods and the popularity of the parks, security should include low intensity night lighting as well as regular night-time patrols.
 - A capital improvements program must be initiated to improve the appearance and function of these areas. Such improvements will maintain and improve the attractiveness of the parks to residents and visitors, and help maintain and improve the surrounding neighborhoods and businesses. Landscaping with plant materials common to Cape Cod should continue.
- Kalmus Park's reputation for wind surfing should be further encouraged and promoted.

22. Craigville Beach Area

Craigville and Covell's Beaches total almost 18 acres of beach and provide 0.36 miles of public shoreline on Nantucket Sound. The protected open waters and the horseshoe beach are one of the more attractive spots within the Town during the summer months, and are highly utilized for both active and passive beach activities. The surrounding neighborhood has traditionally been a seasonal colony with single-story, low-profile buildings. No expansion of this use should be permitted due to its exposure coastal storms and potential flooding.

Growth Management Strategies include the following preservation and improvement actions:

- Public facilities need to be provided for the beach users. Alternative wastewater management is needed for both the beach facilities and the surrounding residential neighborhood.
- The public beaches (Craigville, Covell and neighboring Long Beach) need to be linked through continued coastal acquisition, easements or via public roadways. The beach area needs improved linkage (by walks, trails, landscapes and roadways) with the Centerville River and the village center. The Craigville Beach Road bridge over the Centerville River needs to be repaired and restored, retaining its existing character.
- Since open water and open beach are essential to the dominant character of this area, all buildings should be limited to one story and the overall permitted height should be reduced accordingly. A major issue today is the flood proofing of buildings by raising the structures on stilts, or by mounding to an elevation of 11 or 12 ft. This technique, although technically sound, is seen as very incompatible with the established character and will block views to the water and coast.
- Existing parking lots, located on the beach area, should be reduced in size and the area used for recreation. To replace this parking, new parking should be developed by the Town on suitable areas located on the north side of Craigville Beach Road, and/or remote locations, and linked to the town-wide mass transit system.
- Alternative parking lots with shuttle services to the beach should be investigated. Options may exist to utilize parking lots at Centerville and Hyannis West Elementary Schools and neighboring church parking lots.

23. Sandy Neck Beach/Area of Critical Environmental Concern (ACEC)

The largest town owned recreation, conservation and open space resource in the Town, Sandy Neck and the Great Marsh contains multiple unique habitats and were designated an ACEC in 1978. This area also serves as a recreational activity center for an ever increasing number of residents and visitor alike with approximately 100,000 visitors a year (29,134 vehicles counted in 1993 - at an average of 3 1/2 persons per vehicle). Less well known are the historical and archeological resources left by the early settlers on the edge of the Great Marsh. The entire length of Sandy Neck is listed in the State and National Register of Historic Places for both its architectural and archaeological historic resources.

Recent indications suggest that attempts to develop vacant land and expand existing seasonal cottages are on the increase. This area should not be developed further. Existing buildings should not be expanded or increased in height.

Growth Management Strategies include:

- Balance preservation of natural and cultural resources with recreational uses.
- Continue evaluation and monitoring of the effects of ORV's on dunes, shorelines, habitats and archaeologically sensitive areas.
- Manage parking and other facilities for public access and enjoyment.

-
- The Town should develop a Sandy Neck Area Management Plan, which includes a strict limitation on further development or expansion of existing cottages.
 - Regulatory means of ensuring preservation of this unique area should be developed, or alternatively, if regulatory mechanisms are ineffective to prevent development and mansionizing of the existing cottages, a land acquisition program should be undertaken.

Regional Facilities

As the largest, most central town of the Cape, Barnstable functions as a regional center for all of Barnstable County. Major regional facilities are located in the Town, which have a profound effect on the Town's transportation system as they serve as destinations for Cape-wide users. These facilities also provide employment opportunities, and associated businesses have developed in the vicinity of these facilities, such as medical offices and services around the hospital.

24. Municipal Airport

This area has only limited expansion capability based on redevelopment and design efficiency. Additional parking facilities are needed and should be coordinated with the provision of satellite parking areas and shuttle services. There is good potential for a High Occupancy Vehicle (HOV) lane parallel (or in conjunction with) the Old Colony Railroad corridor. This facility could link activity centers #7 (W. Barnstable), #1 (Barnstable), #24 (Airport) and #25 (Regional Transportation Center). A new terminal study is underway and should consider revised access improvements for the airport away from the Rt. 28/132 rotary. Also, as part of the Town's surface transportation program a linkage to the industrial zone to the north should be created. This would give access from Exits 6 1/2, Old Route 132 and Independence Drive.

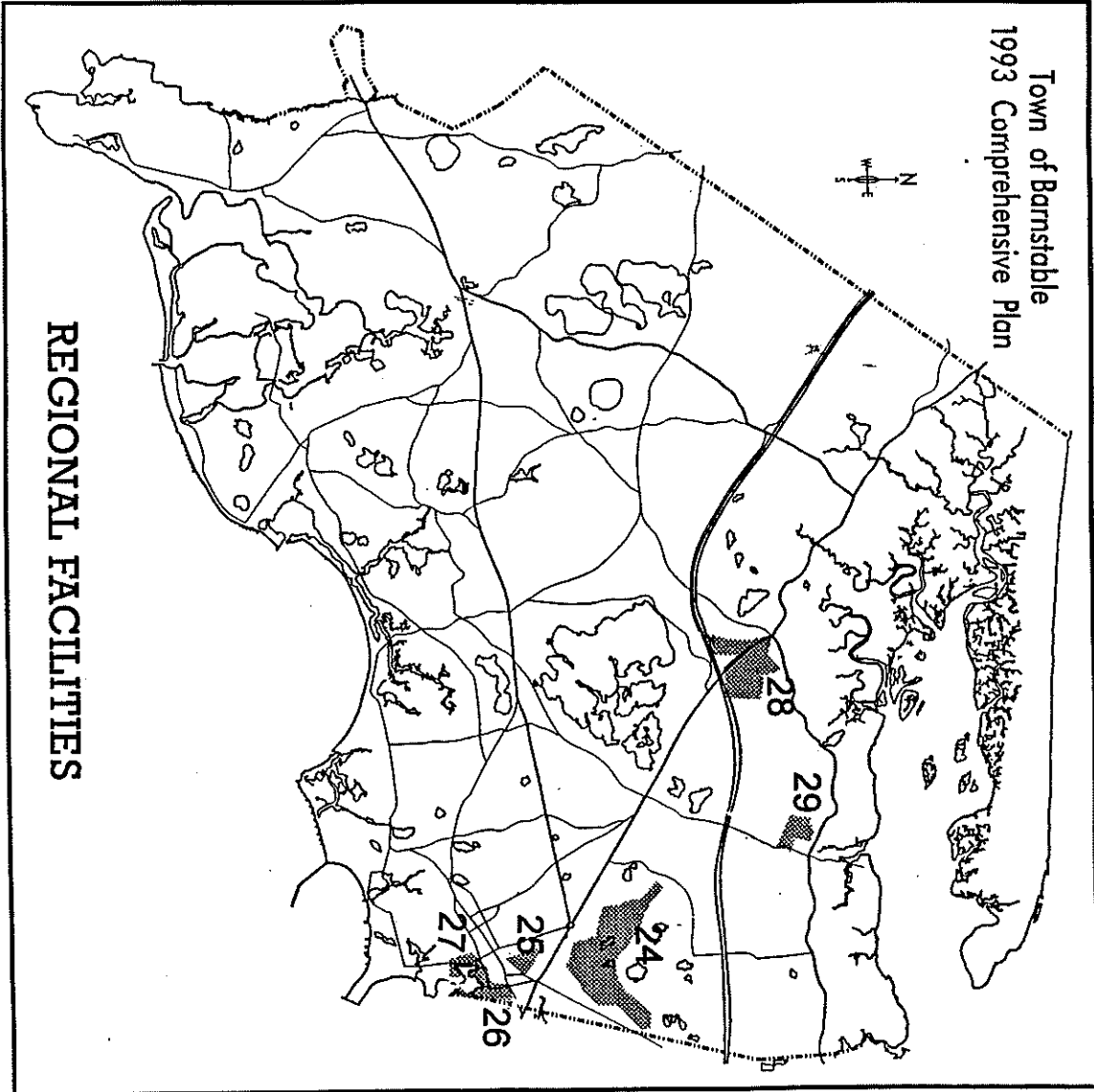
Growth Management Strategies include:

- Location of the new terminal building that is consistent with future transportation linkages, away from the Route 132/28 rotary, with access to any potential Exit 6 1/2 and the Regional Transportation Center.
- Provision of additional parking, coordinated with other Town approved satellite parking lots.
- Coordination of the airport transportation linkage with the industrial zone and transportation facilities via shuttle bus to the proposed transportation center with bus and rail connections, and the Steamship and Hyline facilities.
- Coordination of transportation linkages via a high occupancy vehicle lane parallel to the railroad track.

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REGIONAL FACILITIES:

- 24** Municipal Airport
- 25** Regional Transportation Center
- 26** Cape Cod Hospital
- 27** Hyannis Harbor
- 28** Community College and vicinity
- 29** Barnstable County Complex



REGIONAL FACILITIES

25. Regional Transportation Center, Hyannis

The Regional Transportation Center should provide coordination for passengers of all multi-modal carriers. The inter-modal connection between the bus system, the railroad, airport, steamships and private vehicles is the primary function of the Center. Parking should be oriented to the short term needs of the transit user with only limited commercial use by the Main Street area. Long term parking for transit users should be provided by satellite facilities. Only the minimum parking required for use of these transit facilities should be included on site. Linkage to a High Occupancy Vehicle (HOV) corridor to satellite parking at Exit 7 on the Mid Cape highway should be provided. Maintenance facilities for bus or other carriers should be located off-site so as to optimize a pedestrian-friendly environment as well as site operational characteristics..

The surface transportation system should be managed to ensure efficient traffic flow and priority access for shuttle bus convenience and schedule coordination. Over 2 million people per year use the ferry services making congestion management and air quality concerns a major design factor.

Growth Management Strategies include the incorporation of a traffic management center and:

- Development of a Regional Transportation Center to provide coordinated bus, railroad, ferry, air, shuttle and private auto transportation. The rail yards between Main Street, Yarmouth Road, Route 28 and Ridgewood Ave have been designated for this facility, which would represent a significant reinvestment in the Main Street/Waterfront District and would promote redevelopment along the Route 28 corridor.
- Improvement of the Yarmouth Road area - road surface and width, drainage, signalization, intersections, as well as redevelopment of the Business Zoning District.
- Improvements to the infrastructure of the Route 28 Corridor - including a 4 lane extension of Route 132 from the Rotary to the Yarmouth town line, public wastewater facilities, and an efficiently designed central access point to both the Center and the Airport.
- Promotion and encouragement of redevelopment and infill that is compatible with the Growth Management initiatives of the Town Center (Hyannis Main Street), and the Redevelopment Activity Areas (PRD and RB-1 Zoning Districts).
- Design compatibility with the Walkway to the Sea and the Main Street Streetscaping Plans. Preservation of the railroad round house as an historic asset.

26. Cape Cod Hospital

The Cape Cod Hospital has grown from a 14 bed facility upon opening in 1920 to a 280 bed modern health care center, with one of the state's busiest emergency rooms. In 1992, the hospital served 49,459 emergency room patients, 69,974 outpatients and discharged 12,969 patients, for a total of 132,402 people medically assisted. This is an essential town and county facility.

Growth Management Strategies should respond to trends which indicate satellite out-patient facilities and clinics may be the future need in other village centers. If located in

the historic neighborhood around the hospital, historic design guidelines and architectural preservation must be assured for this unique area. Adaptive reuse of existing structures should be ensured by regulatory means. The Town's vision for this activity center includes:

- Improve community character, design and pedestrian facilities. Preserve historic structures through adaptive reuse in the PRD zoning district.
- Plan for the expansion of Cape Cod Hospital medical services to meet the needs of a projected 3% - 4% yearly increase, including possible off-site facilities.
- Improve access to the hospital and ensure sufficient parking, including a parking garage and/or satellite parking and shuttle services.
- Through the Regional Transit Authority (RTA) provide a bus and shuttle service to the hospital.
- Provide a post care/nursing facility in the PRD District for easy medical access.
- Consider zoning regulations to allow for satellite medical, nursing home and assisted living facilities in other activity centers.

27. Port Activities, Steamship Authority and the Hyline

The Steamship Authority and Hyline services on Hyannis Harbor are major port activities which draw traffic from all of the Cape and beyond. The inner harbor is crowded and must be shared with the smaller fishing vessels and recreational boats. These traditional uses of the harbor should be retained, consistent with the vision for Hyannis Inner Harbor and the Main Street Waterfront District. A linkage to the large number of recreational boats in the outer harbor should be provided. The port facilities and services have a profound effect on traffic in Hyannis. Both public and private parking lots dominate the harbor and should be reduced to a minimum.

Growth Management Strategies include:

- Limit any future expansion of the Steamship Authority services, especially freight services and shipments of hazardous materials. The access and location of the docks in Hyannis Village requires coordination with the Regional Transportation Center and the use of remote/satellite parking facilities. The Town should seek to restrict further land acquisition by the Steamship Authority in this area.
- Improvement of access to the port facilities from the Mid-Cape Highway with improvement of the Yarmouth Road/Route 28 intersection, the Yarmouth Road corridor and provision of a high occupancy vehicle(HOV)/mass transit link from Exit 7.
- Reduction and removal of parking areas around the harbor and the development of off-site parking areas linked by a shuttle service, which also links the downtown, beaches, the airport and transportation center.
- Linkage of the harbor area to Main Street via the Walkway to the Sea to improve pedestrian access to both Main Street and the Harbor.

28. College and Institutional Uses (expansion area)

Cape Cod Community College, located on land off Route 132 in West Barnstable, offers Associate Degrees, continuing education and other courses to its students. Also located at this node are the YMCA and the Cape Cod Conservatory. This area serves as a growing educational/cultural center.

Growth Management Initiatives include encouraging the Community College Board of Governors and the state to expand the facility to a four-year college and research institution. The Town's specific vision for this activity center includes:

- Education and economic links between college and community (hospital and research park, county and local governments, environmental science, social studies and the arts). A shared use of the facilities and resources should be encouraged.
- Any substantial expansion of the college will require alternative wastewater management. Linkage of the YMCA and Conservatory to such a facility should be explored.

29. County Complex

The County complex has historically been located in Barnstable Village. It is an important regional function which maintains the vitality of this small historic village center. The complex however has a parking and traffic problem due to its village location being inconsistent with its regional function. There should be no further substantial expansion of the Jail and Court House in this location.

Growth Management Strategies include the following means of alleviating congestion, to be followed in any future actions by the County:

- Any substantial additions to the Court House and Jail facilities should be provided elsewhere on the Cape.
- Parking demand could be lessened by better scheduling of cases and providing a shuttle bus service to remote parking facilities as well as support of increased transit services.
- Improvement of signage to and within the County complex.
- Growth projections should be prepared for each function of county government and a space needs analysis completed. A decentralized service delivery system should be considered based on this study.
- Intergovernmental coordination of the above initiatives should be an ongoing process with the County Commissioners.

1.8 Future Land Use - Residential Land Use

1.8.1 Introduction

Residential development is the predominant land use found throughout the Town: approximately 91% of the Town is zoned for single family use. These broad areas designated for single family residential use also include other land uses, such as wetlands and other conservation areas, and land developed for government uses such as schools, community centers and fire stations etc.

Single family dwellings are also permitted uses in most village business zoning districts. Multi-family uses are permitted in the B-Business District, the HB Highway Business Zone, the industrial zones, and in a variety of mixed commercial zoning districts in the Hyannis area.

1.8.2 Single Family Residential Areas - Buildout

71% of the areas zoned and available for single family residential development, have already been developed. The total number of projected single family DU's for the town is 27,089; a 7,198 or 36.2% increase from the currently existing 19,891 DU's. Roughly 3,168 of the additional potential DU's are developable on currently vacant parcels of one acre or more, 1,753 DU's are developable on vacant parcels less than one acre, and 2,227 are developable from estate parcels. These estimates are probable high, since wetlands were not able to be removed from developable parcels. Approximately 7,198 developable lots remain, principally in the villages of Marstons Mills, Barnstable, West Barnstable, and Cotuit. The villages of Hyannis, Centerville, and Osterville are very close to full buildout of residential areas. Most of the remaining subdividable parcels are relatively small, less than 10 acres in size and many are difficult to develop because of a variety of conditions such as steep slopes, impervious soils, wetlands and/or access problems. In response to the smaller developable parcels remaining in the Town, the Planning Board has adopted reduced standards for roadway widths. Flag lots should also be considered as a means of minimizing the creation of roadways. Flag lots are recommended in the Barnstable and Marstons Mills Village Plans by Special Permit from the Planning Board, to include a larger lot size requirement for rear lots, and easements to common access drives.

Of the remaining subdividable parcels, recommendations are made in Section IV, Open Space and Recreation, to cluster development, especially where it is adjacent to protected open space parcels, in order to preserve naturally vegetated open space lands which form so much of the character of the Town, and provide a habitat for wildlife.

Remaining undeveloped parcels should also be assessed for acquisition, especially waterfront parcels. Waterfront access and beach front is in great demand, but is very limited despite the Town's extensive shoreline along the ocean, and around numerous ponds. Land acquisition for recreation and conservation purposes also serves to reduce growth potential and the need to provide additional services and infrastructure.

1.8.3 Density of Residential Development

Single family residential lot size requirements have varied throughout the Town since the adoption of zoning, from 7,500 sq. ft. lots in the Hyannis area to 65,000 sq.ft. lots in parts of Barnstable Village. In 1985, in response to recommendations in a study entitled "Groundwater and Water Resource Protection Plan" by SEA Associates, the Town adopted a one acre lot size requirement in single family residential areas town-wide, except for the Barnstable Village RG zone, where the 1.5 acre lot size was retained. The increase in lot size townwide was to provide for the protection of water resources, including public drinking water supplies, since most areas of the Town are served by individual on-site septic systems. Due to rampant growth in the 1980's, there was no opportunity to fine tune lot size requirements where, for example, sewer was available, or where neighborhoods have already been substantially developed, leaving a small handful

of developable lots. Lot size reductions in dense established neighborhoods should be based on infrastructure capacity, especially sewer, and neighborhood character.

The prevailing one acre lot size requirement should however be retained throughout most of the town, in order to protect groundwater, drinking water supplies, and to maintain nitrogen loading levels below 5 ppm. In some areas, lot sizes should be greater than one acre to protect natural and historic resources, and to foster a rational pattern of development.








Work on the town's zoning regulations and map should be of the highest priority to implement recommendations of the Land Use and other sections of the Comprehensive Plan, especially the village plans. In single family residential areas, minimum lot sizes should be revised in response to three major concerns:

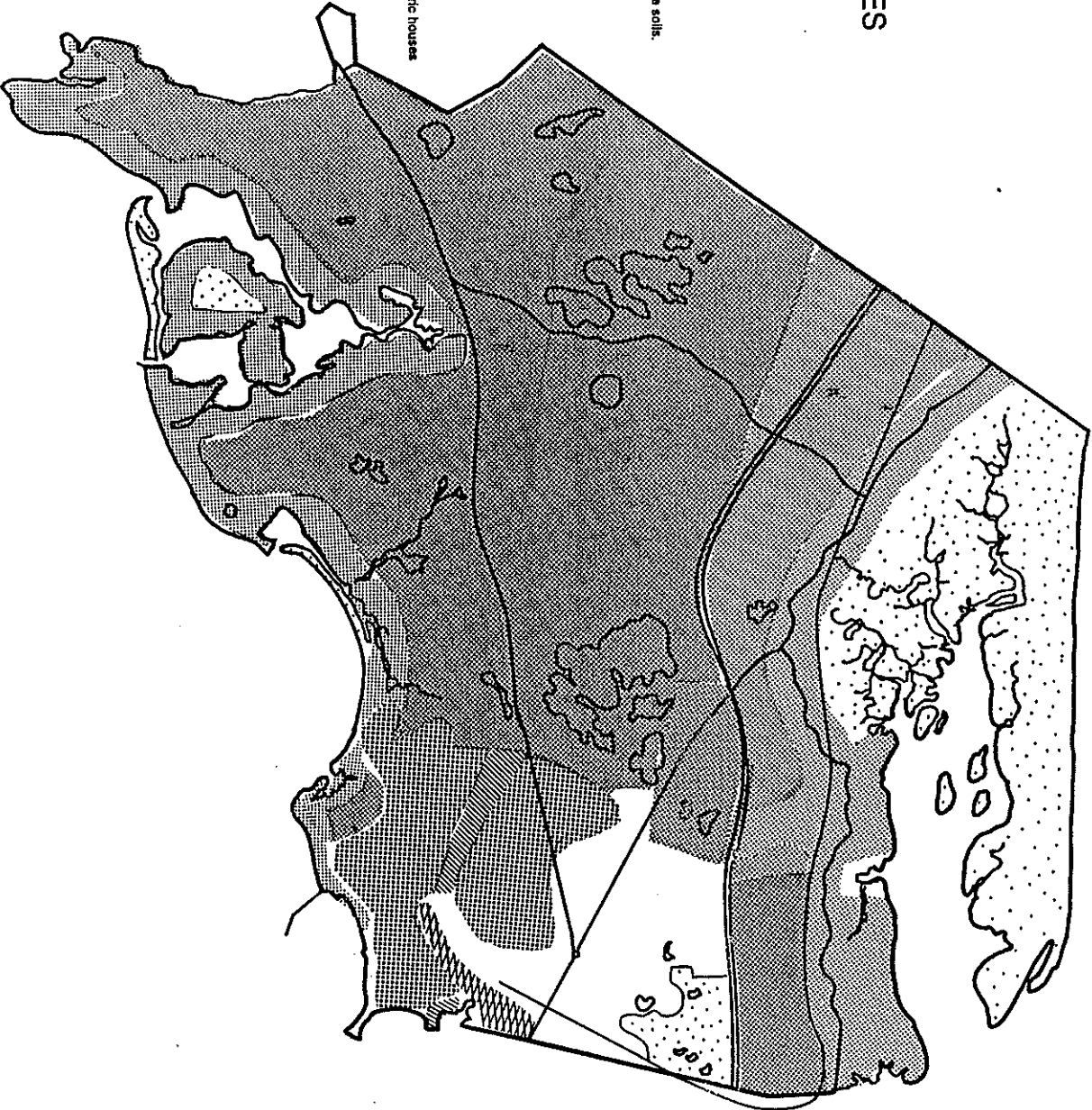
1. Natural resource protection, especially water resources, taking into account soil types;
2. Community character, historic resource protection and existing development density; and
3. Adequacy of infrastructure including availability of public water supplies, sewer or alternative wastewater treatment, and road capacities.

1.8.3.1 In the following areas, lot sizes should be increased, where there are undeveloped lands:

1. Along Route 6A. In this area, impervious soils and a complex geology increases vulnerability to contamination of water resources, especially in West Barnstable, which relies upon private wells for drinking water supplies, located on the same lots as septic systems. Recommendations in the Barnstable Village and West Barnstable Plans are to require a minimum lot size of one and a half to two acres. This would also provide a measure of protection to historic landscapes in both villages.
2. Undeveloped sections of the moraine in West Barnstable, which is characterized by complex soils and steep slopes in an area dependent on private wells. A lot size of 1.5 acres is recommended (see Section 2.1, Natural Resources, Water Resources; and the West Barnstable and Barnstable Village Plans.)
3. The Old Jail Lane area of Barnstable Village which should be assessed for development potential of large flag lots. Further division of these large lots could result in additional lots being created remote from any road. Furthermore, Old Jail Lane is narrow, unpaved and unsuited to further increases in traffic.
4. Undeveloped coastal areas. An increase in lot sizes has been recommended, most recently in the report entitled "Coastal Resources Management Plan " by Camp, Dresser McKee, 1990, in order to limit further contamination of coastal embayments and preserve the character of coastal areas.
5. Coastal and pond recharge areas which are contributing to contamination of surface water bodies. These areas will be evaluated during the implementation of the Comprehensive Plan. The three bay area in Cotuit, Marstons Mills and Osterville, in addition to the Centerville River area is currently in the process of evaluation.

FUTURE LAND USE RESIDENTIAL DENSITIES

- 1-78
-  Resource Protection Areas
 -  Low Density Residential Development.
Coastal areas, Route 6A, Private wells areas and water retentative soils.
 -  Moraine areas with private wells, Old Jail lane, existing RC zone
 -  Moderate density, one acre zoning
 -  Higher density single family areas on sewer
 -  Multi-family, West Main Street, Hyannis Harbor
 -  Mixed residential/office conversions with preservation of historic houses



1.8.3.2 In the following areas, lot sizes should be decreased:

1. Areas of town such as Hyannis where linkage to sewer or in other areas where alternative wastewater treatment is available, and where residential areas have been substantially developed at smaller lot sizes. The few remaining undeveloped lots often become subjects of Zoning Board of Appeals petitions, which is an unnecessary burden to all. Lot sizes could be reduced to .5 to .25 of an acre, depending on neighborhood character. However, prior to lot size reductions, neighborhood plans need to be developed for the denser neighborhoods of Centerville and Hyannis. These plans should include evaluation and availability of vacant parcels for small neighborhood parks, and recommended lot sizes.
2. Carefully researched locations for scattered-site, small-scale, affordable housing developments. Such increase in density should be in areas where there will be no adverse impact to public or private water supplies, surface water bodies, and wetlands. The density, scale of development and design need to be in keeping with the character of the surrounding area, and as a general guide, should not exceed four units to the acre in single family residential areas, and may need to be less depending on site specific conditions.

1.8.4 Cluster Subdivisions

The town presently permits cluster subdivisions as an option in single family residential zones where a minimum of four buildable lots can be created. 30% of upland is required to be maintained in open space. The Cape Cod Regional Policy Plan requires that a minimum of 60% be retained in open space, in areas designated as the "Green Belt". In areas dependent on private wells for water supply, however, the minimum lot size should be one acre or greater, in order to provide sufficient separation between private wells and septic systems. In order for cluster development to be effective therefore, in these areas, from both a water resource and historic preservation perspective, an increase in lot size will be required, which is a recommendation of the West Barnstable Village Plan and the Natural Resources Section. Modification of the existing Open Space Residential Subdivisions provisions of the Zoning Ordinance will be required to adopt these requirements.

1.8.5 Housing Development Types

According to the 1990 Census, there are 23,370 housing units in the Town. 19,151 or 82% of these housing units are single family, detached units, a high proportion given that the Town has a high proportion of elderly people; 20% of the population is over 65, compared to 13.6% statewide. Multi-family dwellings are overwhelmingly concentrated in Hyannis. A greater variety of housing types is needed to provide more suitable housing alternatives for the elderly, small families and single individuals. Clustered housing, including attached town houses, should be a development option, together with congregate housing for the frail elderly. These types of housing should be available for all income groups.

Clustered housing and common ownership also offer the opportunity to provide advanced wastewater treatment. A small increase in density should be considered for developments which provide such facilities. A site specific hydrological study may be

needed to ensure that effluent disposal is at right angles to groundwater flows and will not impact sensitive resources.

Clustered housing, town houses and "condos" should be considered in certain areas of town at the same density as the underlying single family zoning district:

1. Where there are vacant, residentially zoned areas along Routes 132 and Route 28. In these areas, development needs to be concentrated away from the roadway, with a single access drive.
2. In areas of large older estates, one option which should be carefully evaluated is to allow additional development potential of large subdividable lots to be concentrated in building(s) of a similar style and bulk to the existing estate house, thus allowing multi-family use of such structures. The purpose of such a provision is to retain more of the traditional landscape and character of the estate, which would be substantially lost with a traditional or open space subdivision. In no instance should the resulting number of dwelling units exceed that of the underlying zoning district. This development option should only be used in areas where multi-family occupancy of large, older estates is appropriate and acceptable, and is in conformance with the village plan.

1.8.6 Multi-Family Development

Except in village business districts, multi-family development is permitted in most commercial and industrial zones in the Town. Most of these districts are located in the Hyannis area where 89% of the non-residentially zoned land is located. This practice has resulted in incompatible land uses in some parts of Hyannis, and in some instances, less than desirable living environments. Changes to the Town's zoning districts need to be made as follows:

1. Residential uses should be eliminated from the Industrial Zones in Hyannis and Barnstable Village south of Route 6. Residential uses are not compatible with industrial uses and subtract from the land available for the creation of jobs.
2. Areas such as West Main Street in Hyannis which have developed predominantly as a multi-family area should be zoned as such, including land with potential for further development or redevelopment. Existing commercial developments should be evaluated for inclusion in a commercial zone to avoid creating a multitude of non-conforming uses.
3. Multi-family residential use should be eliminated from the Highway Business (HB) Zoning District in the regional commercial areas along Route 132, and Route 28, from Bearses Way to the airport rotary, and between the rotary and the Yarmouth town line.
4. Other mixed use districts need to be evaluated area by area as the Town's zoning districts are reviewed and modified.

1.8.7 Mixed Commercial/Residential Zoned Areas

Where residential development has occurred in village business districts, zoning lines should be adjusted to protect established residential neighborhoods. (See the Marstons Mills, West Barnstable and Osterville Village Plans.)

1.8.8 Mixed Developments

Mixed commercial/residential developments may be appropriate in some areas, when such developments are properly designed to incorporate both residential and commercial uses. This type of development is preferable to creating a patchwork of land uses, with commercial developments such as shopping centers, adjacent to apartment buildings.

1.8.9 Design of Developments

Because of the potential for substantial massing of buildings and parking areas, site design and architecture of clustered housing, multi-family and mixed developments needs to be of the highest quality, designed by professionals. Architectural and site design guidelines need to be developed by the Town and adopted through various design approval mechanisms including Local Historic Districts. The design of buildings and type of building materials should be compatible with traditional Cape Cod architecture and materials. Construction should also be of a high quality. Such developments should be by Special Permit, to ensure adequate review. (See Section 7.0, Historic Preservation and Community Character)

All multi-family dwellings in the Town, whether it is new development or conversion of older homes, needs to be at a density that provides for proper parking design, located away from the front yard, with landscaped buffers around and within the parking areas. Usable open space designed for passive outdoor recreation should also be required for all multi-family developments in order to ensure the long term viability of these developments as desirable places to live.

1.8.10 Conversion of Historic Properties to Apartment Uses

In areas where it is determined that large historic houses should be permitted to be converted to multi-family use, such as in the PRD - Professional Residential Zone near the hospital and along South Street, the Zoning Ordinance should require that any conversion to multi-family use (or commercial use) be linked to retaining a building's Historic Register status.

No areas presently zoned for single family residential use should be re-zoned to permit conversion of historic buildings to multi-family use (and commercial uses) unless recommendations of the Comprehensive Village Plans to create Local Historic Districts, are implemented prior to such zoning changes. (See the Centerville Village and Cotuit Village Plans.)

Policies and Strategies - Residential Development

Policy 1.8.11: Permit flag lots with a larger lot size for rear lots accessed by common driveways, no more than one lot deep, by special permit from the Planning Board.

Strategy 1.8.11.1: Amend the Betterment Policies to assess owners on existing and potential development, not on frontage, which is not equitable where there are flag lots.

Policy 1.8.12: Permit a wider range of housing types including attached town houses and congregate housing for all income groups, to be developed at the same density as the underlying zoning district: where there is vacant residential land along Routes 28 or 132, and in villages where this is acceptable. Residential uses along Routes 132 and 28 should be clustered, set back from the roadway and accessed by a single drive or road, or by a parallel access road.

Policy 1.8.13: Cluster developments shall be required for subdivisions of remaining large parcels. (See Section 6.0 Open Space and Recreation.) In West Barnstable and other areas dependent on private wells, the minimum lot size should be increased, to obtain adequate separation of wells and septic systems.

Policy 1.8.14: Evaluate remaining developable parcels for acquisition, a growth management tool, see section 1-4, and acquire waterfront parcels, where possible, for recreational use.

Policy 1.8.15: Review and refine lot sizes throughout the Town as recommended in the individual village plans. Increase lot sizes: along Rt. 6A; the moraine in West Barnstable; assess lot sizes along Old Jail Lane; and increase along coastal areas. Decrease lot sizes areas where: neighborhoods are substantially developed at smaller lot sizes; and for small-scale scattered site affordable housing developments.

Policy 1.8.16: Neighborhood Plans need to be developed for densely developed neighborhoods in Hyannis and Centerville which include an evaluation of undeveloped parcels for the creation of small neighborhood parks and recommendations for lot sizes.

Policy 1.8.17: Permit a greater variety of housing development types at the same density as the underlying single family zoning district, including tightly clustered houses, town houses and congregate housing for all income groups. Permit town houses along Routes 28 and 132, in estate areas and in villages where this is acceptable.

Policy 1.8.18: Adjust village business zoning lines to exclude established residential districts. (See individual village plans for specific recommendations.)

Policy 1.8.19: Zone West Main Street for multi-family residential development; evaluate existing commercial areas for inclusion in a small commercial district to avoid too many non-conforming uses.

Policy 1.8.20: Permit mixed use developments rather than the patchwork of mixed land uses presently permitted in the Highway Business Zoning Districts.

Policy 1.8.21: Eliminate multi-family residential use from the HB zoned regional commercial sections of Routes 132 and 28 leading to the airport rotary, and between the airport rotary and the Yarmouth line.

Policy 1.8.22: Ensure the highest standard of design of multi-family and clustered housing developments through the development of site and architectural design guidelines, and adoption through various design approval mechanisms. (See recommendations in Section 7, Historic Preservation and Community Character.)

Policy 1.8.23: Any conversion of large historic structures to multi-family or commercial use needs to be linked to preserving the building's historic architectural integrity and any historic register status.

Policy 1.8.24: Recommendations to create a Local Historic District contained in the Village Plans should be implemented before any re-zoning to allow conversion of large older structures to multi-family or office use.

1.9 Land Use Regulations

Introduction and Background

The Local Comprehensive Plan Guidelines requires that a municipality must ensure that its development regulations are consistent with its Local Comprehensive Plan within two years of certification by the Commission. The role of the Land Use and Growth Management Section is to review the existing local regulatory framework (zoning, subdivision, health and conservation ordinances and regulations), and assess its effectiveness in managing and guiding growth. As a result of this regulatory review, the Guidelines require the Town to consider needed revisions or additions to existing regulations and/or new land development regulations, including:

1. Zoning changes
2. Subdivision regulation changes
3. Health and Conservation regulatory changes
4. Measures to streamline the permitting process
5. Incentives to encourage appropriate economic development
6. Impact Fees and Development Agreements
7. Design guidelines and/or Local Historic District development

1.9.1 Consistency of Land Use Policies with the Regional Policy Plan

In order for this Local Comprehensive Plan to be found consistent with the Regional Policy Plan, the Goals and Policies of the Town's Comprehensive Plan must include the Goals and Minimum Performance Standards identified in the Regional Policy Plan, as well as the Recommended Town Actions, unless the Town can demonstrate non-applicability. Where further study is needed the plan should identify the scope, funding source and timetable for completion.

This Comprehensive Plan complies with these Regional Policy Plan requirements. The Town's Local Comprehensive Plan meets the standards set forth in as much as it includes the following:

1. Compact forms of development are supported by policies that require growth and redevelopment activities be directed to a set of identified activity centers. (RPP 1.1.4). Residential land use policies support cluster development / Open Space Residential Development (RPP1.1.2). Mixed use residential/commercial development is supported in village activity centers and as buffers to regional activity centers.
2. "Strip" commercial development shall be prohibited by the designation of activity centers (RPP 1.1.3). In the existing Highway Business Districts, recommendations are made to minimize the impact of sprawl through improved appearance, sign control, infill, landscaping, design review and redevelopment. (RPP 1.1.7)

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3. Adequate infrastructure shall be provided to the designated activity centers to support existing development and any proposed development (RPP 1.1.6). This will be accomplished through the completion and implementation of the Wastewater Facilities Plan, The Barnstable-Yarmouth Transportation Study (BYTS) and through the development of a water management plan by the multiple water suppliers.
 4. Sign control, landscaping and site design review are currently provided through the Site Plan Review Committee and the Planning Department. Architectural design review is proposed with the creation of a design manual and historic districts, and other design mechanisms, adopted by the Town Council. Architectural design review shall become part of the Site Plan Review process with the adoption of a design manual.
 5. The holding capacity of the land is used as the basis for both residential and commercial development.
 6. Exploration of impact fees is proposed.
 7. Transferable Development Rights (TDR) were considered (RPP 1.1.10), but were not recommended due to:
 - Concern that regional transfers may be made to Barnstable.
 - No definition of the receiving zones and concern over the impact of increased densities in receiving areas.
 - Difficulty of applying these concepts to a town with high land values.
 - Difficulty of transferring residential rights to non-residential development.

This does not represent a policy precluding future consideration of utility of TDR, only within the Town of Barnstable.

8. The Town will continue to coordinate with the Cape Cod Commission on regulations, model codes and innovative approaches to land development and growth management.

1.9.2 Specific Regulatory Policies

The implementation section of the Comprehensive Plan contains a listing of priority actions and a spreadsheet of all regulatory actions proposed to be achieved within a reasonable time frame. The following specific Policies are highlighted as priority regulatory activities to support the Land Use and Growth Management Goals.

In accordance with Section 9 (c) of the Cape Cod Commission Act, amendments to development regulations pursuant to this plan shall not alter the rights of property owners under Section 6 of the Chapter 40A, Section 81(p) of Chapter 41 and Section 127(p) of Chapter 111 of the General Laws.

1.9.2.1 Design Guidelines and Coordination of the Review Process

While not regulatory in and of themselves, design guidelines are needed to give clear direction to public and private sector development. Standards need to be established for the review of development and redevelopment proposals. A design manual should be developed which would provide explicit information on how design of buildings,

landscaping and signs can harmonize with the traditional Cape Cod landscape. With the information provided "up front", the review process can be streamlined so that developers in both the public and private sector know what to expect. Both minimum standards and alternatives should be provided. This is a priority component in resolving a host of other regulatory issues that involve site design, landscaping, buffering, parking lot layout, building design, open space and pedestrian facilities.

The Town Planning Department and Building Commissioner should provide pre-planning consultations for developers who plan to submit building site and architectural plans for approval by Site Plan Review. The intent of pre-planning consultations is to assist the developers in understanding the wishes of the town on such issues as building size and scale, architectural design, landscaping and site design, and permitting requirements. It is hoped that this process would facilitate the review and approval process of Site Plan Review, and minimize cost overruns and permitting requirements.

The Local Planning Committee supports the principle of assisting developers with a coordinated review process, using the site plan review procedure as the principle means of providing such coordination.

1.9.2.2 Groundwater Protection Overlay Districts

This zoning technique is currently used to protect zones of contribution (ZOC) to public supply wells. As new data and engineering studies are completed, the overlay districts should be updated consistent with state standards. This approach should be used to protect existing, proven future and potential future public supply wells. Performance requirements, including management plans and emergency response plans, need to be applied to existing nonconforming uses. Enforcement of the Zoning Ordinance and Board of Health regulations should be a priority in Zones of Contribution.

1.9.2.3 General Zoning Issues

The Appendix to this Section contains a summary of the provisions of the existing Zoning Ordinances of the Town of Barnstable. There are seven (7) Residential Districts, one (1) Office District, six (6) Commercial Districts, and two (2) Industrial Districts. There are additional regulations for flood areas and groundwater protection districts as well as a recently adopted Regional Shopping Center Overlay District. There is also a Special Permit provision for Open Space Residential Subdivisions issued by the Planning Board.

The policies within this Section of the Comprehensive Plan and the separate Village Vision Plans have identified many changes or amendments to be made to this set of district regulations. First and foremost, the issues identified as "critical concern" at the start of the planning process (see below) are still valid. Second, there are a number of basic regulatory guidelines for future amendment action that should receive priority attention. This section will define these guidelines and relate them to specific Sections or vision plans. The implementation section of this Comprehensive Plan should be consulted for a more specific listing of actions by category and time frame.

1.9.2.4 Specific Issues of Critical Concern

As part of the initial scoping of the issues to be addressed on a priority basis, the following set of "Issues of Critical Concern" were identified:

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1. **Enforcement of Zoning Regulations:** This issue has been addressed through administrative reorganization, but sufficient staff resources should be maintained.
 2. **Non-Conforming Uses:** Redraft Section 4-4 of the Zoning Ordinance to "tighten" regulations. Limit the expansion of the non-conforming uses in residential districts townwide; limit time frame for re-establishment of abandoned non-conforming uses.
 3. **Home Occupation:** Redraft current provisions of Section 3-4.1(3)(a) to ensure total compatibility with the residential district, but provide a more simplified approach to what can be done as of right, and what is permissible by Special Permit. The end result should be non-intrusive home occupations which are compatible with residential neighborhoods.
 4. **Add, amend or clarify Section 7, Definitions, within the Zoning Ordinance.**
 5. **Amend and update the Off-Street Parking regulations:** Section 4-2 of the Zoning Ordinance needs to be clarified as to intent, number of spaces required, general site design and landscaping requirements, in order to improve visual image, community character and ensure appropriate economic development (see design guidelines, above).
 6. **Review and update as necessary the Site Plan Review provisions:** Section 4-7 needs to be reviewed to ensure application of the design guidelines, coordinated review by all affected municipal service providers, and implementation of the Goals, Policies and strategies of this Comprehensive Plan.
 7. **Draft a land clearing General Ordinance**
 8. **Family Apartments:** Revise the Family Apartment section of the Zoning Ordinance to limit the area for this use and require that it be located within the main dwelling.

1.9.3 Zoning Amendment Policies

Policies and strategies in this Future Land Use section of the Comprehensive Plan and the individual village plans highlight the need to revise the Town's Zoning Ordinance, which has long been recognized as in need of substantial improvement and revision. Revisions to both the text and the map are needed. Sections of the Ordinance which are in need of revisions include non-conforming uses, definitions, dimensional requirements, parking regulations, yard requirements, home occupations, family apartments, and site plan review. The village plans highlight the need to make map revisions to define zoning districts, especially commercial districts, and to establish a clear schedule of uses.

A number of issues were prioritized for revision in 1990. These issues should be addressed immediately upon completion of this planning document. Other issues need to be prioritized for action by the LPC and/or the Planning Board, working with the Zoning Board of Appeals. Revisions to the Zoning Ordinance should be given the highest priority for implementation of the Comprehensive Plan and shall be addressed within the implementation time frame, although it should be realized that this effort will take longer to be implemented fully.

1.9.3.1 Expansion/Contraction of Commercial Districts

The expansion of commercial district boundaries has not been generally supported by the policies of this plan. In fact, the solidifying of this system of district boundaries, and the recognition of the separate and distinctive nature of land use types is strongly supported. There are two exceptions to this guideline; two business areas in Cotuit and Santuit are presently residentially zoned. The expansion of a commercial district designation to these areas in concert with an historic district or special design district overlay, which may address more expansive site design issues, should be explored.

The contraction of districts has been specifically recommended in six (6) areas:

1. The industrial zone has recently been modified by acquisition by the State of the industrially zoned land East of Mary Dunn Road in Independence Park, to protect environmental and water supply resources. This area should be removed from the industrial zoning district and placed in a separate Conservation/Open Space category for publicly owned land. Other publicly owned land in the Town should also be considered for this district designation. A management plan for all such properties is recommended as a basis for land use decisions by the public management agency.
2. A reduction in the Osterville BA District between Pond Street and Osterville-West Barnstable Road is recommended due to projected traffic impacts, groundwater concerns and village character considerations.
3. The overall size of the West Barnstable VB-B district needs to be reduced. It contains 60.47 acres and is out of scale with the village it serves. Lack of infrastructure and restrictive soils indicate low impact/intensity uses. A mix of uses should be considered.
4. The Marstons Mills village center commercial zoning district contains 22 acres, of which 4.2 acres has been developed for commercial use, 11.8 acres has been developed for residential use, and 5.9 acres are vacant. The boundaries should be redefined to exclude the existing residential areas, permit these and/or expanded home occupations, with buffers to the commercial areas. Again, mixed residential uses should continue to be permitted in the village commercial zoning district.
5. Realign the zoning district boundary to exclude residential subdivisions from the Service and Distribution zoning district in Marstons Mills (Activity Center #12), where as much as 13.4 acres have already been developed residentially.
6. The West Main Street corridor in Hyannis has developed into a mixed use strip commercial area that needs growth management controls and a reduction/elimination of the HB (Highway Business) zoning district. The objective is to zone this area for multi-family development, which is the predominant land use, and recognize existing commercial uses on fully developed parcels.

1.9.3.2 Mixed Use Districts

This approach has the potential to reinforce historic village uses and functions. However, it has been viewed with skepticism, given the objective to maintain use

separation in distinct districts. Some village centers desire a greater mix of use and services. Some mix already exists. This Strategies needs to be further developed on a site specific (i.e. village center specific) basis. Strategies to be used include:

1. Provide the appropriate level, density and style of housing opportunities within and adjacent to village centers. This should include the consideration of affordable housing opportunities for achieving a fair share of townwide need.
2. Provide needed services and support facilities based on the village vision plans.
3. Consider permitting expanded home occupation uses near village centers where down-zoning of commercial areas is proposed, as recommended in the individual village plans.

1.9.3.3 Performance Standards

Provide a set of performance requirements that can be applied in a fair and enforceable manner, and that controls the density of development.

This single Policy is a key determination for impact analysis, addressing all the Sections of the plan. The Strategies used in this approach to performance zoning are described in the Appendix and briefly summarized as follows:

1. **Residential Density** - The minimum lot size based on groundwater protection is one acre. Areas of the Town having no public water supply or impervious soils or coastal sensitivities should be decreased in density. Areas of town with public water and public sewer, or other appropriate infrastructure, should be considered for an increase in density.
2. **Floor Area Ratio** - A measure of the total gross floor area of a building compared to the lot area. This technique is preferable to using building coverage, since it relates the total building square footage to the size of the lot. The present building coverage requirements may result in additional floors being added to achieve maximum development potential.
3. **Impervious Surface Ratio** - Has an impact on open space, groundwater recharge, stormwater management and development potential (parking requirements).
4. **Open Space Ratio** - Is similar to impervious surface ratio for residential development. May include both public and private open space and should include a specific response to environmental analysis such as ponds, wetlands, designated green belts or wildlife corridors. Both approaches require a specific percentage of the site(s) to be set aside for open space purposes, and a specific response to resource sensitivity.
5. **Buffer Yards** - A flexible approach to setback and landscaping requirements between districts of different types of use and intensity (see Appendix for details)

1.9.4 New and Innovative Regulations and Procedures

The impact of past development activity has resulted in a desire to direct growth to the most appropriate locations, restrict growth in environmentally sensitive areas, manage the rate of growth, and ensure that major impacts are eliminated or mitigated. This

complex set of tasks can be accomplished by specific types of regulatory tools that have growth management and mitigation as their objective:

1.9.4.1 Impact Fees

This plan recommends that a mitigation fee be charged to all new development both residential and non-residential, to offset the financial impacts on the infrastructure needs caused by the development, specifically: transportation; open space, recreation and conservation lands; and educational facilities. This fee-based regulation is more fully described in Appendix 4, Infrastructure Finance and Implementation Tools; however some key considerations include:

- Escrow accounts - Separate funds for fees by specific function to ensure use for the purpose intended - i.e. the money collected for transportation is only used for transportation

Fees based on an adopted level-of-service (LOS) or specific project plans in a Capital Improvement Program designed to mitigate the impacts of growth.

Specifically:

Transportation LOS E in Regional, Industrial and Commercial Activity Centers
LOS D in Village Activity Centers
LOS C in all other areas

Open Space Existing level of open space per capita

Education Existing level of students per classroom per household.

- A rational nexus must be established so that actual improvements benefit the fee payer.
- An alternate method of fee calculation is provided to allow the specific circumstances of a project to be considered in lieu of a generic standard.
- Exemptions are provided for specific public benefit projects, such as community centers and affordable housing.
- Impact fees charged shall not duplicate DRI mitigation fees.

1.9.4.2 Stormwater Utility

This is a general ordinance approach to improving stormwater runoff based on the total cost of mitigating stormwater impacts, and on the quantity and quality of runoff generated by impervious surfaces. This approach can be applied to coastal discharge mitigation as well as storm water drainage needs, and will result in improved groundwater and surface water quality. This regulatory technique requires intensive study of existing conditions, mitigation and maintenance alternatives, and the capital and operating costs associated with the selected management approach.

1.9.4.3 Special Districts or Business Improvement Districts

This new approach to economic development incentives provides for a public/private partnership in development/redevelopment activities. Key features include:

- A strategic plan for improved function, appearance, maintenance, security or infrastructure - whatever is agreed on to meet the needs of the area.
- An implementation plan is devised to define responsibilities of both the public and private sectors and assess financial feasibility.

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- Based on a majority vote of the landowners and approval of the Town Council, the district and its improvement plan is established.
 - Regulatory, Capital Improvement and assessment actions need to be consistent with the adopted strategic plan.

1.9.4.4 Development of Regional Impact (DRI)

Upon plan adoption, and implementation of the land use regulations proposed in this plan, DRI threshold modifications should be jointly considered by the Town and the Cape Cod Commission. As an interim policy, the Town supports the joint review of DRI's by the town through the site plan review process, together with the Cape Cod Commission, in order to streamline and coordinate development review. The Planning Board should not be involved in this review process to avoid adding another layer of review.

1.10 Managing the Rate of Growth

Introduction and Background

In the late 1960's the town began an era of unprecedented growth, from a population of 13,465 in 1960 to 19,842 in 1970; 30,898 in 1980; and 40,958 in 1990. In 1984 alone, over 851 dwelling units were constructed. At buildout, the town's year-round population is estimated to be 67,921 year-round inhabitants, with an additional projected seasonal population of 13,898, for a total population of 81,819.

The rapid development of the town has radically changed the appearance and character of the area. Recommendations are made throughout this document and other Sections of the Comprehensive Plan, which if implemented promptly, will reduce and ameliorate the impact of development upon the character, and the natural and historic resources of the town.

1.10.1 Growth Management Policies:

1.10.1.1 Prompt implementation of the Comprehensive Plan

The Comprehensive Plan Policies and Strategies should be implemented promptly. These are designed to reduce the impact of growth upon the character of the community, and will also have the effect of reducing the rate of growth slightly from the buildout projection (See section 1.4). Delay in implementation will result in development occurring which renders these Policies and Strategies moot.

1.10.1.2 Acquisition of land for open space

The town has acquired substantial lands for open space preservation, most recently in the 1980's. This has had the effect of reducing the amount of growth that will occur, particularly in environmentally sensitive areas, and reducing the fiscal impact of growth on the tax payer. While land acquisition can have a high initial cost to the tax payer, this action eliminates the ongoing need to provide infrastructure and services to residents of the development, and therefore becomes more cost effective to the general tax payer as time progresses. To off-set the cost of acquisition, the Comprehensive Plan

recommends a conservation, recreation and open space impact fee as a means of funding acquisition, which then becomes very cost-effective. Such an impact fee shall be based upon a rational nexus and should not duplicate mitigation paid pursuant to DRI approval. A fiscal impact analysis should be done to evaluate the impact of land acquisition, within a two year time frame, by the Planning Department. An impact fee ordinance should be enacted within the same two-year time frame.

1.10.1.3 Phasing of residential growth

Phasing of growth should be adopted to reduce the rate at which the town is growing to allow time to provide adequate infrastructure. Growth phasing will also have the effect of leveling out the rate of growth and reduce boom and bust cycles. The rapid growth of the 1980's resulted in a substantial drop in property values in the 1990's. Phasing will therefore maintain property values. Phasing should be applied to residential development by placing an annual limit on Building Permits of no more than 224 permits a year (the past five year average). Subdivision phasing should not be implemented, most remaining parcels are too small, less than 10 acres in size, for this technique to be effective.

1.10.1.4 Residential Exemptions:

Certain types of development should be exempt from growth phasing, because that development provides much needed opportunities for the town's residents. Affordable housing developments should be exempt from residential growth provisions. Almost 40% of the town's residents cannot afford to purchase homes or rent homes within the median price range. In order to reduce the impact on growth rate, the first priority in the housing program should be the purchase of existing houses. In some villages however, this is not practical because of high home prices. Small, well designed developments which provide a minimum of 25% affordable units should be exempt from growth phasing provisions.

1.10.1.5 Phasing of office and retail developments

The Strategy should be considered to prevent the development of speculative office and retail strip development, until the present inventory of vacant space has been reduced. Town-wide, there is a 23.9% vacancy rate for offices (Source: Section 3, Economic Development). The Town of Barnstable's Economic Development Commission should assess the need to phase new and expanded office and retail development in specified areas to ensure that the development is needed and will not result in an additional inventory of speculative, vacant space being developed. Office space built for the use of specific clients (i.e., non-speculative); and light industrial development should be specifically exempt from any such provisions.

1.10.1.6 Non-Residential Exemptions

Certain types of development should be exempt from growth phasing, because that development broadens the tax base and produces a positive revenue stream, and/or provides much needed opportunities for the town's residents. Appropriately located offices built for the use of specific clients (i.e., non-speculative) and light industrial uses, and redevelopment located in Economic Opportunity Areas should be specifically exempt from any growth phasing, provided that they ameliorate additional impacts on infrastructure. Such developments provide higher paying job opportunities for the town's residents, and in most cases, a positive revenue stream.

1.10.1.7 Fiscal Impact Analysis

Used to determine the fiscal impact of development types and of different land uses.

1.10.1.8 Adoption of innovative means of providing for growth.

Given proposition 21/2 and reductions in State aid, the town cannot finance road, sewer, recreation, and public building improvements, school additions and the host of other infrastructure and service needs of residents and businesses. Impact fees and other creative financing means are needed to provide infrastructure to support new development, See Section 1.9.4 above, *New and Innovative Regulations and Procedures*.

1.10.2 Adequate Public Facilities Ordinance

This Comprehensive Plan, as a policy document, sets forth many other long-range provisions for growth management. A key theme is the provision of infrastructure at acceptable levels of service. Infrastructure development is expensive and time consuming. Other communities have developed an Adequate Public Facilities Ordinance, which requires specified levels of infrastructure to be in place or under construction prior to the issuance of a building permit. This approach should be used in concert with adequate funding for the Town's Capital Improvement Program. Further information funding infrastructure can be found in the background paper in the Appendix, "Growth Management and the Availability of Infrastructure".

1.10.3 Other Regulatory Needs

The other Sections and Village Vision Plans of this Local Comprehensive Plan have identified a number of general ordinance changes to be considered, including the Zoning Ordinance with recommendations for use of land in the Main Street Waterfront District, Hyannis, the Industrial Zone and other areas. Recommendations affecting Wetlands Protection; Subdivision Regulations; Scenic Roads; Sewer Use and Protection of Historic Properties are also included. The reader is directed to the Implementation Section for a comprehensive listing of all regulatory actions proposed and the plan Section, Policy and Strategy it pertains to.

The Local Planning Committee also recognizes the need for a one stop permitting process for new construction and alterations. This should be accomplished so that the consumer makes only one stop at Town Hall. This will require standardization and computerization of all town permitting records.

1.11 Implementation Program

1.11.1 Citizen Input

In order to maintain the vitality of the LCP and provide for flexibility, the Planning Board should be charged with the responsibility of coordinating the implementation of the LCP with the Town Council. Both the Board and the Council should continue to meet with the residents in each of the seven villages, and coordinate with the village associations and other interested citizens to draft the wording of zoning amendments, other land use regulations and further define the capital needs of the town.

This section of the Local Comprehensive Plan summarizes the programs, regulations and projects recommended in the other Sections of the LCP. The following listings are intended to comply with the Cape Cod Commission requirements that there be a list of actions needed to achieve the Goals and Policies and Strategies of the LCP.

1.11.2 Implementation Schedule

The Town of Barnstable shall bring its Zoning Ordinance and Regulations into compliance with the Local Comprehensive Plan, recognizing that adoption of each issue is subject to approval of Town Council and/or other Boards and Commissions. Realistically, however, full implementation of the plan will take longer than the two years required in the Cape Cod Commission Act, given the size of the town and diversity of issues.

A **Priority Zoning Amendment Program** has been developed to focus on the implementation of the Land Use and Growth Management actions set forth in this Section. The zoning actions listed on the next page summarize the priority zoning amendment issues needed to implement the Goals, Policies and Strategies for the Activity Centers and residential areas of the Town, as well as other key zoning issues that need to be addressed.

The actions listed in the following **Implementation Program** spreadsheet are a comprehensive listing of the action oriented Policies and Strategies from the other seven (7) Sections of the LCP. All actions are classified as Cape Cod Commission Requirements or Local Comprehensive Plan Priorities. The Town Departments or agencies with responsibility for implementation of each strategy are identified as "lead agency". "Authorizing agency" refers to the board or body which must pass a new regulation. Coordinating agencies to be consulted during implementation are listed as "other key agency."

Priority Zoning Amendment Program

Zoning District / Activity Center Changes

Priority #	Activity Center #	Description
1	13	Industrial Zone (in process)
2	11	Service and Distribution District, Rt 28, Marstons Mills
3	10	Centerville, Rt 28
4	6	Osterville VB-A commercial district
5	7	West Barnstable Village Center
6	8	Santuit Business Area
7	9	Hyannis West Main Street
8	5	Marstons Mills Village Center
9	3	Cotuit Village Center

Other Zoning Changes

1. Cape Cod Mall, (completed)
4. Definitions (in process)
5. Lodging houses and Bed and Breakfasts(in process)
6. Changes to parking section(in process)
7. Trucks and bus parking in residential areas(in process)
8. Land Clearance(in process)
9. Family Apartments
10. Site Plan review
11. Signs, minor changes
12. Sandy Neck
13. Re-definition of Principal and Accessory Uses in every District.
14. Mansionizing along the coast
15. Cottage conversions and expansions (complex legal question)

Other items needing review:

Lot shape factor
1/2 story definition
Definition of floor or story
Open Space Residential subdivisions minor changes.
Prohibited Uses - adult bookstores, videos, massage parlors
Agricultural Uses
Churches need to conform to some reasonable bulk regulations.
Local Historic Districts: Downtown Hyannis (in process);
Santuit/Cotuit, Rt 28 corridor (in process);
Centerville Main Street;
Main Street Cotuit (in process);
Wiano Seaview Avenue

**LIST OF ABBREVIATIONS FOR AGENCIES IN
IMPLEMENTATION SCHEDULE:**

AD	Assessing Division	HSES	Health, Safety & Env. Services Dept.
ASD	Administrative Services Department	HWD	Highway Division
BHA	Barnstable Housing Authority	IDFA	Industrial Development Financing
BMA	Barnstable Municipal Airport	ISD	Information Systems Department
BOH	Board of Health	LD	Legal Department
BSD	Building Services Division	LIP	Local Initiative Program
CAD	Consumer Affairs Division	MHD	Mass. Highway Department
CC	Conservation Commission	PD	Planning Department
CCC.	Cape Cod Commission	PolD	Police Department
CD	Conservation Department	RHSD	Recreation & Human Services Dept.
DPW	Department of Public Works	RTA	Regional Transit Authority
EDC	Economic Development Commission	SD	School Department
EOCD	Mass. Executive Office of Communities & Development	SelfRel	Self Reliance, Inc.
FD	Finance Division	SHC	Subsidized Housing Committee
FHC	Fair Housing Committee	SPR	Site Plan Review Committee
FHWA	Federal Highway Administration	State	Division of Mass. State Government
Fire	Fire Districts	TC	Town Council
GIS	Geographic Information Systems	TM	Town Manager
HC	Historical Commission	WQC	Water Quality Committee
HD	Health Division	WS	Water Suppliers
HEDC	Hyannis Economic Development Commission	WwC	Waterways Committee
HM	Harbormaster Division		

**TOWN OF BARNSTABLE LOCAL COMPREHENSIVE PLAN
PRIORITY YEAR IMPLEMENTATION PROGRAMS AND REGULATIONS***

1/13/95 IMPDEPTN.XLS

TOWN MANAGER

STRATEGY	CCC REQ	LCP PRI	NEW REG	LEAD AGENCY	AUTH. AGENCY	OTHER KEY AGENCY	BUDGET IMPACT
Strategy 2.1.5.10.1 Allocate funds for 21E assessments as needed			N	TM		HD,PD	Y
Strategy 4.7.6.1.1-7 Maintain a high level of sound financial management			N	TM		AS	N
Strategy 5.3.2.2 Streamline permitting process for mixed use projects	X		Y	TM	TC,PB	HSES	N
Strategy 6.1 Refine town-owned property Management Plan		X	N	TM	TC	CC,R&HS,PD	Y
Strategy 6.2 B Create linkages between town-owned lands		X	N	TM	TC	CC,R&HS,PD	N

LEGAL DEPARTMENT*

Strategy 2.1.5.10.2 21E assessment prior to termination of leases of property controlled by town			N	LD	TM		N
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* All regulatory changes require legal review.

ADMINISTRATIVE SERVICES DEPARTMENT

FINANCE DIVISION

Strategy 4.7.6.3.1-5 Alternative methods of funding town facilities will be sought			N	AS	TC	PD	N
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POLICE DEPARTMENT

Strategy 4.1.4.4.5 Educational programs which teach bicycle safety to be developed			N	PolD		State	N
Strategy 4.7.1.1.1 Provide E911 service		X	N	PolD	TC	State	Y
Strategy 4.7.1.1.2 Upgrade and maintain emergency equipment			N	PolD			Y

MUNICIPAL AIRPORT COMMISSION

Strategy 2.1.9.3 Ensure private uses of airport lands comply with current zoning			N	BMA		BSD	N
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FIRE DISTRICTS

Strategy 4.7.1.2 Encourage regular testing of hydrants			N	Fire			N
Strategy 4.7.1.2.3 Maintain and expand infrastructure as necessary			N	Fire	TC		N

PUBLIC WATER SUPPLIERS

Strategy 2.1.1.3.5 Identify future water resource areas	X		N	WS		TM	N
Strategy 4.4.1.1.2 Encourage water conservation by advertising			N	WS		DPW	N

* Strategies listed are proposed in Local Comprehensive Plan elements approved by the Local Planning Committee.

**TOWN OF BARNSTABLE LOCAL COMPREHENSIVE PLAN
PRIORITY IMPLEMENTATION PROGRAMS AND REGULATIONS**

DEPARTMENT OF PUBLIC WORKS

STRATEGY	CCC REQ	LCP PRI	NEW REG	LEAD AGENCY	AUTH. AGENCY	OTHER KEY AGENCY	BUDGET IMPACT
Strategy 2.1.1.3.5		X	N	DPW		PD,GIS	Y
Strategy 2.1.2.4.1	X		Y	DPW		PD	N
Strategy 2.1.3.1.2	X		Y	DPW		PD,HD	N
Strategy 2.1.3.6.1	X		N	DPW		PD,HD	N
Policy P 2.1.5.3			N	DPW	TM	PD	N
Strategy 2.2.4.5.3			N	DPW		HM,WwC,CC	Y
Policy 2.2.5.3			N	DPW		HM,PD,CC	Y
Strategy 2.5.2.3.2	X		N	DPW		CD,HD,SPR	N
Strategy 2.5.2.3.5	X		N	DPW		BOH,CC,PD	Y
Strategy 4.1.1.1.1			N	DPW	DPW	PD	Y
Strategy 4.1.1.2.1			N	DPW		IS	Y
Strategy 4.1.7.1.5		X	N	DPW		PD,CCC	Y
Strategy 4.3.1.1.1			N	DPW		HSES	N
Strategy 4.3.1.1.2			N	DPW		HSES	N
Strategy 4.3.1.1.3		X	N	DPW		HSES	N
Strategy 4.3.1.2.2	X		N	DPW		HSES	N
Strategy 4.3.1.7.1			N	DPW		HSES	N
Strategy 4.4.1.1.1		X	N	DPW		WS,PD	N
Strategy 4.4.1.2.4		X	N	DPW		WS	Y
Strategy 4.4.1.2.5			N	DPW			Y
Strategy 4.4.1.2.6		X	N	DPW		HSES,WS,PD	Y
Strategy 4.4.1.3.2			N	DPW		HSES	Y
Strategy 4.4.1.4.1			Y	DPW		State, CCC	N
Strategy 4.4.1.4.2			Y	DPW		State, CCC	N
Strategy 4.4.1.4.3			Y	DPW	DPW	State, CCC	N
Strategy 4.6.1.1.1			N	DPW		HSES	Y
Strategy 4.6.1.1.4			Y	DPW	DPW		Y
Strategy 4.6.1.1.5			N	DPW		HSES	Y
Strategy 4.6.1.3.1			N	DPW		HSES	Y
Strategy 4.6.1.3.2		X	N	DPW		HSES	N
Strategy 4.7.1.2.4			N	DPW		Fire	Y
Strategy 4.8.1.2.1-6			N	DPW		Self-Rel.	Y

**TOWN OF BARNSTABLE LOCAL COMPREHENSIVE PLAN
PRIORITY IMPLEMENTATION PROGRAMS AND REGULATIONS**

HEALTH, SAFETY & ENVIRONMENTAL SERVICES

STRATEGY	CCC REQ	LCP PRI	NEW REG	LEAD AGENCY	AUTH. AGENCY	OTHER KEY AGENCY	BUDGET IMPACT
Strategy 3.1.2.1 Provide technical assistance with permitting process	X		N	HSES		PD	N
Strategy 3.1.2.2 Establish "One-Stop" permitting process office			Y	HSES	TM,TC	HSES	Y
Strategy 4.3.2.5.1 Continue to apply and refine Toxic & Haz. Materials Regs		X	N	HSES		DPW,PD	N
Strategy 4.3.2.5.3 Household Hazardous "Collection Days"		X	N	HSES		DPW	Y
Strategy 4.3.2.5.4 Finalize and maintain Emergency Response Plans		X	N	HSES		Fire	Y

BUILDING SERVICES DIVISION

Strategy 2.1.5.6.1 Enforce zoning, especially changes of use in Zones of Contribution	X		N	BSD		HD,PD	N
Strategy 4.3.2.5.2 Coordination between Site Plan,ZBA, Health & Fire			N	BSD		PD,HSES,Fire	N
Strategy 4.1.6.1.1 Improve signage (Routes 28 & 132)		X	N	BSD		PD,DPW	N

CONSERVATION DIVISION

Strategy 2.2.3.2.2 Restrict access to the most sensitive areas of public lands			N	CD	TM	R&HS	N
Policy 2.3.1.1 Consider requiring 100' buffers from coastal and inland wetlands	X		Y	CD	CC		N
Policy 2.3.1.2 No longer allow wetland replication as mitigation	X		Y	CD	TC		N
Policy 2.3.1.3 No discharge of stormwater runoff to wetlands	X		N	CD	CC,DPW		N
Policy 2.3.1.4 Restore altered or degraded wetlands	X		N	CD	CC		
Policy 2.3.2.1 Identify and certify vernal pools	X		N	CD	CC	CC,PD,GIS	N
Policy 2.3.2.2 Require 100' buffer around vernal pools	X		Y	CD	CC		N
Policy 2.4.1.1 Identify/protect wildlife corridors and unbroken tracts	X		N	CD	CC	CC,PD	N
Policy 2.4.2.1 Protect wildlife habitat from vehicle access			N	CD	CC,TC	R&HS	N
Policy 2.4.3.1 Establish hiking trails, but avoid sensitive areas			N	CD	CC,R&HS		
Policy 2.4.3.2 Investigate connections with Capewide trail network			N	CD	CC,CCC		
Strategy 2.5.3.1.2 Protect area within 300' of Hyannis Coastal Plains Ponds			N	CD		CC,PD,BOH	N
Strategy 6.3 Use Fed. Land & Water Cons. Grants for land acquisitions/improvements			N	CD	CC,TC	PD	Y

**TOWN OF BARNSTABLE LOCAL COMPREHENSIVE PLAN
PRIORITY IMPLEMENTATION PROGRAMS AND REGULATIONS**

HEALTH DIVISION

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Strategy 2.1.2.1.1	Private well groundwater protection measures	X	Y	HD	BOH,TC	HD	N
Strategy 2.1.2.1.2	Private well large scale devt hydro study	X	Y	HD	BOH	PD	N
Strategy 2.1.2.1.4	Private well, underground fuel tank schedule		Y	HD	BOH	PD	N
Strategy 2.1.2.3.2	Private well testing VOCs	X	Y	HD		PD	N
Strategy 2.1.3.6.1	Estimate nitrogen levels	X	Y	HD		PD	N
Policy 2.1.4.1	PSTF's not permitted in environmentally sensitive areas	X	Y	HD	BOH	PD	N
Strategy 2.1.4.8.1	Septic system re-design	X	Y	HD	BOH		Y
Policy 2.1.5.2	Household hazardous waste collection events		N	HD			N
Strategy 2.1.5.6.4	Establish license thresholds for hazardous materials		Y	HD	BOH	Fire	Y
Strategy 2.1.10.1.3	New lawns loam reqt. (Site Plan Review)		Y	PD	PB,TC	HD	N
Strategy 2.1.13.2.2	Large vol. sewage generators - hydro study reqt.		Y	HD	BOH	PD	N
Policy 2.2.2.1	Establish nitrate/nitrogen loading standards for coastal areas	X	Y	HD	BOH	PB,PD,CCC	Y
Strategy 2.2.2.1.1	Map areas of groundwater recharge to coastal embayments	X	N	HD		PD,CD,CCC	Y
Strategy 2.2.2.2.2	Determine appropriate strategies for remediation of SRA's	X	N	HD		BOH,DPW	N
Policy 2.2.2.6	Install signs and education re. bird feeding, pooper-scoopers		N	HD		DPW	Y
Policy 2.5.1.1	Apply nutrient standards to freshwater recharge areas	X	Y	HD	BOH	CD,CC,PD,CCC	N
Strategy 2.5.1.1.2	Continue water quality monitoring program and expand as needed	X	N	HD		BOH,CD,CC	Y
Strategy 2.5.1.1.3	Develop nutrient standards for Great Ponds	X	N	HD	BOH	CD,CC,PD	Y
Strategy 2.5.2.4.2	Strictly enforce hazardous materials ordinance in recharge areas		X	N	HD	BOH	Y
Strategy 2.5.2.4.3	Restrict uses associated with hazardous materials in recharge areas		X	Y	HD	BOH	PB,CC,SPR
Policy 2.1.3.3	Private well protection program	X	Y	HD	BOH	TC	N

**TOWN OF BARNSTABLE LOCAL COMPREHENSIVE PLAN
PRIORITY IMPLEMENTATION PROGRAMS AND REGULATIONS**

PLANNING DEPARTMENT

STRATEGY	CCC REQ	LCP PRI	NEW REG	LEAD AGENCY	AUTH. AGENCY	OTHER KEY AGENCY	BUDGET IMPACT
Strategy 2.1.1.3.5 Identify future water resource areas & protect	X		Y	PD	PB,TC	WQC	Y
Strategy 2.1.1.5.3 Require water saving devices	X		Y	PD	TC	WQC	N
Strategy 2.1.1.6.1 Map and protect ZOCs in other towns			Y	PD	PB,TC	DPW,GIS	N
Strategy 2.1.2.1.1 Private well groundwater protection measures	X		Y	PD	BOH,TC	HD	N
Strategy 2.1.2.1.3 Require increased lot sizes where needed to protect private wells	X		Y	PD	PB,TC		N
Strategy 2.1.2.4.2 Private well areas designate for public water			Y	PD		DPW	N
Policy 2.1.3.9 Water resources map	X		Y	PD		DPW	Y
Strategy 2.1.4.21 Seek grants to upgrade septic systems in fragile areas	X		Y	PD	PB,TC		N
Strategy 2.1.6.1.2 Seek grants to fund removal of private underground fuel tanks	X		Y	PD	TM	HD	N
Strategy 2.1.7.2.3 Reduce paved road length - allow flag lots			Y	PD		HD	N
Strategy 2.1.10.1.1 Retain natural vegetation in devt. (Site Plan Review)	X		Y	PD	PB,TC		N
Strategy 2.1.10.1.2 Restrict lawn area in sensitive areas	X		Y	PD	PB,TC		N
Strategy 2.1.10.1.3 New lawns loam reqt. (Site Plan Review)	X		Y	PD	PB,TC	HD	N
Strategy 2.1.10.2.1 Plant native species (Site Plan Review, with Health Dept.)	X		Y	PD	PB,TC	CD	N
Strategy 2.1.10.3.2 BMP agriculture and golf courses	X		N	PD		CD	N
Strategy 2.1.10.3.3 Encourage use of SCS pesticide data base			N	PD		CD	N
Strategies 2.2.1.1.1-2.2.1.2.3 Implement coastal flood plain zoning recommendations	X		Y	PD	PB,TC	CC,HD,BSD	N
Strategy 2.2.1.4.1 Develop Sandy Neck Area Plan to protect natural and cultural resources		X	N	PD	PB,TC	HSES	Y
Strategy 2.2.2.2.6 DRI's must show cumulative septage impacts on coastal waters	X		Y	PD	TC	CCC,HD	N
Strategy 2.2.5.1.2 Expanding non water-dependent uses to provide public benefits	X		Y	PD	PB,TC	SPR,BSD	N
Strategy 2.2.7.1.1 Develop work program for comprehensive Coastal Management Plan			N	PD	TM	HD,PB,CC,WwC	N
Strategy 2.5.1.1.1 Seek funding to map areas of groundwater recharge to freshwater bodies	X		N	PD		HD,CCC	Y
Strategy 3.1.1.1 Appointment of Economic Development Officer		X	N	PD	TM,TC	EDC,HEDC	Y
Strategy 3.1.1.2 Negotiate MOU with Hyannis Economic Development Corp.		X	N	PD	TM,TC	LD,EDC,HEDC	N
Strategy 3.1.3.1 Assign promotional activities to Economic Dev. Officer		X	N	PD	TM,TC	EDC,HEDC	Y
Strategy 3.1.7.3 ID & acquire properties to implement "Walkway to the Sea"		X	N	PD	TM,TC	EDC,HEDC	Y
Strategy 3.2.2.1 Complete plan required to implement EDIP	X		Y	PD,EDC	TM,TC	ID,FA	N
SECTION 1 IMPLEMENT ALL LAND USE POLICIES & STRATEGIES OF SECTION 1		X		PD	PB,TC		
Policy 2.1.3.3 Private well protection program	X	Y		PD	PB,TC		N

Town of Barnstable - Comprehensive Plan
Section 1.0 - Land Use and Growth Management

1-100

**TOWN OF BARNSTABLE LOCAL COMPREHENSIVE PLAN
PRIORITY IMPLEMENTATION PROGRAMS AND REGULATIONS**

PLANNING DEPARTMENT

STRATEGY	CCC REQ	LCP PRI	NEW REG	LEAD AGENCY	AUTH. AGENCY	OTHER KEY AGENCY	BUDGET IMPACT
Strategy 3.2.2.2	X		Y	PD,EDC	TM,TC	IDFA	Y
Strategy 3.2.3.2	X		N	PD	TM	HEDC	N
Strategy 3.2.3.3	X		Y	PD,EDC	TM,TC	HEDC,IDFA	Y
Strategy 4.1.1.4.1		X	Y	PD,HSES	PB,TC	DPW,CCC	Y
Strategy 4.1.1.4.2	X		Y	PD,HSES	PB,TC	DPW	Y
Strategy 4.1.1.4.3	X	X	Y	PD,HSES	PB,TC	DPW, State	N
Strategy 4.1.1.4.4			Y	PD,HSES	PB,TC	DPW, State	Y
Strategy 4.1.1.4.8			N	PD		PD	Y
Strategy 4.1.1.4.9	X	X	N	PD		RTA,DPW	Y
Strategy 4.1.1.4.10	X	X	N	PD		RTA,DPW	Y
Strategy 4.1.6.1.2			N	PD,HSES		DPW	Y
Strategy 4.1.6.1.5		X	N	PD,HSES		DPW	N
Strategy 4.1.7.1.2	X	X	N	PD		State,Old Colony R	Y
Strategy 4.1.7.1.4		X	N	PD		RTA,DPW	Y
Strategy 4.1.7.1.5		X	N	PD,HSES		DPW,CCC	Y
Strategy 4.1.7.1.5			N	PD		DPW,AS	Y
Strategy 4.1.7.2.2			Y	PD,HSES	PD	DPW	Y
Strategy 4.1.7.2.3		X	N	PD,HSES		DPW	Y
Strategy 4.1.7.2.4	X		Y	PD	PB,TC	DPW,CCC	Y
Strategy 4.7.3.1.1			N	PD	TC	AS	Y
Strategy 5.1.1.1		X	N	PD		SHC	N
Strategy 5.1.1.2		X	N	PD		CCC	N
Strategy 5.1.1.3	X		N	PD	TM,TC	CCC	N
Strategy 5.2.1.1	X		N	PD	TM,TC	LD,E OCD	N
Strategy 5.2.1.2			N	PD	TM,TC	SHC,FHC	N
Strategy 5.2.2.2	X		Y	PD	PB,TC	SHC,LD	N
Strategy 5.2.2.3	X		Y	PD	PB,TC	SHC,LD	N
Strategy 5.2.2.4	X		Y	PD	PB,TC	SHC,LD	N
Strategy 5.2.4.3	X		Y	PD	PB,TC	LD	N
Strategy 5.2.4.4		X	Y	PD	PB,TC	LD	N
Strategy 5.2.4.5		X	Y	PD	TM,PB	LD	N
Strategy 5.3.1.3		X	N	PD	TM	BHA	N
Strategy 6.2 A	X		Y	PD	TC	PB,CC	Y
Strategy 7.1	X		N	PD	TBD	PB, SPR, HC	Y
Strategy 7.2 A		X	Y	PD	PB,TC	LD	N
Strategy 7.2 D		X	Y	PD	PB,TC	LD	N
Strategy 7.3		X	N	PD	HC		N

1.11.2 Capital Improvement Plan

A second requirement for the LCP is a Five Year Capital Improvement Plan. This requirement should not be confused with the Town's annual Capital Improvement Program (CIP). The LCP Capital Improvement Plan is intended to list facilities and financing mechanisms for construction, expansion and replacement of public facilities and services required to meet the growth and development projected by the LCP. In addition, projects required to maintain the level of service provided by critical facilities and improve the quality of life, have been added as part of the listing of capital facility needs.

Due to the critical nature of providing adequate public facilities and services to support current and future levels of growth and development, this LCP has provided a capital plan that is intended to be reviewed annually as part of the town's current Capital Improvement Program. Current levels of service (LOS) and facility needs should be reviewed in light of projected growth and available funding sources. This review will help prioritize projects and indicate the need for adoption of appropriate funding sources. This direct relationship between development, capital facilities needs and funding sources should be subject to an annual impact analysis.

The capital projects recommended by this plan are listed separately in the following table and are advisory only, due to the variables of growth and the fiscal constraints facing the town. It is anticipated that these projects will be phased over a period of years and will involve further study, public input and discussion. The town shall not be held liable for not performing said actions or for adjusting implementation schedules as needed to accommodate changing circumstances.

**5 YEAR CAPITAL IMPROVEMENT PROGRAM FOR
LOCAL COMPREHENSIVE PLAN PROJECTS**

**Local Comprehensive Plan
Capital Improvement Plan
Projects related to growth**
*Impact fees

1-5 YEARS

PARK/RECREATION

Barnstable Beach Area Improvements
*Land Acquisition for Open Space and Recreation

PARKING FACILITIES

Parking Lot Expansion Program
*Parking Garage Feasibility Study
*Satellite Parking Facility Feasibility Study
Parking Garage Construction

ROAD CONSTRUCTION/RECONSTRUCTION - LOCAL

Centerville Main Street Improvements (Phase I)
*Extend Old Route 132 - Feasibility/Design
*Extend Service Road - Feasibility/Design
*Extend Independence Drive - Design
*Route 132 Improvements (Local)

SCHOOLS

*Study for future school sites
New construction (classrooms)

STORMWATER RUNOFF MITIGATION

Townwide Drainage Improvements

TRAFFIC SAFETY IMPROVEMENTS

*Townwide Intersection Improvements

TRANSPORTATION

*Transportation Study Phase II
*Shuttle Bus Service
*Exit 6 1/2 Study/Design (State funding)
*Route 132 Improvements (State funding)
*TSM - Signal Improvements

UTILITIES EXPANSION

*Facilities Plan/Sewer Extension

GROWTH RELATED CAPITAL PROJECTS	0-5 years
Summary of Estimated Costs	\$16,164,000

**Local Comprehensive Plan
Capital Improvement Plan
Projects for Maintenance/Upgrading
Existing capital**

1-5 YEARS

BUILDINGS

Centerville Community Center
Old Town Hall Renovation
W. Barnstable Village Center Improvements
M.M. Village Center Improvements

HANDICAPPED ACCESS

Handicapped Access-Curbcuts
Sandy Neck Handicapped Implementation
Town Beach Handicapped Access

MARINE/WATERFRONT FACILITIES

Barnstable Harbor Improvements Study Phase I
Cotuit Boat Ramp Improvements
Townwide Boat Ramp Program
Lewis Bay Road Boat Ramp Improvements
Barnstable Harbor Improvement Study Phase II
Upgrade Long Pond Site
Inner Harbor Dredging Expansion

PARKING FACILITIES

W. Barnstable Community Center Parking Improvement.
Improvements to Town Owned Lot-Osterville
Parking Facility at Prince Cove

PARK/RECREATION

Aselton Park Bulkhead
Mothers Park Improvements
Darby Property Management Plan

ROAD CONSTRUCTION/RECONSTRUCTION - LOCAL

Cotuit Intersection Improvements
Cotuit Roadway Improvements

ROAD CONSTRUCTION/RECONSTRUCTION - STATE (CH.90, ISTE, ETC)

Route 28/Old Stage Road Drainage
Route 28-Putnam to Route 149
Route 28 Improvements (East of Rotary)
Route 28 Cotuit Improvements
Route 28 Improvements (West of Rotary)
Route 132/ShootFlying Hill Rd. Improvements

STORMWATER RUNOFF MITIGATION

Osterville Drainage Improvements

MAINTENANCE & UPGRADE RELATED CAPITAL PROJECTS 0-5 years	
Summary of Estimated Costs	\$ 6,518,000

**Local Comprehensive Plan
Capital Improvement Plan
Projects that are General Quality of Life Improvements**

1-5 YEARS

BEAUTIFICATION

Townwide Street Tree Program
Main Street Osterville Utilities
Barnstable Utilities/Sidewalks
Hyannis Main Street Improvements
West Barnstable Center Improvements

PARK/RECREATION

Hyannis Harbor Boardwalk
Complete Aselton Park design
Land Acquisition for Walkway to the Sea
Walkway to the Sea Design/Construction

WASTE MANAGEMENT

Marstons Mills Waste Facilities Study

SIDEWALKS/BIKEPATHS

5-Year Townwide Program

ROAD CONSTRUCTION/RECONSTRUCTION

Centerville Main Street Improvements
Main Street Osterville Improvements

BUILDINGS

Youth Center
Senior Center

QUALITY OF LIFE RELATED CAPITAL PROJECTS	0-5 years
Summary of Estimated Costs	\$9,259,500

SUMMARY OF ALL 5 YEAR	
CAPITAL PROJECT NEEDS	\$31,941,500

Barnstable Village Plan

Introduction

Barnstable Village is the oldest of the town's villages and the second oldest area of the Cape to be settled by the Europeans. Settlements first developed along the shore and the Old Kings Highway. The sheltered waters of the Harbor became the center for a vigorous maritime trade which reached its zenith in the mid-19th Century when clipper ships sailed from the village to the North-west and the Orient. This maritime trade brought great wealth to Barnstable Village. Sea Captains built great houses along the Old Kings Highway and side roads leading to the Harbor. These houses and the historic landscapes remain largely intact to day, thanks to vigorous preservation efforts.

Barnstable Village is quintessential Cape Cod. The historic landscapes and views are closely tied with the identity of the Town and County. They are the foundation of the tourist economy and the perception of the town as a desirable place to live.

Recommendations are made for improvements to the village center and for the Harbor. Policies are advanced for the protection of the Old Kings Highway corridor. Barnstable village south of Route 6 is considered in two aspects: traffic and water supply. The density and type of development in this area must be evaluated for impact on the village's water supply, and upon traffic along the Old Kings Highway.

1. Village Character

Physical landscape

Barnstable Village landscapes include all three of the principal landforms found in the town. Within the Industrial Zone adjacent to Hyannis are glacial outwash plains. Here course sand and gravel soils form a gently rolling landscape with scrub oak and pines. Shallow coastal plain ponds can be found throughout the area. There are no streams, the soils are too porous. This area forms one of the most productive aquifers in the town. Most of the water supplies for Barnstable Village and Hyannis comes from this area. Northwards, the land rises to knob-like hills of the moraine which runs along the backbone of the Cape. Soils in this area are finer and very mixed. On the north side of the moraine there are small, steep-sided kettle ponds which are drained by streams leading to the Harbor.

Along the Old Kings Highway and the shore, the land is low lying with heavy, water-retentive soils, including clays, peats, and marsh deposits. The shoreline is indented with small creeks and bordered by marshes extending to extensive tidal flats. These flats are productive shellfish habitats.

The soils along the shore are poorly drained and pose difficulties for disposal of septic effluent and paved surface run-off. Five locations have been identified through the coastal health program as in need of septic system remediation.

Areas of Critical Concern Due to Wastewater/Septic System Problems:

- B1 Sandy Neck Cottage Area
- B2 Cape Cod Village Condominiums and Otter Lane
- B3 Route 6A Area
- B4 Yacht Club Driveway
- B5 Thornton Drive

Source: Dale Saad, Coastal Health Coordinator, Wastewater Facilities Plan, in progress
Recommendations for alternative wastewater treatment will be developed through the Wastewater Management Plan being developed for the town, under the direction of the DPW. Both off-site and on-site systems will be considered.

At Maraspin Creek, and the Yacht Club Driveway, road run-off is causing contamination of coastal waters.

Vegetation

As in most areas of the Cape, the predominant upland vegetation is scrub pine and oak with the greatest diversity of vegetation found along the northern lowlands. Trees in this village are larger and more mature in appearance, due to better soils. Beeches, maples and buttonwoods thrive in the rich soils along the Old Kings Highway. Exotic species are common; sea captains brought home specimens from the Far East. Landscaping styles tend to be more formal with large mature trees and ground covers in front of historic homes, in contrast to the more rural, farm landscapes of West Barnstable.

History

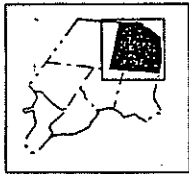
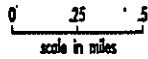
Indian settlements were located along the shores of Barnstable Harbor, close to freshwater streams. The Harbor flats provided an abundant source of shellfish. Inland settlements also occurred along the margins of ponds.

Barnstable Village was settled by the Europeans in 1639 after the settlement of Sandwich in 1638 and Plymouth in 1620. It is the oldest of the town's villages. The first European settlements were located along Route 6A, which was originally an Indian trail along the edge of the marshes and shore. The early communities prospered as farming settlements. The water retentive clay soils of the northern shore line provided fertile lands for the early farmers, unlike the droughty, poor soils of the southern outwash plains which remained largely unsettled until the 19th century. The marshes provided salt marsh hay for cattle fodder without the need to clear land, and the tidal flats were an abundant source of shellfish. Inland, forests provided timber. Later, the sheltered waters of Barnstable Harbor became a major factor in the growth of the village as a port and maritime trade center.

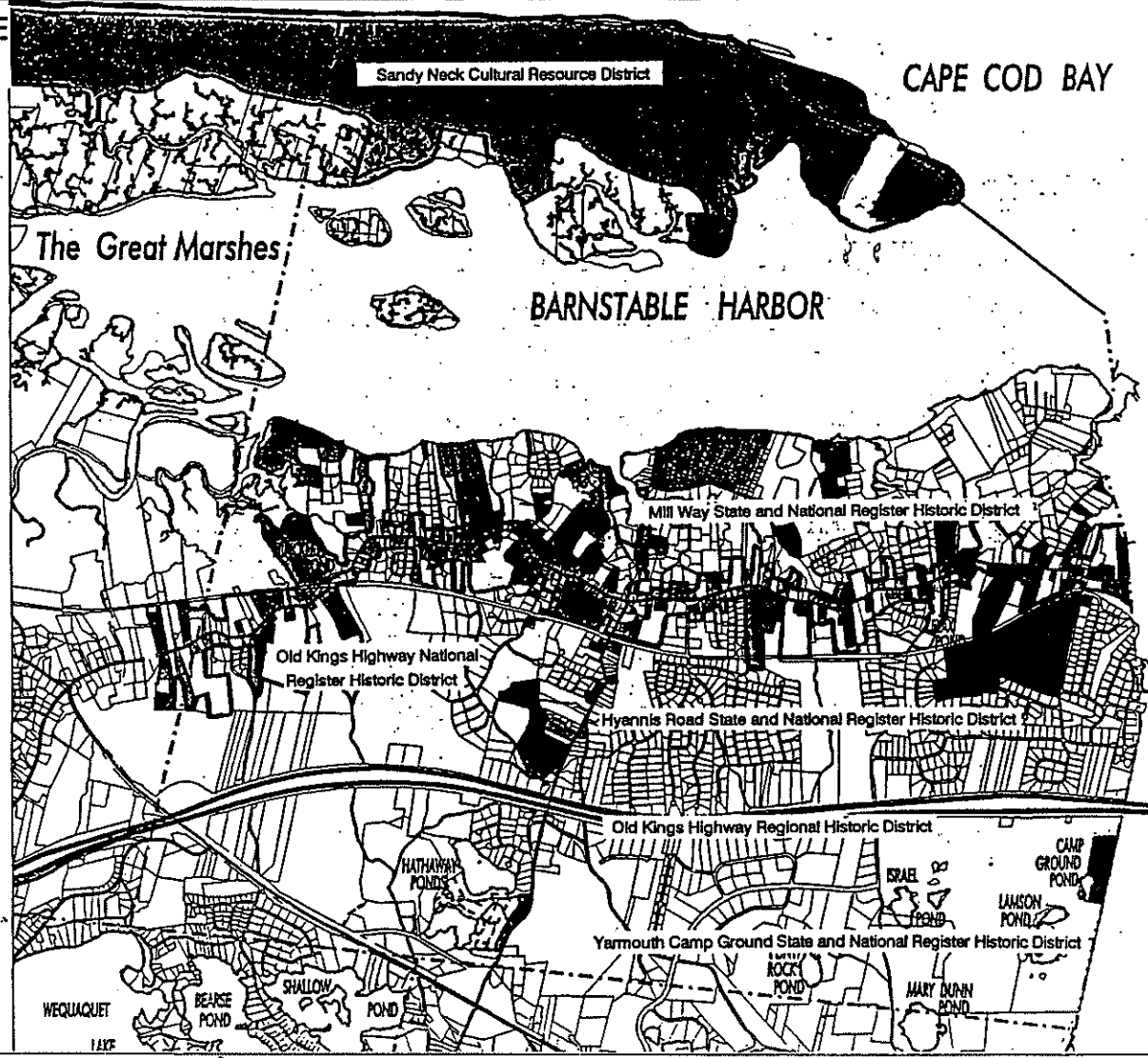
The sheltered waters of Barnstable Harbor provided moorings for small ships which traded with north shore ports, particularly Boston. Narrow roads from Route 6A led to piers at the waters edge. Rendezvous Lane, Millway, Freezer Road were all access roads to the Harbor. A lively coastal trade was established with the other north shore ports especially Boston. Goods were unloaded in Barnstable Village and taken overland to ports in Hyannis, Centerville and Cotuit. Here they were loaded on to packets trading with ports to the south, to New York, Philadelphia, and Baltimore. The journey around the Cape was too treacherous for small coastal ships.

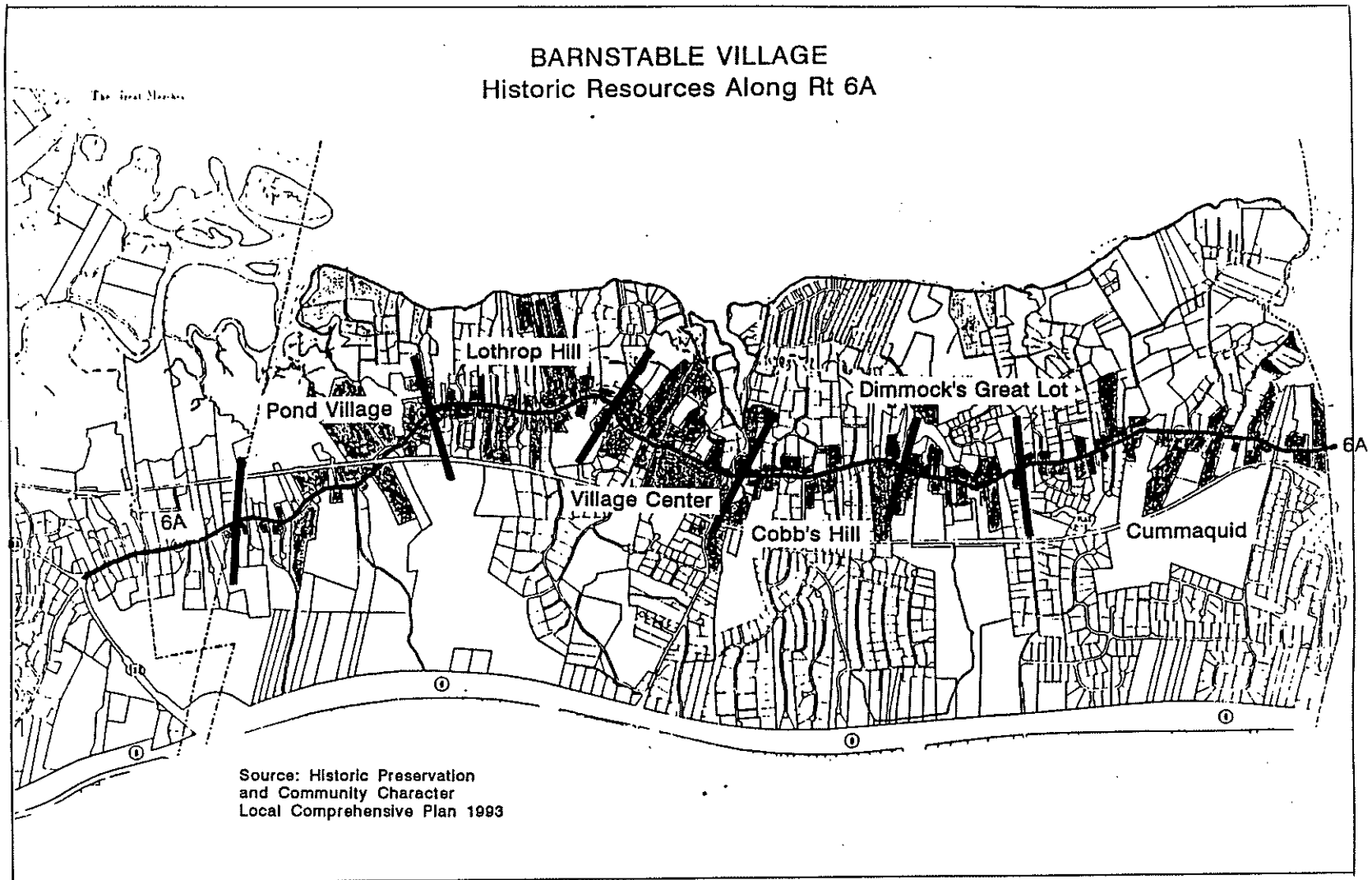
**BARNSTABLE VILLAGE
Historic Resources**

NOTE- cadastral level undergoing revision, all information subject to change. ECI 3-1-93



Source: Historic Preservation and Community Character Local Comprehensive Plan 1993





Barnstable Village's greatest fame lies in its deep water sailors and captains, who brought great wealth to the village. By the 1700s trading was established with the Northwest for furs, and then to Far East for silks, spices, tea and porcelain. The era of the great clipper ships was the heyday of the maritime industry for Barnstable Village; many of the Cape Cod deep-water sailors came from this village. Great houses of the 18th and early 19th Century were built along Route 6A and little side roads leading to the Harbor, with the profits of trading. Later, the village did not participate in the economic booms of the 20th Century as did Hyannis which has resulted in loss of so much of the historic character of this village.

Barnstable Village's historic resources remain largely intact and highly valued. Housing prices in this village are the highest of all the villages, and the median house price is the highest on the Cape; it is one of the most desirable residential communities. Its historic resources are also the foundation of the tourism economy. The Old Kings Highway is known nationally for its historic houses, scenic landscapes and views.

The early growth of the community was further enhanced by the designation of the village as the County center in 1686. Barnstable Village in the Town of Barnstable and the County of Barnstable, is an historic administrative center. The village is fortunate in retention of these court, jail and administrative functions which have contributed to a vigorous village center.

Today seven distinct historic areas can be distinguished along Route 6A:

1. **Village Center, Rendezvous Lane to Hyannis Road and MillWay.** Within this area, four Court Houses have been constructed along the Old Kings Highway: at Pine Lane in 1686; at Rendezvous Lane in 1774; and in 1831 the first part of what is now the Superior Court was constructed. In 1971 the First District Court House was constructed. Public Houses sprang up around the court houses, and general businesses associated with the maritime industry became established in this area. Despite the busy commercial nature of the village today, the buildings have largely retained their historic character.
2. **Hyannis Road.** In the Hyannis Road area, houses were built by local businessmen and craftsmen. The style and size of buildings reflects the wealth of the area. Mid-19th century houses, and Georgian styles predominate, and Cape Cod vernacular.
3. **Millway.** This is one of several Harbor areas. Here shipyards, ships chandlers and other maritime businesses were established. Smaller homes line the roadways to the Harbor including full Capes.
4. **Pond Village between Scudder Lane and the West Barnstable line, Hinckleys Pond.** This is one of the earliest settled parts of the village. Here the Old Kings Highway swings close to the marshes which provided fodder for cattle and thatch for roofs. Some of the oldest buildings in the village can be found in this area. Building age ranges from the 18th Century to the 20th Century.

Cummaquid: Because of rich soils, Cummaquid developed as a farming community. Later, the inhabitants became involved in business and the maritime industry. Today large open fields and farms can still be found. These soils do not "perk", which has curtailed development. Buildings date from the 17th Century. There are salt boxes, and some of the earliest remaining colonial houses in the

village. Sea Captains houses line the Old Kings Highway reflecting the wealth of their former occupants.

5. **Dimmocks Great Lot** was granted to one of the first settlers of the town, Thomas Dimmock. Farmers and sea captains built houses in the area, and trades and crafts developed. There are a multitude of building styles including 1/2 high colonial style buildings, Cape styles and some very good examples of half Capes.

Cobbs Hill. Cobbs Hill was one of two areas settled in 1639 (the other was Pond Village). This area formed one of the early centers of the village. The meeting house was built in 1717, next to it is the Cobbs Hill Cemetery where names of early settlers can still be read on tombstones. In the 19th Century three halls were built, the Masonic Hall, Union Hall and the Agricultural Hall, and two schools. The red brick Custom House, now the Trayser Museum, was for a century the headquarters of the customs district. Vessels were registered, documented and all maritime business was conducted from this building.

Sources: Files of Historical Commission
* Information provided by Patricia Anderson, Director, Department of Historic Preservation, Town of Barnstable

2. POPULATION AND HOUSING

Population

Total Population

The total population of the Barnstable Village CDP is 2,790 (1990 US Census). The CDP district is located north of the Mid-Cape Highway, east of Route 132.

Age

The residents of Barnstable Village CDP are older than the town as a whole. The median age is 43 years, only Osterville residents have a higher median age. For comparison, the town-wide figure is 38 years.

22% of residents are over 65%, the third highest percentage in the town, only Centerville and Osterville have higher percentages of elderly. 18% of the population are children 3 years and older enrolled in school, the lowest percentage in town.

The residents are highly educated, 39% have bachelors degrees, the highest percentage in town.

Households

The average household size is 2.4, the same as the town-wide average, and the average family size is 2.83, similar to the town-wide average. Only 7% of households are headed by women, the lowest percentage in town.

Employment

54% of the residents are in the work force, the same percentage as Osterville, this is the lowest percentage in town. This statistic is probably a reflection of both the age and relative wealth of residents.

Income

Barnstable Village is the town's wealthiest village; the median income is \$45,671, compared to \$33,411 town-wide. However, these statistics do not mean that all residents are wealthy; there are 258 households, of which 130 are families, with incomes of less than \$25,000 a year. 2.6% of the population is below the poverty level, slightly higher than Marston Mills and West Barnstable

Housing costs

44% of owners do not have mortgages reflecting the age and perhaps the wealth of residents. Median mortgage costs are \$1,091 a month, the second highest percentage in town, however, it should be noted that given the high cost of housing in this village, median mortgage costs are relatively modest.

Residential Development

Residential Buildout

Existing residential buildout statistics* are not reliable for Barnstable Village for a number of reasons. Properties were included in the study which have since been acquired by the town, and variable lot sizes make the technique employed less than reliable. It is guesstimated that approximately 60% of single-family residentially zoned areas have been developed and that 40% remains potentially developable. The existence of clay deposits along the shore and Route 6A render some properties undevelopable under current Board of Health and State

The undeveloped lands include large tracts of land in old estates, along Route 6A, and the bay shore. Many historic houses are located on large lots in excess of two acres and therefore subdividable. Some of the old wood lots along Route 6A remain to be developed. Elsewhere there are developable lots in subdivisions.

Zoning requirements for single family areas, north of the Mid-Cape Highway

There are three residential zoning districts, the RF-1, RF-2 and RG districts. The RF-1 and RF-2 Districts require one acre lots. The RG district along part of the moraine requires 65,000 sq. ft. lots. This was a groundwater protection measure to protect public supply wells. A larger lot size should be considered for areas along Route 6A to the northern shore, which are not sewerred. This would be both for environmental protection and for historic landscape protection. The areas along the Old Kings Highway and the Bay are low lying, close to the flood plain in places, with clay deposits which impede the disposal of both runoff from impervious surfaces and septic effluent.

A larger lot size would also provide for a greater measure of historic landscape protection, particularly along Route 6A and other scenic roads. Any re-zoning should only be applied to existing large lots.

All three zoning districts are minimum frontage districts of 20 feet. This minimal requirement reduces the need for new road construction which can so often obliterate the historic character of existing narrow scenic roads. The minimum frontage requirements also reduce development costs and subsequent maintenance and snow plowing. However, the present requirements have led to difficulties over rights of access to common driveways. Furthermore, large flag lots along the Old Jail Lane area can be further subdivided to create additional lots without road access, several lots deep. It is therefore recommended that flag lots be permitted by Special Permit from the Planning Board, with a larger lot size requirement for the rear lots. The Special Permit would ensure granting of common easements to joint access drives, and minimize the number of driveways openings on to access roads.

An increase in frontage requirements should be considered along Route 6A.

Strategies - Residential Development (North of Route 6)

1. An increase in lot size and frontage requirements along Route 6A should be implemented both for environmental protection and for historic landscape protection.
2. Continue to permit flag lots; require a Special Permit from the Planning Board to ensure right of access to common drives, which would limit the number of driveway openings on to access roads. Rear flag lots should have a larger minimum lot size requirement.

Housing

There are 1,472 dwelling units in Barnstable Village CDP (1990 U.S. Census, located east of Route 132 and north of Route 6). All but 95 of these units are single family residences. This village therefore has a limited, small diversity of housing types. Seasonal housing is 18% of all units, slightly less than the town-wide average of 21%.

Age of Housing

Like West Barnstable, the age of housing stock is sharply divided: 394 houses, or 27%, were built prior to 1939, many of them historic structures; 359, or 24% percentage were built between 1970 and 1980; and 332 or 22% were built between 1980 and 1990, reflecting the Cape wide housing boom of the 70's and 80's.

Housing Values

Of the 854 owner-occupied houses sampled by the 1990 Census, values are as follows:

Housing Values	# units	percentage
\$50,000 - \$99,000	18	2%
\$100,000 - \$149,999	76	9%
\$150,000 - \$199,999	177	21%
\$200,000 - \$300,000	338	39%
\$300,00+	245	29%
Median house value:	\$241,700	

Housing values in Barnstable Village are the highest in the town, and indeed on the Cape. Checks of house listings indicate that some of the large historic houses command some of the highest prices, reflecting the desirability of these residences. This is fortunate since historic structures can be very expensive to maintain.

There are a few houses with lower values; 11 houses have values of less than \$100,000, and 174 are assessed for between \$100,000 and \$150,000.

Affordable Housing

Barnstable Village has the most expensive housing of all the villages. It is unlikely that existing single family housing can be purchased by low or moderate income first time home buyers. In order to provide affordable housing opportunities, emphasis should be placed on the use of existing large houses for specialized housing needs. New development needs to be scattered, small sites with careful attention given to historic architectural styles.

Strategies: Affordable Housing

1. Develop a small elderly housing development in or near the village center. A mixed income development would be suitable for this area.
2. Adapt existing buildings for other specialized housing needs.
3. Any development of new affordable housing on Housing Authority land or elsewhere should be compatible in scale and density with the surrounding residential areas and provide for open space. Height should not exceed two stories.
4. Encourage village participation in citing and design of affordable housing through the Local Initiative Programs, and through public hearings on specific plans.
5. Additional policies and strategies on affordable housing are contained in the Affordable Housing element of the Local Comprehensive Plan

3. Open Space Plans

Open Space

The town is developing an open space plan. Open space planning considerations have therefore not been incorporated into this document. The following concerns however were expressed at village meetings and are therefore recorded here:

Strategies - Open Space Planning

1. Develop means of protecting remaining existing large blocks of open space from development such as the few remaining farms including the County Farm. Seek to retain the County Farm as a farm and ensure that it does not become the site of another Correctional Facility.
2. Develop management plans for town-owned lands. Public input needs to be sought on formulation of plans and a public hearing in the village before adoption.

4. Roads and Transportation

North of Route 6

Roadways

Roadways and traffic are a major concern in this village as they are in Centerville and Hyannis. Traffic volumes on Route 6A have grown substantially in recent years to the point that residents are experiencing difficulty making left turns on to Route 6A. On the other hand, retention of the historic character of Route 6A and other scenic roads is of paramount importance, not only to the village but to the Town and Cape as a whole, and this strictly limits the ability to make roadway improvements. Future development therefore needs to be in scale with the capacity of historic roadways.

Scenic Roads

The Old Kings Highway was designated by the State legislature as a Scenic Road in 1992, under the jurisdiction of the Old Kings Highway Regional Historic District Commission. All other scenic roads are under the jurisdiction of the Planning Board. A number of roads have been designated scenic roads in Barnstable Village:

Mary Dunn Road	Keveny Lane
Commerce Road	Millway
Hyannis Road	Phinneys Lane
Pine Lane	Aunt Hatches Lane
Old Neck Road	Old Kings Highway (Route 6A)

The Scenic Roads Act provides protection to stone walls and trees within the road right of way. It does not however, prevent development. The village needs to ensure that its basic land use policies and zoning control the type and intensity of development it desires.

Additional roads should be considered for designation as scenic roads, especially the narrow historic access roads to Barnstable Harbor.

Bus Transportation

Because of traffic congestion, Barnstable Village should be considered for future shuttle bus routes, especially to the County Court House complex.

Sidewalks and Bicycle Paths

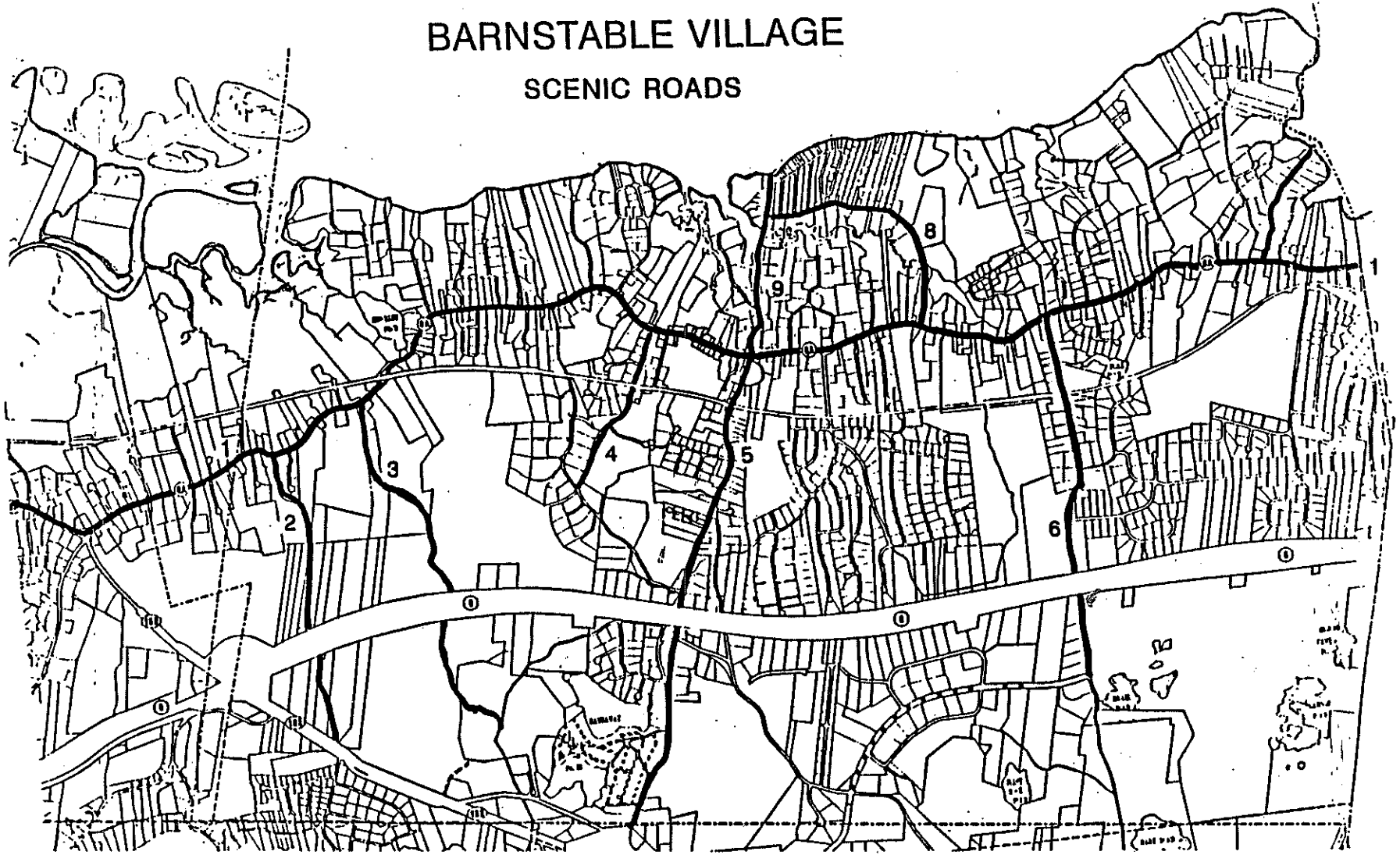
Given heavy traffic in Barnstable Village, residents wish to see sidewalks and bicycle paths extended along roadways. However design considerations outlined below for the Old Kings Highway need to be adhered to on all narrow historic roads, in order to maintain the character of these roadways.

Areas prioritized for sidewalks:

1. Extension of existing pathways along Millway to the beach at Blish Point.
2. Commerce Road, extend sidewalk to 6A.
3. When sidewalks are constructed along Route 132, consideration should be given to a sidewalk/bicycle path along the main connecting roads to Hyannis - Mary Dunn, and Phinneys Lane. Away from historic areas, consideration should be given to bicycle paths along these roads.
4. Consideration should be given to a bicycle path along the railway right of way.

BARNSTABLE VILLAGE

SCENIC ROADS

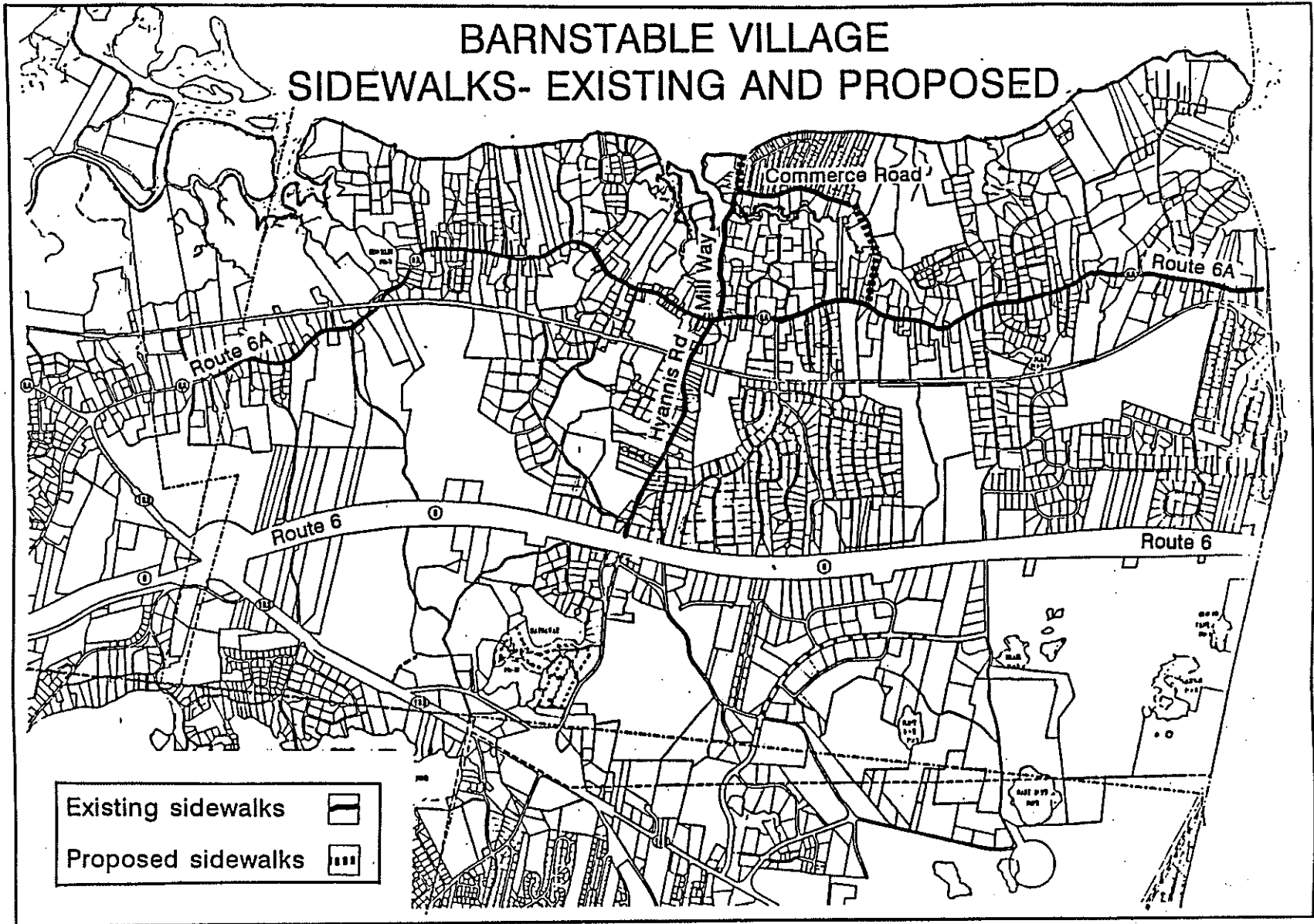


- 1. Old King's Highway
- 2. Old Neck Road
- 3. Aunt Hatch's Lane
- 4. Pine Lane

- 5. Hyannis Road
- 6. Mary Dunn Road
- 7. Keveney Lane
- 8. Commerce Road

- 9. Mill Way

BARNSTABLE VILLAGE SIDEWALKS- EXISTING AND PROPOSED



High speed bicycle paths should not be developed along historic roads; excessive paving and clearing are not compatible with historic character. In historic areas where widening and paving are not acceptable for bike paths, stripping of a bike lane at the side of the roadway should be considered.

See also Section V-1, Old Kings Highway and Other Historic Access Roads.

Policies and Strategies - Roads and Transportation North of Route 6

1. Development in Barnstable Village needs to be in scale with the capacity of historic access roadways.

Scenic Roads

2. Seek to designate other, narrow historic access roads as scenic roads.

Sidewalks

3. Extend sidewalks along Millway to the Beach and continue sidewalks along Commerce Road to Route 6A.
4. Maintain sidewalks along the Old Kings Highway consistent with the design guidelines above.
5. Consider providing sidewalks and/or bicycle paths on the major connecting roads to Hyannis when sidewalks are extended along Route 132. (see below, Section V-5 South of Route 6)
6. Consider the feasibility of a bicycle path along the railroad right of way.
7. Do not construct high speed bicycle paths along historic scenic roads; the amount of clearing and paving is not compatible with historic character.

5. Specific Area Plans

Old Kings Highway, and Other Historic Access Roads

The Old Kings highway is the most scenic and important historic road in the town. Historic houses and barns, and landscapes of fields, trees and stone walls are a major tourist attraction. Tourism and retirement homes are a major cornerstones of the town's economy.

The town has been fortunate in early recognition of the importance and value of its historic resources. Since 1974 the Old King's Highway Historic District has provided a substantial measure of protection of the historic character of buildings which have with few exceptions, been maintained in excellent condition. These properties are valued and sought after, which is fortunate since upkeep costs can be very high. Less certain is the ability to maintain and preserve the historic landscapes and open space along the roadway, which could be developed, thus blocking views of historic structures in some instances, and in others result in degradation of overall character. A number of sites in Barnstable Village could be developed, and considerably more in West Barnstable.

Strategies: The Old King's Highway and other Historic Access Roads

These recommendations also apply to Route 6A in West Barnstable.

Preservation of historic landscapes:

1. Consider increased lot size and an increase in lot frontage along the Old Kings Highway to protect the scenic and historic character of this corridor.
2. Protect scenic landscape views by developing a Scenic Viewshed protection program to obtain scenic easements on properties. This is to be developed by the Historical Commission in conjunction with the Comprehensive Plan.
3. Consider historic landscape protection in the town's Open Space Plan.
4. Provide skilled enforcement of requirements of the Old Kings Highway District.

Land Use Considerations

5. Maintain single family residential zoning. Monitor permitting and enforcement of Special Permits for Bed and Breakfast's to ensure that these operations remain small in scale and owner-occupied. Require buildings to be maintained in conformance with Old Kings Highway District requirements. Ensure that absentee landlord lodging houses do not become established - buildings used as such are often allowed to deteriorate.
6. Restrict retail uses from the definition of a home occupation to prevent strip commercial development, and prohibit non-residential variances.
7. Require parking to be screened from the road and located to the side and rear of buildings. Consider overflow parking in grassed areas for certain uses such as B and B's.

Road Improvements

8. Ensure that new development is located and of such scale that widening or improvements to historic roadways, including intersections, are not needed. The type of development and potential traffic generation to the south of Route 6 will affect traffic along Route 6A.

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9. Ensure that new sidewalks or bicycle paths are located away from the roadway, separated by a grass strip. Sidewalks along the Old King's Highway should not result in the removal of trees or stone walls. Curbs should be avoided wherever possible.
 10. The Old Kings Highway should be a top priority for the installation of underground utilities.
 11. Plant street trees along the roadway. Wherever possible, try and plant in grass strips close to the roadway so that an arch over the road is created. Include trees for fall color.
 12. Encourage the State Highway Department and utility companies to hire a qualified arborist to maintain and prune trees along the highway. Improper pruning for clearance of utility lines threatens the viability of street trees.
 13. Encourage the use of carved granite road signs.
 14. Improve road signage by working with the State to reduce and combine signs. Provide directional signs to the County complex. Work to develop a road signage style which is legible but more compatible with the historic, rural character of the area than the existing signs.
 15. Ensure that State improvements to the roadway are in keeping with the historic character; avoid for example, the use of steel guard rails and steel fencing.
 16. Coordinate the Zoning Ordinance and Old Kings Highway sign code requirements.
 17. Consider restricting through truck traffic along the Old Kings Highway.
 18. Because of the narrow twisting roadway and high traffic volumes, this road should not be designated as a bicycle pathway.

Barnstable Village Center History

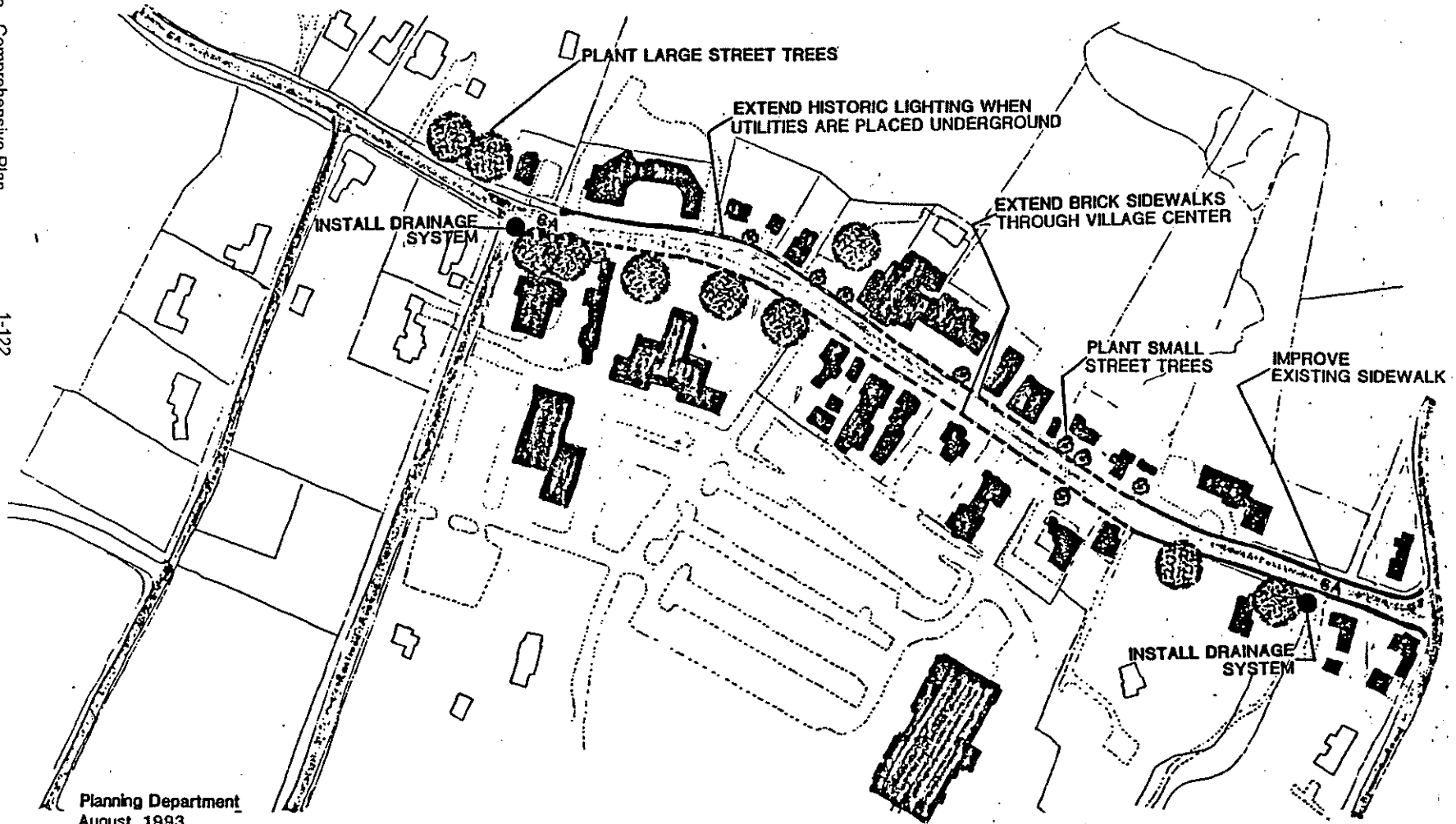
Barnstable Village Center is located within a broader historic village center district which originally extended from Rendezvous Lane to Hyannis Road and Millway.

Today the village is still the administrative and legal center of Barnstable County which provides it with many customers for the inns and restaurants, which have the much the same function as the old public houses. Barnstable Village is fortunate to have retained it historic functions while retaining it historic character and architecture.

Land uses

The County complex dominates the southern back area of the village. Along Main Street, small retail and restaurant uses are intermingled with office uses. Residents are concerned with the loss of essential services in the village center and the increase in office uses. At this point, it is probably unrealistic to zone to protect the remaining retail uses, or to expect that some of the original businesses will be reestablished, such as the hardware store and gas station, because of competition from larger-scale retail enterprises in Hyannis.

BARNSTABLE VILLAGE CENTER IMPROVEMENTS



Zoning

The village center is zoned Village Business, VB-A. This district allows residential, retail, office, banks and service businesses, which is compatible with the existing land uses. It also allows a wide variety of special permit uses including automobile and repair shops, building trades, light manufacturing and the storage of coal, oil and lumber. These uses should be reviewed for compatibility with the village center, when the comprehensive plan is implemented.

The village district boundary encompasses an area of approximately 10 acres. Barnstable village is the one village center where the commercial zoning district is largely appropriate. Office uses have been established outside of these boundaries on the west and east side of the district. The principal issue of concern is the lack of definite boundaries to the district in the official records, which has resulted in litigation. The boundary should be delineated when work on zoning districts commences.

Physical Improvements

The village center is a vigorous, busy place. Buildings are attractively maintained in keeping with the historic character of the area. However, the center is in need of public improvements. Sidewalks are worn down, of various materials, and in places close to the grade level of the roadway. A forest of utility poles and wires interrupt the sidewalks.

The roadway is scheduled to be re-graded in the near future. Improvements should be made at this time. Every effort should be made to place utilities underground during the road re-construction, and install new sidewalks, trees and historic lighting. Funding needs to be obtained for these improvements.

Sidewalks need to be built of a uniform material to give unity to the center. Brick is strongly favored by the residents; another alternative is poured concrete with a brick edging. It should be noted however, that the right of way is very narrow in the village center and that sidewalks will therefore have to be very narrow. Additional street trees are needed, as shown on the village center plan. Because of the narrowness of the public right of way through the village, it is recommended that the Civic Association assist the Tree Warden in obtaining permission to plant trees in some locations on private property, setback from sidewalks.

The existing street lights located high up on utility poles should be replaced with lighting of a style and height compatible with the historic district. This improvement is dependent on placing utilities underground and removing utility poles which interrupt the sidewalk.

This village center, like many commercial areas, would be greatly improved by underground utilities. Given plans to regrade and re-surface the road in the near future, Barnstable Village center should be considered a priority for underground utilities. The Civic Association has expressed an interest in raising funds towards the cost of improvements.

Strategies: Village Center

1. Seek to obtain funding to place utilities underground.
2. Rebuild sidewalks with brick, or with poured concrete and a brick edge.
3. Plant additional street trees, some which may need to be planted on private property. The ROW is very narrow.

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4. When utilities are placed underground, add historic style lighting.
 5. Define the zoning boundaries of the commercial district. Review uses for compatibility.
 6. Install drainage systems in the County Complex to catch run-off from the parking lot which presently drains to Barnstable Harbor.
- All Improvements should be coordinated with road improvements.

County Complex

The Barnstable County complex has always been located in Barnstable Village. The residents recognize and value this historic function; the complex provides customers for small businesses, offices and restaurants in the village center.

However, concerns were expressed about traffic generation, parking, and future expansion plans, especially with a possible State takeover of County facilities.

Policies and Strategies - County Complex

1. Encourage methods of alleviating the parking shortage in the County Complex. The Cape Cod Commission traffic division has outlined methods to be investigated further, including better scheduling of cases at the Court Houses, public transportation, and the possible construction of another Court House in Falmouth (see Appendix II.)
2. Ensure that any state takeover does not result in large scale expansion of the jail or development of a high security facility.

Barnstable Harbor

The Maraspin Creek inlet has historically been used as a harbor for small boats throughout the history of the village. Packets made coastal runs along the northern shores of New England, and small boats which unloaded goods from larger ships, anchored in the sheltered waters of the creek. Piers extended from the shore line. Small industries such as salt works, and boat building and repair developed around this area. Commerce Road and Freezer Road are both historic access routes to the Harbor, both are ancient narrow roads lined with historic houses. Commerce Road and Millway, because of ancient stone walls and large street trees, have been designated scenic roads.

In 1956 the Harbor was dredged and bulkheads constructed to form the present boat basin which serves as a major center for boating activities on the north shore; because of shallow waters along the bay, there are few such viable harbors. The channel to Barnstable Harbor has to be maintained through dredging. Today the Harbor functions principally as a center for recreational boating, commercial, charter and recreational fishing, shellfishing and other marine uses and services required by those activities.

Harbor Facilities and usage

A total of 88 slip holders tie up to a system of varied size floats tied to pilings. The location of piers, floats and boats could be redesigned to improve functioning of the Harbor.

A pump out station financed by through the Ch 90 Licensing procedure is to be installed.

The town ramp is in generally good condition except there is a steep drop-off at the end; another slab needs to be added. Storage of skiffs for local fisherman who moor further out in the Harbor needs to be evaluated.

Land side facilities

The Blish boat ramp and trailer parking facilities were constructed by the State. The town manages the facility and has established seasonal parking fees and a five dollar daily fee which covers the cost of managing the facility only. Approximately 40 cars and trailers can be accommodated. The Blish boat ramp parking area is not used as much as it should be because of the fee. Consideration should be given to including the cost of a sticker in the price of a shellfish license, or to elimination of the fee.

Trailers are also parked free along the southern part of the Harbor on unpaved area of town-owned land, which would benefit with the addition of hardening and stone. Trailer parking is inadequate to meet the weekend demand in summer; additional parking on peak weekends should be sought in the County complex. Boat owners could then drive their cars back to the Harbor and park along the south side of the boat basin.

At Blish point, lights are needed and a telephone. Trailer patrons use town toilet facilities, which are only open when the lifeguard is on duty. More accessible facilities are needed.

Visual Concerns

The appearance of the parking area from Millway is a broad unsightly area of hardtop with no distinction between roadway and parking lot. The area around the Harbor needs to be improved so that it continues to function efficiently as a commercial Harbor, but is an attractive facility to the tourists who come to the area, and to the village as a whole. However, landscape islands in this area would reduce parking spaces. One area at the south east corner of the parking lot could be landscaped, but drainage facilities make this impractical, other than to add planters.

The open space to the west of the Harbor should be retained as such and improved with landscaping. This area is the only open space remaining around the Harbor and because of mounding, is highly visible from both Millway and Freezer Road.

Land uses

Land uses can be best seen from the accompanying map. The Harbor is still very much a working harbor, with marine service and repair facilities, fish market and other commercial marine facilities. The old Freezer building and a marine boat yard are located on the west side of the Harbor. Non-water dependent uses are offices along Millway, restaurants, apartments and single family residences. There appear to be some non-compliance with zoning requirements, both of parking requirements and use regulations.

The area is zoned MB-B, Marine Business B, which permits a variety of marine related uses; restaurants are allowed by Special Permit. Much of the land is filled tidelands of Commonwealth waters; developments are subject to Ch 91, an historic state licensing requirement. The town needs to ensure that traditional harbor uses such as shellfishing, fishing, and boat repair and maintenance are retained and that recreational uses are accommodated, but not to the detriment of the neighborhood and other traditional uses.

One use which should be considered for inclusion in the Marine Business District is non-tourist related, marine aquaculture and research.

Harbor Parking

Parking demand exceeds the number of available spaces in summer, especially on peak weekends in the summer. 53 spaces are available on the town-owned land along the east side of the Harbor, and additional spaces are utilized in the unpaved area along the south side of the Harbor, together with trailers. All businesses should provide adequate on-site parking to avoid exacerbating the existing shortfall. The area on the south side of the boat basin will accommodate more vehicles when it is improved.

In the future, permitting of whale watch and scenic cruises should be through a special permit which would allow the town to relate boat capacity to the provision of parking. Summer peak parking should be accommodated in the County parking lot. The existing whale watch operation has made reciprocal parking arrangements with its neighbors to provide additional off-site parking.

Harbor and surrounding neighborhood

The Harbor area generated more concern and discussion than did any other area or issue in Barnstable Village. Residents were divided, and there was difficulty reaching a consensus.

On the one hand, residents of the area around the Harbor expressed concern for the impact of Harbor businesses on residential areas. At the final village plan meeting, the opinion was expressed that the area surrounding the Harbor was at capacity. The combination of two boat ramps, the whale watch operation, restaurants, fish markets, office uses and the beach, is having a marked impact on the residential area. Increased traffic, and illegal parking along roadways was cited.

On the other hand, business owners and boaters want to retain this area as a functioning Harbor and as a business enterprise zone. Citing high taxes because of the water front locations, and difficulty in permitting any activity on the water's edge, land owners are concerned about their ability to develop and redevelop their properties as permitted in the Marine Business district.

Given these sentiments and potential for redevelopment and intensification of uses around the Harbor, issues which were raised during the Comprehensive Plan need to be explored further in order to reach a resolution. Residents, business owners and the town need to work together to develop a management plan for the area, and a long range plan of improvements. The long range design plan however requires agreement amongst all Harbor users and residents in order to be successful. It should therefore not be funded until a management plan has been successfully instituted and there is full agreement on the nature of the improvements to be made.

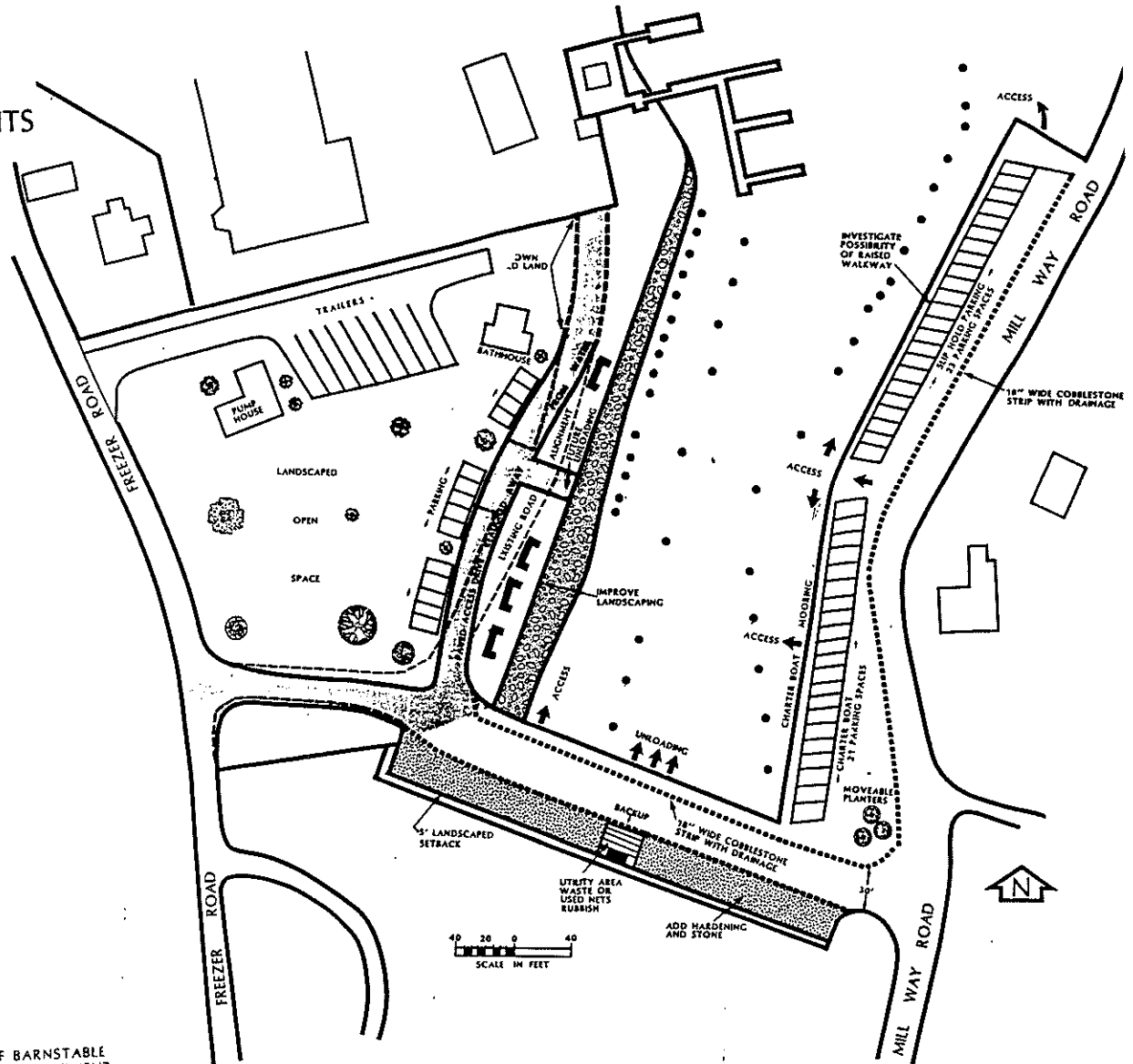
— PROPOSED —
BARNSTABLE MARINA IMPROVEMENTS
 REVISION NO. 8

SHORT TERM IMPROVEMENTS

1. Add hardening and stone to cut-through between Freezer Road and Mill Way.
2. Add hardening and stone to trailer/parking area.
3. Cleanup area around the south and west side of the boat basin: replace telephone poles and concrete curbs with split rail fencing, bollards; depress railroad ties and anchor.
4. Improve landscaping on the west side of the harbor, provide benches along the waters edge. Cleanup weeds in gravel at the top of rip-rap on west side.
5. Provide planters on the east side of the harbor.
6. Provide rubbish facilities at access points, and waste oil and old net facilities at south end of boat basin.
7. Resolve location of publicly accessible toilet facilities. Provide a small sign indicating location.
8. Consider a wood fence along the southern edge of the marina, at rear of parking area.
9. Improve maintenance.

LONG TERM IMPROVEMENTS

1. Replace bulkhead on south side of harbor in approximately five years or as needed. Co-ordinate other improvements with this action.
2. Review location of piers, floats, and group boats by size and type.
3. Review drainage systems around the harbor.
4. Provide low, historic-style lighting around the harbor.
5. Investigate creating a walkway around the harbor.
6. Consider a safety rail or detachable chain along the bulkhead.
7. Relocate and re-pave the access drive on the west side. Locate a small amount of parking landside of the driveway.
8. Provide permanent, publicly accessible toilets.
9. Locate and pave the cut through between Freezer Road and the southern end of the boat basin (Mill Way).



PREPARED BY: TOWN OF BARNSTABLE
 PLANNING DEPARTMENT
 MARCH 1994

Goals: Barnstable Harbor

1. To retain the traditional water-related activities around the Harbor such as the marinas, boat yards and to allow for their normal growth as permitted in the Zoning Ordinance.
2. To ensure that the Harbor continues to accommodate the traditional shellfishing, and fishing interests.
3. To recognize that the Harbor commercial area is a thriving small business area, and to improve both the function and appearance of the Harbor and surrounding service area.
4. To minimize the impact of the Harbor commercial area upon the surrounding residential district, all of which are accessed through narrow historic access roads.

**Policies: Barnstable Harbor
Marine Business District**

1. Enforce zoning requirements around the Harbor to maintain the integrity of the Marine Business District.
2. Consider adding to the permitted uses, non-tourist related marine science and aquaculture uses.

Parking and Traffic

3. Recognize that there is a serious parking and traffic problem around the Harbor area on peak weekends.
4. Develop a management plan for parking and public facilities to be implemented by the Harbor users and town, working together.
5. No parking areas along roadways need to be delineated clearly, fines increased, and regulations enforced.
6. All development and redevelopment should provide adequate on-site parking. The area has a parking shortage.
7. Ensure that all new development and redevelopment will not exceed the capacity of the historic access roads.
8. Permit whale watch operations by Special Permit to ensure operations provide adequate parking.
9. Land owners should enter into cooperative parking arrangements to meet peak parking needs. However, off-site parking to meet minimum parking standards would require a special permit from the Board of Appeals.

Water related functions

10. Maintain the navigation channel free and clear of docks and moorings.
11. Maintain the channel by periodic dredging. Dredging is planned for the fall of 1993. By dredging the outer channel more frequently there may be less siltation of the inner channel and boat basin. The last dredging of the channel and Harbor was in the mid 1970's.

-
12. Ensure that traditional fishing and shell fishing interests are allocated space in the Harbor and that fees are not prohibitive to this group.

Improvement of the appearance of the Harbor

13. Improve the appearance of the Harbor and its environs to enhance the business environment, make the area attractive to visiting tourists, and improve appearance to local area residents.
14. The town, landowners and residents need to work together to develop a plan of long term improvements for the Harbor area which improves both function and appearance.
15. Open space to the west of the Harbor should be retained as landscaped open space. This area is the only open space around the Harbor and because of mounding, is very visible from all sides.

Physical Improvements

Short Term Harbor Improvements

1. Improve the cut-through between Freezer Road and the southern end of the boat basin (Millway) with hardening and stone, in its present location.
2. Add hardening and stone to trailer/parking area.
3. Cleanup area around the south and west side of the boat basin: replace telephone poles and concrete curbs with split rail fencing, bollards; depress railroad ties and anchor.
4. Improve landscaping on the west side of the Harbor. provide benches along the water edge. Cleanup weeds in gravel at the top of rip-rap on the west side of the Harbor.
5. Investigate the feasibility of including the price of a Blish Point boat ramp parking sticker in the price of a commercial shellfishing license.
6. Investigate charging for trailer parking in all areas designated.
7. Investigate the feasibility of a parking sticker program for boat slip holders.
8. Request that the County permit trailer and car parking on weekends in summer in the County parking lot and allow private parties to develop a shuttle service.
9. Provide planters on the east side of the Harbor.
10. Provide waste facilities at access points to the Harbor. Provide waste oil, and old net facilities at the southern end of the boat basin.
11. When all requirements are met, apply for "no-discharge" designation.
12. Resolve location of publicly accessible toilet facilities. The existing bath house on the west side of the Harbor is only accessible to slip holders. Provide a small sign indicating location at the SW side of the boat basin.
13. Consider the need for a fence along the southern edge of the Harbor, at the back of the parking area. (NOT steel fencing, only wood.)

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14. Expedite installation of boat pump-out facility.
 15. Improve maintenance: repair broken water line; replace rotted cap logs on the eastern side of the Harbor; replace floats as needed.
 16. Improve management of the Blish Point access ramp and other parking areas. Refer to the management plan developed when the State ramp was being permitted.

Long Term Improvements

When a management plan has been instituted which is satisfactory to all Harbor users and residents, consider obtaining experienced Harbor planning design services to develop a Harbor plan which improves the functioning of the Harbor for the boat users, and improves the appearance of the area around the Harbor. Coordinate plans with replacement of the bulkhead at the southern end of the boat basin. Plan improvements should cover the following issues:

1. *Improve functioning of the Harbor by reviewing the location of piers, floats, and grouping boats by size and type.
2. *Replace bulkhead on south side of Harbor in approximately five years or as needed. Coordinate other improvements with this action.
3. Consider feasibility and cost of removal of rip rap on the west side of the Harbor and replacement with a bulkhead. This will increase width of the boat basin at the loading and fueling point at the south end of the Harbor, and reduce siltation presently washing through rip rap.
4. Review drainage systems around the Harbor. Drainage from 6A travels to pipes through the bulkhead and contributes oil, grease and silt to the Harbor. Drainage systems need to be equipped with silt, oil and grease traps. Concept plans show drainage systems in 18" cobblestone strips. Improvements to drainage must however be prioritized with drainage requirements needed elsewhere to improve water quality in shellfishing and swimming areas.
5. Where necessary, provide lighting around the Harbor which is of an historic design, compatible in height and location with the surrounding residential area.
6. Investigate creating a walkway around the Harbor with landscaped islands along the east side, provided this does not interfere with Harbor access. Use high quality design and materials with a historic, nautical appearance.
7. Consider whether or not a safety rail or detachable chain should be constructed along the bulkhead.
8. *Relocate and re-pave the access drive on the west side of the Harbor to curve away from the water slightly. Locate a small amount of parking landside of the driveway.
9. *Provide permanent, publicly accessible toilets, possibly by adding to the existing bath house, or an alternative location along the south side of the Harbor.
10. *Locate and pave the cut through between Freezer Road and the southern end of the boat basin (Mill Way).

*These improvements should proceed even if a design consultant is not hired.

Improvements to ramps and town beach

Short Term

1. Improve the town-owned ramp by adding an additional slab at the end, to eliminate the sharp drop-off.
2. Develop means of preventing slippage at the State ramp, add an additional ramp at Blish Point.
3. Provide a telephone and low, historic-style lighting at Blish Point.
4. Improve the parking lot and area around the bath house at the town beach with landscaping and benches. Develop a plan for this area upon completion of the beach re-nourishment. Landscaping materials should be suitable for dunes.

Long Term

1. If possible, remove or reconstruct the bath house at the town beach on to State owned-property at Blish Point. The present location blocks views and dominates this area. However, this will be costly since it will entail relocation of the sewer line and may not be financially feasible.

Landscape Plan Developed by Bill Lewis

Resident Bill Lewis designed a plan for the open space to the west of the boat basin. An attractive planting plan has been developed using wind and salt resistant plant materials. Village residents should consider such an enhancement of this area after dredging of the boat basin is complete - this area may be used for dredge materials, thus any plantings should be informal and avoid the center area. However, the new trailer spaces should be located between the Bath house and the pump station as shown on the concept plan "Barnstable Harbor Improvements".

Barnstable Village South of Route 6

The boundaries of Barnstable Village extend southwards of Route 6 to include the intersection with Route 132 and a substantial portion of the Industrial Zone. Few residents live in this area and issues are town-wide in scope. However development south of Route 6 does have a direct impact on Barnstable Village north of the highway in two major areas: water supply and traffic.

Water Supply Protection

With the exception of BFD 1, Barnstable Fire District public supply wells are located south of the highway in the highly productive sands and gravel's of the outwash plain. The moraine and clay lowlands north of the highway are not productive aquifers. However, the major wellfields to the east of Independence Park are vulnerable to contamination. BFD well #2, located in the Industrial Zone has been closed due to contamination, which is in the process of remediation. (See also the Natural Resources, Water Resources Section of the Comprehensive Plan).

Density requirements, uses and hazardous materials handling and storage in the Industrial Zone, need to be adhered to in order to protect the Barnstable Fire District well, as well as the Barnstable Water Company wells which supply Hyannis.

The Barnstable Fire District has an existing high production well west of Hathaways Pond, and has recently constructed a second well in this area. A third well may be possible in the future. This area will therefore become the principal water resource district for the village. The Zone of Contribution to these wells extends along Route 132 to Exit 6 at the Mid-Cape Highway, and encompasses Wequaquet Lake. It is essential that development along Route 132 be compatible with water supply protection. At present water quality from wells in this area is excellent - there is no contamination with VOCs, and nitrogen levels are very low, close to background levels. This area will be the principal source of water for Barnstable Village.

The Iyanough Hills Golf Course should be retained as open space for a future water resource area, and to ensure that additional development along Route 132 does not impede proper functioning of the roadway, which is over-capacity.

Traffic and Transportation

Traffic is a major concern in Barnstable Village. Proximity to Hyannis and the County Complex has created severe traffic problems, especially along Route 6A and connector roads to Hyannis. The type of development which occurs within the industrial zone will have a major impact on Barnstable Village. A major discount retail complex at exit 61/2 would substantially increase traffic. The location of Exit 61/2 should include an evaluation of the traffic impact on Route 6A.

If Exit 61/2 is to be located at Mary Dunn, the option of closing Mary Dunn Road as a through road should be assessed, recognizing that this may cause considerable inconvenience to Cummaquid residents; input from residents should be obtained.

Land Use along Route 132 and Phinneys Lane.

Both these areas are zoned for single family residential development. A grid subdivision could be developed in this area with multiple curb-cuts, or a cluster subdivision.

Because of inadequate capacity on Route 132 even if the road is widened, future development should be low density, generating minimal traffic. Curb cuts along Route 132 need to be minimized as much as possible to concentrate traffic turning movements.

Broad naturally landscaped buffers need to be maintained to Route 6 and Route 132, in order to maintain a fitting entry into the town, and to cluster housing away from the roadways. A minimum buffer of 100 feet should be required, and preferably greater to Route 6.

It is recommended that the residential zoning in these areas be retained at existing 1 acre and 1 1/2 acre densities. Low density residential development generates minimal traffic. However, it is recommended that permitted development style include attached two story town houses, which will allow tighter clustering of development, and concentrate access on to single driveways. If lots SE of Exit 6 are combined, development could be clustered close to the golf course. Clustering however, should require a site specific hydrological stud to ensure that septic systems are located parallel to groundwater contours.

The same low density town house zoning should be considered for the 800 foot residentially zoned area parallel to Phinneys Lane, in the event that this area is ever developed.

The appearance of Route 132 needs attention. Residents pointed out the need to prevent vehicles, particularly at car dealerships, from parking close to the roadway.

Policies and Strategies for Barnstable Village, South of Route 6
Water Supply Protection

1. Ensure that development along Route 132 up to Route 6 is fully compatible with the protection of Barnstable Fire District wells west of Hathaways Pond.
2. In the Industrial Zone regulate and enforce controls on hazardous materials to protect public water supply wells. Establish land use controls on density to provide for public water supply protection, including areas to be sewered. (See also the Water Resources Section of the Comprehensive Plan)
3. Seek to retain Iyanough Hills golf course as open space, and as a future water resource protection area.

Traffic and Transportation

4. Include in the evaluation of alternative Exit 61/2 locations, the potential traffic generation upon the Old Kings Highway.
5. If Exit 61/2 is to be located at Mary Dunn Road, evaluate closing Mary Dunn Road to through traffic.
6. Construct sidewalks and/or bicycle paths along connector roads to Hyannis - Mary Dunn, Route 132 and Phinneys Lane. Maintain a landscaped buffer between the path and roadway.
7. Maintain a broad vegetated buffer zone to the gravel pit along Phinneys lane. Do not permit further clearing.
8. Ensure that future expansion of Route 132 includes a central landscaped median strip which can become a dedicated left turn lane.
9. Require car lots and parking areas to be setback from the right-of-way of Route 132.
10. Improve intersection of Mary Dunn Road and Independence Drive.
11. Encourage improvement of the appearance of the median strip at Independence Drive.

Centerville Village Plan

Plan Summary

Village Assets

The village assets of Centerville are numerous, ranging from the obvious beauty and charm of its Main Street to the simple beauty of sunset at Craigville Beach. The village's year-round population of 9,260 and its summer residents, estimated at 5,640 is diverse and energetic, with a history of civic involvement striving to improve the quality of life in the village, and throughout the Town of Barnstable.

Centerville had the foresight in the mid 1960's to direct commercial development away from the traditional Main Street to protect and preserve its character. In so doing, it created convenience shopping and services for the village residents along Route 28.

The conventional New England image is present throughout much of the village, making it one of the most desirable villages for year-round and summer residents and a destination for tourists and vacationers. Most of its historic buildings, today numbering 118 documented structures, and its scenic areas, remain intact.

The location of the village provides close and convenient proximity to jobs and services. The river-ways and inland water bodies provide natural focal points for the many village neighborhoods.

The village is perhaps one of the most developed within Barnstable. The existing 5,258 homes represents 89% buildout under current zoning. It is estimated that only 650 to 690 vacant residential lots remain within the village. Within the zoned Highway Business Districts along Route 28 and 132, it is estimated that an additional 227,100 to 336,200 sq. ft. of new business and offices can be created under present zoning.

Major Issue Areas of the Village

Today Centerville is near to buildout. It faces several village issues that need resolution both in terms of new development and in terms of redevelopment. The following attempts to itemize these issues and to suggest a direction to resolve them through a series of strategies.

1. Lake Wequaquet

Lake Wequaquet and neighboring Bearse and Shallow Ponds are seen as one of the most important assets in the village. These three fresh water bodies total 714 acres of surface water. Lake Wequaquet, at 579 acres, is the largest inland water body in the town. The only public access to Lake Wequaquet is limited to 0.8 acres located off Shootflying Hill Road and providing only 510 linear feet at the lake's edge. The area surrounding the lake is densely developed and a limited land area exists to expand public access. The lake and surrounding area has been identified as a recharge area to groundwater and select undeveloped areas are known for rare plant and animal habitats.

Goal: Public Access to Lake Wequaquet and Bearse and Shallow Ponds needs to be expanded. Compatible shoreline and water surface uses must improve surface water quality and protect and enhance remaining plant and wildlife habitats. Both the re-establishment of a natural lake edge and shoreline as well as traditional uses on the lake surface has been expressed as desirable.

2. Main Street Village Center

The Village Center of Centerville, along Main Street, is one of the town's most intact traditional New England settings. The one and one-half mile stretch of Main Street and Old Stage Road, located south of Route 28 is predominantly residential with scattered institutional, mixed residential and commercial and several bed and breakfast operations. Most of the structures are 1800's sea captains' homes fronting on Main Street and are listed in the State and National Registers of Historic Places. Protection of this area's aesthetic quality and uses, proper improvements to the roadway and neighboring green park spaces is critical.

Goal: Steps shall be taken to preserve the Main Street Character of Centerville, its buildings, landscapes, uses and cultural heritage. Roadways, walks and landscapes need to be improved in an historically fitting manner. Other areas also need to be improve in an historically correct and fitting way. The improvements should be appropriate to the needs of the residents specifically those improvements to Mother's Park and the Recreational/Community Center Building and its Park.

3. Route 28 Corridor

The half-mile stretch of Route 28 from Old Stage Road to Phinney's Lane is commercially developed with an estimated 260,000 sq. ft. of retail, office and commercial space. It is also seen as the "new village center" by many residents. It is estimated that an additional 95,700 to 141,700 sq. ft. of new business and office space could be created at full buildout along this corridor.

This section of Route 28 handles some 28,000 vehicles per day and services the 40 acre Centerville Highway Business Zoning District and surrounding lands. The length is identified as one of the most accident-prone areas in the town. The roadway divides the

north and south sides of the village and acts as the main corridor which distributes traffic across the town. The businesses in the area need to coordinate and cooperate for the conveniences of shoppers and to improve access between shopping areas and for increase safety.

Goal: Route 28 needs to be improved to handle the existing traffic in the area. Improvements must address both the functional and aesthetics concerns for the village and town. Its design must improve access between the north and south sides of the village and provide for safe access to surrounding commercial establishments. Surrounding residents should be buffered from commercial impacts and from commercial traffic.

Goal: Within the zoned Commercial Area, compatible and diversified businesses which satisfy the needs of the village and of the region, should be encouraged. All of the commercial development should share common access between and onto Route 28.

4. Craigville Beach Area

Craigville and Coville Beach total almost 18 acres of beach area and provides 0.36 miles of public shoreline on Nantucket Sound. The protected open waters and the attractive beach area are popular summer attractions. They are heavily impacted during the summer months.

The horseshoe beach and open waters is one of the more scenic areas in the town and has gained national recognition. Its use ranges from a very active beach during its peak summer season to a passive beach at night and during off-season periods. The low lying, mostly grass vegetated barrier beach has traditional low profile buildings.

Goal: Public facilities to accommodate beach users need to be improved both functionally and aesthetically. The open water and open beach character must be retained. Compatible uses need to be further encouraged, with space designed and developed to assure compatibility between uses. The linkages to the beach - walks, trails, landscape and roadways - with the Centerville River and the Village Center need to be improved.

5. Coastal Zone - River Corridors (Bumps & Centerville River)

The Coastline, Bumps River and the Centerville River represent one of the most important attractions of Centerville. The waterways represent 1.25 miles of seacoast and 7.8 miles on inland waterways. The coastline is a barrier beach system. Together with the inland waterways and wetlands, the entire south shore area of Centerville is known for its critical plant and wildlife habitat.

Dense development surrounds most of the river corridors, and the water surfaces are heavily used for boat moorings. Water quality has deteriorated in both Bumps and Centerville Rivers.

Goal: Protection of wetlands, natural critical habitats, the barrier beach resources and the view to open water must be balanced with the traditional uses of the waterways in Centerville. Uses on and along the river ways must initiate improvements to the water quality and control surface runoff and wastewater discharge. Only compatible uses that can be shown to be environmentally correct should be permitted to expand on and along the waterways.

6. Lack of Open and Recreation Space:

There is a lack of open space throughout the village. Centerville, with 286.5 acres of public, semi-public and private open space land, is last among the seven villages of the town in open space and municipal lands. Centerville with density of 1,178 persons per square mile ranks second to Hyannis in development density. The village has seen rapid development and in-fill housing on vacant lots during the 1980's.

The densely populated neighborhoods of Centerville lack recreational land and access to natural resources. Those open space sites that do exist are mostly scattered small lots and acreage's. The village's 5,258 developed dwelling units represent 89% buildout under present zoning.

Goal: In addition to greater access to Lake Wequaquet, more public land is needed for neighborhood recreation and passive open space use in Centerville. Realizing that large acreage is limited, existing open space and recreation lands should be linked by walking and bicycling trails.

7. Overall Village and Neighborhood Character:

The overall village character and improvement of neighborhood areas is seen as one of the issues to be addressed throughout Centerville. The close proximity to Hyannis and its assets of Lake Wequaquet, Centerville and Bumps Rivers, Craigville Beach and the village Center have attracted early and dense development of the village.

Several older, very attractive neighborhoods have developed which have been impacted by the loss of mature trees, especially following Hurricane Bob. Other problems include roadway and infrastructure deterioration and an increase of through traffic. In Centerville there are 10 designated scenic roads, totaling 11 miles.

Also over recent years, concerns have been expressed in the number of small summer cabins that are being converted to year round residents and the development on large homes on very small lots.

Goal: An effort is needed to improve the quality and attractiveness of public ways in Centerville by increasing street tree plantings, more sidewalks and trails, landscaped island and additional roadway maintenance, while discouraging through traffic. Expansion and conversion of summer cottages to year round housing needs to be controlled and assurances given that redevelopment will respect the architectural and landscape character.

8. Small Lots and Septic Discharge

Much of Centerville is developed on quarter acre lots designated years ago. Dense development on small lots and intense use on small sites has, in some instances, lead to increase nitrogen, nitrates, phosphates and organic compounds in wetlands and waterways. In some instances, the water quality is deteriorating. Red Lily Pond and the surrounding neighborhood is one critical example of the problem where remedial action is being undertaken. Other areas that are of concern are dense development along the river corridors surrounding Lake Wequaquet, Long Pond, Craigville Beach and Long Beach areas.

Goal: New technologies in private septic disposal and in group septic treatment need to be explored and implemented in critical areas within the village. If and where feasible, public sewers may be appropriate.

9. Housing

At present there are a total of 48 developed affordable housing units within Centerville. Another 20 units have been approved under Chapter 40 B but have not been constructed and 2.04 acres owned by the Barnstable Housing Authority remain vacant. The 10 percent goal for the village would dictate that 526 affordable housing units be developed within the village. Realistically 478 new affordable housing units could require an estimated 30% to 40% of all available and developable land that remains within the village today.

In village surveys residents favored some increased density for elderly townhouse development in close proximity to the village centers - Main Street and Route 28 - however land in both areas is limited and costly. The village also recommended the purchasing of scattered sites and existing homes throughout the village for affordable single family units.

Goal: The option of providing elderly affordable housing in close proximity to Main Street and to Route 28 should be investigated. There are some multifamily units developed in previous high density zoning districts that are available at a more reasonable market price. Some of these units should be purchased as well.

Goal: For affordable family units, scattered existing housing should be look at. Efforts should also concentrate on non-conforming multiple dwelling structures. In securing scattered suitable sites, consideration should be given to an appropriate increase in density on these lots.

Cotuit Village Plan

Plan Summary

Like each of the seven villages of Barnstable, the village of Cotuit is a unique place. Although segments of its history and some village assets are similar to other villages, its community association and desires make Cotuit a very distinct village.

Cotuit's oldest settlement records date to 1702 in the area of Santuit, although some settlement had already occurred along the North Bay shore. Today Santuit's Business Area, along Route 28 and at the intersection of Main Street, marks the first village center. By the late 1850's, the area of Cotuitport developed into the new village center that focus on Hooper's Landing, today's Ropes Beach. Shortly thereafter, settlements developed at Little River, Rushy Marsh, and Cotuit Highground. The early settlers pursued a variety of occupations. The primary occupations were fishing and farming, and to a lesser degree milling, salt-making, inn-keeping, shellfishing and boat-building also occurred.

Seafaring and sea-related activities contributed to the rapid growth of population in the first half of the 19th Century. As an active port in coastal communications, especially as a packet port for Nantucket, and home for coastal shipmasters, Cotuit had many sea captains' homes in Cotuitport. By the late 1800's, the port and "Cotuit Oysters" placed the small village on the map. Cranberry growing, family tourist inns and summer homes were well established prior to the Civil War.

The village has only recently become a predominantly residential community. The village was zoned in 1950, however, numerous year-round and seasonal business and service activities existed and some areas within the village were left 'un-zoned'. It was not until 1957 that the entire village was zoned. In latter years, the area along Route 28 was rezoned for business, specifically "those common to residential or home occupation". In 1973, Cotuit was one of the first villages to recognize the need to protect groundwater and coastal resources through one acre zoning. In 1983 the Santuit Business Limited Zoning District was eliminated and those businesses have since existed and expanded through the special permitting process.

Today, according to the U.S. Census, Cotuit's year-round population is 2,446 persons in 1,006 households. Summer residents are estimated at 1,602 additional persons in 641 households. During the last 20 years, the village has grown by an estimated 700 new year-round households, and the construction of 1,000 new homes. Most of this new development is concentrated outside the four traditional settled areas of Santuit, Newtown, Main Street and Little River. New development has occurred along both sides of Route 28, off Old Post Road and along Putnam Avenue and to the east of the Santuit River and Popponesset Bay.

Although the village has undergone rapid development, it has retained some of its historic buildings and its aesthetic and cultural character. There remain over 400 known

historically significant structures scattered throughout the village. Two designated National Register Historic Districts exist. The Cotuit Historic District (161 properties) is located along Main Street within the "newer" village center, and the Santuit Historic District (17 properties) is located along Route 28. A Cotuit/Santuit Historic District Study Committee has been appointed and is investigating the merits of creating two local historic districts.

Cotuit's 4.9 square miles, is one of the most sparsely populated villages in Barnstable. Village location attributes include over 12 miles of coastal waters, estuaries and bays, 721 acres of protected public and private lands, 10.4 miles of designated Scenic Roadways, and four inland freshwater ponds totaling over 60 acres of surface water. The inland, northern, Newtown area of the village is centered around Lovell's Pond and the surrounding cranberry bogs and wetlands. In addition to the central water protection land and the Mosswood Cemetery there are notable open areas under conservation in the east, including Eagle Pond, lower Little River and Crocker Neck in the southwest.

Leadership of the Cotuit/Santuit Civic Association has shaped the village we see today. Recently, the Cotuit Business and Professional Association was established in response to the village needs and desires for greater cooperation to ensure the future development of the village.

Cotuit is facing several issues that require resolution as this village moves into the twenty-first century.

The Santuit Business Area

The Santuit Business Area, located along a 3/4 mile stretch of Route 28, including a section of Main Street, contains an estimated 26 businesses. The area originated during the 18th and 19th centuries as the first village center, with a post office, tavern, church and stores. The area has always been a low intensity business area that pre-dates the adoption of zoning or the 1983 rezoning of the area to residential use. Several businesses have a region-wide attraction due to the unique nature, quality and services provided.

In the recent survey of village desires 64% favored the creation of a limited business districts. Most favored the creation of a limited business district along Route 28 and Main Street. It was also recognized that the area is one of the designated National Historic Districts and must be protected and preservation encouraged.

Goal: A zoning district(s) should be crafted which will bring a majority of the existing structures and uses into conformity. From that point of view, regulations should be developed which provide both a degree of flexibility to the businesses and a mechanism to ensure the continuation of compatible uses within the district and to the surrounding neighborhoods.

Goal: Prior to any rezoning in the area, the Historic District must be recognized in order to preserve both the aesthetic and design integrity of the area.

Main and School Street Businesses

Within the area around the intersection of Main and School Streets, there exists five businesses including retail sales restaurant and office use. The area is also partly within the Cotuit Historic District and also is bordered by institutional and government uses permitted as-of-right. The respondents expressed the desire to maintain these businesses as they presently exist and to ensure its historic integrity both architecturally and functionally.

Goal: A zoning district should be carefully studied for this area only after the creation of a local historic district. The majority of the uses in this area should be conditional uses, limited in size and hours of operation. The special permitting process should ensure the desires of the residents are accounted for and that the quaint nature of the village center is preserved.

Route 28 Corridor

Route 28 handles just over 28,000 vehicles per weekday at the junction of Putnam Avenue and 21,000 vehicles in the area of Route 130. This section of Route 28 is a major traffic link between Falmouth, Mashpee, Sandwich and Barnstable. It also distributes traffic to the Mid-Cape Highway via Routes 149 and 130. Turning movements from side streets and private drives onto Route 28 impact the traffic flow which can present a dangerous condition. The area has several hazardous intersections which have resulted in numerous accidents.

At present, there exists three non-conforming business sites along Route 28 that are somewhat isolated from the Cotuit/Santuit Business Area. Safe and convenient access and egress to these businesses is a concern as is the maintenance of the traffic flow on Route 28.

At the east end of the village, the 73-acre Service and Distribution Zoning District, partly developed by the "Cotuit Landing Shopping Plaza", serves both the villages of Cotuit and Marstons Mills. The district is conveniently and safely accessed from Route 28 by the traffic signal located at Putnam Avenue. The location and proximity to Route 149 also provides convenient access to Marstons Mills. Putnam Avenue provides easy access to Cotuit residences.

Goal: Additional new roadways and private drives off Route 28 should be discouraged. As existing non-conforming businesses located along Route 28 change over time, the special permitting process by which they change should ensure that the new business results in less traffic generation and lessens cross-traffic movements on Route 28. High traffic generating activities should be discouraged.

Main Street Village Center

Cotuit's village center, located along Main Street just off Cotuit Bay, contains 7 scattered businesses and several institutional uses, including the village library, churches and meeting hall and the Cotuit Post Office. The 1.19 acre Memorial Park, located at the intersection of Main Street and School Street, serves as an identifiable village green. To the west is the newer densely developed residential neighborhood of the village and to the south is the residential neighborhood of Cotuit Highground. The village center is predominantly residential. Most homes are of significant historic and architectural importance.

This historic area, its homes, streetscapes and settings need to be protected from potential adverse impacts. Today it is affected by summer traffic to the beaches and the town dock, pressures for business expansion, lack of or deteriorated sidewalks and insufficient parking. The area has suffered from some loss of character both architecturally and culturally. To maintain its unique sense of place, village residents wish to conserve the historic buildings in a setting of spacious grounds and waterfront.

Goal: There is a strong desire to protect the village center and retain it "as it exists today". Those businesses which exist are seen as compatible because they fulfill the need for neighborhood convenience. Other uses that should be investigated to complement the needs of the village center include modern business needs, and cultural uses and quality bed and breakfast lodging. The sidewalks and parking problem should be resolved, and consideration given to "overflow parking areas" or off-site parking and shuttle bus service for use during the summer and blue fishing seasons. One mechanism to preserve the village center's character could be the designation of the area as a local historic district in accord with the village's desires and aspirations.

Extraneous Village Activities

School Street, the east-west village center road, links Cotuit with its neighbor Mashpee at Shoestring Bay over a bridge which needs rebuilding. Old King's Road, a narrow Scenic Road, also links Mashpee via a small, narrow bridge over the Santuit River. Mashpee has been experiencing some of the Cape's most rapid growth including high density housing, commercial and resort development.

Mashpee Commons, located only 3 miles from the village, provides commercial services and businesses which serve Cotuit residents. Planned expansion and recent permits issued in this area will impact on Cotuit. The Willowbend Resort complex, adjacent to the Town line, is continuing its development activities. Multi-family and single-family developments along the roadways into Cotuit have been growing. Summer traffic congestion, parking problems, and overcrowding Cotuit beaches and mooring fields have been caused by surrounding activities and is the priority concern of the village residents.

Neighboring activities can be mutually supportive. Cotuit has one of the fastest growing retirement villages. The near-by multifamily housing provides options that are limited within the village. Mashpee Commons provides optional retail and commercial services, entertainment, institutional and medical facilities in relatively close proximity to the

village. The "B" Bus provides convenient linkages between Cotuit and neighboring shopping and service centers.

Goal: The village is not an isolated entity. Cooperation and coordination is needed between neighboring villages and towns to resolve common problems and issues.

Coastal Shores and Waterways

Cotuit, with its 12 miles of coastline, has limited public access to water. There are 8 town-owned beaches, landings, and ways to water that total only 3.16 acres on the coast line. The two popular village center beaches of Loop Beach and Sampsons Island total 1.59 acres and are over-used in summer months. Audubon's tern sanctuary, Sampsons Island, is being adversely affected by the overflow from the crowded land-side beaches.

Boat moorings in Cotuit Harbor and North Bay consume an estimated one-third of the bay's water surface area and hampering small boat sailing in the safe waters of the harbor. Unchecked boat moorings, lack of enforcement staff and the lack of an implemented mooring plan are problems.

One of Cotuit's greatest assets is the connection of the village with the sea. The village is experiencing increased crowding of open waters by boat moorings, limited public access to water, increased demand for beach access and a deterioration of the water quality in its bays and devastation of shell fishing. An overwhelming majority of residents, seventy five percent (75%), favor the implementation of a definitive new management plan for mooring and shellfishing in Cotuit and North Bays.

Goal: A Coastal Protection District encompassing both land and water surfaces should be explored. The district should strive to provide safe moorings, increased water surface area for recreational use, and environmental preservation. Increased access to the water, as well as protection of shore side uses and activities, is needed. The recommendations of the Coastal Resources Plan need to be implemented.

Santuit River, Shoestring Bay and Popponeset Bay

Of particular coastal concern is the Santuit River, Shoestring and Popponeset Bays estuary system that is shared in common with Mashpee. These waterways have been undergoing degradation and eutrophication, attributed in part run-off and leaching of wastewater from intense neighboring land uses specifically; golf courses, active cranberry bogs and dense multifamily development.

Shoestring and Popponeset Bays are shallow, silt bottom bays with an abundant shellfish habitat. It has few sandy beaches and the shallow depth limits boating and marine activities. The linkage of the bays with Nantucket Sound is limited to an opening of approximately 400 feet between Thatch Island and Meadow Point. This narrow passage limits flushing of the estuary and is subject to shoaling which at times has

threaten to block the entrance. Given these conditions the bay is extremely susceptible to any pollutants that enter it.

Over the recent course of events the shell fish habitats have been closed due to pollutants, certain uses are extracting large quantities of groundwater from the river and bays recharge aquifer, and run-off and wastewater discharge has been occurring into the stream and waters which flow into the bays. The combined effect will be devastating to this once pristine bay if remedial and permanent actions are not taken.

Goal: Remedial action needs to limit run-off into coastal waters and to improve private septic systems within close proximity to the groundwater which recharges into the bay. For intense use, wastewater treatment facilities should be considered inclusive of special consideration for discharge of wastewater. Also necessary is the protection of both quality and quantity of the groundwater that recharges into the bay. The extraction of groundwater from the aquifer has limited the amount of groundwater that recharges the bay and affects its flushing rate.

Housing

Cotuit is one of the fastest growing villages in elderly and retired populations. As that population continues to age, there will be an increasing need for alternative housing. Most of those needs are being met today in neighboring multifamily developments close to the village, but the desire and need for affordable housing in Cotuit exists today.

At the corner of Old Oyster and Santuit Roads 6.11 acres is owned by the Barnstable Housing Authority and committed to affordable housing. This land, in close proximity to the Cotuit Elementary School, is ideally situated for single-families housing. It has laid undeveloped for several years. Village residents have expressed a preference for affordable and elderly housing to be located in close proximity to Route 28 and its retail and transportation options it provides.

Goal: The existing 6.11 acres committed to affordable housing should be developed as affordable single-family dwellings for young families. Only after the development of existing vacant lands should new areas for affordable housing be purchased. Scattered site locations within the village and the reuse of existing deteriorated structures should be the focus of the affordable housing program.

Goal: Affordable housing for the elderly needs to be addressed. Privately owned land, close to major traffic routes and existing commercial areas should be reviewed for potential affordable housing sites for the elderly.

Hyannis Village Plan

Goals, Policies and Strategies

Evolution of this Growth Policy:

The Hyannis Vision Group has coordinated its vision with the Hyannis Civic Association. Both groups have recommended several goals, policies and strategies that are designed to preserve and protect the neighborhood and village character as well as further the reinvestment opportunities in downtown business areas of Hyannis. These goals and policies are remarkably similar and serve to define a uniform vision for the future of the village. The work of countless civic minded individuals, the business economic development community and the input from other villages of the Town of Barnstable have given direction to this vision plan. Through the coordination efforts of the Local Planning Committee a unified set of principles for guiding growth in the Village of Hyannis has been developed:

To preserve, maintain and improve residential neighborhoods and village character.

To protect natural resources.

To improve distribution of recreational, conservation and open spaces.

To provide, encourage and support year round economic opportunities.

To designate development/redevelopment activity of a commercial non-residential nature in specific nodes, using defined boundaries and recognizing the unique characteristics of each.

The defined activity centers in Hyannis shall be:

1. Route 132 corridor
2. Industrial Area
3. Airport
4. Regional Transportation Center/Medical Center
5. Main Street
6. Harbor area
7. West Main Street/Route 28 corridors

It needs to be noted that the areas of Hyannis village not designated as activity centers should be considered as residential areas. The protection of these areas and the recognition of their boundaries is essential to maintaining village character.

Goal 1.0 Revitalize the commercial areas of Hyannis, consistent with the need for economic development and reinvestment.

Policy 1.1 Encourage commercial development based on the projection of future populations available resources capital, the creation of higher level employment

opportunities, available/ planned infrastructure, and phase this commercial development based on a stable market demand in the designated activity centers.

Strategy 1.1.1 Encourage Commercial development in the designated regional, community and village activity centers.

Strategy 1.1.2 Maintain the Main Street area as both the town center and a village business center. Preserve the atmosphere, charm and the historic character of this area as a “microcosm of Cape Cod”.

Strategy 1.1.3 Maintain the Route 132 area as a regional commercial center, require design compatible with the town’s architectural design guidelines, create a “parkway / boulevard” roadway design, enhance landscaping improve signage and provide pedestrian and bicycle access.

Strategy 1.1.4 Maintain the industrial area as a regional job center, preserving the environmental assets and enhancing the infrastructure to support business activity that will provide year round economic opportunity. Restrict retail and residential uses.

Strategy 1.1.5 Maintain the regional role of the Barnstable Municipal Airport, linking it with the multi-modal transportation center and harbor. Create an overall future land use and access plan for the airport, preserving parking amenities and improving the landscape and building design consistent with the town’s architectural guidelines.

Strategy 1.1.6 Maintain and support the Cape Cod Hospital as a community and regional asset. Create improved transportation linkages to the medical services offered in this activity center by implementation of the Regional Transportation Center.

Strategy 1.1.7 Maintain and improve commercial ferry and fishing activity, as well as recreational boating activity in the Hyannis Harbor area. Create additional water-dependent and water related commercial opportunities. Enhance pedestrian access to and around the harbor. Plan for development of a maritime museum or other marine related cultural/commercial development with visual access to the water.

Strategy 1.1.8 Support predominantly multi-family residential activity along West Main Street. Cluster commercial activity at the nodes created by intersecting collector streets in compliance with the town’s architectural design guidelines. Maintain, but do not expand existing non-conforming uses. Rezone the area to encourage conversion to residential multifamily use.

Strategy 1.1.9 Identify and eliminate blighted, derelict and dangerous structures and properties. Create incentives for private sector participation in this activity in the Central Business District (CBD). Redevelop under utilized and abandoned properties.

Goal 2.0 Provide a set of development and redevelopment incentives to land owners within the designated activity centers, consistent with the Goals and Policies of the Local Comprehensive Plan.

Policy 2.1 Develop a priority allocation system for existing and future infrastructure capacity. Provide adequate capacity of water, sanitary sewer and storm water infrastructure for designated activity centers. Identify areas with excess capacity as priority areas for development and redevelopment and potential areas for intensification. Ensure adequate and appropriate wastewater facilities are available for remediation of environmentally impacted areas.

Policy 2.2 Establish a Community Development Program which includes a revolving loan fund system as seed money for reinvestment and redevelopment.

Policy 2.3 Encourage redevelopment within the designated activity centers, supported with all appropriate infrastructure and consistent with design guidelines.

Policy 2.4 Development mechanisms for compensation to the Town of Barnstable for hosting regional facilities in the regional growth/activity centers by the Federal, State, County and/or Regional agencies.

Policy 2.5 Create Business Improvement Districts (BID) to provide funds to plan, design, build and maintains the components of the Hyannis Village Plan not provided, contributed or funded by the public sector.

Policy 2.6 Explore the feasibility of locating a Performing Arts Center, Multi-purpose Cultural Center or other specific project that would benefit the town within the designated activity centers in the Hyannis area which would create a year-round facility, additional cultural opportunities and an expanded job base. Provide incentives, design guidelines and land development regulations that would support a harmonious relationship with the existing character of the area and businesses.

Policy 2.7 Consider an impact fee program to provide a "fair share" contribution for off site infrastructure and streamline the development review process. At a minimum apply this program for Schools, Transportation, Open Space, Sewer or other designated facilities as a total package.

Goal 3.0 Structure the development review process to assist all development and redevelopment to be consistent with the Goals and Policies of the Local Comprehensive Plan (LCP) and the Town Design Manual.

Policy 3.1 Develop a Design Manual / Streetscaping Plan consistent with the historic and community character of the Hyannis area.

Policy 3.2 Any residential development which proposes to divide land in common ownership into ten (10) or more residential dwelling units or lots, including condominium units, congregate care units and other multiple occupancy units, shall be required to enter into a development agreement with the Town and/or the Cape Cod Commission to provide for mitigation of off-site impacts.

Goal 4.0 Provide for land use relationships based on pedestrians and multi-modal transportation as a primary means of access within the village, town and regional center.

Policy 4.1 Ensure the integrity of residentially zoned areas by the prohibition of use variances and limitations on the expansion of non-conforming uses. Examine the existing residential/non-residential zoning district boundaries.

Policy 4.2 Develop a Hyannis Village Parking Plan for both public and private parking facilities. Explore innovative funding mechanisms to implement the plan with a minimum reliance on the Town's General Fund.

Strategy 4.2.1 Coordinate public/private provisions of parking lots and/or garages to serve nodes of activity based on reasonable walking distances. Reduction in parking should include compensation for additional parking in the future.

Strategy 4.2.2 Allow all existing business within the downtown Commercial Area Revitalization District (CARD) that do not increase trip generation rates (based on the ITE Trip Generation Manual) to change use and/or occupancy within the existing enclosed space without requiring additional parking.

Strategy 4.2.3 Decrease the on-site parking requirements in the Main Street area for both new and existing retail and office uses that are located within 500 feet of a municipal public parking lot. Require a linkage fee or other mechanism to offset the cost of providing public parking.

Strategy 4.2.4 Establish an overlay zoning district which may support public parking facilities, publicly or privately owned, as a principal use. Incorporate these facilities into the Hyannis Village Parking Plan.

Policy 4.3 Link the Main Street area with the Harbor through the completion of the "Walkway to the Sea" and provide open space, parks and recreational areas of various sizes to enhance pedestrian access.

Policy 4.4 Provide a signage system to direct automobiles to satellite parking areas and the designated activity centers. Provide a pedestrian scale signage system within each node and activity center.

Policy 4.5 Coordinate traffic flow, multi-modal and inter-modal transportation and parking facilities with land use through the Barnstable-Yarmouth Transportation Study (BYTS)

Strategy 4.5.1 Explore the feasibility of two-way traffic on Main Street.

Strategy 4.5.2 Major development and redevelopment projects shall be required to provide off-street transit stops that don't disrupt traffic on the arterial street network.

Goal 5.0 Improve the existing transportation system deficiencies, including circulation, parking and access in and around Hyannis so that the area downtown can function as a viable commercial center with livable neighborhoods and as a tourist destination center. Provide for expanded transportation needs with emphasis on low capital solutions, reducing reliance on autos., and allow land uses consistent with transit or para transit (van pools, carpools).

Policy 5.1 Expand Route 132 into a divided four lane roadway, with two way left turn median lanes, from Route 6 to Yarmouth Road. Integrate a synchronized signal system which would providing improved traffic flows and controlled turning points using federal, state, county or other funding sources, consistent with recommendations and conclusions of the Barnstable-Yarmouth Traffic Study.

Strategy 5.1.1 Coordinate the provision of marginal access roads or other secondary vehicular linkages between nodes. Provide secondary pedestrian and bicycle linkages within each node.

Strategy 5.1.2 Require all new parking areas to be located at the side or rear of the building served, or to be visually screened from Route 132 by parallel landscaped areas fifty feet (minimum) in depth and appropriately planted to screen the view of the parking areas and cars.

Strategy 5.1.3 Encourage a cluster development style of site design of commercial structures by planning groups of buildings in-lieu-of single massive structures and by providing cross access between sites for both vehicles and pedestrians.

Strategy 5.1.4 Create a Private Sector Commercial Route 132 Improvement District to provide funds to plan, design, finance, build and maintain the Route 132 components of the Hyannis Village Vision Plan that are not funded, contributed to or otherwise provided by the public sector.

Policy 5.2 Expand Yarmouth Road/Willow Street to provide improved emergency access to the Cape Cod Hospital, the Inter-modal Transportation Center, downtown Hyannis, and the inner harbor area. Explore the creation of an High Occupancy Vehicle (HOV) lane within the railroad corridor and satellite parking facilities, using Federal, State, County and private funds.

Policy 5.3 Implement a Transportation Management System to maintain arterial roadways as corridors, providing for the planned future volume and vehicle movement and limit the number of access points/ curb cuts to the many land uses located along such roadways.

Strategy 5.3.1 Link the nodes of activity by shuttle bus during the peak season to provide an alternate to the automobile. Integrate the shuttle bus system with the Inter-modal Transportation Center. Coordinate the development of this system through the Regional Transit Authority (RTA), multi-modal carriers and private sector users.

Strategy 5.3.2 Improve directional signage to better direct traffic flows to destination points including; historic areas, the industrial district, business districts, beaches, public and remote/satellite parking and the ferries. Provide a pedestrian scale signage system.

Policy 5.4 Extend Independence Drive to Willow Street on the east and Bearses Way on the west and provide for a four lane esplanade with limited turning movements.

Policy 5.5 Extend a public access road from Route 28 through the airport to Independence Park and connect to a new access point on Route 6 (Exit 6.5) Eliminate current airport access from Rotary.

Strategy 5.5.1 Provide a direct access road from Route 6 to the Airport via a connection from Route 132 to Old Route 132 to Attucks Way. Link to the future exit 6.5 off Route 6 via Independence Drive

Policy 5.6 Develop a strategic financial plan to implement all of the above Policies and Strategies.

Goal 6.0 Provide adequate capital facilities to address the present and future needs of the village of Hyannis, which shall include but not be limited to water supply facilities, wastewater facilities, solid and hazardous waste facilities, health care facilities, educational facilities, public safety facilities (police & fire), government facilities, recreational facilities, transportation facilities and the maintenance and management thereof.

Policy 6.1 Maintain and improve the existing town owned capital facilities to ensure long-term viability.

Policy 6.2 Establish a priority system in which residential and non-residential development is placed on the Barnstable Municipal Sewer System.

Policy 6.3 Establish amenities throughout the village which will serve residents and visitors alike. Provide pedestrian walkways, bike paths, open space and recreation areas, park benches and restroom facilities.

Strategy 6.3.1 Develop "mini-parks" within the residential neighborhoods

Strategy 6.3.2 Integrate the concepts of "Heritage Tourism"

Strategy 6.3.3 Acquire the land and complete the implementation of the "Walkway to the Sea"

Policy 6.4 Implement a short term (5 year) and long term (20 year) plan for the following facilities; water supply, wastewater supply, fire protection, police protection, health care, and educational. These plans shall reflect the capital required and the funding sources.

Strategy 6.4.1 Explore a stormwater utility

Strategy 6.4.2 Complete the wastewater facilities plan

Strategy 6.4.3 Develop a water supply management plan and an emergency response plan

Strategy 6.4.4 Develop a long-range school facilities plan

Policy 6.5 Regional facilities should provide the Town of Barnstable Planning Board with growth management plans based on their projected capacities with regard to traffic

generation, parking requirements, increased population/employees, and future facilities growth. The plans will be used to determine the need and responsibility for infrastructure improvements.

Goal 7.0 Provide fair, decent, safe and affordable housing which meets the present and future needs of all Hyannis residents of all income levels consistent with the town's architectural design guidelines.

Policy 7.1 Create an improved distribution of low and moderate income housing throughout the Town. Distribute the housing with Hyannis supplying four percent (4%) of the state mandated ten percent (10%), based on the existing infrastructure and facilities, and distribute one percent (1%) in each of the other six villages, based on the Policies of the Affordable Housing Section of the LCP

Policy 7.2 Develop a "Town-wide Needs Assessment Program" as identified in the Affordable Housing Section of the LCP, to define the housing needs of the various populations requiring help in attaining housing.

Policy 7.3 As part of the Community Development Program, rehabilitate existing housing structures to meet the varied needs identified in the Town-wide Needs Assessment Program.

Policy 7.4 Provide social and human service programs and multi-unit residential programs in zoning districts which allow such development. Redefine appropriate and compatible districts throughout the Town to accommodate this type of development or use.

Policy 7.5 Establish housing opportunities for the homeless which will not highlight their problems in the Main Street business area but will assist in their productive reentry into society.

Policy 7.6 Provide housing opportunities for a diverse mix of social needs, including age and income integrated housing through development/redevelopment, while respecting historic neighborhood character and community values.

Policy 7.7 Establish and strictly enforce buffer zones between commercial and residential districts. Maintain these buffer zones as transition zones between residential and non-residential districts and/or uses.

Strategy 7.7.1 Maintain existing neighborhood boundaries and restrict retail and other commercial uses to the Main Street and Route 132 corridor.

Strategy 7.7.2 Provide for a limited amount of multi family residential uses between the boundaries of designated commercial and residential areas to buffer more intense uses from less intense uses. Incorporate pedestrian linkage, open space and mini parks as an integral design requirement.

Policy 7.8 Maintain existing residential district boundaries and restrict non-residential uses from encroaching into the residential neighborhoods.

Strategy 7.8.1 Remove the "use variance" from the residential districts. Allow only the uses which are consistent and compatible with residential uses, including home occupations.

Strategy 7.8.2 Remove the ability to expand non-conforming uses, but provide for the ability to change a non-conforming use to a more compatible use with the district in which it is located. Coordinate this action with a review of the existing zoning pattern and the provisions of this LCP.

Strategy 7.8.3 Direct through traffic around neighborhood areas, not through established residential areas

Strategy 7.8.4 Provide for open space and recreational opportunities within each residential neighborhood and provide pedestrian/bicycle linkage to town-wide recreational and commercial facilities.

Strategy 7.8.5 Preserve historic residential structures through adaptive reuse, limited residential intensification where infrastructure permits.

Goal 8.0 Encourage and assist both water dependent and water related land uses within the Hyannis Inner Harbor area that provide for marine dependent uses and facilities at the water's edge, and a diverse mix of cultural, recreational and water related commercial activities on the surrounding uplands, linked by a pedestrian oriented environment.

Policy 8.1 Develop a Hyannis Village / Inner Harbor Open Space Plan that updates the "Inner Harbor Plan" by SEA Consultants, October, 1984 and implement a public/private partnership to provide public open space and access to the water's edge that facilitates both physical and visual access to water oriented activities. This plan shall be submitted to the Town Council for adoption.

Strategy 8.1.1 The Town Council should appoint a steering committee for the Hyannis Inner Harbor Open Space Plan and the Hyannis Harbor Small Area Plan, comprised of residents and member of the business community, and the town's standing committees. Planning staff will provide support for this Committee.

Strategy 8.1.2 The Open Space Plan shall be consistent with the Local Comprehensive Plan and, provide a prioritized Capital Improvement Program for both land acquisition and site development, including the identification of public/private funding sources, such as CDBG funds or grants. Maximize the use of non-general fund sources.

Strategy 8.1.3 Provide regulatory and economic incentives to private waterfront property owners for water dependent uses consistent with the Open Space Plan, including commercial and recreational access to the water's edge and linkage to other public and private access points in order to create a harbor front boardwalk and waterfront access system.

Strategy 8.1.4 Where possible provide a harbor access easement a minimum of 15 feet along the inner harbor, consistent with the Hyannis Inner Harbor Open Space Plan. Encourage both public and private access for pedestrian circulation consistent with Hyannis Inner Harbor Open Space Plan, for the visual and physical access to the water.

Strategy 8.1.5 Explore the feasibility of innovative programs or other compensatory mechanisms for property owners who donate harbor access easements. Consider other innovative approaches to public access and linkage through development agreements.

Policy 8.2 Provide for needed public and private parking in the inner harbor area through the identification and implementation of no parking, short term and commercial parking, and long term commuter and multi-modal satellite parking areas.

Strategy 8.2.1 Define and locate no-parking areas based on the need for public and private access to the water identified in the Open Space Plan. Exclude all vehicular parking within 15 feet of the water's edge.

Strategy 8.2.2 Limit vehicular parking to the minimum amount required by zoning between 15 feet from the water's edge and the first public street parallel to the water (Lewis Bay Road/Willow Street, South Street and Ocean Street). This limit should be further reduced if a public or commercial short term parking facility is provided within 500 feet of the site or a public or private multi-modal linkage (shuttle bus or equivalent) is provided.

Strategy 8.2.3 Limit long term parking (over 24 hours) to locations North of Route 28 and sites served by HOV linkage to the Regional Transportation Center. The provision of long-term parking facilities should be encouraged through intergovernmental agreement and public/private partnerships. Key locations include the Airport, Regional Transportation Center and at Exits 6, 6 1/2 and/or 7 (Town of Yarmouth) off the Mid Cape Highway, Route 6.

Policy 8.3 Encourage and support the needs of the commercial fishing industry for waterfront access and dockage space. Encourage upland area for support facilities and activities.

Policy 8.4 Establish a state and local partnership under the auspices of the Chapter 91 Regulations, to benefit the public by creating water dependent uses such as recreational boating, commercial fishing, pedestrian and waterfront walkways, public boat landings, public parks, boat ramps, public sailing programs, public restrooms, and marine pump out facilities.

Policy 8.5 Provide for water dependent/water related development along the Hyannis inner harbor area, specifically within the BL-B zoning district. Allow for and create limited small scale marine related retail development, but limit non-water dependent projects.

Policy 8.6 Integrate the needs of the island ferry services with the above policies, coordinate the provisions of public access and encourage a high quality of architecture and landscape design representative of the Cape Cod waterfront.

Strategy 8.6.1 Support the application of historic design guidelines administered through the Hyannis Main Street Waterfront Historic District.

Strategy 8.6.2 Support the Town Council adoption of general design guidelines administered through the Barnstable Site plan Review Committee.

Policy 8.7 Incorporate the need for access to the harbor, the regional transportation center/airport and other commercial/ industrial nodes within the Barnstable / Yarmouth Transportation Study. Ensure that both physical linkage and signage provide for the harbor area as a destination point.

Goal 9.0 Since groundwater is the sole source of potable water for the village of Hyannis, it is of critical major importance to maintain the quality and quantity within the specific standards of the Safe Drinking Water Act for planned future uses.

Policy 9.1 To further protect our groundwater resources, implement performance standards and monitoring for business activities which use hazardous materials and establish criteria for the enforcement of these standards.

Policy 9.2 Coordinate the establishment of an educational forum with the County to promote water saving measures, protection of groundwater resources, and explain the costs related to contamination remediation.

Policy 9.3 Ensure that in case of degradation of water supplies, an adequate inter-connection between water purveyors is immediately available(Emergency Response Plan).

Policy 9.4 Redesign storm-water drains to prevent road run-off from entering estuaries, embayments and other coastal areas, most notably in the Lewis Bay area.

Policy 9.5 Install and maintain working sanitary waste pump-out stations at all boating facilities, public and/or private.

Policy 9.6 Provide a water supply system that does not require treatment facilities.

Goal 10.0 Encourage an industrial area suitable for light manufacturing, high technology research, office uses and environmentally compatible industries that provide a diversified array of year round employment opportunities.

Policy 10.1 Provide adequate water and waste water infrastructure as set forth in the Capital Facilities and Infrastructure element of the Local Comprehensive Plan to protect the environment and sources of public water supply and to encourage planned economic development.

Policy 10.2 Coordinate public/private efforts to provide a transportation system that responds to existing deficiencies and the future needs of economic development activities within designated industrial activity center.

Strategy 10.2.1 Extend Independence Drive to Willow Street on the east and Bearses Way on the west and provide for a four lane esplanade with limited turning movements (see Policy 5.4).

Strategy 10.2.2 Extend a public access road from Route 28 through the airport to Independence Park and connect to a new access point on Route 6 (see Policy 5.5).

Strategy 10.2.3 Expand Route 132 into an esplanade divided four lane roadway from Route 6 to Route 28. Integrate a traffic signal system that provides for an improved flow of traffic and controlled turning movements. (see Policy 5.1).

Policy 10.3 Require new development and/or redevelopment activity to participate in the provision of transportation infrastructure through a development agreement, special districts, impact fees or other mechanism that specifies both structural and non-structural impact mitigation as a condition of development approval.

Strategy 10.3.1 Transportation mitigation shall be provided consistent with the Regional Policy Plan, that provides alternatives to automobile and which reduce peak hour traffic demands such as shuttle bus services, car or van pools, staggered working hours, or other appropriate transportation demand management (TDM) techniques.

Strategy 10.3.2 Development agreements between the town and developers should not reflect the use of public lands for parking lots, open space or other private development requirements, unless provided for under Policy 4.2, and there is substantial benefit to the public without incurring additional cost or liability.

Goal 11.0 Integrate the facilities and operations of the Barnstable Municipal Airport with all other multi-modal facilities and operations and develop a compatible land use plan that responds to both economic and environmental issues.

Policy 11.1 Provide a direct physical link for passengers between the Regional Transportation Center and all other multi-modal carriers, with minimum inconvenience to the passengers.

Policy 11.2 Provide a direct access road from Exit 6, Route 6 to the Airport via a connection from Route 132 to Old Route 132 to Attucks Way. Plan for future direct access via a new exit 6 off Route 6 to this link and an eastern High Occupancy Vehicle (HOV) access road off of Exit 7, Route 6, paralleling the Old Colony Railroad line (see Strategy 5.5.1).

Policy 11.3 Develop a hazardous materials management plan and an emergency response plan to address the use, storage and disposal of all hazardous materials by the airport employees and businesses. This plan is to be coordinated through the Town of Barnstable Health Department and the Hyannis Fire Department.

Policy 11.4 Identify and implement noise buffer zones which incorporate the FAA model zoning ordinance as a guide to implementation

Goal 12.0 Support applicable Goals and Policies of the Town of Barnstable Open Space Plan by continuing the analysis of recreational needs for the Village and developing plans and funding sources to fulfill those needs.

Policy 12.1 Expand waterfront access, particularly at existing public access points and recreation facilities.

Policy 12.2 Development of a long-range open space land acquisition fund (Impact fees).

Policy 12.3 Expand water based recreational opportunities by increasing boat launching related parking at Town boat ramps and Town Ways to Water.

Policy 12.4 Provide adequate funding to operate, maintain, and repair existing recreational facilities.

Policy 12.5 Provide full handicap access to all public facilities and incorporate these requirements in private development/redevelopment activities.

Strategy 12.5.1 Open space and recreation facilities shall be made accessible to handicapped persons and program opportunities shall be made available to the special needs population.

Policy 12.6 Establish small pocket parks and/or gardens in the various village neighborhoods for the benefit of residents living there.

Policy 12.7 Complete the "Walkway to the Sea".

Policy 12.8 The Town shall plan and vigorously explore funding for the planting of trees or natural canopy vegetation as appropriate, when improvements are made to public roads. Public roads which link public open space, schools, ways to water, and recreation sites shall provide bicycle, walking, and jogging trails between facilities.

Policy 12.9 Encourage the multiple uses of town facilities based on time and/or season of use and appropriate scheduling.

Policy 12.10 Create Open Space and Recreation Plan Implementation Committees to realize the goals set in this plan.

Strategy 12.10.1 Purchase additional open space and recreation lands in the Hyannis area for residents and the general public.

Strategy 12.10.2 Produce GIS maps of open space and recreation land for public information.

Goal 13.0 Conserve areas of the village that are most significant to the protection of natural resources - particularly the groundwater supply, coastal shoreline areas, plant and wildlife habitat, ponds and outdoor recreation areas.

Policy 13.1 The town shall continue to promote the acquisition of prime open space for the purpose of conservation and protection of resources, preservation of wildlife habitats, providing recreation opportunities and to maintain the visual quality of the Village.

Strategy 13.1.1 Protect those special areas in the village, notably the Mary Dunn Pond complex, Hall's Creek and Snow's Creek that are very special for their plant and wildlife uniqueness and diversity.

Strategy 13.1.2 Encourage the preservation of open space and secure public access through creative means of land easements, transfer of development rights, tax abatements, gifts and zoning bonus for retention of open space lands.

Strategy 13.1.3 Continue conservation land management planning and implementation effort.

Strategy 13.1.4 Continue work to acquire beach front property (both pond and ocean frontage.)

Policy 13.2 Develop regulations for commercial and industrial subdivisions that incorporate the concept of open space protection, shared parking and entrances and landscape amenities. These regulations, when developed, shall replace or enhance the existing rules guiding commercial and industrial subdivisions.

Strategy 13.2.1 All redevelopment shall preserve or enhance existing vegetation and enhance the open space environment by incorporation of green buffers. When redevelopment is located in proximity to public open space, trail easements and buffer zones shall be planned and developed as part of the redevelopment.

Policy 13.3 Establish a land acquisition fund based on the existing priority parcel identification program including, but not limited to, conservation land management planning and acquisition of waterfront property.

Policy 13.4 All construction along the coastline, including residential additions, shall provide at minimum visual access for the public. All land division along the coastline shall develop an access plan that provides for an appropriate level of public access to the beach areas for the land involved.

Strategy 13.4.1 All development, redevelopment and building within the BL-B District (Hyannis Inner Harbor) zoning district shall allow for public access along the waters edge, and meet all storm water discharge standards.

Strategy 13.4.2 Strategic public access locations for the inner harbor shall be established within the Inner Harbor Open Space Plan and implemented through the Chapter 91 licensing process, voluntary easements and/or public acquisition.

RECOMMENDED CAPITAL FACILITY PRIORITIES HYANNIS VISION PLAN - 1993 - 1995

In the pursuit of a revitalized Hyannis consistent with the goals and policies stated above, the completion of the following critical projects **should be attained within two years** by the public and/or private sector in order to improve the quality of life for all concerned:

- Renovate Old town hall;
- Complete traffic study and initiate priority implementation of its recommendations;
- Complete design for CCRTA Transportation Center and start construction;
- Complete design, permitting, and initiate construction for Steamship Authority improvements;
- Maintain the JFK Museum on a permanent basis;
- Complete the Wastewater Facilities Plan and initiate service to priority future sewer service areas;
- Redesign and beautify parking lots, particularly North Street lot and Town Hall lot; consistent with the Design Manual / Streetscaping Plan (see Policies 3.1 and 4.2);
- Implement seasonal shuttle bus system;
- Determine the feasibility of a Civic/Performing Arts Center in the Hyannis area;
- Private sector development or enhancement of 25 special events around waterfront and downtown, funded through corporate sponsorship;
- Complete development of Aselton Park;
- Locate grocery store in downtown Hyannis;
- Expand Post Office Square landscaping/streetscaping along Main Street.
- Initiate the expansion of the dredged Lewis Bay channel to the Inner Harbor; and,
- Complete feasibility study and preliminary design for Exit 6 1/2.

The following projects are deemed critical to be completed within five years:

- Initiate improvements to major roadways (sections of Routes 132 and 28);
- Initiate construction of Exit 6 1/2;
- Complete RTA multi-modal terminal and transportation management center;
- Complete construction of Steamship Authority improvements and inner harbor dredging;
- Secure financing and start construction of new downtown and satellite parking facilities;
- Expand the Hyannis Shuttle Service and link to a year-round townwide bus system;
- Complete boardwalk along harbor front and related bulkhead improvements; and,
- Initiate and implement Business Improvement Districts and Economic Opportunity Areas (EOA) within activity centers.

And on the longer horizon, the following projects as feasible:

- Complete design and construction of the Route 132/Iyanough Road Boulevard improvements, including four travel lanes, landscaped esplanade, and coordinated signalization;
- Integrate the Barnstable Water System into a town-wide water management system;
- Complete redevelopment the National Guard building and other designated areas; and
- Complete construction of Exit 6 1/2 and link into the Hyannis inter-modal transportation system.

Marstons Mills Village Plan

Introduction

Village residents describe Marstons Mills as having a rural village character which they value and wish to retain. This report describes and analyzes those aspects of the natural environment and of the developed man-made environment, both commercial and residential, which contribute to village character. Strategies are developed throughout the report to insure that future development will remain compatible with the character of this village.

Recommendations are made for improvements to the Old Mill Pond and the Marstons Mills village center. These areas were identified by residents as important centers and as areas in need of improvement. A re-design of the Route 149-Route 28 and Route 149-River Road intersections to improve function will also create additional land which can be landscaped, and at Route 28-Route 149, can be used to develop a parking lot for the herring run.

Finally, village facilities, social facilities and programs, housing opportunities and transportation requirements have been examined and recommendations made.

Planning Department staff worked together with the Civic Association, residents and business people to develop this plan. Responses to the Marstons Mills questionnaire are included in the Appendix.

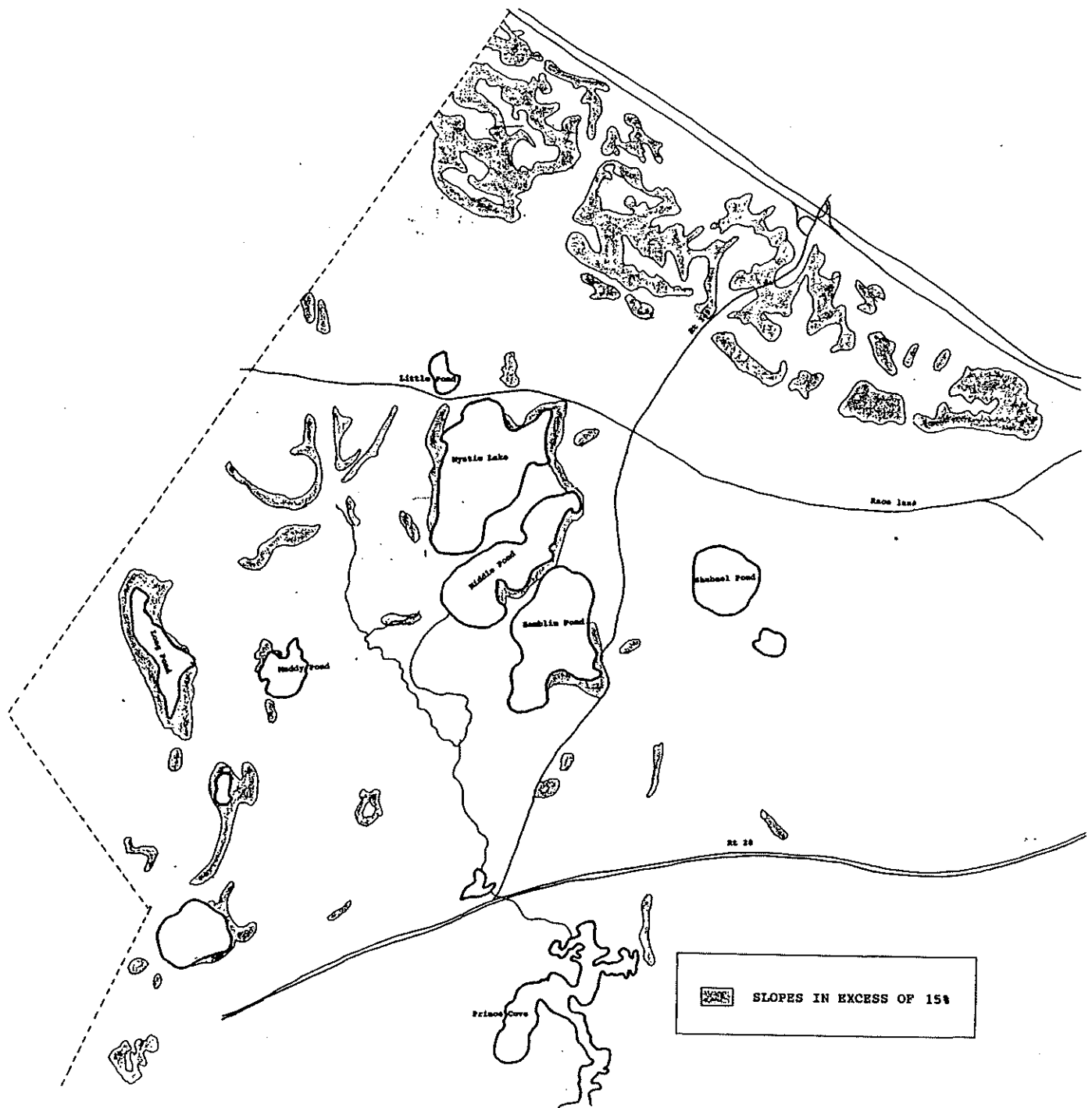
1. Village Character

Physical Landscape

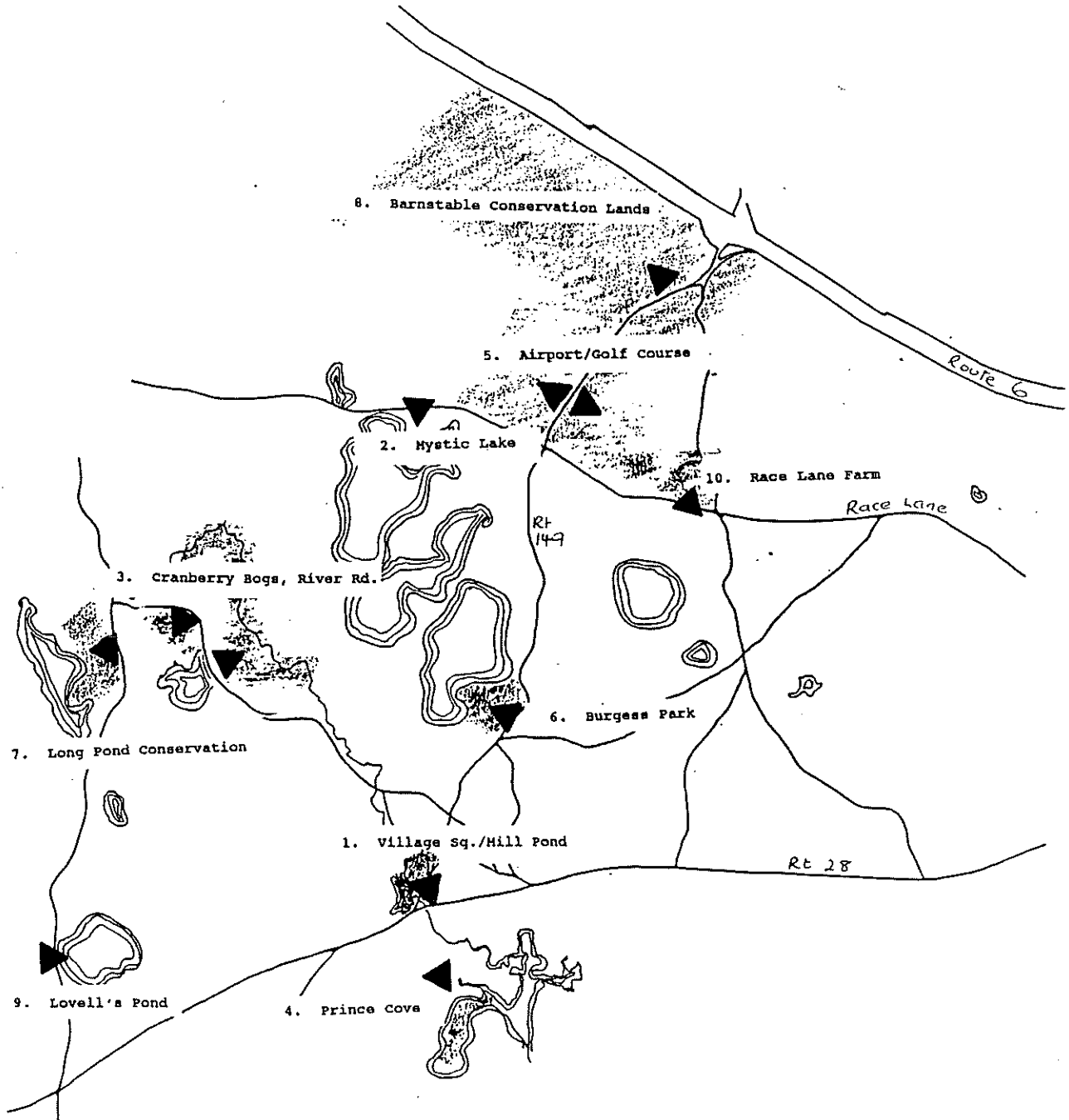
Marstons Mills is located on glacial outwash plains, the northern boundary of which is the moraine hills of the West Barnstable conservation lands. The plains consist of sands and gravels deposited by glacial meltwaters; to the south finer particles of silts and clays form good agricultural soils.

"Plain" is a misnomer; the area has a varied topography. Steep slopes overlook the Marstons Mills River and Little River. These river valleys were cut by much more powerful forerunners of the present rivers, which are little more than streams today. Stripped of vegetation, these slopes erode easily and can become unstable.

Ponds are formed in deep kettle holes, the most notable of which are Mystic, Middle, and Hamblin Ponds. Information on these and other ponds is as follows:



Marstons Mills, Map of Valued Scenic Views



Pond	Acres	Av. Depth	Max. Depth
Mystic	146	18	42'
Middle	105	15	30'
Shubael	56	14	41'
Round	10	-	-
Lovells	54	19	37"
Lumbert	10	-	-
Hamblin	149	34	-

The ponds are connected to and fed by groundwater and as such are very vulnerable to contamination, principally from phosphorous in fertilizer and sewage effluent. A very slow turn-over rate of water results in retention of contaminants. Septic systems need to be located outside of flood plains to the ponds and at least 300 feet away from the water. (For more information see the Natural Resources section of the Comprehensive Plan.)

The streams are similarly vulnerable to contaminants which are carried to coastal embayments at Prince Cove. In saltwater, the principal nutrient of concern is nitrogen, again from fertilizers and sewage effluent. Because nitrogen in the form of nitrate is stable and travels considerable distances, development densities should remain low, unless served by waste water treatment with nutrient removal, which substantially reduces nitrate loading. Prince Cove and other coastal embayments are vulnerable to contamination because of shallow depths, warm waters in summer, and poor flushing rates. The Cove is presently closed to shellfishing because of bacterial contamination and is marginal for continued use as a swimming area.

Aquifer and Public Well Supply Protection

The outwash sands and gravels of Marstons Mills form very productive aquifers not affected by salt water intrusion. 62% of the village is in a Zone of Contribution to public supply wells; this percentage should increase when the Hayden well field is fully utilized. At present this well field produces approximately four million gallons a day. Two additional wells are being developed for an additional two million gallons a day capacity. The total capacity of the field will be approximately 7-10 million gallons a day, 1/3 of the town's present water production.

Erosion potential

Steep slopes in the village center have been stripped and excavated thus creating vulnerability to erosion and destabilisation. In the Service and Distribution District, land along Route 28 has been cleared, even within the public right of way. Both these areas need replanting. Where slopes have been steepened it is recommended that assistance be sought from the Soil Conservation Service, who can recommend erosion protection measures, before property damage occurs.

Strategies - Physical Landscape

1. Development in the vicinity of the wellfields needs to be fully compatible with public water supply protection in terms of both density and uses.

Marstons Mills Village Features



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2. Recommendations in the Natural Resources section of the Comprehensive Plan need to be adopted to protect groundwater, surface water and public drinking water supplies.
 3. Enforcement of the Zoning Ordinance prohibition on land clearing prior to approval of a site plan needs to be enforced. A town wide Ordinance is needed which includes a requirement to re-vegetate where erosion can damage adjoining property, and cause siltation of drainage systems.

Historic Character

Marstons Mills is one of the more rural of the Barnstable villages. The early settlers were farmers, craftsman and millers who were attracted to better soils found in parts of the village. The village is named for the Marstons family, owners of one of the mills located along what is known today as the Marstons Mills River. The William Marstons house sits on a rise overlooking Mill Pond, a tribute to the profitability of milling. The William Marstons House is one of the village's finest historic houses.

Most of the other historic houses remaining today are farm houses scattered throughout the village, modest in scale with simple clean lines and elegantly proportioned roofs, windows and doors. Except for Prince Cove, the village has no frontage on the sea and there are no sea captain's houses or Grand early 20th Century summer residences in Marstons Mills. Today the village is still predominantly a year-round community. Only 12% (1990 US Census) of the houses are occupied seasonally, one of the lowest percentages in the town. Marstons Mills does not participate to any great extent in the tourist industry.

The center of the village has retained its traditional uses - a store has existed on the site of the Cash market for more than one hundred years. Three community buildings, the library, Liberty Hall and the Methodist church form a little community center off the main commercial center of the village, but many of the buildings in the village center have been rebuilt and the remaining historic structures within the village center are scattered. Because of the amount of infill and rebuilding of historic structures in the village center, Marstons Mills is the one village is not eligible for designation as a National Register Historic District. The village center should however be evaluated for designation as a local Historic District.

Outside the village center the historic buildings are mostly residentially zoned and residentially used, which is less detrimental than commercial zoning or usage. (Commercially zoned historic structures are at greatest risk of demolition or inappropriate remodeling). The existing town-wide Protection of Historic Properties Ordinance requires a delay on demolition of historic structures and provides a measure of protection.

Strategies - Historic Landscape

1. Throughout the town there is a need to provide some form of general design control for commercial developments which includes the preservation of historic structures not protected within an historic district. Standards need to be incorporated into the Site Plan Review section of the Zoning Ordinance, and item #3 below implemented.

(See also the Community Character and Historic Preservation section of the town-wide Comprehensive Plan)

2. Continue the education and information programs established by the town Historic Preservation Department.
3. Support the development of a local landmark designation for outstanding isolated historic buildings and their settings.

Landscape

The landscape of Marstons Mills still retains much of its early rural character. Agricultural traditions continue in the extensive vegetable gardens which flourish throughout the area. Horses and ponies can be found in many backyards and riding is a popular activity. Trees, particularly oaks, have invaded former farm lands in many areas and because of low density and larger lots sizes, extensive wooded areas of oak and pine have been retained, giving a pleasantly wooded character to the village even in recently developed areas. The grass plains at the Old Fairgrounds Golf Course and Marstons Mills Airport are in contrast to the wooded character of the rest of the area.

Tall white pines planted in the 1930's can be found in certain sections of the Mills and a decision should be made as to whether this species should be replanted where heavy losses occurred to Hurricane Bob. Unfortunately white pines are vulnerable to damage from exposure to salt and high winds.

Strategies - Landscape

1. Future development plans should retain natural woodlands or grasslands within development sites and as a visual buffer along roads.

Recent Development

Widespread development came late to Marstons Mills. Large tracts of land were subdivided in the 1970's and 80's on larger lots than the rest of the town. Modern versions of the Cape Cod house and Colonial style houses have been widely constructed.

The older subdivisions are grid subdivisions. More recently open space or cluster subdivisions have been built. Three good examples are Homestead, River Ridge and Liberty Commons. The Homestead development provides an attractive layout with open space surrounding the development. River Ridge provides a wide buffer of open space along the Marstons Mills River and a common tennis court and swimming pool. Liberty Commons provides additional setbacks and protection to Round Pond and a broad, permanently protected open space buffer of woodlands along Flint Street.

In many Marstons Mills subdivisions, the houses are moderately sized. Along the pond fronts, larger, more expensive houses have been built. One prominent Marstons Mills resident described the village as "the working village". Many younger, working families have purchased homes in the new developments throughout the area.

2. Population, Housing and Residential Development

Population (data from the 1990 US Census)

The Village CDP area has a total population of 8,017 (1990 US Census), as such it is the third largest village in the town after Hyannis and Centerville. The CDP area is somewhat different than the traditional village lines.

Age

Marstons Mills has the youngest population in town. The median age is 34, lower than any other village, and lower than the County median age of 40. The village has the second highest percentage of children enrolled in school at 25%, 2,004 students, and the smallest percentage of people over 65, 11%, compared to 20% town wide. The residents are well educated. 35% have a bachelors degree or higher, compared to 28% town-wide.

Households

This village has the second largest family size of 3.07 members, comparable with West Barnstable, due to the young age of families with children. Only 20% of the households are occupied by non-related individuals, compared to 33% town-wide. The village also has a lower proportion of families headed by women at 12%, compared to 16% town-wide.

Income

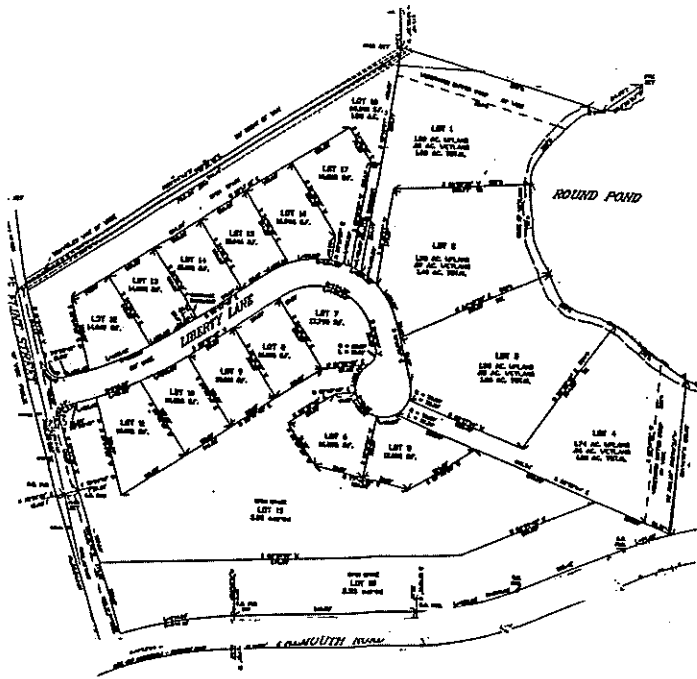
The median household income is high at \$41,261 a year; only West Barnstable and Barnstable Village is higher. Conversely however, the per capita income is low at \$14,053 a year, only Hyannis is lower. The reasons for this apparent contradiction is first the larger family size; children are considered in this statistic thus reducing the per capita income. Second, the high household income represents two salaries - 61% of women work in this village, the highest percentage in town.

Housing costs are high in Marstons Mills and are a significant proportion of expenses. Most homes are owner occupied, the median mortgage costs are \$1,054 a month, second only to Osterville. This is a reflection of the recent nature of house purchases, many of which were made during the period of inflated prices in the 1980's. Typically the salary of one family member is necessary to support housing expenses.

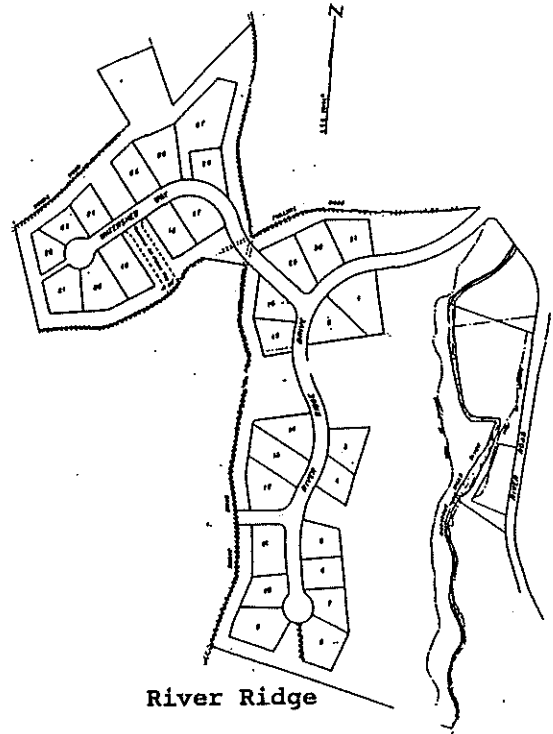
Summary

Marstons Mills residents are typically young working families with children. They own their own homes, which were acquired in the last ten years. Both the husband and wife work and have a high combined income, but their mortgage costs are high, due to the recent nature of house purchases. Given this profile, the town needs to support both public and private programs and facilities for children, since most mothers work, particularly those with children under the age of five. In order to accomplish this goal, the schools and social organizations will need to work together.

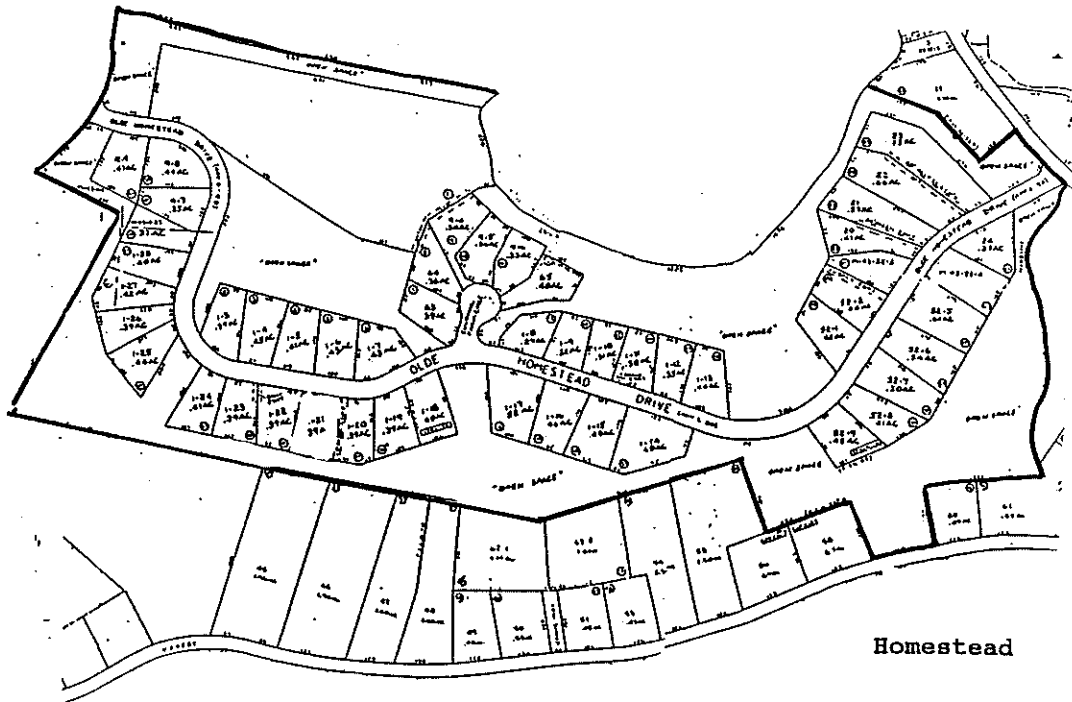
Three Open Space Residential Developments



Liberty Commons



River Ridge



Homestead

Strategies - Children's Facilities and Programs

1. Provide support for both governmental and independent pre-school day care programs.
2. Support after-school and before-school programs.
3. Provide play areas and recreation facilities at town-owned properties consistent with open space plans being developed.
4. Continue support for recreation programs particularly during school vacations.

Residential Development

Buildout studies conducted by the Planning Department in 1989 reveal the average developed lot size in the Centerville-Osterville-Marstons Mills Fire District is .72 acre. The average lot size in many parts of Marstons Mills is probably larger, closer to one acre, reflecting more recent development at the current one acre minimum lot size.

It is estimated that approximately 68% of the residential area of this Fire District has been developed. 32% is potentially developable, mostly in Marstons Mills. The buildout studies indicate that most remaining land to be subdivided consists of small parcels, probably with difficult conditions such as proximity to wetlands, or steep slopes.

The one acre residential lot size zoning requirement was established to maintain Nitrate/Nitrogen levels in groundwater below 5mg/l, the Cape wide recommended standard which should be retained.

Future Residential Development

Little change is recommended for residential areas. It is proposed that a more flexible form of cluster zoning be allowed town-wide, at the same density as the underlying zoning district. The present cluster zoning provision allows a cluster of lots, the proposed Ordinance would allow a tighter clustering of houses. The aim of the proposal is to concentrate development in the most suitable areas of a site and provide wide, permanently protected buffers of open space. Environmentally sensitive areas such as pond fronts and wetlands would be given increased protection. In other areas, additional buffers would increase the desirability of a site where the adjoining land use is detrimental.

Village questionnaires indicated some interest in larger lot sizes. One method of implementing this desire would be to allow the option of flag or pork chop lots with a larger area requirement. This would allow limited development of back lots without the creation of additional roads. In order to ensure access to joint driveways, flag lots should be by Special Permit from the Planning Board

Route 28

There is considerable undeveloped, residentially zoned acreage along Route 28. In many parts of town there is pressure to re-zone areas along major roads for commercial development. A cluster Zoning Ordinance would allow a clustering of residences at the same density as the underlying zoning district, permit the preservation of open space

along Route 28 and allow houses to be concentrated away from the roadway, accessed by a single drive.

Strategies - Residential Development

1. Permit pork chop or flag lots with a larger lot size requirement by Special Permit from the Planning Board.
2. Permit developments of clustered houses to protect environmentally or historically sensitive areas and locate development along Route 28 away from the roadway, with access concentrated on to one driveway.

Housing

Housing data - (1990 US Census)

Much of the housing in this village is relatively new. 53% of the homes have been built since 1980. 85% has been built since 1970. House prices are moderate with a median sales price of \$148,600 (1989). Sales are mostly below \$200,000 with 53% being between \$100,000 and \$150,000, and 126 houses or 5.2% below \$100,000. It is also estimated that housing prices have dropped below these levels since the data was gathered (1989). Only housing in Hyannis is cheaper. Like West Barnstable, Marstons Mills housing is principally year round. Only 12% of the housing consists of seasonal units.

Affordable Housing

Response to questionnaires on this subject indicate a recognition of the need for housing opportunities for families and to a lesser extent the elderly, however there is a strong preference not to see further construction. Given the relatively moderate cost of housing in this village, programs to assist young, moderate-income families to purchase existing housing may be a viable means of providing affordable housing opportunities, provided that programs to assist first time home buyers are available, and provided that housing prices remain stable.

Marstons Mills village center is a very suitable location for a small elderly housing development. Within walking distances are small stores, restaurants, the library and community center. Any new affordable housing development in the village center should be small in scale and blend in with this rural village business center.

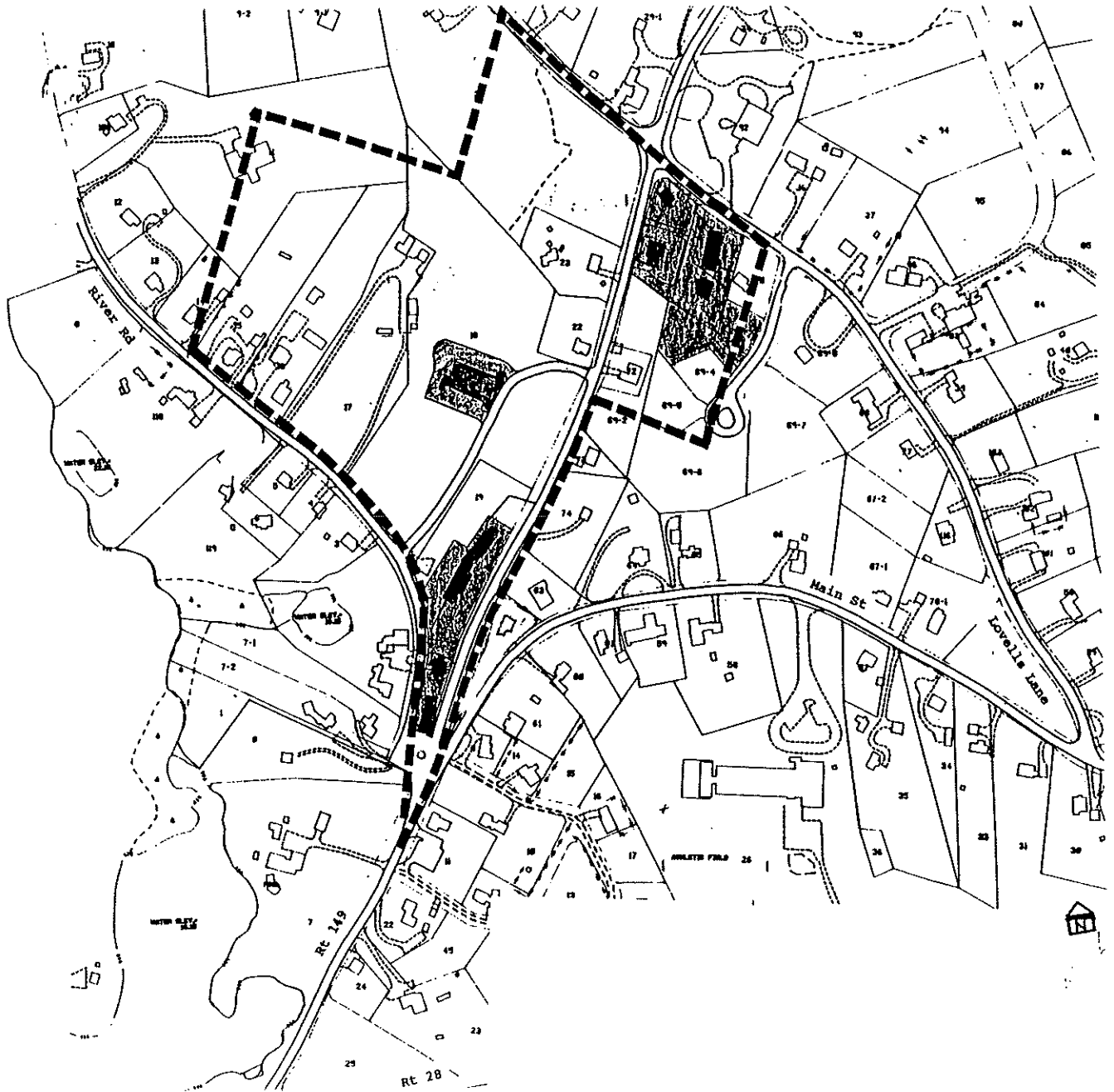
Consideration should be given to mixed income elderly housing so that elderly people who own their own homes but who need to be in a more suitable accommodations, would not be excluded because of assets in excess of limits.

Another option would be to seek rehabilitation of an existing large structure for this purpose, however there are few suitable oversized buildings in the village center.

Strategies - Affordable housing

1. Provide means to assist moderate income, first home buyers to purchase existing houses throughout the village.
2. Provide a small-scale affordable housing development for the elderly in the village center. A larger scale development would probably require alternative wastewater treatment.
3. Encourage village participation in siting and design of affordable housing through the LIP process.
4. Additional policies and strategies on affordable housing are contained in the Affordable Housing element of the Local Comprehensive Plan

Commercially Developed Parcels within the Village Business Zone



3. Commercial Development

Area of commercially zoned land:

VB-A Marstons Mills village center	21.90 acres
Service and Distribution Zone, Rt 28	71.7 acres
VB-A Route 28	6.36 acres
Total	99.96 acres

VB-A Marstons Mills Village Center

Developed for commercial use	4.2 acres	19%
Developed for residential use	11.8	54%
Vacant	5.9	27%
Total net size	21.9 acres	100%

At a Civic Association meeting the opinion was expressed that most of the village center was already developed; there couldn't be much more commercial development. In fact the commercially zoned village center is quite large - approximately 22 acres - and only 4.2 acres, or 19%, has been developed for commercial use. Approximately six acres of commercially zoned land is vacant. 11.8 acres, or 54% of the village commercial district, has been developed for residential use which could be converted to business.

There are a number of conditions which make part of the village commercial area unsuitable for commercial development including steep slopes, small lots, poor access and existing residential development. Consideration should be given to re-defining the village business zone to exclude established residential neighborhoods from the commercial district. These residential areas could be zoned for village residential with a slightly higher density permitted than one acre zoning. The existing density permitted is four houses to the acre. Consideration should also be given to expanded home occupation and accessory uses in any village residential district.

A broad spectrum of commercial and industrial uses are permitted in the village center as well single family houses and apartments. Some of the uses such as storage of coal, oil and wood, are not generally found in village business centers (see Section 3-3.5 Zoning Ordinance) and should be reviewed for compatibility with this little village commercial district.

In a couple of locations, lots in the commercial area have been cleared and excavated. The appearance is unsightly and where steep slopes have been created, there is possibility of slope instability and erosion. Land clearance is not permitted under the Zoning Ordinance until Site Plan approval is obtained and permits issued. Zoning enforcement is required on this and other issues. A town-wide General Ordinance is also recommended.

Existing zoning setback requirements for buildings and parking are minimal. Adequate building setbacks are needed. Parking setbacks and landscaping requirements should be dealt with town wide.

Generally the goal should be to allow the development of vacant land in the village center for compatible, small scale businesses which serve local area residents. Limited additional development of small scale retail, office, business services and accessory apartments would be compatible with this village center. However, the village needs to consider the extent of the boundaries of the commercial zone, and the uses permitted. As presently zoned, the center has very substantial commercial growth potential with some potentially incompatible industrial uses. Most of the growth potential is in areas which have already been developed as pleasant, residential neighborhoods. The village center would also benefit from improvements outlined in Section VI, and sidewalks to provide linkages.

Strategies - VB - A Village Center.

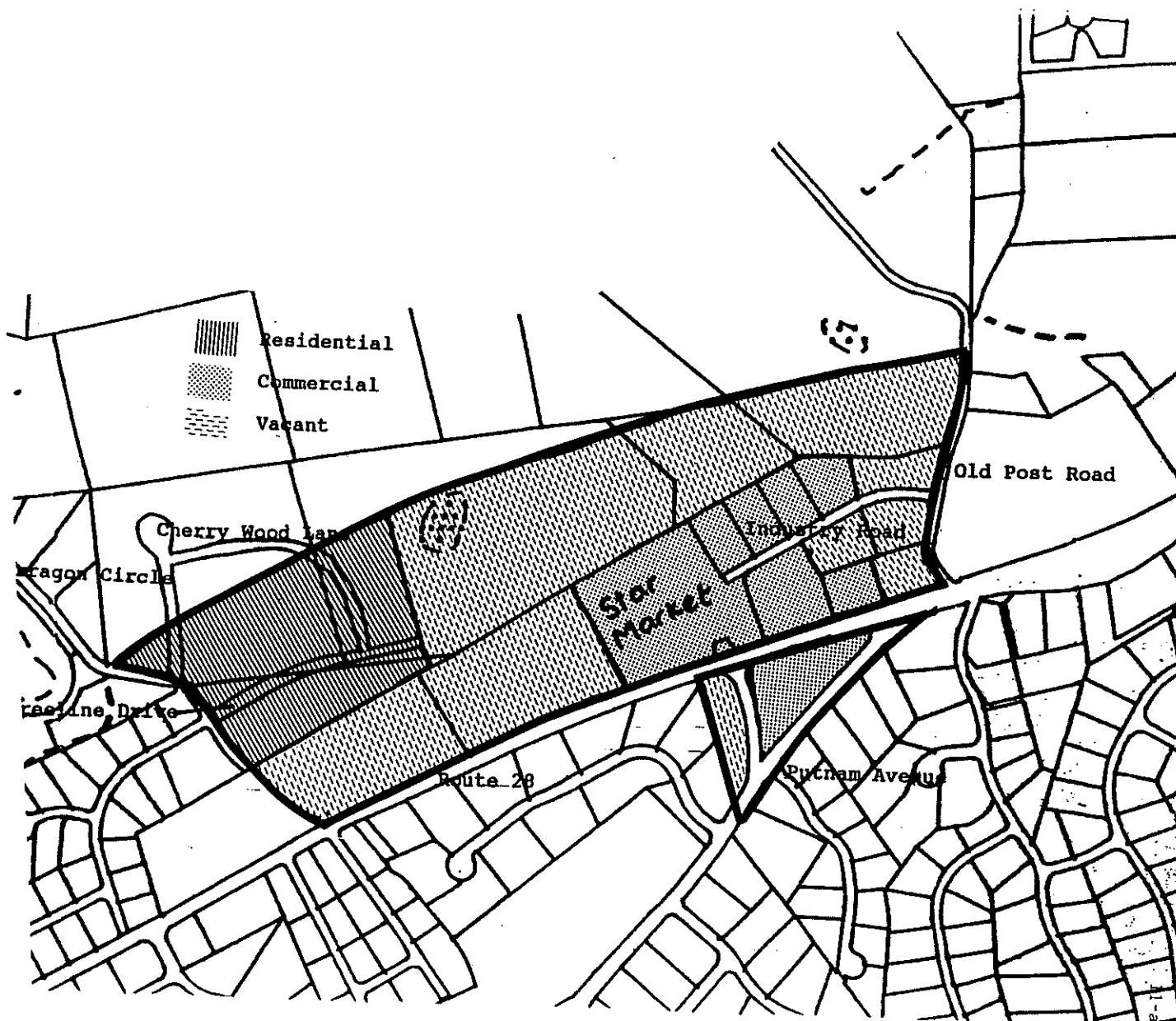
1. Maintain a clearly defined village business center.
2. Evaluate boundaries of the village commercial district and consider shrinking the village commercial district boundary to exclude established residential neighborhoods.
3. Create a village residential area adjacent to the village commercial district, if the village commercial district is contracted. Consider a slightly higher density than one acre zoning and consider expanded home occupation accessory uses.
4. Evaluate uses permitted in the village commercial district for compatibility with the district. Consider eliminating the storage of oil, coal and lumber as a permitted use.
5. Maintain existing 2 1/2 story height limitation.
6. Encourage the development of a small affordable housing development for the elderly in the village center.
7. Evaluate need for alternative sewage treatment in the village center as the center develops.

Service and Distribution District (S and D)

Developed for commercial use	15.7 acres	22%
Developed for residential use	13.4	19%
Vacant land	42.6	59%
Total net size	71.7 acres	100%

The Service and Distribution zoning district is the single largest zoning district of commercially zoned land outside of the industrial and commercial zones in Hyannis, and as can be seen from the figures above, has substantial development potential. The allowed uses are very broad and include retail, office, warehousing, the processing and storage of goods in transit, shops and storage yards. Garages are permitted as accessory uses, but the Ordinance does not state accessory to what. A portion of the district, 13.4 acres has been residentially developed. There are no buffer, screening or landscape setback requirements and lots could be covered by parking and buildings.

Land Use: the Service and Distribution Zoning District



The zoning district is close to the boundary of the Hayden well field, one of the most important well fields in the town. On previous ZOC maps, the entire district has been included within a ZOC, although presently it is only partially included. When all potential wells are included, it is anticipated that the Service and Distribution district will probably be totally within a ZOC to public supply wells. Uses and densities should therefore be fully compatible with public water supply protection. The Centerville-Osterville Fire district should evaluate the need for additional lands on the periphery of the Hayden well field for protection of existing and proposed wells.

The other issue is road capacity on Route 28. Of particular concern are the intersections of Route 28 and Putnam Road, Industry Road and any driveway or intersection to future development. Curb cuts on Route 28 should be minimized and access concentrated on to a parallel access road. Given the very substantial development potential of this area, any large scale development will require upgrading of Route 28. Optimally this should include road widening, with a median strip and dedicated turning lanes. Piecemeal improvements should be avoided; developers should make improvements to an approved design.

The size of the S and D district, the broadness of the range of uses permitted, a location close to the Hayden well field and traffic conditions on Route 28 make this zoning district an area of concern to be addressed at the implementation phase of the Comprehensive Plan.

Strategies Service and Distribution

1. **District Boundaries:** In order to protect existing residential neighborhoods, the commercial district boundary should be redrawn to exclude subdivisions off Treeline Drive and Cherry Wood Lane which should be re-zoned for single family residential use.
2. **Uses:** Future uses were tentatively identified as retail, office and residential. All are compatible with groundwater supply protection, if density is controlled. Drive-in uses should not be permitted because of traffic concerns.
3. **Water Supply:** All uses and development densities should be compatible with ground water protection in a Zone of Contribution to public supply wells. The assumption should be made that this entire area will eventually be in a ZOC to public supply wells, and in addition, is in the recharge area to Prince Cove.
4. **Traffic:** All development should be accessed from a parallel access road or drive. Curb cuts on Rt 28 should be kept to an absolute minimum*. Frontage requirements need to be increased. Substantial development of the S and D district will require improvements to Route 28, with widening and the provision of turning lanes.
5. **Visual buffers:** A naturally vegetated buffer zone of at least 60 - 100 feet should be retained along Rt 28. Where land has been cleared, the buffer zone should be replanted with indigenous species, or species common to Cape Cod. A buffer zone should also be required to the districts. Development should be visually attractive given this highly visible location on Route 28.

6. **Wastewater:** Any alternative wastewater treatment facility should be located outside any potential ZOC to public supply wells, and the marine recharge area to Prince Cove, which is directly upgradient from this area. Nitrate/nitrate concentrations should not exceed 5ppm. Prince Cove and the three bay area is already experiencing effects of contamination, probably from nutrients in septic system effluent and other sources. The recharge area to the embayments extends up to the groundwater divide in the center of the Cape.

* See also Section 4.1. Transportation, of the Comprehensive Plan for policies related to curb cuts on Route 28.

Landfill and Surrounding Land Uses.

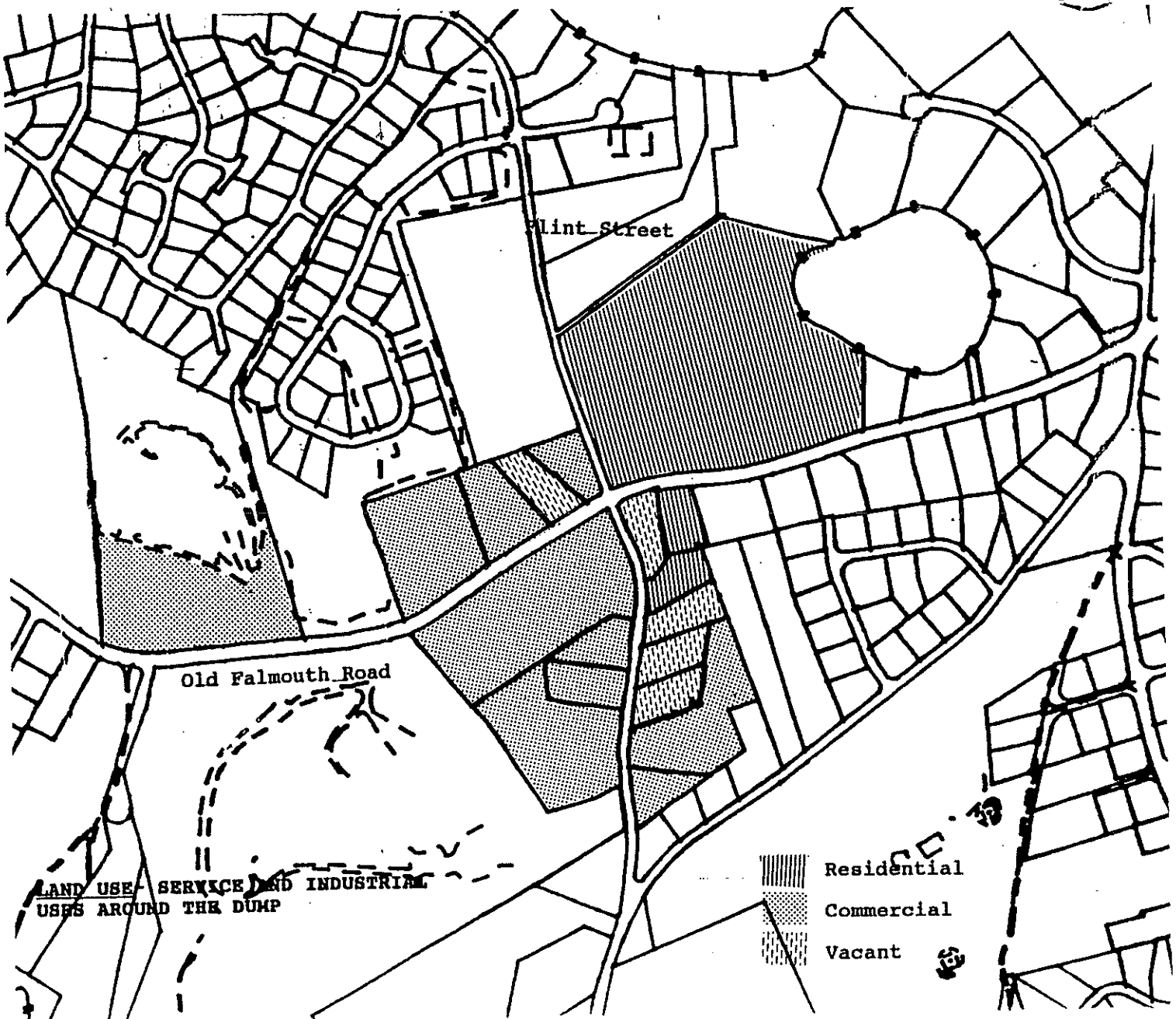
The area around the dump contains a number of non-residential, service/industrial uses in a residentially zoned area. Some of these uses were established prior to the adoption of zoning and are therefore non-conforming uses, others were permitted by variance from the Zoning Board of Appeals with conditions controlling operations. Enforcement of Zoning requirements and of conditions of approval of variances is a matter of frustration and anger to residents. This area should be prioritized for enforcement.

The landfill will eventually be capped and cease its traditional operation except for the landfilling of construction material and brush. Future uses of the dump need to be determined. At time of this report, work is underway to investigate the direction of the plume from the dump; preliminary work indicates that it will not have any impact on public supply wells.

Strategies - Land Uses in the vicinity of the landfill

1. **Enforcement of Zoning:** Enforcement of Zoning requirements and conditions of approval of Variances and Special Permits from the Zoning Board of Appeals should be a priority in this area.
2. **Lots abutting the landfill, south-west corner of Flint Street and Old Falmouth Road:** Consider creating a small zoning district for small scale trades operation with buffer and screening requirements for all vehicle and storage materials.
3. **East side of Flint Street:** This area should remain residential. Lots are small and bordered by other residential developments; proximity to the elementary and proposed middle school make it an unsuitable area for industrial expansion.
4. **North side of Old Falmouth Road:** Several industrial uses are located along here. All are bordered by residential neighborhoods. This area should remain residentially zoned.
5. **Intersection of Flint Street and Old Falmouth Road:** Maintain a visually attractive appearance of this very important intersection

Land Uses around the Landfill



VB-A Commercial Area on Route 28

Developed for commercial use	2.63 acres	65%
Vacant land	1.40	35%
Total net size	4.03	100%

East of Putnam Avenue, the commercial village zone is fully developed with the Windmill Village shopping center, which has had some difficulty maintaining full occupancy. On the west side of the road, a small vacant 1.4 acre parcel is commercially zoned. The area is upgradient of Prince Cove, an interlinked coastal embayment which because of poor flushing rates is very sensitive to nutrients contained in sewage effluent. The residentially zoned area south and west of the intersection should remain in low density residential development.

Strategies VB - A Route 28

1. Maintain existing commercial district at the Windmill shopping center.
2. Maintain residential, low density zoning west of Putnam Avenue.
3. Require development to maintain a 60 - 100 foot buffer to Route 28.

Kestons Corner

Located at the intersection of Route 28 and Osterville West Barnstable Road, part of this intersection has been developed for commercial uses. The area is zoned for residential use. It is proposed to leave this area as is: any expansion or change of use requires permission of the Zoning Board of Appeals.

4. Roads and Transportation

Sidewalks and Bicycle Paths

Sidewalks and bicycle paths were discussed at several village meetings as being needed throughout the village. Many people are outdoor enthusiasts who walk, bike and jog. Children of working parents are walking and bicycling along main roads to get to activities and facilities after school, and during vacations.

Existing sidewalks are limited to the following areas:

1. East side of Route 149 in the village center
2. Main Street,
3. A recently constructed pathway between Kestons Corner at Route 28 and the new Marstons Mills East Elementary school.

The sidewalks in the village center are in poor condition. The asphalt curb has been destroyed by vehicles and does not provide adequate protection for pedestrians. It is proposed that as a first priority these sidewalks be rebuilt and extended along Route 149, from the Mill Pond to Race Lane, and to Prince Cove. This would provide a linkage to a number of frequented areas including the Mill Pond, village center Fire Station, Hamblin Pond beach, Prince Cove and the Burgess property.

Roads identified by residents as in need of sidewalks are as follows:

1. Route 149
2. Race Lane
3. Route 28
4. Newtown road
5. River Road
6. Osterville West Barnstable Road from Race Lane to the new sidewalks just north of the new Marstons Mills East Elementary school.
7. Prince Avenue

This list is not all inclusive and should be subject to further review and prioritization.

Except for Route 28, all roads identified above are designated Scenic Roads. Removal of trees or stone walls will require review by the Planning Board. When road intersections are reconstructed, natural vegetation should be planted in keeping with the surrounding area. High speed bicycle paths are not suited to many of the narrow scenic roads in the village. Where bicycle paths are not feasible, roads should be made bicycle friendly with marked lanes.

Roads and Intersections

Road intersections which are considered problematic or hazardous were identified at several village meetings. They are:

1. Route 149 and Race Lane
2. Route 28 and South County Road

-
3. Race Lane and Osterville West Barnstable Road
 4. Route 149/ Route 28/Prince Avenue
 5. Route 149 and Main Street/River Road
 6. Route 28 and Main Street
 7. Flint Street and Old Barnstable-Falmouth Road
 8. River Road at Wakeby Road

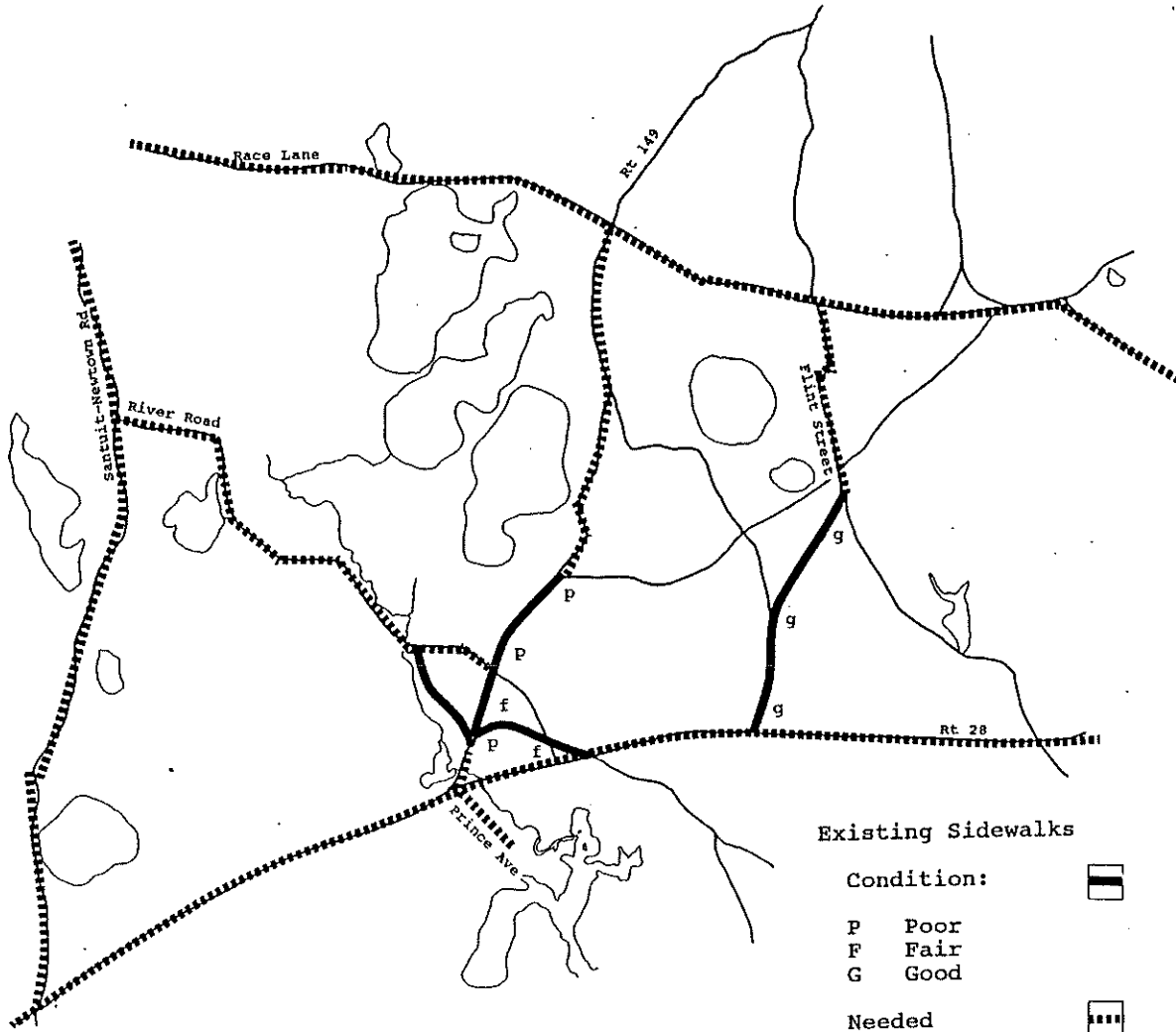
Plans are already being developed for two of these intersections: Race Lane at Route 149; and Osterville West Barnstable Road at Lumbert Mill Road.

The Department of Public works is in the process of analyzing accident reports throughout the town. The list of intersections identified by the village should be reviewed and prioritize in light of this information.

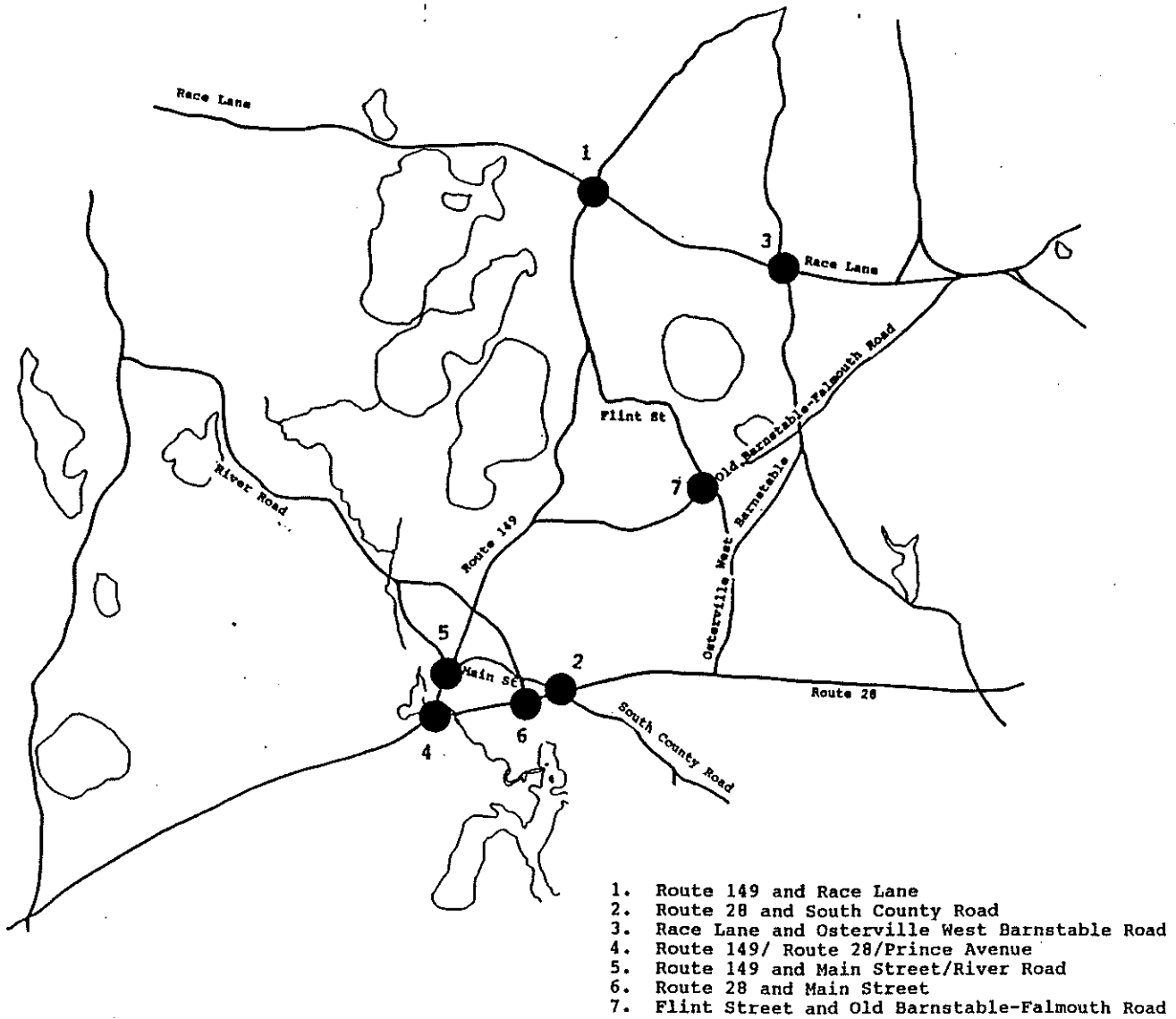
Concern was also expressed for the speed of traffic on some roads, including Route 149 in the village center. In the village center, the location of crosswalks should be reviewed; a stop sign is needed on Main Street before the intersection with Route 149. Design work of streets and sidewalks in this area should incorporate means of slowing traffic down in the village center.

Comments were also received concerning Route 28 and the need for long term improvements along the entire length. The intersection of Route 149, Route 28 and Prince Avenue was identified as hazardous for those crossing to the harbor, especially

Marstons Mills, Sidewalks: Existing and Needed



Marstons Mills: Intersections identified by residents as difficult and/or dangerous



Marstons Mills: Scenic Roads



with boat trailers, because of misalignment of this intersection. Intersection design along Route 28 should accommodate safe crossings for future bicycle paths and walkways, and at Route 149 drainage designed to eliminate direct discharge to wetlands and waterways.

Bus Transportation

A bus system for children and the elderly is much desired. Residents wished to see a bus route along Route 28 to Hyannis on a regular schedule, with a second route along Race Lane. A bicycle rack at the bus stop was also requested.

Strategies - Transportation

1. Reconstruct sidewalks in the village center and extend along Route 149 from Race Lane to Prince Avenue.
2. Create sidewalks and/or bicycle paths along all main roads. Where bicycle paths are not desirable or feasible because of scenic concerns, or inadequate right of way, create bicycle friendly roads.
3. Prioritize intersections for redesign based on analysis of accident data and village concerns.
4. Design Route 149 through the village center to reduce speed.
5. Develop a transportation system which will serve the elderly, children, and other non-drivers.

5. Village Facilities and Open Space

Tennis courts were identified as a needed recreational facility. Courts are planned for the new Marstons Mills Middle School, if and when it is built. A small number of courts would also be appropriate in the village center, the feasibility of developing courts on the Marstons Mills Elementary School should be investigated.

A senior citizen center in Marstons Mills was requested in the questionnaires. A town-wide senior citizen center is planned for Route 132 in Hyannis. It is recommended that if additional need exists in Marstons Mills, existing facilities such as Liberty Hall, be used for satellite programs. A transportation linkage with the proposed new Senior Citizen Center is suggested.

Open Space

Responses to questionnaires seem to indicate that people do not seek the acquisition of any more town owned lands, except for pond front or beach front recreation lands. Better facilities including toilets are requested at pond beaches. These would have to be carefully located to avoid contamination of ponds, or be portable facilities. It is desired however to retain Marstons Mills airport as open space. This area was identified as a valued scenic landscape view.

Burgess Park

Concern was expressed for the incompatible nature and location of play equipment at Burgess Park. This property was purchased by the town in 1989 for its historic and scenic values; it has proven to be a very popular park for many different activities. The village survey revealed that this property is favored second only to the pond beaches and is also identified as one of the valued scenic views. The Burgess House is listed in the town's resource inventory and is eligible for listing on the State and National Registries of Historic Places. Improvements need to be compatible with the scenic and historic qualities of the property. The house needs to be restored. One potential use could be housing for the Town Manager or Assistant Town Manager in lieu of a portion of salary. If restoration by the town is not feasible, then the property should be sold with a historic preservation restriction held by the Barnstable Historical Commission.

Strategies - Burgess Park

1. Ensure that improvements to the Burgess property are in keeping with the historic and scenic values of the property.
2. Evaluate management plan and review location of parking and play equipment. Provide toilet facilities in appropriate location, not visible from the road.
3. Seek funds to renovate the historic Burgess house. If funds are not available, consider selling the property with a historic preservation restriction held by the Barnstable Historical Commission on behalf of the inhabitants of the Town of Barnstable.

Open Space Plan

An open space plan for the village should be incorporated into this village plan when the comprehensive plan is completed.

Public Water Supply

Some neighborhoods in Marstons Mills are still dependent on private wells. Elsewhere, there are individual properties with private wells, where the water main passes by the front door. These issues are researched and recommendations developed in the Natural Resources Section of the Comprehensive Plan - Private Wells.

Marstons Mills Airport and Olde Barnstable Fairgrounds Golf Course

The airport and golf course are located in West Barnstable, but are considered to be of greater concern to Marstons Mills. Marstons Mills residents identified this area as one of their most valued scenic views. These facilities are significant recreational facilities, both are located in residential areas, and both are partially located in a zone of contribution to a future public water supplies. The following policies are designed to protect both the recreational aspects of these uses and the quality of groundwater on these sites.

Strategies - Marstons Mills Airport

1. Ensure that this area remains as open space in the event that the airport functions cease.
2. Ensure no further expansion or intensification of this non-conforming use: in particular there should be no paving of runways, instrument landings, night time operations and/or commercial operations.
3. Ensure that fueling and maintenance operations do not contaminate the groundwater.
4. Provide an approved viewing area along Route 149, perhaps linked to the golf course entrance, located away from the intersection of Race Lane and Route 149.

Olde Barnstable Fairgrounds Golf Course

This facility is a major public investment. It functions as a source of revenue for the town and as a recreational facility and tourist attraction.

Turf maintenance should emphasize minimal use of fertilizers, herbicides and pesticides. Slow release fertilizer should be used to minimize the contamination of groundwater with nutrients since a portion of this area is in a Zone of Contribution.

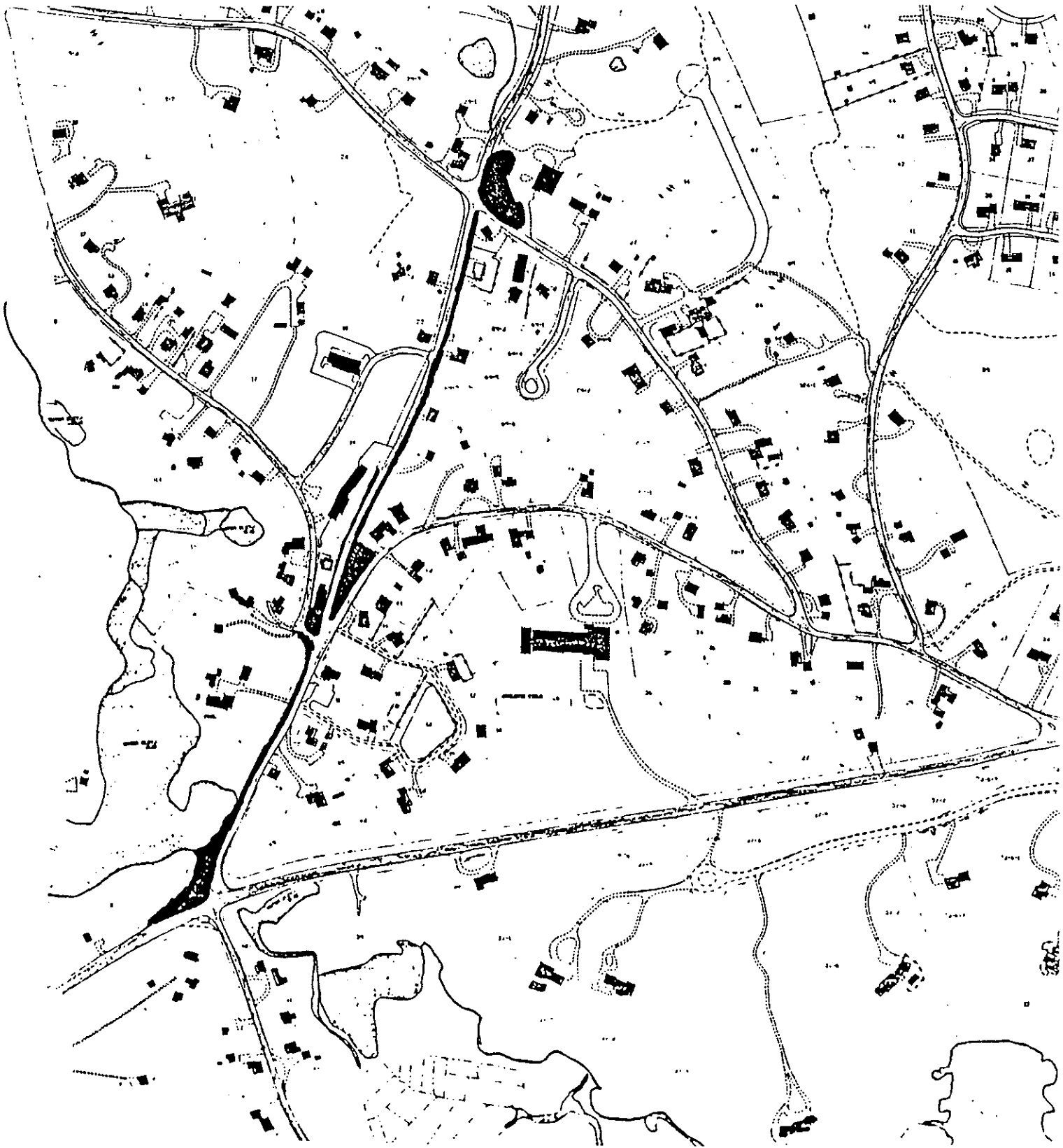
Strategies - Olde Barnstable Fairgrounds Golf Course

1. Ensure the maintenance of the golf course as a first class facility.
2. Protect groundwater quality in an area which may become a future public water resource area by minimizing fertilizer and pesticide use, and by using slow release fertilizers.

Strategies - Village Facilities

1. Seek acquisition of waterfront properties for recreational purposes as they become available.
2. Develop management plans for town-owned lands.
3. Provide toilet facilities at pond beaches. To protect water quality in the pond, facilities should be portable, self-contained facilities; permanent facilities should be located outside of flood plains and recharge areas to ponds, or a minimum of 300 feet from the pond edge.
4. Evaluate need for satellite programs for the elderly in the Marstons Mills village center.
5. Provide a transportation linkage to the new senior citizen center when built.

Marstons Mills Village Center



6. Village Improvements

Residents overwhelmingly identified the area of the Mills stores and Cash Market as their village center. The Mill pond was identified as the favorite view. Both these areas were also identified as areas most in need of improvements and additional landscaping. Concern was also expressed for the intersections at Rt 149 and River Road, and Route 149 and Route 28; a general concern for the condition and location of sidewalks in this area was also identified.

Mills Stores.

Like many commercial developments in the town, entrance to the parking lot is by wide curb cuts where there is no distinction between parking lot and street. Vehicles cut across the road at wide angles, cars back into the street and sidewalks are interrupted. Five large mature trees are a special feature of the site, and soften the impact of parking lot, buildings and road. The trees however are fully mature. Some are showing signs of deterioration and disease. Some are showing severe injury from being repeatedly hit by cars. It should be expected that these trees will have to be removed in coming years. There is no system of landscape islands for protection of the existing trees and young trees will not survive without protection.

Because of the length of time it takes for street trees to grow, it is recommended that landscape improvements for this area be designed promptly and budgeted as soon as possible. Such improvements need to be coordinated with other improvements in the area such as road and sidewalk reconstruction.

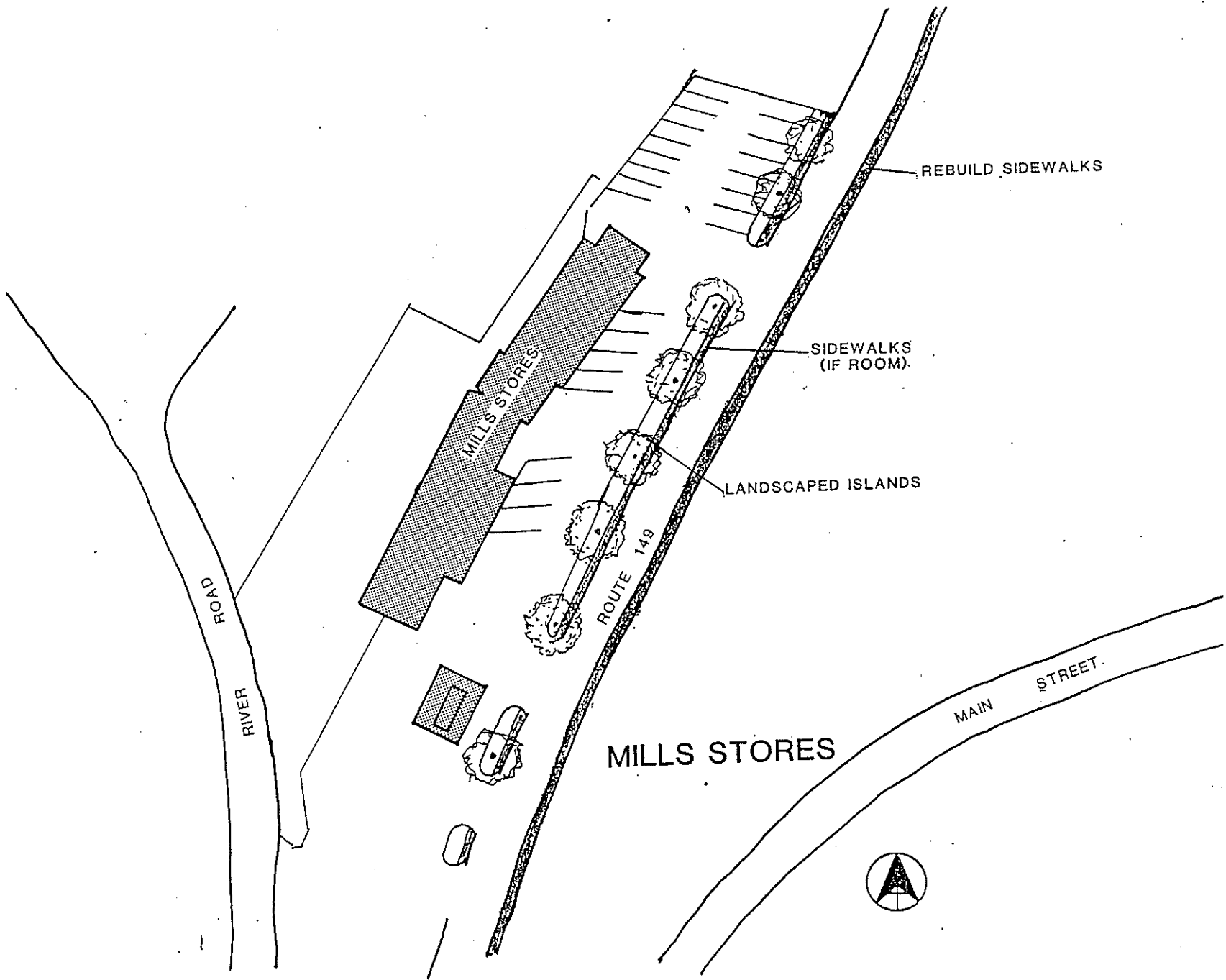
Landscaped islands need to be created along Route 149 in front of the market. Concept plans show two curb cuts to access the gas station and one at the other end of the property. There appears to be sufficient public right of way to create landscaped islands of approximately 10 foot width. (See Improvements Scheme 1.) This width will provide ample protection of young trees from errant cars if granite or other durable vertical curbing is used. Sidewalks need to be rebuilt in conjunction with the landscape islands. Because of the narrowness of the road, amount of traffic and the fact that the sidewalk will be immediately adjacent to the road, it is recommended that both the islands and sidewalks be edged with vertical granite curbing. The existing curbing of rolled bituminous concrete has not proved durable. Sidewalk material could be cast concrete.

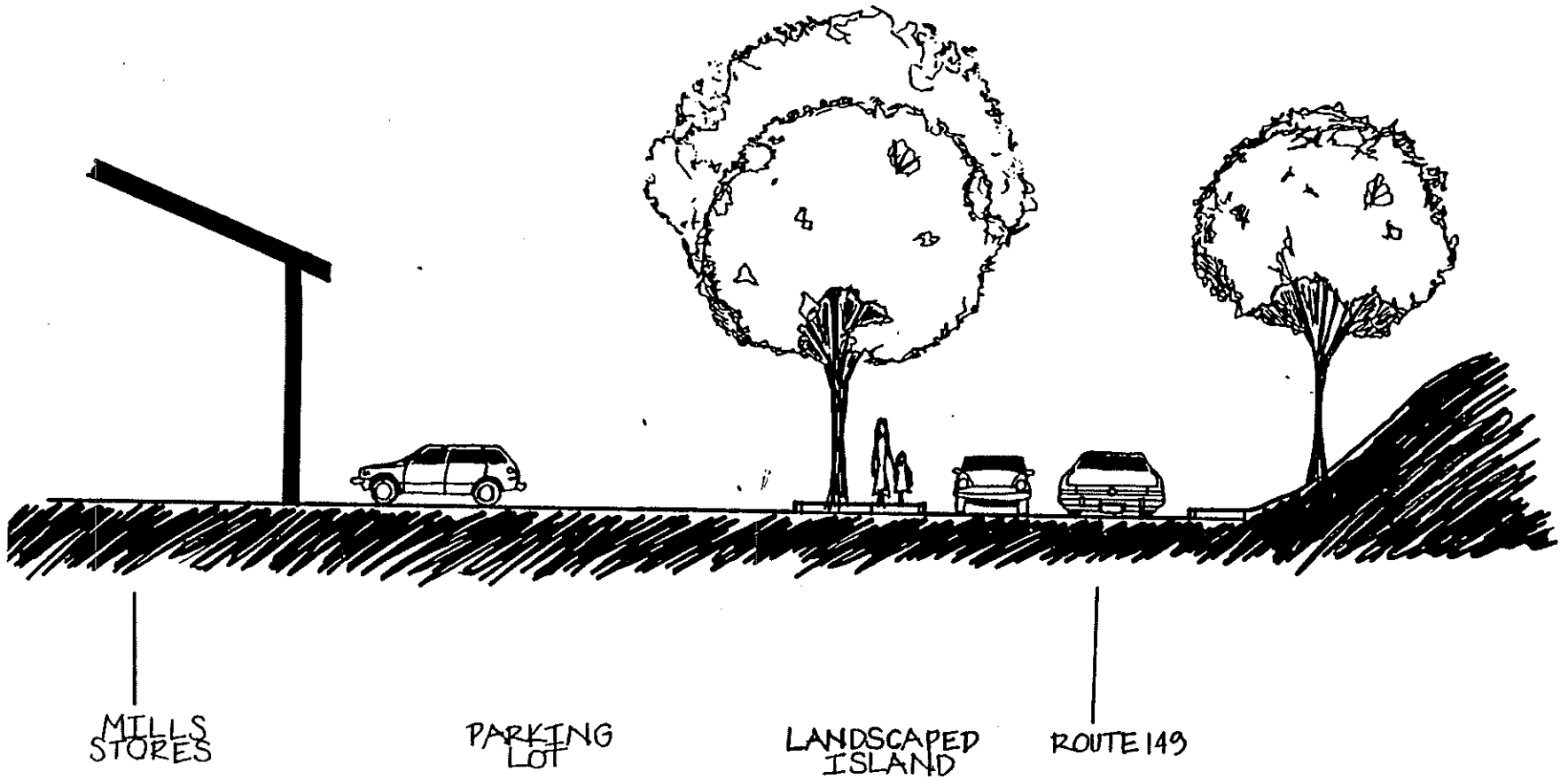
The existing trees should be retained wherever possible with a tree preservation program and new street trees planted between.

The landscaped islands will reduce the depth of the parking area in front of the market, which has encroached on the road right of way. In portions of the parking lot this may mean angle parking with defined spaces. A survey of the road right of way and detailed design plans will be needed.

Intersection of River Road and Route 149, and Cash Market.

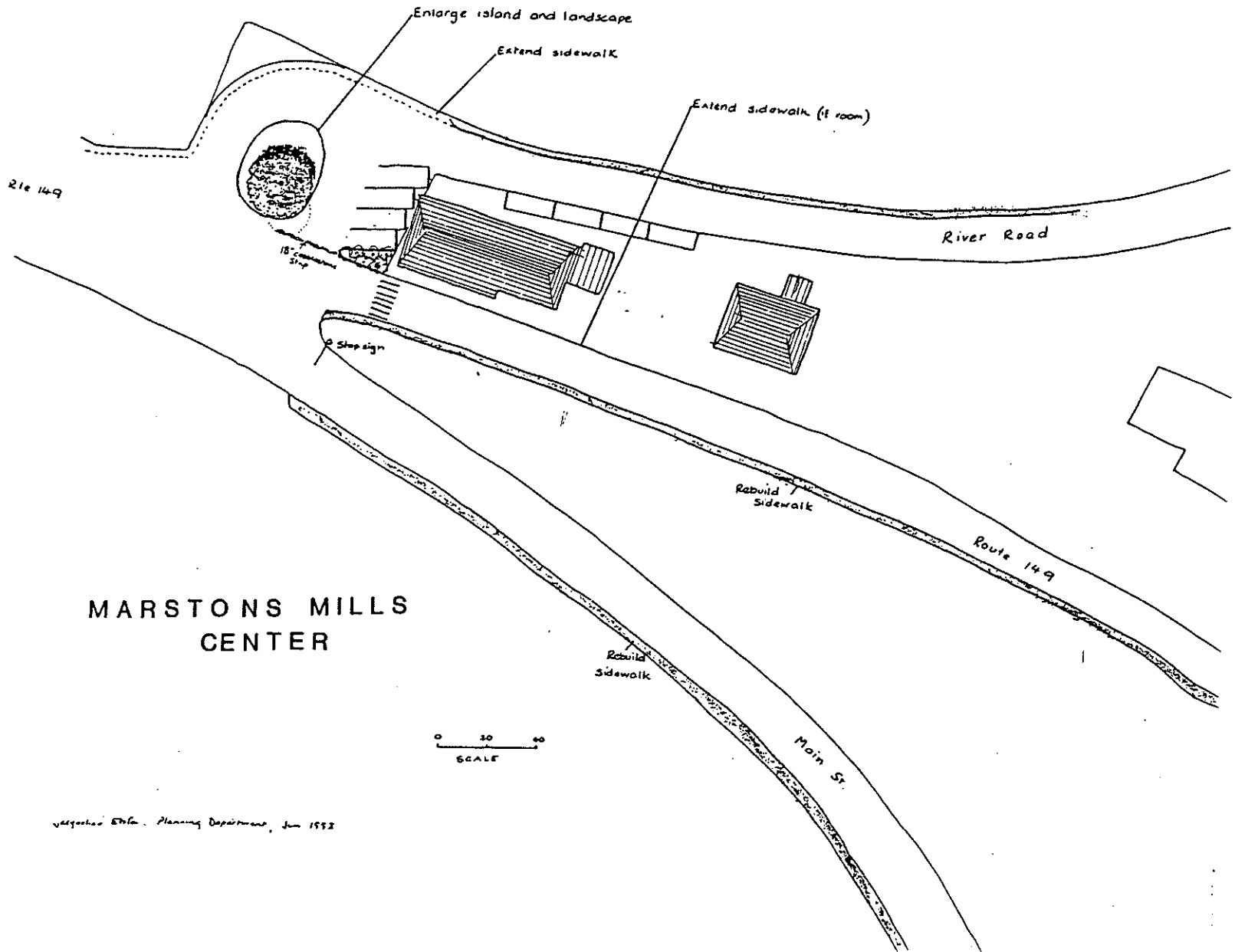
This is one of the most confusing intersections in Marstons Mills. The Cash Market extends to the edge of the road right of way and parking spaces in front of the store are located in the intersection. For the visitor, the intersection with River Road appears to





SECTION-LANDSCAPED ISLAND

A. WONG 7/92



Walter's Office, Planning Department, Jan 1992

be, and is, a parking lot. Short term improvements are made to relocate and increase the size of the rotary and improve the delineation of parking in front of the Cash Market. The sidewalk should be extended from River Road.

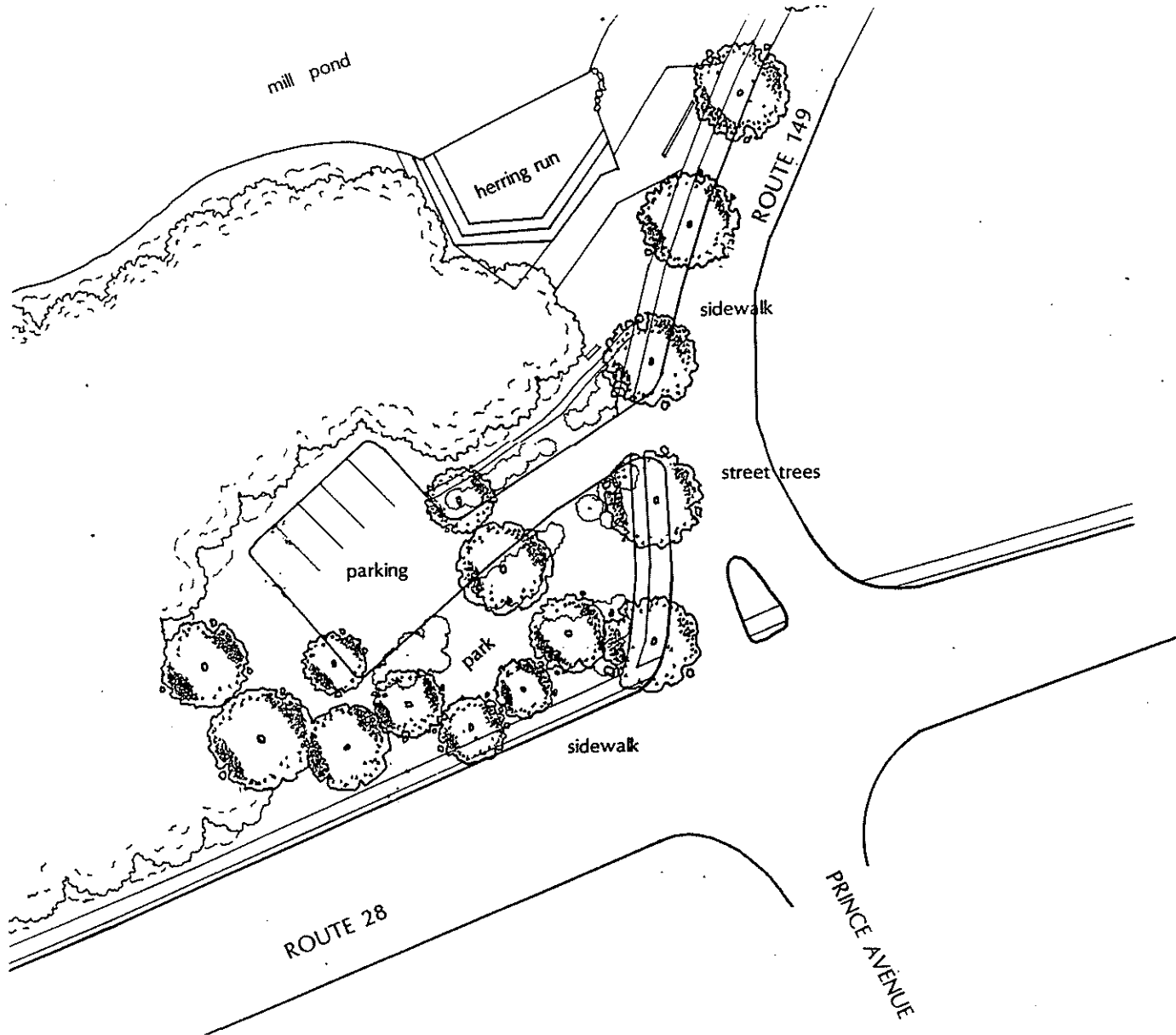
Between the Mills gas station and the real estate office, an unofficial cut-through has been created on River Road. A long term improvement would be to make this cut through official. Evaluation of this option is needed which includes impact on the gas station, including access for delivery tankers. Acquisition of right of way would be required. A one way system on River Road could then be created, however, parking and access to the Cash Market then becomes problematic and is not resolvable at this time.

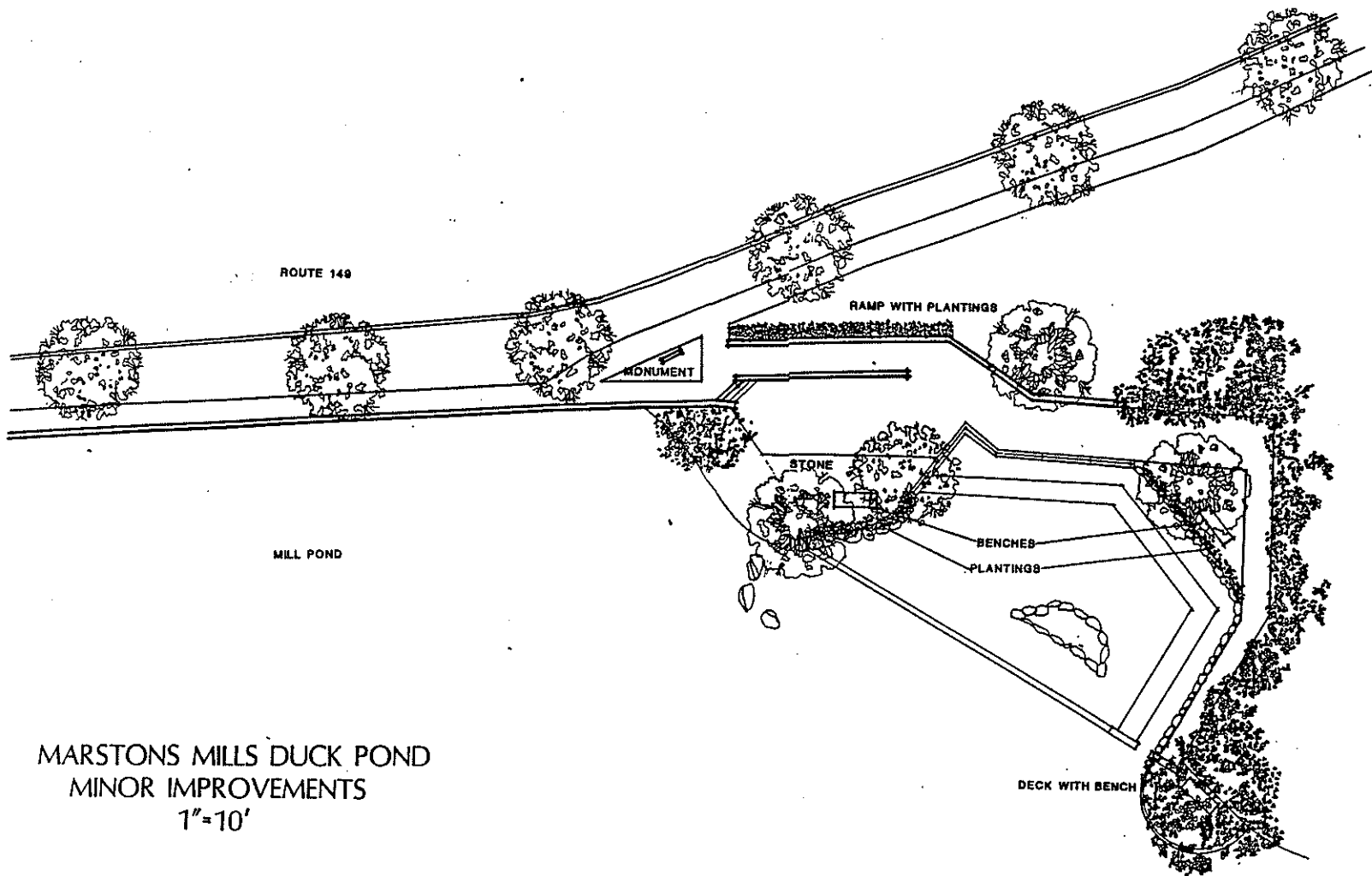
Mill Pond Site (also known as the Duck Pond).

The Mill Pond area was overwhelmingly identified in questionnaires as the most valued scenic view in the village. It was also identified as the second area most in need of landscaping improvements. The intersection of Route 28 and Route 149 was identified as dangerous and in need of safety improvements; the need for a traffic light was also cited. A large turning radius more commonly associated with a highway entrance allows traffic to enter Route 149 from Route 28 at a high speed. The intersection needs to be reconstructed with a sharper angle and a four way intersection created with Prince Avenue. Intersection improvements also need to include an upgrading of drainage systems to comply with current regulations and eliminate direct discharge into wetlands and streams. Drainage systems across the Inn of the Mills restaurant property also needs attention.

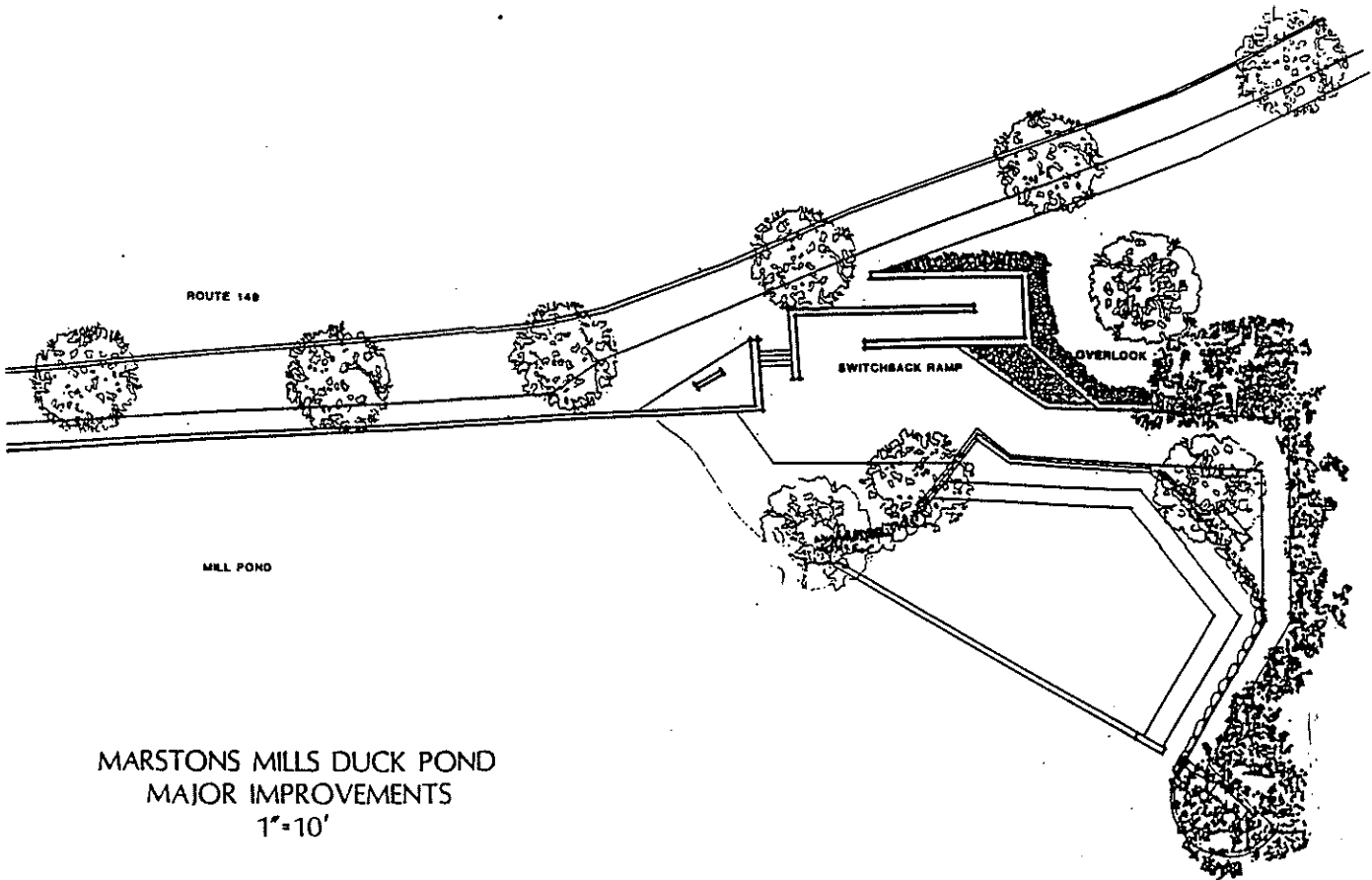
If the intersection is improved as shown on the plans, a substantial amount of land will be gained which can be used in conjunction with the Mill Pond to provide a landscaped open space buffer and a gravel parking lot for the herring run. Within the Mill Pond site various improvements could be made:

INTERSECTION OF ROUTE 28 AND ROUTE 149

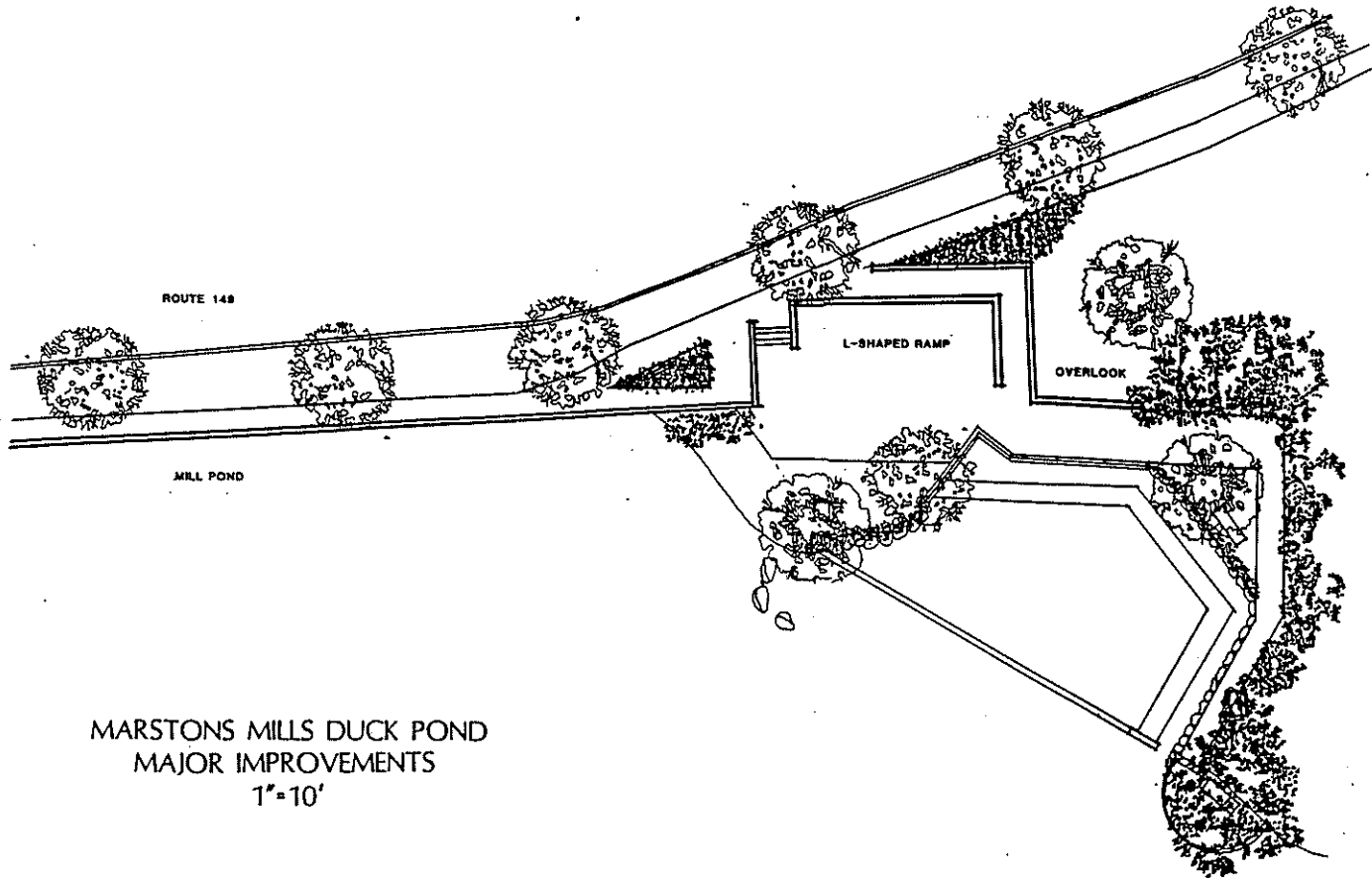




MARSTONS MILLS DUCK POND
MINOR IMPROVEMENTS
1"=10'



MARSTONS MILLS DUCK POND
MAJOR IMPROVEMENTS
1"=10'



MARSTONS MILLS DUCK POND
MAJOR IMPROVEMENTS
1" = 10'

A. WARD 1992

**Strategies Route 28-149 intersection and Mill Pond
Minor Improvements, (see Marstons Mills Duck Pond - Minor Improvements)**

1. Add cover landscape improvements to the area around the pond such as stone and grass.
2. Replace the wire fence with a more distinctive railing.
3. Add benches for seating.
4. Provide a platform over the water with benches for an informal sitting and viewing area.

Major Improvements to the Mill Pond area

5. Reconstruction of the retaining wall and handicapped access to create more space (See Marstons Mills Duck Pond - Major improvements, options 1-3.)

Related intersection improvements

6. Direct discharge of drainage to wetlands and waterways need to be eliminated. Design plans should include sidewalks/bicycle paths along Route 28 with a crossing at Route 149.

Sidewalks and street trees

Sidewalk connections to the village center and tree plantings are needed to connect the Mill Pond with the town center, and beyond. The Mill Pond area is open and adversely affected by the speed of traffic. Trees would create a more pleasant walking environment with a degree of separation from the road. Sidewalks would provide linkage to the village center and future park, and to Burgess Park (see Marstons Mills Village Center Vision Plan).

Marstons Mills Community Center - Library, Church and Liberty Hall

This area has been, and still is, the community center of the village. In village surveys it was identified as one of the centers of the village. It also was identified as the third most frequented area, after the Post Office and the Dump.

Liberty Hall was built in 1859 and has served as a village community center to this day. The small church dates from before the 1830's. The library was constructed in 1894. These three buildings have retained their historic Cape Cod architectural features. There is no regulation protecting the historic character of these buildings and the village needs to continue being sensitive to the need to protect the character and style of these buildings from inappropriate remodeling or materials.

The principal improvements needed are the creation of defined parking areas with a landscaped island separation from Main Street. Care needs to be taken not strip slopes overlooking Route 149, which could result in slippage and instability. Expansion of the library will require additional parking and linkage with Route 149.

In general it is recommended that plant materials traditionally associated with Cape Cod be used to complement the traditional small scale, rural architecture of the village center.

Fire Station

The Fire Station sits on a grass covered hill. Isolated globe arborvitae bushes dot the lawn area. This site which is at a prominent intersection could be made very attractive with the judicious addition of trees and other landscaping materials.

Intersection of Race Lane and Route 149 on the NE corner adjacent to the golf course.

This corner has been used as a meeting spot and parking area for trucks. The area is unsightly with vehicle tracks in exposed sand. It is recommended that the corner be improved with the addition of loam, and planted with informal, low maintenance plants such as Rosa Rugosa. Improvements at this intersection need to be coordinated with the Golf Course and the town Department of Public Works who are presently developing road safety improvements plans for the intersection.

Parking for the airport should not be located near this intersection for safety reasons.

Prince Cove

This small harbor is heavily used for moorings for small boats. The ramp is actively used in summer, but parking is completely inadequate. Trailers and cars are parked along Prince Avenue. The intersection with Route 28 and Route 149 are also of concern; it is difficult and dangerous to cross in summer between Route 149 to Prince Avenue because of alignment of the intersection.

Land for parking of both cars and trailers is needed. Acquisition of an easement should be considered if an outright purchase is not possible. The small town-owned parcel overlooking Prince Cove should remain as open space with the addition of a few picnic benches.

Putnam Avenue/Route 28 Intersection

Public improvements in the way of sidewalks across Route 28 connecting the two shopping centers are needed, plus a pedestrian cycle on the traffic lights.

Improvements Schedule

Improvements outlined above, particularly in Marstons Mills village center, need to be designed and coordinated in advance of road and sidewalk improvements. This will insure that routine road work does not preclude or make work more expensive.

The town will need to work with the State DPW to ensure that the design of the Rt 28/Rt 149 intersection incorporates recommendations in this report.

Improvements to the Mill Pond site can be phased over time as funds permit.

Osterville Village Plan

Plan Summary

The attractive seaside village of Osterville, rich in history and cultural heritage was founded in 1648 as "Cotocheset". It was primarily a seafaring village, the home of sea captains, shipbuilders, salt-workers, cranberry growers and oyster men. The village's name of Osterville did not come into use until 1815.

Isolated from the main stream of Barnstable, the village center was developed to service the needs of its residents. Osterville as a summer residence and visitor's destination resulted from its location and the beginning of rail service in the mid 1850's. The rail station at West Barnstable was linked to Osterville by a carriage line that transported the visitors overland along Osterville West Barnstable Road.

Osterville's popularity evolved from its location, the extensive coastline, charming convenient village center and attractive neighborhoods and resort areas. The village instilled both residents and visitors with a sense of peace and tranquility. As tourism expanded, picturesque streets and buildings were thoughtfully planned and developed. Noted architects and landscape architects plied their trade, first in the 1880's at Wianno followed in 1920's at Oyster Harbors.

Today Osterville's 5.8 square miles preserves its association with the sea and its traditional summer resort quality. Osterville's distinct areas include the more rural northern area along Bumps River Road, Tower Hill, East Bay, the Village Center, Seapuit, Osterville Harbor, the historic area of Wianno and the island communities of Little and Grand Island (Oyster Harbors).

The village attributes include the 5 mile Nantucket Sound coastline and the 17 mile shoreline along the coastal bays and river estuaries. The shoreline encircles 1,300 acres of protected waters and the coastline has 102 acres of protected barrier beaches.

Thirteen inland ponds and lakes total 75 acres of surface water. Open land, totaling 305 acres, is held in the public interest, protect the natural environments around Osterville. Two private golf courses retain an additional 228 acres of open space.

Osterville's year round population is just under 3,000 residents and its summer population is estimated at an additional 4,900. With 30 percent of the population over the age of 64 it is the highest retirement age village within the Town.

The Osterville Village Association has a 50 year history of active civic involvement. It represents the aspirations of its residents in that it strives to protect and preserve the village character, maintain a balance in growth and change, and hosts treasured community activities. Village Day and Christmas Open House are two of the most popular events.

The village center provides a blend of retail commercial, professional services, institutional and community uses, banking and a collection of small quality shops, galleries and offices. For the village residents, it meets most of their needs. Some quality multi-family apartments and townhouses are scattered around the center expanding housing options within the village. Of the 2,328 housing units in Osterville, year round residents occupy 56.6% of the total housing units.

In the village center there remain only 10 designated historic buildings, another 11 are considered significant for designation. These structures date to the 18th and 19th century agriculture and maritime life of the village. Wianno and Seaview Avenues, which illustrate the turn of the century summer resort heritage, have the distinction of being designated a National Historic District. Eleven roadways are attractive enough to be designated Scenic Roads. They total 15.26 miles of linkage to historical sites, open space and community institutions.

Today, Osterville is faced with several major village issues that need resolution. This resolution will require attentive work on the part of the village residents to see them to a successful conclusion that respects the aspirations of Osterville.

Issues Facing Osterville

1. Main Street Business A Zoning District

One of the highest concerns is the Main Street Business A Zoning District between Pond Street and Osterville West Barnstable Road. Of the 26 acres within the zoning district, 16.56 are in private ownership and if developed may not be in the best interest of the village as a whole. It is estimated that full buildout of the district could create 144,000 to 187,000 sq.ft. of retail/office space. this buildout would highly impact traffic, roadways, utilities, existing user patterns and the village character.

Goal: This district should be rezoned to fulfill the aspirations of the community ensuring compatible uses and a realistic buildout scenario based upon the village's overall growth desires.

2. Darby Property

The 106 acre "Darby Property", formerly a portion of the Kennedy Horse Farm, is a contiguous tract of town property encompassing Joshua's and Micah's Ponds. Acquired in 1985, it was generally accepted by the Town Meeting that the acquisition was to prevent development and preserve the site for conservation and general municipal purposes. Today, 66 acres, remain uncommitted and available for a host of municipal uses. Besides the lands historic significance, it is part of the "Finger Link" open space plan, contiguous with Osterville Elementary School, the 132 acre preserve of Cape Cod Museum of Natural History and the 28 acres of the Association for the Preservation of Cape Cod.

Goal: All 106 acres in the Darby Property must remain intact and preserved for public accessible open space as intended. A management plan is needed that will protect both the ground and surface water resources, the archeological and historic significance and preserve the aesthetic qualities with walking, equestrian and bicycle trails developed.

3. Coastal Lands and Waterways

Thirty-five percent of the coastal bays and estuaries are occupied by moorings, piers and docks. Public access to the coast is limited, water quality continues to deteriorate and commercial shell fishing has vastly decreased.

Water quality is deteriorating not only from surrounding uses of the land but also from marine uses themselves. Marine activities have a contributing effect on water quality. Boat oil, gas and engine pollutants, as well as run-off from paved road and parking surfaces is flushing into the inland bays. The bays and estuaries are a town wide resource.

Goal: The creation of a Coastal Protection District should be explored. That District, encompassing both land and water surface, would preserve needed marine, boat building and boating service facilities, provide better and more efficient boat moorings that retract the amount of water surface area consumed, and increases recreational, shellfish harvesting and fin fishing opportunities. On shore it should strive to increase the amount of public access and ensure water dependent shore side uses and activities as well as respect the coastal environment.

4. Protection of Village Character

Retaining and protecting the visual and architectural charm established over the 344 year history of Osterville is seen as one of the most pressing issues. Concerns exist for the high land values in the Village Center pressuring property owners to maximum buildout and height. Land divisions in the northern section of the village are changing that area's rural character and new home development on Grand Island and Eel River peninsula has changed the natural setting there. Future concerns also exist for division of large estates along South County Road and the potential change in character that could result. Preservation restrictions are needed on the Wianno Golf Course open lands to protect them for future generations.

Goal: Preservation of large acreage scattered sites could be assisted by tax incentives for preservation, encouraging gifts and easements. Creation of historic districts should be investigated to protect historic community resources.

Goal : In the village center, a reduction in the Zoning building height limitation and permitted lot coverage should be considered, to reflect the existing character of the area.

5. Retain Economic Viability of the Village Center

The village center of Osterville is one of the more popular small shopping areas. The commercial area serves not only the village, but its unique retail businesses and professional services, and its quaint village setting, attracts customers Cape wide and beyond.

Goal: Preservation is seen as a major objective for the village center. Existing structures should be preserved and reused, new additions should respect scale, height, materials and settings. Compatible and complementary new businesses should be encouraged to locate in the center.

Goal: Increase public parking, attractive landscapes and better signage, comfortable pedestrian ways, and increase promotional activities should be encouraged.

6. Non-conforming Uses

Many retail uses, lodges, and services are located in residentially zoned districts. They are non-conforming in use or may exist as special permitted uses. Some of these businesses are important village assets. The permitting process is seen as citizen involvement in controlling the degree to which those businesses would be permitted to change or expand. This regulatory process has been going on from the inception of zoning (early 1950s) and has proven somewhat effective for the village.

Goal: Preservation of non-conforming uses that are compatible with the heritage and character of Osterville should be a priority. Any expansion must be carefully guided and assurances made that any changes retain those traditional uses, building architecture and site qualities. Non-conforming uses that are not compatible in location or use should be phased out over time.

7. Septic and Wastewater Treatment

Tower Hill, the Village Center, the Marina and areas of Wianno have concentrated development. The area's low lying location and proximity to coastal wetlands, presents a problem from recharge of septic waste. Nitrates, nitrogen, phosphates and organic compounds accumulating in the groundwater eventually find their way into the surrounding bays. Also of concern is the density of development which has dictated excessive amounts of paved surfaces. Those surfaces contribute to increased run-off and auto pollutants. Both septic discharge and surface run-off is impacting the marine and freshwater environments.

Goal: To preserve and improve the quality of the coastal environment new techniques in septic treatment including individual and common septic disposal systems should be investigated. The feasibility, benefits and drawbacks of group package or satellite treatment should be considered.

8. Affordable Housing

At present two sites totaling 4.33 acres are owned by the Barnstable Housing Authority and are dedicated to the development of affordable housing in Osterville. These sites, have lay dormant for well over 6 years and today remain vacant awaiting much needed family housing.

Osterville, under its existing and past zoning provides diverse option in housing. Of the total 2,328 housing units in the village, just under 10% (224) are two-family and multifamily units. Most multifamily units, located in the Urban Business Zoning District, are convenient walking distance to the business center and institutional uses. Duplex and two-family units exist in the neighboring RC Zoning District which once provided for two-family units.

Land and housing costs are very high in the village. The average monthly cost of home ownership in the village was \$1,104 (1989 data), the highest in the Town of Barnstable and well above the state and county costs. The median gross rent within the village was \$758 per month (1989 data). Although an affluent village, the largest majority of its residents are retired and most live off fixed incomes. 7.1% or 201 persons were living below the 1989 poverty level.

Goal: The Barnstable Housing Authority should develop those sites committed to affordable housing prior to any attempt to securing new sites for affordable housing developments. Existing housing units should be the primary target to provide affordable housing units.

Goal: Osterville, being the highest village in retired persons needs good, affordable housing for this age group. This should be the priority of those two-family and multifamily units purchased in close proximity to the village business area. Family housing should be scattered within existing single-family units.

Goal: Purchasing of affordable housing, sites and structures should serve a dual purpose. Existing deteriorating structures and sites within the villages. Securing these and redeveloping them would not only provide for affordable housing but would also provide environmental and community improvement benefits.

West Barnstable Village Plan

1. Village Character

Physical and Natural Landscape Character

West Barnstable has several distinctive, contrasting landscapes. To the south at the boundary with Marstons Mills is a wide level plain where the airport and golf course are situated. Northwards is the terminal moraine, a broad band of wooded hills; north of the hills, the land is low lying and traversed by several streams. The marshes of Barnstable Harbor and Sandy Neck, a barrier beach, form the northern boundary of the village with Cape Cod Bay.

Outwash Plain

The plains of Marstons Mills Airport and the golf course are part of the glacial outwash plains. The land is relatively level except around kettle holes and ponds. Soils are mostly coarse grained sands and gravel.

Vegetation consists of either pine and scrub woodlands or grassland vegetation at the Marstons Mills Airport and the Fairgrounds Golf Course. Grasslands were once common on Cape farms, but are now relatively rare; they need to be maintained by mowing in order to prevent the incursion of tree species.

The Moraine

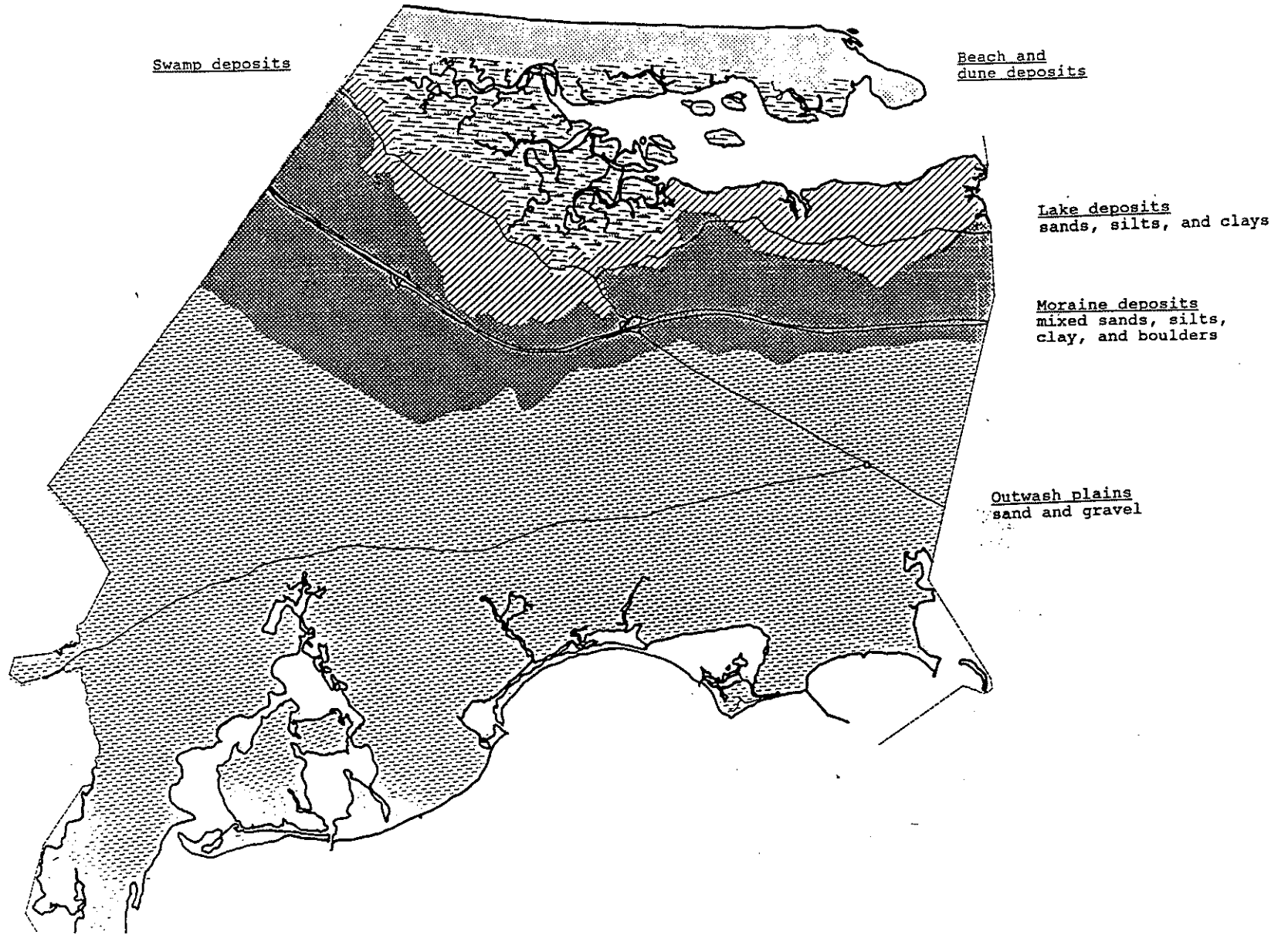
The southern portion of the village is characterized by a broad band of low hills which extend throughout the middle and upper Cape north of the outwash plains. These hills are moraines, a complex intermixture of varied glacial deposits pushed up by glaciers which extended over New England 18,000 to 20,000 years ago. Route 6 traverses the moraine.

The moraine landscape is characterized by steep sided, knob-like hills and kettle holes. On the northern edge of the hills are small kettle ponds such as Garrets Pond, Spruce Pond and others. Other kettle holes have marshy bottoms, some of which have been developed as small cranberry bogs. Soils in this area are highly varied and consist of all types of glacial deposits - sands, gravels, clays, peat, fine silts and boulders.

There are few streams; the soils are moderately porous and water percolates downwards to a saturated area known as the aquifer. The aquifer is furthest from the surface on the hilltops. Aquifer levels vary seasonally and with drought conditions. Wells in this area may have to be sunk to depths of 70 feet or more in order to ensure a reliable source of water. In general groundwater flows north to the Bay, but because of the varied topography and geology, groundwater flows on individual sites will be strongly influenced by slope. Individual wells and septic systems should be sited with caution.

This area has two principal constraints for development. First, water supplies may be limited due to higher elevations, and support only low density development. In West

Generalized Geologic Map Of Barnstable



Barnstable, there is no public water supply; each building lot must be served by a well and septic system.

Second, the steep slopes and loose soils are extremely vulnerable to erosion when stripped of vegetation or steepened by excavation. Developments should be located away from the steeper slopes, and during construction, erosion control techniques should be employed. In particular, drainage systems and septic systems should be located away from the steeper slopes to avoid breakouts. (Erosion control techniques are now required in the town's two principal development regulations - Site Plan Review in the Zoning Ordinance, and the Subdivision Rules and Regulations of the Planning Board, which govern the building of subdivision roads.)

Fortunately the town recognized the vulnerability of this area and in the 1960's acquired extensive tracts of land now known as the West Barnstable Conservation Lands. 1,114 acres of permanently protected open space forms a conservation area and wildlife preserve of note.

Secondary forest growth of pitch pine and oaks are found throughout the moraine, similar in character to the outwash plains of the southern shores. In the West Barnstable Conservation lands the growth is dense, with an increasing predominance of oaks.

Lowlands

North of the hills of the terminal moraine, the land is low lying with heavy soils and clay deposits. This area was formed in a glacial lake trapped between the moraine and retreating ice sheets. The area is characterized by a low, undulating topography with a complex layered geology of clays, silts, sands, and gravels deposited on the lake bottom. Small streams flow from the edge of the moraine and from kettle ponds northwards to the marshes of Barnstable Harbor. Streams are uncommon throughout the rest of the town because of the porosity of the soils. In both Barnstable Village and West Barnstable, streams appear because of the impervious nature of the soils.

Northwards of the moraine, the land drops to lowlands bordering the Barnstable marshes and shore of Barnstable Harbor. In this area, the natural environment and historic features create one of the most distinctive landscapes in the town.

The plant species in this area differ markedly from the scrub pine and oak found over the rest of the town. The occurrence of clay and other fine, rich, water-retentive soils results in distinctive shrubs and trees. Even the grass appears different, darker and richer than the sparse, drought-resistant species found to the south. Large shade trees, especially maples, predominate in the landscape. Deciduous shrubs such as viburnums border the marshes, increasing in height away from the marsh. Any replanting should respect the succession of height to maintain the natural appearance of the landscape, and maintain views.

Marshes are found along the path of streams reaching inland to the moraine at Bridge Creek. Route 6A, the historic Old Kings Highway, traverses the lowlands at the edge of the Great Marsh, crossing it in places. Much of the land in the vicinity of 6A in West Barnstable is less than 20 feet above sea level.

This part of the village has the most severe restraints for development. The area is dependent on private wells which draw from narrow bands of saturated sands, below layers of clay and silt. The area is sufficiently low lying that in places wells are vulnerable to saltwater intrusion. Drainage is difficult to dispose of because of the prevalence of impervious, or water-logged soils. On some sites, test pits reveal that drainage and sewage effluent are being discharged to unsaturated layers of sand immediately above the saturated zone, which is the source of drinking water. In several instances, village residents and professional staff have stated that the best water quality is from wells penetrating shallow layers, but that frequently water from deeper layers has a high mineral content affecting appearance and taste. These northern lowlands are particularly vulnerable to groundwater contamination which can spread horizontally along bands of clay.

Sandy Neck

Sandy Neck is one of the town's most remarkable natural, cultural and recreational resource areas. The barrier beach extends from Sandwich six miles eastward and has a width of approximately half a mile. The beach was formed by the deposition of coastal materials in an easterly direction over some 3,000 years. The source of sediments is Scorton Point and coastal cliffs located between Monument Point and Cape Cod Canal. Over the last 100 years the beach has grown 600 feet towards the mainland and lost 200 feet along the shoreline. The oldest part of the beach system is the western, Sandwich end; the youngest section is the eastern end, geological facts of significance to understanding the evolution of settlements along the barrier beach system.

Sandy Neck is a very special area. The landscape is one most often identified with the image of Cape Cod with extensive beaches, ocean and dunes which reach a height of 84 feet. Springs provide fresh water for both animals and people. The area is a dynamic one, sculpted by the sea and by the winds. Dunes shift and old soils are buried and exposed. The sea shapes and erodes the shoreline.

Plant communities are highly specialized and distinctive, adapted to dry shifting soil conditions and limited nutrients. The area is home to birds, deer and other animals including a number of rare and endangered species.

One threat to Sandy Neck which should receive attention is erosion. Beach deposits are moved along the coast by waves and currents in an easterly direction, replenishing the barrier beach system. However, jetties at the Cape Cod Canal built by the Army Corp of Engineers interrupt the flow of sediments, and in recent years erosion has predominated over deposition. The beach system is gradually being diminished. The parking lot was partially eroded during a major storm, and a break through to the Great Marshes could eventually occur. Various short-term and long-term erosion protection measures need to be incorporated into management plans developed for this area.

The Great Marshes

The Great Marshes formed within the protective arm of Sandy Neck. Cycles of sedimentation, colonization and succession of marsh plants with alternating rise and fall of sea level resulted in the growth of peat. The marshes cover approximately 5,300 acres which flood at high tide. A series of creeks and mosquito control ditches drain the

area of tide waters. The shallow waters of the harbor and creeks are productive shellfish beds, and a nursery for many ocean going species of fish.

The Great Marshes and its shallow creek waters are vulnerable to bacterial contamination which is perpetuated in peat soils, decaying marsh vegetation and seaweed. Development on the fringes of the marsh needs to be carefully evaluated for impact. Development density should be low, at least two acres in residential areas. An increased depth to groundwater for septic systems should be considered by the Board of Health. The depth to groundwater beneath septic systems serving new construction should not be waived by the Board of Health or the State, in recognition of the vulnerability of the marsh to contamination by bacteria.

Elevated fecal coliform bacteria levels in the Great Marshes are attributed to a few low lying septic systems, and to ducks and geese, which have caused closure of shellfish beds in creeks draining the marshes. No-feeding of wildfowl policies need reinforcement throughout the town.

Strategies - Physical Landscape

Erosion protection:

1. New development should be located away from areas which are identified in the report "Interim Soil Survey Report for Barnstable County"* as having "severe" limitations for building site development and sanitary facilities, because of slope and soil characteristics. In order to prevent erosion, breakout of basements and septic systems, and siltation of drainage facilities, each buildable lot should have a minimum area of land where the maximum grade is less than a specified percentage. This would require a change to the Zoning Ordinance definition of a buildable lot.
2. In areas of steep slopes, development should employ best management practice for erosion protection and sediment control as recommended by the U.S.D.A. Soil Conservation Service.

Sandy Neck:

3. Implement and monitor the effectiveness of management plans for the protection of natural, historical, cultural resources, and scenic qualities of Sandy Neck.
4. Relocate the parking area away from the dunes.
5. Develop a series of environmentally acceptable short-term and long-term erosion protection measures.
6. Develop and seek funding for "soft" erosion protection measures including beach nourishment, and designate the area a priority for suitable dredge disposal materials.
7. Actively encourage the Army Corp of Engineers to examine and remediate the impact of jetties responsible for erosion.

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8. **The Great Marshes** should be protected from contamination by excessive nutrients and bacterial contamination by the following strategies:
 9. No surface drainage shall be directly disposed of to the Great Marshes, or into any streams or wetlands leading to the Great Marshes. Existing direct discharge of drainage systems should be remediated.
 10. Existing direct drainage disposal systems should be remediated at the time any road construction or site improvements are made.
 11. Areas in flood plains and areas with wet, waterlogged and otherwise impervious soils which contribute to the Great Marshes and Barnstable Harbor need to be identified and a protection strategy developed. Measures should include low-density zoning with an increase of residential lot size to two acres and increased depth to groundwater requirements for septic systems.

Landscape Design

At village meetings, residents expressed the opinion that they wanted the village to look nice, and to maintain its rural character.

The choice of landscape design and plants is especially important in maintaining the visual character of the village. In the sandier moraine, existing wooded areas of oak and pine should be retained. Where clearing has occurred, replanting of similar species should be undertaken in lieu of the traditional method of loaming and seeding with grass. These requirements should be examined further for inclusion in the Subdivision Rules and Regulations.

Along Route 6A and other areas of historic farms, the appearance of natural pasture and tall deciduous shade trees such as maples should be emphasized in landscape design. Ornamental evergreens should be avoided. These plant materials are more appropriate in areas with more formal architectural and landscape characteristics. Residents would also like to see replanting of disease resistant elms along roads such as Meetinghouse Way, where these trees once graced the roadway.

On historic sites, the use of historic landscape materials should be encouraged. Typically these plant species include not only native plants and shrubs, but also European garden species. Advisory information on historic landscape design and plants could be provided to assist interested property owners.

Strategies - Natural Vegetation and Landscape Design

1. In areas with naturally occurring oak and pine, replant graded areas with stands of similar species of mixed heights. This policy should apply to both subdivisions and public improvements on roadways.
2. In West Barnstable, in areas of former farm landscapes, encourage the landscape designs which are relatively simple with grass and deciduous shade trees and other historic plant materials. Avoid the use of ornamental evergreens.

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3. Develop advisory information on historic landscape designs and traditional plant materials for the creation of historic settings.
 4. Along Route 6A and side streets, continue the practice of planting with deciduous shade trees particularly maples and ash, for fall color. Replant disease resistant elms along Meetinghouse Way.
 5. Respect the natural increase in height of plants from the edge of wetlands.
 6. Encourage the planting of indigenous plant materials to provide buffers along roadways and provide cover and food for wildlife.

Wildlife, Agriculture and Aquaculture

Wildlife

West Barnstable with its extensive tracts of conservation lands and open space, is home to a wide variety of birds and animals including sizable deer herds. This is part of the character of the village which residents value highly. However, road construction and development is fragmenting habitats, especially for the larger animals. Preservation of open space and retention of wildlife corridors is essential to maintaining wildlife populations.

Strategies - Wildlife

1. Identify east and west corridors north and south of the Mid- Cape highway and Route 6A in existing vacant parcels of land for the purpose of preserving open-space and wildlife corridors.
2. Develop a variety of means of preserving open space corridors such as buffers and corridors in new subdivisions.
3. Support humane wildlife management methods to maintain wildlife populations in balance with the environment.
4. Encourage the retention of large tracts of land by making information available on open-space preservation methods.

Agriculture

Village residents would like to see agricultural activities preserved, maintained and developed in the village. This is a difficult policy to effect other than to articulate that these are desired policies and to make information easily available on agricultural tax exemptions and zoning exemptions for the sale of produce.

Aquaculture

Shellfishing has been a pursuit for thousands of years. Trout farming is a more recent activity. Both activities require pristine water quality. Shellfishing activities in the town need support to remediate sources of contamination which reduce productivity and eventually result in closure. Shellfish need to be replenished by the growing of stock.

Strategies - Agriculture and Aquaculture

To encourage the preservation, maintenance and development of environmentally compatible agricultural and aquaculture activities.

1. Encourage the development of agricultural activities consistent with groundwater protection.
2. Encourage a farmers market in the village center.
3. Make information on agriculture tax exemptions easily available to interested parties.
4. Encourage the reclamation of abandoned cranberry bogs.
5. Encourage the development of aquaculture for all inland and coastal properties with that potential, in accordance with any coastal management plans.
6. Remediate and prevent contamination of all surface waters.
7. Support shellfish seed stocking programs

Historic Character

Early Settlement

The first inhabitants of the Town of Barnstable settled around the Great Marshes and shallow waters of Barnstable Harbor. The harbor and creeks were an abundant source of shellfish for the Native Americans. Archeological sites can be found along the coastal shores, close to freshwater streams and especially on Sandy Neck.

The first Europeans also settled on the edges of the Great Marsh which was utilized to provide hay for cattle without the need to clear forests. Marsh reeds were also used to thatch roofs. Later, settlers cleared the clay lowlands for farmland. The rich soils provided fertile lands for both pastures and crops, in contrast to the nutrient poor, dry sandy soils of the southern outwash plains. Further inland, the wooded moraine hills were utilized for timber cutting, both for fuel and for building materials. Today long rectangular lots still can be seen in the town's assessors maps, the remnants of old wood lots which extend southwards to the outwash plains. The different land types found in West Barnstable provided the West Barnstable farming community with a variety of essential resources.

Route 6A developed from a series of Indian pathways connecting a string of settlements located along the edge of the marshes. Where the road crossed marshes and creeks there were small bridges. Today the bridges are gone. The marshes were filled to create embankments and the streams channeled through culverts. In 1685, the road was laid out in its present location and designated a County Road. Cedar Street was also an Indian trail which extended from the Berkshires to the Cape.

West Barnstable was the second area of the town to be settled by the Colonists after the 1639 settlement of Barnstable Village. West Barnstable and Barnstable Village divided in 1715-1717. At that time the West Parish Meeting House, one of the town's landmark

historic buildings, was constructed at the corner of Meetinghouse Way (Route 149) and Cedar Street, the original village center.

While Barnstable Village prospered as the center of county government, West Barnstable remained a remote agricultural village of farm houses, barns and outbuildings set in open pasture lands along Route 6A and a few side roads. In 1854 the railroad came to West Barnstable and development occurred around the railroad station. Today village residents identify this area as their principal village center. The coming of the railroad however, had little other impact on the village. The passengers were the first tourists, who traveled from the station southwards to summer houses in the villages of Osterville, Centerville and Cotuit. West Barnstable, with its great marshes, swamps and abundant mosquitoes, did not participate in the tourist industry to any great extent. Like Marstons Mills, it is still a predominantly year round community, only 5% of the houses are seasonal (1990 U.S. Census). Today the mosquitoes are diminished - although by no means absent - the W.P.A drained the Great Marshes with a system of ditches in the 1930' and 40's and the village has become a very desirable residential community.

History of Business Development

Over time small businesses were begun in West Barnstable to provide additional income. Tanning, weaving, pottery and blacksmiths were established, but according to Trayser, few were successful. Although the village was one of the earliest settlements, it had remained a small farming community which could not support larger scale commercial activities. Trayser states "more than any other village in Barnstable, West Barnstable has made its living from the land". Today, there are a number of small arts and crafts establishments in West Barnstable, near the railroad station and along Route 6A.

One notable exception was the West Barnstable brick company located on the north side of Route 6A at the edge of the Great Marsh on Hinckley Way, on the site of a former pottery. Between 1878 and 1919, clay was excavated and fired to make a red brick used for foundations throughout the Cape.

The 19th Century also saw immigration to West Barnstable. Finnish and Portuguese families came to work in the brick factory and on cranberry bogs. They settled and provide a special diversity and character to this village.

Until development began to change the character of the village, it remained an isolated rural village of traditional New England Cape Cod farmhouses, barns and outbuildings set in a landscape of open pastures divided by ancient stone walls. Further inland, the moraine hills remained wooded with little settlement.

Lombard Farm and the will of Parker Lombard

In 1754 Parker Lombard died at the age of 34. In his will, he left some 48 acres of land located throughout what is now the village center and along Navigation Road, in trust to be:

"hired out to the highest bidder by those persons that the town shall appoint from time to time and the rent or income shall be improved for the use or benefit of the poor of the Town of Barnstable from one generation to another and never to be sold."

The first Selectmen's building still stands on the Lombard Farm, alongside Meeting House Way. In 1768 the town built a poor house on the Lombard land. In 1821, a second poor house was built. Lombard House, as it later became known, was used until the 1960's when the State took over the welfare program. In 1972 the buildings were torn down.

Three school houses have been built at the Corner of Meetinghouse Way and Lombard Avenue. The last school house is now the West Barnstable Community Building. These publicly used portions of the Lombard land are leased by the town from the trust.

Historic Architectural styles

Historic buildings in West Barnstable typically are Cape Cod style farmhouses and outbuildings with simple clean lines. Residents point out that new buildings should be similar in scale and design to existing historic buildings and not exceed the height limitation of two stories in this village.

Sources

- * Town of Barnstable, Historic Preservation Plan, prepared by the Barnstable Historical Commission, 1985
- * Barnstable, Three Centuries of a Cape Cod Town by Donald G. Trayser, 1939
- * The Seven Villages of Barnstable, Town of Barnstable, 1976
- * Files of the Historic Preservation Department

Sandy Neck - Archeological Resources

Evidence of North American Indian settlements is as ancient as the Neck itself, about 3,000 years old. These were established along the Neck as it grew from Sandwich eastwards. Later the colonists established settlements. In the 19th Century, whale house, try yards and fish shacks were all built on Sandy Neck. Sandy Neck contains significant information on the interaction between native people and the colonists during the 17th century, a subject about which little is known. The Neck also contains many historic cottages and buildings which are part of a National Register Historic District. The area was utilized for grazing and in the 19th century cranberry bogs were cultivated. The area is one of the most significant natural and cultural environments on the eastern seaboard in this country.

Recent Development and Impact on Historic Landscapes.

Until recently, West Barnstable was not affected by the rapid development and commercialism which began in Hyannis and spread westwards to the other villages. The population was small and the village located furthest from commercial centers. The land is also difficult to develop, with steep slopes in the moraine and in the lowlands along Rt 6A, clay deposits create severe restraints to development.

However, as larger tracts of land became scarce, development began to change the landscapes of West Barnstable. Large tracts of land in the wooded interior of the outwash plains and the moraine hills have been subdivided and developed. Most

developments are one acre grid subdivisions. A few cluster developments have been built, but not many since the Board of Health requires a minimum of one acre for a well and septic system on the same lot. A larger lot size is needed to allow cluster development without jeopardizing private wells. In the hilliest areas, roads need to be located so as to avoid steep slopes, and road lengths minimized.

Most of the historic buildings are situated in the clay lowlands adjacent to the marshes. The historic farm houses and barns are provided with a substantial measure of protection under the Old Kings Highway Historic District. However the historic sites with open pastures and stone walls are an integral part of the character of this village and very vulnerable to development. Little protection is afforded historic sites and vistas in existing regulations.

Protection of the old farms is of concern to long time residents, many of whom do not wish to see the old farm lands subdivided and developed. Information has been made available on means of protecting open space in perpetuity to interested individuals. A conference on this subject may be of assistance to interested property owners to explain the methods of preserving land and estate benefits which can be gained.

Historic Character Strategies

1. New construction should be of a similar architectural style to that of the surrounding area.
2. Commercial buildings should be sympathetic with the character, style and scale of surrounding residential buildings and not exceed two stories.
3. Various means of protecting historic settings and scenic views should be developed by the town's Historic Commission.
4. Stone walls should be retained.
5. There should be no demolition of historic structures.
6. Ensure that the town enforces the requirements of the Old Kings Highway Historic District.
7. Encourage the preservation of old farms and open space by making information available on Conservation and Preservation Restrictions and local Landmark Designations.
8. Preserve the Old Selectmen's Building for use as a museum, exhibit hall and meeting place.
9. Eliminate retail stores as a permitted use from the definition of a home occupation.

2. POPULATION, AND HOUSING

Population

Total population

The population of the West Barnstable Fire District is estimated to be approximately 2,000. The 1990 Census CDP area provides a statistical profile for the 1508 residents living north of Route 6 and west of Route 132.

Age

The residents of West Barnstable are comparatively young with a median age of 39, similar to the town wide median age of 38. Only Hyannis and Marstons Mills residents are younger. The village has 383 children 3 years old and older enrolled in school, or 26%. 236 people, or 16% of the village residents are 65 years old or older, the second lowest percentage in the town, only Marstons Mills has a lower percentage of elderly people. The residents are well educated, 35% have a bachelors degree or higher, compared to 28% town-wide.

Households

This village has the largest family size in the town, 3.10, compared to 2.89 members town-wide. The average household size of 2.71 is second in size only to Marstons Mills. The large family and household size is due to the high percentage of children in the village. Young families are particularly concentrated in the new subdivisions located along Cedar Street.

Only 23% of the households are occupied by non-related individuals, the second lowest percentage in town; the town-wide percentage is 33%. Only 11% of families are headed by women, compared to 16% town-wide.

Income

The median household income is \$41,563, the second highest income in town, only Barnstable Village is higher. 1.4% of the population is below the poverty line, the lowest percentage in the town. At \$18,430 per annum, the median income is above the town-wide figure of \$17,376. Despite a comparatively young population only 40% of women over 16 work, compared to 53% town-wide. This is in sharp contrast to Marstons Mills, where a majority of women with children are in the work force. This is probably related to a higher per capita income and lower housing costs in West Barnstable.

Housing Costs

Housing costs are surprisingly low in West Barnstable, considering the high values of most houses.

Median monthly mortgage costs are \$976, below that of all villages except Hyannis. This is probably because a substantial proportion of the residents have owned their houses for many years. 34% of owner occupied houses have no mortgage. According to one resident, many of the older historic houses have been in families for generations and are handed down to younger generations, often with several generations living in the same house.

Unemployment

Despite a high income, West Barnstable has the second highest unemployment level in town at 7.8%; with the highest unemployment rate amongst women. Only Hyannis has a higher unemployment rate. The reason for this is not immediately apparent.

West Barnstable residents have deep roots in the community. 72% lived in the same house in 1985, compared to 52% town-wide. A comment was made that people move into the village but they do not move out. Many families have lived in this village for generations and have a strong sense of community identity. At village meetings, the impact of growth and development on the rural character of the community is of considerable concern.

Residential Development

Residential Buildout

West Barnstable is the least developed of all the Barnstable villages. This is evident in buildout studies. In 1989, an analysis of the assessors land use codes revealed that of the 2,432 potential one acre lots in this Fire District, only 737 or 30% have been developed. An additional 1,695 lots could be developed. At full buildout, the population of the CDP is estimated to be 5,255. (Summary of Single Family Residential Buildout Studies, J. Etsten, Planning Department, Town of Barnstable, 1989)

These figures are based on an analysis of Assessors data on single family residential parcels in town. Land use codes are assigned to lots as developed, developable, probably developable, or undevelopable. Larger lots were assumed to be subdivided into one acre parcels. According to residents, some of these land use codes may not be accurate since many "buildable" lots may not "perc" and are therefore unbuildable. Regardless of the accuracy of these figures, West Barnstable does have the largest amount of developable land in the town and should expect to see substantial amounts of future development, which will have a significant impact on the rural character of this village.

Development Style

In other villages, open space developments are recommended to cluster houses and lots with the retention of open space as buffers along the perimeter. In this village, clustering is limited by the need to provide both private wells and septic systems on the same lot. Attached town houses are not practical because of the extensive permitting and testing procedures required by the state for community wells.

If lot sizes are increased as recommended to protect private wells in the issue paper "Private Wells, Public Water Supplies", the effect would also be to retain more of the rural character of the village. Cluster developments of lots would be most effective for preserving meaningful open space with the larger lot size. However, given the concern for separation of wells and septics, the minimum lot size in a cluster development should be not less than one acre. This assumes that minimum lot sizes will be increased.

With adequate safeguards, planning staff believe that clustering of housing of a minimum lot size of one acre should be preferable to grid subdivisions since it can be designed to provide greater visual buffers along roads and additional setbacks from sensitive areas, whether environmentally, historically or visually special. Open space

subdivisions also result in a reduction of road length, thus reducing both costs and adverse environmental impacts resulting from road run-off. However, existing regulations should be revised to ensure that this development style is not used to create additional density.

Strategies - Residential development

1. The existing cluster provisions of the Zoning Ordinance should be revised to prevent additional lots being gained by this provision. The number of buildable lots should be established by the submission of a preliminary sketch subdivision plan with evidence of buildability of each lot. Explicit requirements to protect buffers along roads and to environmentally, visually or historically sensitive areas need to be added.

Housing

Existing housing type

The housing in West Barnstable is overwhelmingly single family houses located on separate lots.

Age of housing stock

West Barnstable houses are sharply divided between old and new. 30%, or 194 houses, were constructed prior to 1939, many of which are historic houses. 48%, or 314 houses, were constructed since 1970.

West Barnstable is a year-round community; only 5% of the houses are seasonally occupied, the lowest percentage in the town.

Housing Values (1990 US Census)

Housing values in West Barnstable are high, only 11 properties had values of less than \$100,000 and only 74 properties, 15%, had a value of between \$100,000 and \$150,000. 35% of the properties had values between \$200,000 and \$300,000.

Affordable Housing

Town-wide affordable housing policy is to provide affordable housing throughout the town through the use and adaptation of existing housing stock.

In West Barnstable this will be a difficult policy to enact. Housing values are high. There are few houses available for sale in the \$100,000 range, although in the 1990's more moderate priced housing has been constructed in response to limited demand during the recession.

It should also be recognized that housing costs in this village are increased because of difficult soil conditions or slope, and because of the need to install private wells. Given the soil conditions in the village and the need to maintain low densities, an increase in density of more than six people per acre in most instances is not advisable. Any development which proposes more than six people per acre should be carefully evaluated for impact on sensitive areas down gradient, with a site specific hydrological study and development of a water table map.

Given these limitations it is recommended that affordable housing opportunities be principally directed to the provision for specialized affordable housing needs, such as the elderly, handicapped or mentally retarded. To provide for social needs, it is recommended that such housing be located in or adjacent to the village center. If the Lombard housing development is constructed, this should satisfy the needs for elderly housing. If for any reason this project does not proceed, then alternative small developments for the elderly should be considered on other sites throughout the village, including the Lombard property, particularly the Barnstable Supply complex, if this becomes available. Guidelines for specialized housing development in West Barnstable are as follows:

Housing Strategies

1. Developments should be small scattered sites, preferably in or adjacent to the village center.
2. Existing buildings should be used to the extent possible and no historic structures should be demolished.
3. Any new development should be designed to be in keeping with the style of the surrounding architecture.
4. The development should retain significant amount of open space within and around the site in order to be compatible with the rural character of this village.
5. All parking should be located to the side or rear of the property and screened.
6. Landscape design and materials should be in character with historic landscape design.
7. Encourage village participation in the siting and design of affordable housing through the Local Initiative Process.

Other methods of providing affordable housing in this village were considered at length by residents, in recognition of the need to provide viable alternatives.

Recommendations include:

1. Inclusionary zoning. If a larger two acre lot size is adopted as recommended for environmental protection, then in each new subdivision, one lot per 10 lots should be made available for the development of a single family moderate income house. Appropriate mechanisms should be in place to ensure long term affordability.
2. Zoning amendments to permit small accessory apartments within existing structures for single individuals or couples, provided that the lot size is one acre or more in order to maintain existing groundwater quality.
3. Rentals town-wide by the Barnstable Housing Authority for low income residents, particularly families.

Other recommendations developed by the residents are in the Appendix.

3. COMMERCIAL DEVELOPMENT

West Barnstable Village Business District VB -B

Size: Total 60.47 acres, 44.7 acres are privately owned. The remaining land belongs to the town, or is part of the Lombard Trust

Land area	Existing sq. ft building	Lot coverage at 10%
44.7 acres	111,135 sq. ft	389,426 sq. ft
Est. sewage flows	5,557 gpd	24,338 gpd

(Based on buildings with a gross sq. ft of 4,356 x 2 stories, 50% retail, 50% office. Source)

Permitted uses: single family residential; retail stores; offices; branch bank

Dimensional Requirements:

- 10% lot coverage
- 33% impervious surface coverage
- 15" landscaped buffer along sides and front lot lines.

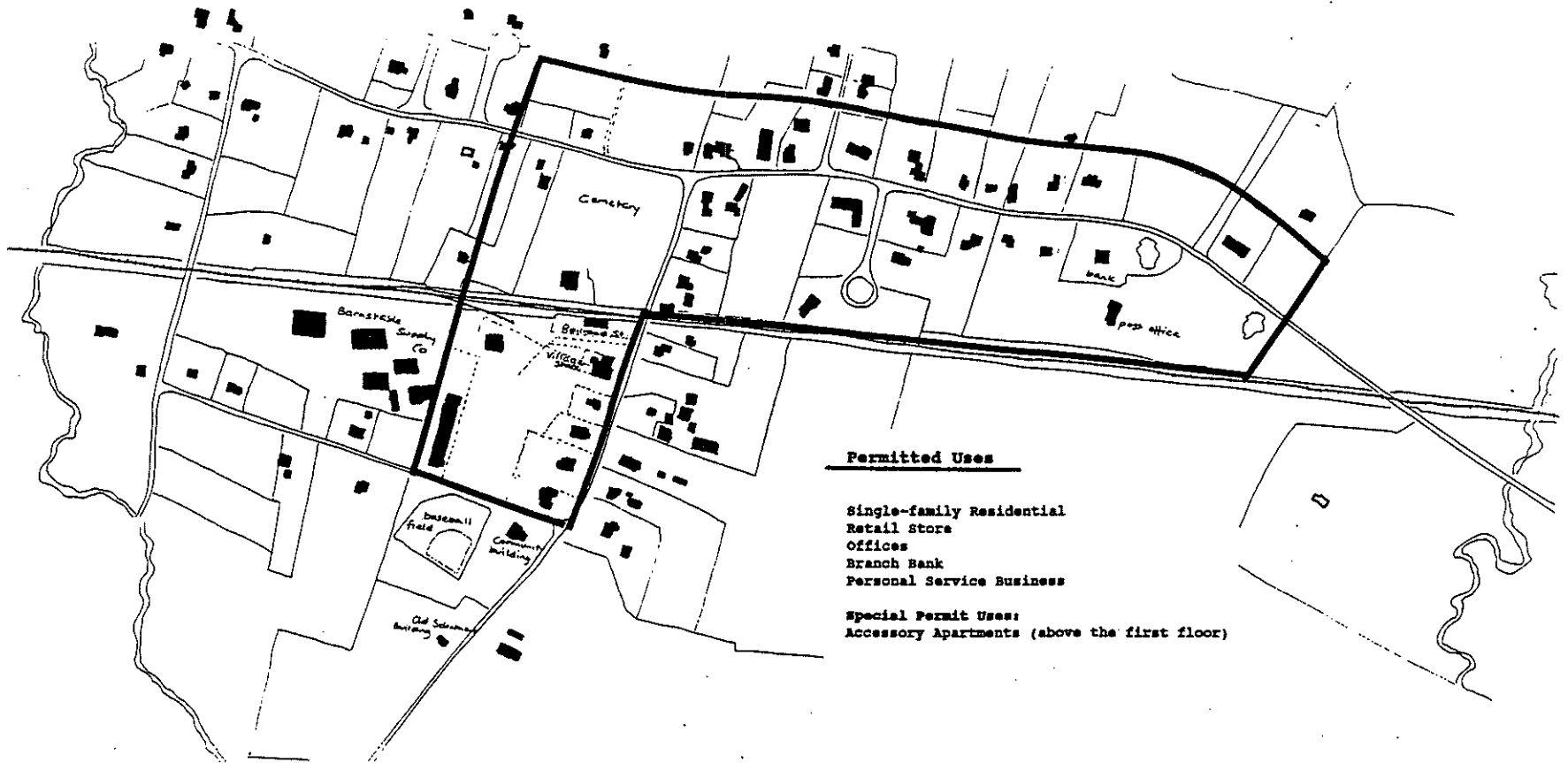
The West Barnstable village commercial zoning district is the single largest village commercial district outside of Hyannis. The extensive strip along Route 6A has led to a sprawling, low density, mixed commercial/residential district. The small population of the village and relative remoteness of the area has historically made the village marginal for commercial enterprises; these factors may still be relevant today. Some of the business enterprises are surprising, such as specialized medical offices including psychiatrist and psychologist's offices. Speculative office building in the 1980's has led to a number of vacant offices. Certainly the area zoned for commercial development is way in excess of village needs.

Given the historic character of Route 6A and the environmental sensitivity of the areas bordering the district, this commercial zoning district will be a growth center if no other action is taken. Clay soils, proximity to the Great Marshes, a reliance on private wells and the difficulty of disposing of drainage from impervious surfaces make this area unsuited to large scale development. Commercial development even at low density generates appreciably more sewage per acre than does higher density single family development.

In 1990, the density of development was reduced by a zoning amendment which reduced building coverage to 10%, a medium density provision. Even with this reduction, the total square footage of development can be increased from the existing 111,135 sq. ft. to a maximum of 389,426 sq. ft. of gross floor area, with an increase in sewage flows from the present estimate of 5,557 gpd to 24,338 gpd. The nitrogen loading from a sample two-story office building at 10% lot coverage on one acre is 9.79 ppm, in excess of the 5 ppm regional policy standard for areas dependent on private wells. (See Appendix 4.)

West Barnstable

V - B Village Business Zoning District



At these levels of development, public water will almost certainly be required. Furthermore, the Great Marshes will ultimately be the recipient of effluent. Finally, commercial development along Route 6A for almost 2/3 of a mile threatens the historic character of the area. There are several measures that can be taken when the Comprehensive Plan is implemented. These include the following options:

Alternative Commercial District Strategies

1. A reduction in the extent of the village commercial district.
2. Creation of different village commercial districts, with different uses and densities within the present VB-B area.
3. Consider converting part of the commercial district to primarily residential with an expanded home occupation, arts and craft enterprises.
4. Placement of parking at the side and rear of buildings in order to maintain scenic vistas along Route 6A.
5. The replacement of the present building coverage requirement with a floor area ratio requirement which relates the amount of gross floor area to lot size. The present building coverage requirement limits lot coverage which tends to result in higher buildings.
6. Size, scale and design of new buildings should be in close harmony with surrounding historic structures, and not exceed two stories. (For other recommendations on historic character see Section 1-5 and Section 1-2, landscape materials)

It is recommended that a package treatment facility not be considered at this time for this district. Concentration of effluent flows in one location may be more detrimental than wide spread dispersal on-site, unless such a plant is necessary to remediate an impaired area of existing high density.

4. SPECIFIC AREA PLANS AND POLICIES

Village Center Lombard Properties

The residents of West Barnstable identified the area on Route 149 at the Old Village Store and railroad depot as their village center, and the area of the village most in need of improvement. At present, the village stores and railroad depot are located adjacent to a large deteriorating parking lot. There is no distinction between road and parking lot, and the parking lot opening or curb cut extends 230 feet, a design which can result in accidents.

Improvements to the property are complicated by the terms of the will of Parker Lombard, dated 1755. These lands and other lands in West Barnstable are held in trust and the income used to aid the poor. Lessees own buildings but not the land. At present it is probably not possible to use trust funds for property improvements.

The current ownership and lease arrangements with the trust and the requirements of the courts and state have led to uncertainty and difficulty in obtaining mortgages for improvements. The effect has been a reluctance on part of building owners and banks to invest in properties, resulting in deterioration which could eventually adversely affect property values in the historic village center. Leasehold or lot lines need to be redrawn to reflect current land usage and to ensure that septic systems are located on the same lot as uses. In the Appendix, there are a number of recommendations concerning the ownership and management of the Lombard properties, developed by residents.

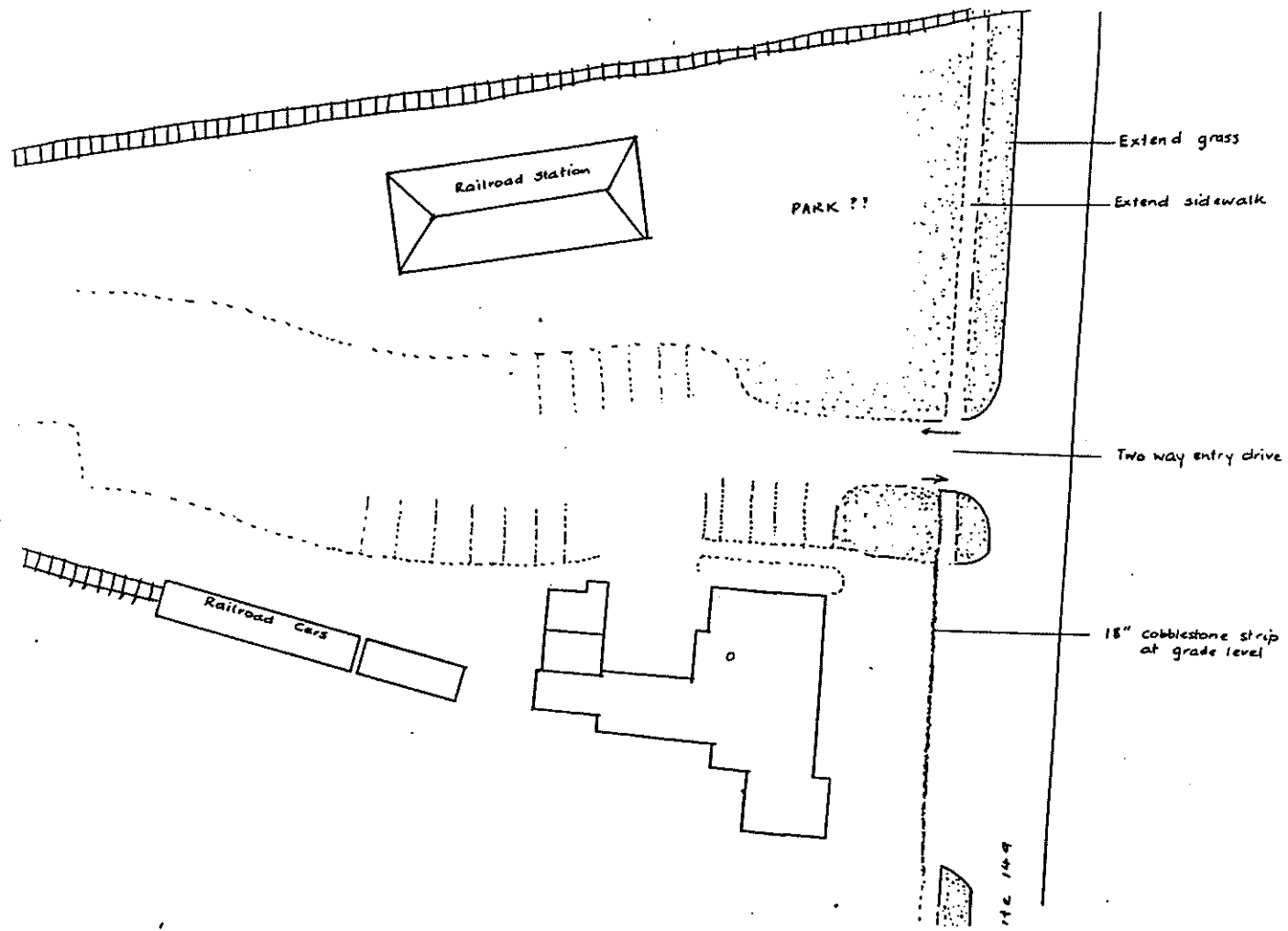
Plans for improvements

Eventually, improvements will be needed to the parking lot. The asphalt is deteriorating and will eventually break up. At that time, the parking area should be redefined so as to reduce the paved area and define parking spaces and driveways. No curbing should be used, and landscaping materials should be informal, primarily deciduous trees and grass.

Concern was addressed at the first overall village meeting for the formality of plan #1 of improvements. These have been revised to be more informal in character according to the recommendations in Section 1-2 on landscape material and design. There is no curbing, the sidewalks are setback from Route 149 with a grassed buffer and trees. Plans show a small park located between the railroad station and Route 149, if a mechanism can be found to make this improvement. Any landscaping of such a park should be informal with deciduous trees and grass.

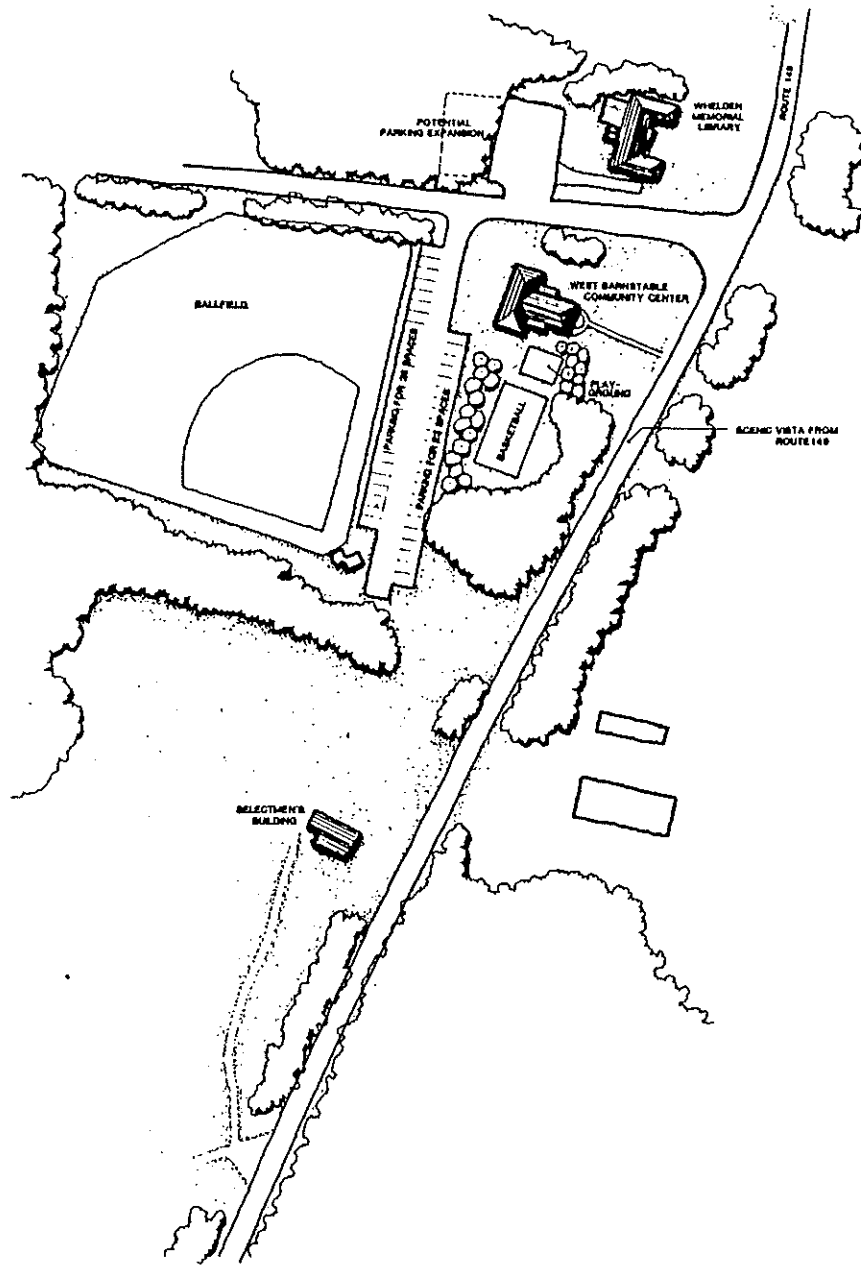
Land Use

Additional sites for a small scale commercial development should be considered in the old railroad station area as shown on the plan. The area is not one of great natural beauty but an abandoned early 20th century industrial site and train station. Additional development could improve the site, help support improvements to the area, and generate income for the Lombard Trust.



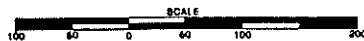
WEST BARNSTABLE VILLAGE CENTER

CONCEPT PLAN



**WEST BARNSTABLE COMMUNITY CENTER
LOMBARD PROPERTY.**

CONCEPT PLAN OF IMPROVEMENTS



MARMA, 1892

PLANNING DEPARTMENT - C. KELLY

Community Center

The village has several community facilities including the library, community center and soft ball field all of which are actively used. A basketball court next to the community center is being used for parking and is in disrepair. There are no tennis courts and no playground for small children.

Given the large number of children in this village, recreational facilities for children should be created. The basketball court needs to be repaired and fenced and a small playground developed for young children. A location near the community center is recommended. A playground for older children may also be desired, a location for this and tennis courts needs to be determined, in conjunction with the town open space plan.

The parking lot serving both the ballfield and the community center needs to be better defined which should increase the capacity. Stone should be added.

Every effort should be made to locate community facilities in or adjacent to the village center to reinforce the importance of this area as a social and community focal point, and in so doing strengthen the commercial center.

Strategies Community Facilities recommended improvements:

1. Redefine the parking area at the ballfield and limit to a specific area; add stone. Parking needs to be removed from the basketball court.
2. Repair and fence the basketball court. Replace basketball hoops and poles.
3. Evaluate removal of the Community Center driveway on south side of the building. Locate a playground for young children on the south side of the Community Center.
4. Screen the basketball court and playground from Route 149 and the ballfield.
5. Ensure that the improvements to this area are designed and located so as to maintain the scenic vista along Route 149.
6. Seek a location near the village center and community center for an adventure playground for older children, and for tennis courts.
7. Improve maintenance of the Community building.

Old Kings Highway

The Old Kings Highway in West Barnstable and Barnstable Village is the most important historic Scenic Road in the town. Historic houses and outbuildings line the roadway which is a favorite scenic drive for tourists and residents. Since 1973 the Old King's Highway Historic District has provided a substantial measure of protection of the character of buildings. Less certain is the ability to maintain and preserve the historic landscapes and open space along the roadway, which could be developed, thus blocking views of historic structures in some instances, and in others, result in degradation of overall character. A number of sites in Barnstable Village could be developed, and considerably more in West Barnstable.

Old Kings Highway Strategies

1. Protect scenic landscape views by developing a Scenic Viewshed protection program which seeks to obtain scenic easements on properties. This is to be developed by the Historic Commission in conjunction with the Comprehensive Plan.
2. Preserve scenic views at Scorton Creek, Mill Creek and Bridge Creek.
3. Consider historic landscape protection in open space planning for the town.
4. Restrict retail uses from the definition of a home occupation to prevent strip commercial development along 6A and other roads.
5. Ensure that new development is located and of such scale that widening or improvements to historic roadways, including intersections, is not needed.
6. Ensure that new sidewalks or bicycle paths are located away from the roadway, separated by a grass strip. Sidewalks along the Old King's Highway should not result in the removal of trees or stone walls. Curbs should be avoided wherever possible.
7. Plant street trees along the roadway. Wherever possible, plant trees in grass strips close to the roadway so that an arch over the road is created. Include trees for fall color.
8. Encourage the use of carved granite road signs.
9. Improve road signage.
10. Ensure that State improvements to the roadway are in keeping with the Historic character; avoid for example, the use of steel guard rails.
11. Coordinate the Zoning Ordinance and Old Kings Highway sign code requirements.

Barnstable Supply Company

The Barnstable Supply Company property includes a 8.34 acre residential zoned parcel and 2.0 acres of leased Lombard property which is zoned VB-B Business. The company is located within a predominantly residential area near the community center, library and ballfield. The most appropriate use of this property is residential, if the present use is abandoned.

The Barnstable Supply Company use is non-conforming subject to provisions of the Zoning Ordinance. Any change of use or expansion of use will require approval of the Zoning Board of Appeals.

If this property becomes available at a reasonable price in the future, and if the Lombard Housing development does not proceed for any reason, it is recommended that these parcels be evaluated for specialized affordable housing, such as elderly housing.

Marstons Mills Airport

The airport and golf course are on the borders of both Marstons Mills and West Barnstable and are included in both village plans. These facilities are significant recreational facilities. Both are located in residential areas and both are located in a zone of contribution to a future public water supply well. The following policies are designed to protect both the recreational aspects of these uses and the quality of groundwater on these sites.

Strategies - Marstons Mills Airport

1. Retain existing recreational airport uses.
2. Discourage pavement of the runways, night time operations and commercial use of the facility.
3. Ensure that fueling and maintenance operations do not contaminate the groundwater.
4. Provide a viewing area along Route 149, perhaps linked to the golf course entrance.

Fairgrounds Golf Course

This facility is a major public investment. It functions as a source of revenue for the town and as a recreational and tourist attraction.

Turf maintenance program should emphasize minimal use of fertilizers, herbicides and pesticides. Slow-release fertilizer should be used to minimize the contamination of groundwater with nutrients.

Strategies - Fairgrounds Golf Course

1. Ensure the maintenance of the golf course as a first class facility and as a revenue source for the town.
2. Protect groundwater quality in an area which may become a future public water resource area by minimizing fertilizer and pesticide use, and by using slow-release fertilizers.

Sandy Neck

Sandy Neck is one of the town's most important natural resource areas. The natural environment of shifting dunes, shore and marsh has attracted man for centuries, indeed for thousands of years. The area is home to a number of rare animal and plant species; these and the unique environment are the subject of a number of studies and educational programs for local children.

Perhaps less well known are the richness of the archeological and historical resources of the area. Because of the relative isolation of Sandy Neck from the mainland, the archeological and natural environment has been little disturbed. It is however a very fragile area by the nature of the land. Dunes are easily destabilized and archeological sites buried or exposed.

The history of Sandy Neck has been one of land disputes. The lands have been valued and sought after. Between 1694 and 1703 there was "more suing than sowing" (Patricia Anderson, Director, Historic Preservation). Land ownership disputes are mostly settled today. Most of the land now belongs to the Town of Barnstable and development of privately owned properties is no longer permitted by the State on barrier beaches.

This is not to say that there is no more controversy related to Sandy Neck! In the latter part of the 20th Century and into the 21st Century, the town has the responsibility to maintain the natural, archeological resources of Sandy Neck, whilst managing the recreational aspects of this unique area. In 1991, there were 18,737 camper and day-vehicle trips to the Neck. The town has adopted a comprehensive management plan for the Neck, which needs to be evaluated and refined to ensure that recreational use is in balance with preservation of the natural and cultural resources. In particular the effect of ORV vehicles needs to be monitored for impacts on the dunes and shoreline.

Specific recommendations on shoreline erosion protection are included in Section 1-1 of this report.

5. Roads and Transportation

Sidewalks and bicycle paths

Sidewalks and bicycle paths are limited at present to a short distance along Route 149 from Route 6A. There seemed to be a general opinion that they are needed for both children and adults and that it is too dangerous to walk or bicycle along major roads. The following roads were identified as high priority areas:

- Route 149
- Cedar Street
- Sandy Neck Road (partially in Sandwich)
- Route 6A - with the highest priority being in the village commercial district along Route 6A from the kennels to the Post Office.

There was some disagreement as to the need for sidewalks and bicycle paths, based in part on the dislike of curbing and an urbanized appearance. These objections should be met by requiring sidewalks to be set back from the edge of the roadway, separated by a grassed area. Sidewalks should also wind around trees, which should not be removed! No comments were received concerning the need to improve roadways or intersections. This issue should be revisited when accident data has been reviewed for the whole town.

Sidewalks should be required in new subdivisions particularly along through streets according to the requirements in the recently revised Subdivision Rules and Regulations.

Roads and Intersections

Historic Roadway Character

The main concern regarding roadways is to maintain the historic scenic nature of roads in this area. Narrow winding roads lined with stone walls and trees are an important component of the character of this village. Residents do not want to see any widening of these historic roads, and development needs to be scaled so as not to require major road improvements.

Many of the roads in this village are designated Scenic Roads. Route 6A is now a state-designated Scenic Road. Any road improvements will need approval of the Planning Board (the Historic Commission in the case of Route 6A), with a public hearing; however, the Scenic Roads legislation does not in any way limit or prevent development. Development controls need to be enacted through zoning and other regulatory means.

Scenic Roads in West Barnstable:

Route 6A, the Old Kings Highway (State designated, under the jurisdiction of the Old Kings Highway Historic District)

Cedar Street	Church Street
High Street	Maple Street
Oak Street	Parker Road
Pine Street	Plum Street
Willow Street	Route 149, Old Meetinghouse Way

All of the above, except Route 6A, are under the jurisdiction of the Planning Board. Residents would like to see other streets evaluated for nomination.

Future subdivision roads need to be designed so as to be compatible in appearance with existing historical character. Revised Subdivision Rules and Regulations allow narrower roads for smaller developments. Consideration should also be given to narrower roads in historic area. Stone walls located outside of the jurisdiction of the Scenic Roads regulations should be retained, and if no other option is available, moved, but not removed. Clearance the full width of the right of way for new roads should be avoided except where absolutely necessary. Where stands of natural vegetation are removed for grading, they should be replanted (see recommendation Section 1-2).

Strategies - Roads and Bicycle Paths

1. Construct sidewalks and/or bicycle paths along Route 6A, Route 149, Sandy Neck Road and Cedar Street. Ensure that paths do not result in the removal of street trees and are set back from the roadway by vegetated buffers.
2. Require sidewalks in new subdivisions according to the recently revised Subdivision Rules and Regulations.
3. Maintain the historic character of Scenic Roads and ensure that land use regulations require that the scale and density of development will not require road widening or straightening.
4. Investigate other roads for nomination as scenic roads.
5. Ensure that public improvements along the roadways use materials which are sympathetic with the historic character of the landscape

Bus and Railroad Transportation

Bus Transportation

At present, the B-Bus service provides transportation for those who cannot drive. In addition, Elder Services has determined there is a need to provide services by volunteers on a less formal, as-needed basis. This is particularly important in this, the most remote of villages. In the past, FISH, a volunteer organization provided a network of drivers; a similar organization should be considered for this village again.

Railroad Station

In the long term there may be a possibility of re-establishing rail service to the Cape with a terminus in Hyannis and reactivation of the railroad station in West Barnstable. However, the village should evaluate carefully before encouraging a stop for commuter rail which could have marked effect on village character, growth and development. Commuter rail can turn villages into "bedroom" communities, the so-called Long Island effect.

Open Space

Open-space planning should be incorporated into the village plan when the town-wide open-space plans are complete.

Section 2.0 Natural Resources

Introduction

The Town of Barnstable is centrally located on Cape Cod, a sandy peninsula which juts out into the ocean. The land is low lying, with extensive areas of wetlands, ponds and marshes. The boundaries with the sea are flat, there are no rocky cliffs, and the sea and shore form a shifting pattern of sandy beaches, dunes, estuaries and marshes. The highest elevation is less than 250 feet. From lookout points along Route 6, both the south shore and the north shore of the town can be seen. Even in the largest town on the Cape, the sea is never far from the land.

Water is a primary resource: an interlinked natural system of groundwater, ponds, salt water estuaries and embayments. Groundwater is the only source of drinking water, a vital public commodity, the quantity and quality of which define the quality of life.

The natural resources also have scenic and recreational value for boating, fishing, swimming, walking, or viewing. They form the basis of the traditional agricultural/aquaculture and fishing economies, which are closely identified with the area. The scenic and recreational qualities of the town are also the foundation of the modern components of the economy - tourism, second homes and retirement homes.

The natural environments of the town are distinctive and varied, and together with the historic built resources, form the essential character and identity of the area.

In order to maintain the image of the town as a desirable place to visit and live, the natural and historic resources of the town must be maintained and protected - it is in the financial interests of the town and its inhabitants to do so.

Natural Resource Systems

The plan is divided into five sections, each with its own summary of issues, goals, policies and strategies:

- 2.1 Water Resources
- 2.2 Coastal Resources
- 2.3 Wetlands
- 2.4 Wildlife and Plant Habitat
- 2.5 Freshwater Lakes and Ponds

These five sections encompass the principal natural resources of the town:

2.1 Water Resources

The Importance of Groundwater

Groundwater is a vital natural resource - it is the only source of drinking water. Groundwater flows through layers of saturated sands and gravels to form an extensive "unconfined aquifer" throughout the Cape. Public wells draw water from wide areas known as Zones of Contribution which occupy approximately thirty percent of the area of the town. There is vulnerability to contamination because of the extensive areas which

contribute to public wells, the coarse grained soils which drain rapidly, and because of the low lying nature of the land, with little depth to groundwater.

The quality and quantity of groundwater is a most significant factor in the maintenance of the ecological integrity of other natural resources, such as ponds and wetlands, marshes and salt water embayments. (Water Resources).

2.2 Coastal Resources

Shoreline systems of embayments, beaches, dunes and salt marshes: The salt water embayments and salt marshes are the spawning grounds and nurseries for a great wealth of coastal and oceanic species. Traditional aquaculture and fishing industries utilize these resources. Coastal environments are also significant recreational and scenic resources.

The coastal systems of dunes, barrier beaches and salt marshes provide storm protection to coastal banks and coastal properties, and provide habitats for wildlife, some of which are listed as endangered species.

Shellfish Resources: Shellfish are abundant in the shallow, sheltered coastal embayments in Barnstable. Clams, both soft-shelled and hard-shelled, scallops and oysters can be found in the saltwater embayments and along the shore. Cotuit oysters have been cultivated since the mid-19th century are internationally renown delicacies. There are approximately 6,178 acres of shellfish beds. Shellfish resources are the basis of a traditional economic pursuit and A recreational pastime, and are special features of local menus.

Shellfish resources require pristine water quality conditions and are the canaries of water quality. In recent years contamination of coastal waters has caused a decline in harvests; in 1991, a total of 1,093 acres of shellfish beds were closed to harvesting because of contamination.

2.3 Wetlands

There are numerous wetlands throughout the town because of low elevations and high groundwater levels. Wetlands are specialized plant and wildlife habitats which store flood waters and filter contaminants from both groundwater and surface waters, as recharge of the aquifer occurs.

2.4 Wildlife and Plant Habitat

Critical wildlife and plant habitats are numerous in Barnstable. Freshwater fisheries are found in the Great Ponds and streams. Vernal pools throughout the town and the margins of shallow ponds, principally in and adjacent to Independence Park, are specialized habitats of rare and endangered species. Upland open space supports a wide variety of plant and animal species.

Cranberry Bogs: Cranberry bogs are specialized agricultural wetlands cultivated by the use and control of surface waters and groundwater. They are part of the traditional Cape Cod, Town of Barnstable landscape, and a traditional industry.

2.5 Freshwater Lakes and Ponds

The numerous ponds throughout the town are valued natural, recreational and scenic resource areas. Fifty-five of the ponds exceed three acres*. In the eastern part of town, the shore line of several shallow ponds contain a number of rare and endangered species which occupy unique, specialized environmental niches.

Streams are relatively uncommon because of the porous nature of the soils, but where they do occur, they provide freshwater for animal species, and at the entrance to salt water embayments, anadromous fish runs for species such as the alewife, are commonly found. (Ponds and Streams).

* An inventory of Ponds, Lakes and Streams by James A. McKann

Other

Open Space - upland woodlands and sand plain grasslands: The traditional upland landscapes are part of the character of each of the town villages. Open space provides wildlife habitats, scenic views, recreational opportunities, and protection of groundwater quality.

The remaining farm landscapes complement the historic buildings, particularly on the north side of the Town. (See Open Space and Recreation)

The Impact of Development on Natural Resources

The attendant beauty of the natural and historic landscapes continues to attract increasing numbers of visitors and year-round inhabitants. In the last three decades the town has grown from a population of 13,465 in 1960 to 19,842 in 1970, 30,898 in 1980 and 40,949 in 1990 (U.S. Census). With growth and development, the natural resources of the town have come under increasing pressure. Appropriate actions and careful long term management are essential to maintain the viability of these essential resources.

Development has resulted in the degradation and loss of much of the natural woodlands and grasslands. While these upland areas are not unique, they are significant scenic and recreational resources and provide habitats for wildlife. In areas where development has created isolated pockets of open space, the town needs to ensure that wildlife corridors are maintained as linkages. Undeveloped upland areas also function to maintain the quality of groundwater in the aquifer by maintaining the natural system of infiltration and recharge.

A most serious consequence of inappropriate development is the contamination of groundwater resources and ponds, streams and estuaries fed by groundwater. Contamination which requires closure or treatment of public and private water supplies will have a direct financial impact on users.

Contamination of ponds and salt water embayments will have a devastating impact on the capability of the coastal resources to serve as a spawning ground and nursery for both freshwater and saltwater species. If left unchecked, contamination of surface waters will have a slow, long term impact on the image and perception of the town as a desirable community to visit and live in, with adverse economic repercussions.

Section 2.1 Water Resources

*Add →
Nutrient Mgt.
Program*

Introduction

It is essential to maintain and improve the quality of groundwater throughout the town to preserve the quality and quantity of drinking water supplies, and the ecological integrity of the other water resources - ponds, streams and coastal embayments.

With growth and development, contamination of ground and surface waters becomes of increasing concern. The sources of contamination are many, principally sewage, chemicals from everyday household use and from commercial uses, gasoline and oil stored in underground fuel tanks, and road run-off. The principal contaminants are the nutrients nitrogen and phosphorous, pathogenic bacteria and viruses, metals and hazardous chemicals.

The history of water supply regulation is one of increasingly stringent standards as a result of advances in testing technology and information on consequences to public health. Planning for water supply protection should therefore err on the side of caution and conservatism.

Contamination of water resources is not inevitable. By controlling the location and density of development, by preventing discharges of chemicals to groundwater, and by increasing the degree of sewage treatment, contamination of water resources can be reduced, and existing areas of contamination can be improved.

Water Quality and Supply Planning Issues

Section 2.1.1 Public Water Supplies

Issue Statement

Barnstable's drinking water supplies are provided by four water utilities servicing four fire districts; a fifth district, West Barnstable, provides only fire protection, and no public water. Some 40 public supply wells located throughout the town provide drinking water supplies to 23,377 households (1990 U.S. Census) and approximately 2,000 businesses. Although the town has no direct responsibility for water supply production or distribution, it has taken a very pro-active role in water supply protection planning since the mid 1980's. A report entitled "Groundwater and Water Resource Protection Plan" by SEA Inc. 1985, has formed the basis of public water supply planning and protection for the town.

Minimum 400 foot radius around public supply wells

MDEP requires that a 400 foot radius around public supply wells be controlled by the water supplier and strictly protected from development. All public wells in the town conform to the 400 foot requirement except for the following wells: CT E3; BW HY;

COMM MC; and WB 15-75. Lands within the 400 foot radius should be purchased by the water supplier wherever possible. It may be possible to relocate WB 15-75 within the same property since this permit may have to be renewed.

Water Conservation

Water conservation needs to be part of water supply planning and educational programs. By reducing the need for water, fewer new wells will be needed and the capacity of the sewage treatment plant in Hyannis will be maximized allowing the system to be expanded to serve a larger area. Water conservation results in long term savings to consumers, and reduces the impact of supply pumping on groundwater levels, wetlands, ponds and streams.

Existing water quality

All public supply wells have nitrogen levels below the planning standard of 5 ppm, except for the Barnstable Water Company Straightway well which exceeds this standard. This well is currently closed due to contamination from volatile organic compounds (VOCs). Barnstable Water Company wells in Hyannisport, and Centerville-Osterville-Marston Mills (COMM) wells in Craigville, are showing increasing levels of contaminants, although not above the Maximum Contaminant Levels (MCLs), except for the BW ST well. Nitrogen, sodium and specific conductivity levels all having been increasing. This is probably due to multiple causes including dense development served by on-site septic systems, and road run-off from an urban network of roads. The effect of the plume from the treatment plant on wells to the south is being evaluated, and potential effects on wells to the east in the Industrial Zone, when capacity of the plant is increased.

Water quality in wells east of the industrial zone is very good, with very low or minimal nitrogen levels. The chief threat to these wells is the improper disposal of hazardous materials. (See also Hazardous Materials 2.1.5)

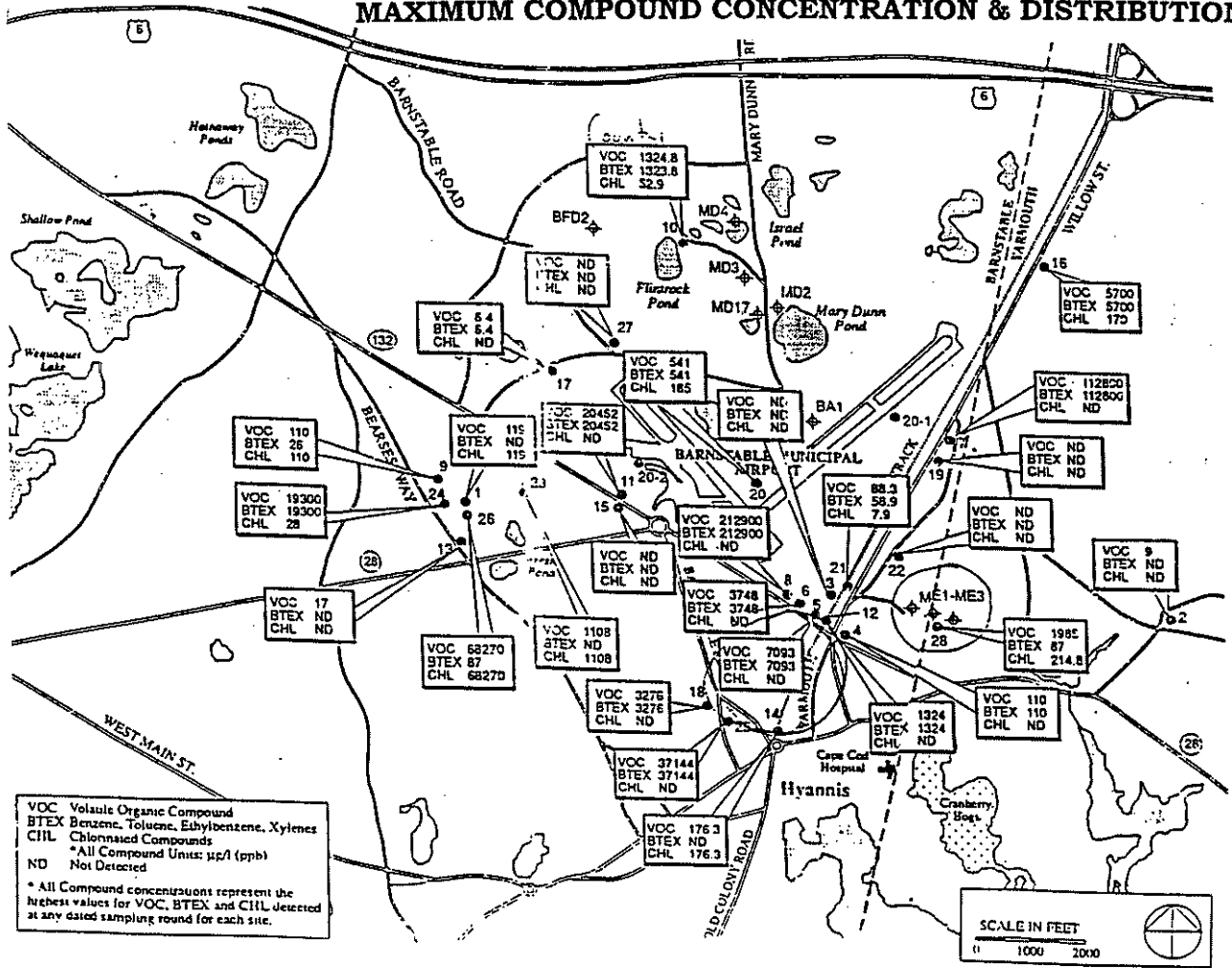
One of the most important wellfields in the town, other than wells in the industrial zone, is the Hayden wellfield. There are five existing wells and two more in the process of construction; water quality is excellent. Zoning in the S and D zoning district to the south needs to be compatible with public supply well protection.

Town Water Supply Planning Protection Measures

The town has taken measures to control nitrogen in public water supplies by controlling density and sewage flows in Zones of Contribution to public supply wells. However, standards established to protect drinking water supplies may not be stringent enough to protect water quality in coastal embayments which are extremely sensitive to nitrogen in very low concentrations (See Coastal Resources). Future town actions will need to emphasize alternative wastewater management in order to remediate areas of impaired water quality.

To date, the greatest threat to public water supplies has been improper disposal of hazardous materials. Five supply wells have been closed due to VOC contamination (two have re-opened with air stripping treatment, which also treats a third well). Four others in the Hyannis area south of Route 6 are now occasionally showing low levels of

HAZARDOUS WASTE SITES MAXIMUM COMPOUND CONCENTRATION & DISTRIBUTION



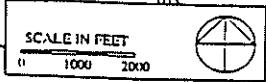
SUMMARY OF SITES

- 1) Marvel Cleaners, 109 Corporation Road
- 2) 538 Buck Island Road
- 3) Furnier Petroleum, 33 Brook Road
- 4) Mobil Oil Service Station, 156 Iyanough Road
- 5) Nelson Coal and Oil Co., 180 Iyanough Road
- 6) Airport BP Gas Station/Atwood Oil, 230 Iyanough Road
- 7) Airport Motors, 556/600 Yarmouth Road
- 8) Charter Manufacturing, 258 Iyanough Road
- 9) Nevada Bob's, 30 Corporation Road
- 10) Barnstable County Fire Training Facility
- 11) Shell Gasoline Station, 590 Iyanough Road
- 12) Couon Pickin Trees, 201 Yarmouth Road
- 13) Turrell Radiator Shop, 528 Beares Way
- 14) Bradleys Cleaners, 242 Main Street
- 15) Buoy Realty (presently Cape & Island Mortgage Corp.), 599 Iyanough Road
- 16) Commonwealth Electric Co., Willow Street Facility
- 17) Land (presently Barnstable Animal Hospital), 157 Airport Road
- 18) Ben's Auto Repair, 5 Charles Street
- 19) Purton Pontiac, 460 Yarmouth Road
- 20) Barnstable Municipal Airport
20-1 Crash Site
20-2 Nantucket Airlines
- 21) Robies Refrigerator, 279 Yarmouth Road
- 22) Wardick Realty, 143 Old Yarmouth Road
- 23) Cape Cod Mall - Sears Automobile
- 24) Cape Cod Mall - Former Gibbs Gasoline Station Area
- 25) Warren Buick, 100 Barnstable Road
- 26) Cape Cod Mall - Downgradient of Corporation Plaza
- 27) Blackburn Auto Salvage, Airport Road
- 28) Barnstable Water Company Well Field

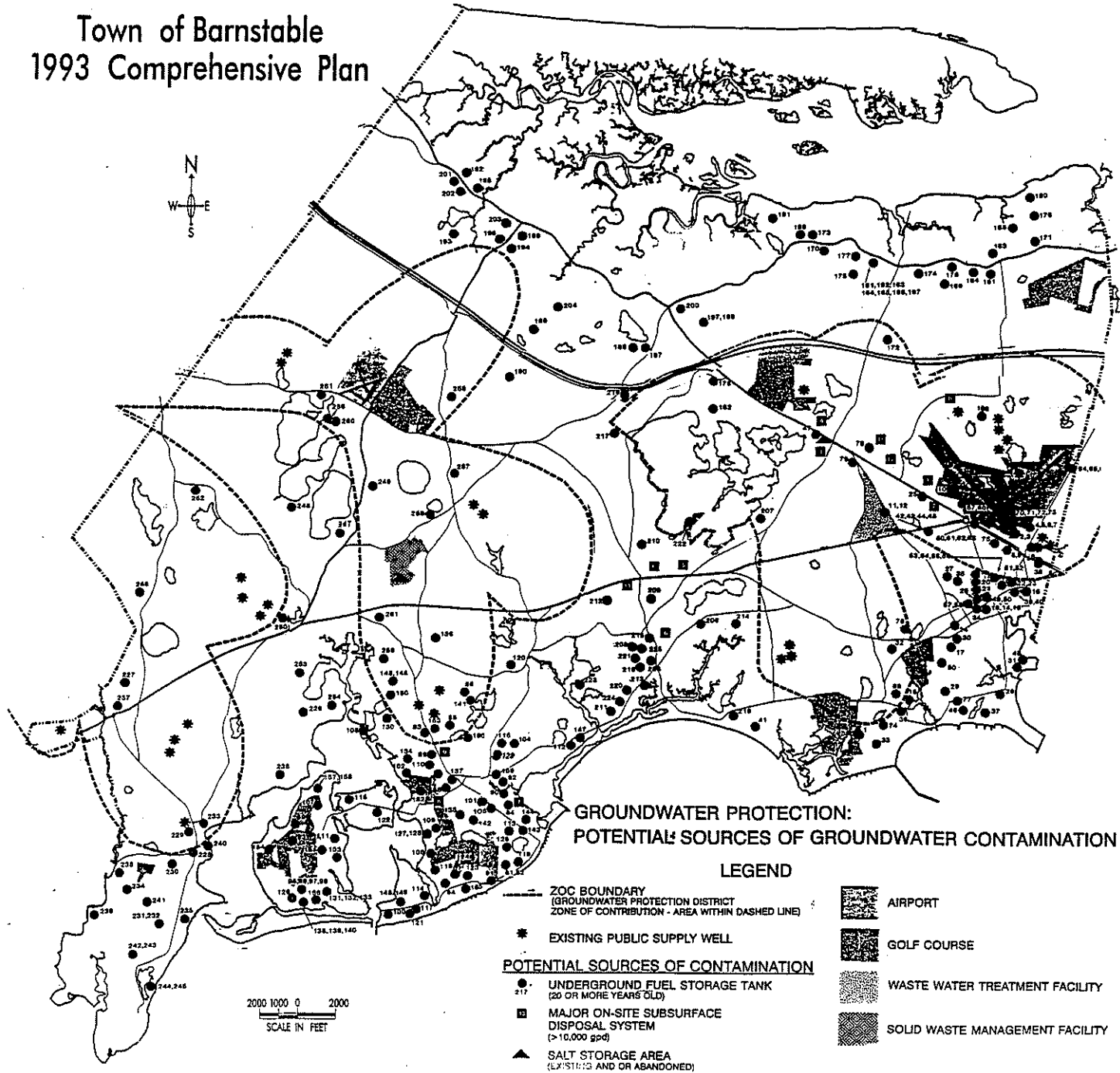
LEGEND AND NOTES

- 5 Number and Location of Site
- Location of Water Supply Well.
Well Designation as follows:
ME - Maher Well
MD - Mary Dunn Well
BFD - Barnstable Fire District Well
- 1) Plan prepared from 1:25,000 scale map entitled "Hyannis Quadrangle, Massachusetts - Barnstable Co., 7.5 Minute Series (Topographic)," by United States Department of the Interior, Geological Survey, dated 1974, photorevised 1979
- 2) Locations are approximate and are intended for general reference.
- 3) All compound concentration values were taken from available analytical information and may reflect conditions which are subject to fluctuations in temperature, rainfall and other factors.

VOC Volatile Organic Compound
 BTEX Benzene, Toluene, Ethylbenzene, Xylenes
 CHL Chlorinated Compounds
 *All Compound Units: µg/l (ppb)
 ND Not Detected
 • All Compound concentrations represent the highest values for VOC, BTEX and CHL detected at any dated sampling round for each site.



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contamination, below maximum contamination levels. All other public supply wells are free of contamination from VOCs, inorganics, and pesticides. Contamination issues are dealt with in Section 2.1 - 2.1.3, Sources of Contamination.

Hyannis - Risk of Contamination

The Hyannis area wells are at greatest risk of contamination. 89% of areas zoned for commercial and industrial land uses are located south of the Mid-Cape Highway in the Hyannis area. Of the 65 commercial large volume underground fuel tanks in the town, 50 are located in Hyannis. Preliminary investigations by the State Department of Environmental Protection have identified 30 confirmed or suspected contaminated sites in this area. The on-going investigations are known as the Hyannis Corridor Study. The Hyannis wellfields however, produce approximately 30-37% of the town's water supply. Because of the large percentage of water produced in this area, and the high cost of well replacement, additional supply wells in the Hyannis area may require treatment to remove hazardous chemicals at great cost for both construction and on-going treatment.

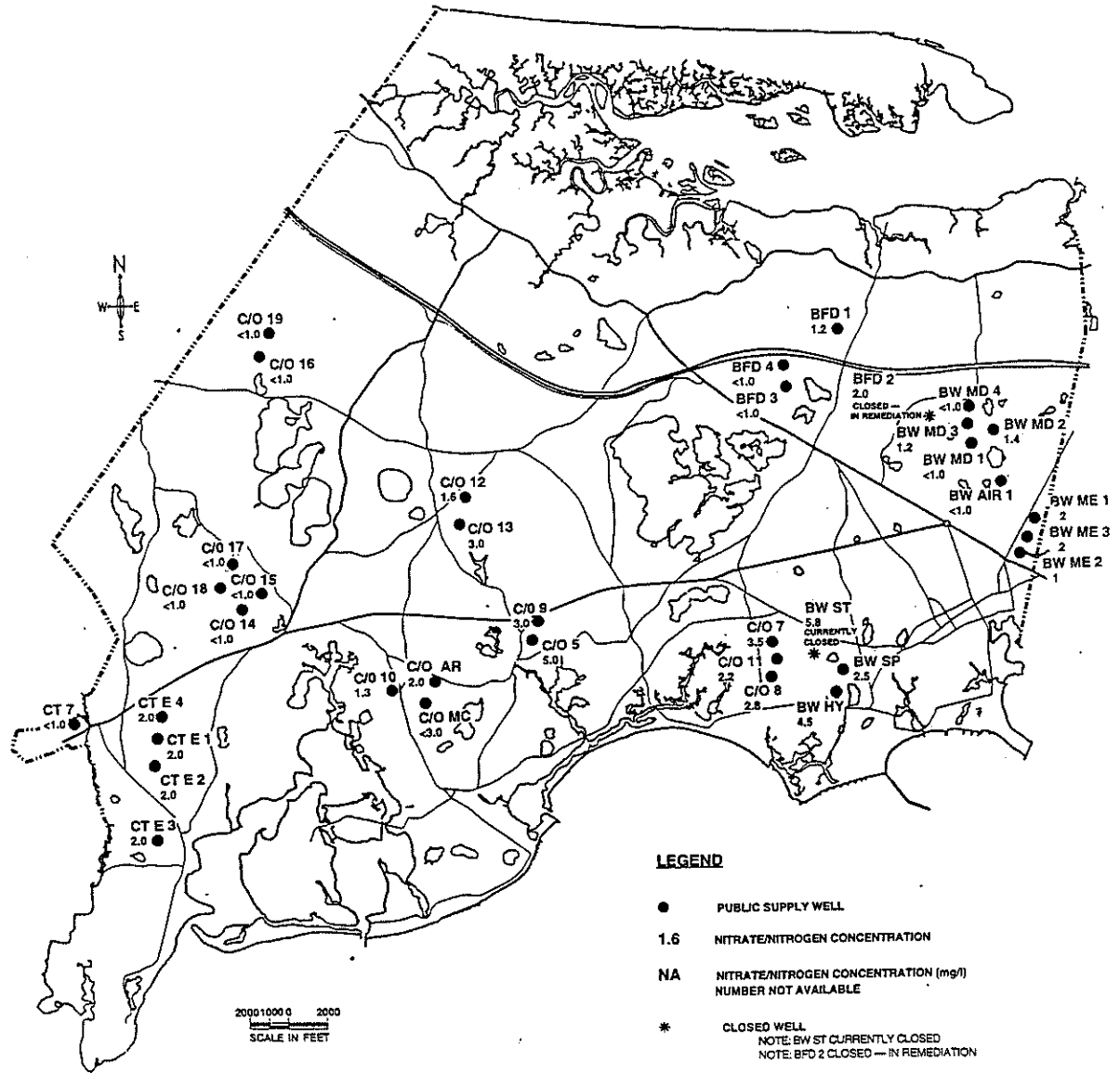
Barnstable Water Company

The Barnstable Water Company is currently redefining its future water supply options adjacent to the Barnstable Airport and in Hyannisport. Currently the company is developing a new water supply adjacent to the Straightway well but in a deeper part of the aquifer. Water supply demand for Hyannis is stable, but existing withdrawals from the Industrial Zone may be adversely affecting the adjacent Hyannis Coastal Ponds. The closed Straightway well needs to be replaced or treated. Other town water utilities do not appear to have excess capacity to supply Hyannis. New water supply development in the Hyannis area may require expensive treatment unless water quality from a lower aquifer is assured, or made available from outside the service area.

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PUBLIC SUPPLY WELLS RAW WATER QUALITY DATA
NITRATE/NITROGEN CONCENTRATION

PUBLIC SUPPLY WELL	NITRATE/NITROGEN CONCENTRATION	
CT E 1	2.0	
CT E 2	2.0	
CT E 3	2.0	
CT E 4	2.0	
CT 7	<1.0	
C/O 5	5.0	
C/O 7	3.5	
C/O 8	2.8	
C/O 9	3.0	
C/O 10	1.3	
C/O 11	2.2	
C/O 12	1.6	
C/O 13	3.0	
C/O 14	<1.0	
C/O 15	<1.0	
C/O 16	<1.0	
C/O 17	<1.0	
C/O 18	<1.0	
C/O 19	<1.0	
C/O AR	<2.0	
C/O MC	<3.0	
BW ST	5.8	CURRENTLY CLOSED
BW SP	2.5	
BW HY	4.5	
BFD 1	1.2	
BFD 2	2.0	CLOSED — IN REMEDIATION
BFD 3	<1.0	
BFD 4	<1.0	
BW ME 1	2	
BW ME 2	1	
BW ME 3	2	
BW AIR 1	<1.0	
BW MD 1	<1.0	
BW MD 2	1.4	
BW MD 3	1.2	
BW MD 4	<1.0	

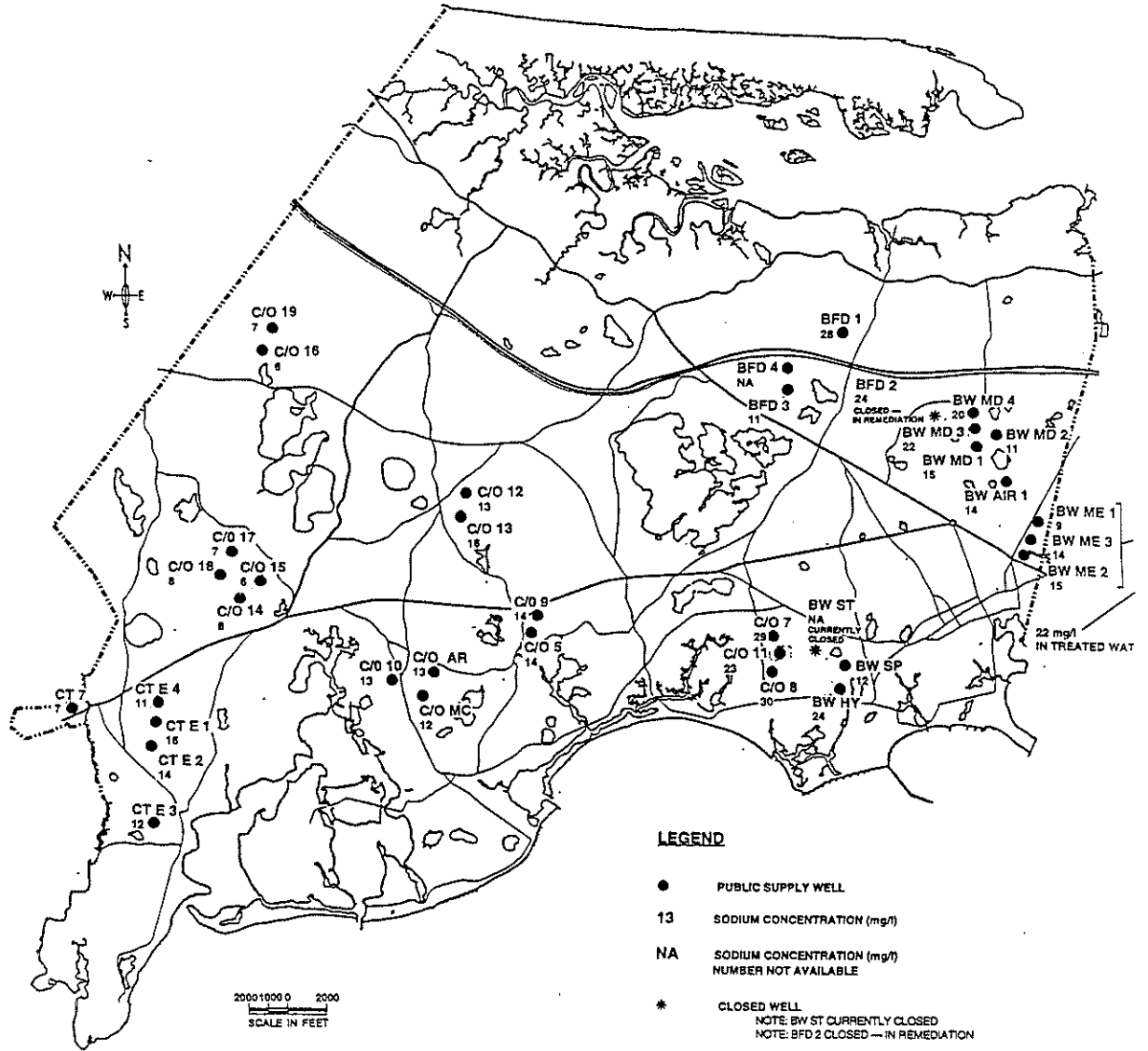


Town of Barnstable
1993 Comprehensive Plan

PUBLIC SUPPLY WELLS RAW WATER QUALITY DATA
SODIUM (mg/l) CONCENTRATION

NOTE: NO MAXIMUM CONTAMINATION LEVEL ESTABLISHED
NOTE: HEALTH ADVISORY CONCENTRATION FOR ADULTS IS 20 mg/l

PUBLIC SUPPLY WELL	SODIUM CONCENTRATION (mg/l)	STATUS
CTE 1	16	
CTE 2	14	
CTE 3	12	
CTE 4	11	
CT 7	7	
C/O 5	14	
C/O 7	29	
C/O 8	30	
C/O 9	14	
C/O 10	13	
C/O 11	23	
C/O 12	13	
C/O 13	16	
C/O 14	8	
C/O 15	6	
C/O 16	6	
C/O 17	7	
C/O 18	8	
C/O 19	7	
C/O AR	13	
C/O MC	12	
BW ST	NA	CURRENTLY CLOSED
BW SP	12	
BW HY	24	
BFD 1	28	
BFD 2	24	CLOSED — IN REMEDIATION
BFD 3	11	
BFD 4	NA	
BW ME 1	9	22 mg/l IN TREATED WATER
BW ME 2	15	
BW ME 3	14	
BW AIR 1	95	
BW MD 1	110	
BW MD 2	90	
BW MD 3	135	
BW MD 4	180	



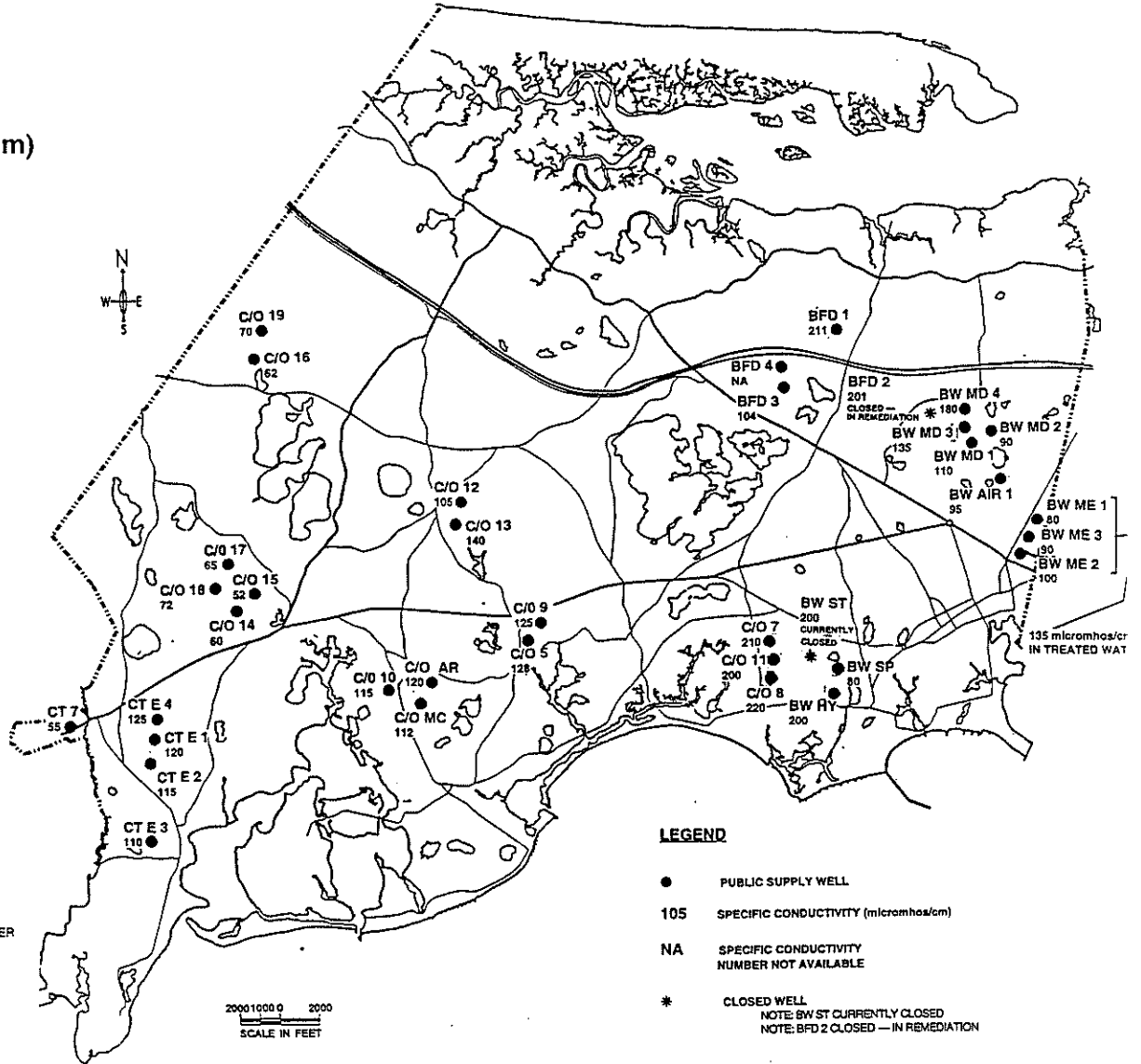
LEGEND

- PUBLIC SUPPLY WELL
- 13 SODIUM CONCENTRATION (mg/l)
- NA SODIUM CONCENTRATION (mg/l) NUMBER NOT AVAILABLE
- * CLOSED WELL
NOTE: BW ST CURRENTLY CLOSED
NOTE: BFD 2 CLOSED — IN REMEDIATION

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PUBLIC SUPPLY WELLS RAW WATER QUALITY DATA
SPECIFIC CONDUCTIVITY (micromhos/cm)

PUBLIC SUPPLY WELL	SPECIFIC CONDUCTIVITY (micromhos/cm)	STATUS
CTE 1	120	
CTE 2	115	
CTE 3	110	
CTE 4	125	
CT 7	55	
C/O 5	128	
C/O 7	210	
C/O 8	220	
C/O 9	125	
C/O 10	115	
C/O 11	200	
C/O 12	105	
C/O 13	140	
C/O 14	60	
C/O 15	52	
C/O 16	62	
C/O 17	65	
C/O 18	72	
C/O 19	70	
C/O AR	120	
C/O MC	112	
BW ST	200	CURRENTLY CLOSED
BW SP	80	
BW HY	200	
BFD 1	211	
BFD 2	201	CLOSED — IN REMEDIATION
BFD 3	104	
BFD 4	NA	
BW ME 1	80	135 micromhos/cm IN TREATED WATER
BW ME 2	100	
BW ME 3	90	
BW AIR 1	95	
BW MD 1	110	
BW MD 2	90	
BW MD 3	135	
BW MD 4	180	



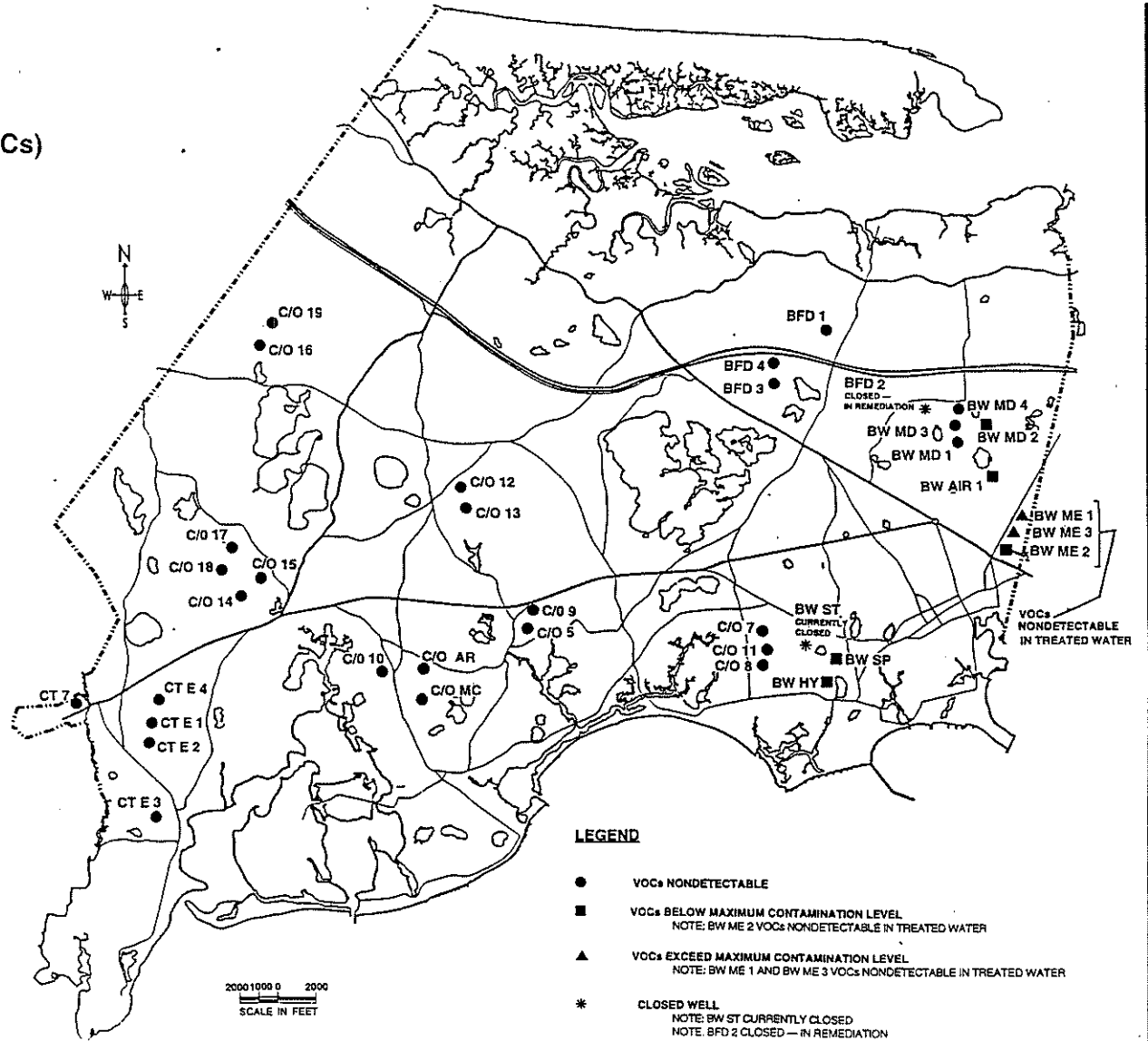
LEGEND

- PUBLIC SUPPLY WELL
- 105 SPECIFIC CONDUCTIVITY (micromhos/cm)
- NA SPECIFIC CONDUCTIVITY NUMBER NOT AVAILABLE
- * CLOSED WELL
 NOTE: BW ST CURRENTLY CLOSED
 NOTE: BFD 2 CLOSED — IN REMEDIATION

Town of Barnstable
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PUBLIC SUPPLY WELLS RAW WATER QUALITY DATA
VOLATILE ORGANIC COMPOUNDS (VOCs)

PUBLIC SUPPLY WELL	VOCs LEVEL
CTE 1	●
CTE 2	●
CTE 3	●
CTE 4	●
CT 7	●
C/O 5	●
C/O 7	●
C/O 8	●
C/O 9	●
C/O 10	●
C/O 11	●
C/O 12	●
C/O 13	●
C/O 14	●
C/O 15	●
C/O 16	●
C/O 17	●
C/O 18	●
C/O 19	●
C/O AR	●
C/O MC	●
BW ST	* CURRENTLY CLOSED
BW SP	■
BW HY	■
BFD 1	●
BFD 2	* CLOSED — IN REMEDIATION
BFD 3	●
BFD 4	●
BW ME 1	▲ VOCs EXCEED MAXIMUM CONTAMINATION LEVEL
BW ME 2	■ VOCs BELOW MAXIMUM CONTAMINATION LEVEL
BW ME 3	▲ VOCs NONDETECTABLE IN TREATED WATER
BW AIR 1	■
BW MD 1	●
BW MD 2	●
BW MD 3	●
BW MD 4	●



LEGEND

- VOCs NONDETECTABLE
- VOCs BELOW MAXIMUM CONTAMINATION LEVEL
NOTE: BW ME 2 VOCs NONDETECTABLE IN TREATED WATER
- ▲ VOCs EXCEED MAXIMUM CONTAMINATION LEVEL
NOTE: BW ME 1 AND BW ME 3 VOCs NONDETECTABLE IN TREATED WATER
- * CLOSED WELL
NOTE: BW ST CURRENTLY CLOSED
NOTE: BFD 2 CLOSED — IN REMEDIATION

Water Quality Issues

Quality issues affect the cost, availability and quantity of public water supplies; water supply planning therefore needs to be considered on a town-wide basis. The town has implemented most of the recommendations of SEA with regard to water resource protection. However it has not implemented the recommendation to join the suppliers into one, town-wide agency for planning purposes.

Water Supply Management Plans

Since the 1985 SEA "Groundwater and Water Resource Protection Plan" was completed, the following have occurred: in 1990 growth and development had nearly reached levels predicted for the year 2,000; five wells have been closed due to contamination with VOCs (three have re-opened with treatment costing nearly one million dollars, with ongoing costs of operation maintenance); coastal plain ponds adjacent to public supply wells were adversely affected by drought and supply well withdrawals; and plans to increase the number of wells adjacent to Independence Park are unlikely to be implemented.

The 1985 SEA plan recommended that the town consolidate long range planning responsibilities into a single water resource board or similar management authority. In 1992, the Fiscal Advisory Board of the town studied the issue of separate water suppliers and reported that the town should set a climate for the exchange of information and ideas between the districts, to increase services and decrease costs, and that the permanent solution to a change should come from the districts themselves.

Issues related to long range and emergency water supply planning, the provision of supplies to all the town, and coordination of suppliers can be addressed with the development of a town-wide water management plan. This plan needs to be developed with funding and input from both the water suppliers and the town. If a water supply management plan for all the town is not developed and fully implemented, then the town should address the issue of joining the districts into one, including acquisition of the Barnstable Water Company, in order to ensure safe clean drinking water supplies to all its villages at an affordable cost to the taxpayers.

Water supply is an issue which crosses town boundaries and should be eventually be addressed on a regional basis.

Goal: 2.1.1: To maintain and improve the overall quality and quantity of groundwater to ensure a sustainable yield of high quality drinking water, and to preserve and improve the ecological integrity of fresh surface water bodies and marine waters; these areas are all interconnected and must be addressed collectively.

Policy 2.1.1.1 Ensure that all public policies are compatible with protection of public supply wells. (Adopted by the Water Quality Committee, 1992.)

Policy 2.1.1.2 To maintain and improve groundwater quality in order to prevent closure and replacement of public supply wells, and the need to treat public water supplies.

Policy 2.1.1.3 Planning for the provision and protection of water resources should be long term in scope in order to provide for future water resource needs.

Strategy 2.1.1.3.1: Estimate water supplies needed for 10, 20 year projections and for buildout population.

Strategy 2.1.1.3.2: Encourage the acquisition of future wellfields, or well supply protection lands before development precludes options.

Strategy 2.1.1.3.3: Continue to have as a major objective, acquisition of future water supply lands in the town's open space plan.

Strategy 2.1.1.3.4: Zones of Contribution to all potential future wells shall be determined and protected in the same manner as existing and planned future public supply wells.

Strategy 2.1.1.3.5: Future water resource areas (wellfields) should be identified by the Water Quality Committee and the town should protect these areas as WP Well Protection Zones.

Strategy 2.1.1.3.6: No development shall occur within a 400 foot radius of a future public supply well. Lands within 400 feet of the following wells shall be acquired wherever possible: CT E3, WB 15-75, BW HY, and COMM MC.

Strategy 2.1.1.3.7: Wellfields lands around the Barnstable Water Company wells should be retained as wellfields; the area beyond the 400 foot buffer should not be conveyed out.

Policy 2.1.1.4: Ensure that all new public supply wells will provide high quality drinking water without the need for treatment of contamination.

Strategy 2.1.1.4.1: Assist and encourage the Barnstable Water Company to locate new wells outside of Hyannis, unless water quality from a lower aquifer is assured without treatment.

Policy 2.1.1.5: Promote use of water saving devices to reduce the need for additional water supplies and thereby lessen impact of pumping on groundwater and pond levels.

Strategy 2.1.1.5.1: Continue public education efforts on groundwater and water resource protection and planning issues, and advocate use of water saving devices.

Strategy 2.1.1.5.2: Encourage water suppliers to reduce leakage from the system.

Strategy 2.1.1.5.3: Investigate regulatory means of requiring water saving devices in new development and redevelopment, in order to reduce the need for new water supplies.

Policy 2.1.1.6: The town shall continue to protect public drinking water supplies by continuing to regulate land uses and density in Zones of Contribution to public supply wells, and to refine protection areas as defined by the town's consultants.

Strategy 2.1.1.6.1: Zones of Contribution to public supply wells in neighboring towns which extend into Barnstable need to be afforded the same protection as

Zones of Contribution in Barnstable. The town should seek similar protection from neighboring towns.

Strategy 2.1.1.6.2: A wellhead protection time of travel zone which provides adequate protection should be identified on groundwater maps and Zone of Contribution maps. Evaluate a 7-year and 10-year time of travel zone.

Strategy 2.1.1.6.3: Using the GIS system, locate well monitoring locations, well logging descriptions, elevations above sea level and water quality source data before treatment.

Strategy 2.1.1.6.4: The Town and/or County and public water supply companies should create a central registry and map water quality data so that trends may be easily detected and located on a geographic basis.

Strategy 2.1.1.6.5: Zoning of the S and D District in Marston Mills should be compatible with public water supply protection in order to protect the Hayden Wellfield to the north.

Policy 2.1.1.7: Encourage the development and implementation of a revised water resource and supply management program for the town as a whole, funded and directed by both the town and the water suppliers.

Strategy 2.1.1.7.1: Plan for adequate water supplies in the event of short and long-term closure of supply wells. All water companies should maintain a reasonable excess capacity for use in an emergency available for use by any of the water suppliers. Pricing mechanisms should be established as soon as possible, prior to a water emergency.

Strategy 2.1.1.7.2: West Barnstable and other areas dependent on private wells should be included in all assessments of town-wide public water supply needs for the future, in the event that contamination may eventually require provision of public water supplies.

Strategy 2.1.1.7.3: Encourage and ensure the provision of inter-connections between water purveyors with sufficient capacity in the event of an emergency closure of a group of wells. Ensure the compatibility of the different distribution systems in terms of pressure and other engineering considerations.

Strategy 2.1.1.7.4: Investigate means of ensuring long term cooperation, coordination and equity between the water suppliers.

See also Section 4.0, Community Facilities and Services - Capital Facilities, for other technical details of a water supply management plan.

Policy 2.1.1.8: Supply wells, both public and private, shall be located, and pumping managed so as to avoid adverse impacts on ponds, streams, coastal embayments and wetlands. These issues should be addressed in a town-wide water management plan.

Strategy 2.1.1.8.1: Ensure that water withdrawal rates do not exceed the safe yield of the aquifer to prevent the mining of groundwater.

Strategy 2.1.1.8.2: Protection of wetlands, ponds, streams and coastal embayments must be considered in pumping scenarios, especially the Hyannis Coastal Plains Pond Complex, which is a rare and endangered species habitat.

Strategy 2.1.1.8.3: Ensure that public and private supply well pumping does not cause saltwater intrusion.

Policy 2.1.1.9: If the town and water suppliers are unable to develop and fully implement a town-wide water management plan, then the town should address the issue of joining the water suppliers into one entity, including the purchase of the Barnstable Water Company.

Section 2.1.2 Private Wells

Issue Statement: There are approximately 2,027 private wells in the town serving approximately 5,574 people. There are 841 private wells in Marstons Mills; 650 in West Barnstable; 142 in Centerville; 139 in Cotuit; 85 in Hyannis; 59 in Barnstable Village; and 31 in Osterville (1990 U.S. Census).

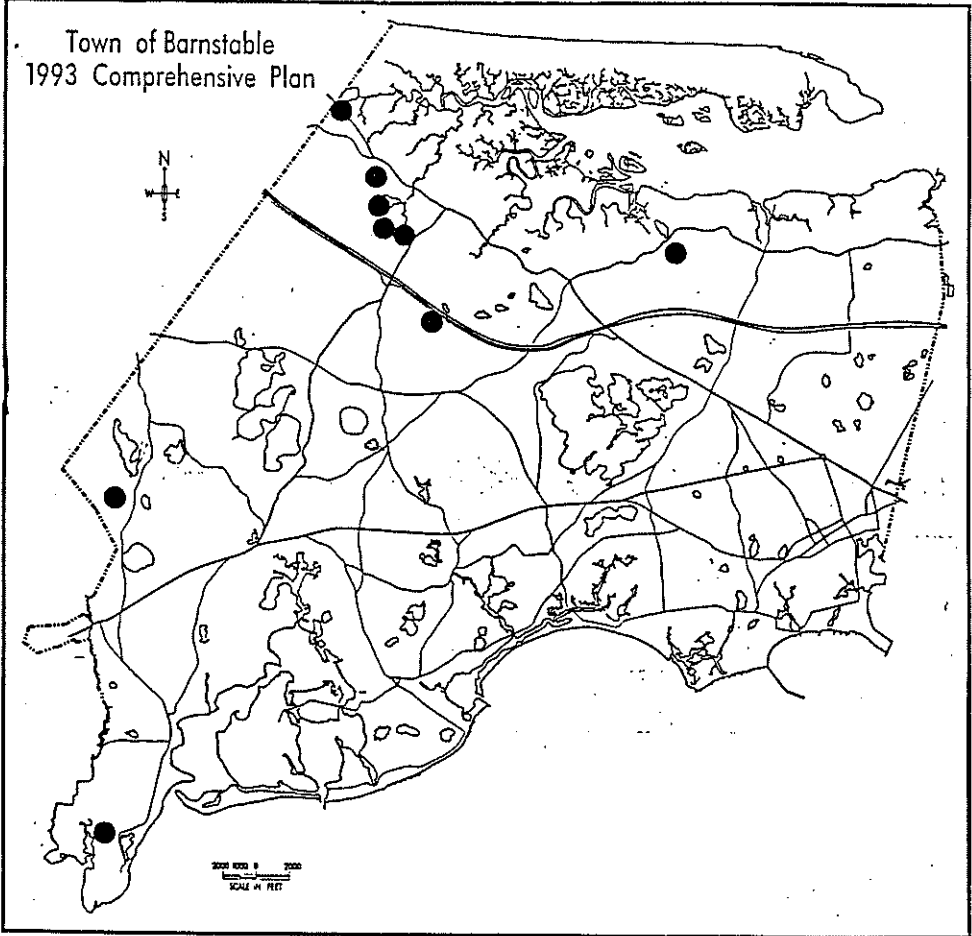
Private well water quality tests indicate elevated nitrogen levels in two clusters in Marstons Mills, due principally to small, half-acre lot sizes. These areas should be linked to public water supplies. In West Barnstable, the present sparse, highly scattered nature of development is generally suited to a continuation of reliance on private wells for drinking water supplies. If actions are implemented to protect private wells, this district should be able to continue use of private wells for the foreseeable future.

Adequate distance between septic systems and wells, and therefore lot size, are critical in maintaining good water quality from private wells, which are particularly vulnerable to contamination from on-site, or most frequently, neighboring septic systems. Septic systems and wells need to be strategically located to avoid contamination.

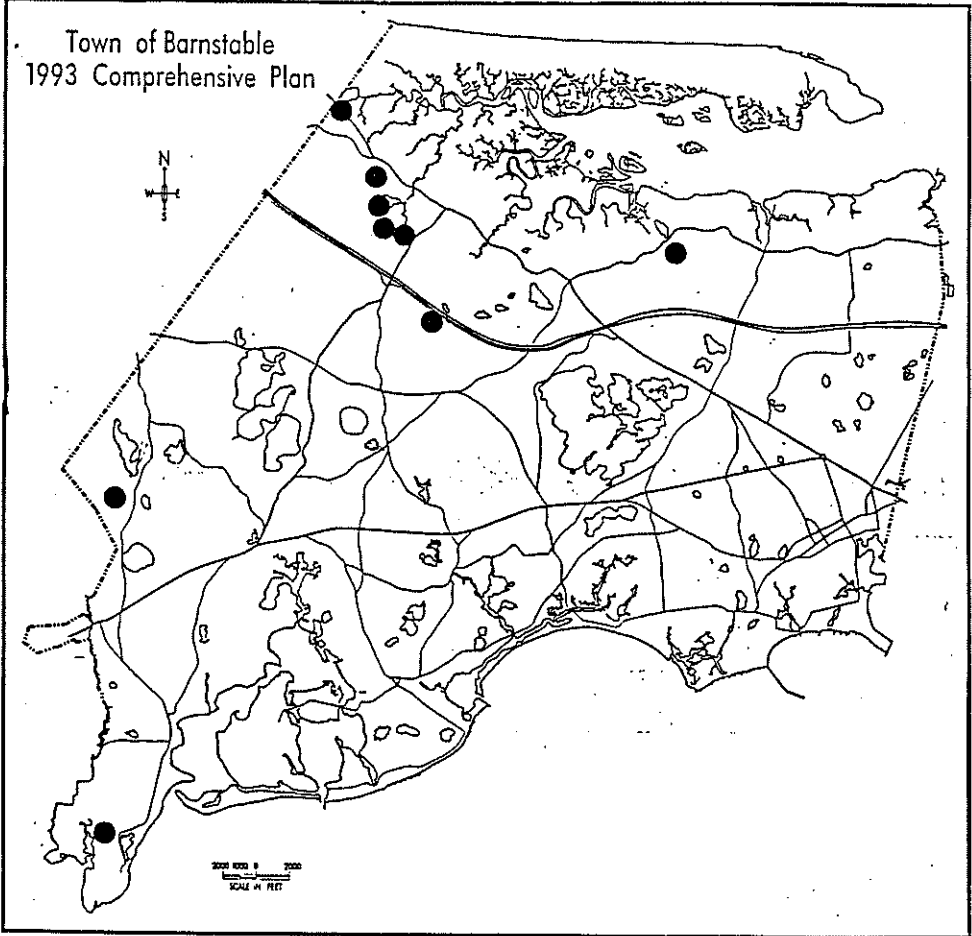
The town, through the Board of Health, requires a minimum of 40,000 sq. ft. per lot for development dependent on private wells, and has increased the distance between wells and septic systems to 150 feet. However, there is no control on potentially hazardous land uses or excessive sewage flows in areas dependent on private wells, as there is in zones of contribution to public supply wells. Furthermore soil conditions make low lying areas along Route 6A particularly vulnerable to contamination. It is recommended that lot sizes be increased in this area and that uses and sewage flows be controlled. Site specific information is also needed for larger scale developments to ensure that wells and septic systems do not cross circuit. The commercial district is particularly vulnerable to contamination since many commercial uses are heavy sewage generators.

The Board of Health has a comprehensive program for the construction and testing of new wells, and for regular testing of wells serving rental properties. However, analysis of water quality data from the Board of Health indicates that most private wells are tested

PRIVATE WELL WATER QUALITY DATA
Presence of Fecal Coliform Bacteria

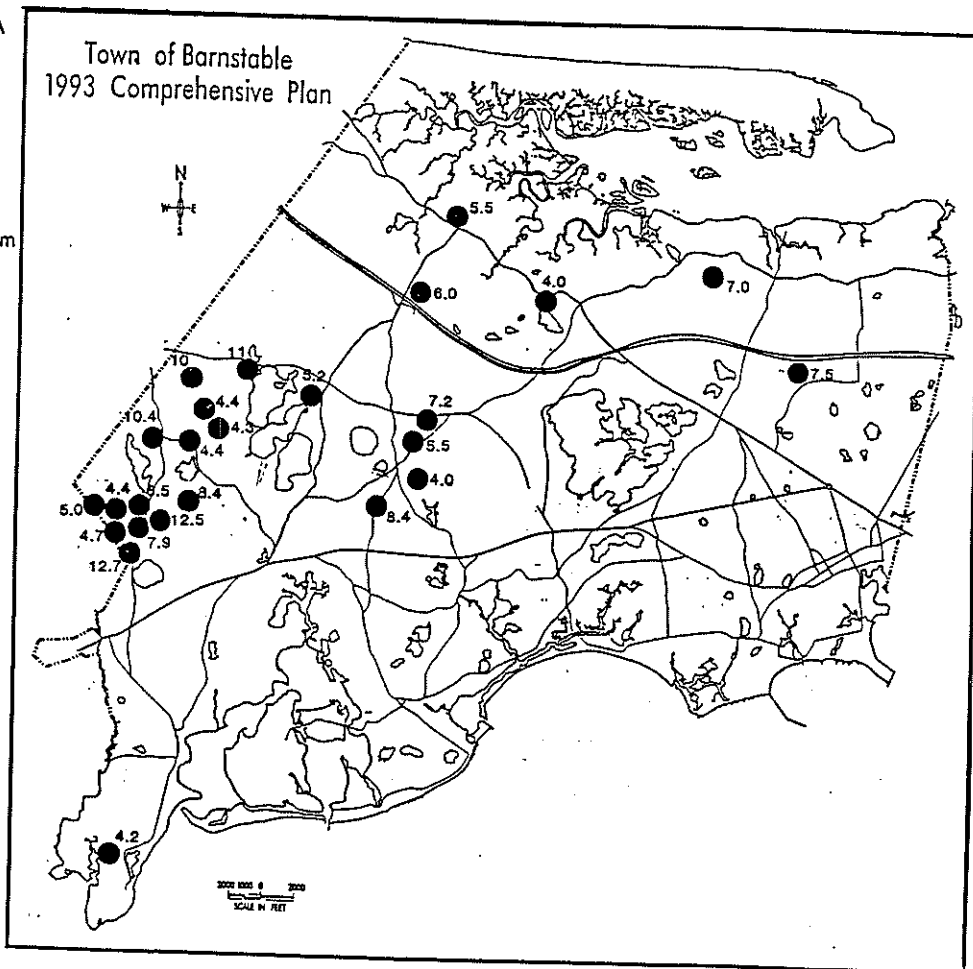


PRIVATE WELL WATER QUALITY DATA
Presence of Fecal Coliform Bacteria



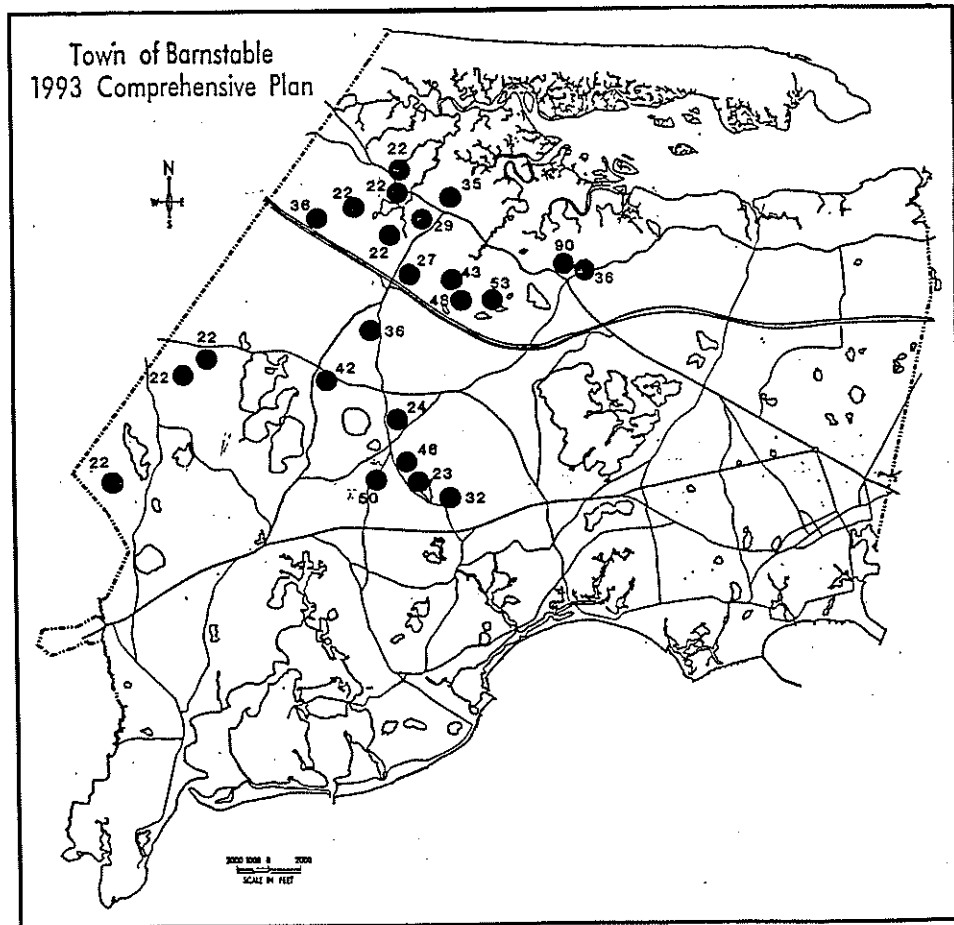
PRIVATE WELL WATER QUALITY DATA
Nitrogen Levels 4 ppm and Above

Cape Cod Commission Planning Standard 5 ppm
State and EPA Maximum Contaminant Level 10 ppm



PRIVATE WELL WATER QUALITY DATA
Sodium (Salt) Levels

Health Advisory Level: 20 mg/l



infrequently and need to be tested more often. Owner-occupants of existing properties with private wells need to test water quality on a regular basis

With time and increased development, public water supplies may be needed in West Barnstable and other areas dependent on private wells. These areas should be included in supply planning projections; to date no other district has planned to supply West Barnstable. The West Barnstable proven future well #15-75 recently protected in town regulations, will provide more than sufficient supplies to this village, if needed.

Policy 2.1.2.1: In areas which are dependent upon private wells, it is essential to control density and sewage flows in order to maintain water quality.

Strategy 2.1.2.1.1: Extend groundwater protection regulations limiting uses, sewage flows and lot coverage to commercial uses in areas dependent on private wells.

Strategy 2.1.2.1.2: Private and community wells, septic systems and drainage systems shall be located so as to avoid contamination of existing and proposed wells. Development and redevelopment shall identify their proposed well and any existing wells within 400 feet of the proposed effluent disposal area, and existing septic systems and drainage systems. Where development proposes effluent flows of 2,000 gpd or greater, the Board of Health may require a site specific hydrogeological study.

Strategy 2.1.2.1.3: Increase the minimum one-acre residential lot size for undeveloped areas dependent on private wells based on the adequacy of the soil to accommodate on-site septic disposal, whilst maintaining water quality. In the moraine, lot sizes should be increased to 65,000 sq.ft., and along the bay where clays and silts are found, lot sizes should be increased to two acres. (See issue paper in the Appendix, West Barnstable: Private Wells, Public Water.)

Strategy 2.1.2.1.4: Revise "Fuel and Chemical Storage Systems" regulation to place underground fuel storage tanks and piping located on lots with private wells, on the same schedule for testing and removal as those tanks located in Zones of Contribution to public supply wells.

Policy 2.1.2.2: In order to prevent a plume of sewage effluent adversely affecting private wells down-gradient, and to avoid encouraging high density development with excessive impervious surface coverage, Private Sewage Treatment Facilities should not be located in areas without public water supply, except to remediate areas of impaired water quality.

Policy 2.1.2.3: In order to protect public health and ensure that water quality from private wells meets drinking water standards, owners should be encourage to test water quality regularly. The town should map and monitor test results.

Strategy 2.1.2.3.1: Through public education, encourage owners of private wells to perform water quality tests for bacteria, inorganics, and nitrogen every two years.

Strategy 2.1.2.3.2: Through public education, private well owners should be encouraged to test for volatile organic compounds at least every five years, and more frequently in locations near gas stations and similar uses.

Strategy 2.1.2.3.3: The town should enter private well water quality data on the GIS system so that problem areas can be mapped and identified as soon as possible.

Policy 2.1.2.4: Public water supplies should be made available to areas where private wells are contaminated, or vulnerable to contamination.

Strategy 2.1.2.4.1: The town will complete mapping of all lots served by private wells.

Strategy 2.1.2.4.2: Designate areas for connection to public water supplies where there are small grandfathered lots less than an acre, nearby commercial and industrial land uses, where water quality tests reveal contamination and where there are large volume water users which meet the Federal definition of a public water supplier.

Strategy 2.1.2.4.3: All areas dependent on private wells should be included in future water supply planning projections in the event that incidents of contamination occur as development increases.

Potential Sources of Contamination to Water Resources

Section 2.1.3 Nitrogen Management:

Issue Statement:

The principal sources of nitrogen are as follows:

Septic systems	74%
Lawn and garden fertilizers	23%
Acid rain, road run-off	3%

Source: Studies by Horsley Witten and Hegmann, conducted by the Buzzards Bay Project, February 1992. Note that other studies have attributed septic systems to 85% of nitrogen, and lawn fertilizers, 12%.

Observed nitrogen levels in groundwater in undeveloped areas are generally below 0.2 parts per million. The EPA limits nitrogen in drinking water supplies to 10 parts per million. Because levels fluctuate widely, a Cape Cod planning standard of five parts per million has been adopted to prevent closure of public supply wells.

For planning purposes, nitrogen is also used as a surrogate indicator of contamination with sewage effluent, which may contain other contaminants, such as pathogens (viruses and bacteria), and hazardous chemicals.

Nitrogen is the principal nutrient responsible for algae growth in marine waters and degradation of water quality. Concentration of less than 1 part per million, may result in a decline in water quality and other changes to the marine environment. (See Section 2.2, Coastal Resources.)

By adopting one acre zoning in single family residential areas, (and 1 1/2 acres in the RG zoning district), the town has already implemented a five parts per million nitrogen loading standard affecting 85% of the town. Sewage discharges from on-site wastewater in Zones of Contribution to public supply wells is restricted to 330 gallons per acre per day, the equivalent of approximately five parts per million. However, discharges of effluent are not evenly distributed and plumes with much higher concentrations occur. Thus every effort should be employed to limit sewage flows and provide treatment to protect drinking water in these resource areas.

Commercial areas outside of Zones of Contribution are presently unregulated and will need to be assessed for impact on coastal embayments, ponds, private wells, and future water resource areas, and in order to comply with the Regional Policy Plan.

However it should be recognized that the 5 ppm and 10 ppm standards are very restrictive to businesses which are commonly large sewage generators. In many instances, large scale development will need to provide alternative wastewater management with nitrogen removal. Nitrogen loading should be assessed on an area-wide basis in village business centers, rather than the application of strict lot by lot standards, provided these centers are located outside ZOCs and provided that a private water system is available and there will be no adverse impact on ponds and marine embayments. All activity centers need to be assessed and prioritized for connection to wastewater treatment facilities, or designated for Alternative, on-site treatment.

During the 1980's, the town adopted a comprehensive regulatory program to protect public supply wells. Given buildout of approximately 71% of residential areas, the town's

water supply protection efforts will need to be increasingly directed to enforcement of existing regulations, and remediation of impaired areas. Groundwater remediation will be through connection to sewer where available, or other Alternative wastewater management which reduces nitrogen levels, prioritized to Zones of Contribution to public supply wells and environmentally fragile areas, such as ponds and coastal recharge areas.

Goal 2.1.3: To minimize contamination of water resources with nitrogen, in order to maintain the potability of drinking water supplies and the ecological integrity of streams, ponds and coastal embayments.

Nitrogen Management Standards

Policy 2.1.3.1: The Town of Barnstable hereby accepts and adopts the Classification System and Minimum Performance Standards for nitrate nitrogen established in the Regional Policy Plan Sections 2.1.1. through 2.1.1.5

Zones of Contribution to Public Supply Wells

Policy 2.1.3.2: In Zones of Contribution to public supply wells and future water resource areas, maintain sewage generation and nitrogen loading levels as low as possible; nitrogen loading shall not exceed 5 parts per million.

Strategy 2.1.3.2.1: Continue to limit on-site sewage effluent discharges and density of development in Zones of Contribution to public supply wells, in order to maintain the highest levels of water quality, and to minimize contamination with other pollutants, such as pathogens and volatile synthetic organic chemicals. (Regulations in effect: General Ordinance XLVII and Board of Health Regulation Part VIII, Section 8.00)

Strategy 2.1.3.2.2: When Zone of Contribution delineations are changed, recalculate nitrogen loading calculations at buildout. Prioritize locations within zone of contributions, which are calculated to exceed 5 ppm nitrogen loading, for remediation with connection to sewer or alternative wastewater treatment, either on-site, community or package sewage treatment plant.

See also Impaired Areas below.

Areas Dependent on Private Wells

Policy 2.1.3.3: Areas dependent on private wells should be afforded the same protection as zones of contribution to public supply wells. See also Section 2.1.2 Private Wells above.

Marine Recharge Areas

Standards for nitrogen loading in marine re-charge areas to embayments shall be established for each recharge area in order to protect water quality. See Section 2.2, Coastal Resources.

Pond Recharge Areas

Standards for phosphorus loading in pond re-charge areas shall be established, See Section 2.5, Freshwater Lakes and Ponds.

Town-wide, Aquifer Protection Zones (outside ZOCs)

Policy 2.1.3.4: Existing minimum lot sizes of one acre (and greater) in single family residential areas shall be retained. Average lot sizes of one acre for single family development results in nitrogen loading of approximately 5 ppm.

Policy 2.1.3.5: In areas where there will be no adverse impact to environmentally fragile areas listed in Strategy 2.1.3.5.2 below, nitrogen levels may be permitted to be increased as follows:

Strategy 2.1.3.5.1: The town shall adopt a 5ppm nitrogen standard (in Town-wide Aquifer Protection Zones) for all new and expanded uses generating more than 2,000 gpd sewage effluent, unless such use is located in an activity center, and this increase will cause no significant adverse impacts on wetlands, waterbodies, private wells, and potential public drinking water supply wells, in which case a 10 ppm standard may be applied.

Strategy 2.1.3.5.2: In village centers where there are small scale commercial developments (commonly generating less than 2,000 gpd sewage effluent) located on small lots, a maximum nitrogen loading standard shall be based on an impact assessment of potential public supply wells, private wells, wetlands, ponds, streams, coastal embayments, rare and endangered species habitats and future water resource areas. See also Strategy (2.1.3.7.3).

Strategy 2.1.3.5.3: Permit small scale affordable housing developments to exceed 5 ppm nitrogen provided that the development is not located in an environmentally fragile area listed in Strategy 2.1.3.5.2 above, and where regulatory authorities find a substantial public benefit. A cumulative loading assessment to any recharge area may be required. Development served by on-site septic systems should not exceed four units to the acre, or be limited to a lesser density compatible with resource protection.

Policy 2.1.3.6: A moderate increase in density of development in areas served by municipal sewer should be allowed, when treatment capacity exists, provided the intensity is consistent with other open space and community character requirements.

Strategy 2.1.3.6.1: Decrease minimum lot sizes in single family residential areas presently served by municipal sewer, where consistent with surrounding development, provided that capacity is available at the sewer treatment plant. Half acre and one quarter acre lots should be considered. (Minimal development will result).

Impaired Areas and Wastewater Management

Policy 2.1.3.7 The town shall determine areas of impaired groundwater which do not comply with the standards established above and in the Regional Policy Plan. Impaired areas should be prioritized for alternative wastewater treatment where it has been determined that nutrient loading exceeds, or will exceed established planning standards. (See also Sections 2.2, Coastal Resources and 2.5 Freshwater Lakes and Ponds)

Strategy 2.1.3.7.1: The town will address impaired areas by mapping single family lot sizes and by estimating sewerage flows from other developments in relation to the sensitivity of downgradient receptors. Impaired areas will be those areas that do not comply with the nitrogen standards established above, and in the Sections 2.2, Coastal Resources, and 2.5, Freshwater Lakes and Ponds (where phosphorus standards apply).

Strategy 2.1.3.7.2: New and expanded commercial, industrial, and multi-family developments generating more than 2,000 gpd, located in zones of contribution to public water supply wells which are determined to exceed 5 ppm cumulative nitrogen levels at buildout, shall be required to connect to sewer where available, or if not available, employ de-nitrifying wastewater management that will effect a reduction in the cumulative nitrogen level to less than 5 ppm.

Strategy 2.1.3.7.3: An evaluation shall be made of all activity centers to determine which of these centers shall be considered to be impaired areas and prioritized for alternative wastewater management with nitrogen removal.

Strategy 2.1.3.7.4: Obtain funding to determine priority areas for remediation of impaired water quality contributing to contamination of identified ponds and coastal embayments.

Strategy 2.1.3.7.5: West Barnstable, which is served by private wells, should not be considered an impaired area provided that in the village commercial district nitrogen loading does not exceed 5 ppm on the majority of lots and contamination of private wells does not occur.

All Areas

Policy 2.1.3.8 Where nitrogen loading from existing development exceeds the standards established above, expansion or redevelopment shall decrease nitrogen loading to meet the standards established above and in the Regional Policy plan.

Policy 2.1.3.9 Nitrogen concentrations will be calculated according to the methodology in the CCC Water Resources Technical Bulletin, #91-001.

Policy 2.1.3.10 The town shall develop a map delineating a water resources classification system using the planning standards established above and in the Cape Cod Commission's Regional Policy Plan, "Water Resources Classification System and Minimum Policy Standards", and where necessary, adopt this classification system through regulations and wastewater management policies

Section 2.1.4 Sewage Effluent

Issue Statement: Groundwater discharges from sewage effluent is a major source of contamination to groundwater, drinking water supplies and surface water bodies, depending on the density of development. Sewage is estimated to contribute 74% of nitrogen contamination of ground and surface waters, and a substantial portion of phosphate contamination.

The design and location of on-site treatment systems has a major impact on the quality of effluent discharged to the ground. Only 12% of all development, both residential and commercial is connected to the town sewer system. A portion of Hyannis is sewered, and a small portion of Barnstable Village. At present all other land uses are served by individual, on-site septic systems. It is essential to control density of development in order to limit nitrogen contamination from on-site systems.

Hyannis Wastewater Treatment Facility

Issue Statement: The sewerage treatment plant located in Hyannis off Bearses Way has an average daily discharge of 1.4 million gallons per day (mgd) and a design capacity of 4.2 mgd. This treatment plant is essential to protect both groundwater quality, public supply wells and public health in Hyannis. The plant serves the most densely populated area of the town, and of the Cape serving commercial areas and high density residential neighborhoods.

The plant is also a potential source of a groundwater contamination, although the plant's effluent presently meets drinking water standards due to alternative treatment techniques. Nitrogen levels generally do not exceed 10 ppm, and are often appreciably lower, approximately 2 ppm. Initial results of studies by Geraghty and Miller for the Wastewater Facilities Plan indicate that flow from the plant is contributing to three zones of contribution to public supply wells, although it is not clear at this point, what impact the older, less treated portions of the plume has, or will have on public supply wells.

Policy 2.1.4.1: Priority areas for connection to the Wastewater Treatment Facility in the Hyannis area:

1. In order to protect public health, and public water supplies, provide connections to:
 - * Areas with small lot sizes and/or high groundwater where septic systems cannot comply with upgrade requirements and have failed or may be subject to failure.
 - * ZOCs to public supply wells at risk for excessive nitrogen levels, especially WP Wellhead Protection zones;
2. Areas identified for phased growth and redevelopment; and
3. To remediate water quality in coastal areas and ponds.

Policy 2.1.4.2: Provide a system of grants and revolving loan funds for low and moderate income property owners to connect their homes to sewer where systems have failed and are public health threats, and systems in especially environmentally sensitive areas such as zones of contribution, and recharge areas to ponds and coastal embayments.

Policy 2.1.4.3: The Hyannis Water Pollution Control Facility's effluent flows are radial and serves as recharge to Zones of Contribution to public water supply wells.

Depending on recommendations in the Wastewater Facilities Plan, increased levels of treatment or another location for the filter beds may be required. (On-going Wastewater Facilities Plan, DPW)

Policy 2.1.4.4: Maintain the existing high level of treatment of effluent to minimize contamination of groundwater and any other water resources.

Strategy 2.1.4.4.1: Effluent from the Hyannis Water Pollution Control Facility should be treated, at a minimum, to meet the EPA drinking water standard of 10 ppm nitrogen, as determined prior to discharge from the facility. If the facility impacts any sensitive receptors, then appropriate effluent limits should be established to protect the integrity of the sensitive receptor.

Strategy 2.1.4.4.2: The town should vigorously pursue a waiver from the need to chlorinate effluent which results in the formation of Trihalomethanes, which are hazardous chemicals. (On-going, DPW)

Cesspools

Issue Statement: Cesspools are underground pits which receive and discharge sewage. Where the base of a cesspool is close to groundwater, bacterial contamination of ground and surface waters can occur.

Unlike Title 5 Systems, in which the septic tank collects the solid wastes and the leaching pit discharges effluent to the ground, cesspools serve in both capacities. As a result solids are readily discharged to the soil which can become clogged and the system fails. Because of a tendency to clog, residents may resort to using cesspool cleaners, some of which contain solvents which are hazardous to public health and unsafe in drinking water supplies.

Inspection and upgrade programs should initially be prioritized to areas where these systems are known or suspected of causing contamination. Upgrades to alternative wastewater treatment systems with de-nitrification should be considered in environmentally fragile areas, such as low lying areas near ponds, streams and the coast, and where impervious soils may result in contamination of nearby private wells.

Policy 2.1.4.5: Continue to support Health Department programs which include inspection and upgrade requirements for on-site systems, prioritizing those areas which are especially environmentally vulnerable such as zones of contribution to public supply wells, areas dependent on private wells, coastal and inland flood plains, and pond recharge areas.

Strategy 2.1.4.5.1: In areas determined to be environmentally sensitive with impaired water quality, discharge standards for effluent disposal should be established to reduce the impact on environmentally sensitive areas.

Policy 2.1.4.6: Provide a system of grants and revolving loan funds for low and moderate income property owners to upgrade cesspools and other failed systems. Priority should be given to systems which have failed and are public health threats and to systems in especially environmentally sensitive areas listed above in Policy 2.4.10.

Policy 2.1.4.7: Discourage the use of hydrocarbon-based septic system additives.

Strategy 2.1.4.7.1: Through public education, discourage the use of septic system cleaners with solvents such as TCE, TCA and naphthalene. Request that local businesses do not stock such products.

Strategy 2.1.4.7.2: Coordinate with the County to obtain a state ban on the sale of cesspool and septic system cleaners with solvents such as TCE, TCA and naphthalene.

Title 5 Systems

Issue Statement: Title 5 systems provide some treatment of sewage. Bacterial action breaks down solids in a holding tank which retains the sludge. Effluent is discharged to the ground via leaching pits or fields. With adequate depth to groundwater, bacteria in the effluent is attenuated (weakened). The breakdown and filtration of contaminants is enhanced by an increased depth to groundwater, which is one of the most important factors in the removal of contaminants.

Sludge needs to be pumped from the septage holding tank least every three years to prevent clogging of the leaching fields and backing up of effluent into the building. Ultimately this should be a regulatory requirement, but because of lack of funding and the large number of systems in the town, probably in excess of 25,000, this issue will have to be addressed through public education for the foreseeable future.

Title 5 systems do not remove most nitrogen, phosphorous, nor most hazardous materials. Controlling density is therefore critical to controlling nitrogen contamination from Title 5 Systems and cesspools. (Density issues are dealt with above in Nitrogen Management.)

Policy 2.1.4.8: Ensure that individual on-site septic systems are designed, located and maintained so as to minimize contamination of drinking water, groundwater, surface waters, wetlands and rare and endangered species habitats.

Strategy 2.1.4.8.1: Future development should be designed and located outside flood plains wherever possible.

Strategy 2.1.4.8.2: Retain Board of Health Regulation VIII, Section 9, requiring the minimum depth of naturally occurring pervious soil to groundwater be measured above maximum groundwater level, without fill.

Strategy 2.1.4.8.3: Work with the Cape Cod Commission to develop means of restricting septic systems in velocity zones to serve new development. (This is also a DEP policy)

Strategy 2.1.4.8.4: Develop public educational material to alert home buyers to the responsibilities for maintenance of private wells, septic systems including the potential for upgrade requirements, and private roads (an infrastructure concern). Information should also be developed regarding fees for public water supplies and sewers (where available).

Strategy 2.1.4.8.5: Continue education efforts to encourage regular pumpout of accumulated sludge in order to protect the viability of the system. The system should be checked at least every three years to determine if pumping is required, and more frequently if there is a large family, or the household has a garbage grinder.

Alternative Wastewater Treatment Facilities

Issue Statement: Alternative wastewater treatment facilities both on-site, community and neighborhood systems should be encouraged in areas not served by the Hyannis Wastewater Treatment Facility, subject to the policies below. These systems achieve a better level of treatment of effluent to protect drinking water supplies and the integrity of ponds, streams and surface water bodies.

GOAL 2.1.4: To encourage the use of alternative wastewater treatment technologies in order to achieve more effective treatment of sewage and greater protection of natural resources, especially water resources.

Package Sewage Treatment Facilities (Small Wastewater Treatment Facilities, (public and private, 10,000 gpd and greater,)

Issue Statement: Package Sewage Treatment Facilities (PSTFs) are presently designed to serve larger-scale, high-density developments. Properly designed and operated, these facilities produce high quality effluent with reduced nitrogen levels which meet drinking water standards. Capital costs, maintenance and replacement costs are high and development needs to be concentrated in order to make these systems economically viable. Throughout the country, experience with these systems has been mixed with some incidences of treatment failure.

Policy 2.1.4.9: PSTFs should be considered as one of several alternative wastewater treatment technologies for serving areas of existing high-density development, remote from the Hyannis Sewage Treatment Facility.

Policy 2.1.4.10: PSTFs should not be employed to serve new development unless such development is located in designated activity centers, since the resultant density of development is not compatible with other town policies to maintain community character.

Strategy 2.1.4.10.1: An exception to policy 2.1.4.10 may be to permit small affordable housing developments located adjacent to designated activity centers served by such systems established by the town according to the Wastewater Facilities Plan.

Policy 2.1.4.11: PSTFs shall be located outside of environmentally sensitive areas such as zones of contribution to public water supply, areas served by private wells, flood plains, velocity zones, officially-designated Areas of Critical Environmental Concern, coastal dunes, critical wildlife habitats and wetland, pond and coastal embayment buffer zones, unless established by the town to serve existing development, where groundwater and/or surface water quality is impaired.

Policy 2.1.4.12: PSTFs shall not be used as a vehicle to increase density of development above established zoning densities.

Policy 2.1.4.13: All package sewage treatment facilities (PSTF) shall be designed to achieve tertiary treatment with denitrification that meets a five ppm nitrate-nitrogen discharge standard in ground water at the down gradient property line, for all new developments. Where a PSTF is established by the town to remediate existing wastewater problems, the requirements for tertiary treatment and a five ppm nitrogen discharge standard may be relaxed provided the standard established is sufficient to protect any down gradient water resource or other natural resource affected, or potentially affected by impaired water quality.

Strategy 2.1.4.13.1: Develop procedures to ensure that a secure fund is established sufficient to ensure reliable maintenance, repair and eventual replacement of a PSTF.

Policy 2.1.4.14: The town shall resolve ownership and management issues relating to private PSTFs through the Wastewater Management plan.

Policy 2.1.4.15: Private treatment facilities may be constructed only if there are no feasible public treatment facility options available or planned.

Policy 2.1.4.16: Applications for approval of public and private package treatment plants shall include a plan for all residuals, i.e. sludge, grit, and screenings.

Alternative On-Site and Community Wastewater Treatment Facilities

Issue Statement: There are a variety of alternative technologies which provide alternative on-site and community wastewater treatment with reductions in nitrogen levels ranging from 8-15 ppm, which will improve the quality of groundwater, drinking water supplies, ponds and coastal embayments. (Nitrogen in sewage effluent from a Title 5 system is approximately 40 ppm.) In the future these systems should become more available and less expensive.

Policy 2.1.4.17: Encourage the use of alternative on-site and community wastewater treatment facilities in order to provide a better quality of effluent with reduced nitrogen.

Strategy 2.1.4.17.1: Establish minimum performance standards for alternative wastewater treatment facilities and maintenance programs.

Policy 2.1.4.18: Prioritize areas which are environmentally sensitive and in need of remediation including the following: recharge areas to coastal embayments, flood plains, Areas of Critical Environmental Concern, zones of contribution to public supply wells especially the most critical WP zones, and areas dependent on private wells.

Policy 2.1.4.19: Recognize that septic system upgrades in impaired areas may be delayed so that alternative wastewater systems can be developed or designated.

Policy 2.1.4.20: Investigate options for reuse of grey water.

Policy 2.1.4.21: In areas defined as impaired or environmentally critical, and designated for upgrades of on-site systems to systems providing nutrient removal, provide assistance to low and moderate income homeowners by establishing grant and revolving loan programs, and a betterment program.

Planning Implications of Advanced On-site Wastewater Treatment:

Issue Statement: The town needs to actively encourage the use of decentralized, advanced on-site and community wastewater treatment systems to improve the quality of sewage effluent being recharged to the groundwater. These treatment systems can substantially reduce nitrogen providing greater protection of drinking water supplies and water quality in ponds and coastal embayments. Of particular concern is water quality in coastal embayments, which are extremely sensitive to nitrogen contamination in very low levels, lower than the standards which have been adopted to protect public supply wells.

Advanced treatment systems may however, open a Pandora's box of planning problems. These systems may make previously undevelopable areas developable, particularly environmentally fragile areas where there is little depth to groundwater, or where there are impervious soils. In these areas, the secondary impacts of development are of serious concern, particularly contamination from road and driveway runoff, and fertilizers from lawns and gardens. Road run-off is the principal cause of closure of shellfishing and swimming areas.

The issues related to the buildability of existing grandfathered lots are legally complex. These issues should be explored with the Cape Cod Commission as soon as possible, before widespread permitting of wastewater treatment systems.

Policy 2.1.4.22: Work with the Cape Commission to explore the issue of lots grandfathered under Massachusetts General Law Chapter 40, Section 6.

Strategy 2.1.4.22.1: Investigate requiring a minimum natural depth to groundwater for development sites to ensure that run-off from impervious surfaces is properly filtered, in environmentally sensitive areas.

Section 2.1.5 Hazardous Materials

Issue Statement: State and Federal Agencies regulate the presence of synthetic organic compounds in drinking water. Sources of contamination include household hazardous materials, agricultural products, business and industrial hazardous waste, landfills, and underground storage tanks. Permitted contaminant levels are usually very low, measured in parts per billion. Standards for many contaminants have yet to be established.

Only a few gallons of chemicals can cause contamination and closure of public supply wells. Cleanup of groundwater is slow, difficult and very costly. Every effort should be made to prevent contamination of the environment with hazardous chemicals.

GOAL 2.1.5: To prevent contamination of the environment with hazardous materials, the cost of clean-up is extraordinary and should be avoided at all cost.

Household Hazardous Materials

Issue Statement: Many household cleaning agents, paints and stains contain synthetic organic chemicals which can contaminate groundwater, surface water and drinking water supplies, if disposed of in septic systems, or dumped on the ground. On-going programs are needed to collect and dispose of household hazardous materials which cannot be used up or re-cycled.

A planned permanent facility at the landfill should be re-assessed given findings* that this area is in the Zone of Contribution to public supply wells, and given a report by the Cape Cod Commission** indicating that household hazardous waste events are more cost-effective than permanent facilities.

* Geraghty and Miller, 1993

** Household Hazardous Waste Management, A Report on Options for Barnstable County, Cape Cod Commission, March 17, 1993.

Policy 2.1.5.1: The town should continue educational programs to:

- 1) advocate the use of non-toxic household cleaners such as baking soda; and
- 2) to use up and donate unwanted products such as paints and stains.

Policy 2.1.5.2: The town should continue to fund programs for collection and disposal of household hazardous waste materials which cannot be donated or recycled.

Strategy 2.1.5.2.1: As part of the household hazardous waste collection program, the town should develop recycling programs for oil paints and thinners, automotive batteries and anti-freeze. Such programs are more cost-effective than disposal of these toxic and hazardous materials.

Policy 2.1.5.3: The proposed household hazardous waste collection facility should be evaluated for cost-effectiveness and liability. The location should also be re-assessed since the landfill now appears to be in a zone of contribution to public supply wells.

Hazardous Materials from Businesses

Issue Statement: The improper disposal of hazardous chemicals by commercial and industrial businesses has proven to be the most serious threat to public drinking water supplies to date. Five public supply wells have been closed due to contamination (three have re-opened with air stripping equipment), and four additional wells in the Hyannis area have low levels of contamination with organic chemicals, below the Maximum Contaminate Levels as regulated by State and Federal Drinking water programs.

In the town, 216 businesses are registered with the state as Very Small Quantity Generators (VSQGs). Probably many more should be registered with the town and state. With the extension of sewers to the industrial and commercial zone, pre-treatment programs and enforcement of hazardous waste regulations are essential to protect the wastewater treatment facility processes, and prevent contamination of sludge. Such contamination would change sludge disposal which would be very costly to the town.

The Department of Environmental Protection has confirmed 22 sites in the town as contaminated; 17 additional sites are to be investigated. Thirty of the 39 sites are in the Hyannis area, south of Route 6. The Department of Environmental Protection has initiated clean-up; the location and responsibility for clean-up of contamination will be determined through the Hyannis Corridor Study. Property owners may be liable for clean-up costs, even though contamination originated elsewhere. Contamination with hazardous waste threatens drinking water supplies, property values, the tax base and jobs.

Policy 2.1.5.4: The town and the county should continue public education efforts to inform businesses of their responsibility for the proper storage and disposal of hazardous materials. Options should be listed and financial implications of dumping should be explicit.

Policy 2.1.5.5: The town should actively support town and county programs for cost-efficient methods of hazardous waste recycling and disposal, especially for small business VSQGs (Very Small Quantity Generators).

Strategy 2.1.5.5.1: The town should support the coordination of town and/or regional scheduled waste collection routes by licensed hazardous waste transporters for selected types of businesses. Significant savings can be achieved by establishing routes which serve several businesses generating similar wastes.

Policy 2.1.5.6: The town should enforce existing regulations governing handling and storage of hazardous materials.

Strategy 2.1.5.6.1: The town through the Building Department should enforce Zoning Ordinance restrictions on uses in zones of contribution, especially changes of use which do not require building permits and are difficult to track.

Strategy 2.1.5.6.2: The Business Registration program is necessary to track businesses using hazardous materials.

Strategy 2.1.5.6.3: The town should continue to support the funding of Health Department staff to actively enforce hazardous materials storage and handling requirements. The enforcement program should emphasize education and technical assistance to bring businesses into compliance.

Strategy 2.1.5.6.4: The Board of Health should establish threshold quantities for licensing requirements for hazardous materials storage to implement General Ordinance, Article 39, Control of Toxic and Hazardous Materials, when enforcement staff have been funded.

Strategy 2.1.5.6.5: Enforcement of hazardous waste regulations should be coordinated with the Fire Departments, who also have responsibilities for certain chemicals.

Policy 2.1.5.7: The Town shall revise the existing Zoning Ordinance regulations Section 3-5.2 which restricts uses storing or generating hazardous materials in zones of contribution to public water supplies to bring it into full compliance with Regional Policy Plan 2.1.1.2, A2.

Policy 2.1.5.8: The town should consider requiring monitoring wells downgradient of businesses using hazardous materials as recommended by SEA Inc. in the report entitled "Groundwater and Water Resource Protection Plan, 1985".

Strategy 2.1.5.8.1: Consider requiring certain industrial and commercial developments in Zones of Contribution storing or using hazardous materials to install monitoring wells downgradient of septic systems, activity areas and/or loading docks. Monitoring well depths should be related to the chemical characteristics of materials stored or used on the premises. Establish monitoring requirements.

Policy 2.1.5.9: Support State efforts to clean up contaminated sites and plumes in the town, recognizing that the town does not have the specialized staff or resources to be active participants in the clean-up.

Policy 2.1.5.10: In order to protect public lands and properties, and the taxpayer, the town should ensure that there is no contamination with hazardous chemicals.

Strategy 2.1.5.10.1: The town should allocate funds as necessary for 21E Assessments before taking certain properties for non-payment of taxes.

Strategy 2.1.5.10.2: Leases of non-residential properties which are town-owned or in trust should include a requirement for a 21E assessment prior to termination of the lease.

Strategy 2.1.5.10.3: Develop solutions to abandoned, polluted properties.

Section 2.1.6 Underground Fuel Tanks

Issue Statement: Leakage of heating fuel and gasoline to groundwater can result in contamination of water resources and extraordinary costs to property owners. Since 1987, underground storage tanks have not been permitted except for commercial tanks. The Board of Health has adopted comprehensive regulations with schedules for testing, upgrading or removal of underground tanks. Of the 1,344 tanks registered with the Board of Health, 792 have been removed or permanently abandoned, mostly in zones of contribution to public supply wells where tanks removals or upgrades are on an accelerated schedule. 551 underground storage tanks remain. Of the 65 large volume commercial tanks, 50 are located in Hyannis. Of the 44 tanks located in ZOCs to public supply wells, 36 are located in Hyannis; many of them are large volume, commercial fuel storage tanks.

The actual life span of the tanks varies greatly. In water retentive soils, tanks are subject to rusting and may last less than 10 years. After 20 years, the tank may become subject to leakage regardless of soil conditions. Copper fuel lines buried beneath basement floors or imbedded in concrete are also prone to corrosion and leakage.

Because of liability associated with underground fuel storage tanks, lending institutions have begun requiring removal of residential tanks prior to property transfers. The time of sale is an opportune time to require removal, or testing and bringing any tank into compliance, together with proper installation of fuel lines. Upgrades at this time have the least financial impact on property owners.

Policy 2.1.6.1 Require professional certification to be submitted to the Board of Health that at the time of property transfer:

- 1) there are no underground fuel tanks on the premises, or any tank is registered with the Board of Health and meets all requirements; and .
- 2) copper lines from an oil tank are not buried under the basement floor. Any such lines should be required to be re-routed through the basement and encased in plastic pipe.

Policy 2.1.6.2 The Board of Health should adopt regulations governing above ground storage fuel tanks.

Policy 2.1.6.3 Grants and a revolving low-interest loan program should be made available to assist low and moderate income homeowners to remove underground fuel tanks and re-route buried fuel lines.

Policy 2.1.6.4 Information on underground fuel tanks and re-routing of buried fuel lines should be added to public education material circulated on the subject of groundwater protection. The serious financial consequences of a leak should be emphasized. (Two year implementation, Health and Planning Departments)

Section 2.1.7 Road and Parking Lot Runoff

Issue Statement: Runoff from roads and parking lots contains a variety of contaminants, including: hazardous chemicals derived from oil, gasoline and other automobile fluids; heavy metals; fertilizer washed off lawn surfaces; and bacteria from animal droppings. Road runoff is the principal cause of closure of shellfish beds and swimming areas.

New roads, reconstruction of existing roads, parking lots and drainage systems need to be designed to minimize contamination of groundwater.

Many of the existing drainage systems which discharge directly to coastal areas have been prioritized for remediation; freshwater areas also need evaluation. (See Coastal Resources, Section 2.2 and Freshwater Lakes and Ponds, Section 2.4)

Policy 2.1.7.1: Continue to provide funding for remediation of road drainage systems which have been determined to contribute to contamination of surface water bodies. See Section 2.2 Coastal Resources, and Section 2.5, Freshwater Lakes and Ponds for priority listings of systems in need of remediation. (Continuation of existing program, Health Department and DPW)

Policy 2.1.7.2: Require design standards for new roads and reconstruction of existing road and drainage systems which minimizes contamination of groundwater.

Strategy 2.1.7.2.1: Maintain existing drainage standards in Zoning Ordinance and Subdivision Rules and Regulations which prohibit direct discharge to surface waters, and require construction of above ground drainage systems to reduce contamination of groundwater. (Existing regulations: Zoning Ordinance, Site Plan Review; Subdivision Rules and Regulations)

Strategy 2.1.7.2.2: Ensure that above ground drainage systems are designed so that they do not become mosquito breeding grounds.

Strategy 2.1.7.2.3: Minimize road length in subdivisions by clustering development, and permitting flag lots by special permit from the Planning Board, with a larger lot size requirement). (Zoning Ordinance change.)

Strategy 2.1.7.2.4: Restrict impervious surface coverage in multi-family and non-residential developments with the percentage to vary according to the Zoning District. (Zoning Ordinance change.) (See also Section 6.0, Open space and Recreation)

Strategy 2.1.7.2.5: Allow the use of grassed overflow parking areas to meet parking requirements for uses with limited peak parking requirements.

Strategy 2.1.7.2.6: Allow the use of pervious pavement in parking lots to allow the infiltration of rainfall.

Strategy 2.1.7.2.7: Require review of road drainage systems by the Coastal Health Resource Co-coordinator, and Conservation Commission prior to road reconstruction and pavement by the town and the state. (On-going coordination, DPW, Conservation, Health Department, State DPW)

Strategy 2.1.7.2.8: Contact the Soil Conservation Service through the Cape Cod District to evaluate and review stormwater mitigation strategies. (On-going implementation, Planning Board)

Strategy 2.1.7.2.9: Require oil and grease traps in especially sensitive areas. Require oil absorbent pillows in especially sensitive areas only where there are mechanisms to ensure that they will be maintained.

Strategy 2.1.7.2.10: Develop innovative road designs which direct drainage along the length of the roadway, and retain the integrity of the paved margins.

Section 2.1.8 Solid Waste Management

Issue Statement: Work by the town's consultants, Geraghty and Miller, now indicates that the landfill is in a Zone of Contribution to Centerville-Osterville-Marston Mills public supply wells to the south, and will therefore have to be closed. What activities will be permitted to continue at the landfill will have to be determined.

Work is underway to determine the impact of the plume from the landfill upon private and public wells. No evaluation has been made of the impact on Prince Cove, if any.

Waste is now disposed off by the SEMASS waste-to-energy incinerator in Rochester. However, financing part of the cost of operation with the sale of dump stickers is contributing to illegal dumping of waste on open lands. Dumping is unsightly, it devalues both the value of the open space and neighboring properties.

Policy 2.1.8.1: Support recycling programs to reduce waste volumes and disposal costs. (See also Capital Facilities, Section 4.2)

Policy 2.1.8.2: The town should assess potential impact of the plume on Prince Cove, if any.

Policy 2.1.8.3: Ensure that public programs prevent illegal dumping on all lands.

Strategy 2.1.8.3.1: A curb-side pick-up program and/or free or substantially reduced sticker price should be initiated, recognizing that budgetary constraints and Proposition 2 1/2 may delay implementation.

Strategy 2.1.8.3.2: Continue funding to protect open space from illegal dumping by restricting unauthorized vehicular access with the use of fences, plantings and gates. (On-going program, Conservation)

Strategy 2.1.8.3.3: Ordinances prohibiting dumping should be reviewed for enforceability and appropriate penalties.

Section 2.1.9 Airports

Issue Statement: The Barnstable Municipal Airport is in a Zone of Contribution to public supply wells, much of it in the most sensitive wellhead protection zone. Groundwater flows from the Barnstable Municipal Airport toward several Barnstable Water Company wells.

Cape Cod Airport in Marstons Mills is a recreational airport with grass runways. Usage of this non-conforming use has been increasing. Fueling operations need to be carefully monitored to ensure that there are no releases to groundwater. Part of the airport close to Rt 149 is in a zone of contribution to public supply wells and the rest of the airport may be in a future water resource area.

Barnstable Municipal Airport

Policy 2.1.9.1: Ensure that all current operations conform to hazardous waste laws and regulations.

Strategy 2.1.9.1.1: Ensure that all outdated underground fuel storage tanks are replaced with modern systems. (On-going program, Airport)

Policy 2.1.9.2: Ensure that all drainage systems are designed to reduce contamination of ground and surface waters.

Policy 2.1.9.3: All private uses of airport lands should comply with the use restrictions of the Zoning Ordinance Groundwater Protection Overlay Districts

Cape Cod Airport

Policy 2.1.9.4: Ensure that fueling and servicing does not result in groundwater contamination.

Policy 2.1.9.5: Retain grass runways and present recreational scale operations of this non-conforming use. Do not permit night time operations, instrument landings or scheduled commuter services.

Section 2.1.10 Fertilizers and Pesticides, Lawns and Golf Courses

Issue Statement: Lawn and garden chemicals include the nutrients nitrogen and phosphorous, and herbicides, pesticides and fungicides. Lawn and garden fertilizers contribute an estimated 23% of nitrogen contamination in groundwater. Nitrogen is restricted in drinking water supplies to 10 ppm, the planning standard for Cape Cod is 5 ppm. In poorly flushed coastal embayments, nitrogen can result in excessive algae growth, and an environment in which bacteria can flourish thus resulting in closure of shellfishing beds and swimming areas. Similarly, phosphorus acts as a nutrient in freshwater causing algae growth, deterioration of water quality, even fish kills and odors. Pesticides contain complex chemicals many of which are toxic and strictly regulated in water supplies.

By encouraging the retention of naturally vegetated areas, replanting disturbed areas with species common to the Cape, and by using good turf management techniques, residents can reduce contamination of the town's water resources. By employing these techniques, the character of the natural environment will also be retained.

Policy 2.1.10.1: Minimize the contamination of water resources by retaining natural vegetation, limiting lawn area and landscaping with species common to Cape Cod.

Strategy 2.1.10.1.1: Retain natural vegetation wherever possible by clustering development and by requiring that natural vegetation be retained in commercial and multi-family sites. Standards for percentage of naturally vegetated area will vary according to the character and density of each activity centers.

Strategy 2.1.10.1.2: Restrict lawn areas in multi-family and non-residential developments, especially in wellhead protection zones to public supply wells, flood plains, Areas of Critical Environmental Concern, recharge areas to coastal embayments affected by elevated nitrogen levels, and wetland and surface water buffer zones.

Strategy 2.1.10.1.3: Require a minimum of 4" of loam beneath new lawns to reduce water and fertilizer needs.

Policy 2.1.10.2: Through public education encourage turf management techniques which reduce water and fertilizer needs.

Strategy 2.1.10.2.1: Through the site plan review process and public education, encourage the planting of drought and disease-resistant native species and plants common to Cape Cod, thus reducing the need for water, fertilizers and pesticides.

Strategy 2.1.10.2.2: Through public education, discourage the routine spraying of lawn chemicals.

Strategy 2.1.10.2.3: Investigate the feasibility of banning routine lawn spraying with fertilizers and pesticides. Investigate the feasibility of banning routine application of certain types of chemicals.

Strategy 2.1.10.2.4: Encourage turf management, which reduces need for fertilizers: plant fescue lawn grasses which are drought and disease-resistant, rather than blue grass, leave clippings on the surface; use water and lime in lieu of fertilizer; any fertilizer should be water insoluble.

Policy 2.1.10.3: Ensure that golf courses and agricultural uses such as cranberry growing, employ management techniques which minimize fertilizer and pesticide use.

Strategy 2.1.10.3.1: New golf course should limit greens and maximize "rough areas", especially in Zones of Contribution to public supply wells and coastal embayment recharge areas.

Strategy 2.1.10.3.2: Work with the Soil Conservation Service through the Cape Cod Conservation District to ensure that best management practices are employed for land used for agricultural use and golf courses.

Strategy 2.1.10.3.3: Encourage the utilization of the National Pesticide and Soils Database and user support system for risk assessment of ground and surface water contamination (NPURG) available through the Soil Conservation Service for pesticide evaluation in environmentally sensitive areas.

Section 2.1.11 Lead and Acidity of Water Supplies

Issue Statement: Cape Cod water is naturally acidic because of the nature of soils and subsoils. Low pH is associated with corrosion of plumbing, and leaching of copper and lead. Lead is a most serious form of contamination; it is associated with neurological damage to young children.

Policy 2.1.11.1: The town should encourage the prompt installation of treatment of public water supplies by the public water suppliers to reduce acidity.

Section 2.1.12 Sodium (Salt) Contamination

Issue Statement: Elevated sodium levels in drinking water supplies are associated with kidney and blood pressure health problems. The Health advisory level is 20 mg/l.

Elevated levels can be due to a number of causes including road and parking lot de-icing salts, effluent from septic systems and sewer treatment plants, geologic deposits, and along the coast, salt water intrusion.

Public supply wells in the western part of town have sodium levels well below 20 mg/l. Levels are elevated in Barnstable Water Company and Centerville, Osterville, Marston Mills wells in the Hyannisport and Craigville area where four wells exceed the Health Advisory level of 20 mg/l. North of the Mid-Cape highway, the one public well BFD #1 and scattered private wells also have elevated sodium levels. Causes of these elevated levels are unclear since water quality in this area is generally high.

Town efforts to reduce road salt to sand ratios resulted in the need for repeat applications with greater total applications of salt, and greater costs. The town now uses a 2:1 sand salt mix. Further reduction requires use of the more expensive calcium chloride, and specialized equipment. Well Protection areas especially in Hyannisport and Craigville should be prioritized for reduced road salts and use of calcium chloride.

The salt storage facility at the landfill in Marston Mills may have to be relocated or protected fully from the elements and leaching; the landfill has now been determined to be in the Zone of Contribution to public supply wells to the south. The State facility at Phinneys lane and Route 132 is enclosed and appears to meet containment requirements.

Policy 2.1.12.1: Support reduction of road and parking lot de-icing salt applications in a safe and cost effective manner.

Strategy 2.1.12.1.1: Support funding for use of calcium chloride and specialized equipment necessary for application.

Strategy 2.1.12.1.2: Through public education, encourage reduction of salt for de-icing of parking lots and driveways.

Section 2.1.13 Geological Constraints to Development

Issue Statement: Soils and land forms vary throughout the town and pose different constraints for development. Along the northern shores where clays and peats predominate, drainage and sewage effluent is not easily discharged and bacterial contamination can occur because of the lack of adequate filtration. The moraine soils along Route 6 are well-drained but steep slopes are highly erodible and septic systems and drainage systems are subject to breakouts. Coarse sands and gravels of the southern outwash plains are rapidly drained, highly productive aquifers. However, rapid drainage and in many areas minimal depths to groundwater make these soils vulnerable to contamination of ground and surface waters. Most soils in the town are now classified by the USGS as having moderate to severe restraints for development.

Policy 2.1.13.1: Development density should be related to soil types throughout the town to ensure that contamination of water resources does not result from the disposal of sewage effluent and runoff from impervious surfaces.

Strategy 2.1.13.1.1: Increase lot sizes in areas especially prone to contamination of ground and surface waters where impervious soils impede the disposal of effluent and impervious surface drainage, principally along the northern harbor shores.

Policy 2.1.13.2: The town should adopt more flexible development styles to cluster development away from environmentally sensitive areas such as wetlands, surface water bodies, and flood plains, except in water resource areas, where development should be dispersed to avoid creating a concentrated plume.

Strategy 2.1.13.2.1: Permit cluster developments which permits concentrating development in a portion of the lot.

Strategy 2.1.13.2.2: In order to ensure that clustered development does not cause contamination of groundwater, large-volume sewage generators should provide a site-specific hydrological study to ensure that effluent disposal is located at right angles to the direction of groundwater flow.

Policy 2.1.13.2.3: Ensure that development is located away from steep slopes.

Strategy 2.1.13.2.3.1: In order to prevent erosion, breakout of basements and septic systems, and siltation of drainage facilities, each buildable lot should have

a minimum area of land where the maximum grade is less than a specified percentage.

Strategy 2.1.13.2.3.2: In areas of steep slopes, development should employ best management practice for erosion protection and sediment control, as recommended by the U.S.D.A. Soil Conservation Service.

Section 2.2 Coastal Resources

Introduction

In addition to supporting highly productive ecosystems, Barnstable's coastline contains beaches, harbors and water views with great natural beauty and excellent recreational potential. While these areas are extremely appealing and attractive to both tourists and residents, they are fragile environments easily damaged by inappropriate land use or high levels of human activity. It is essential for the town to maintain the quality of its coastal resources so it can remain a picturesque seaside community, an image that holds great economic importance.

Because of its beauty and the attraction of the water, land on or near the coast has been subjected to an immense amount of development over the past twenty years. During the same period, use of beaches and coastal waters for recreation has increased enormously because of the growth of the town's year-round population and the spread of interest in outdoor activities. This development and new level of use have had major impacts on coastal resources. The increase in paved area has generated more stormwater runoff than previously occurred. Higher residential occupancy has brought greater volumes of sewage that must be absorbed near coastal waters. More boating can result in a higher volume of sanitary discharges to coastal waters.

All of these discharges contain nitrate-nitrogen and most include bacteria as well. When they are increased, there is a higher level of nitrogen and bacterial loading to groundwater in coastal areas that results in higher concentration in coastal waters. Nitrate-nitrogen is a nutrient for algae, and high concentrations can result in blooms that are unsightly and foul smelling. Decomposition of heavy algae growth also reduces the oxygen supply, so less is available for fish and other organisms. This impact is extremely significant because coastal waters are nurseries for marine species and support a wide diversity of species. Coastal waters have been degraded to the point where large areas of tidal flats are regularly closed to shellfishing year-round.

To improve water quality, nitrate-nitrogen loading to coastal waters must be limited. This can be achieved by controlling the intensity of development in coastal areas and ensuring wastewater management which reduces nutrient loading. In addition, direct discharges of stormwater runoff to coastal surface waters must be remediated through the use of appropriate methods of disposal including best management practices. To limit contamination from stormwater runoff and septic systems, Barnstable should locate new development outside of ecologically sensitive areas to the greatest extent possible.

Jetties, armoring of beaches, indiscriminate location and methods of new construction, and increased recreational activity have increased the rate of erosion of dunes, coastal banks, and barrier beaches in recent decades. Building in these areas is subject to serious damage from flooding and major erosion produced by storms. In some cases, storm erosion may significantly alter coastal land forms, which are continually subject to the forces of wind and water as they gain strength across broad expanses of water. To reduce damage from storms and protect these fragile areas, development should be located away from sensitive areas.

The increase in boating and other recreational use of coastal areas in recent years has also created a demand for additional services and facilities. Ramps need to be regularly maintained, and pump-out facilities should be installed, with incentives offered to encourage their use. Mooring plans have been developed by the town, and should be implemented as soon as possible to maximize the capacity of mooring fields. To ensure room for launching and trailer parking, and maneuverability and safety on the water, it may be necessary to set an upper limit on the number of moorings issued by the town. In the town's harbors and embayments, management areas need to be designated for different uses. In the Three Bay area, four different categories of uses were designated in order to maintain the integrity of both natural resources and recreational boating. This approach needs to be applied to the town's other harbors and embayments. Natural resources including shellfish habitats should be delineated as part of this process.

Good maintenance is essential to keep beaches attractive. At the town's major beaches and along the waterfront in its harbors, benches, walkways and other amenities should be provided to enhance enjoyment of these areas. In Barnstable's working harbors, there is limited room for marinas, commercial fishing and shellfishing. Special zoning should be used to encourage these water-dependent uses. Unnecessary dredging should be minimized to avoid degradation of water quality and the bottom environment. Dredging, however, may be necessary to ensure viability of navigation channels and provide necessary access to mooring fields and marinas, and in a few instances, may be employed to improve flushing of embayments and enhance water quality.

The Town of Barnstable has several developed harbors whose historic architecture and many traditional waterfront activities add greatly to the town's appeal to tourists and visitors. Typically, marine businesses in these areas that depend on proximity to the water are vulnerable to displacement by higher profit enterprises that benefit from, but do not require, location near the water. Marinas provide essential services to both commercial and recreational boaters, and are an important part of the town's economy. These and other water dependent uses need to be recognized and supported in the town's land use management policies and actions. To encourage these businesses, accommodations shall be made to meet the needs of marinas and other water dependent uses within the framework of policies regarding construction within the flood plain and on barrier beaches in this section

Hyannis Harbor is a major activity center in the town of Barnstable with fishing, transportation and tourist functions. There are few natural features left in this area, and some of the present uses are somewhat deteriorated, with expansive parking lots along part of the waterfront, which is not the best use of land in this area. Redevelopment of these parcels for other, commercial as well as water related uses would have considerable benefit, not only to the harbor area, but also to the entire Hyannis downtown area. To encourage redevelopment, commercial uses in Hyannis Harbor may be allowed in the flood plain provided the construction meets all applicable state and federal requirements. The town should seek to maintain existing water dependent uses in all of its developed harbors.

The town has a history of planning for a rich future for its shores and harbors. Completed plans include Camp Dresser McKee's Coastal Resources Management Plan for the East Bay/Three Bay areas. This Coastal Resources Management Plan was

accepted by the Town Council and is incorporated by reference in the Local Comprehensive Plan.

The Coastal Resources section of the Natural Resources Section of the Comprehensive Plan recognizes the policies in the Regional Policy Plan designed to protect these extremely fragile areas. A policy of restricting building in the A flood zones and velocity zones not only protects and preserves the natural shore environments, it is a policy advanced at all levels of government for the protection of human safety, public infrastructure and private investment. The integrity of coastal and inland wetlands and ponds must also be protected.

However, these are difficult policies to advance in the Town of Barnstable. Substantial areas of the town are already built upon. Approximately 70% of all potentially developable land has already been developed. Most of the remaining developable parcels have already been subdivided, often with a smaller lot size than is permitted in today's zoning, with attendant grandfathered rights. In these instances, provided that there are no outstanding Board of Health issues, it will be difficult to implement the Commission policies. The town will need to work with the Cape Cod Commission to explore innovative means of dealing with these issues.

The Town can however implement these policies where larger tracts of land with some upland areas are being subdivided. In these instances, the cluster zoning provisions outlined in Section 6, Open Space and Recreation, need to be applied so that development can be concentrated on the part of the site outside of the any A or V zone, and outside of buffer areas. This will mean adopting a more flexible provision than the existing open space cluster lots in the bylaw, to permit a tighter clustering of development on that part of the site most suited to development. Roads and drainage systems should also be located outside A and V zones.

In some circumstances, property which is currently buildable may be left with no remaining reasonable use due to the application of one or more of the Cape Cod Commission's Minimum Performance Standards or other proposed local regulations. In such cases, the permit granting authority may modify the application of such standards or regulations provided that the applicant demonstrates that he or she has complied to the maximum extent feasible with the relevant standard or regulation.

Barnstable's coastal zone has historically always been an important part of town life and today attracts the visitors who support scores of local businesses. At the same time, it must be recognized that beaches, dunes and tidal flats are basically sensitive environments. It is most important that the town take action when it is needed to protect the precious coastal resources that are so important to its character and economy.

Section 2.2.1 Protecting Developed and Undeveloped Land from Storm Damage and Erosion

Powerful forces of wind, waves and tides continually shape and reshape the shoreline of Cape Cod, moving sands and other soils of barrier beaches, dunes and coastal banks. This natural process of erosion is aggravated by the action of coastal storms. During the past five years, the Cape has seen frequent, intense coastal storms, including severe northeasters accompanied by serious coastal erosion and storm flooding. Flooding often causes significant damage to homes and businesses near the waterfront. Septic systems can be exposed, causing sewerage to enter nearby surface waters. Barrier beaches, natural buffers from the forces of the sea, also sustain damage.

Approximately 20% of the town's land lies in area designated by the Federal Emergency Management Agency (FEMA) as the 100-year flood plain and "velocity" zones. A significant portion of this area lies within the Great Marshes. The 100-year flood plain includes all land likely to be flooded in the event of a 100-year storm. A 100 year storm indicates a magnitude that has a one per cent chance of being equaled or exceeded in any given year.

The velocity zone, or coastal high hazard area, is land subject to high velocity waters, including but not limited to hurricane wave wash.¹ Probably because claims have increased dramatically in recent years, flood insurance has become more difficult to obtain.² In areas prone to repeated flooding, building should be allowed only on a limited basis. All floodproofing requirements of the local zoning ordinance and building code should be strictly enforced.

In Massachusetts, the sea level has risen about one quarter inch per year for the last 40 years. Due to global warming, sea level rise of 1.8 to 11.3 feet is projected by the year 2100.³ These estimates include land subsidence. Flooding of low-lying areas can be expected as a result of this process.

Barrier beaches and coastal dunes are subjected to continual erosion, accretion and/or movement because of constant exposure to winds and water. No new construction should be permitted in these locations because of their inherent instability. Since further erosion can be expected, any building close to dunes or coastal banks should be sufficiently set back from these sensitive areas to avoid danger to the foundation or other potential instability. A map of Barnstable's barrier beaches, coastal dunes and areas most prone to erosion is on the following page. The town's larger barrier beaches include Sandy Neck, Sampson's Island/Dead Neck, Long Beach, and Kalmus Beach.

1 See Appendix for maps showing Barnstable locations vulnerable to flooding and the current and potential development of these areas.

• ² Glass, Pamela, "U.S. May Pull Plug on Flood Insurance," Ottaway News Service, July 6, 1993.

³ Giese, G.S.; Aubrey, D.G. and Zeeb, P., Passive Retreat of Massachusetts Coastal Upland Due to Relative Sea Level Rise, Woods Hole, Mass., 1987.

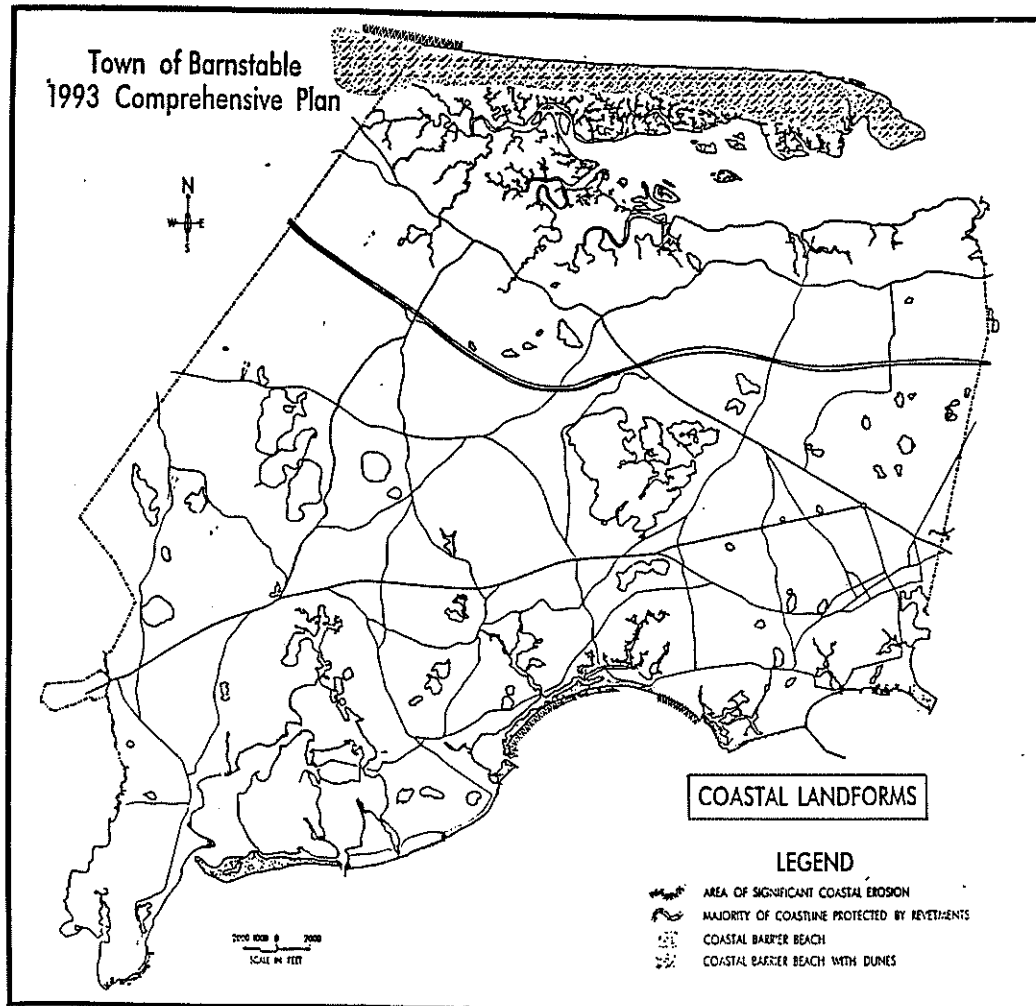
COASTAL LANDFORMS

Where the land and water meet, several unique processes occur which result in the distinctive land forms of coastal areas. Sand moved along the shore by currents forms barrier beaches across coastal embayments. A continual process of erosion shapes and reshapes these sandy spits. Salt marsh, a type of wetland that has high biological productivity, often forms in protected areas behind barrier beaches.

Barrier beaches are one of the most fragile of these land forms but have several important functions. They protect low-lying coastal areas from storm flooding and erosion. They also serve as important habitat for shore birds, including some endangered species. Finally, they provide recreation such as swimming, sunning and fishing.

Barrier beaches are threatened by coastal erosion, which can be severely damaging. Revetments and seawalls often only increase erosion for abutting properties. Development and intense recreational use will also result in increased erosion and usually create conflicts with rare species using the area for habitat. Because of the inherent instability of these areas, development should be restricted on barrier beaches.

The locations of Barnstable's barrier beaches, shorelines where storms have historically resulted in significant erosion and areas with seawalls or revetments are shown on the map at right. Information on areas of barrier beaches was provided by APCC's Cape Cod Critical Habitats Atlas. Areas of erosion and revetments were provided by the Barnstable Conservation Department.



AREAS VULNERABLE TO FLOOD DAMAGE

Map No. *	Location	Village	Notes
1	Mill Creek/Hallett's Pond	Barnstable	Contains large lots, most with large wetland area; 3-6 developable lots.
2	Creek, E of Indian Trail	Barnstable	Mostly developed; seek to floodproof
3	Creek, W of Indian Trail	Barnstable	Mostly developed, seek to floodproof
4	Maraspin Creek, N of 6A	Barnstable	Few small vacant lots in Cobb Village
5	Tributary, W side Barnstable Harbor	Barnstable	Some undeveloped lots. Redevelopment likely on W side Barnstable Harbor.
6	Sandy Neck	Barnstable	Development very unlikely; but should be evaluated for any potential buildability.
7	Centerville River	Centerville	Few undeveloped lots off Elliott Rd.
8	Bay La./S.Main St. near Scudder Bay	Centerville	Large area (70 acres +/-); development potential of vacant lots should be evaluated.
9	Bumps River	Centerville	Mostly town-owned land, cranberry bogs.
10	Pinquisset Cove, Surrounding areas	Cotuit	Town owns large parcel (Crocker Neck)
11	Rushy Marsh Rd. area	Cotuit	+/- 6 vacant lots; road is in flood plain.
12	Meadow Point	Cotuit	2 parcels mostly in flood plain totalling 38 acres appear developable
13	Old Colony Rd./South St. area	Hyannis	Town owns High School parcel; large percentage of other area used for ferry parking.
14	Around Inner Harbor	Hyannis	Floodproofing should be included in plans for expansions, redevelopment.
15	Veterans/Kalmus Beaches	Hyannis	Majority of area town-owned; condominiums here should be floodproofed if possible.
16	Stewarts Creek	Hyannis	Large area used by Tara Hotel golf course.
17	Egg Island	Hyannis	Audubon bird sanctuary. Not developable.
18	Halls Creek and Squaw Island	Hyannis	Mostly within Hyannisport Golf Course.
19	Sampsons Island	Osterville	Wildlife sanctuary. Undevelopable.
20	Little Island	Osterville	About 3 acres are developable, remaining land is wetland.
21	Prince Cove, M. Mills River area	Marstons Mills	Mostly developed; 3-6 subdivisible lots. Seek floodproofing.
22	SE corner, Grand Island	Osterville	About 20 undeveloped acres in 2 parcels, potentially subdivisible.
23	SW corner, Grand Island	Osterville	Mostly developed. Significant portion in Oyster Harbors Golf Course.
24	Eel River, Surrounding areas	Osterville	1 5+ acre lot, one house, potentially subdivisible.
25	East Bay, Surrounding areas	Osterville	Most area in Dowse's Beach with 1 undeveloped parcel of 33 acres.
26	Boat Cove Creek	W. Barnstable	2 parcels totalling 49 acres w/ 1 house, potentially subdivisible
27	Bridge Creek, S of 6A	W. Barnstable	Most area in 133 acre parcel of town owned conservation land.
28	Great Marsh	W. Barnstable	Most land probably unbuildable due to wetlands.

* See copies of FIRM maps in Appendix for location references.

At 8,850 acres Sandy Neck represents one of the largest barrier beach systems in New England. It contains Barnstable Harbor, a significant coastal embayment, and thousands of acres of salt marsh and dunes. It is a rich plant and wildlife habitat, including vast shellfish resources. Upon nomination by the town, Sandy Neck, together with the Great Marshes and Barnstable Harbor, were designated an "Area of Critical Environmental Concern" (ACEC) by the State Secretary of Environmental Affairs in 1978.

Besides its very high environmental quality, Sandy Neck is rich in historic and archaeological resources. There is evidence of human settlement dating to the Middle Archaic period, and in Colonial times the land held try-works for whaling. Because of the area's historic value, the Sandy Neck Cultural Resources District was designated through a joint nomination to the state and national registers of historic places.⁴

While Sandy Neck has a wealth of resources, as a barrier beach it is also an extremely fragile environment. There is high potential for damage to archaeological sites from erosion and vehicle traffic. Natural resources, including rare and endangered species, are also vulnerable to vehicle and foot traffic. According to a relatively recent source, the outer side of Sandy Neck eroded 200' over the last hundred years, with some of these sediments accreting to the eastern end.⁵ Inappropriate use and development have the potential to seriously damage this area's historic and natural resources.

Goal 2.2.1 Development in high hazard areas should be limited in order to minimize loss of life and structures, and reduce erosion and other environmental damage resulting from storms, natural disasters and sea level rise.

Coastal Flooding and Erosion

Policy 2.2.1.1: To preserve structures and protect human life, only minimal new development or redevelopment should be permitted within flood zones where there is known to be danger of significant flood damage. The integrity of coastal features which serve as a natural barrier to protect coastal properties from storms shall be preserved to the greatest extent feasible. Accommodations shall be made for the needs of marinas and other water dependent uses within the framework of this policy to encourage these businesses.

In some circumstances, property subject to regulation may be left with no remaining reasonable use due to the application of one or more of the Cape Cod Commission's Minimum Performance Standards or other proposed local regulations. In such cases, the permit granting authority may modify the application of such standards or regulations provided that the applicant demonstrates that he or she has complied to the maximum extent feasible with the relevant standard or regulation.

⁴ Patricia Anderson, Barnstable Director of Historic Preservation Department, Memo to Town Manager Warren Rutherford, 7/1/91.

⁵ Redfield, Alfred, Development of a New England Salt Marsh, 1972, cited by Patricia Anderson, Memo to Town Manager Warren Rutherford, 7/1/91.

Strategy 2.2.1.1.1: Except for expansion of existing water-dependent uses and structures where there is no feasible alternative, no new development shall occur in FEMA V Zones, on barrier beaches or on coastal dunes. Existing structures may be reconstructed or renovated in conformance with all regulatory requirements provided there is no increase in area or intensity of use.

Strategy 2.2.1.1.2: Where development sites extend into FEMA A or V Zones, non-water dependent development shall be concentrated on that part of the lot outside the A and V Zones.

Strategy 2.2.1.1.3: Water-dependent commercial and recreational structures and uses may be permitted in FEMA A and V Zones, subject to the approval of all permitting authorities and to applicable federal and state regulations. This strategy is intended to accommodate water-dependent uses.

Strategy 2.2.1.1.4: The town shall develop innovative means of locating development outside the A and V Flood Zones, including adopting a modified cluster provision for residential development permitting more concentrated cluster developments through modification of Section 3-1.7 of the Zoning Ordinance, Open Space Residential Development Provisions, enabling development to be located away from the Flood Zones.

Strategy 2.2.1.1.5: Where buildings located on or within FEMA A and V zones, barrier beaches, coastal banks or coastal dunes have been destroyed or removed, or there has been damage of greater than 50% of tax assessment valuation, all reconstruction shall be in compliance with current applicable regulations and all relevant policies and strategies of this plan. Any reconstruction shall not enlarge or expand the use of an existing structure, except for water-dependent uses.

Strategy 2.2.1.1.6: No new non-water related public infrastructure or expansion of existing infrastructure shall be made in FEMA A and V zones, unless town officials are shown an overriding public benefit, and such infrastructure will not be used to support new growth and development in flood hazard areas.

Strategy 2.2.1.1.7: No new septic systems shall be installed in FEMA V zones except for replacement systems, or as otherwise subject to regulation by Title V.

Strategy 2.2.1.1.8: Within FEMA A and V zones, and on all barrier beaches and coastal dunes, new mounded septic systems shall be prohibited where such systems pose a demonstrated threat to public health, water quality or natural resources. However, they may be used in the A and V zones where required to upgrade existing substandard septic systems.

Strategy 2.2.1.1.9: In FEMA A or V zones, substantial regrading should be avoided whether this is performed in connection with building construction or for any other purpose.

Strategy 2.2.1.1.10: Acquisition of land in flood-prone areas will reduce the potential for erosion and damage to structures, and should be encouraged. Land should also be acquired to allow area for migration of salt marsh expected to occur with sea level rise. Grants from FEMA and other sources for these types of acquisitions should be pursued.

Strategy 2.2.1.1.11: High priority should be given to enforcement of existing regulations on development in the flood plain and to public education about flood action and floodproofing. Town officials should make available materials describing simple and inexpensive means of floodproofing, which may be obtained from agencies such as FEMA.

Sea Level Rise

Policy 2.2.1.2: Buildings and infrastructure in areas of projected sea level rise should be designed for protection from flooding as well as to minimize risk to human health and safety.

Strategy 2.2.1.2.1: In order to protect coastal land and development from flooding from a projected one foot sea level rise and increased storm intensity, all new construction within FEMA A and V zones including additions, alterations or replacements, shall be designed one vertical foot above existing FEMA base flood elevation and state building code construction standards. Provision shall be made for exempting buildings serving water-dependent uses which are unable to comply with this criterion.

Strategy 2.2.1.2.2: Stormwater management systems and new and replacement septic systems within FEMA A and V zones shall be designed to accommodate a one foot rise in relative sea level. In order to accommodate a one foot rise in relative sea level, all new and replacement septic systems within FEMA A and V zones shall be designed with a minimum five foot separation to groundwater.

Erosion of Barrier Beaches and Coastal Banks

Policy 2.2.1.3: To protect land that may provide important wildlife habitat, storm protection and recreation opportunities, erosion of barrier beaches and coastal banks should be controlled to the greatest extent possible.

Strategy 2.2.1.3.1: Except as specified in Section 2.2.2.5 of the Cape Cod Commission's Regional Policy Plan, no development or redevelopment shall be permitted on barrier beaches or coastal dunes as identified and defined by the Wetlands Protection Act and associated regulations and policies. Any reconstruction shall not enlarge or expand the use of an existing residential structure, or structures intended for non-water dependent use. This shall not apply to the expansion of existing water-dependent uses. Existing structures may be reconstructed or renovated provided there is no increase in floor areas or intensity of use. Water-dependent public recreational facilities in these locations may be developed providing it can be demonstrated that the proposed development will not compromise the integrity of coastal resources.

Strategy 2.2.1.3.2: Wherever feasible, dredge material should be used for beach nourishment in areas subject to erosion. Such material must be clean and compatible with the existing area as far as particle size and morphology.

Strategy 2.2.1.3.3: Development or redevelopment on a coastal bank or dune or within 100 feet landward of these resources shall be designed to have no adverse effect on the height, stability or use of the bank or dune as a natural sediment source. In areas where dunes or banks are eroding, the setback for all new buildings and septic systems from the top of the bank or dune crest shall be at least 30 times the average annual erosion rate of the bank or dune, or at least 50' (in conformity with present Conservation Commission policies), whichever is greater. This rate shall be determined by averaging the rate of erosion over the previous 30 years, at a minimum. In instances where shoreline erosion rates are indicative of bank/dune erosion rates, MCZM shoreline change maps may be used in determining the setback. Reconstruction or renovation of existing structures that will result in an increase of > 50% of their present assessment shall require conformance with this setback. Expansion of existing water dependent uses which are required by their function to be located in these areas shall be accommodated.

Strategy 2.2.1.3.4: Town officials should consult with the Soil Conservation Service through the Cape Cod Conservation District to establish guidelines for using bank, dune and beach vegetation stabilization for erosion control and remediation.

Special Protection Measures for Unique Coastal Resources

Policy 2.2.1.4: Unique coastal areas containing a great variety and/or high quality of resources should be preserved to the greatest extent possible, so they may be appreciated by future generations.

Strategy 2.2.1.4.1: To protect the resources of Sandy Neck, a state-designated ACEC and state and federal Cultural Resources District, a Sandy Neck Area Plan should be developed, updated on a regular basis and implemented. This plan should address restricting the intensity of future development and its impacts on natural resources, such as occupancy, waste disposal, and foot and vehicle traffic. The plan should also address the development pattern since this may have an impact on the cultural and aesthetic value of the resource. The plan should include proper provisions for recreational use.

Section 2.2.2 Preserving Coastal Water Quality

Degradation of coastal water quality is a serious problem in Barnstable, as it is in many coastal communities. There are indicators of recent deterioration of water quality in many coastal areas in Barnstable. In 1980, 277 acres of the town's tidal flats were closed to shellfishing year-round due to poor water quality. By 1990, this figure had jumped to 990 acres. To protect the town's embayments, tidal flats, estuaries, and salt marshes from further deterioration, this process must be halted.

Coastal waters are degraded primarily through introduction of nitrate-nitrogen, bacteria and viruses from outside sources. These may enter the water directly, or be carried into it by groundwater. In open coastal waters, flushing by tides and waves removes a large

portion of contaminants. In estuaries and embayments, waters are more easily polluted, since replacement of water is slower. In some estuaries, there may be a very limited ability to absorb additional nitrate-nitrogen. Locations of long-time water quality shellfish closures in Barnstable, where flushing is poor, include Halls Creek, the Centerville River and Prince Cove. The Health Department is in the process of establishing priority areas for remediation which are expected to include these locations.

Typical shoreline development often includes older seasonal cottages on undersized lots which may have been constructed many years ago, with later conversion and/or expansion to full-sized or larger year-round homes. This type of growth can result in high densities with a large amount of nitrate-nitrogen produced by sewage and runoff on each acre of land. There a number of examples of such developed areas near estuaries and tidal wetlands in Barnstable. These include cottages east of Barnstable Village; homes along Mill Pond in Cummaquid, in the watersheds of the Marstons Mills River and Prince Cove, near Craigville Beach and in West Hyannisport. Water quality problems already exist in embayments near these locations. On barrier beaches and sensitive coastal areas, conversion of summer cottages on undersized lots should be restricted. To counteract continuing increases in nitrate-nitrogen loading in these areas, a number of additional actions, described in this section and the Water Quality section, will also be required.

Another source of nitrogen loading is direct discharge of stormwater runoff to coastal waters. There are a number of locations in Barnstable where large volumes of stormwater runoff are piped directly into harbors or embayments. Several drainage pipes which collect from areas of pavement in the tens of acres discharge directly to Hyannis Harbor. Direct drainage outflows should be remediated using best management practices. Detailed recommendations on remediation of drainage discharges have been prepared by the town's Coastal Health Resources Coordinator and are provided in the Appendix.

Public education about the effects of boat discharges, use of fertilizer and other actions on water quality is extremely important. The town has started programs in this area, and these should certainly be continued.⁶⁶ To protect coastal waters from the impacts of

⁶⁶ The following guidelines for an environmental education program were set forth by Camp Dresser McKee:

- 1) Obtain existing public education material geared toward environmental protection. Material should be gathered from the Health Department, Department of Natural Resources, Conservation Commission and Mass. DEP. In addition, the Massachusetts Division of Marine Fisheries and Department of Environmental Protection should be contacted to obtain available literature.
- 2) Assure that the material covers all critical environmental issues, including fertilizer application, recommended landscaping practices for lawns and driveway surfaces, pesticide and herbicide application, individual sewage disposal systems, stormwater runoff, wildlife feeding, domestic animal waste, waste oil, marine paints, marine discharges, boat use including prop dredging and wakes.

These education programs should include distribution of materials to mooring permit holders, when permits are issued or renewed. Materials should be available at the Department of Natural Resources and at convenient locations throughout the town, and could be distributed by the police or Harbormaster patrols

disposal of sanitary wastes from boats, pump out facilities need to be available and accessible for boaters. It may be necessary to provide an incentive for using them, such as discount coupons for marinas, and provide free pump out of sanitary waste.

It is also important to identify changes in water quality in particular embayments and estuaries so appropriate action can be taken to protect their water quality. A program of water quality monitoring and assessment is recommended in the Long Range Planning portion of this section. This will provide information to guide land use decisions necessary for long-term protection of the resources. Inaction will most likely lead to further degradation of coastal water quality. Ultimately, alternative wastewater management in coastal recharge areas is necessary to reduce contamination of coastal embayments by both biological organisms and nutrients. A map of areas closed to shellfishing showing sources of contamination, including stormwater discharge and areas in need of septic system remediation, is on the following page.

Goal 2.2.2 To maintain and improve coastal water quality to allow shellfishing, and/or swimming in all coastal waters as appropriate, and to protect coastal ecosystems which support shellfish and finfish habitat.

Establishing Water Quality Standards to Protect Coastal Ecosystems

Policy 2.2.2.1: New development in marine recharge areas shall not exceed a five ppm nitrate-nitrogen loading standard at a minimum, or an identified lower marine water quality standard based on a methodology published by Frimpter et al. 1988 and Cape Cod Commission - Water Resources Office Technical Bulletin #91-001. If possible, redevelopment shall also be held to these standards, but where existing development exceeds identified critical loading standards for a marine recharge area, redevelopment shall maintain or improve existing levels of nitrogen loading.

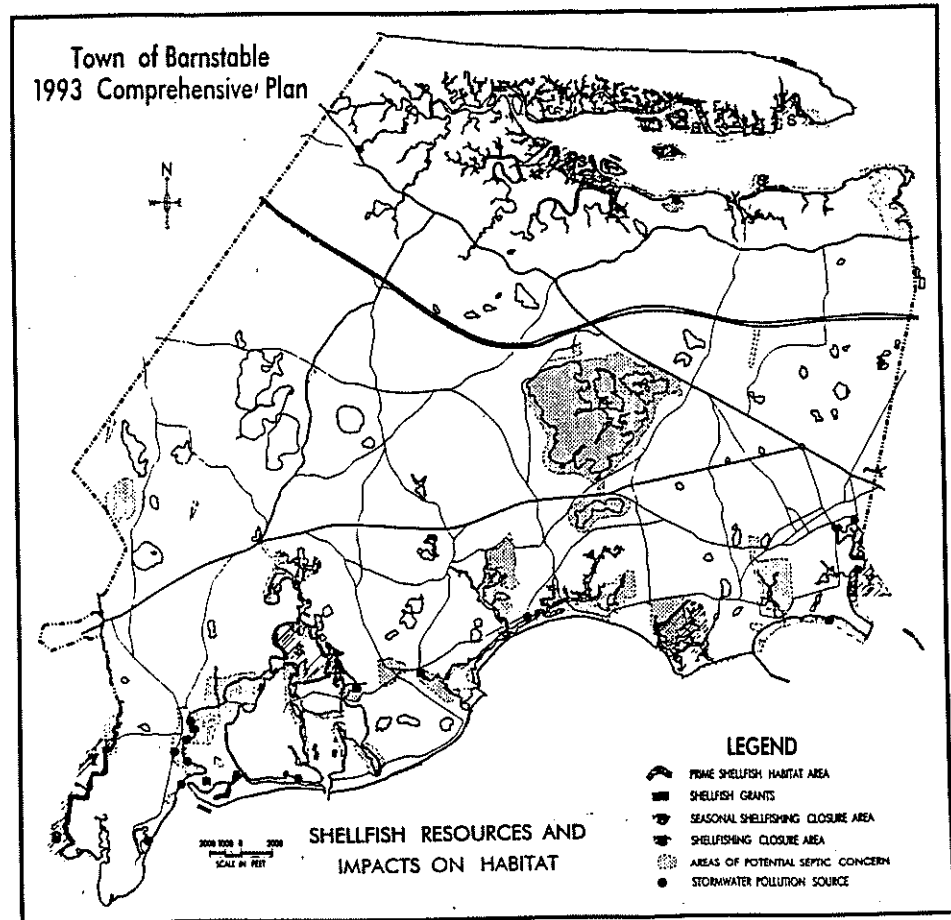
during inspections. The education program should be coordinated with private organizations and village associations to host environmental awareness programs focusing on coastal issues.

**AREA CURRENTLY CLOSED TO SHELLFISHING
 DUE TO POOR WATER QUALITY**

LOCATION	YEAR/ROUND/ SEASONAL CLOSURE	ACRES	% OF TOTAL
<u>Barnstable Harbor</u>			
Sand & Duck I. area	S	285	
Wells Creek to Mussel Pt.	S	398	
Blish Pt. to Indian Trail	S	66	
Barnstable Inner Harbor	YR	8	
		<u>777</u>	48%
<u>Hyannis Harbor</u>			
Inner Harbor	YR	30	
Inner Harbor to Harbor Bl.	S	18	
South of Harbor Bluff	YR	86	
		<u>134</u>	8%
<u>Centerville/Hyannisport</u>			
Squaw Island	YR	57	
Centerville/Bumps Rivers	YR	89	
		<u>146</u>	9%
<u>Three Bay Area</u>			
North Bay	S	312	
Prince Cove	YR	74	
		<u>386</u>	24%
<u>Popponesset Bay</u>			
Upper Shoestring Bay	YR	44	
Popponesset Bay	S	143	
		<u>187</u>	12%
TOTAL CLOSED AREA		<u>1,630</u>	100%

TREATMENTS TO SHELLFISH HABITAT

Direct discharge of stormwater runoff and failing septic systems are two of the principal man-made contributors to coastal pollution. This map shows areas noted by the Health Department as locations where septic system problems have been identified, and where storm drains are discharging via pipes to town waters. Information on areas of shellfish habitat and closures were provided by the Department of Natural Resources as of July, 1993.



**AREAS CLOSED TO SHELLFISHING DUE TO
POOR WATER QUALITY
as of July, 1993**

LOCATION	YEARROUND/ SEASONAL CLOSURE	ACRES (APPROX.)	% OF TOTAL
<u>Barnstable Harbor</u>			
Sand & Duck I. area	S	285	
Wells Creek to Mussel Pt.	S	398	
Blish Pt. to Indian Trail	S	86	
Barnstable Harbor/ Maraspin Creek	YR	8	
		777	48%
<u>Hyannis Harbor</u>			
Inner Harbor	YR	30	
Inner Harbor to Harbor Bl.	S	18	
South of Harbor Bluff	YR	86	
		134	8%
<u>Centerville/Hyannisport</u>			
Squaw Island	YR	57	
Centerville/Bumps Rivers	YR	89	
		146	9%
<u>Three Bay Area</u>			
North Bay	S	312	
Prince Cove	YR	74	
		386	24%
<u>Popponesset Bay</u>			
Upper Shoestring Bay	YR	44	
Popponesset Bay	S	143	
		187	12%
TOTAL CLOSED AREA		1,630	100%

CHANGES IN AREA OF SHELLFISH WATER QUALITY CLOSURES *

1980 - 1990

Location	1980		1990	
	Status	Acres Closed	Status	Acres Closed
<u>Barnstable Harbor</u>				
Great Marsh	Closed to comml.	150	Closed YR	150
Scorton Creek	Open		Closed YR	20
<u>Hyannis Harbor</u>				
Hyline to School St.	Closed	10		
Snows Creek to Harbor Bluff	Closed	7		
Bayview St. to Harbor Bliff			Closed S	
Yacht Club to Harbor Bliff			Closed S	83
Squaw I./Halls Creek	Open		Closed	57
<u>East Bay</u>				
Centerville R.	Closed S		Closed YR	
Bumps River	Closed S	89	Closed YR	89
<u>Three Bays</u>				
North Bay	St. Mary's I. closed	21	Entire bay closed S	312
Prince Cove	Open		Closed	74
Marstons Mills R.	Open		Closed S	18
<u>Popponeset Bay</u>				
	Open		Closed YR	187
		277		990

* Data based on information available from Natural Resources division

Strategy 2.2.2.1.1: In order to identify those areas where development and land use have the most impact on coastal water quality, the areas of groundwater recharge to all Barnstable's major estuaries and embayments should be mapped. Development and redevelopment may be required to delineate the groundwater recharge areas to downgradient embayments and other marine waters in order to identify and mitigate potential adverse impacts. This information should be stored on the town's GIS system.

Strategy 2.2.2.1.2: Town agencies should implement a long-term water quality monitoring program using the recommendations of Camp Dresser McKee's Coastal Resources Management Plan as a guideline. (See CDM Policy 1.6.4, Conduct a coastal resource monitoring program.) As recommended, trained students and volunteers could collect the samples, lowering the overall cost to the town. This information should be used to determine which embayments are in need of water quality protection or remediation (see Policy 2.2.7.1 on Coastal Management Plans, below.)

Strategy 2.2.2.1.3: The Town of Barnstable hereby accepts and adopts the Classification System and Minimum Performance Standards for nitrate nitrogen established in the Regional Policy Plan Sections 2.1.1. through 2.1.1.5.

Controlling Sources of Contamination to Salt Water:

Septic Systems

Policy 2.2.2.2: Methods for septic disposal in coastal recharge areas shall help maintain an acceptable standard of water quality (see Nitrate-nitrogen loading standards, above.) Advanced public and private sewage treatment in the form of connection to sewer, use of small treatment plants or nitrogen removing systems, should be encouraged in impaired areas. Public or private sewage treatment shall conform to Policies 2.1.4.9 through 2.1.4.16 of this Local Comprehensive Plan and their related strategies.

Strategy 2.2.2.2.1: The Health Department shall continue to identify and map areas in need of septic remediation based on lot size, age, functioning of systems, soil conditions, depth to groundwater and nitrate-nitrogen loading. This should be coordinated with ongoing work performed for the Town of Barnstable Wastewater Facilities Plan.

Strategy 2.2.2.2.2: The areas identified in Strategy 2.2.2.2.1 shall be evaluated for remediation. This may include recommendations for alternative methods of individual or community sewage disposal, an upgrade to denitrifying systems, or other solutions applicable to the community or individual property owner.

Strategy 2.2.2.2.3: To maintain or improve water quality in coastal recharge areas, the Board of Health may require that homeowners upgrade septic systems to denitrifying systems or use other methods to reduce nitrate-nitrogen or bacterial loading. These requirements may be triggered by the sale of a home, or put in place as part of a local remediation program.

Strategy 2.2.2.2.4: The Board of Health or other appropriate town agency should investigate a loan program operated through a revolving fund or using the betterment bill to provide funds for low- or moderate-income households to upgrade septic systems.

Strategy 2.2.2.2.5: Developments of Regional Impact that generate more than 2000 gallons per day of sewage effluent may be required to prepare a cumulative impact analysis, including flushing rate determination, using the methodology and procedures presented in Frimpter et al., 1988 and CCC Water Resources Technical Bulletin #91-001, or an alternative method acceptable to the town.

Stormwater Runoff and Fertilizers

Policy 2.2.2.3 All direct untreated stormwater discharges to coastal waters should be redirected or treated to prevent impacts from heavy metals, hydrocarbons, bacteria, viruses, nitrate-nitrogen or other contaminants entering coastal waters. No new direct discharge of stormwater into any coastal waters or wetlands, including discharges above or below mean high-water level, shall be permitted.

Strategy 2.2.2.3.1: Drainage improvements recommended in the town's Stormwater Priority Listing (see Appendix) should be included in future Capital Improvement Plans after review by the Department of Public Works. (See Camp Dresser McKee Coastal Resources Management Plan, General Policy 1.6.15, Develop and institute a comprehensive stormwater remediation program.) These improvements should be coordinated with recommendations of the Town of Barnstable Wastewater Facilities Plan. Where improvements are not specified, vegetated swales and other above-ground disposal methods should generally be used. Stormwater drainage calculations to determine the size and type of drainage system should be based on the projected 25-year 24-hour storm, using SCS TR-55 calculations or an alternative method acceptable to the town. The Soil Conservation Service should be used as a technical resource for information on best management practices and the most current stormwater management techniques.

Strategy 2.2.2.3.2: To redirect the flow of runoff from parking lots and driveways over boat ramps into salt waters, the priorities and recommendations in the Stormwater Priority Listing (see Appendix) or alternative recommendations for remediation should be used as a guide to future improvements.

Strategy 2.2.2.3.3: Where the size of the lot permits, a buffer of at least 100' from the edge of coastal and inland wetlands including isolated wetlands shall be maintained in an undisturbed, natural state to protect the natural functions of these areas, including but not limited to mitigation of stormwater impacts and wildlife habitat value. Where the lot size does not permit a 100' buffer, the maximum feasible buffer zone shall be maintained from coastal and inland wetlands, including isolated wetlands, in an undisturbed, natural state. This policy shall not be construed to preclude pedestrian access paths, vista pruning, or construction and maintenance of water-dependent structures within the buffer

area, any of which may be permitted at the discretion of permitting authorities where there is no feasible alternative to their location. Where a buffer area is already developed, this requirement may be modified by the permitting authority, provided it makes a finding that the proposed alteration will not increase adverse impacts on that specific portion of the buffer area or associated wetland.

On land that has already been developed, private and public property owners should be encouraged to maintain undisturbed natural buffer areas of 50-foot width around wetlands. An education program should be used to help implement this strategy.

In some circumstances, property subject to regulation may be left with no remaining reasonable use due to the application of one or more of the Cape Cod Commission's Minimum Performance Standards or other proposed local regulations. In such cases, the permit granting authority may modify the application of such standards or regulations provided that the applicant demonstrates that he or she has complied to the maximum extent feasible with the relevant standard or regulation.


Policy 2.2.2.4: The use of fertilizers, herbicides, pesticides and other household chemicals that are likely to introduce excessive nitrate-nitrogen and other pollutants to coastal waters should be strongly discouraged in recharge areas.

Strategy 2.2.2.4.1: Development and redevelopment should minimize the use of pesticides and herbicides. See the strategies for fertilizers in Freshwater Water Bodies Section. These are applicable for control of nitrate-nitrogen as well as phosphate loading.

Strategy 2.2.2.4.2: For pesticide evaluations, the town may utilize the national pesticide and soils database and user support system for risk assessment of ground- and surface-water contamination (NPURG) available through the Soil Conservation Service.

Strategy 2.2.2.4.3: The town should develop an education program to inform citizens and businesses including professional landscaping and lawn services of the effects of fertilizers, pesticides and herbicides on nearby coastal and fresh waters (See Camp Dresser McKee Coastal Resources Management Plan, General Policy 1.6.13, Establish a "protect the environment" public education program.)

Overboard Disposal of Wastes from Boats



Policy 2.2.2.5 No sanitary wastes from marine vessels (wastes from marine heads) should be discharged to coastal waters. Marine wastes from boats and other sources including oil spills, dredge material, solid waste and all other types of waste should be disposed of in a manner which avoids degrading the environment.

Strategy 2.2.2.5.1: The town should pursue federal designation of near-shore coastal waters as a No Discharge Zone. This may be achieved through the

process outlined in Camp Dresser McKee's Coastal Resources Management Plan.

Strategy 2.2.2.5.2: Continue the effort to locate additional pump-out facilities to be installed as needed for disposal of sanitary wastes from boats. These may include floating or stationary facilities on land. The need for an additional facility should be evaluated based on density of marine activity, flushing capacity of embayments and observed water quality. Staffing for these facilities must be obtained. The use of mooring fees to cover costs of acquiring and maintaining these facilities should be investigated.

Strategy 2.2.2.5.3: Expansion of existing marinas or new marinas, resulting in additional slips, moorings, or dry storage berths shall be required to provide or contribute to the provision of adequate boat sewage pump-out facilities in the harbor affected commensurate with the size of the expansion, and restrooms for their patrons where the location permits the installation of such facilities. This may include donation of funds for acquisition or operation of facilities.

Strategy 2.2.2.5.4: A public information program should be established to more fully inform the boating community about environmental and public health impacts of direct discharge of treated or untreated sanitary waste to coastal waters. Educational brochures should be distributed when mooring permits are renewed or new permits are obtained.

Strategy 2.2.2.5.5: There should be minimal, or no, charges for use of public pump-out facilities. Their locations and procedures should be well-publicized to encourage maximum use of these facilities. Instructions on use should be provided with mooring permits and at each facility. A system of fines and other penalties should be established to be levied on discharges of marine heads or holding tanks into designated "no discharge" zones, where these are established.

Strategy 2.2.2.5.6: The town should provide adequate shoreside facilities for disposal of oil and other waste materials from boats at town marinas. All waste left in barrels at town landings should be collected promptly after weekend accumulation. Fines for illegal household waste disposal should be enforced.

Strategy 2.2.2.5.7: Expansion of existing marinas or new marinas, resulting in additional slips, moorings, or dry storage berths, shall require provision or contribution to the provision of adequate collection facilities for solid waste and waste oil for their patrons commensurate with the size of the expansion.

Strategy 2.2.2.5.8: Waterfront fueling facilities, including trucks used for fueling, should be maintained in compliance with all current requirements. All fueling facilities should be upgraded, including trucks used for refueling, to ensure best management practices are used to avoid spills which could impact water quality. Truck fueling should only be permitted for exceptionally large boats which cannot use marine facilities.

Animal Wastes

Policy 2.2.2.6: Steps should be taken to reduce the amount of contaminants entering coastal waters from animal wastes. Extensive public education should be undertaken, with signs posted in appropriate locations. Because of the severity of the problem, particular attention should be given to posting signs at Ways to Water. Regulations regarding waterfowl feeding and domestic animal waste cleanup may help control this problem. Humane means of controlling excessive wildlife populations of waterfowl should be considered.

Maintaining Appropriate Density of Development

Policy 2.2.2.7: In order to protect environmentally fragile areas and reduce the amount of nitrate-nitrogen loading in marine recharge areas, long range plans should identify areas where construction should be restricted or prohibited. Until the exact amount of development that can be accommodated in the town's marine recharge areas without harming the water quality can be determined, interim density controls should be adopted to protect the town's coastal resources. (See Camp Dresser McKee Coastal Resources Management Plan, General Policy 1.6.4, Revise zoning ordinance to create a Coastal Resource Protection District.)

Strategy 2.2.2.7.1: Until the maximum amount of safe development can be determined, current zoning should be amended to make the following provisions applicable to all lots in the FEMA A and V zones or having frontage on a saltwater body or saltwater wetland:

A) In order to reduce the amount of nitrate-nitrogen loading from dense development on small lots near coastal water bodies, town-wide building coverage and floor area ratio requirements should be established and implemented.

B) In order to reduce the total amount of runoff produced adjacent to coastal waters, gravel driveways and walkways should be used wherever practical and the width and length of paved roadways should be reduced. (See Camp Dresser McKee Coastal Resources Management Plan, General Policy 1.6.14., Revise the zoning ordinance and subdivision rules and regulations to minimize the amount of impermeable surface allowed on new lots.)

Strategy 2.2.2.7.2: The Board of Health should review proposed conversions of seasonal to year-round uses in FEMA A flood zones or within 100 feet of coastal or fresh water wetlands. Such conversion shall not be permitted unless the proponent demonstrates that the proposed alterations will protect groundwater quality by maintaining nitrate-nitrogen at no greater than five parts per million or a lower alternative critical marine standard, or will improve nitrate-nitrogen loading levels where existing levels are greater than five ppm. The proponent must also demonstrate that the project will not have other adverse impacts on groundwater or adjacent surface waters or wetlands.

Section 2.2.3 Protection of Coastal Wildlife Habitats

Many animal species, including birds, fish, crabs, insects, shellfish and other invertebrates, use undeveloped coastal areas such as salt marshes, barrier beaches and tidal flats for their habitat. Coastal embayments and estuaries are used for breeding and spawning of many species of fish that spend the rest of their lives in the open ocean.⁷ Barnstable's coastal zone supports a number of organisms that are state or federally listed as rare or endangered species, or species of special concern. These include the piping plover, least tern, common tern, roseate tern, arctic tern, sea turtles, right whales, and gray seals.⁸ If sufficient area of their habitat are lost, these and other coastal species will not endure.

Over the past twenty years, large areas of natural shoreline formerly used as wildlife habitat have been developed. In addition to removing space on land and water, new development has increased vehicle traffic and similar activities which disturb wildlife and can interfere with breeding and parenting responses.

Although Barnstable has significant areas of remaining undeveloped coastal land, the majority of these areas support intense recreational use, including going to the beach, boating, windsurfing, jetskiing, ORV use and others. These activities should be directed towards the least intrusive locations where they will have the lowest impact. There may be minor inconvenience as access to some locations is limited, but setting aside areas as prime habitat for plants and wildlife may keep some species from extinction.


Because of the rapid pace of development and the intense level of activity near the shore, protection of areas containing rare species is very important. Land containing rare species or other significant wildlife (including shellfish) should be formally designated as Critical Resource Protection Areas, and strategies for protection of these areas should be developed.

⁷ The town's saltwater fish are an important natural resource. A sizable volume of fish are brought into the town's harbors for sale. Tuna, cod, bluefish, haddock, pollock, weakfish, flounder, striped bass, sea bass, tautog, and scup are caught by local fishermen. While these include fish from outside of town waters, the long list of species gives some idea of the diversity and significance of this resource. According to David McCarron of the Mass. Division of Marine Fisheries, 16,000 lbs. of sea bass were brought into the town of Barnstable in 1992. Figures for striped bass were withheld to protect confidentiality of the sole local commercial dealer. Statistics compiled by the National Marine Fisheries Service show species with highest dollar catch value for Barnstable County for 1992 were cod (\$7,360,000), bluefin tuna (\$2,892,000), yellowtail flounder (\$570,279), and silver hake (\$567,000). All of these species face a number of threats today. The greatest may be overfishing and deteriorating water quality. Overfishing is a problem which must be carefully negotiated with an array of national and international fishing interests. Locally, the Massachusetts Division of Marine Fisheries has limits on the minimum size fish that can be taken to protect young or breeding individuals.

⁸ The diamond-backed terrapin, an endangered turtle species, uses Sandy Neck for breeding. Other uncommon turtles which occasionally appear within town boundaries include the loggerhead, green turtle, Atlantic Ridley, and Leatherback. Whales and gray seals, a species of Special Concern, could conceivably enter Barnstable harbor and other town waters. Other rare or endangered species include the New England beach tiger beetle. Rare plants include the oysterleaf and American sea-blight, both of which grow on or near the wrack line on the shore.

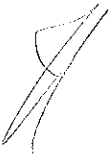
Construction of piers has reduced shellfish habitat by shading eel grass beds as well as removing area on the sea bottom. When boats are moored in shallow water, layers of sediment can be destroyed by dredging by power boat motors. Boat groundings can scour the bottom, suffocating shellfish. Wherever possible, community docks should be used to prevent a proliferation of private docking facilities that increase the areal range of these impacts. Given the many threats to shellfish in today's coastal environment, construction of docks over prime shellfish habitat should be avoided.

Public education about local endangered wildlife and its protection should be continued. For more information on Barnstable's wildlife, including rare and endangered species and protection of wildlife habitats, please see sections of this chapter dealing with Wildlife and Plant Habitat.



Goal 2.2.3 Habitat for shellfish, finfish, rare and endangered species, other coastal wildlife and native coastal plants should be protected so these species can endure and sustain their biological diversity.

Protection of Wildlife Including Endangered Species



Policy 2.2.3.1 Wildlife and plant habitat should be protected and managed to ensure long-term viability of a wide variety of coastal species, including fish and shellfish taken for commercial and recreational use. Particular care should be taken to preserve habitats of rare and endangered species.

Strategy 2.2.3.1.1: The town shall designate prime habitat for fish, shellfish, coastal birds and other species as Critical Resource Protection Areas (CRPA's) based on policies in the Camp Dresser McKee Coastal Resources Management Plan. These areas may include prime shellfish habitat identified by local shellfish officials and the state Division of Marine Fisheries; Areas of Critical Environmental Concern (ACEC's); areas where significant numbers of rare species have been estimated by the Mass. Natural Heritage Program or the Conservation Commission; or critical habitat areas identified in the APCC Critical Habitats Atlas. Species in these areas should be monitored for long term changes in population. Strategies for protection and management of these areas such as limitations on piers, moorings and development should be included in future Coastal Management Plans. (See Camp Dresser McKee Coastal Resources Management Plan, Policy 1.6.2, Designate Coastal Resource Management Areas.)

Policy 2.2.3.2: Vehicle, boat and pedestrian traffic should be minimized in CRPA's as well as in wetlands, dunes, shallow estuarine areas and shorebird breeding and habitat areas.

Strategy 2.2.3.2.1: Storage of boats, seasonal piers, and floats on salt marshes, dunes, and other sensitive areas should continue to be prohibited.

Strategy 2.2.3.2.2: Town agencies should identify locations where public access and development should be restricted, and notify the public regarding limits on access.

Strategy 2.2.3.2.3: Land in CRPA's and other natural areas should be acquired by the town or conservation organization(s) so that it may be permanently preserved as habitat. If acquisition is not feasible, conservation easements should be pursued. State and federal grants should be sought to fund land acquisition.

Strategy 2.2.3.2.4: The town should continue to monitor use of ORV's on Sandy Neck so that their use is consistent with orders of the Conservation Commission, Coastal Zone Management policy and approved Management Plans for Sandy Neck.

Protection of Shellfish Resources

Policy 2.2.3.3 The town should make special efforts to protect the variety of shellfish species native to the area and their habitats.

Strategy 2.2.3.3.1: In order to avoid adverse environmental impacts on wetlands and loss of shellfish habitat, construction of community docks and piers, rather than separate structures serving individual lots, shall be required wherever possible. Construction or expansion of docks and piers shall not be permitted significant shellfish habitat areas identified by the Division of Marine Fisheries and/or local shellfish officials, or in CRPA's. (See Camp Dresser McKee Coastal Resources Management Plan, Policy 1.6.9.)

Strategy 2.2.3.3.2: Zoning districts for piers should be created based on the designations above. Docks and piers shall not be permitted in coastal waters designated as significant shellfish habitats by the Division of Marine Fisheries or local shellfish officials.

Strategy 2.2.3.3.3: Community piers may be permitted through a Special Permit provided the applicant can demonstrate that the community pier will result in a reduction of the number of piers along the shore. Such piers shall also be subject to approval by the Conservation Commission.

Strategy 2.2.3.3.4: The Conservation Commission should continue to obtain site-based performance requirements even in areas where piers are permitted by zoning. The Conservation Commission review provides a more in-depth site assessment of each application.

Strategy 2.2.3.3.5: To avoid disruption of benthic (bottom) habitats, new moorings should be restricted and the relocation of existing moorings out of CRPA's should be encouraged, as outlined in the Camp Dresser McKee Coastal Resources Management Plan.

Strategy 2.2.3.3.6: To reduce turbidity that degrades water quality and harms marine organisms and habitats, wakes should be restricted in designated high-traffic navigation areas near the shore. The Conservation Commission's requirement for 1' depth in addition to the draft of the boat with engines in drive position should be maintained.

Strategy 2.2.3.3.7: Barnstable should take every opportunity to promote aquafarming, marine research and aquaculture in local waters. The town,

through its Health, Conservation and/or Natural Resources Departments, should explore providing additional shellfish grants to support aquaculture as a native industry. The town should encourage an educational and/or training program coordinated with Cape Cod Community College, Cape Cod Regional Technical High School, or another educational institution. –

Strategy 2.2.3.3.8: The long-term effects of hydraulic pumping on coastal ecosystems and the recruitment of new shellfish should be evaluated, and appropriate action taken as indicated. This evaluation should be coordinated through the Shellfish Task Force or Commission.

Section 2.2.4 Managing Coastal Recreation

In addition to being a natural resource, the coast is a great center for recreation. Boating, swimming, water-skiing, fishing and shellfishing are some common waterfront recreational pursuits. New forms of coastal recreation such as jet-skiing and parasailing are continually developing.

Boating has always been extremely popular as a summer recreation activity in Barnstable. In 1992, the town issued over 2,000 mooring permits. The number of boats using town waters puts pressure on the town to maintain services such as mooring inspection, landing and launching facilities, parking for trailers, and waste removal. Because of the direct relationship between use and cost of maintaining these facilities, a dedicated fund should be established to cover the cost of these improvements and related services to the greatest extent possible.

As the number of boats has increased, the area available for water recreation has declined. In their Coastal Resources Management Plan, Camp Dresser McKee estimated that Cotuit, West Bay, North Bay, East Bay and the Centerville River have a combined area of 1,432 acres. Of this area, 600 acres were in use for moorings and boat slips in 1989. The town should continue to develop and implement the mooring plan policy developed by Camp Dresser McKee. Mooring fields need to be established so that over the long term, navigability can be maintained.⁹ The town should continue to

⁹ The following Recommendations from the Coastal Resources Management Plan for a mooring plan were made for the Three Bay and East Bay mooring fields. The more general of these recommendations may also be applicable to mooring fields in other areas.

- 1) - Require the mooring officer or designee to be present during new mooring placement.
- 2) - Ensure that an equitable mooring fee structure be maintained.
- 3) - Standardize mooring scopes and weights.
- 4) - Storm moorings should be added as a category to the mooring regulations.
- 5) - Storm moorings will be allowed, but the configuration of the mooring chain and buoy should be changed.
- 6) - Specify that mooring permits should be granted to individual boat owners.
- 7) - Mooring permits should be granted to commercial establishments for repair and sales as follows: 20 for Crosby Yacht Yard; 25 for Oyster Harbor Marine; and 15 for Prince Cove Marina.
- 8) - A waiting list should be established for all designated water use support areas, to be maintained by the Harbormaster. Only individual boat owners should be allowed to be placed on the waiting list. Permits will be granted based on available space according to the mooring plan.
- 9) - Transient moorings should be granted to commercial establishments for a maximum of 30 for the 3-bay area and a minimum 10 each for Crosby Yacht Yard, Oyster Harbor Marine, and Prince Cove Marina.
- 10) - Rental moorings should be granted to commercial establishments at a level not to exceed 10 percent of total moorings or a maximum of 165, whichever is less. The recommended distribution is as follows: 65 for Crosby Yacht Yard; 50 for Oyster Harbor Marine; and 50 for Prince Cove Marina. The permit holder should be required to keep careful records, including the name and address of the user and the type and size of the boat. Rental moorings should be placed according to the mooring plan.
- 11) - If the original user of a rental mooring relinquishes use, the commercial establishment must notify the Harbormaster. If a waiting list has been established, a vacated rental mooring must be offered to all individuals on the waiting list, beginning at the top of the list. A one-year

designate mooring fields through all the embayments recommended in the Camp Dresser McKee Coastal Resources Management Plan in order to protect navigation, recreation, shellfish habitats and other prime habitats. Navigation channels gradually fill with silt and sand, and must be dredged periodically to maintain an adequate depth. Dredging may also be employed to improve flushing of embayments and maintain water quality. Dredging should be minimized to avoid degradation of water quality and the bottom environment. Wherever possible, dredge spoil should be used for beach nourishment. A chart showing the history of dredging for navigation in the town's harbors is provided on the following page.

Beaches are some of the town's most intensively used public spaces. Because they are so important to tourism, Barnstable's beaches deserve good planning and continuous upkeep. Beach maintenance should include maintenance and replacement of infrastructure, and improvements for greater efficiency, ease and attractiveness for public use. These types of improvements should be included in management plans for all the town's major beaches. Some strategies for beach management are described in Karst Hoozeboom's *Sandcastles and Sandpipers* (Massachusetts Department of Environmental Management, Boston, Mass., 1988.) Coastal management plans should address resource protection, including erosion control and protection of rare and endangered species habitat.

Goal 2.2.4 To the greatest extent possible, historic water-related uses, including fishing, shellfishing, sailing, recreational boating and passive recreation should be protected in their traditional locations, in a manner sensitive to the environment. Wherever possible, conflicts between these uses should be minimized. Safe navigation should be promoted.

Policy 2.2.4.1: Town agencies or officials should designate Critical Navigation Areas (CNA's) as recommended by the Camp Dresser McKee Coastal Resources Management Plan so that strategies can be developed for protecting high traffic navigation areas from undue interference by uses such as mooring fields and piers.

Policy 2.2.4.2: Town officials should encourage safe navigation practices through a program of public education and enforcement. (See Camp Dresser McKee Coastal Resources Management Plan, General Policy 1.6.10, Increase enforcement of water safety-related regulations.)

Policy 2.2.4.3: No new dredging or expansion of existing dredging projects shall occur unless a substantial public benefit can be demonstrated, including but not limited to

grace period should be allowed for unused rental moorings. After the grace period, the mooring permit reverts back to the town. The permit holder should be responsible for removal of all unused rental moorings. A one year grace period should be allowed for individuals who do not use their mooring but pay the renewal fee. After the grace period, the mooring permit reverts back to the town.

HISTORY OF DREDGING IN BARNSTABLE'S HARBORS

Location of Dredging	Year	Amount of Disposed Material	Location of Disposal
Barnstable Inner Harbor	1963	18,555 cu.yds.	N/A
West Bay Entrance Channel	1966	21,200 cu.yds.	N/A
Hyannis Harbor	1967	24,150 cu.yds.	N/A
Cotuit Bay, entrance	1967	21,675 cu.yds.	N/A
Cotuit Bay near Narrows	1971	67,600 cu.yds.	N/A
Barnstable Harbor	1974	19,250 cu.yds.	N/A
Barnstable Harbor	1977	14,675 cu. yds.	Underwater
West, North & Cotuit Bays	1983	25,055 cu.yds.	Dead Neck Beach
Channel to Barnstable Harbor	1991	N/A	Blish Point
Channel to Hyannis Harbor	1991**	N/A	Dunbar Pt./Kalmus Beach
Barnstable Inner Harbor	1993	N/A	N/A

** Dredging in various locations has been approved over a ten year period.

enhancement of fish or shellfish habitat or improvements to navigation safety. Areas that have been dredged may continue to be maintained when necessary to ensure safe navigation and , preserve traditional channels for boat traffic. Dredging should be permitted to maintain the viability of commercial marinas and to ensure provision and maintenance of sufficient draft in marina basins.

Strategy 2.2.4.3.1: A priority listing for public dredging projects should be developed based on bathymetry, number and sizes of boats using the channel and availability of funds, along the guidelines of the Camp Dresser McKee Coastal Resources Management Plan.

Strategy 2.2.4.3.2: Long term needs for dredge disposal should be evaluated. Where feasible, dredge material should be used for beach nourishment in areas subject to erosion. Such material should be clean and compatible with the existing area. In other cases, alternatives to beach nourishment should be evaluated in terms of environmental impact.

Policy 2.2.4.4: Moorings should be restricted to areas of present and previously active recreational use. They should be laid out so as to maximize their number while minimizing the total space required.

Strategy 2.2.4.4.1: A detailed mooring plan developed according to the recommendations of the Camp Dresser McKee Coastal Resources Management Plan should be implemented, and moorings in CRPA's and CNA's should be restricted. This plan should be reviewed and revised at least every two years.

Strategy 2.2.4.4.2: The town should establish a dedicated fund for waterways improvement projects.

Strategy 2.2.4.4.3: Rental and transient mooring permits should continue to be tracked. Implementation of mooring plans similar to those of Camp Dresser McKee's Coastal Resources Management Plan should be expanded to other embayments in addition to those addressed by that study.

Strategy 2.2.4.4.4: Mooring fields should be delineated, designed and managed so as to minimize damage to boats from storms and maintain navigability.

Access for Recreation and Water-Dependent Activities

Policy 2.2.4.5: The town should upgrade its parking lots, launching facilities and public piers. With any new construction or expansion of public or private facilities, direct discharge of stormwater runoff to coastal waters must be avoided and environmentally sensitive coastal areas must be protected.

Strategy 2.2.4.5.1: Where environmentally acceptable, walkways should be constructed to enhance shoreline access for the public, including the disabled. Accessible walkways should be considered for major recreation areas such as Sandy Neck, Craigville Beach, Hyannis and Barnstable Harbors, with access to the water if possible.

Strategy 2.2.4.5.2: Public access should be provided at publicly funded beach nourishment sites except where such access would impair natural resources.

Strategy 2.2.4.5.3: The town should maintain and improve existing boat launching ramps and landings. Sweeping sand and grading unpaved ramps should be included in the annual budget for the Department of Public Works. Plans to pave unpaved landings should only be implemented if direct discharge of runoff to coastal waters can be avoided.

Public Beaches

Policy 2.2.4.6: The town should seek to maximize the efficiency, comfort of use and attractive appearance of its public beaches, while minimizing human impacts on water quality and wildlife habitat. Enhancement of natural areas by provision of adequate seating facilities, restrooms and cover at beaches, as well as proper maintenance, should be priorities.

Strategy 2.2.4.6.1: Buildings, walkways, parking areas and beaches themselves should be well maintained, with landscaping provided where appropriate. The town may want to assess current methods of maintaining and cleaning beach areas.

Strategy 2.2.4.6.2: Relocating utilities underground should be considered as a long term goal to improve the appearance of beaches and beach parking areas. The town should investigate attractive designs for boardwalks, benches and other improvements to the built environment.

Strategy 2.2.4.6.3: Management plans should be developed for the town's developed recreational beaches and associated undeveloped publicly owned lands. Priority should be given to protection of wildlife and prevention of erosion. An assessment of the impacts of ORV's on wildlife and erosion should be included for beaches where these are in active use, with management recommendations as needed.

Strategy 2.2.4.6.4: The town should strongly consider using a portion of beach fees to fund beach improvements.

Strategy 2.2.4.6.5: The town and other governmental agencies should strive to make beaches accessible by means of transportation besides the automobile. Bike path links, shuttle buses and bike racks should be considered for all public beaches. Permeable surfaces should be used for public parking lots near the water wherever possible.

Strategy 2.2.4.6.6: At Craigville Beach, one of the town's most heavily used beaches, the height of the fencing should be reduced, and native plantings used to soften its appearance to make the entrance more attractive. Roadways, bicycle paths/walkways, and sitting areas should be defined. A kiosk should be added near the entrance for notifying public of special events. See also plans of improvements to Craigville Beach by Arthur Traczyk, Barnstable Principal Planner.

*Craigville
Carrabett Beach
Ref. DPE studies
discuss
landscaping etc.
visiting
parking lot*

Strategy 2.2.4.6.7: At Sea St. Beach, landscaping improvements are recommended. These include removing weedy shrubs from plantings along the roadside; native plantings should be added at entrance. Some form of handicapped access (such as wheelchairs designed for the beach, which are available) should be provided.

Strategy 2.2.4.6.8: A focal point is recommended for the entrance of Kalmus Beach. This could consist of landscaped native plantings or an attractive gateway. More attention should be paid to the overall maintenance of this prime beach area, including debris removal. Snow fencing, signs to discourage climbing on dunes and other erosion management techniques should be considered to protect the sensitive dunes here. Cordoning off bird nesting areas and other techniques for wildlife management should be continued.

Strategy 2.2.4.6.9: A boardwalk would be an attractive replacement for the aging walkway at Veterans Beach. The design and location of drives, parking lot and walkways should be reviewed, with consideration given to integration of the beach and the Kennedy Memorial.

Strategy 2.2.4.6.10: The existing parking lot on the primary dune at Sandy Neck should be replaced with gravel or other permeable-surfaced parking and relocated away from the beach front. Overflow parking areas should be provided. ORV parking and traffic should be routed to avoid the most sensitive dune areas and nesting sites. The interpretive center should be improved to draw more attention to the environmental and cultural resources of this area.

Section 2.2.5 Maintaining Maritime Character in Harbors and Shoreline Villages

Traditional water-dependent uses of boat service and repair, fishing and shellfishing give harbors their special character. While there is a great variety and volume of activity in commercial harbors, there is a limited amount of space. For fishing to be viable, there must be space to off-load, dock space with convenient fueling and waste disposal, and good navigation channels. Marinas, commercial fishing and other water-related uses may be lost if other uses are more profitable. Special boatyard preservation programs, including zoning protection, may be needed to maintain these businesses. The Town of Barnstable has a total of three waterfronts which include densely developed areas with marinas and other water-dependent uses, and infrastructure which serves them. A map showing locations of these developed harbor areas is on the following page.¹⁰ The next

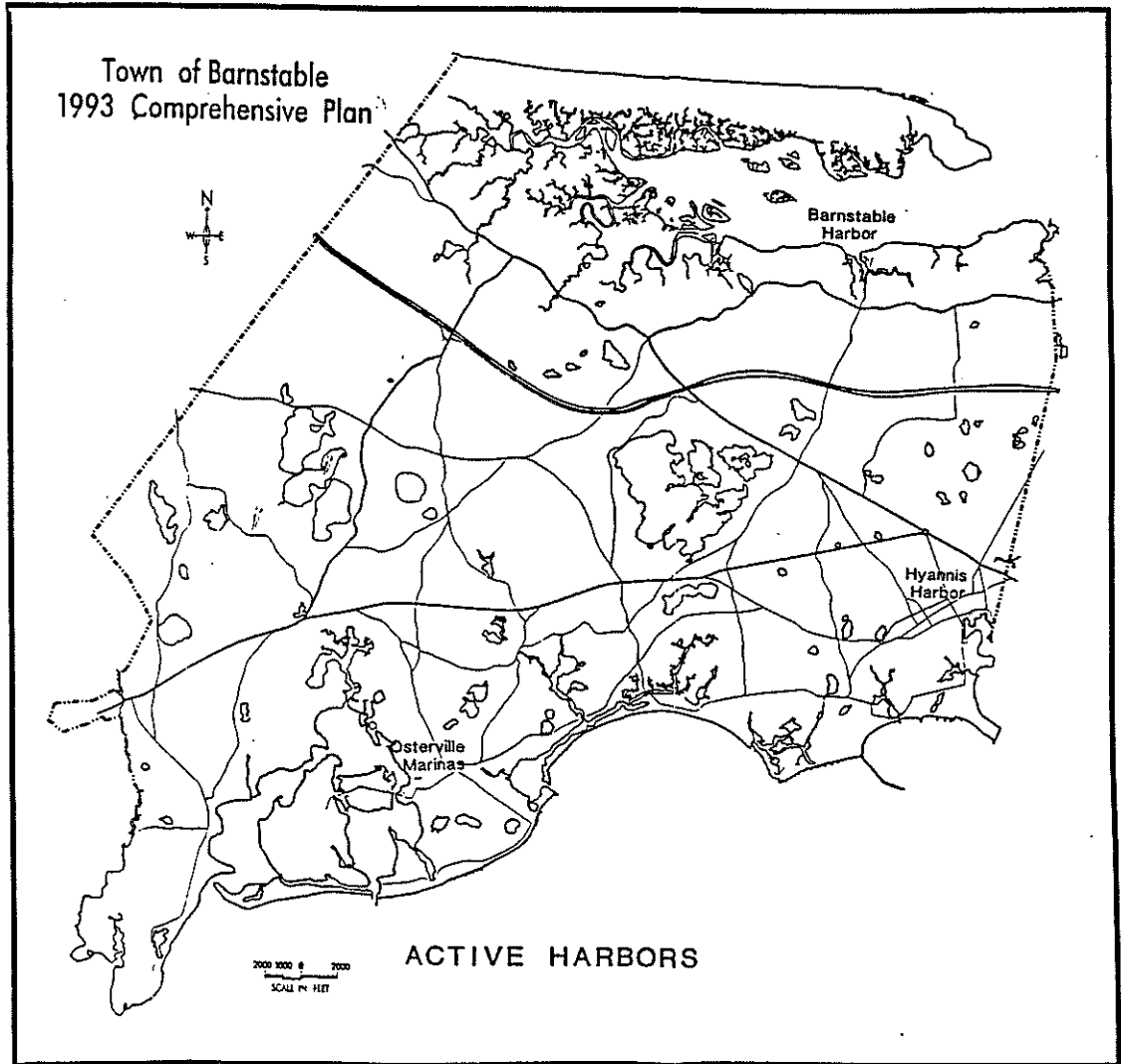
¹⁰ There are restaurants, motels, and other non-water dependent uses at both harbors, all using space at the waters edge. Although at present both Barnstable and Hyannis harbors contain a considerable number of water-dependent uses, these could diminish over time. The experience of towns like Newport, R.I. has shown it can be difficult to maintain adequate space for commercial fishing and shellfishing unless designated areas are very clearly set aside. Private facilities that enhance access in Hyannis include shops, restaurants and the ferry which provide walkways or sitting areas near the harbor. Public facilities in Hyannis that provide direct access include Aselton, Bismore and Lewis Bay Parks, the first two with benches and viewing areas. A "Walkway to the Sea" and boardwalk along the harbor have been part of long-range planning for Hyannis Harbor for some time and will enhance the connection with Main Street when these are finally built. There are plans to remove parking from the waterfront to improve views of the

pages contain plans of proposed marina and infrastructure improvements for Barnstable and Hyannis Harbors.

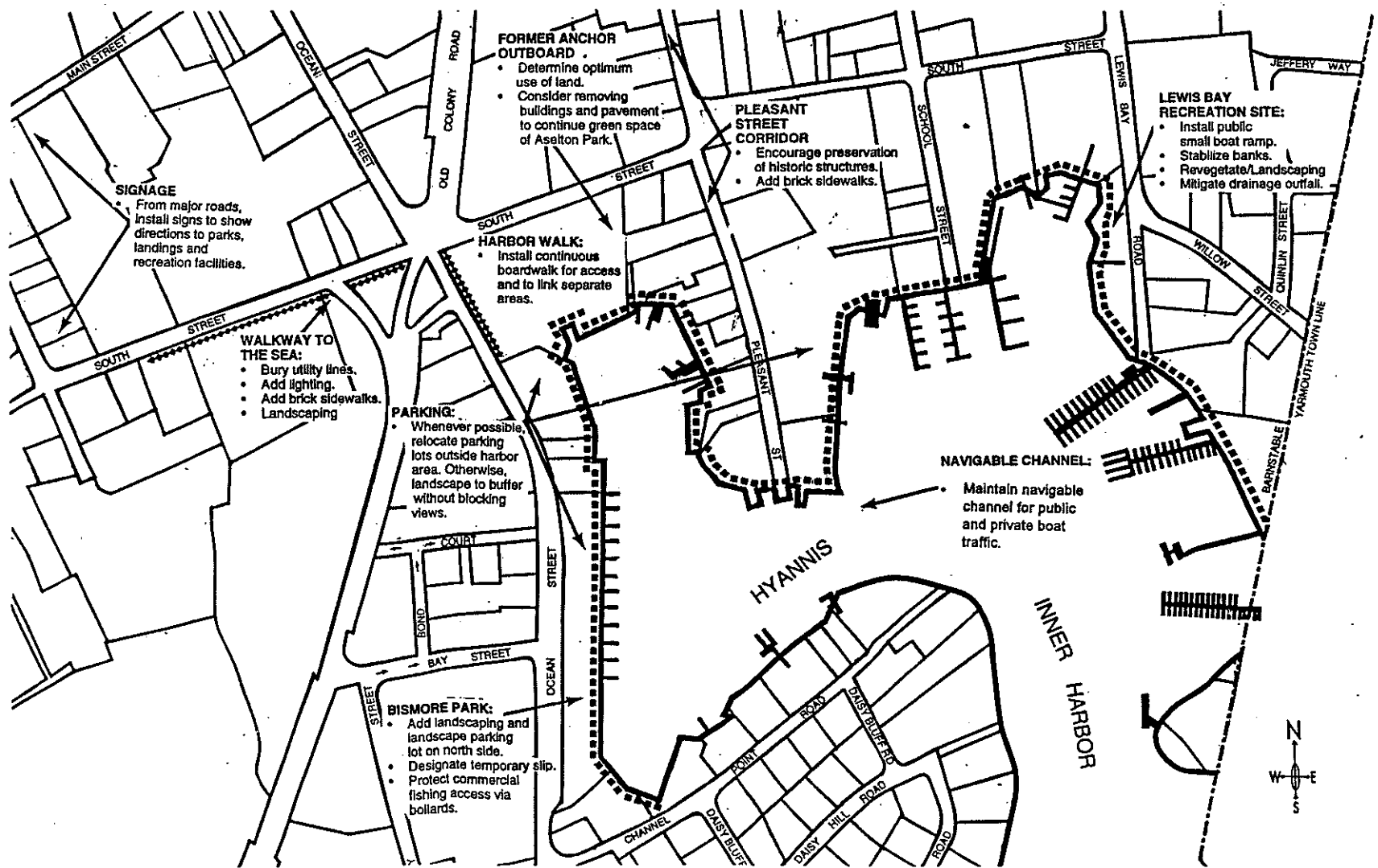
harbor. At Barnstable Harbor, public facilities that promote access include the boat slips on Mill Way, and the walkways along the edge of the harbor. There are several facilities for boat access, including the Blish Point ramp and a public ramp north of Millway Marine. Retail stores and offices that do not depend on access to the water for business have little incentive to provide it. When these non-water dependent uses replace water dependent uses, access to the water is often lost. The town should make a complete inventory of those public and private facilities that provide access, such as parks, marinas, etc., based on the framework below. This will allow changes to be identified and assist with further long range planning for the town's harbors.

To maintain harbors' viability for fishing ports, navigation channels must be maintained. Sand is constantly being transported along the sea floor, and underwater depressions have a natural tendency to fill in. This makes dredging very necessary to keep channels functional. Dredging spoil should be deposited away from areas of eelgrass beds and prime shellfish habitat to avoid potential suffocation of marine species. It is highly preferable that it be used for beach nourishment whenever possible. The History of Dredging in Barnstable Harbors (above) shows the wide geographic dispersion of areas that have been dredged in Barnstable over the last thirty years. These include the approaches to Barnstable and Hyannis Harbors, the entrance channels to West and Cotuit Bays, and areas within West, North and Cotuit Bays. With this much area for potential dredging, the town needs to plan carefully to set priorities and obtain funding. The CRMP identified Seapuit River and the entrance to East Bay as priorities for dredging. Since this plan only included the East Bay and Three Bay areas, priorities for public dredging should be reevaluated in terms of the needs of the whole town. In connection with the town's present efforts, Barnstable Inner Harbor is the next location slated for dredging. The Army Corps of Engineers has received permits for dredging in Hyannis Harbor over the next ten years. This should be reflected in an overall dredging plan.

ACTIVE HARBORS
<p>Barnstable contains Barnstable and Hyannis Harbors, and a small working harbor at Bridge St. in Osterville. The town's commercial harbors succeeded several original settlements. In earlier days, these functioned as ports -- with shipbuilding, packets and trading ships -- and as fishing hamlets. Today, busy docks, historic buildings and access to water give them special character.</p>
<p>Working harbors are unique areas because of the variety of activities, including many that are found nowhere else. In Barnstable, commercial fishing and shellfishing, charter fishing, recreational boating, sightseeing trips, whalewatching and ferries are among their numerous waterfront activities.</p>
<p>Locations of harbors on the map at right include all of the water-dependent uses in these areas, and other development up to the first street back from the water's edge.</p>



HYANNIS INNER HARBOR IMPROVEMENTS



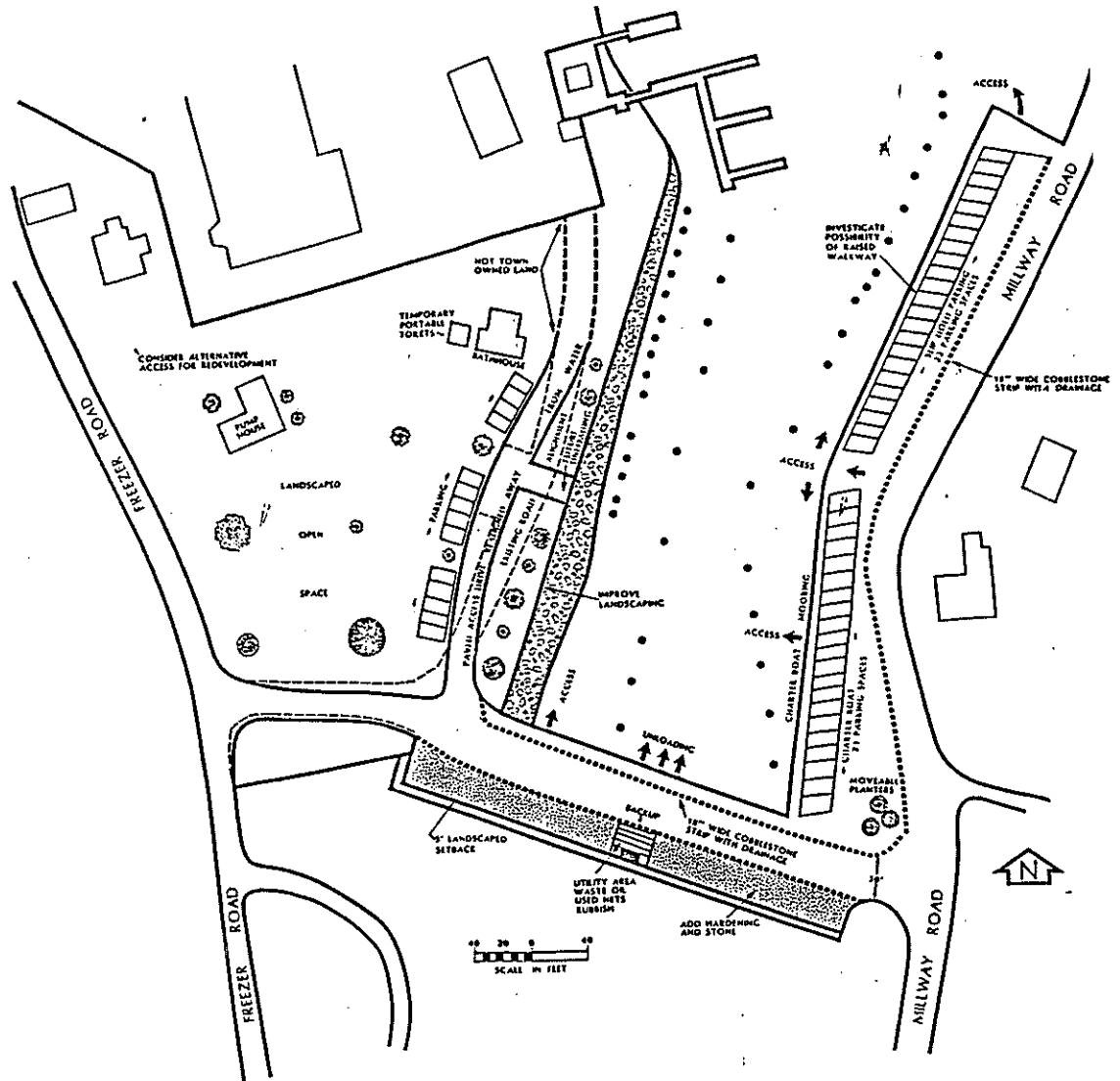
SHORT TERM IMPROVEMENTS

1. Add hardening and stone to cut-through between Freezer Road and Mill Way.
2. Add hardening and stone to trailer/parking area.
3. Cleanup area around the south and west side of the boat basin; replace telephone poles and concrete curbs with split rail fencing, bollards; depress railroad ties and anchor.
4. Improve landscaping on the west side of the harbor. provide benches. Cleanup weeds at top of rip-rap on west side.
5. Provide planters on the east side of the harbor.
6. Provide rubbish facilities at access points and oil and old net facilities at the south end of boat basin.
10. Provide a temporary portable toilet facility next to the bath house; provide small sign at south side of harbor.
11. Consider a wood fence at the southern edge of the marina, at rear of parking area.
12. Improve maintenance.

LONG TERM IMPROVEMENTS

1. Replace bulkhead on south side of harbor in approximately five years or as needed. Co-ordinate other improvements with this action.
2. Review location of piers, floats, and group boats by size and type.
3. Review drainage systems around the harbor.
4. Provide low, historic design lighting around the harbor.
5. Investigate creating a walkway around the harbor.
6. Consider a safety rail or chain around bulkhead.
7. Relocate and pave access drive on the west side away from water. Locate small amount of parking on the landside only of the driveway.
8. Provide permanent publicly accessible toilets by adding to the bath house, or along the south side of the harbor.
9. Locate and pave the cut through between Freezer Road and the southern end of the boat basin (Millway).

PREPARED BY: TOWN OF BARNSTABLE
 PLANNING DEPARTMENT
 OCTOBER, 1993
 JACQUELINE ETSTEN,
 PRINCIPAL PLANNER



Barnstable's coastal villages include Cotuit, Osterville, Centerville, Barnstable Village and Hyannis. Their long history as settlements is reflected in their Colonial and Victorian architecture. Other coastal developments with special character are Beach Point on Sandy Neck, Hyannisport, Craigville, Wianno and Grand Island. These contain clusters of early summer homes built in a variety of styles from mansions for summer residents, to camp meeting cottages and other vernacular structures. The character of new development should maintain the scale and maritime charm of Barnstable's harbors and coastal villages, and historic buildings should be preserved wherever possible.

Goal 2.2.5 The aesthetic, historic, and cultural qualities of Barnstable's coastline should be maintained. The unique maritime character of working harbors, coastal villages and other developed areas should be protected and, if possible, enhanced.

Policy 2.2.5.1: Continued operation of water-related or water-dependent uses, such as marinas, boat builders, sailmakers, bait shops, and associated uses should be encouraged in developed harbors.

Strategy 2.2.5.1.1: To monitor changes in water-dependent uses, the town should inventory public and private uses in its harbors, and note the availability or lack of access. This information can be utilized in future Harbor Management and Coastal Management Plans.

Strategy 2.2.5.1.2: To ensure preservation of traditional maritime uses, adoption of "working waterfront" overlay zoning should be considered. The town should use zoning to protect marine businesses and other water-related uses in developed harbor areas. No new buildings or accessory uses should be permitted within this zone except for water-dependent uses or as outlined in Strategy 2.2.5.1.4, below.

Strategy 2.2.5.1.3: The town should investigate permitting ancillary water-related services within marinas which provide services to boaters and improve the viability of marinas, such as bait shops, fishing tackle and supplies sales, snack bar and provisions, laundry facilities, canvas rigging, sailmaking and other, similar uses.

Strategy 2.2.5.1.4 The town should coordinate the management of harbors which are under the jurisdiction of multiple Town Departments, Boards and Commissions.

Policy 2.2.5.2: The prevailing architectural character of Barnstable's historic coastal villages (Barnstable, Beach Point, Cotuit, Craigville's Christian Camp Meeting Association, Osterville, Wianno and others) and harbors (Hyannis and Barnstable) should be preserved. New development and redevelopment should reflect the traditional maritime character and architecture styles of the area and should be designed to maintain and enhance views of the shoreline from public ways and access points as identified in the Town of Barnstable Open Space Plan.

Strategy 2.2.5.2.1: See strategies for preserving traditional architecture in the Historic Preservation and Community Character section.

Policy 2.2.5.3: The town should continue improvements to Hyannis Harbor which make it a more appealing destination and help its waterfront function more effectively. Priorities for these improvements should be determined with input from local residents, property owners, business people and organized groups, and implemented as funds become available. Private projects should be coordinated with public improvements. Prior plans including the SEA Inner Harbor Action Plan (1984) should be used as a guide to future improvements.

Hyannis Harbor has been developed with many mixed uses and has many of the characteristics of an urbanized waterfront. Policies should encourage retention of existing water-dependent uses, particularly marinas and their associated facilities, and parking and loading areas necessary to support commercial and charter fishing operations. However, this plan should also permit the conversion of parking areas and deteriorated buildings to mixed commercial, tourist-related uses along the harbor. Parking lots should be relocated landward of surrounding roads near the waterfront to more remote locations.

Recommended strategies are as follows:

Strategy 2.2.5.3.1: Improvements at Lewis Bay Park should be considered to promote recreational use of the site. These include: Stabilize banks, improve the landing and add small boat launching, install benches and native plantings, and loam and seed. The existing plan for improvements should be implemented.

Strategy 2.2.5.3.2: South St. and Ocean St., or an alternative, should be used as a pedestrian link, or "Walkway to the Sea," to connect Main St. and Hyannis Harbor. A Harbor Walk should be installed by the water's edge to permit access around the inner harbor. A time frame should be established for completing the Walkway to the Sea and Harbor Walk, including acquisition of land.

Strategy 2.2.5.3.3: Seating should be increased and landscaping added to make Bismore Park more appealing. Landscaping should be added to the parking lot to the north. A temporary docking slip should be designated for boaters who need assistance or want to use a pump-out facility.

Strategy 2.2.5.3.4: The town should undertake a feasibility study to determine optimal future use of the old Anchor Outboard/Teen Center building, launching ramp and site. If the building and parking areas were removed, the site could be regraded, continuing the green space from Aselton Park. If possible, the concrete retaining wall on the side of the driveway near the water should be removed. A task force or committee should be formed to determine the optimal future use of the old Anchor Outboard/Teen Center building, launch ramp and site.

Strategy 2.2.5.3.5: In order to maintain adequate area for navigation, a channel of sufficient width should be maintained in the arms of the Harbor between Ocean and Pleasant St., Channel Point Rd. and Pleasant St. wharf, Lewis Bay Rd. and School St. and between Lewis Bay Marine and Hyannis Marine. In this area, piers should not be permitted to interfere with channels of reasonable widths.

Strategy 2.2.5.3.6: The town should evaluate providing additional pump-out facilities at Lewis Bay Park landing and the old Anchor Outboard site, with disposal through town sewer. The town should continue to mitigate/clean up drainage outfalls entering the harbor. These may involve catch basin repair, adding leaching pipes, or proper road grading. "No Dumping -- To Ocean" should be stenciled on storm drains known to connect to outfalls to Hyannis Harbor.

Strategy 2.2.5.3.7: The town should encourage renovation of historic structures on Pleasant St. Plaques should be mounted at historic sites around the harbor (Gleason House, Pleasant St. houses, end of Pleasant St.) Signs should be installed to direct the public to town landings, parks and attractions on the waterfront.

Strategy 2.2.5.3.8: If possible, all major parking areas should be relocated outside the harbor area. The town should encourage low buffers of native vegetation for any parking lots remaining in use. Large volume parking should be considered a distinct use under the zoning bylaw allowed by Special Permit, in order to control expansion, signs and traffic problems.

Strategy 2.2.5.3.9: The town should seek to revive capability for boat launching at School St. and Pleasant St.

Strategy 2.2.5.3.10: The town should retain existing water dependent uses and parking and loading facilities necessary to support commercial and charter fishing.

Strategy 2.2.5.3.11: The town should permit conversion of private waterfront parking lots and deteriorated buildings to the best possible use, such as mixed tourist-related uses, with public access supplemented by pedestrian walks and boardwalks along the harbor.

Strategy 2.2.5.3.12: The town should provide public pumpout facilities for this, the largest harbor in the town.

Policy 2.2.5.4: The town should encourage improvements to Barnstable Harbor to enhance its intrinsic charm and help it function more effectively.

Recommended strategies are as follows:

Strategy 2.2.5.4.1: The town should improve the functioning of the marina by reviewing the location of piers, floats, and grouping boats by size and type.

Strategy 2.2.5.4.2: The bulkhead on south side of harbor should be replaced in approximately five years or as needed and other improvements coordinated with this action.

Strategy 2.2.5.4.3: The feasibility and cost of removal of rip rap on the west side of the harbor, and replacement with a bulkhead, should be considered. This will increase width of the boat basin at the loading and fueling point at the south end of the harbor, and reduce siltation presently washing through rip rap.

Strategy 2.2.5.4.4: Drainage systems and outflows around the harbor should be reviewed. Drainage from 6A travels to pipes through the bulkhead and contributes oil, grease and silt to the marina. Drainage systems need to be equipped with silt, oil and grease traps. Concept plans show drainage systems in 18" cobblestone strips. Improvements to drainage must be prioritized with drainage requirements needed elsewhere to improve water quality in shellfishing and swimming areas.

Strategy 2.2.5.4.5: Where necessary, lighting should be provided around the harbor. Lighting should be of an historic design, compatible in height and location with the surrounding residential area.

Strategy 2.2.5.4.6: The creation of a walkway around the harbor with landscaped islands should be investigated, provided this does not interfere with harbor access. High-quality design and materials with a historic, nautical appearance should be used.

Strategy 2.2.5.4.7: The town should consider whether or not a safety rail or detachable chain should be constructed along the bulkhead.

Strategy 2.2.5.4.8: The access drive on the west side of the harbor should be repaved and relocated to curve away from the water slightly. Locate a small amount of parking landside of the driveway.

Strategy 2.2.5.4.9: The town should provide permanent, publicly accessible toilets, possibly by adding to the existing bath house, or an alternative location along the south side of the harbor.

Strategy 2.2.5.4.10: The town should locate and pave the cut through between Freezer Road and the southern end of the boat basin (Mill Way).

Strategy 2.2.5.4.11: The town-owned boat ramp should be improved by adding an additional slab at the end, to eliminate the sharp drop-off. Develop means of preventing slippage at the State ramp.

Strategy 2.2.5.4.12: A telephone and low, historic-style lighting should be provided at Blish Point.

Strategy 2.2.5.4.13: The parking lot and area around the bath house at the town beach should be improved with landscaping and benches. Develop a plan for this area upon completion of the beach re-nourishment. Landscaping materials should be suitable for dunes.

Strategy 2.2.5.4.14: If possible, the bath house at the town beach should be removed or relocated onto State owned-property at Blish Point. The present location blocks views and dominates this area. However, this will be costly since it will entail relocation of the sewer line and may not be financially feasible.

Strategy 2.2.5.4.15: Short-term improvements to Barnstable Harbor described in the Barnstable Village Vision Plan should be implemented.

Section 2.2.6 Public Access to the Shore and Protection of Water Views

As Cape Cod's shoreline becomes more developed, it is easy for historic ways to water to be lost. To protect these important access points, the town should maintain an inventory of all ways to water and post signs that identify them. A search of Registry of Deeds records, tax exempt property records, the town's road index, and assessor's maps may turn up additional abandoned ways to water. The town may also want to survey long-time residents for this purpose. Title searches may help establish public ownership if abandoned public access is found. A map of coastal access points is shown on the following page.¹¹

The recent trend to large scale waterfront development threatens to obscure water views. There is a real need to protect sight lines from encroachment to keep the town's seaside beauty and charm intact. Given the value and desirability of waterfront property, the town needs to ensure that zoning densities, height and setbacks will be compatible with existing development and will not result in overbuilding along the waterfront.

Goal 2.2.6 To protect the public interest in the coast and rights for fishing, fowling and navigation; to preserve and manage coastal areas so as to safeguard and perpetuate their biological, economic and aesthetic values; and to preserve and where appropriate, expand public access to the shore.

Policy 2.2.6.1: Development and redevelopment along the coastline should promote access to the waterfront where appropriate, and environmentally appropriate use of the shoreline.

Strategy 2.2.6.1.1: Development and redevelopment shall not interfere with traditional public access or rights to fish, fowl and navigate.

Strategy 2.2.6.1.2: Development or redevelopment of filled tidelands should provide or contribute coastal access benefits to the general public, where such access does not compromise the security or liability of commercial or recreational facilities.

Strategy 2.2.6.1.3: The town should develop a list of projects that provide or enhance coastal access and use of the shoreline to be used in conjunction with the Chapter 91 licensing program.

Strategy 2.2.6.1.4: To make sure that traditional rights of way to the water are not lost or abandoned, the town should re-establish and/or designate these through appropriate legal means.

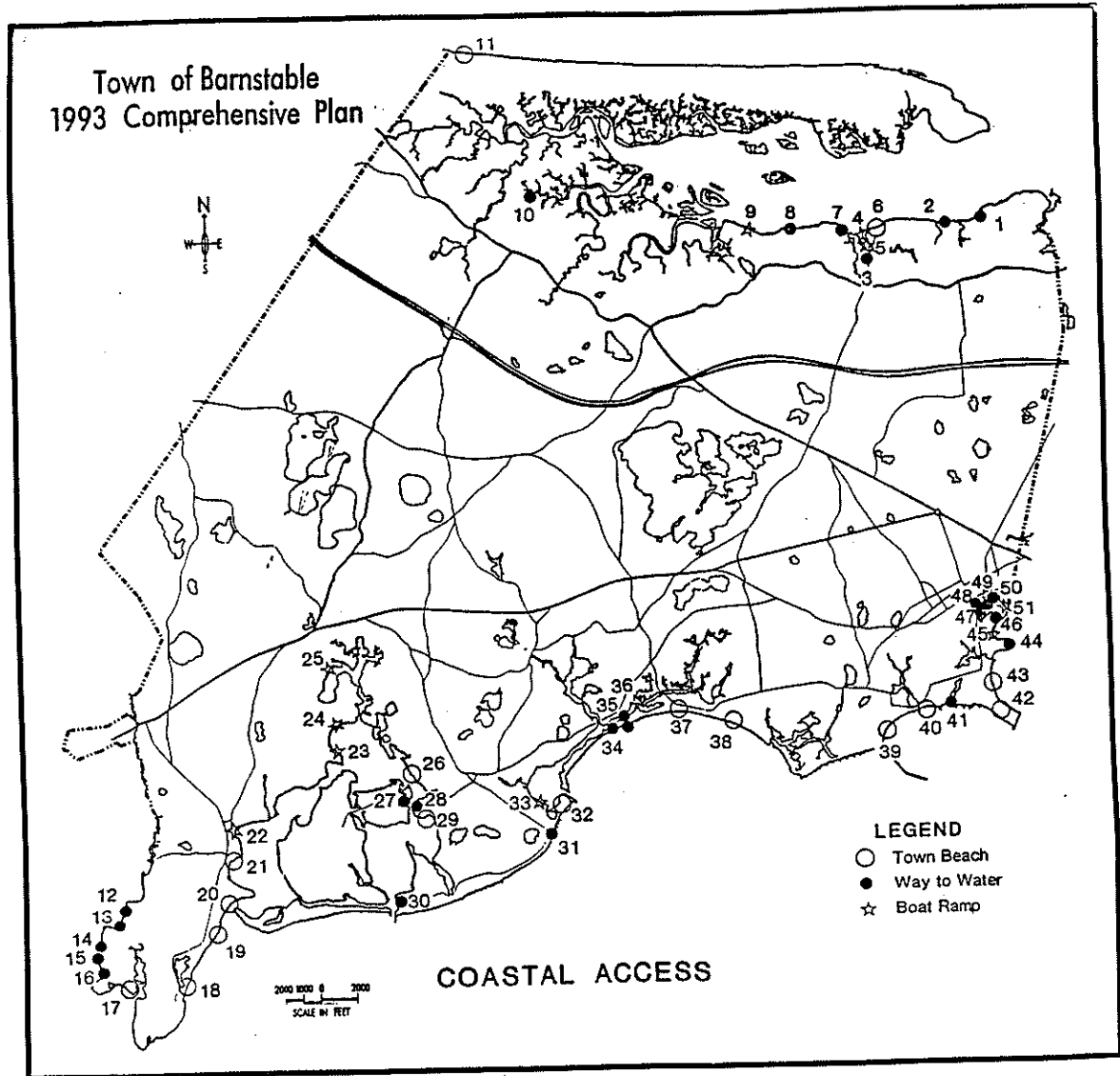
Policy 2.2.6.2: Public views of the water, which increase the overall scenic beauty of the town, should be protected to the greatest possible extent.

¹¹ Brautigan, Steven and Robin, Renee, The Way to the Sea, Massachusetts Coastal Zone Management

COASTAL ACCESS POINTS
 Ways to Water, Public Boat Ramps and Public Beaches

Map No.	Access Point	Pkg Sp	Boat Launch
1	Bone Hill Rd. WTW	2	N
2	Indian Trail WTW	0	N
3	Bstble Harbor Basin Bulkhead	49	Y
4	Blish Point	20	Y
5	Town Landing	12	Y
6	Millway Beach	17	N
7	Rendezvous Lane WTW	3	N
8	Harris Meadow La. WTW	0	N
9	Scudder La. WTW	5	Y
10	Navigation Rd. WTW	0	N
11	Sandy Neck Beach	238	N
12	Santuit Rd. WTW	0	N
13	Santuit Rd. WTW	0	N
14	Clamshell Cove Rd. WTW	0	N
15	Clamshell Cove Rd. WTW	0	N
16	Crawford Rd. WTW	0	N
17	Pinquisset Cove	0	N
18	Oregon Beach	10	N
19	Loop Beach	50	N
20	Cross St. Landing	0	N
21	Cotuit Town Dock	43	N
22	Ropes Beach/Hoopers Ldg	20	Y
23	Little River Rd. Landing	4	Y
24	Cordwood Landing	5	Y
25	Prince Cove Landing	8	Y
26	Bridge St. - W	0	N
27	Bay St. WTW	8	N
28	West Bay Rd. WTW	0	N
29	Bridge St. - E	25	N
30	Seaview Ave. WTW	0	N
31	Wianno Ave. WTW	4	N
32	Dowse's Beach	190	N
33	East Bay Rd. WTW	0	Y
34	Long Beach Rd. WTW	6	N
35	Off Long Beach Rd. - N	10	N
	Off Long Beach Rd. - S	6	N
36	Haywood Landing	23	Y
37	Craigville Beach	445	N
38	Covells Beach	290	N
39	East Beach	20	N
40	Keye's Memorial Beach	134	N
41	Estey Ave. WTW	0	N
42	Kalmus Beach	419	N
43	Veterans Beach	141	N
44	Old Fish Hills Rd. WTW	2	N
45	Bay Shore Rd. WTW	8	Y
46	Daisy Bluff Rd. WTW	0	N
47	Bismore Park	103	N
48	Aseton Park	0	Y
49	Pleasant St. WTW	0	N
50	School St. WTW	0	N
51	Lewis Bay Rd. Landing	7	Y

Information for this inventory was provided by the Department of Public Works and Department of Natural Resources staff and records, and Planning Department field surveys.



Strategy 2.2.6.2.1: The town should complete an inventory of views and viewsheds visible from public ways and vantage points, including those identified in the Historic Preservation and Community Character section of this plan. Potential improvements to water views from public access points should be identified.

Strategy 2.2.6.2.2: Public access points should be improved to provide better views of the water, for instance, by trimming vegetation, grading, or where possible, by obtaining view easements.

Strategy 2.2.6.2.3: Where possible, viewshed corridors to the water should be preserved by obtaining easements, or through requirements that development along the coastline be located or aligned to maintain views. Viewsheds should be protected by providing appropriate incentives to encourage building outside the lines of sight.

Strategy 2.2.6.2.4: The town should establish zoning densities, height and setback requirements compatible with existing development in coastal areas and with protection of coastal resources and consistent with other strategies of this section.

Strategy 2.2.6.2.5: On all waterfront lots and lots within the flood plain, there should be a greater sideline setback for new dwellings or expansions to existing dwellings. Cluster development should be encouraged on waterfront lots or lots within designated viewsheds to protection views and sight lines.

Policy 2.2.6.3: The town should encourage acquisition of land for enhancement of public access to coastal waters, including parking for beaches and boat ramps where a need has been identified and where construction will not damage existing natural resources.

Policy 2.2.6.4: Public access should be provided at publicly-funded beach nourishment sites where such access will not impair natural resources. Where these sites are located near private landholdings, the rights of private property owners should be respected.

Section 2.2.7 Long Range Planning for Coastal Resources

In Barnstable, as in other communities, natural resources in coastal areas are threatened by intense development pressure and heavy recreational use. New buildings and roads impinge on undeveloped areas. Deteriorating water quality has had major effects on shellfish and marine resources. Uncontrolled and poorly managed growth will exacerbate environmental degradation. Long-range planning is extremely important to direct land use so that damage to natural resources can be limited. Plans for natural resource protection should be developed with participation by local citizens, including those who use the beach and water for recreation, town officials, business owners and waterfront property owners, so the needs of different groups and individuals can be balanced.

The town should complete Coastal Resource Plans for all the town's harbors, embayments and shorelines. These should use a similar process of public participation to that which was used for the Camp Dresser McKee Coastal Resources Management Plan. Natural resources should be protected and all significant coastal issues should be addressed. Future plans should reflect the policies and strategies of this section, should comply with requirements of the Massachusetts Coastal Zone Management and other relevant state and local agencies, and should be submitted to the appropriate agency for adoption.

Goal 2.2.7 The town's fragile coastal resources should be protected over the long term from dense development and heavy use. Long-range planning can set priorities, ensure protection of the resources, and allow input from a variety of users in this regard.

Need for Long Range Coastal Planning

Policy 2.2.7.1 The town should develop long range plans which include recommendations for managing land use in coastal areas and activities on the land and water. These plans should give highest priority to protection of natural resources and water quality, but should incorporate points of view of all principle users of the waterfront.

They should contain specific recommendations for remediation of water quality such as alternative septic systems or other means to maintain nitrate-nitrogen at desired levels. The results of marine water quality monitoring and existing water quality studies should be used in developing these recommendations. The plans should prioritize remediation of particular recharge areas. Future plans should comply with all requirements of the Massachusetts Coastal Zone Management Agency, other applicable state agencies and the Cape Cod Commission.

Strategy 2.2.7.1.1: A single town-wide Coastal Management Plan based on the format of the Camp Dresser McKee Coastal Resources Management Plan should be developed. This plan or plans may be completed in sections that address separate large estuaries, and should incorporate the Coastal Resources Management Plan completed for East Bay, Centerville River and the Three Bays.

Strategy 2.2.7.1.2: Harbor Management Plans should be conducted for Barnstable and Hyannis Harbors to assist in the implementation of recommendations of this plan and assure input from a variety of groups and individuals.

Strategy 2.2.7.1.3: A Resource Management Plan should be completed for the Sandy Neck ACEC that meets DEP/MCZM requirements, to aid in the management of this important resource. This plan may contain the Area Plan referenced in Strategy 2.2.1.4.1, and should utilize information from existing management plans.

Policy 2.2.7.2: The town should adopt the Camp Dresser McKee Coastal Resources Management Plan by reference as part of this Local Comprehensive Plan.

Section 2.3 Wetlands

Introduction

Barnstable's wetlands, both coastal and inland, are considerable in extent and in function. Approximately 10% (4,000 ac.) of total town acreage consists of salt marsh, and while estimates of inland wetland acreage are variable, Barnstable's endowment is indeed generous, given its numerous ponds, streams, and proximity to groundwater.

"Wetlands" is a collective term which includes marshes, bogs, swamps, wet meadows and similar environs which reside between open water and dry land. Wetlands are the creation of a peculiar hydrologic regime: the permanent or seasonal inundation/saturation of their soils. From these conditions arise a flora which is adapted to survive the stresses of surface flooding, soil saturation, oxygen loss, and in the case of coastal wetlands, salt imbalance.

In the colonizing of our frontier, wetlands were typically regarded as "wastelands." Clearing, filling and draining wetlands on a society-wide basis has radically reduced their number and their quality. Only in recent decades has an understanding of the ecological importance of wetlands gained wide resonance, imparting a perspective of our wetland endowment as much more a blessing than a burden. Wetlands are now appreciated as valuable natural resources which provide considerable benefits to people and their environment.

Wetlands function to effectively "polish" water quality by retaining nutrients and sediments, by storing and attenuating floodwaters, and by providing fish and wildlife habitat. Salt marsh, for instance, provides the marine food chain with a most significant source of organic matter, and provides it in a highly productive manner. One acre of salt marsh produces about ten times the organic matter than does a managed wheat field. Bogs are inland wetlands which comprise the lifeblood of Cape agriculture. Many significant open space vistas are provided by wetlands.

The State Wetlands Protection Act (MGL Ch. 131, S. 40), the local wetlands protection ordinance (Article 27), and their attendant regulations provide baseline protection for Barnstable's wetland resources. However, certain regulatory shortfalls can and do result in quantitative and qualitative wetland loss. Filling of wetland is allowable under both the statute and by-law. Construction and other activity, allowable within close proximity to wetlands, can have short and long-term adverse effects on both wetlands and their functions. Reinforcing the town's regulatory authority in the interest of heightening wetland protection is a position clearly advanced by the Regional Policy Plan. That position should be fully subscribed to by the town.

Section 2.3.1 Conflicts with Wetland Protection

Clearly, the greatest generic conflict with wetland protection goals in Barnstable derives from the pressure of private property development. Development of marginal lots challenges regulators to reconcile development prerogatives with minimum performance standards and adequate buffer zones to protect wetland resources. While Barnstable does not envision any appreciable lessening of land use tensions, certain wide-spectrum

regulatory changes are needed which can, if implemented, serve to heighten the efficacy of wetland protection in this coastal community. These include:

- Revision of the zoning ordinance to bring minimum setbacks from wetlands into conformance with Conservation Commission regulations (100'.)
- Undertaking a revision of Article 27 and a comprehensive codification of Conservation Commission regulations thereunder to better achieve wetland protection goals as articulated in the Local Comprehensive Plan.

Altered Wetlands

Due to regulatory constraints in place for over two decades, Barnstable has incurred no significant loss of its inland wetlands since 1970. Regulations prohibit *de facto* alteration of salt marsh. No estimate of historical wetland filling (e.g. pre-1970) is available. While discouraged as a mitigation strategy, wetland replication remains an option embraced by both the state wetland protection act and Article 27 of the town ordinances. To date, however, only four replication projects together totaling 0.25 acres have been undertaken.

Goal 2.3.1: To preserve and restore the area, quality, and functions of Barnstable's coastal and inland wetlands.

Policy 2.3.1.1: Wetland alteration shall not be permitted except as provided herein and in Policy 2.3.1.3. As an exception, where there is no feasible alternative, water-dependent projects involving wetland alteration and appropriate mitigation may be permitted subject to the approval of all permitting authorities.

Policy 2.3.1.2 Where the size of the lot permits, a buffer of at least 100' from the edge of coastal and inland wetlands including isolated wetlands shall be maintained in an undisturbed, natural state to protect the natural functions of these areas, including but not limited to mitigation of stormwater impacts and wildlife habitat value. Where the lot size does not permit a 100' buffer, the maximum feasible buffer shall be maintained. This policy shall not be construed to preclude pedestrian access paths, vista pruning, or construction and maintenance of water-dependent structures within the buffer area, any of which may be permitted at the discretion of permitting authorities where there is no feasible alternative to their location. The local Conservation Commission shall require a larger buffer where necessary to protect sensitive areas or where the site conditions such as slopes or soils suggest that a larger buffer area is necessary to prevent any adverse impact to wetland and associated wildlife habitat. Where a buffer area is already developed, this requirement may be modified by the permitting authority, provided it makes a finding that the proposed alteration will not increase adverse impacts on that specific portion of the buffer area or associated wetland.

Policy 2.3.1.3 Disturbance of wetlands and buffer areas for operation and maintenance of underground and overhead utility lines (electrical, communication, sewer, water, and gas lines) may occur. Installation of new utility lines through these areas may occur

where the permitting authority finds that the proposed route is the best environmental alternative for locating such facilities. In all instances, disturbance of wetland and buffer areas shall be minimized and surface vegetation, topography and water flow shall be restored substantially to the original condition.

Policy 2.3.1.4 Stormwater management plans for new development shall preclude direct discharge of untreated stormwater into natural wetlands and waterbodies.

Policy 2.3.1.5 Measures to restore altered or degraded inland and coastal wetlands, including nonstructural bank stabilization, revegetation, and pond restoration, should be encouraged.

Policy 2.3.1.6 Construction of artificial wetlands for stormwater and wastewater management may be permitted in appropriate areas where there will be no adverse impact on natural wetlands, waterways and groundwater.

Policy 2.3.1.7 For agricultural areas in wetlands and buffer areas, management practices that would improve water quality and conserve water as recommended by the Soil Conservation Service should be encouraged.

Implementation: Recommended Town Actions:

- A. Wetlands should be mapped at a scale appropriate to local regulatory programs and should be identified and protected so as to maintain their ability to provide natural functions.
- B. The Town should amend its local wetlands ordinance to provide for the following: protection of vernal pools and isolated wetlands, a policy of no alteration/replication of wetlands for both public and private applicants, expansion of jurisdiction beyond 100 feet where appropriate, improved enforcement authority, and the ability to hire consultants to review applications at the applicant's expense.
- C. Conservation Commission should work closely with Boards of Health and other relevant town boards to develop a mutually acceptable definition of the boundaries of wetlands and a consistent standard for siting new subsurface disposal systems in relation to these areas as well as improving and retrofitting areas with failing systems.
- D. The Town should develop mitigation plans to address existing stormwater management problems where runoff and drainage systems are adversely affecting water quality in wetlands and water bodies.

Section 2.3.2 Wetlands in Need of Special Protection

Due to their heightened significance, the following wetland resources deserve special protection over and above the regulatory provisions currently in force:

- Vernal pools, ephemeral habitats of many state-listed amphibians and reptile.
- Salt marshes migrating in response to sea level rise.
- Atlantic white cedar swamps.

Vernal Pools

The Barnstable Conservation Commission began its inventory of vernal pools in the spring of 1993. A total of five vernal pools have been certified with the State Natural Heritage and Endangered Species Program. Of these, one occurs at the municipal Olde Fairgrounds Golf Course, three at the town-owned property at Hathaway Pond, and one on the property of the municipal Centerville-Osterville-Marstons Mills Water District in Osterville.

Other areas indicated for vernal pool identification surveys include municipal properties at Sandy Neck, 1776 North and South, and conservation areas in Osterville and Centerville. A map showing known vernal pools and other special wetlands and habitats appears on the following page.

Goal 2.3.2 To preserve (and restore where feasible) the area, quality, and functions of Barnstable's wetlands in need of special protection, including isolated wetlands and vernal pools.

Policy 2.3.2.1 Identify and certify (where possible) vernal pools.

Policy 2.3.2.2 Development shall be prohibited in vernal pools and within a minimum 100' undisturbed buffer around these areas. These areas should not be used for stormwater management.

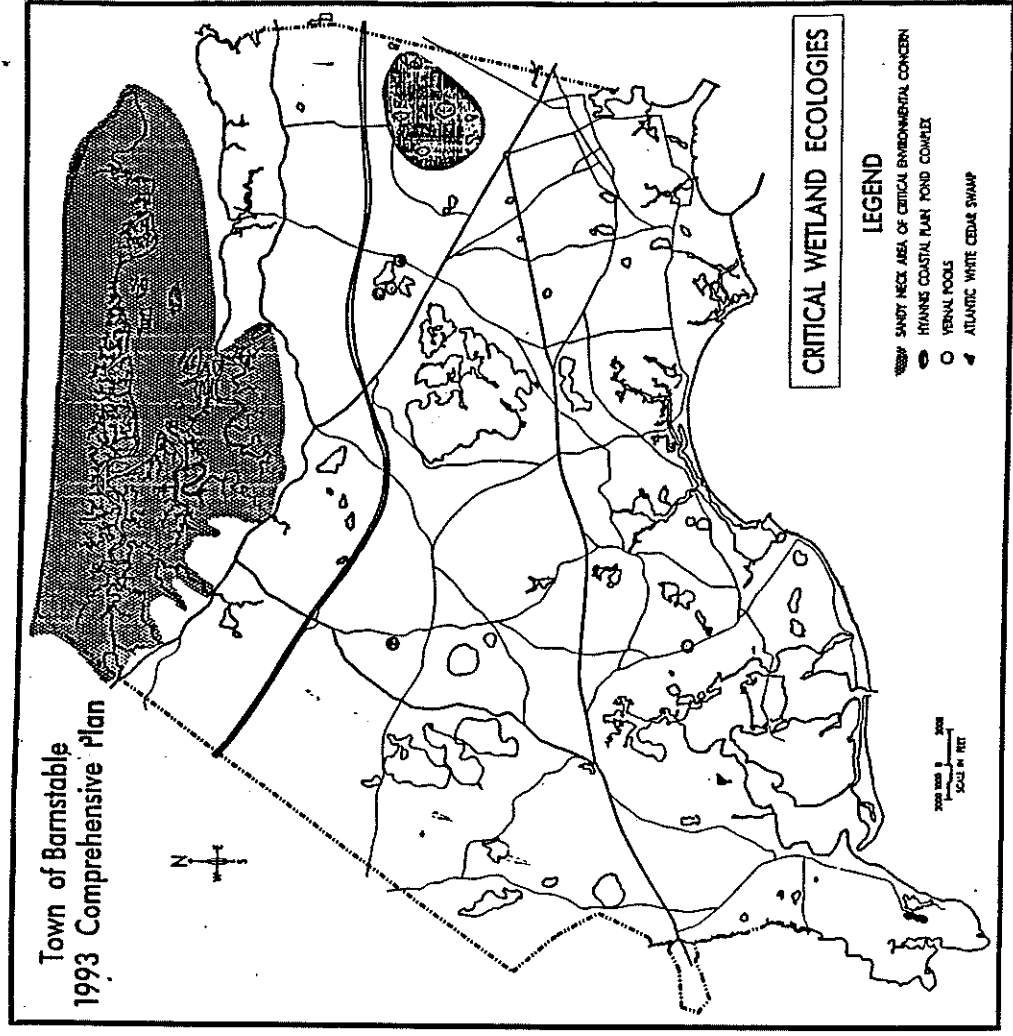
Section 2.3.3 Cranberry Bogs

Cranberry cultivation began on a small scale in Barnstable's early history, and was expanded to large operations by A.D. Makepeace of West Barnstable in the late nineteenth century. Today, it is one of the few remaining forms of agriculture in the town. Based on MacConnell land use data, in 1991 there were 432 acres in Barnstable that are considered cranberry bogs. According to David Goodman of the Department of Forestry and Wildlife at the University of Massachusetts, this figure represents both active and inactive bogs. Cranberry growing is a traditional occupation in Barnstable with a history dating to the nineteenth century, and associations with the Pilgrims. Wherever possible, it should be retained as an important part of the town's character.

Goal 2.3.3 The town should encourage retention of cranberry growing, while protecting the environment.

Policy 2.3.3.1 Encourage retention of this traditional industry and support the reclamation of abandoned bogs where consistent with Wetlands Protection statute and ordinance.

CRITICAL WETLAND ECOLOGIES	
<p>Barnstable contains many plants and wildlife that depend on particular types of wetlands and geomorphology for habitat. The locations of these special wetlands and other areas are shown on the map at right. A brief description of Barnstable's special habitats is provided below.</p>	<ul style="list-style-type: none"> * <u>Sandy Neck barrier beach</u>, with its dunes and extensive, highly productive salt marsh, which has been protected as an ACEC (Area of Critical Environmental Concern.) * <u>Hvannis Coastal Plains Ponds</u> and their shores, which support critically rare endangered plants and insects. * <u>Atlantic white cedar swamps</u>, a relatively unusual freshwater wetland with dense growth of cedars and shrubs; * <u>Vernal pools</u>, small areas that contain water for at least two consecutive months which provide the only breeding grounds for salamanders, fairy shrimp and certain species of frogs. The vernal pools and cedar swamps on this map were identified by Robert Gatewood, Barnstable Conservation Administrator. There are most likely other vernal pools in Barnstable whose locations will become known in the future.
<p>Locations of other specialized habitats such as significant woodland communities, coastal plain pond shores and sphagnum bogs are shown in APCC's Cape Cod Critical Habitats Atlas.</p>	



Policy 2.3.3.2 Locate development away from bogs to reduce conflict between cranberry growers and property owners.

Strategy 2.3.3.2.1: Ensure that development in the vicinity of both active and abandoned bogs is designed to accommodate raised water levels caused by seasonal flooding.

Policy 2.3.3.3 Encourage use of best management practices which reduce fertilizer and pesticide use in order to minimize contamination of groundwater resources.

Strategy 2.3.3.3.1: Strongly encourage cranberry growers to work closely with the Soil Conservation Service in the development of resource management system plans for cranberry cultivation and other agricultural uses.

Section 2.3.4 Agricultural Uses

Barnstable has few remaining agricultural lands. Several farms were purchased in the 1980's to protect open space from development. Remaining agricultural uses are an important reminder of the Cape's traditional way of life. Such uses should be protected as far as possible.

Goal 2.3.4 : To preserve and enhance agricultural uses that are environmentally compatible with the Cape's natural resources in order to maintain opportunities to enjoy the traditional occupations, economic diversity, and scenic resources associated with agricultural lands.

Policy 2.3.4.1: New development adjacent to lands in active agricultural production shall maintain or provide a thickly vegetated buffer of sufficient width to prevent conflicts between the development and existing agricultural uses. New agricultural operations in developed residential areas shall also provide a buffer to minimize impacts on these adjoining areas.

Policy 2.3.4.2: Maintain the County Farm as a working farm.

Policy 2.3.4.3: Consider allowing agricultural use of town owned lands.

Section 2.4 Wildlife and Plant Habitat

Introduction

Cape Cod in general and Barnstable in particular are endowed with a rich mosaic of wildlife and plant communities. Barnstable is home for some sixty-five species presently listed as rare, threatened or of concern by the State Natural Heritage and Endangered Species Program. At a single locus, the Hyannis Ponds Complex, is found one of the most unusual and diverse assemblages of plants and animals in Massachusetts. A total of fifteen state-listed species reside there.

Barnstable's extensive shoreline, totaling one hundred miles, provides important habitat for shorebird nesting, breeding, foraging and for shelter during the winter. Sandy Neck, Sampson's Island/Dead Neck, Kalmus and Long Beaches are distinguished as habitats for rare and endangered shorebird species.

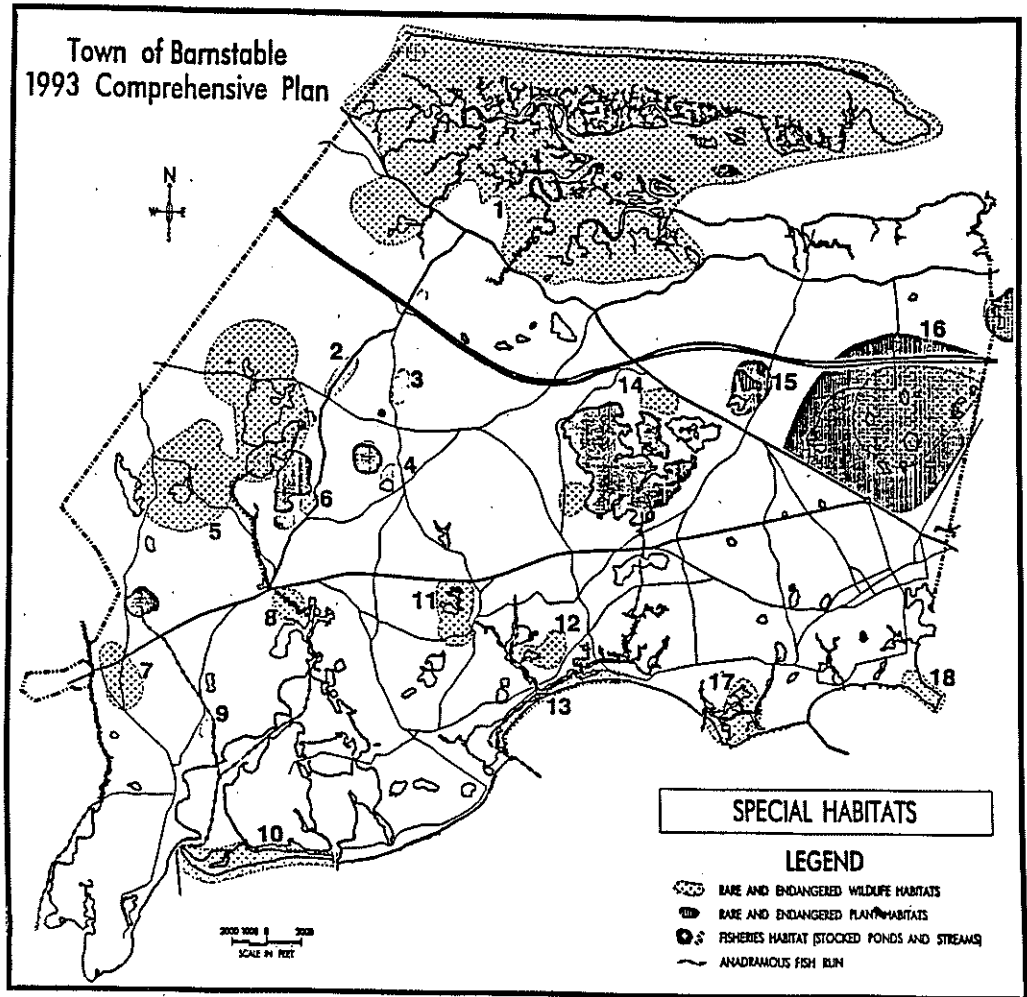
In addition to important wetland wildlife and plant habitats, the town's endowment of conservation land provides some of the best examples of large, undeveloped upland tracts available for upland wildlife habitat. The 1,100 acre West Barnstable Conservation Area is noteworthy in this regard. Forest and habitat fragmentation has reduced the viability of several upland wildlife migration corridors as envisioned by the town's open space and recreation plans. Extant corridors demand both identification and protection if wildlife populations are to be sustained.

Section 2.4.1 Wildlife Habitat and Migration Corridors

Important wildlife habitats are found on Sandy Neck and in the Great Marshes, on Sampsons Island/Dead Neck, the Hyannis Ponds complex, and along the Barnstable-West Barnstable Green Belt. Species range from large mammals (deer) to coyote, fox, an abundance of waterfowl, other avian species, turtles and amphibians. Invertebrates also constitute an important wildlife component, and the Hyannis Ponds complex serves as habitat to several rare types. Municipal conservation areas like West Barnstable, 1776 North and South, and Crocker Neck are also important wildlife habitat areas, as are Long Beach and Kalmus barrier beaches. The location of these major wildlife habitats is shown on a map on the following page.

Further incremental development looms as the primary threat to the continued integrity of upland wildlife habitats and migration corridors in Barnstable. Trends in development during the past quarter century have rendered Barnstable at best a mosaic of discrete wildlife habitat areas, with viable connecting corridors linking them. At worst, fragmented green space remains, providing a preponderance of "edge" habitat at the expense of large, "core" habitat increasingly found essential to healthy wildlife populations. Depending upon the local wildlife species in question, the reality of Barnstable's present wildlife habitat should be seen as spanning the full spectrum described above.

SPECIAL WILDLIFE HABITATS	
MAP NO.	SIGNIFICANCE
1	2 current rare plant species 1 current rare reptile species 1 historical rare plant species
2	1 current rare plant species
3	1 significant natural community with 2 current rare plant species
4	1 historical rare plant species
5	2 current rare animal species
6	1 current rare animal species 1 current rare plant species
7	1 current rare animal species
8	1 historical reptile species
9	1 current rare plant species
10	2 bird colonies with 4 current rare bird species
11	1 historical amphibian species
12	1 current rare animal species
13	2 tern colonies with 2 current rare bird species
14	3 current rare plant species 3 historical rare plant species
15	2 historical rare plant species
16	2 significant natural communities
17	1 current rare plant species 2 historical rare plant species
18	1 tern colony with 1 current rare bird species



In order to ensure the integrity of existing wildlife populations, further fragmentation of core areas (i.e. greenbelt) should be discouraged and where development is feasible, effectively regulated. The Conservation Commission protects wetland wildlife habitat under the provisions of the state wetland protection act and the town wetland protection ordinance. However, the scope of this jurisdiction is limited when contrasted with the total wildlife habitat, both wetland and upland, in need of protection. A local mechanism should be brought to bear to preserve and staunchly protect prime wildlife habitat and corridors wherever they occur in Barnstable. Implementation of open space actions elsewhere in this plan will in part serve this need. Other innovative options must be explored as well.

Critical Habitats Needing Special Protection

Critical wildlife and plant habitats are plentiful in Barnstable. Habitats are "generically" indicated for both wildlife and plants. Information on the species found in these areas is provided in the Appendix. Critical habitats perceived as requiring special management include:

1) Sandy Neck ACEC

Sandy Neck ACEC is home to one hundred sixty plant species and over three hundred species of birds. Microorganisms and insects in the marsh support immature fish before they move to deeper waters. An endangered species of turtle, the diamondback terrapin, lives in the marsh and dunes of this resource area. The ACEC provides flood protection as well as wildlife and plant habitat. (For more information on Sandy Neck, see Coastal Resources section, Erosion of Barrier Beaches and Coastal Banks.) Efforts to provide endangered species and natural resource protection will continue to require access limitations for recreational user groups.

2) Hyannis Ponds Complex

Protection of critical plant and wildlife habitat in the Hyannis ponds has emerged as a visible environmental issue in the face of increased water withdrawal for public supply purposes. Water withdrawal permit compliance by the Barnstable Water Company and emerging water management efforts by the town must provide a hydrologic regime adequate for continued habitat integrity there.

Additionally, the continued cooperation of the private property owners of the Ponds complex has proved of assistance in town-state-private attempts to eliminate illicit off-road and all-terrain vehicle use at the locus. Importantly, continued analysis by the town regarding the option of fee acquisition in the ponds complex portion of Independence Park has the potential of providing permanent protection to the critical habitats in question. Please see the Freshwater Lakes and Ponds section for additional information.

Goal 2.4.1 To prevent loss or degradation of critical wildlife and plant habitat, to minimize the impact of new development on wildlife and plant habitat, to maintain existing populations and species diversity, and to maintain areas which will support wildlife's natural breeding, feeding and migration patterns.

Policy 2.4.1.1: The following classification system and minimum performance standards shall guide development decisions by the Commission and local boards:

A. **Critical Wildlife and Plant Habitat:** Consists of habitat areas of rare (threatened or endangered) plant and wildlife species and species of special concern as generally identified and mapped by the Natural Heritage and Endangered Species Program and other critical habitat areas as identified and mapped by the Association for the Preservation of Cape Cod's "Cape Cod Critical Habitats Atlas," or local authorities.

A.1 The Natural Heritage program has agreed to review Developments of Regional Impact proposed within these areas. Developments of Regional Impact that would adversely affect habitat of local populations of rare wildlife and plants shall not be permitted. Development may be permitted where the proponent can demonstrate that such development will not adversely affect such habitat.

A.2 A wildlife and plant habitat management plan may be required as a condition of approval when development or redevelopment is permitted in critical wildlife and plant habitat areas.

A.3 In Critical Habitat Areas, clearing of vegetation should be limited. In some areas, no clearing or cutting of vegetation should be permitted. In selected areas, clearing may be permitted, but will be limited to the minimum area needed for building construction, roads, driveways and accessory structures, and as needed for safe sight distances. In any other undeveloped areas, clearing and alteration of topography should be minimized, with appropriate vegetation planted as needed to enhance or restore wildlife habitat.

B. **General Wildlife and Plant Habitat:** Consists of all other undeveloped areas.

B.1 Applications for Developments of Regional Impact that propose to alter such areas shall contain a wildlife and plant habitat assessment. Such assessments shall identify the presence and location of wildlife and plant habitat, including vernal pools, and be a guide for the layout of the development. Developments shall be planned to minimize impacts to wildlife and plant habitat.

B.2 Clearing of vegetation and alteration of natural topography shall be minimized, with appropriate vegetation planted as needed to enhance or restore wildlife habitat.

B.3 Minimize fragmentation of wildlife and plant habitats by identifying and protecting wildlife corridors and existing large and unfragmented tracts, and by encouraging use of open space subdivisions.

B.4 Enhance species diversity of municipal conservation lands where appropriate.

B.5 Protect critical wildlife and plant habitats from unvehicular access.

Policy 2.4.1.2: Fragmentation of wildlife and plant habitat should be minimized by the establishment of greenways and wildlife corridors of sufficient width to protect not only edge species, but species that inhabit the interior forest, as well as by the protection of large unfragmented areas, and the use of open space or cluster development. Wildlife should be provided with opportunities for passage under or across roads and through developments where such opportunities will maintain the integrity of wildlife corridors.

Implementation: Recommended Town Actions

- A. Critical plant and wildlife habitat areas should be identified in Local Comprehensive Plans, and the Town should develop a review and regulatory process for activities that could adversely impact such habitat and/or seek their designation as significant habitat areas under the Massachusetts Endangered Species Act.
- B. The Town should adopt bylaws/ordinances limiting land clearing and alteration of natural topography prior to development review.

Section 2.4.2 Access to Town-Owned Conservation Lands

The town owns and manages 6,295 acres of conservation lands, including 2,277 acres in the great marshes and 1,336 acres on Sandy Neck. Many of these lands were purchased during the 1980's. The Conservation Commission is in the process of developing management plans for these lands. These plans need to provide public access for recreational and educational purposes in a manner which respects the character and resources of each property.

Goal 2.4.2 To provide recreational and educational access to town conservation lands while retaining the character and resources of each property.

Policy 2.4.2.1: Continue efforts to locate hiking trails that provide access to town-owned lands but avoid sensitive areas.

Policy 2.4.2.2: Continue to investigate opportunities to incorporate town conservation areas into the growing Cape-wide network of hiking trails known as Cape Cod Pathways.

Section 2.5 Freshwater Lakes and Ponds

Introduction

Barnstable's freshwater water bodies are important features of the town's natural landscape. The town has 61 ponds of at least two acres. They contain a total area of 2.9 square miles and comprise about 5% of the town's land mass. Ponds are an important source of recreation for the town. They are used for swimming, boating, fishing, ice fishing and ice sailing. An inventory of Barnstable's freshwater water bodies of two or more acres is provided in the Appendix.

The town's ponds provide habitat for a wide variety of wildlife, including populations of rare and endangered species. The exposed sandy shores of the Hyannis Coastal Plains Ponds contain habitat for globally significant rare plant and animal species. These ponds include Mary Dunn, Lamson, Israel, Little Israel Pond and pondlets, Flintrock, Campground and Lewis.

Ponds add scenic quality to the landscape through their open expanses of water and surrounding vegetation. Since land adjacent to ponds can be considered waterfront, and has immediate access to swimming and boating, it is highly sought after for development. Consequently, pond-front properties have high assessed values and make up a significant portion of the town's total tax base.

Massachusetts law contains a designation for "Great Ponds," a term that dates to Colonial times and was used to give public rights of fishing, fowling and navigation on ponds of twenty acres and larger. Today, the term is usually applied to ponds of over ten acres. Separate maps showing location and water quality of all Great Ponds, and access and recreational amenities at the ponds are provided on the following pages. Mass. General Laws Chapter 131, Section 45 allows ponds over twenty acres to be used by the public for fishing and boating, and permits town regulation of these activities on ponds between 20 and 500 acres in size. A Chapter 91 license and approval by the Conservation Commission are required for any construction that may alter the shoreline or bottom of a pond.

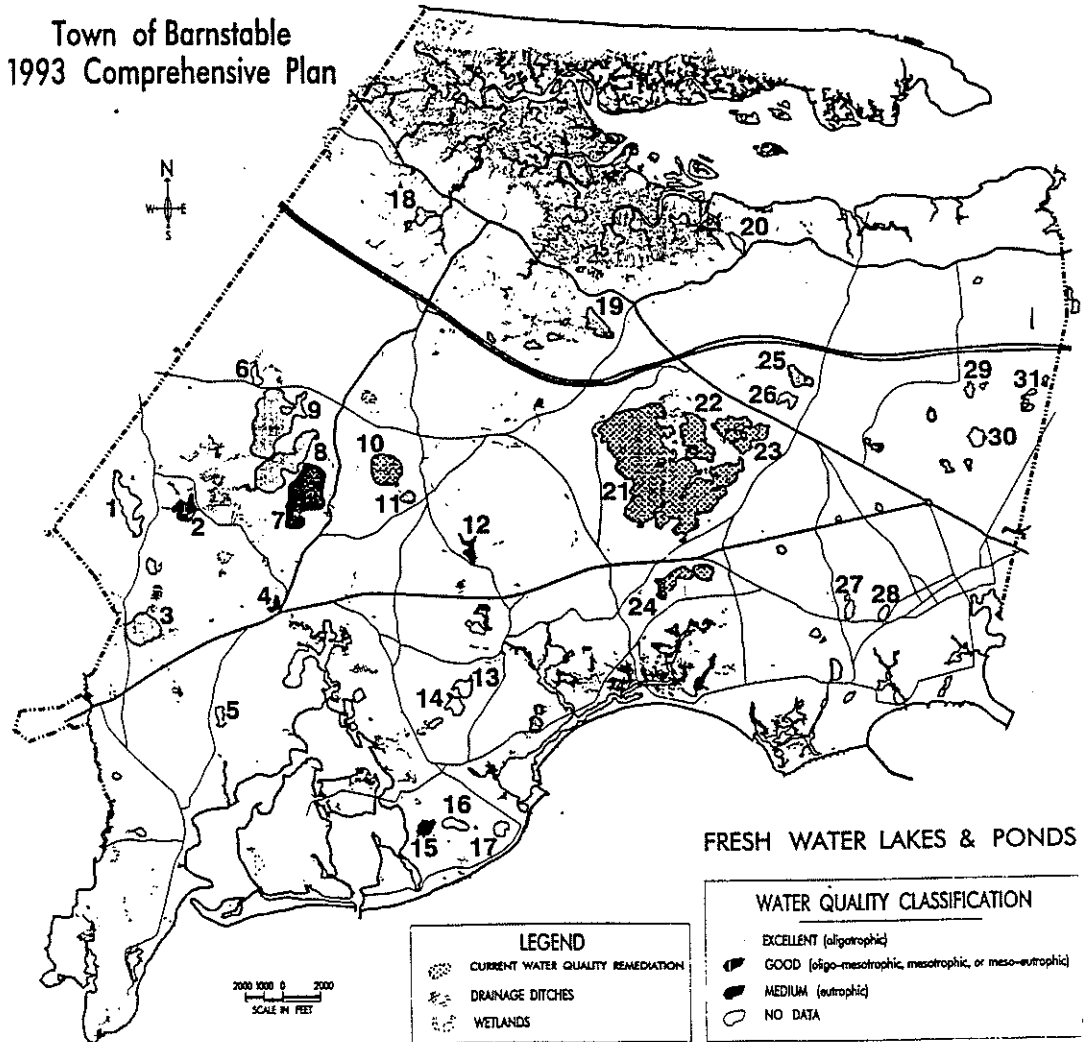
Maintaining good water quality is of utmost importance for preserving the value of the town's ponds as natural, recreational and scenic resources. Many ponds are hydrologically connected with other water bodies, and their water quality has implications for adjoining wetlands, fresh and salt waters and groundwater. Excellent water quality is needed to sustain the plants and wildlife of the ponds, and for maintaining their recreational value.

Although most ponds' water quality is acceptable, several have experienced more frequent algae blooms in recent years that indicate the initial stages of deterioration. These blooms and the products of their decay can decrease dissolved oxygen in pond waters, making it difficult for fish and other animal life to survive. To prevent further contamination of Barnstable's ponds, inputs of nutrients such as phosphorus and bacteria must be limited. This will require careful management of septic discharge, fertilizers, stormwater runoff and other activities within pond recharge areas. Land use controls and management recommendations to protect water quality should be implemented with the goal of long term protection of Barnstable's ponds.

Town of Barnstable 1993 Comprehensive Plan

MAP NO.	FRESH WATER LAKES AND PONDS > 10 Acres	SIZE IN ACRES
1	Long Pond	50
2	Muddy Pond	36
3	Lovells Pond	54
4	Mill Pond	10
5	Eagle Pond	10
6	Little Pond	11
7	Hamblins Pond	149
8	Middle Pond	105
9	Mystic Lake	146
10	Shubael Pond	56
11	Round Pond	10
12	Lumbert Pond	10
13	Micahs Pond	15
14	Joshuas Pond	14
15	Parker Pond	13
16	Neck Pond	15
17	Crystal Lake	10
18	Mill Pond	14
19	Garretts Pond	25
20	Hinckleys Pond	11
21	Wequaquet Lake	579
22	Bearse Pond	59
23	Shallow Pond	76
24	Long Pond	49
25	N. Hathaway Pond	20
26	S. Hathaway Pond	11
27	Faucetts Pond	14
28	Aunt Betts Pond	10
29	Israel Pond	10
30	Mary Dunn Pond	16
31	Lamson Pond	14

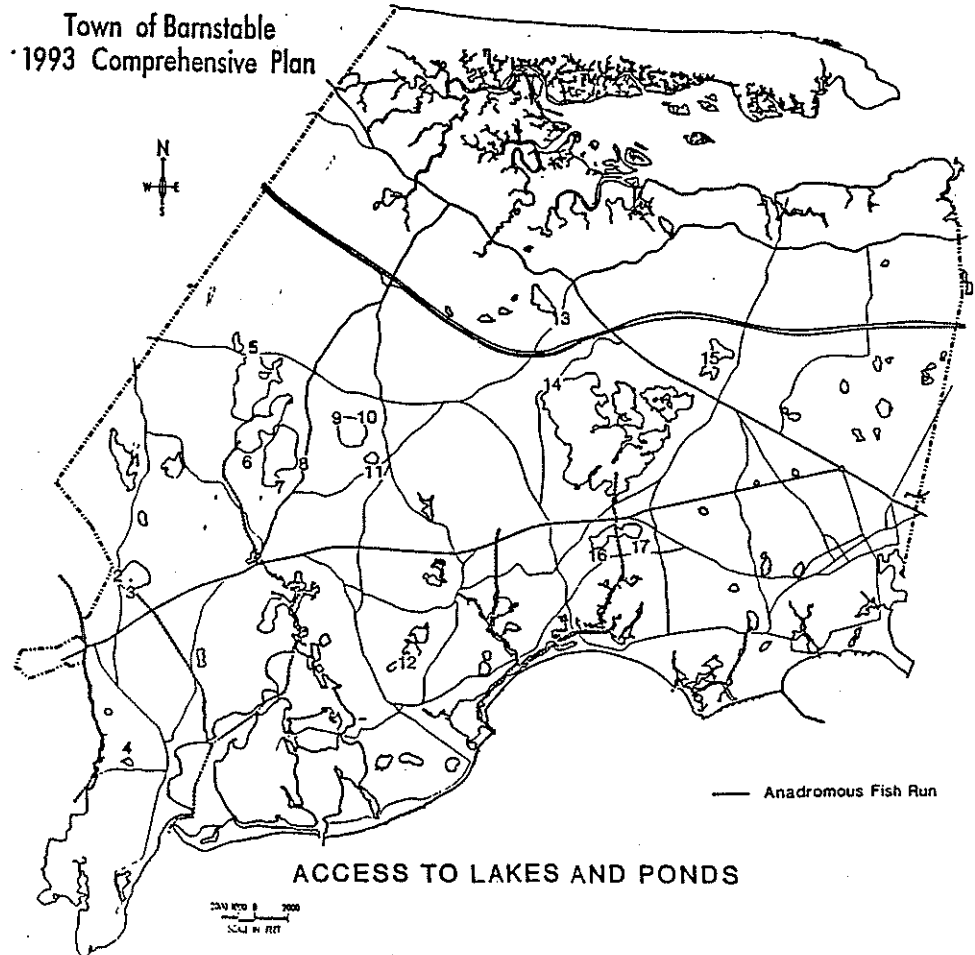
Information on size of lakes and ponds was obtained from An Inventory of the Ponds, Lakes and Reservoirs of Massachusetts by James McCann (1969.) supplemented by data from diagnostic/feasibility studies. Water quality classifications were provided by the Conservation Department, based on previous diagnostic/feasibility studies.



Access and Amenities at Lakes and Ponds

Map No.	Pond	Access	Amenities
1	Long Pond	Via Cons. Land	Small beach
2	Lovella Pond	Way to Water	
3	Lovella Pond	Beach	Lifeguard and rest rooms
4	Lewis Pond	Way to Water	
5	Mystic Lake	Way to Water	
6	Middle Pond	Way to Water	Limited prkg
7	Hamblin Pond	Beach	Lifeguard and rest rooms
8	Hamblin Pond	Way to Water	Access via Burgess Property
9	Shubael Pond	Way to Water	Boat ramp with limited prkg
10	Shubael Pond	Way to Water	
11	Round Pond	Way to Water	
12	Joshua Pond	Via Cons. Land	Small beach
13	Garretts Pond	Way to Water	
14	Lake Wequaquet	Beach	Lifeguard and rest rooms
15	Hathaway Pond	Via Cons. Land	Small beach
16	Long Pond	Way to Water	
17	Long Pond	Way to Water	

Information for this inventory was provided by the Department of Public Works, Department of Natural Resources and from field surveys.



2.5.1 Protecting Fresh Water Quality

It is essential to preserve the water quality of Barnstable's freshwater water bodies for their own recreational and natural resource value, and to protect the water quality of adjoining wetlands, streams and groundwater. There is evidence that water quality is deteriorating in a number of Barnstable's ponds. Algae blooms occur with increasing frequency at Hamblins, Lovells and Round Ponds, and there is prolific aquatic vegetation growth at Red Lily Pond, Lake Elizabeth in Centerville and Mill Pond in Marstons Mills. Six of fifteen ponds tested were considered either eutrophic or mesotrophic when measurements were last taken. These include Hamblins, Middle, Mill (W. Barnstable), Garretts, Shallow and Aunt Betts Ponds.

During the 1980's, Bearse Pond, Lovells Ponds and Wequaquet Lake showed measurable water quality deterioration. This probably reflected nutrient loading from additional septic systems, increased use of lawn fertilizers, and other factors resulting from the development boom of that period. While phosphorus is most often the limiting nutrient, nitrate/nitrogen is also important to plant growth.

Research indicates that nitrate, like other contaminants, can have harmful affects on human health if it is absorbed through drinking water. Based on scientific study, the Cape Cod Commission has adopted a Cape-wide nitrate/nitrogen standard of 5 ppm for pond recharge areas. The deterioration of water quality of Barnstable's fresh water ponds is described in more detail in the Appendix.

The town has already targeted several ponds for remediation, including Red Lily Pond/Lake Elizabeth, where a community septic system is under construction; Hamblins Pond, where a remedial strategy is proposed; Shubael Pond, which has been limed to control acidity; and Bearse Pond, Long Pond, Shallow Pond and Lake Wequaquet, where studies have been completed and recommendations for remediation are being implemented. A map showing locations of direct stormwater discharges to Barnstable's lakes and ponds is shown on the following page. The town has many other Great Ponds and should assess their water quality to determine whether additional improvements are needed.

Goal 2.5.1 To the greatest extent possible, the water quality of Barnstable's freshwater water bodies should be maintained to standards that support living organisms appropriate for the pond, and allow recreation for the neighborhood and other residents.

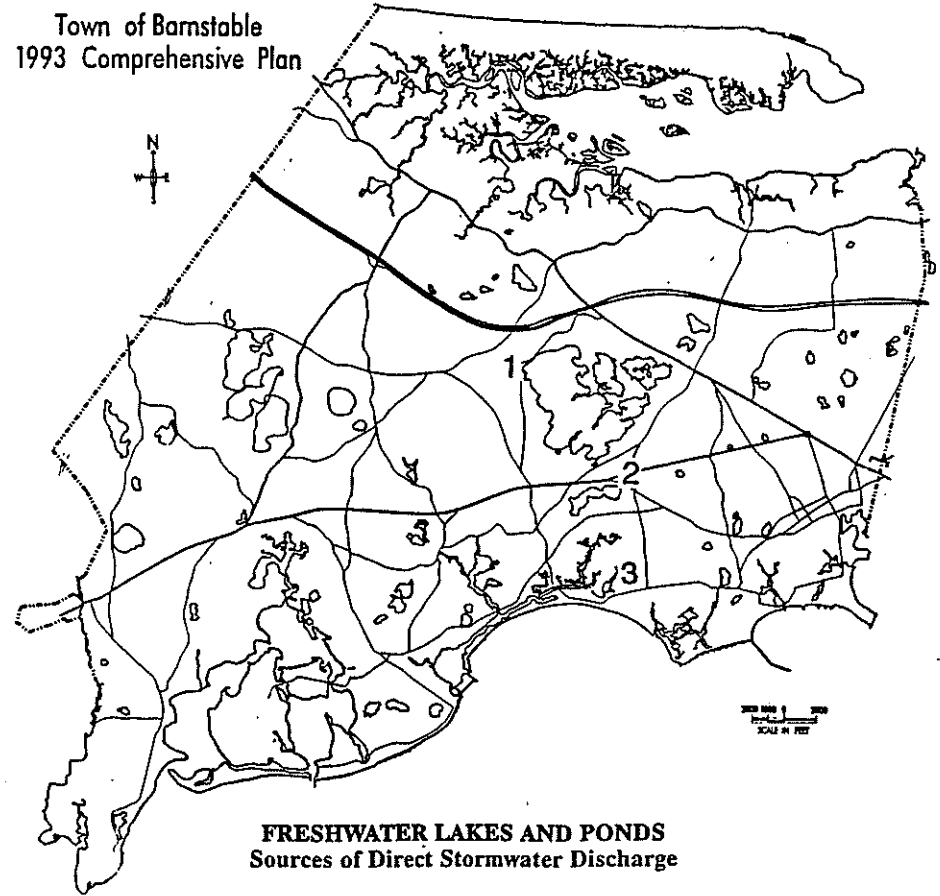
Nutrient Loading Standards for Great Ponds

Policy 2.5.1.1: Development or redevelopment within recharge areas to freshwater water bodies shall meet a five ppm nitrate/nitrogen loading standard based on a methodology published by Frimpter et al. 1988 and Cape Cod Commission - Water Resources Office Technical Bulletin #91-001, or an alternative freshwater standard for phosphorus developed through scientific study. Loading standards for phosphorus should be developed and applied in freshwater recharge areas. Development or redevelopment within these areas may also be required to meet other critical nutrient loading standards. These standards may be implemented through the choice of means

Known Locations with Measurable Stormwater Discharges

Map No.	Source	Pond Affected	Observed Storm Volume
1	Oak St. culvert	Wequaquet Lake	24 cu ft/min. highly acidic
2	W. Main St. culvert	Long Pond	Est. annual loading = 1.1 kg phosphorus
3	Mosquito ditch	Red Lily Pond	194 cu ft/min

Town of Barnstable
 1993 Comprehensive Plan



FRESHWATER LAKES AND PONDS
 Sources of Direct Stormwater Discharge

of septic disposal, density or other methods acceptable to the Board of Health and other applicable agencies. Where existing development exceeds identified critical loading standards for a fresh water recharge area, redevelopment should maintain or improve existing levels of nutrient loading.

Strategy 2.5.1.1.1: The areas of groundwater recharge to all Great Ponds should be mapped. This mapping may be performed by an environmental consultant or other professional. Developments of Regional Impact that generate over 2000 gpd of sewage effluent may be required to delineate the groundwater recharge areas to potentially affected fresh water ponds in order to identify and mitigate adverse impacts.

Strategy 2.5.1.1.2: In order to monitor water quality, a program of water quality testing should be established for Great Ponds (ponds of over ten acres) to supplement the county testing program. Testing may be performed by trained students and volunteers. This information should be used to determine which ponds are in need of water quality protection or remediation (see Freshwater Water Bodies Management Plan, below.)

Strategy 2.5.1.1.3: Recommendations should be developed for standards for phosphorus and other nutrients and chemical constituents necessary for optimal ecosystem health (the pond's ability to support an acceptable number and diversity of species.) These standards should be based on scientific studies and should include identification of critical nutrients and parameters of water quality. Neighborhood organizations such as the Wequaquet Lake Association may contribute funds for these studies.

Management Plan to Protect Ponds Water Quality

Policy 2.5.1.2 The town should develop a long-range Freshwater Water Bodies Management Plan for all of its Great Ponds (ponds of over ten acres). The plan should designate those ponds with critical water quality problems, and include a classification of ponds based on overall water quality. This classification should be used to indicate those ponds which require remediation, or protection of existing good water quality. The results of fresh water quality monitoring and existing water quality studies should be used in developing this classification.

The plan should contain specific recommendations for improving and maintaining water quality such as alternative septic systems or other means to maintain nitrate/ nitrogen and other nutrient standards at desired levels. The plan should include recreation issues and recommendations for management of recreation, access and other activities on or adjacent to ponds.

Policy 2.5.1.3: Guidelines should be developed for an acceptable level of future development in freshwater recharge areas based on the amount of development that can be safely accommodated in this area without degrading water quality.

Strategy 2.5.1.3.1: As part of the development of the Freshwater Water Bodies Management Plan, the amount of future development that can safely be

accommodated within the recharge areas of Great Ponds without further detriment to water quality should be determined.

Strategy 2.5.1.3.2: The plan may include a method for implementing necessary development limits, including, but not limited to acquisition of undeveloped land or transfer of development rights to control the amount of phosphorus or other nutrients that are ultimately loaded to the pond.

Goal 2.5.2 Opportunities for contamination of groundwater and freshwater ponds should be reduced to the greatest extent possible.

Section 2.5.2 Reducing Sources of Contamination to Fresh Water

Septic Disposal

Policy 2.5.2.1: Land within the recharge area of freshwater ponds should be considered a potentially sensitive area and should be given priority for land use management to protect water quality. All recharge areas of ponds, or land within 300 feet of high water where the recharge area has not been established, or such other distance as deemed necessary by the Cape Cod Commission, should be incorporated in a Freshwater Protection District. The zoning Ordinance should be amended to include this area as a special district for the purpose of managing activities that result in pollution of pond waters, and it may be used for other management purposes. The Town of Barnstable hereby accepts and adopts the Classification System and Minimum Performance Standards for Water Resources established in the Regional Policy Plan Sections 2.1.1. through 2.1.1.5

Policy 2.5.2.2 Within the Freshwater Protection District, methods of wastewater disposal which maintain acceptable standards of water quality (based on those identified in Policy 2.5.1.1, above) should be required. Public or private sewage treatment facilities should conform to Minimum Performance Standards 2.1.2.1 through 2.1.2.7 of the Cape Cod Commission's Regional Policy Plan.

Strategy 2.5.2.2.1: The Health Department should continue to identify and map areas in need of improved wastewater disposal based on lot size, age, functioning of systems and water quality of downgradient ponds in order to develop strategies for protection of these locations. This effort should be coordinated with the findings of the Wastewater Facilities Plan and incorporated into the GIS system.

Strategy 2.5.2.2.2: The areas identified in the Wastewater Facilities Plan and Strategy 2.5.2.2.1 should be evaluated for all feasible methods of wastewater disposal and/or groundwater quality remediation, including required upgrading of septic systems, required use of alternative methods of septic disposal such as denitrifying systems, community sewage disposal systems, provision of town water, and other solutions. Solutions identified under this strategy should be implemented as appropriate sources of funding are identified.

Strategy 2.5.2.2.3: The Board of Health may require homes within the recharge area to environmentally sensitive areas to substantially improve their systems.

Strategy 2.5.2.2.4: The Health Department or other appropriate agency should investigate the use of a revolving fund/loan program and the Betterment Bill for low- or moderate-income households to fund upgrades of septic systems in remediation areas.

Strategy 2.5.2.2.5: The Board of Health shall require that new septic systems for lots within Freshwater Protection District be installed outside the recharge area to freshwater ponds, or a minimum of 300 feet whichever is greater, where lots are large enough to accommodate this setback. Where lots are too small to accommodate such setback, septic systems shall be setback the maximum feasible distance as the lot permits.

Stormwater Runoff

Policy 2.5.2.3: All direct stormwater discharges into fresh surface waters should be mitigated. No new direct discharges of stormwater to surface waters or wetlands should be permitted, including discharges above or below the mean high water level.

Strategy 2.5.2.3.1: In the Freshwater Protection District, the amount of impervious surface including driveway, walkway and buildings on any lot or part of a lot should be limited to no more than 50% of the lot's area. At least 30% of such lots should be left in their natural state, preferably the land closest to the pond. This should not relieve new development/ redevelopment from requirements to provide public open space or contribute to a fund for purchasing open space, which are further explained in the Open Space section of this plan.

Strategy 2.5.2.3.2: Where there are untreated stormwater discharges to fresh surface water bodies, mitigation is encouraged through the use of vegetated swales and other best management practices. Stormwater drainage calculations should be based on the projected 25-year, 24-hour storm, using SCS TR-55 calculations or another method acceptable to the Department of Public Works.

Strategy 2.5.2.3.3: On land which has already been developed, private and public property owners should be encouraged to maintain undisturbed natural buffer areas of 50-foot width around freshwater wetlands and/or ponds. An education program should be used to help implement this strategy. This policy should not be construed to preclude unpaved pedestrian access paths, vista pruning or maintenance of water-dependent structures within the buffer areas, which may be permitted at the discretion of permitting authorities where there is no alternative location. See Section 2.3.1.2 of the Cape Cod Commission's Regional Policy Plan for elaboration.

Strategy 2.5.2.3.4: To mitigate the flow of runoff from direct discharge of stormwater runoff piped into fresh surface waters, the recommendations of the current Stormwater Priority Listing developed by the Health Department should be implemented. Stormwater improvements should be coordinated with the Public Works Department and recommendations of the Town of Barnstable Wastewater Facilities Plan.

Toxic and Hazardous Materials

Policy 2.5.2.4 Use, storage, transportation and handling of toxic and hazardous materials should be strictly controlled in areas where accidental leaks or spills or improper use or storage could result in contamination of groundwater or freshwater ponds and wetlands.

Strategy 2.5.2.4.1: The Board of Health should adopt an ordinance defining the amount of toxic and hazardous waste which would require town licensing.

Strategy 2.5.2.4.2: The Toxic and Hazardous Materials Bylaw (Chapter 39) should be strictly enforced within the Freshwater Protection District. If necessary, funds should be budgeted for additional Health Department personnel to enforce the bylaw effectively in this area.

Strategy 2.5.2.4.3: Land uses associated with use of toxic and hazardous materials should be prohibited within the Freshwater Protection District.

Strategy 2.5.2.4.4: In order to avoid the high potential for spills which could severely damage groundwater and coastal water quality, the cargo capacity of vehicles carrying toxic and hazardous materials over coastal waters from Barnstable to other destinations should not exceed the maximum volume stored by an individual household for ordinary use.

Fertilizers, Herbicides and Pesticides

Policy 2.5.2.5 Within the Freshwater Protection District, use of fertilizers, herbicides, and pesticides that may introduce excessive phosphorus to the groundwater should be discouraged.

Strategy 2.5.2.5.1: The town should develop an education program to inform citizens and businesses including professional landscaping and lawn services of the effects of fertilizers, pesticides and herbicides on nearby coastal and fresh waters.

Strategy 2.5.2.5.2: To reduce the opportunity for phosphorus from fertilizers to reach freshwater bodies, it is recommended that fescue, rather than bluegrass, be used for lawns within the area described. Blue grass or other typically fertilized type lawn grass should be limited as recommended by current scientific standards or as per Cape Cod Commission recommendations.

Large Volume Wastewater/Runoff Generators

Policy 2.5.2.6: In addition to the requirements listed above, as part of a Development Agreement, Developments of Regional Impact may be required to implement any of a number of techniques to maintain and/or mitigate water quality.

Section 2.5.3 Ponds as Wildlife Habitat

Town Great Ponds managed by the State Division of Fisheries and Wildlife include Hamblins, Hathaway, Lovells, and Shubael Pond and Lake Wequaquet. These ponds provide high quality freshwater fisheries habitat. Trout are stocked in Hamblins, Hathaway, Shubael and Lovells Ponds. Northern pike were stocked as recently as 1989 in Wequaquet Lake, while Tiger Muskie were stocked in Hamblins Pond in 1988. Three streams in Barnstable, the Santuit River, Marstons Mills River, and Bridge Creek are also stocked with trout. Smallmouth bass, yellow perch and other species are also found in Barnstable's ponds.

Anadromous fish live most of their lives in salt water, but use fresh water for breeding and spawning. Anadromous fish runs in Barnstable include the Centerville River (to Wequaquet Lake, Lake Elizabeth), the Marstons Mills River (to Middle Pond), Santuit River (to Santuit Pond, Mashpee).

The Hyannis Coastal Plains Ponds are a unique resource. The ponds in this complex include Mary Dunn, Lamson, Israel, Little Israel Pond and pondlets, Flintrock, Campground and Lewis Ponds. Their shores and surrounding vegetation contain habitat for significant populations of very rare plant and animal species.

Most of these ponds are shallow, with average depths from .6 to 3.4 ft., and several occasionally dry up in the summer. This may be due to heavy pumping of wells, drought or other influences. In the area of the ponds, groundwater levels are strongly affected by nearby public water supply wells. In addition, the ponds here are subject to seasonal changes in groundwater levels of three to four feet. These seasonal fluctuations create the special habitat of sandy margins that supports rare species, but some water must remain in the ponds at all times for successful breeding of insects, amphibians and fish.

It is extremely important to maintain the water quality of Barnstable's ponds to ensure continued viability of the species that inhabit them or live on their margins. The Hyannis Coastal Plains ponds should receive maximum protection from nutrient loading and other sources of contamination, as well as vehicle or foot traffic. The town must take measures necessary to preserve these special habitats.

Vehicles driven near pond shores can easily destroy plants and habitat. To avoid even the possibility of children playing along the shore or teenagers using dirt bikes near the ponds, residential uses should not be permitted in the Industrial Zone.

At the very least, undisturbed vegetated buffers of 300' should be maintained where no vehicle or pedestrian access is permitted. A comprehensive, scientific study is needed to determine the species' needs for water depth, how occasional flooding controls invader species, the extent to which the ponds are fed by groundwater and the effect of well pumping, so adequate water levels can be maintained.¹² The survival of virtually irreplaceable species depends on the continued existence of this habitat.

¹² Rare plant species designated by the state or federal government as endangered, threatened or Species of Special Concern living on these pond shores or in their immediate vicinity include long-beaked bald rush, Plymouth gentian, pondshore knotweed, redroot, short-beaked bald rush, slender marsh pink, Terete arrowhead, Torrey's beak-rush and Wright's panic grass. State listed animal species include the barrens and Lateral bluet damselflies, the barrens buckmoth, long-legged green darner and Decodon stem borer moth. (Massachusetts Natural Heritage Foundation, May, 1989) Throughout the world, the last is found only

Goal 2.5.3 The long-term viability of freshwater ponds serving as habitat for rare and endangered species should be secured. This applies in particular to the Hyannis Coastal Plains Ponds complex, which provide plant and wildlife habitat of world-wide significance.

Policy 2.5.3.1: Infrastructure and development should be carefully planned to avoid harm to the Hyannis Plains Ponds ecosystems and habitats.

Strategy 2.5.3.1.1: A study should be conducted to analyze aquifer and water supply withdrawal issues as they relate to the preservation of the Hyannis Coastal Plains ponds. This study should be coordinated by the town's Health, Conservation and Planning departments and the appropriate Water Companies.

Strategy 2.5.3.1.2: To prevent possible contamination of the Hyannis Coastal Plains ponds, land within 300 feet of the ponds should be controlled by a public or private non-profit agency to permit long term protection of fragile rare-species habitats and groundwater resources. This may be accomplished by purchase, purchase of development rights, transfer of development rights, or another method. Efforts for state purchase of land surrounding the Hyannis Coastal Plains Ponds should be supported.

Strategy 2.5.3.1.3: Wherever possible, land within 100 feet of any freshwater pond should be maintained in its natural, vegetated condition. Where significant populations of rare, endangered or threatened species have been identified, every effort should be made to ensure permanent control over these buffers through acquisition by the town or a conservation organization. Where there are buildings associated with public uses, disturbance in this area including foot traffic should be kept to an absolute minimum.

Strategy 2.5.3.1.4: Because of potential damage to rare plants and wildlife, all off-road vehicular access should be prohibited within 300 feet of the Hyannis Coastal Plains ponds.

in southeastern Massachusetts. Among other species noted, a total of 144 varieties of birds have been documented at the ponds, including grebes, three species of heron, six types of ducks, osprey, six species of owls, hawks, swallows, flycatchers, hummingbirds and warblers, among others. Small mammals found there include opossum, bats, flying squirrels, fox, raccoon and deer. Ten snakes, five salamanders, ten frogs including spadefoot toads, and seven turtles are among the amphibian and reptile species. (IEP, Inc., The Public Archaeological Laboratory and Vollmer Associates, Second Supplemental EIR, Independence Park, October, 1990.)

Section 2.5 4 Involving Residents in Pond Protection

There are many ways Barnstable residents themselves can improve the water quality of local ponds by reducing phosphorus loading. These include use of low-phosphate detergents, avoidance of fertilizers and pesticides, septic system maintenance or replacement, and letting natural buffers grow back on the edge of a pond. Since these actions are difficult to regulate and depend on decisions by individual homeowners, an education program will probably be more useful than imposing new regulations.

The experience of Barnstable and other towns has shown that local groups can be very successful for spreading the word about the need to protect water quality. These organizations should be encouraged in Barnstable wherever possible.

Goal 2.5.4 Local residents should be involved in protection of nearby ponds and other natural resources so they can help maintain the character and quality of life in their own neighborhoods.

Policy 2.5.4.1 The town should maintain an ongoing environmental education program.

Strategy 2.5.4.1.1: Educational programs about the benefits of practices that reduce nutrient loading, including limiting use of fertilizers, low phosphate detergents, and regular septic system maintenance should be encouraged. The Conservation Commission may include information about how residents can inadvertently import nuisance vegetation to ponds which can harm their ecosystems.

Strategy 2.5.4.1.2: Local schools should use town ponds to illustrate principles of water quality and the aquatic ecosystem, through means such as field trips, taking samples for testing, or presentations by town staff.

Strategy 2.5.4.1.3: Informational signs should be installed at access points to all Great Ponds describing allowed uses, the ecology of the pond, its local significance and history, if known. Grants should be investigated for funding this program.

Section 3.0 Economic Development

Introduction

The economic base of the Town of Barnstable has expanded rapidly in the past two decades, however the town lacks new year-round job opportunities. Many see a need for "clean light industry" and commercial redevelopment to fill the void.

In seeking to expand its economic base, the Town of Barnstable has advantages that include a regional employment, retail and service center, a strong tourism base, access to commuter transportation, and quality of life.

The town lacks a traditional resource base for manufacturing opportunities. Further development is hampered by lack of transportation and limited educational opportunities as well as infrastructure to support the current level of development. Therefore, the town needs to encourage innovative and diverse industries, such as telecommunications, bio-tech and electronic information companies.

In the past twenty years, the number of potential employees living in the Town of Barnstable has grown much faster than the number of additional jobs. Annual unemployment percentages are higher in the town than in either the country or the state. The annual rate, 12.2% (fluctuating from 7% in the summer to 15% in the winter), is more than 3% higher than the state average of 9%. The country average is 11.1%. The greatest loss of jobs has occurred in the tourism and construction industries.

More than 50% of Barnstable's employees work in the wholesale/retail and service industries, which includes a majority of the tourism industry. While manufacturing industries have made large advances in the past 10 years (with 86% more employees and a 96% increase in average wages), this sector still accounts for less than 10% of the town's labor force. Manufacturing jobs pay on average more than retail jobs. Hence light industry should be encouraged as an avenue to economic development.

At the same time, the tourism industry must be enhanced. A tourism survey conducted by Hyannis Main Street, Inc. in the summer of 1991 indicated that half the respondents were visiting only to pass through on the way to the islands. Other estimates based on hotel and motel occupancy indicate that the town falls short of capacity during the summer season, the success of which can make or break many small business owners. The promotion of "shoulder seasons" (spring and fall), the creation of a performing arts/convention center, and the implementation of the "Walkway to the Sea" are strategies for boosting tourism. The "Walkway to the Sea" concept--originated by Ben Thompson, and developed by countless public spirited individuals, entails providing a visual and physical link between Main Street and Hyannis Harbor. The promotion of the town's environmental resource through interpretative programs, such as a museum or aquarium, and the continued enhancement of the Kennedy Museum in Hyannis could provide further tourist opportunities.

Data from the 1990 census indicates trends that must be addressed in consideration of economic development goals, policies and strategies. Transportation facilities must be

improved to accommodate the 32% of the labor force that commute from out of town (an 11% increase over 10 years) and the 19% of Barnstable residents who commute to jobs out of town (an 87% increase over 10 years).

Traditional business areas, such as downtown Hyannis, must be protected from the encroachment of strip malls. Traditional industries, such as shell fishing, must be protected from closures due to shellfish bed contamination. New businesses should be directed to vacant retail (6.3%), office (23.9%), and industrial (13.6%) spaces.

Less than 40% of Barnstable residents over the age of 25 possess a degree higher than a high school diploma. The town must encourage development of educational programs covering current industries (tourism, retail, business and resident support services, marine technology, health and human services), and emerging industries (retirement/tourism, health care, marine technology, environmental services, information technology service).

Finally, the town must create an environment more "user-friendly" to existing and potential business owners. The town must assess existing regulations and identify measures that could be taken to streamline permitting processes or create incentives to encourage appropriate economic development. A "one-stop" permitting process--with town staff providing adequate technical assistance--could remove a major impediment to economic development.

Tourist "Magnet" Development

A performing arts/convention center, museum or aquarium complex has been proposed at various times. This plan recognizes the need to attract an anchor or magnet development that will draw people on a year round basis, and improve the viability of the Town center

The realization of such a magnet will require a joint public/private effort. The public sector should take the lead in enabling land use and zoning to encourage such a project. In an era of limited public funds, this type of facility should be privately funded. A magnet development should be located in or adjacent to the downtown area which would benefit greatly from a substantial year round drawing power. The location and scale of the facility should be carefully evaluated to ensure that the use will be compatible with the scale of the village and that adverse traffic impacts will not result. A well designed facility with an attractively designed open space is essential - such a facility will set the standard and tone of the downtown. Design should be in conformance with the Section 7 of this plan and design guidelines which are to be adopted. It is important that quality facilities be developed which are an asset to the community, with long range viability. Activities which can be detrimental to the community such as large popular music concerts should not be permitted.

A prime site for the development of a magnet is the 600 block between Main Street and North Street; redevelopment of this site should be strongly encouraged. The site also the advantage of good access to Rt 132 and Exit 6 of the Mid-cape Highway via Bearses Way.

In the future, the old Armory Building on South Street is another potential redevelopment site. This area was examined in the Hyannis Vision Plan and the Harbor Area Development Plan and the following policy was recommended :

" The goal should be to seek the development of a public facility for fine arts, performing arts and/or maritime related facility or museum, incorporating a memorial to President Kennedy. The building should be of the highest quality design, and the memorial incorporated from the outset into both the design, function and name. Given poor access, the facility needs to be modest in scale and linked to the Intermodal Transportation Center."

The need for additional parking facilities was also recognized.

In encouraging business growth, the town can utilize a number of state and federal grants and improvement programs, including the following currently available programs:

- **Open Space Bond Bill (based on annual State allocation)** -- Eligibility includes waterfront facilities and open space acquisition that are consistent with a Town's adopted Open Space Plan.
- **Coastal Facilities Improvement Program** (Public Harbor and waterfront facilities) - Eligibility includes CARD designation. Program provides financial assistance on a reimbursement basis to coastal cities and towns to maintain, construct and plan coastal facilities.
- **Community Development Action Grant** (dependent on annual appropriation of State funds) -- Supports all publicly maintained and managed amenities such as roadways, sidewalks, parking, infrastructure.
- **Community Services Block Grants** (Town allocation) -- Goal is to provide essential social services through community-based efforts.
- **Community Development Block Grant (CDBG) Program** -- Based on an annual federal allocation from the Department of Housing and Urban Development (HUD) - The town has participated in the past through the Small Cities Program administered by EOCD, but is currently an "Entitlement" community. The CDBG Program provides funds in support of a Community Action Statement or a Five Year Consolidated Plan for neighborhood rehabilitation, economic development, social services and affordable housing. This will allow the town to establish grant and loan programs that focus on economic development activities, that may include working capital, improvement loans, or job creation projects.
- **Section 108 Loans** -- Available to CDBG Entitlement communities such as Barnstable to support special economic initiatives. Participating communities may loan up to five times their annual entitlement allocation and repay over a 20 year (maximum) period.
- **Micro Loan Program** - an annual program of the CDBG that is designed for very small loans to assist existing and start up businesses.

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- **Economic Research Grants** -- Involves partnerships among universities, colleges, private firms, municipalities, and other entities and fit into target areas: biotech, technology. Matching funds are required.
- **SEED Corp.** -- Small Business Administration - 504 Program that provides 40% Gap Financing for private businesses. SEED has recently participated in cooperative financing with local banks:
- **Commercial Area Revitalization Districts** (State approved designation) -- The CARD designation is designated to aid areas where disinvestment has been proven. CARD is a requirement for many state programs including: CDAG, Off Street Parking, Main Street, etc. This district was renewed in September 1992. This designation is required for accessing CDAG, MIFA (Massachusetts Industrial Financing Agency), and the Massachusetts Thrift Fund. Updating the status of this district will be required to access these programs

Economic Development Administration (Federal)

- **Overall Economic Development Plan** -- Strategic plan to identify possibilities for streamlining Zoning and permitting, demonstration infrastructure support, job training, efficiency of local services, etc. The plan will include public and private opportunities and constraints.

Economic Development Incentive Program (State)

- **Economic Target Areas (ETA) / Economic Opportunity Areas (EOA)** -- MGL Ch 19 states that the objectives of this program are to create jobs in distressed areas and stimulate planning for economic development at the municipal level. Barnstable County has been designated as an Economic Target Area and the Town of Barnstable has designated two Economic Opportunity Areas where special tax incentives, tax increment financing, state tax credits and benefits can be made available to certified projects..
- **Tax Increment Financing (TIF)** -- Another newly authorized program under the new legislation MGL Ch 19. Objectives are to: 1) target economic development to areas of critical need; 2) facilitate job creation through public/private infrastructure improvements; 3) allow municipalities greater power in creating economic development strategies.
- **Business Improvement District (BID)** -- A business Improvement District is a geographically defined district used to provide supplemental and additional services or physical improvements such as streetscaping, common marketing and event promotion, business recruitment, etc. Services and improvements are all targeted directly to the defined district and are funded through a self-imposed levied assessment or fees. The formation of the BID is controlled by the Town Council, which must approve the district and plan. The application must come from a majority of the business owners (51%) who apply to the Town Council. This type of district can be located in many parts of the town to provide needed improvements to

commercial and industrial property. Unlike the CARD this program would not be limited to the Central Business District, so areas such as Route 132 and Route 28 could be considered.

- **Historic Districts** -- The vitality of the tourist economy as well as the quality of life of the residents is based in a large part on community character and the preservation of historic structures and neighborhoods. An Historic District Study Committee has been formed for the Hyannis Main street area and the Cotuit / Santuit area and adoption of their documentation and recommendations for district formation is pending.

The goals, policies, and strategies that follow are consistent with the Regional Policy Plan with its emphasis on promoting economic development that is balanced, sustainable, and not damaging to environmental resources.

These policies mesh with the town's growth management policy, which calls for the concentration of commercial and industrial enterprise in "activity centers". And it adheres to the wishes of the many Barnstable residents consulted during the two-year planning process. These residents asked for the continued development of an expanded economic base, the encouragement of "clean, light industry", a less confusing system of regulations for existing business owners, and a brighter economic and educational future for young Cape Codders who are often forced to leave home to find appropriate employment opportunities.

Goals, Policies and Strategies

ISSUE - Expansion of Economic Base

The Town has experienced rapid economic growth as indicated by a 195% increase in the labor force from 1970 (6,383) to 1990 (18,810). This development rate has outpaced the construction of supportive infrastructure within the town. The economy has endured through the tourism industry's cyclical nature of high seasonal unemployment rates and remains the major employer of the town's labor force. In order for the town to strategically plan for economic development there must be a focus on existing commercial and industrial zones to maintain the current economic base. The tourism industry must be enhanced to create a destination location for the visitor. All of these activities need to be coordinated with other economic development groups, therefore a strong Public/Private partnerships needs to be forged. The goal of this partnership is to eliminate blight conditions and provide the needed technical assistance to achieve this end.

Goal 3.1 Provide for the expansion of existing industries and the development of new enterprises that create year round jobs, income and new economic opportunities for residents at every economic and social level, and expand the tax base for the town while maintaining the quality of life, community character and environmental integrity.

General Economic Development

Policy 3.1.1 Nurture and support existing industries and encourage environmentally sensitive industries in the Town of Barnstable in order to retain quality year-round employment for the residents by providing public programs and financial incentives to accomplish same. Establish a strong and viable **Public/Private Partnership** to support community development activities.

Strategy 3.1.1.1 Delegate a member of the Community Development Section of the Planning Department to coordinate Economic Development activities within the Town (Staff level) and foster coordination between the public sector through the Barnstable Economic Development Commission (BEDC) and the private sector through the Hyannis Area Chamber of Commerce, Hyannis Area Economic Development Corporation (HAEDC) and other business organizations in order to develop a public/private partnership.

Strategy 3.1.1.2 Continue the supportive and cooperative relationship between the public / private partners by annually providing a clearly defined mission statement and work program for the activities and information exchange for the operation of the Public/Private Partnership.

Strategy 3.1.1.3 Promote collaboration between the local public/private partnership and broader regional focus of the Cape Cod Economic Development Council (CCEDC) in recruitment and assistance efforts to stimulate economic development in the Town of Barnstable.

Policy 3.1.2 Assist industries that create year round employment opportunities by coordinating the permitting process at the town level.

Strategy 3.1.2.1 Provide technical assistance to businesses, industries, or developments based upon a review by the Town's Economic Development Commission.

Strategy 3.1.2.2 Working through the Town's Health, Safety and Environmental services department (HSES), establish a "One-stop" permitting process office and coordinate all regulatory reviews.

Policy 3.1.3 Aggressively promote year round economic development in the designated Activity Center areas, as defined in Goal 3.2., and described in Section 1.0.

Strategy 3.1.3.1 Assign the Economic Development staff of the Planning Department to coordinate the activities required to implement the Goals and Policies of this Section and the specific economic development work programs of the Town and the BEDC.

Strategy 3.1.3.2 The Economic Development staff should coordinate promotional activities through the public/private partnership set forth in Policy 3.1.1.

Industrial Development

Policy 3.1.4 Encourage a diversified economy, which creates new and preserves existing job opportunities for residents by developing the Industrial Zones with year round industries in a manner consistent with the environmental goals and other policies of the Comprehensive Plan.

Strategy 3.1.4.1 Assist the expansion of light manufacturing and processing enterprises located in the industrial zones to create new employment possibilities.

Strategy 3.1.4.2 Develop regulations which assist the expansion and creation of businesses consistent with the natural resources element that preserves the groundwater resources.

Commercial/Retail Development

Policy 3.1.5 Encourage infill of use or redevelopment including adaptive re-use of existing structures in commercially zoned areas to promote redevelopment opportunities.

Strategy 3.1.5.1 Develop a plan to identify specific redevelopment opportunities in the existing commercial districts.

Strategy 3.1.5.2 Provide financial and technical assistance to encourage businesses to (re-)locate in designated " Activity Centers."

Strategy 3.1.5.3 Allow multiple use options to encourage the preservation of historic structures through adaptive re-use and adoption of historic districts.

Education/Job Training

Policy 3.1.6 Encourage the enhancement of job training and advanced educational opportunities to address the needs of an educated labor force.

Strategy 3.1.6.1 Promote the expansion of both the Barnstable High School and Cape Cod Community College to provide advanced business and educational opportunities.

Strategy 3.1.6.2 Attract research oriented institutes to locate facilities within the town (i.e. educational, environmental, high-tech / electronic and medical).

Tourism/Waterfront Development

Policy 3.1.7 Promote Hyannis Inner Harbor and Waterfront as tourist destinations with an array of culturally and commercially diverse opportunities that represents the Maritime history of Barnstable such as museums, aquariums and accommodation for the fishing industry.

Strategy 3.1.7.1 Establish aesthetically pleasing tourist information centers, or "arrival zones", strategically placed within easy access of the regional transportation network and the proposed Hyannis Intermodal Transportation Center.

Strategy 3.1.7.2 Develop public access to the waterfront and improve pedestrian movement around the harbor to promote a festive streetscape based on green tourism opportunities in conjunction with existing ferry and maritime operations.

Strategy 3.1.7.3 As a priority, develop the "Walkway to the Sea" concept for the Main Street and harbor front area of Hyannis, by acquiring, and developing the necessary properties for implementing the plan.

Strategy 3.1.7.4 Stimulate recreational and appropriate harbor related commercial opportunities, that support water dependent and water related marine uses around the harbor.

Strategy 3.1.7.5 Encourage the relocation of commercial parking facilities away from the waterfront area, through the provision of shuttle bus service and expand satellite parking facilities.

Strategy 3.1.7.6 Encourage the development of a cultural center within the community by coordinating with the performing arts community and providing assistance on land use, infrastructure and financing issues..

Strategy 3.1.7.7 Encourage and facilitate the use of "Eco-Tourism" through the identification and promotion of walking trails, bicycle paths, historic sites and scenic locations.

Strategy 3.1.7.8 Recognize the accessory/support role of limited, small scale retail uses such as electronics/communications, sail lofts, fish markets and marine hardware uses, as a component of some water dependant uses.

Infrastructure Development

Policy 3.1.8 Proceed with the implementation of extending infrastructure necessary to serve existing industries in the Industrial zones by providing connection to the wastewater treatment facility, and ensuring that capacity is available.

Policy 3.1.9 Ensure adequate public / private financial support for infrastructure needs in activity centers.

Policy 3.1.10 Promote the continuity of movement from the regional roadway network to centers of economic activity.

Strategy 3.1.10.1 Provide design improvements for the Route 132 corridor for safe and controlled access to the commercial activity centers, and facilitate direct access to the Industrial areas.

Strategy 3.1.10.2 Complete the Barnstable Yarmouth Transportation Study with attention given to business, environmental and residential concerns for an improved transportation network, particularly a new exit off Route 6 (6.5).

Strategy 3.1.10.3 Explore other transportation alternatives, including multi-modal, as set forth in the Transportation Section of this LCP.

Visual Aesthetics/Prevention of Blight

Policy 3.1.11 Promote the green space as a visual design element and the use of pedestrian oriented space in the village centers.

Strategy 3.1.11.1 Design and implement a thematic streetscape program for each of the villages.

Strategy 3.1.11.2 Implement site design and architectural quality controls for commercial developments based on a set of village design guidelines applicable to the entire Town of Barnstable.

Strategy 3.1.11.3 Improve the "Gateways" to the Regional Center, Hyannis, and develop a common set of design guidelines.

Policy 3.1.12 Identify and eliminate blighted, derelict, and dangerous properties that are a deterrent to economic development.

Strategy 3.1.12.1 Develop economic and regulatory incentives for the removal, rehabilitation, or reinvestment into these types of structures or properties.

ISSUES - Need for a diversified year round economy

Due to fluctuations in employment and current economic conditions the need for more year-round employment opportunities on the local level is desired by both the business community and residents. The economic development strategy needs to focus on the creation of more job opportunities through both new industries and expanding existing businesses. The town has experienced high annual unemployment rates for several years from 12.2% in 1991 to 10.2% in 1992. This figure roughly translates into 2,200 people unemployed within the Town of Barnstable. Annually the unemployment rates fluctuate between 7% in the summer months to 15% in the winter, but recent

employment gains on the Cape have improved these statistics. The Town desires to maintain this momentum and build upon it. The development of activity centers with incentives for location or re-location there-in, will provide for more efficient delivery of infrastructure, development of new employment opportunities and the ability to manage growth.

Goal 3.2 Encourage a diversified economy by providing incentives to new and existing enterprises that locate or relocate in designated activity centers.

Policy 3.2.1 Identify the location of the following types of Activity Centers and ensure the provision of adequate infrastructure to support development or redevelopment activities that provide economic opportunities therein:

VILLAGE CENTERS - Provide individual mixed use districts for each village center, that at a minimum, provide for small scale retail use, Bed & Breakfast operations, community facilities and activities, and professional offices designed to address the specific needs of the village residents. Also, these areas allow for office and housing developments integrated into a dynamic mixed-use relationship.

COMMERCIAL ACTIVITY CENTERS - Provide three levels of commercial centers for regional commercial activities, the needs of town residents and the unique requirements of water dependent / related uses :

1. Regional Commercial Activity Centers provide for an area that is designed for the concentration of large scale retail activities, such as a shopping mall or outlet store complex etc., that draw customers from a larger area
2. Town Commercial Activity Centers provide moderate sized retail and service activities, which meet the needs of local residents from more than one Village.
3. Marine Activity Centers provide support facilities for traditional fishing activities, recreational boating, water related uses and tourism

INDUSTRIAL ACTIVITY CENTERS - Provide for manufacturing, warehousing, office complexes, high technology research facilities, light industry and limited commercial support facilities.

COLLEGE/INSTITUTIONAL CENTERS - Provide for the concentration of institutional, educational / training and cultural uses.

REDEVELOPMENT ACTIVITY CENTERS - Old traditional business areas which have suffered from disinvestment, and may be in need of economic stimulus to encourage redevelopment or reinvestment in the commercial properties. The redevelopment would maintain the Cape Cod architectural character, along with emphasizing adaptive re-use of existing structures. These areas should be evaluated to determine their capacity to provide linkages with Multi-modal transportation facilities and, consistent with the Regional Policy Plan, shall be exempt from providing the 40% open space on or off site.

RECREATIONAL ACTIVITY CENTERS - These are major destination points for both tourists and residents alike and give access to the experience of “sand dunes and salty air” that is a major component of the essence of Cape Cod. The maintenance, access and facilities are critical to a tourist based economy.

Policy 3.2.2 Establish an incentive program with maximum participation of the financial community to facilitate the location or relocation of existing and new business to the activity centers.

Strategy 3.2.2.1 Continue development of the required economic development plan under the Economic Development Incentive Program.

Strategy 3.2.2.2 Promote the designated Economic Opportunity Areas (EOA) in the Town of Barnstable that encourage reuse of vacant buildings and infill of existing sites in order to create jobs in the activity centers.

Strategy 3.2.2.3 Continue to manage the Section 108 Program and provide for an ongoing loan fund (CDBG) as an economic assistance program for new and existing businesses in the activity centers.

Strategy 3.2.2.4 Identify sources of funding to assist with new business ventures that employ people who are unemployed or minorities.

Policy 3.2.3 Establish a financial program that provides support for businesses to make improvements to properties in existing commercial and industrial areas.

Strategy 3.2.3.1 Continue to support the use of Business Improvement Districts (BID) by the implementation of a local program supported by the private sector.

Strategy 3.2.3.2 Establish a revolving micro-loan fund to recapitalize the Commercial Improvements Program within the Commercial Area Revitalization District (CARD).

Strategy 3.2.3.3 Complete a Tax Increment Financing (TIF) plan and establish districts to promote improvements to support economic development.

Policy 3.2.4 The BEDC should coordinate with the staff of the Planning and HSES Departments to establish procedures for pre-screening by the Cape Cod Commission of key sites in the Town of Barnstable activity centers.

Section 4.0 Community Facilities and Services

Introduction

This Section of the Comprehensive Plan concerns infrastructure -- the roads, water lines, schools and a myriad of other facilities that support any modern community.

Historically, towns have been able to provide enough infrastructure to keep pace with development. But with the rapid growth of Cape Cod over the past two decades, the soaring costs of infrastructure improvement, and the constraints of tax-capping Proposition 2 1/2, some of Barnstable's infrastructure facilities have become overburdened.

The town's ability to provide adequate infrastructure affects all aspects of the growth management policy outlined in Section 1.0 of this plan. Each acre of commercial development can generate the need for 700 to 1,000 gallons of water and sewer. Each 1,000 square feet of commercial development can generate from 5 to over 200 trips each day. The town can neither protect natural resources nor encourage appropriate economic development without adequate facilities. Finding new ways to fund required improvements will be one of the greatest challenges in implementing this plan. Please note that a Fiscal Impact Analysis of this Plan is included in the Appendix, as directed by the Barnstable Town Council, which shows that if the initial impact of commercial development is mitigated, this form of land use can create a net positive cash flow for the Town. However, off-site mitigation has not been successfully implemented in the past. Mitigation as recommended in Section 1.10 of this Plan should be expeditiously adopted for the full fiscal benefit of commercial development to be realized. Residential development on the other hand, creates a net fiscal loss, particularly for educational facilities, unless slowed down to rates of growth far less than we are currently experiencing. As an alternative, acquisition of residentially developable land for open space / recreation purposes will have a positive fiscal impact and help preserve community character.

The Regional Policy Plan mandates the following minimum performance standards in regard to infrastructure:

** 4.3.1.1 (RPP) Approval of development and redevelopment should be based on existing infrastructure capacity or on a development's ability to provide for or contribute to the infrastructure and services necessary to support it. Installation of necessary infrastructure shall be timed to meet the need generated by development or a contribution of funds toward the necessary improvements shall be provided.*

** 4.3.1.2 (RPP) Development of new infrastructure shall only occur after an analysis of the impacts of this infrastructure with regard to land use, traffic, and water supply.*

** 4.3.1.3 (RPP) Privately provided infrastructure to service development and redevelopment shall be consistent with local comprehensive plans.*

The following are recommended town actions as set forth in the Regional Policy Plan:

** Towns should review their zoning regulations and maps in order to plan for sufficient quantities of land in appropriate locations to serve community needs, including (satellite parking), economic development, housing, water supply, police, fire, libraries, health and social services, government, waste disposal, education, community centers, and recreation as well as a fair share of necessary regional facilities. Specific sites for such purposes should be identified in local plans.*

** Towns should identify and plan for infrastructure improvements where needed in "activity centers" to support concentrated development and limit infrastructure improvements in areas where development is not encouraged."*

The Community Facilities and Services Section of the Comprehensive Plan is divided into two sections: **Transportation** and **Capital Facilities and Infrastructure**. The Capital Facilities and Infrastructure section is divided into several sub-sections.

Section 4.1 Transportation

Issues

The transportation system is one of the most important and controlling sections of the physical development of a community. In addition to enabling people to move about town, roadways serve many functions. They provide rights-of-way for public utilities, such as sewer, water, gas and electric lines, both above and below ground. For the purposes of this discussion, the transportation system is composed of a number of sections besides roadways; including buses, trains, airports, ferries, sidewalks and other walkways, and bikeways, and parking facilities. The road network, for example, is a key part of the system and helps define the framework, or basic infrastructure to serve all physical development. A transportation system should be able to support the needs of the community and provide an acceptable level of service (LOS) for its growth and development. Therefore, the transportation system should be part of an overall physical planning process of the town.

Four significant events have happened during the last several years that collectively represent a challenge and present an opportunity to Barnstable as it attempts to deal with the overall transportation planning process:

- As a result of the 1990 US Census, the town became part of an urban area and a Metropolitan Planning Organization (MPO) was established to coordinate transportation investments in the area;
- Congress enacted the Inter-modal Surface Transportation Efficiency Act (ISTEA) in 1991 to serve as a basis for guiding the investment of billions of dollars of Federal funds in the country's transportation infrastructure;
- The Barnstable County Assembly of Delegates adopted the Regional Policy Plan for Cape Cod in 1991 which will have a significant effect on the future of the area's transportation system; and
- The Towns of Barnstable and Yarmouth joined several other organizations in 1992 to fund and initiate the Barnstable-Yarmouth Regional Transportation

Study as a means of defining the preparation of a Long Range
Transportation Plan for Cape Cod's Urban Core as mandated by ISTEA.

Historical Perspective

Town sites indicate that early Indian tribes roamed the land and sea coast, hunting and fishing for survival from 12,550-10,000 years ago, to the time of 17th century European exploration contact. Later, permanent agricultural and fishing villages developed in the woodlands and along the sandy shores on the north side of Barnstable. The Indian settlements and tribal bands formed a complex system of trails, cultural relationships and trading throughout southern Massachusetts. The earliest of such trails, along the same corridor now used by Route 6A, links the east/west areas. Later, settlements and the early road network expanded south.

Many of the roads that now function as arterials and collectors appear on an 1856 map of Barnstable. They were never designed as a network and were not intended to serve the purpose that they now serve. Over time, the town has developed, and subdivision/local roads have been constructed to provide access to individual properties. In the last twenty years for example, the Planning Board has approved approximately 100 miles of roads and an estimated 85% have been constructed. As time and resources have allowed, the town and the state have upgraded some roads in response to their evolving roles. The current "network" of roads exists and the traffic exists and both must be addressed on a coordinated and cost effective basis.

During the last twenty years, the town's limited financial resources have gone to expand public facilities and increase services in response to the pressures of growth. This focus has often come at the expense of properly protecting / maintaining what is already in place. For example, there is currently a backlog of \$10 million in road repaving work that, at least in part, is due to deferred maintenance. Additionally, both the summer peak and year round traffic have increased significantly in the same period which has accelerated the deterioration of the roadways. The summer peak traffic of twenty years ago is now equivalent to the year-round average traffic.

The growth in traffic is directly attributable to the types and density of land uses in the town and in adjacent towns. The development activity in Barnstable has been at a remarkable and steady rate from 1970 to present, especially housing development. During this period the number of housing units increased from 8,697 to 23,370, an approximate 268% increase. This increase in housing units over the last twenty years has contributed a substantial amount of traffic to the area roadways (i.e., increase from approximately 15 million vehicle trips in 1979 to approximately 40 million vehicle trips in 1992). This increase excludes day trip tourists and associated trips as well as other nonresidents using the roadways. The development activity not only increased demand for infrastructure but also increased demand for other public facilities and services such as schools, fire and police protection.

Current Situation

Like other municipalities on Cape Cod, Barnstable is confronted with a five-faceted transportation infrastructure problem:

- An existing infrastructure that has not been properly maintained due to the limited availability of financial resources;

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- An infrastructure that must service traffic that varies as much as 50% during different seasons;
 - An existing network of roads now forced to function as collectors and arterials that were originally constructed to serve a much more limited function;
 - A system with extremely limited options to the automobile as a means of transportation; and
 - A system of environmental, scenic and historic resources that limit the options for the expansion of infrastructure.

It is important to understand that no single facet should be improved independently and/or detrimentally to the others. Therefore, any plan of action must address all facets on an integrated and coordinated basis.

The capacity of Barnstable's arterial and collector roadway network has not expanded to accommodate the residential and commercial growth of the past two decades. Population has doubled in the past 20 years to more than 40,000 year-round residents. Some projections forecast a combined 81,819 year-round and seasonal residents at build-out. But "off-site" transportation improvements have not been commensurate with "on-site" development. As a result, the transportation system constrains further growth of the town.

The traffic congestion on the existing roadway system has led to a low level of service, longer travel time, delays, inconvenience, and safety problems. These problems are detrimental to the quality of life, natural environment and economic development. The town's transportation system must be adequately maintained and will need to be improved if the community hopes to encourage economic development in accordance with the town's land use objectives and to support desirable economic growth and tourism while protecting the environmentally sensitive areas and preserving the historical and community character.

Land use pattern of strip malls along congested arterials and collector streets such as Route 28 and Route 132 have necessitated roadway improvements. Future expansion of the Barnstable Municipal Airport, Cape Cod Hospital, and Hyannis waterfront facilities, and future development of the industrial zones will add increases in traffic demand in the downtown area and on the regional roadway system. Changing land uses in the downtown area, along with present travel demands, have created circulation problems, long delays, and congestion, both in the downtown area and on main roads connecting to the regional roadway network. While a two-lane road generally can accommodate 15,000 vehicles per day without major congestion, Routes 132 and 28 often exceed 30,000 vehicles at peak seasonal volume. While the Airport Rotary was designed in the 1930's, the traffic far exceeds capacity today with as many as 4,500 vehicles entering the rotary during a peak summer hour. Further capacity reduction results from the multiple driveways (curb cuts) found along major roadways. From the Yarmouth town line to Route 130 in Cotuit, there are 368 curb cuts.

The roadway network is not the only Section of the transportation system needing attention. Although there are 69 miles of sidewalks and bike paths within the town they are fragmented; many need to be upgraded and additional sidewalks and bikeways need to be constructed. The town is served by the Cape Cod Regional Transit

Authority, but the extent of the public transportation services is limited and the ridership is extremely low. Public parking facilities are extensive in certain portions of the town, but they need to be incorporated into a coordinated system and new parking facilities need to be developed to better utilize public elements of the transportation system.

All of these issues are being investigated as part of the Barnstable-Yarmouth Regional Transportation Study, referred to earlier. This study will serve as a basis to enable the Town to solve existing problems and to plan for future growth; including studying the impacts of growth, analyzing various downtown Hyannis circulation alternatives, developing traffic management strategies, and identifying improvement projects to be included in the capital improvements program.

One of the preliminary conclusions of the study is that major traffic generators and land uses vary by type and location within the transportation study area; each affects traffic flow differently. North of Route 6 the Cape Cod Community College and the County Complex exist. Extensive retail use is present along Route 132 including the Cape Cod Mall, Festival Marketplace, Cape Town Mall, the Christmas Tree Shops and the Southwind Plaza. In addition, the major industrial area (including Independence Park), is accessed primarily from Route 132. The Airport is located at the intersection of the major arterials (Route 28 and Route 132). Within the downtown Hyannis area, the two ferry terminals exist as well as a mix of retail shops and professional offices, the Cape Cod Hospital and associated medical offices, and the Barnstable town government offices. The Route 28 corridor from Centerville through the Yarmouth boundary and beyond is characterized by strip commercial development including numerous hotels, restaurants and retail shops and, if taken as a whole, is a major traffic destination. Public beaches and other recreational attractions in both Yarmouth and Hyannis are also destinations and generate a substantial volume of summer traffic.

The Towns of Barnstable and Yarmouth will soon complete the Regional Transportation Study (BYTS), with a copy of the Executive Summary to be found in the appendix of this Plan. This study will enable the town to plan for future growth and has a number of elements, among which are updating the existing traffic models for use in studying the impacts of growth, analyzing various downtown Hyannis circulation alternatives, developing traffic management strategies, and identifying improvement projects to be included in the Town's Capital Improvements Program (CIP). The ability to implement these planned improvements is the responsibility of both the Town and the developer and should be a condition of development approval within the town. All improvements should occur prior to or concurrent with the new development, or the development must be conditioned on providing the improvements prior to a certificate of occupancy.

Future Challenges and Needs

The challenge before the Town is a significant and complex one. The Town must formulate a coordinated plan of action to address existing transportation-related problems and avoid future ones. The coordination must be done at the policy level with other sections of the Local Comprehensive Plan, at the institutional level to ensure consistency of actions among jurisdictions, and at the capital improvement level to ensure that the limited public financial resources are properly spent and result in significant improvements in the functionality of the transportation system.

Level of service needs to be improved by the management and/or reduction of traffic and giving priority to non-structural mitigation measures at major intersections and on roadways. The substantial summer increase in traffic exacerbates this situation. Lack of affordable, efficient, alternative public transportation, and the unceasing reliance on automobile use, have created a need for the widening of roads and the creation of paved parking areas. The utilization of real estate for increased roadway capacity and parking conflicts directly with the maintenance of village aesthetics and open space (example: widespread public opposition to state proposal to widen Route 6A).

As a first step, strategies need to be developed for the existing roadways to function more efficiently. Additionally, traffic and congestion management strategies need to be coordinated with minor improvements to some roads and major upgrading to others to improve public safety and air quality. Finally, and most importantly, viable ways and means need to be formulated and implemented to expand/ improve public transportation services to provide residents and visitors with true options that are reliable and cost effective.

Policies for decreasing auto congestion efficiently and inexpensively are based on a set of short- and long-term strategies. These strategies are designed to be compatible with the goals and policies described in the Regional Policy Plan for Cape Cod as adopted by the Cape Cod Commission. They also are consistent with the town's growth management policy outlined in this comprehensive plan. That policy calls for directing growth to "activity centers". An important aspect of an improved transportation system is providing "linkages" among activity centers in the town.

There are various means of improving level of service such as non-structural measures that can be done in the short term. Non-structural mitigation measures include changes to pavement markings, changes to permissible service delivery hours along congested roadways, signage, signal timing, optimization of existing traffic signals, turn restrictions, changes in traffic patterns, encouraging inter-modal transportation, controlling curb-cut spacing, and limiting truck traffic on certain roads. These measures are a priority, so as to preserve the Town's historical and community character. Structural mitigation measures are advocated along certain roadways such as Route 28 and Route 132 and where non-structural measures are not feasible. Land use regulations represent another mechanism to implement the goals and policies. These tools (i.e., Subdivision Regulations and Zoning Ordinance) can direct physical development.

See Land Use, Section 1 of the Comprehensive Plan, for land use trends and see Historic Preservation, Section 7, for an historic portrayal of land use and development patterns and see Regional Transportation Study (BYTS) when complete.

A summary of the major issues for improving the Town of Barnstable's transportation system is as follows:

Mass Transit Expansion

Present bus service (inter-city and intra-city) does not adequately provide an inexpensive, efficient alternative to the automobile. At present, the Cape Cod Regional Transit Authority offers only seasonal fixed route bus service in the Town of Barnstable. Seasonal and year-round ridership must be encouraged through a more aggressive marketing program as well as a more efficient system. Ridership could be increased by

integrating and coordinating bus services with other modes of transportation such as railroad, ferries, satellite parking facilities, and the Barnstable Municipal Airport. Bus routes should include village centers, recreational areas, and commercial/retail areas. Financing for these capital improvements must also be identified.

Establishment of Intermodal Transportation Center

The Cape Cod Regional Transportation Authority has a preliminary design for the 10.8-acre railroad terminal site owned by the state in order to establish a Bus terminal, a maintenance facility, and RTA office. The need for expanded use of the site has become a subject of discussion between the RTA, the town and the Cape Cod Commission. The Town of Barnstable wants the Center to act as a "hub", with coordination of satellite parking, shuttle, railroad, bus, airport, and ferry services. Integrating all existing elements of a transportation system is the main focus of this transportation planning strategy. This can only occur with on-going intergovernmental coordination between local, state and federal entities.

Enforcement of Zoning Violations

Resolute enforcement of zoning is needed to eliminate the illegal use of office/residential areas as commercial parking lots. This rigid enforcement is necessary in order to maintain village aesthetics and to decrease traffic conflicts at curb cuts along congested downtown streets. Better use of under-utilized parking lots in the downtown, between Main Street and North Street in conjunction with satellite parking facilities, can be achieved using shuttle buses and improved signage. The identification of financing for such a shuttle bus service is necessary, although the Steamship Authority has expressed an interest in establishing a shuttle bus service in the downtown area for their needs.

New Route 6 Interchange - (Exit 6 1/2)

In addition to expansion of the mass transit bus system, the construction of a exit (between exit 6 and exit 7) should provide an additional satellite parking location as well as increased accessibility to the Barnstable Municipal Airport, Industrial Zones and the proposed Regional Transportation Center. This exit may reduce traffic on the Route 28/Route 132 corridor and Yarmouth Road and reduce truck traffic on the local roadway network. Securing funds for this costly project is essential. Town Zoning Ordinances that require developments to contribute toward the mitigation of cumulative impacts can contribute toward the funding of such improvements. Mechanisms for raising funds can include the levying of impact fees and developmental agreements. Additional funding sources from state and federal programs must also be utilized to achieve this goal. Securing funds for this project is essential.

Improved Level of Service (LOS) on Major Roadways

To lessen congestion, it is recommended to widen Route 132 (designated a Regional Commercial Activity Area) to four lanes with a landscaped median strip for left turns at key intersections from Route 6 to the Airport Rotary. This change, when combined with an alternative roadway east of Route 132, will also improve circulation and safety, visually improve the "entrance" to Hyannis, and is designed to bring level of service up to the standards set in this Plan. Reducing and combining the number of curb cuts, requiring cross access for adjoining malls, and requiring right-turn-in/right-turn-out

patterns for commercial properties on major arteries will also be necessary improvements for the Route 28 and Route 132 corridors. Widening Route 28 in Centerville and redesigning the intersections for dedicated left turning will improve level of service and lessen conflict points.

General improvements necessary for the Route 28 and Route 132 corridors include improved coordination with State Department of Public Works and adjacent towns. Since Route 28 and Route 132 (from Bearses Way to Route 6A) are state-owned roads, the town must seek state approval for all improvements. Traffic improvements must be coordinated with Mashpee, Sandwich and Yarmouth, because the traffic congestion does not end at the town boundaries. The proposed regional transportation center will need to address all problems along Yarmouth Road and to coordinate with the Town of Yarmouth all future possibilities of use for Exit 7. Extending the Route 6 Service Road for improved access from Exit 6 to Exit 7 should be studied as well as extending Old Route 132 to Independence Drive.

Pedestrian Linkages

Along with the aforementioned improvements, providing pedestrian and bike linkages to the neighborhoods, village centers and recreational/tourist attractions should be addressed. Bike paths should be linked with a regional network of bikeways throughout Cape Cod. Linking recreational facilities, schools, village centers, and other destinations with bike paths and sidewalks was named as a priority during the village vision planning effort.

Parking Management Plan

A parking management plan for all activity centers that addresses the need for safe, accessible parking for the community must be created. A town-wide transportation plan integrating all transportation elements into a single efficient system must become a priority to connect and service the proposed activity centers. This is a high priority need for the Hyannis Main Street Waterfront District, where the need for additional seasonal parking requires the implementation of satellite parking facilities and the coordination of existing parking lots to achieve the land use and community character goals of this Plan..

About Funding

The Inter-modal Surface Transportation Efficiency Act (ISTEA) of 1991, in addition to providing significantly higher levels of funding than previous acts, made some important changes to the Federal Highway Program. Under ISTEA, State and local governments have an opportunity to use authorizations that average about 50% more per year (\$25 billion rather than \$17 billion) than the 1987 Surface Transportation and Relocation Assistance Act. The ISTEA also provides one more year of funding than the 1987 act, for a total of \$152 billion for highway (\$121 billion) and transit (\$31 Billion) programs over a 6-year period. ISTEA also restructured the Federal-aid Highway Program, giving a wide range of opportunities for local government officials to participate in decisions regarding transportation programs. New provisions for statewide and metropolitan planning involve both state and local governments in the development of long and short range improvement plans. Also, ISTEA requires the State Transportation Agency to

cooperate or consult with local governments, including Metropolitan Planning Organizations (MPO), on project selection and implementation.

The Metropolitan Planning provisions of the Act make the MPO responsible for developing, in cooperation with the State and affected transit operators, a long-range transportation plan and a Transportation Improvement Program (TIP) for the metropolitan area. The Cape Cod Commission serves as the Town's MPO. ISTEA establishes a process for Federal funding of major projects that requires completion of certain studies, but also makes the studies addressing those projects grant eligible.

Goals, Policies, and Strategies

ISSUE - Roadway Improvements:

Barnstable's transportation system has been severely impacted by residential and commercial growth in the past two decades. The provision of "off-site" transportation improvements have not been commensurate with "on-site" development. As a result, the transportation system has constrained further growth of the town. Traffic congestion on the existing roadway system has led to the low level of service, longer travel time, delays, inconvenience and safety problems. This problem is detrimental to the town's quality of life, natural environment and economic development. This transportation system should be improved to properly direct and encourage development in accordance with the town's land use objectives and to support appropriate economic growth and tourism while protecting environmentally sensitive areas and the historic and community character.

A quick glance at the existing road network of the town reveals three major east-west roads, three primary north-south roads, and an intricate network of local streets. This network reflects that the overall roadway system was developed in an incremental fashion, except for the major regional roadways (Routes 6, 132). The town has developed a uniform regulation in developing equal width of roads irrespective of their intensity of use or amount of traffic they will carry on a daily basis (functional classification). This has resulted in a situation in which some roads are underutilized and others are operating beyond their capacity, although all roads were developed at minimum standards. (See Attachment H).

The town has recently classified its roads by function, prioritizing them according to their role in local, town-wide, or regional transportation. This required a road classification system based on function, taking into consideration interconnectivity, surrounding land uses and daily traffic volume. Also, the Cape Cod Commission has classified the roadway system based on environmental sensitivity, scenic and historic values as well as economic impact. These two hierarchies of road classification will help in prioritizing the necessary improvements and promote efficient management. This will also provide a guide for development of future roads and their circulation pattern.

Goal 4.1.1 The town shall undertake a program to improve the safety and quality of traffic flow on all elements of the roadway network and the town shall coordinate and encourage appropriate modes of transportation in addition to the automobile. This goal shall be achieved in a manner that preserves the rural and historic aesthetics of the

town as well as to protect its natural resources from contamination to the maximum extent practicable.

Note: For the purpose of this section, "maximum extent practicable" indicates the use of best management practices, cost - benefit analysis and exploration of all feasible alternatives to a project that has a negative impact on historic, scenic or natural resources.

Policy 4.1.1.1 - Functional Classification of Roadways - The Town of Barnstable Department of Public Works will maintain a listing that functionally classifies its roadway network utilizing criteria adopted by the Federal Highway Administration (FHWA) in the case of National Highway System (NHS), and Massachusetts Highway Department in the case of other roads, to classify the roads within urban and rural areas into several systems; Principal Arterial System (including Arterials and Extensions), Minor Arterial System, Collector System, and Local Street System. Total Urban roads equals 432.54 miles, total Rural roads equal 24.02 miles. (See Volume 2).

Strategy 4.1.1.1.1: The town of Barnstable Department of Public Works will maintain a listing that functionally classifies its roadway network.

Note: For transportation planning purposes, roads are classified functionally by the character of the service they provide. See Volume 2 for list of roads. These include:

Principal Arterials, (including Arterials and Extensions) principally provide for pass-through of regional traffic and access to major activity centers.

Minor Arterials, which principally distribute regional traffic to small activity centers and, on a limited basis, land access.

Collectors, which principally provide both land access and traffic circulation.

Local/Subdivision Streets which principally provide access to abutting lands and connections to higher order categories.

Under the "Urban" Category, Principal Arterial Extensions total 21.38 miles, Principal Arterials total 8.15 miles, Minor Arterials total 59.78 miles, Collector streets total 40.42 miles, Local roads total 302.80 miles. Under the "Rural" category of roads, Minor Arterials total 4.21 miles, Major collectors total 2.18 miles, Minor Collectors total 3.14 miles and Local roads total 14.49 miles.

The "Urban" area of the Town of Barnstable has been established by Mass. Highway Dept. and Dept. of Transportation and solely for the purposes of ISTEA. Most of the Town is categorized under "Urban" roads; the boundary is Route 6A from Yarmouth Town line to Route 132, Oak Street from Route 132/Route 6A to Route 6, and from Route 6 to Old Stage Road and Race Lane from Old Stage Road to the Sandwich Town line. (See below) The remaining area of Town is considered "Rural", or "non-Urban".

Policy 4.1.1.2 Cape Cod Commission Classification of Roadways - The Department of Public Works shall classify the roadways based on their function and capacity and shall be in accordance with the current version of the Cape Cod Commission's Regional Policy Plan, Cape Cod Classification Map.

Strategy 4.1.1.2.1 Town of Barnstable roadways which meet these definitions will be shown on a "Town of Barnstable, Roadway Classification Map".

to Cape Cod that must be preserved. Such roadways often provide access to a mix of residential and small commercial areas.

Class C - Local Roadways of Regional Significance. These are roadways that typically serve local traffic but provide mobility between towns. Area development is often characterized primarily by residential uses.

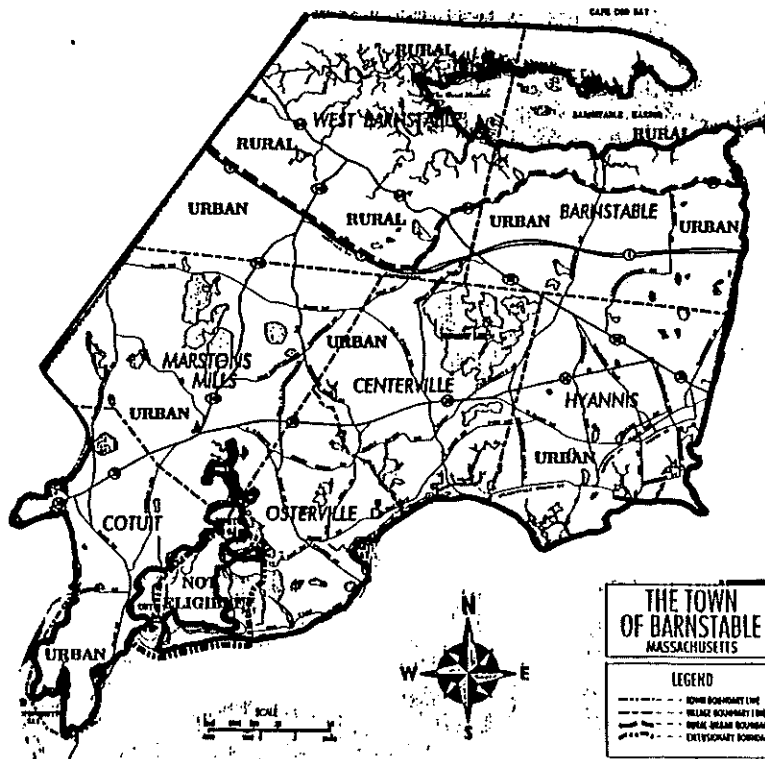
Class D - Other Local Roadways - These are Locals that typically serve local traffic.

Note: A map showing the functional classification of roadways is located Volume 2, Appendix of this LCP.

Policy 4.1.1.3 - Scenic Roads - Maintain and preserve Scenic Roads as set forth in the Historic Preservation/ Community Character Section, listed in Volume 2.

Policy 4.1.1.4 Development of Land Use Pattern - The Town shall establish a land-use pattern that is consistent with the Functional Roadway Classification system, supportive of multi-modal transportation service system and consistent with the designation of activity centers. Strip development along existing corridors is expressly prohibited for the purpose of encouraging new development and redevelopment within defined activity centers.

Strategy 4.1.1.4.1 Land Use - Develop, high quality, appropriate, compatible land uses that are consistent with the overall goals of the Transportation, Natural Resources, Economic Development, Village Vision Plans, and Land Use sections of this plan. Promote supportive and interdependent land uses to reduce trips, encourage pedestrian paths between land uses, and support mass transportation whenever feasible.



Strategy 4.1.1.4.2 Development - All non-residential developments equal to or exceeding 5,000 square feet shall be subject to a traffic assessment to evaluate the impact of proposed development on surrounding roadways, and to equitably mitigate such impacts. Such analysis will be based on the summer peak hour condition.

Note: For the purposes of this section, multi-family residences of more than 2 units are considered non-residential.

Strategy 4.1.1.4.3 All development sites shall be entitled to one curb cut on the frontage roadway, or to have access to one through cross access along Class "A" roadways. Existing sites having more than one curb cut shall be required to reduce to one, if feasible, if part of a new development or redevelopment is on the same site, or adjacent to one through cross access. More than one (1) curb cut will require a special permit from the Zoning Board of Appeals with justification submitted in writing, evaluating the needs for such.

Strategy 4.1.1.4.4 Development sites and new subdivisions abutting Routes 132 and 28 shall be required to provide a cross access between parking areas for the purpose of improving traffic flow along those Class A roadways. This provision shall be specifically included in any required traffic assessment.

Strategy 4.1.1.4.5 Wherever feasible, all the parking spaces abutting a Class A or B roadway shall be provided on the side or rear of the building away from the roadways. All parking spaces for non-residential uses located on other roadway classifications shall be located behind the front building setback line. This is to be an amendment to the Zoning Ordinance.

Strategy 4.1.1.4.6 Parking lots and parking facilities shall be constructed, landscaped, and maintained in a manner that retains the village and rural aesthetics of the town and will be indigenous to the area. Specific landscaping guidelines should be adopted by the town.

Strategy 4.1.1.4.7 In areas where on-site parking is not feasible, developments may contribute to the creation of public parking facilities and/or multi-modal facilities.

Strategy 4.1.1.4.8 The town will coordinate with the Cape Cod Regional Transit Authority (RTA), local, state and federal entities in the planning and development of the multi-modal transportation center and the provision of multi-modal transportation opportunities on town-wide basis.

Strategy 4.1.1.4.9 Explore feasibility of a town-wide bus system interconnecting activity centers and other destination points.

Strategy 4.1.1.4.10 Explore the feasibility of maximizing the Railroad right-of-way to connect satellite parking facilities east and west of the Town of Barnstable.

Policy 4.1.1.5 Land Subdivision - The Town shall require all land subdivision to comply with the requirements of the Functional Classification System, and the right-of-way and paving standards as provided in the Subdivision Rules and Regulations.

Strategy 4.1.1.5.1 Ensure adherence to functional classification.

Strategy 4.1.1.5.2 Right-of-way width shall include standards for paving, curbing, drainage, sidewalk/bike path and utility location.

ISSUE - Level of Service:

Level of service (LOS) is a standard technique used in traffic engineering to evaluate the performance of roadways and intersections. It is a qualitative and quantitative measure of operating conditions on roadway segments and intersections. The technique incorporates several variables; speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort, and operating costs. Six levels of service ranging from "A", at best, to "F" at worst, are used to define this range of traffic operating characteristics. From analysis completed by the Cape Cod Commission for the Route 28/132 Corridor Study and the BYTS work, the majority of the major intersections along those corridors presently operate at level of service "F" (See Attachment M). The Cape Cod Commission's Regional Policy Plan allows the town to elect that the level of service for "Activity Centers" shall not fall below "E", and requires that the level of service for all other roadways shall not fall below "C". If LOS "C" is the accepted standard, the Town would need to construct multi-laned roadways which will degrade the historical and community character of the town. Therefore the LOS threshold is recommended to be reduced one level, to LOS "D" on major regional roadways to preserve the community character.

Goal 4.1.2 The town shall establish level of service (LOS) standards consistent with the Cape Cod Commission's Regional Policy Plan and the community character concerns identified in this Plan. These standards shall be set to reflect the designation of activity centers, functional classification of roadways, and proposed level of activity and traffic volume.

Policy 4.1.2.1 The impact of development and redevelopment on the local and regional roads with scenic and historic values (Class B, C & D, not including that part of the network located in activity centers as designated in the Land Use and Growth Management Sections of this plan) shall not degrade the quality of traffic flow below LOS "C", based on summer peak hour traffic volumes.

Policy 4.1.2.2 Within Village, Marina, and Recreational Activity Centers and major regional roadways linking these activity centers to regional activity centers, the level of service may be reduced to LOS "D" if there is a provision for safe pedestrian traffic.

Policy 4.1.2.3 Within designated Regional Commercial, Regional Industrial, Redevelopment, Hyannis Town Center and Inner Harbor, and Activity Centers containing Regional Facilities, which includes all of Route 132 south of Phinneys Lane, and Route 28 from Bearses Way to the Yarmouth Town Line, levels of service may be reduced to LOS "E" if there is a provision for safe pedestrian traffic.

Policy 4.1.2.4 If funding constraints prohibit achieving the levels-of-service stated in Policies 4.1.2.1 through 4.1.2.3 and a lower LOS persists (including LOS "F"), then

development / redevelopment shall "maintain or improve" the impacted area as required by the Regional Policy Plan, Minimum Performance Standard 4.1.1.1

ISSUE - Regional Transportation Facilities:

At present, bus service (inter-city and intra-city) does not adequately provide an inexpensive, efficient alternative to the automobile. The Cape Cod Regional Transit Authority offers only seasonal fixed route bus service and a limited demand bus service (b-bus) in the Town of Barnstable. Ridership and inter-modal efficiency could be increased by integrating and coordinating all modes of transportation such as railroad, ferries, parking facilities, and the Barnstable Municipal Airport. (See Attachment N).

Goal 4.1.3 The town shall undertake a plan which results in the Cape Cod Commission taking the lead in coordinating with the surrounding towns of Yarmouth, Sandwich, Mashpee, and Dennis for the purpose of mitigating traffic, community character, and environmental impacts resulting from the development and/or redevelopment of the regional transportation facilities within the Town of Barnstable (Barnstable Municipal Airport, Regional Transportation Authority, Steamship Authority, and railroad). The residents of these surrounding towns have benefited from these facilities in many ways but to the detriment of the Town of Barnstable. Therefore, the implementation of Local Comprehensive Plans for multimodal/intermodal facilities by these surrounding towns should be coordinated by the Cape Cod Commission with the goal of encouraging satellite services and facilities which are linked to these regional facilities. Approval of any plans for development and/or redevelopment of these regional facilities by the Town, County, Authority, or State, should be contingent on the provision of satellite services and facilities (parking, shuttle bus, self-propelled rail cars, etc.) to mitigate traffic, community character, and environmental impacts of these facilities on the Town of Barnstable.

Policy 4.1.3.1 Barnstable Municipal Airport - Integrate the facilities and operations of the Barnstable Municipal Airport with the multi-modal facilities and operations to provide a smooth transition and enjoyable experience for the traveler.

Strategy 4.1.3.1.1 Provide a direct link for passengers between the proposed Regional Transportation Center, the hospital, shopping areas, etc. and the airport via shuttle route or passageway.

Strategy 4.1.3.1.2 Provide a new entrance to the airport via a connection from Route 132 to Old Route 132 to Attucks Way. Plan for future direct access via a new Exit 6 1/2 off Route 6 to this link and an eastern access road paralleling the Old Colony Railroad line, or appropriate alternate access.

Strategy 4.1.3.1.3 Finalize the hazardous materials management emergency response plan, and continue the water quality monitoring, to address the use, storage and disposal of all hazardous materials by the airport employees and businesses mandated by the EPA (Environmental Protection Agency) as part of the RCRA (Resource Conservation and Recovery Act) permit process. This plan is to be coordinated with the Town of Barnstable Health Department, the Hyannis Fire Department and the Barnstable Water Company.

Strategy 4.1.3.1.4 Identify and implement noise buffer zones that respond to increasingly restrictive noise levels, such as indigenous aesthetic landscaping. Incorporate the FAA model zoning ordinance as a guide to implementation of this plan.

Policy 4.1.3.2 Regional Transportation Authority (RTA) - Integrate current and future plans for the facilities and operations of the Regional Transit Authority with the other multi-modal facilities and operations to provide a smooth seamless transition for the public.

Policy 4.1.3.3 Ferries - Integrate the facilities and operations of the Steamship Authority and the Hy-Line Ferry with the other multi-modal facilities and operations to provide true intermodal operations. Explore intra-county water transportation linkages and link with multi-modal facilities. (See Volume 2).

Policy 4.1.3.4 Railroad - Reestablish / expand the railroad to allow tourists and commuters access to and from the town without the use of private vehicles.

Strategy 4.1.3.4.1 Conduct a feasibility study for commuter rail and a feasibility study for tourist industry intermodal linkage to the regional transportation center, including the upgrading of tracks, expanding service and schedule, and expanding frequency runs of Cape Cod Scenic Railroad. Consider expansion of the season and frequency of the Cape Cod to Boston run and Cape Cod to New York City run to include Providence, RI

Strategy 4.1.3.4.2 Explore linking satellite parking facility at exit 7, and other facilities east and west of Barnstable, to the Regional Transportation Center location by rail down the Yarmouth Road "corridor".

Strategy 4.1.3.4.3 Coordinate current and future facilities and operations which are consistent with the Regional Transportation Plan through an inter-agency Transportation committee.

Policy 4.1.3.5 Intermodal - Integrate both on-site and off-site facilities and operations of the transportation providers at the proposed Regional Transportation Center to provide intermodal linkages, coordinated facilities and operations in the town. Coordination should include the Cape Cod Commission, Regional Transportation Authority, and neighboring towns with their multi-modal plans.

Note: For the purposes of this Section, "Shuttle Services" involve the transporting of passengers back and forth regularly over a specified and frequent short route. In this case, that would involve routes between parking lots and specific destinations (e.g. public beaches, special events, transportation center, Main Street, etc.).

ISSUE - Bikeway System

The Town of Barnstable is currently involved with the planning of a regional bikeway system with the Bikeway Committee and the National Park Service. The committee has been working hard to connect "ways" that exist with "ways" that are desired. It is

anticipated that Phase 1 will be completed one year after this Comprehensive Plan is adopted. The regional bikeway is dependent on ISTEAs funding, but alternative funding sources will be considered. There is enthusiasm from interested parties and towns Cape-wide with the prospect of a regional system. Discussions entail the overall goal as the possibility of two systems; one as a regional system that directly connects with abutting towns' system, and the other a townwide system that links village centers and recreational areas. (See Volume 2).

Goal 4.1.4 A unified bikeway system shall be developed connecting major activities and linking with bikeways in neighboring towns.

Policy 4.1.4.1 The town shall develop a Barnstable Bikeway System Plan, which shall include locations of bike lanes and/or bike paths, priorities for construction, and means of regional coordination.

Strategy 4.1.4.1.1 The bikeway system will link public facilities, including recreation areas, conservation areas, village centers, educational facilities, the proposed regional transportation center, and connect with other bike paths/bike lanes within the town, if feasible. An east-west route shall be included to connect with adjacent towns. Priority to be given to filling the gaps in the regional network in constructing the town's bikeway system.

Strategy 4.1.4.1.2 For the sake of cost, bike lanes will be considered wherever possible. Funding will be sought from ISTEAs (Federal Intermodal Surface Transportation Efficiency Act), or other external grants/funding programs wherever possible.

Strategy 4.1.4.1.3 The plan shall address accommodations for the safety and convenience of bicyclists such as bike racks, signage and amenities. Bike racks will be placed at all publicly owned facilities.

Policy 4.1.4.2 There will be, at a minimum, coordination in the planning of a regional bikeway with abutting towns and with the Cape Cod Commission.

Policy 4.1.4.3 Accommodations for intermodal connections, e.g. bike racks on trains, buses, at workplaces and shopping areas, shall be encouraged whenever possible.

Policy 4.1.4.4 Public roads will be bicycle and pedestrian friendly whenever feasible.

Strategy 4.1.4.4.1 For most roads undergoing resurfacing or reconstruction, bike lanes or bike paths shall be considered in the design, where feasible, based upon the adopted Barnstable Bikeway System Plan.

Strategy 4.1.4.4.2 If a separate path is not feasible, then a 4-5 feet wide bike lane and appropriate pavement marking should be incorporated.

Strategy 4.1.4.4.3 Appropriate signage (e.g. "Share the Road" signs) will be placed at appropriate intervals to encourage coexistence between bicycles and pedestrians.

Strategy 4.1.4.4.4 Where bike paths/bike lanes intersect with roadways, appropriate pavement markings and signalization will be placed for safety of bicycle and pedestrian crossing.

Strategy 4.1.4.4.5 Educational programs which teach the laws of bicycle safety should be fostered wherever feasible. Require completion of a safety course at time of bicycle purchase.

Strategy 4.1.4.4.6 Current vehicle laws regarding bikes must be enforced.

Policy 4.1.4.5 Development and redevelopment shall incorporate provisions for bicyclists and pedestrians so as to minimize automobile trips.

ISSUE - Pedestrian Facilities

There are currently approximately 66 miles of sidewalks throughout the town with a majority of them located in activity center areas. Due to increasing traffic and the associated hazards and population increases, the need/demand for sidewalks has increased substantially during the last five years. If sidewalks were to be constructed on all roads or all public roads (456.55 miles of roadways within Barnstable's corporate limits of which 200 miles are "public" roads) the cost of that work could exceed \$180 million, and that is unrealistic. Other factors limiting sidewalk construction is physical right of way and policies governing construction on certain roadways. The need for additional sidewalks is clear, however, but the full extent of that need is still evolving.

All sidewalks within the Town must be handicap accessible under the provisions of the American's with Disabilities Act (ADA), of which the standards are very strict. The Department of Public Works has formulated a plan of action to reconstruct existing sidewalks in line with these standards, however, the costs are significant and this work must compete with other capital projects for the limited financial resources.

Goal 4.1.5 The town shall improve existing pedestrian facilities to improve their usability and shall develop additional facilities to improve pedestrian safety and encourage pedestrian travel. To the maximum extent practicable, this goal shall be achieved to protect public safety in a manner that preserves the character of individual roadways.

Policy 4.1.5.1. Pedestrian Facilities - The town shall develop a Pedestrian Facilities Plan which shall include locations of sidewalks, priorities of construction, and funding sources.

Strategy 4.1.5.1.1 Sidewalks should be limited to areas of high traffic; including all arterials and collectors as well as streets within activity centers with traffic volumes greater than 2,000 vehicles per day. Sidewalks should not interfere with the scenic and historical nature of a street.

Strategy 4.1.5.1.2 Sidewalks should only be constructed on local streets when requested by a majority of the residents along the street who would pay for the cost through a betterment program.

Strategy 4.1.5.1.3 Sidewalks should be installed on arterial and collector roadways when pedestrian safety is at issue and to provide safe school routes for children. When there is sufficient width of the right of way to allow at least a ten-foot buffer between the edge of the sidewalk and the traveled way, the sidewalk should be constructed without curbing; saving all trees/bushes/shrubs/stone walls to the maximum extent possible. Scenic roads are not included in this strategy.

Strategy 4.1.5.1.4 All new sidewalks should be at least five feet wide and must comply with ADA access requirements/ standards.

Strategy 4.1.5.1.5 Develop safe walkways for schools to reduce the need for bus service. (See Volume 2).

ISSUE - Parking, Shuttle Busses

The main parking goal of the Town of Barnstable is to provide safe and accessible facilities to meet the needs of the community. Hyannis, the "hub" of the town, is in dire need of a Parking Facility Management Plan to address the inadequacies of existing facilities. The Hyannis Parking Study of 1992 shows a need for incentives as well as public awareness programs to persuade motorists to park at those lots that remain under-utilized during peak periods. (See Volume 2). Signage placed strategically at entrance corridors could inform visitors of congestion and how to avoid it and could direct them to open parking facilities. A shuttle bus system that operates on a reliable and convenient schedule compatible with the ferry arrivals and departures would provide passengers with an easier trip as well as encourage use of land away from the harbor.

Goal 4.1.6 Adequate on-site and off-site parking shall meet the needs of the community. Priority should be given to the needs within Activity Centers, and to promote the use of shuttle bus service from satellite parking facilities to recreational areas, tourist attractions, commercial areas and other destinations, while being sensitive to the scenic and historic nature of the area.

Policy 4.1.6.1 Parking - The town shall promote the use of existing parking facilities to their full capacity, assuring access and landscaping, by developing a Facility Management Program.

Strategy 4.1.6.1.1 Expand the existing directional signage program on town roads to include major parking facilities. Improve signage along Class "A" roadway entry points and at major crossings to identify parking areas for all major town destinations (Malls, Downtown Hyannis, Melody Tent, Ferry Terminals, Hyannis Harbor, JFK Memorial, Cape Cod Hospital), and also at automobile access points to all parking lots, particularly on North Street and the proposed Regional Transportation Center (Hyannis) and satellite parking areas, including directory of businesses in the block or available by multi-modal transport. Maps to be located in telephone books.

Strategy 4.1.6.1.2 Improve existing walkways and create new walkways to parking lots, including landscaping, lighting and signage within the downtown

Hyannis area, activity centers, and other village centers. Continue to provide handicapped accessibility at curbs and crosswalk striping.

Strategy 4.1.6.1.3 Utilize parking facilities such as at the Route 6 exits, Cape Cod Community College, school parking lots, regional transportation center and airport parking areas, or other facilities as needed, when not used for primary purposes, and provide shuttle service to major destinations and activity centers. Promote satellite facilities at a new exit off of Route 6 at the Industrial Zone, between exit 6 and exit 7. This strategy is strongly recommended for implementation during the summer months, in cooperation with the Hyannis area merchants, railroad, Hy-Line and Steamship Authority. Coordination with a town-wide multi-modal system on a year-round basis is a long-term strategy. Explore the feasibility of parking garages including those constructed underground.

Strategy 4.1.6.1.4 The town should amend the existing parking regulations within the zoning ordinance to reduce the parking requirement for development(s) and redevelopment that provide an alternative to single occupant auto usage such as car/van pooling and/or other mass transportation.

Strategy 4.1.6.1.5 The town should limit hours and days of service deliveries and pick ups that service central commercial areas. Deliveries should be made at the rear of the business where possible.

Strategy 4.1.6.1.6 Develop a Facility Management Plan and identify funding.

ISSUE - Long Range Transportation Plan

It is anticipated that transportation improvements, including those that are the responsibility of the town and numerous other jurisdictions and interests, will require investments of tens of millions of dollars over the next 10-20 years. The Town of Barnstable Departments of Planning and Public Works have formulated several programs as part of its capital planning activities. The town has joined with a number of other interests to conduct the Barnstable-Yarmouth Transportation Study (BYTS) to coordinate it's long-range transportation plan and it's findings are an integral part of this Local Comprehensive Plan.

The Cape Cod Commission serves as staff to the Metropolitan Planning Organization (MPO) and has the responsibility for drafting the Long Range Transportation Plan (LRTP) for Cape Cod (Barnstable County) and the annual Transportation Improvement Program (TIP), mandated by the federal Intermodal Transportation Efficiency Act (ISTEA). The other member agencies of the MPO are the Massachusetts Highway Department, the Executive Office of Transportation and Construction (EOTC), and the Cape Cod Regional Transit Authority (CCRTA).

In view of the number of interests involved it is essential that any programs or improvements recommended for construction be compatible with the goals and policies of the Local Comprehensive Plan, the Cape Cod Regional Policy Plan, and the policies established under ISTEA. It is also essential that there be a balance among the various modes of the transportation system that are in the best interests of the town. This will enable all of the interests involved to maintain/improve/expand the existing

transportation infrastructure and services and create new facilities and services to reduce traffic congestion, improve traffic circulation, and also improve air quality.

Goal 4.1.7 The public and private sectors shall participate in the maintenance and improvement of traffic flow and safety by participating in a long-range improvement program and providing mitigation.

Policy 4.1.7.1 Improvements of Existing Traffic Flow - The Town shall improve existing traffic flow, safety, and signage to reduce congestion along roadways by adopting a traffic management system that minimizes confusion for residents and tourists alike.

Strategy 4.1.7.1.1 Improve directional signage, signage to parking areas, and areas of special interest so that travelers unfamiliar with the area reach their destinations efficiently and without confusion.

Strategy 4.1.7.1.2 Promote the development of a seasonal shuttle service for the visitors and local residents in cooperation with local area businesses such as the Steamship Authority, Hy-line, and other Hyannis business interests.

Strategy 4.1.7.1.3 Consider traffic re-routing based on the findings of the regional transportation study. Consider one-way traffic routing especially in central congested business areas and activity centers where a one-way circular flow could be developed.

Strategy 4.1.7.1.4 Work with the Cape Cod Regional Transit Authority and neighboring towns to coordinate the provision of public transportation for residents and visitors.

Strategy 4.1.7.1.5 Through the Barnstable-Yarmouth Transportation Study (BYTS), examine the feasibility of:

- Widening Route 132 from Route 6 to the Rotary
- Extend Old Route 132 from Route 132 to Attucks Lane
- Widening Route 28 at selected locations
- Improvements to the Airport Rotary
- New access to the airport
- Widening Yarmouth Road with coordination of the Town of Yarmouth
- Improvement/extension of Route 6 Service Road
- New interchange off Route 6 (Exit 6 1/2) at Phinney's Lane or Mary Dunn Rd. or other feasible location
- Remove curb-cuts on rotaries
- Right lane through signal at intersections
- Yield signal for right turn into Malls
- Readjust and interconnect signal lights
- One-way roadways
- Travel map distribution illustrating alternative routing at key times of congestion
- Permit deliveries only at specified hours in congested areas
- Establishing Massachusetts Military Reservation as a regional commercial airport

-
- Impact Fees

Strategy 4.1.7.1.6 All secondary roadways shall use roadway signs that characterize the Cape Cod style which includes small scale, bleached wood, with burnished writing.

Policy 4.1.7.2 Maintenance of LOS / Mitigation of Congestion - Plans for development and redevelopment shall make provisions to mitigate traffic impacts based on the peak summer hour condition, utilizing structural and/or non-structural improvements with special emphasis on alternatives to the use of private automobiles. Such mitigation shall take into account road function and classification, as well as the impacts on the natural resources, economy, level of service, village character, scenic views, and historic preservation. Such mitigation shall be coordinated with the town's Capital Improvement Program and, where appropriate, the Regional Transportation Improvement Program (TIP). See funding/grant information in the Capital Improvement Program Section (6) for further information.

Strategy 4.1.7.2.1 Necessary roadway improvements shall occur concurrently with the construction of any development and/or applicants will make a contribution of funds to the town in lieu thereof. All minimum measures on state highways must be in accordance with Massachusetts Highway Department access requirements, standards, and policies. At a minimum, the town shall evaluate Massachusetts Environmental Policy Act's (MEPA) Guidelines for Traffic Impact Assessment. All improvements planned for State Highways will be coordinated through the Massachusetts Highway Department and be consistent with the town's Capital Improvement Program (CIP), the County's Long Range Transportation Plan, and the TIP.

Strategy 4.1.7.2.2 The town shall allow for up to a 25% reduction in traffic volumes for development and redevelopment that provide for practical alternatives to the single occupancy vehicle.

Strategy 4.1.7.2.3 Require developers, through the permitting process, to conform to all recommended transportation flow procedures that will also include and accommodate vehicle pass-throughs, pedestrian walkways and bike paths between neighboring development sites.

Strategy 4.1.7.2.4 Permissible mitigation shall be in accordance with the Cape Cod Commission's Regional Policy Plan as defined below:

(A) Along all roads (Classes A, B, C, and D), mitigation that reduces automobile trips and peak traffic demands without construction of facilities for the alternative modes shall be permissible for major projects. Examples of this form of mitigation, include demand management, providing shuttle bus services, car or van pooling, and promoting pedestrian and bicycle accessibility. If structural mitigation is required to reduce automobile trips, such as the construction of sidewalks, bicycle paths and shuttle bus stops, these shall be permissible provided that the construction does not degrade environmentally sensitive areas or interfere with identified scenic or historic values.

(B) Measures such as demand management and systems management, such as changes to pavement markings, signage, signal timing, optimization of existing traffic lights, turn restrictions, changes in traffic patterns, limited removal of obstructions to safe sight distances, curb cut consolidation, and conflict point reduction are generally permissible mitigation strategies on all

roads (Classes A, B, C, and D). Priority to be given to traffic demand management, however, all systems should be considered.

(C) Structural mitigation (new signalization, new road links, intersection realignment, road widening, interchange construction or other improvements): These types of mitigation are generally acceptable only in areas that are not environmentally sensitive, and do not have identified scenic or historic qualities that would be degraded by the mitigation. These types of mitigation are only acceptable if it is demonstrated that other forms of mitigation are inadequate to alleviate a project's impact on traffic safety and operations. Therefore, this mitigation is generally permissible on portions of local roadways of regional significance (Class C) and other local roadways (Class D) provided no identified scenic or historic values are degraded. Such mitigation is generally not permissible on regional roadways with scenic and historic values (Class B).

ISSUE - Roadway Network Maintenance

There are 1,651 (456.55 miles) roadways within Barnstable's corporate limits. Of this total, approximately 623 (250 miles) are "public" roads (i.e., publicly laid out and accepted) and the remainder are "private" roads (i.e., legally undefined or unaccepted). The replacement cost of these roads is approximately \$290 million, thus, both public and private roads represent a significant asset to the town. The relative importance of the roads is further evidenced by the approximately 40 million vehicle trips that the 40,000+ town residents made using the network of roads during 1992 and the tens of millions more trips local business generated during the same period. Deferred maintenance and increasing traffic loadings result in an accelerated deterioration of the roadways.

Although many of the "private" roads are local/subdivision roads, a significant amount are roads that carry a great deal of traffic and play an important role in the movement of traffic throughout the town. The town has historically performed limited maintenance and emergency repairs on these roads in order to guarantee emergency vehicle access and school bus passage. A program to repair roads utilizing assessments of the abutting property owners has proven to be unsuccessful due to the views of the property owners.

Goal 4.1.8 The town shall protect the significant public and private investments in all roadways within its boundaries by undertaking a program to properly maintain its roadway infrastructure. To the maximum extent practicable, this goal shall be achieved to protect public safety in a manner that preserves the character of individual roadways and protects the natural resources adjacent to thereto.

Policy 4.1.8.1 Roadway Maintenance - The Town of Barnstable Department of Public Works, will repair and maintain roadways throughout the town to the maximum extent possible, giving priority to roadways with pavement in the worst condition and to roadways bearing a significant amount of traffic to limit the need to reconstruct them. The funding of this work will come from a combination of sources including general fund revenues, betterments, grants, and gifts.

Strategy 4.1.8.1.1 The Town of Barnstable Department of Public Works will evaluate the condition of the pavement on all roads, public and private, and will perform traffic counts throughout the town, incorporating that information into a program to establish priorities for capital projects.

Strategy 4.1.8.1.2 The Department will work with its counterparts in adjacent communities to coordinate activities on those roads that cross town boundaries.

Strategy 4.1.8.1.3 The Department will prepare an annual report to the Town Manager identifying both problems and accomplishments as well as a listing of the backlog of deferred road maintenance caused by limited financial resources.

Policy 4.1.8.2 Private Roads - The Town Council should adopt a policy to deal with the repair, maintenance, and where necessary, reconstruction of private roads on an equitable basis. The funding of this work should come from a combination of sources including general fund revenues and betterments.

Capital Facilities and Infrastructure

Section 4.2 - Section 4.8

Introduction

This section of the Local Comprehensive Plan addresses the need for the public facilities and services necessary to support existing development as well as growth in the town. This section is divided into the following seven sub-sections:

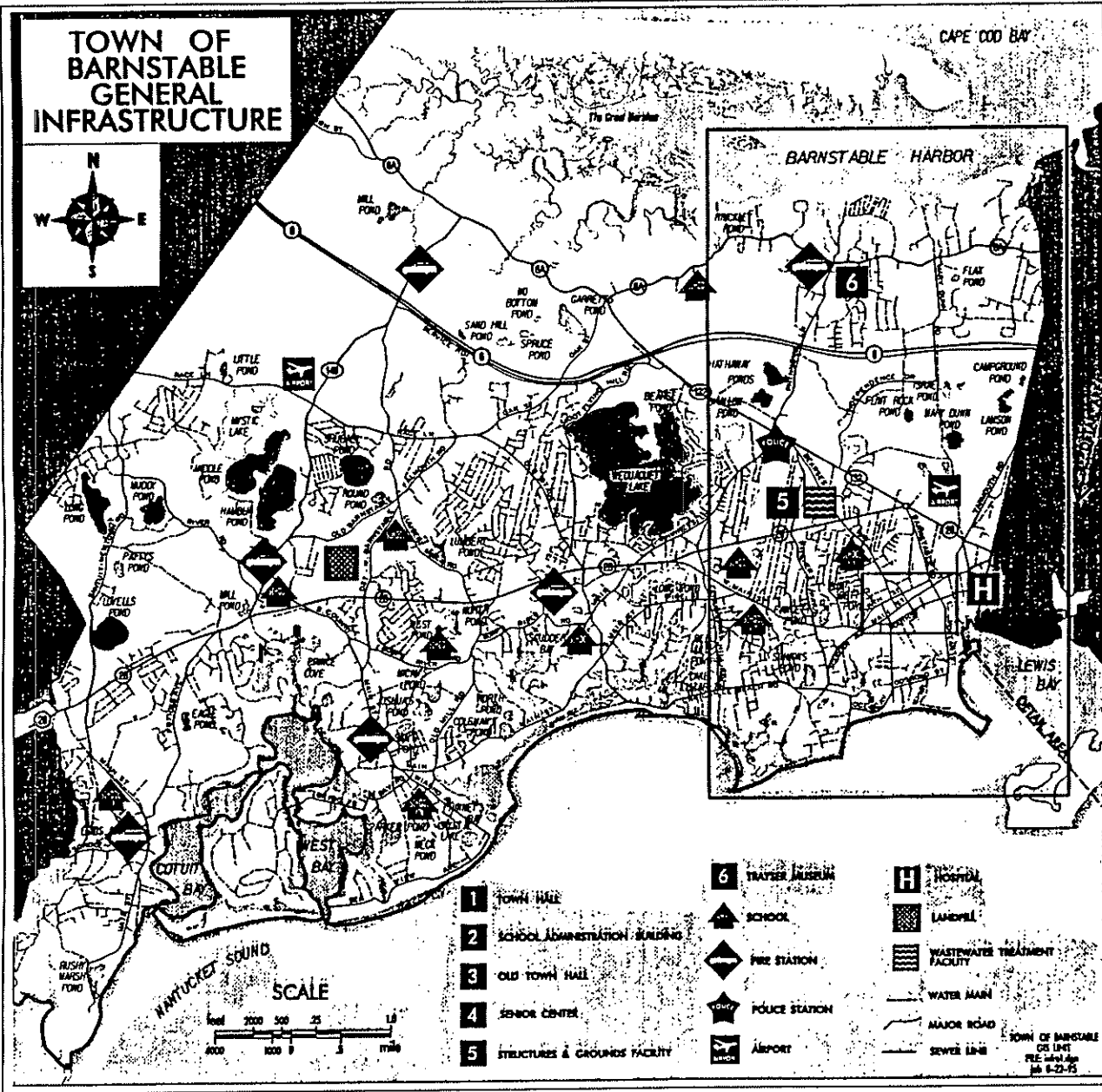
- 4.2 General Public Facilities
- 4.3 Solid and Hazardous Waste
- 4.4 Wastewater
- 4.5 Water Supply
- 4.6 Stormwater Collection
- 4.7 General Town Facilities
- 4.8 Energy

The goals and policies of this section, consistent with other sections of the Local Comprehensive Plan, will address the need for the facilities essential to support specific programs, actions or strategies of the overall land use and growth management program. This section will not only analyze existing public facilities and services but will also address future facilities that must precede or coincide with any new growth or development. When feasible, these new facilities shall be phased to coincide with the future development in the town.

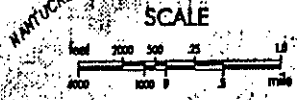
The Regional Policy Plan requires that infrastructure be coordinated with economic growth in each town. This mandate requires an evaluation of the impact of existing development on existing infrastructure. The location of land areas proposed for economic growth in this plan and the intensity of use also must be identified. Infrastructure is defined as the following: "Facilities and services needed to sustain residential, commercial and industrial development including, but not limited to water supply and distribution facilities, sewage collection and treatment facilities, streets and roads, communications, energy, and public facilities such as schools and fire stations".

Population growth in the past twenty years has increased the burden on facilities and services. It is difficult, however, to assess the exact impact on services in terms of increased demand and change in quality of services -- the impact is directly related to demographic changes, which must be determined before the impact of growth can be addressed. The town's ability to provide these services will have a direct effect on quality of life for Barnstable residents.

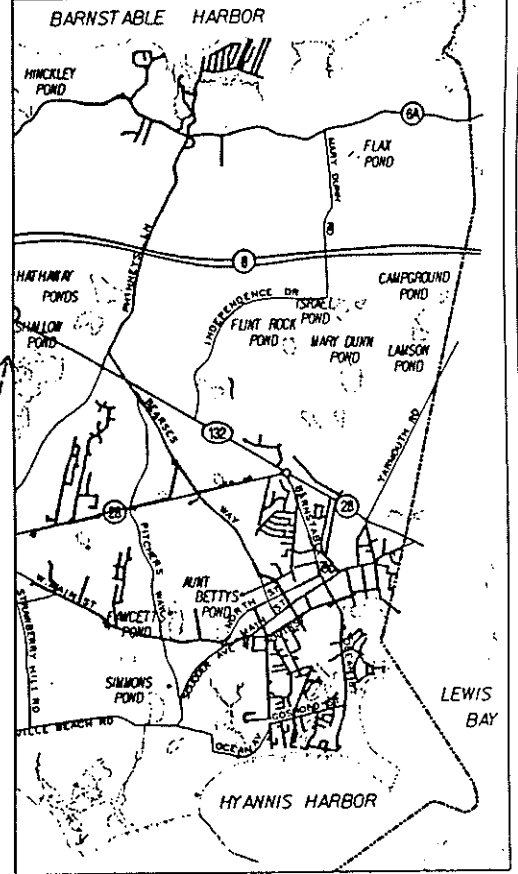
TOWN OF BARNSTABLE GENERAL INFRASTRUCTURE



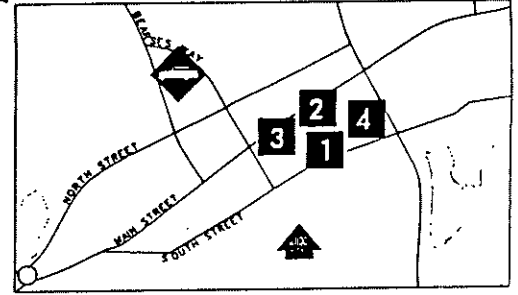
- | | | |
|--|-------------------------|-------------------------------|
| 1 TOWN HALL | 6 TRAYNER MUSEUM | H HOSPITAL |
| 2 SCHOOL ADMINISTRATION BUILDINGS | SCHOOL | LANDFILL |
| 3 OLD TOWN HALL | FIRE STATION | WASTEWATER TREATMENT FACILITY |
| 4 SENIOR CENTER | POLICE STATION | WATER MAIN |
| 5 STRUCTURES & GROUNDS FACILITY | AIRPORT | MAJOR ROAD |
| | | SEWER LINE |



DETAIL AREA: SEWER LINES



DETAIL AREA: DOWNTOWN HYANNIS



Based on the goals and policies outlined in the Land Use Section (Section 1) of this Comprehensive Plan, sufficient quantities of infrastructure shall be provided, particularly the public facilities required for law enforcement, government, waste disposal, education, community centers, and recreation. The Town shall cooperate with the private facility providers of water supply, libraries, health, fire protection, and social services in order to coordinate the provision of further facilities and services to meet the community and regional need.

Community facilities provide services to the residents of the town and include sewage facilities, solid and hazardous waste facilities, water supply, law enforcement and fire services, the senior center, the town administration complex, the Kennedy Rink, schools, and both of the town marinas. Regional facilities provide services to a larger number of people, have a larger service area than the Town of Barnstable and include all health care facilities and the Cape Cod Hospital, Cape Cod Community College, the proposed regional transportation center, Barnstable Municipal Airport, the County Complex, and both of the Town harbors. The goal of this section of the Comprehensive Plan is to provide adequate community and regional facilities to meet community and regional needs. Those facilities not controlled by the Town will be encouraged to provide adequate services to meet the needs of the community as well as mitigate off-site impacts to the Town's infrastructure.

Each infrastructure service shall have performance standards based upon the sections and policies of this plan. Particular emphasis should be placed on:

- A) Activity center location
- B) Level of service thresholds
- C) Nutrient loading thresholds
- D) Groundwater Protection Overlay Districts
- E) Environmentally sensitive areas
- F) Sanitary sewer facilities based on the facilities plan.

With the designation of "Activity Centers" within the town, infrastructure will be necessary to support the designated level of service and provide for the expected growth. Infrastructure is also needed where natural resources are being threatened by inadequate septic systems, toxic plumes, and/or road runoff.

Approval of development and redevelopment that increases the intensity of use shall be based on existing infrastructure capability or on the development's ability to provide for or contribute to the infrastructure and services necessary to support it. Development shall be timed to meet the need generated by the installation of necessary infrastructure, or a contribution of funds toward the necessary improvements shall be provided.

The Capital Improvement Program (CIP), the five-year plan of action (See Section 1.0 for implementation information), serves as a link between planning, programming and projects with a fiscal base. The CIP fiscal limitations and funding sources (now and future) are a limiting factor to infrastructure expansion and improvement and will have a direct relationship to the rate and location of new growth and development. The capital improvements and programs considered in this Section include:

General Public Facilities (4.2) Includes goals, policies, and strategies related to the issues outlined on the previous pages.

Solid and Hazardous Waste (4.3) Goals include diverting 30% of solid waste from incineration and landfill facilities to recycling and compost programs, and seeking alternative disposal methods when the landfill closes its present function. A Town-wide emergency response plan for spills of hazardous waste must be finalized and the locations of approved facilities for disposing of hazardous waste must be made readily available to all residents. All commercial users, sellers, producers of hazardous material shall be registered and an ordinance preventing large-scale users from operating in wellhead protection districts should be implemented.

Wastewater (4.4)

While the town sits atop a sole-source aquifer, and about 27% of the land area in the town lies within zones of contribution to public water supply wells, only 15% of the town is served by the existing wastewater collection and treatment system. The rest of the town relies upon septic systems, which can potentially contaminate groundwater with nutrients. The Wastewater Treatment Facility must be sized to meet need and a plan to expand the sewer system must be formulated. At the same time, the town must ensure that treated effluent from the plant does not contaminate groundwater.

Water Supply (4.5)

The Town of Barnstable has no direct control over the public (fire districts) and private (Barnstable Water Company) water suppliers in town. These independent entities maintain their own infrastructure and plan their own capital expenditures. This plan recommends intergovernmental coordination in case of emergency and to plan for the necessary water supply and distribution system to support future growth. A water supply contingency plan must be developed.

Stormwater (4.6)

A significant contributor to the many shellfish bed closures in the Town of Barnstable has been stormwater runoff from roads. Infrastructure must be designed and extended to capture and treat the runoff before it reaches environmentally sensitive areas. The town must develop and implement a town-wide stormwater management plan.

Town Administrative Facilities (4.7)

In order to deliver high-quality services to Barnstable residents, the town must maintain the following facilities and services: 1) Barnstable Municipal Airport, 2) Old Town Hall, 3) Town Hall, 4) School Administration Building, 5) Schools, 6) Structures and Grounds Maintenance Facility, 7) Senior Center, 8) Kennedy Rink, 9) Libraries, 10) Recreational Facilities, 11) Trayser Museum, and 12) Town landings. The town should plan for capital improvements and debt management to ensure adequate schools, recreation facilities, and public safety departments.

Energy (4.8)

Residents of Barnstable County pay some of the highest energy costs in the nation. Electricity costs the residential customer an average 13.87 cents per kilowatt hour, eighth highest among all counties in the country as of February 1991. The Cape has averaged the highest fuel oil and gasoline costs in the

Commonwealth since the Massachusetts Division of Energy Resources started keeping records in 1980. Natural gas prices in Barnstable County are second highest in the country with an average cost per therm of \$1.07 as of February 1991. The Cape Cod Commission has developed a Barnstable County Energy Management Plan to encourage energy conservation and improved energy efficiency, to encourage and stimulate investment in energy conservation and renewable energy sources, and to manage land uses to maximize energy efficiency.

Section 4.2 - General Public Facilities

ISSUE - Providing Adequate Facilities

Based on the goals and policies of the Land Use Section of this plan, sufficient quantities of infrastructure shall be provided, particularly the facilities required for police, government, waste disposal, education, community centers, and recreation. The town shall cooperate with the facility providers of water supply, libraries, health, fire protection, and social services in order to coordinate the provision of respective facilities and services.

Community facilities include sewage facilities, landfill, water suppliers, law enforcement, fire services and town administration facilities. Regional facilities include all health care facilities and the Cape Cod Hospital, the Cape Cod Community College, the proposed regional transportation center, Barnstable Municipal Airport, and both of the town harbors. (See Town of Barnstable Community Facilities Map, Attachment A).

Goal 4.2.1 To provide adequate community and regional facilities to meet current as well as planned future community and regional needs.

Policy 4.2.1.1 Each infrastructure service shall have performance standards based upon the sections and policies of this Local Comprehensive Plan. Particular emphasis should include:

- a. Activity center location,
- b. Level of service thresholds,
- c. Nutrient loading thresholds,
- d. Groundwater Protection Overlay Districts,
- e. Environmentally sensitive areas, and
- f. Sanitary sewer facilities based on the Facilities Plan.

ISSUE - Capital Improvement Program

With the designation of activity centers within the town, infrastructure will be necessary to service existing development and expected growth. Infrastructure is also needed where natural resources are being threatened by inadequate septic systems, toxic plumes, and/or road runoff.

The role of the Capital Improvement Program (CIP) serves as a link between planning, programming and projects with a fiscal base. The CIP fiscal limitations and funding

sources (now and future) are a limiting factor to infrastructure expansion and improvement, and will have a direct relationship to the rate and location of new growth and development. (See Section 1.10, Implementation Strategies for further information).

Goal 4.2.2 Private and public infrastructure shall be provided based upon growth management policies and strategies within this LCP and the Town's Capital Improvement Program (CIP).

Policy 4.2.2.1 Approval of development and redevelopment that increases the intensity of use shall be based on existing infrastructure capability, programmed and funded capacity approved in the town's CIP or on the developments ability to provide for or contribute to the infrastructure and services necessary to support it. Development not supported by existing infrastructure capacity shall provide for the installation of necessary infrastructure consistent with this LCP or make a contribution of funds toward the necessary improvements which shall be programmed to benefit the project area within the Town's CIP.

Policy 4.2.2.2 The town's Annual Capital Budget shall give priority to allocating adequate resources to meet documented present and future capital project needs, based on this Local Comprehensive Plan, and fiscal policies coordinated through the Comprehensive Financial Advisory Committee and adopted by the Town Council.

Section 4.3 Solid and Hazardous Waste Disposal

ISSUE - Landfill and Transfer Station

The various types of solid waste produced in the town are presently being dumped at the Barnstable Solid Waste Management Facility at Flint Street in Marstons Mills. The landfill area encompasses approximately 64 acres and has been used for dumping and landfill purposes for more than sixty years. The landfill is scheduled to close within the next 2 years. (See Attachment B for information on Landfill).

The Town of Barnstable, together with the Town of Yarmouth, has constructed a transfer station in Yarmouth to bring waste to the SEMASS refuse-to-energy plant. The two towns have an intermunicipal agreement for maintenance and operation of the facility. The Town of Barnstable has a waste acquisition agreement with SEMASS to dispose of solid waste for 27 years at a cost of \$21.99 per ton. The SEMASS facility is a 1,500 tons per day mass burning incinerator, generating electricity to be sold to Commonwealth Electric. The agreement specifies the acceptable and unacceptable solid waste material that will be transported to SEMASS facility. (See Attachment B)

Once the landfill closes, unacceptable waste hauled to SEMASS will require other methods of solid waste management. Sources of solid waste are:

1. Household
2. Non-household
 - a. Commercial Establishments
 - b. Manufacturing Establishments
 - c. Town Facilities

d. Construction Contractors

The Town has applied under the provisions of 310 CMR 30.393 to site a household hazardous waste center at the Solid Waste Management Facility. The operation will help to minimize the amount of household products containing hazardous material disposed by residents as typical solid waste materials detected at municipal landfills, transfer stations and at plants such as SEMASS.

The Barnstable Household Hazardous Waste Center will consist of a 250-square-foot center. The center intends to accept those materials generated by town residents defined as "Household Hazardous Waste" by the US Dept. of Environmental Protection. In addition, the Center will accept certain types of non-hazardous, Massachusetts-regulated wastes that can be recycled or reused, including waste oil and possibly latex paint.

Goal 4.3.1 An Integrated System of Waste Management (ISWM) shall be developed that includes source reduction, recycling, composting, incineration, and landfilling for dealing with municipal solid waste, sludge, and demolition materials.

Policy 4.3.1.1 Twenty percent of municipal solid waste from incineration and landfill facilities shall be diverted through recycling and composting programs by 1996 and 30% by 2000.

Strategy 4.3.1.1.1 There shall be coordination of existing recycling programs and shall be in accordance with state and federal guidelines.

Strategy 4.3.1.1.2 The town shall continue to encourage residential leaf and yard waste to be delivered to the landfill since it is combined with the sewage sludge and composted into a soil conditioning product.

Strategy 4.3.1.1.3 As recycling programs become implemented, the town shall implement a public educational program to promote the programs by bulletins and by advertising.

Policy 4.3.1.2 The Enterprise Fund solid waste operation should be maintained pursuant to Massachusetts General Law, Section 53F1/2 of Chapter 44 allowing Barnstable to establish such a fund for operation and maintenance, capital improvement, debt service, facilities planning and all other applicable costs.

Strategy 4.3.1.2.1 Town of Barnstable shall adopt accounting methods that reflect all capital costs and operational expenses of solid waste disposal and recycling and establish fee schedules based on such costs, or make it known to taxpayers what the true cost is for such disposal and recycling.

Strategy 4.3.1.2.2 The Town of Barnstable will continue recycling methods based upon established markets for recyclables and will expand as feasible.

Strategy 4.3.1.2.3 The Town of Barnstable will encourage leaf and yard waste to be delivered to the landfill for composting.

Policy 4.3.1.3 The town shall coordinate with the County in regionalizing ISWM facilities in an effort to increase the benefits of economies of scale, where determined appropriate and whenever possible.

Policy 4.3.1.4 The town shall reduce as much as possible the amount of solid waste created. Priority shall be placed on the need to recycle or compost waste that cannot be avoided. Consideration will be given to incinerate waste that cannot be recycled or composted.

Policy 4.3.1.5 Development and redevelopment shall allocate adequate storage space for interim storage of materials to be recycled.

Policy 4.3.1.6 Construction and demolition debris from development and redevelopment shall be removed from construction sites and disposed of in accordance with the integrated solid waste management system.

Policy 4.3.1.7 All restricted materials defined by applicable regulations (310 CMR 19.017) from commercial and residential producers must be disposed of at an approved facility.

Strategy 4.3.1.7.1 Locations of approved facilities will be listed and readily available at the landfill and at appropriate town departments.

ISSUE - Hazardous Waste

According to recent information from the Department of Environmental Protection (DEP), there are 22 sites in the town that are confirmed hazardous waste sites, 17 locations to be investigated, and two remedial sites. (See Attachment B).

Goal 4.3.2 Toxic and hazardous waste generated in the Town of Barnstable shall be disposed of in an environmentally sound manner.

Policy 4.3.2.1 A town-wide emergency response plan shall be finalized and maintained by the town and the fire districts for spills of hazardous waste materials during transit.

Policy 4.3.2.2 Household Hazardous Waste Collection shall be incorporated into the ISWM facility as soon as permitted by the state.

Policy 4.3.2.3 Development and redevelopment shall make reasonable efforts to minimize their hazardous waste generation, production and use through source reduction, reuse, material substitution, employee education and recycling.

Policy 4.3.2.4 Development and redevelopment shall be in compliance with Massachusetts Hazardous Waste Regulations, 310 CMR 30.00.

Policy 4.3.2.5 Commercial and industrial development and redevelopment that involves the use, treatment, generation, storage, disposal of hazardous wastes or hazardous materials, with the exception household quantities, more than the proposed 50 gallons or 25 lb., are currently prohibited and should continue to be excluded from Wellhead

Protection Districts (WP & GP). *(As stated in the Town of Barnstable General Ordinances, Article 39, Section 5, (2) household quantities are defined as "the storage of toxic and hazardous materials at a single or two family dwelling, except where such materials are stored for use associated with a professional or home occupation...")*

Strategy 4.3.2.5.1 The Town of Barnstable will continue to apply and refine a Toxic and Hazardous Materials Ordinance or regulation, utilizing the county's model or similar regulation.

Strategy 4.3.2.5.2 Notification of any changes in commercial land use would come from the Site Plan Review and Zoning Board of Appeals process. The business owner will be required to fill out a registration form that would include inventory and location of materials, and would be available through the Health Department or Fire Department.

Strategy 4.3.2.5.3 The Town of Barnstable shall hold household hazardous "collection days" until an alternative collection system is established.

Strategy 4.3.2.5.4 The Town of Barnstable in coordination with the town's fire districts shall finalize and maintain an emergency response plan for spills of hazardous materials during transit.

Section 4.4 Wastewater Facilities

ISSUE - Adequate Treatment Facilities

Barnstable covers 64.1 square miles in the center of Cape Cod. The town is bounded on the north by Cape Cod Bay and on the south by Nantucket Sound (approximately 100 miles of coastline). There are 55 freshwater ponds within the town, 27 of which are great ponds encompassing approximately 1,670 acres. The entire town lies atop a sole source aquifer and approximately 27% of the land area lies within one or more zones of contribution to Barnstable's 31 public water supply wells. Approximately 86% of existing residences, commercial establishments, and industries are served by one of four water purveyors, whereas only 15% of the town is served by the existing wastewater collection and treatment system. (See Volume 2).

The town's Wastewater Treatment Facility presently treats an average of 1.54 million gallons per day of wastewater and 25,000 gallons per day of septage. During 1991, this involved approximately 550 million gallons of sewage (from 2,783 residential and 762 commercial accounts) and 6.5 million gallons of septage.

One of the more recent additions to the facility has been septage treatment, which increases capacity from 30,000 to 60,000 gallons per day. Lime stabilization has greatly improved the sludge disposal at the landfill.

Goal 4.4.1 To provide adequate wastewater treatment facilities to meet the communities needs while maintaining and protecting the quality and quantity of the aquifer.

Policy 4.4.1.1. An aquifer management program shall be developed to balance the use of the resource for both its drinking water supply (quality and quantity) and its recharge through the effluent disposal facility.

Strategy 4.4.1.1.1 Encourage better coordination between water and wastewater resources with joint meetings with drinking water purveyors, the town, and various water committees.

Strategy 4.4.1.1.2 Encourage water conservation measures by advertising in newspapers, schools, notices and by charging all customers for their actual use of water.

Policy 4.4.1.2 The current town-wide Wastewater Facilities Plan will be updated every ten years or as required by such factors as growth, environmental impact or regulatory requirements, to address the communities wastewater needs as prescribed by state and federal regulations. (See Wastewater Facilities Plan, Barnstable Department of Public Works)

Strategy 4.4.1.2.1 At a minimum, the Wastewater Facilities Plan shall include -- Phase I, Preparation of a Needs Assessment; Phase II, Development and Screening of Alternatives; Phase III - Evaluation of Plan.

Strategy 4.4.1.2.2 Upgrade and/or expansion of the existing centralized wastewater treatment facility to respond to priority needs while conforming to the requirements of the groundwater discharge permit. Issues to be addressed include design capacity of treatment facility, adequacy of sewer collection system, sewage and septage treatment, and methods of effluent and sludge disposal.

Strategy 4.4.1.2.3 Expansion of the sewerage collection system for the existing treatment facility will be performed in such a manner to improve groundwater quality in designated activity centers and environmentally sensitive areas.

Strategy 4.4.1.2.4 The effect of the wastewater treatment facility discharge on water supplies will be studied as effluent discharge and well pumping rates increase with growth of the town and expansion of the sewage system.

Strategy 4.4.1.2.5 The hydraulic limitations of the existing sewerage system will be studied as need arises to handle future flows.

Strategy 4.4.1.2.6 Identify areas of concern outside of the existing treatment systems service area and define alternative decentralized methods of treatment that may include on-site innovative treatment systems, communal systems, package treatment plants or other approved alternatives. These facilities will include a plan for sludge removal. The long-term ownership, operation, maintenance and replacement shall be secured prior to any filing and will be consistent with the Wastewater Facilities Plan.

Strategy 4.4.1.2.7 The Town shall study the effect of recreational boat pumpout facilities on the quality of coastal and inland waters and associated natural resources. Correct problem through a process of collecting, processing and disposing of human wastes associated with recreational boating.

Strategy 4.4.1.2.8 The town will conduct a public participation and education program to promote a cleaner environment and educate the public on environmental issues concerning wastewater.

Policy 4.4.1.3 Develop wastewater performance requirements for on-site disposal systems in order to address the areas of greatest need.

Strategy 4.4.1.3.1 The results of the Facilities Plan will define the thresholds for application of on-site wastewater disposal system alternatives and the structural or non-structural measures needed to correct problems.

Strategy 4.4.1.3.2 Evaluate the extent of existing and potential nitrate contamination of water supplies and coastal/pond resources from on-site wastewater disposal systems and the need for sewer extensions or other measures to reduce contamination. The priorities used in establishing the proposed new areas to be remediated were based on the need to deal with existing surface water and groundwater quality problems while also protecting key elements of the town's existing and future groundwater supply.

Policy 4.4.1.4 Pretreatment of both sewage and septage for removal of toxic substances will be required to avoid untreatable contaminants from entering the central wastewater facilities system that can adversely impact the biological treatment process.

Strategy 4.4.1.4.1 Limit those pollutants that could pass through a plant untreated or inadequately treated, thus harming the plant's physical, chemical, or biological processes and preventing the plant from complying with regulatory requirements.

Strategy 4.4.1.4.2 Limit those pollutants that could accumulate in the plant's sludge in concentrations that would limit sludge disposal options.

Strategy 4.4.1.4.3 Limit those pollutants used or produced by commercial groups.

Policy 4.4.1.5 An Enterprise Fund shall be maintained pursuant to Massachusetts General Law, Section 53F1/2 of Chapter 44 allowing towns to establish such a fund to provide for operation, maintenance, capital improvements, facilities planning, debt service and other appropriate costs.

Section 4.5 Water Supply

ISSUE - Coordination With Private Suppliers

Three publicly and one privately operated and maintained water suppliers provide water via localized distribution systems to approximately 21,303 inhabitants of the town. The publicly operated water suppliers are Barnstable Fire District (BFD), Centerville-Osterville-Marstons Mills Fire District (COMM) and the Cotuit Fire District (CFD). The one private supplier is the Barnstable Water Company (BWC). Water suppliers

independently make decisions as to the expansion or extension of the water infrastructure based on their own judgment and availability of funds. The publicly owned water/fire districts maintain their own infrastructure and plan their own capital expenditures as needed to improve the supply and distribution systems, increase pumping capacity, and respond to other water quality/quantity issues. It should be noted that the West Barnstable Fire District has the ability to provide public water supply but has not elected to do so. Where no public water supply is available, residents and businesses rely on individual on-site wells for their potable water needs.

The provision of adequate interconnection will ensure the availability of sufficient supply of water for both household consumption and fire fighting. This effort will require a coordinated Capital Improvement Program among water purveyors on a town-wide basis. The town should address the following issues:

- A. All water service areas need 500 to 3,500 gallons per minute for emergency purposes.
- B. The need to plan for the future buildout population projections for each district and protect future well sites.

Goal 4.5.1 The town will continue to encourage the coordination between the town's water suppliers to ensure that all areas of the town will be provided adequate supply, quality, flow and pressure to meet demand.

Policy 4.5.1.1 The Town, through the Water Quality Advisory Committee or similar committee, shall assist the water suppliers with a Water Supply Management Plan. At a minimum, it will include:

- a. Educating the public on water conservation measures.
- b. Assessment of townwide demand, including average day and peak day demand, seasonal variation by category of users and including future projections for supply and demand.
- c. Creation of categories of water users (Fire Protection, Schools, Hospitals, Residences, Industry, Recreation).
- d. Inventory of existing water supply and distribution system, including storage and capacity.
- e. Inventory short- and long-term alternative sources (Backup supplies, bottled water, water conservation, improvements to water supply) including water quantity and quality limitations.
- f. Evaluation of mutual aid agreements with other districts and towns including quantity of water to be supplied, length of time or other limiting conditions.
- g. Schedule for testing interconnections and other potential supplies.
- h. Potential causes of disruption (drought, power loss, pipe break, contamination) estimated time for provision of emergency supply, portion of the system/users that would be affected.
- i. Assessment of previous water supply emergency responses including quantity and quality of water supplied, cost, startup delays or interruption in service, length of time supplied.
- j. A list of emergency response officials to contact accessible to the public.
- k. A Water Supply Contingency Plan.

-
- I. Explore and promote use of gray water to water lawns and/or public open space/recreation areas.

Note: A local Water Supply Contingency Plan is a plan for providing drinking water to a community when the supply of water does not meet the demand. A Contingency Plan provides for the efficient allocation of water when supply is limited by identifying and evaluating alternative sources of water, methods of allocation to consumers for various purposes, conservation strategies, for different periods of time.

Policy 4.5.1.2 Water supply Zones of Contribution (ZOCs) shall be protected from contamination. See Section 2.0, Natural Resources.

Note: Zone 1's are the area requiring the most stringent protection. Zone 1 is a circle with the radius proportional to the well's pumping rate and is determined from the graph entitled "Zone 1 protective Radius Graph". For example, for public water supply wells with approved yields of 100,000 gallons per day or greater, the Zone 1 radius is 400 feet. Mass. Drinking Water Regulations require public water suppliers to own, or control through conservation restriction, the entire Zone 1. Zone 2 is the delineated land surface that contributes to the well. It is based on detailed, site-specific hydrogeologic data, and the boundary must be approved by DEP. For existing wells, DEP recommends that communities have Zone 2's delineated and approved and that communities restrict high risk land uses from the Zone 2's. Zone 3's are the topographic watershed which drain surface water and groundwater into the Zone 2.

Zonal Conversion - Water protection zones to zoning regulatory overlay districts.

Zone 1's are in the WP (Well Protection) Overlay District.

Zone 2's are in the GP (Groundwater Protection) Overlay District.

Zone 3's are in the AP (Aquifer Protection) Overlay District.

Policy 4.5.1.3 Protect future water supply sites as replacements for wells lost due to contamination or other demand-related reasons.

Policy 4.5.1.4 Continue to update the zones of contribution model as additional well supplies are planned and brought on line, and protect land where existing, proven future, and potential future wells are located.

Policy 4.5.1.5 The town will assist in advising the water suppliers of a pricing mechanism for long term/short term emergency interconnection.

Policy 4.5.1.6 All residential lots of less than one unit per acre not served by public sewer shall be connected to a public water supply unless a waiver is granted by the Board of Health (criteria to be developed).

Policy 4.5.1.7 Areas with lots larger than one acre shall not be required to connect to public water supply and will not be designated on a Future Water Supply Service Area map. See Natural Resource Section for discussion of private wells.

Section 4.6 Stormwater Management

ISSUE - Contamination from Runoff

The number of shellfish bed closures has increased over the last 10 years due to increased coliform bacteria counts in estuarine areas. One significant contributor to the pollution problem is stormwater runoff. Infrastructure must be designed and extended to

capture and treat the runoff before it reaches environmentally sensitive areas. Runoff must be filtered by swales or other means to improve the quality of coastal waters. Recreational resources and fisheries can be better served through the closure or limitation of direct discharge points and the disposal of the stormwater by other means.

Goal 4.6.1 The town shall develop and implement a townwide stormwater management plan.

- A. For protection of the bays and estuaries, freshwater bodies and the groundwater aquifer.
- B. For protection of shellfish.
- C. To prevent flooding from all storms of 10-year magnitude or less.
- D. Inventory all existing stormwater infrastructure through new lower fly-overs to pick up catch basins and sewer manholes to put into GIS mapping system.
- E. To maintain all existing stormwater infrastructure that is in conformance with state and federal regulations.
- F. To study infiltration of groundwater and contaminants and the need for structural upgrades in each drainage basin.
- G. To provide for groundwater recharge as a resource, not a waste product.

Policy 4.6.1.1 The Town shall study the implementation of a stormwater utility.

Strategy 4.6.1.1.1 Key areas of Hyannis, the Three-Bay Area (West, North and Cotuit bays) and Barnstable Harbor to be studied for regulatory and facility needs, including engineering and redesign as a priority due to the need and critical nature of the impact on health, safety and welfare.

Strategy 4.6.1.1.2 The potential cost and recommended fiscal alternatives will be determined after the Stormwater Management Plan Phase 1 is complete.

Strategy 4.6.1.1.3 The utility approach will include both maintenance and capital facility needs.

Strategy 4.6.1.1.4 Town will be responsible for cleaning catch basins at least every three years.

Strategy 4.6.1.1.5 Install signs for "no dumping" at key catch basins.

Strategy 4.6.1.1.6 Areas that have stormwater outflow pipes shall be studied, tested and maintained on a regular basis. Consider use of MDC traps to separate the oil, and provide for needed maintenance. Study the use of absorbing pillows. (To be further studied in the Facilities Plan).

Policy 4.6.1.2 Capital programs and management plans shall be directed to prevent runoff from entering bays and estuaries in the future.

Strategy 4.6.1.2.1 New development and redevelopment shall be required to retain all surface runoff on-site up to the first inch of rainfall or first 1/2 inch of runoff, whichever is greater, as stated in the Subdivisions Rules and Regulations.

Strategy 4.6.1.2.2 The town shall design all roads to meet the design standards set forth in the Subdivision Rules and Regulations.

Strategy 4.6.1.2.3 After the first 1 inch of rainfall, the system shall be designed to have backup retention or detention basins.

Policy 4.6.1.3 The town shall study the existing practice for application of sand and salt on roadways to determine best ratio for safety, prevention of groundwater contamination, and catch basin maintenance.

Strategy 4.6.1.3.1 Study sand/salt ratio to ensure catch basins are not clogging.

Strategy 4.6.1.3.2 Reduce salt in areas where private well testing shows high salt content.

Section 4.7 Town Administration Facilities

ISSUE - Public Safety

Coordinate police and fire department personnel to ensure fast emergency response times. Up-to-date equipment and adequate staffing will ensure the best response possible. The seasonal population fluctuation in the town make it difficult to ensure that the level of service will be maintained throughout the year. (See Attachment F).

Goal 4.7.1 Provide public safety personnel and equipment to ensure all members in the community are safe from emergency situations.

Policy 4.7.1.1 Law Enforcement - To provide prompt response to emergency situations.

Strategy 4.7.1.1.1 Provide E-911 service town-wide.

Strategy 4.7.1.1.2 Upgrade and maintain emergency communication equipment.

Strategy 4.7.1.1.3 Expand personnel as population grows, or as feasible.

Policy 4.7.1.2 Fire Protection Ensure water pressure is adequate for fire fighting purposes.

Strategy 4.7.1.2.1 Encourage regular testing of hydrants.

Strategy 4.7.1.2.2 Promote 500-3,500 gallons per minute flow.

Strategy 4.7.1.2.3 Maintain equipment and expand infrastructure as necessary to meet minimum performance standards.

Strategy 4.7.1.2.4 Install safety equipment in all public facilities (smoke and heat detectors, fire axes and hoses).

ISSUE - Hospital Future

The Cape Cod Hospital typically operates at or near capacity. Between 1986 and 1989, total demand increased 15.7%, while emergency room visits increased 9%. It is estimated that the emergency room visits will increase by 9.2% in the next three years. Ambulatory surgery visits increased by 65% between 1986 and 1990, and the radiology department showing a 21.5% increase in utilization during that same time period.

Goal 4.7.2 To promote the cape cod hospital as an economic and health care anchor for the region.

Policy 4.7.2.1 Re-zone for hospital "complex" to enable medical, nursing and social service use only in the area around the hospital.

Policy 4.7.2.2 To improve the roadway system and circulation pattern around the Cape Cod Hospital to allow for improved emergency ambulance access, both locally and regionally. Seek regional funding on a "fair share" basis to minimize hospital related impacts on the following facilities:

- a. Better access to Route 6 at exits 6 & 7.
- b. Better access to airport.
- c. Better access from Route 28 (east and west).

Policy 4.7.2.3 Participate in the future study of locations for expansion of the hospital and related facilities and services.

ISSUE - Schools

School enrollment has increased at a steady 200 pupils per year. At present, Barnstable has the fifth-largest suburban school system in Massachusetts, and school officials expect the growth to continue. Year round residential population is expected to grow from a little less than 41,000 to approximately 48,532 over the next 10 years and to 67,921 based upon the buildout analysis, described in Section 1.4. Recently, a Proposition 2 1/2 override was approved and taxpayers will be spending \$16 million for a new 900-pupil Middle School at Marstons Mills next to the site of the existing elementary school facility. It is estimated that there will be more than 2,000 children enrolled in the high school in the next 5 to 10 years. Present enrollment is 1,450. The projected student population must be addressed on a long-term basis. As of October 1, 1993, total enrollment is 6,453 and the rate of growth is 4%. Average number of students per classroom is 25 per 900 sq. ft classroom size. The cost to build with all related core facilities is \$145 per sq. ft.

Based upon the submittals for Fiscal Year 1994-98 Capital Improvement Program, it is estimated that \$1 million per year is needed to maintain and upgrade and improve school facilities. It is apparent that impact fees should be considered to maintain the standard level of service for educational buildings and facilities along with other facility needs discussed in other sections of this plan.

Goal 4.7.3 To provide adequate educational facilities to meet the future needs of the community.

Policy 4.7.3.1 Maintain and upgrade all existing facilities consistent with need and fiscal resources.

Strategy 4.7.3.1.1 Study impact fees to assist in the funding of schools in order to maintain the state standard level of service.

Strategy 4.7.3.1.2 Increase Capital Improvement Budget to meet repair and replacement needs.

Strategy 4.7.3.1.3 Study future sites for needed facilities.

Policy 4.7.3.2 Provide high quality continuing education to meet the needs of the community. Facility implications for this policy include the possibility of the Cape Cod Community College expanding to a 4-year facility with possibility of masters degree in specialized fields of nursing, business, and computers.

Policy 4.7.3.3 Encourage linkage with the Economic Development policies of this plan supporting technical and professional skill development in key industries and encourage vocational technical education to provide training as necessary.

ISSUE - Town Services

According to the Single Family Residential Buildout Analysis, described in Section 1.4, developed (19,891) and potential (7,198) lots in town total 27,089. It is estimated at buildout there will be 67,921 year-round and 13,898 seasonal residents of the town for a total of 81,891. At present, according to the 1990 census, the year-round population is 40,958 and the seasonal population is 11,181, for a total of 52,076. This population increase will increase the demand for services. It is also expected that there will be an increase in 65-and-over population. (See Attachment F).

The 10-year forecast, drafted June 20, 1991, by the Town Manager's office, states that the town provides a number of services that could potentially be provided more cost-effectively by the private sector. Privatization consists of contracting-out and franchising of services and sale of town assets.

Pro - Privatization could save the town money. By opening up local government functions to the competition of the marketplace, local firms will have the incentive to compete with each other to offer the best service at the lowest price. Also, for a new function, a locality can avoid high start-up costs by contracting to a firm already in the business of performing that function.

Con - For contracting to be an efficient alternative to public provision of local services, there must be an adequate number of private suppliers locally to ensure competition in the marketplace. Otherwise, the town may just substitute a private sector monopoly for a public sector monopoly and therefore receive none of the benefits from competition. Problems in citizen relations and employee relations could be encountered. Citizens need to be reassured that their services will not be disrupted.

Goal 4.7.4 Deliver town services at a desired level of service in the most efficient manner of utilization of facilities and staff.

Policy 4.7.4.1 Town administration facilities shall be evaluated for adequate space and service delivery functions in order to keep pace with the future needs of the residents.

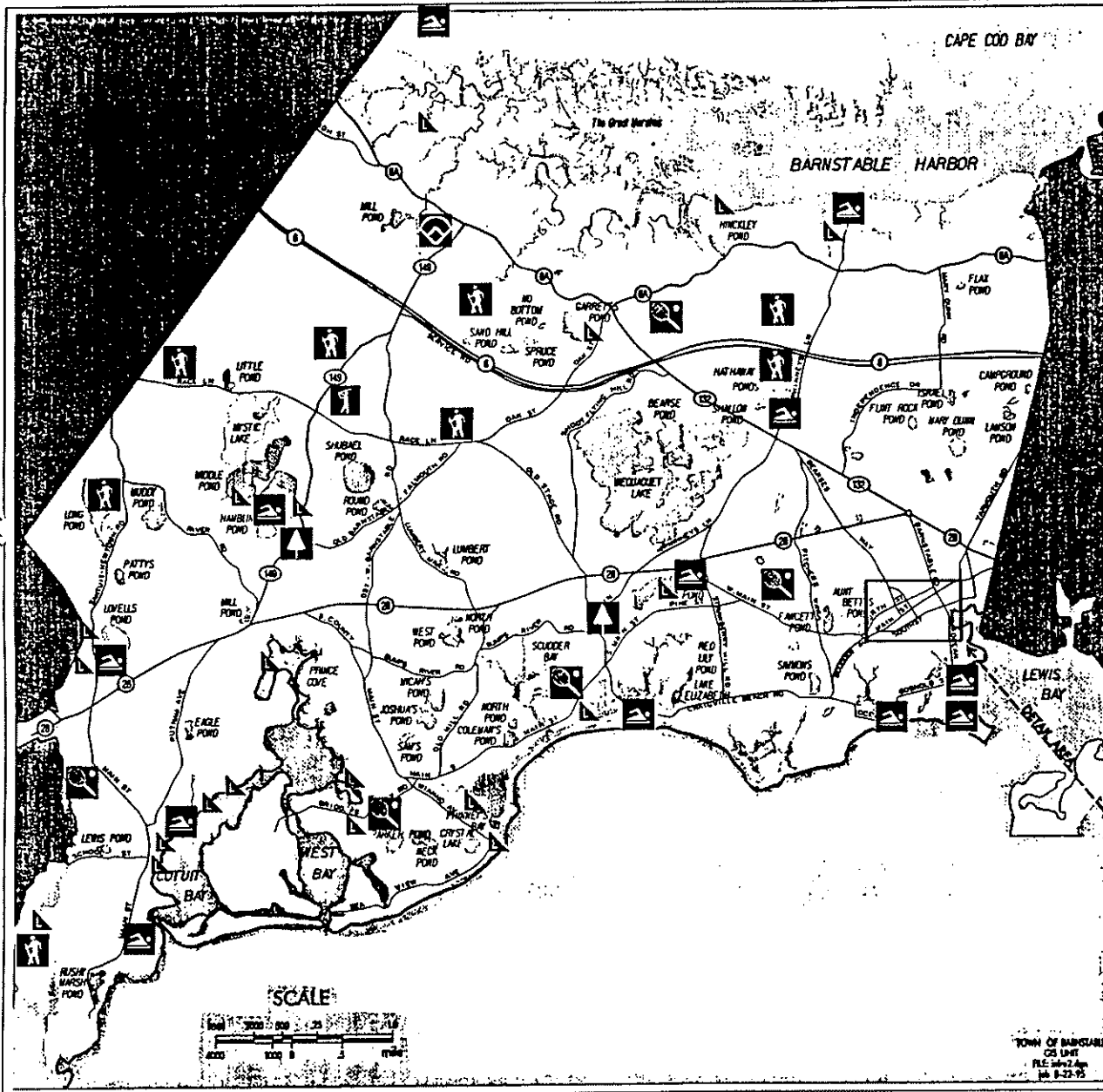
Strategy 4.7.4.1.1 Consider the adequacy and possible facility expansion or relocation of townwide facilities, to include but not limited to:

- a: Airport
- b: Old Town Hall
- c: School Department
- d: Structures and Grounds Maintenance Facility
- e: Senior Center
- f: Recreational Facilities

Policy 4.7.4.2 The town shall study the cost-effectiveness of privatizing building maintenance, janitorial services, vehicle maintenance, ice rink management.


Policy 4.7.4.3 Coordinate all facilities planning and the identification of fiscal resources with all town departments and authorities through the Capital Improvement Program.

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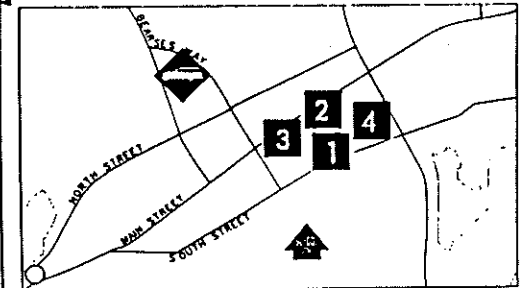


TOWN OF BARNSTABLE RECREATION FACILITIES

KEY TO FACILITIES

-  ICE RINK
-  WATERFRONT ACCESS
-  CONSERVATION AREA ACCESS
-  TOWN PARK
-  BASEBALL /SOFTBALL FIELD
-  TENNIS COURT
-  GOLF COURSE
-  TOWN LANDING
-  MAJOR ROAD

DETAIL AREA: DOWNTOWN HYANNIS



TOWN OF BARNSTABLE
 CGS UNIT
 FILE: 10-27-99
 10-8-22-95

ISSUE - Regional Facilities

The Town of Barnstable has become a "host" community for regional facilities which have benefited other towns Capewide. Many of these facilities are tax exempt, yet create long term growth impacts on the towns infrastructure without a method to mitigate. Such regional facilities include the County Complex, the Steamship Authority, the Cape Cod Hospital, Barnstable Municipal Airport, Cape Cod Community College, and the RTA/EOTC (Regional Transit Authority/Executive Office of Transportation and Construction) Regional Transportation Center.

Goal 4.7.5 Each regional facility should pay it's fair share in order to offset the impacts on the towns infrastructure and services.

Policy 4.7.5.1 Payment in Lieu of Taxes (PILT) - Regional Facilities shall be encouraged to make a payment in lieu of taxes (PILT) to the town of Barnstable in order to mitigate the cost of impacts on infrastructure and services. (Amount to be determined).

Policy 4.7.5.2 Impact Fees - Impact fees for transportation system impacts shall be studied and implemented. (See Volume 2)

Policy 4.7.5.3 Special Improvement Districts - The town shall work with property owners, including tax exempt regional facilities to establish Special Improvement Districts in Activity Centers impacted by such facilities.

ISSUE - Debt Management

It is necessary to provide a functional tool for debt management and capital planning, as well as enhance the town's reputation for managing its debt in a conservative fashion. Under the provisions of MGL Chapter 44, Section 1 through 28C, the town may contract debt to pay for the cost of acquiring, constructing, reconstructing, improving, extending, enlarging, and equipping capital projects or to refund bonds. A financing strategy should be adopted and periodically reviewed for appropriateness given the economic and fiscal environments. (See Volume 2). These strategies may consist of:

- a. Pay as you go - general fund revenue.
- b. Pay as you use - Enterprise Fund revenue.
- c. Bond issuance - Capital Projects Funds/debt management
 1. Short term
 2. Long term
 3. Fixed rate
 - 4 Variable rate

Goal 4.7.6 To provide for fiscal analysis and debt management systems that ensure continuing capital infrastructure requirements that meet the increasing needs of residents and visitors.

Policy 4.7.6.1 Debt Management - The town shall pursue the following management measures:

Strategy 4.7.6.1.1 The town shall endeavor to attain the highest possible credit rating each debt issue.

Strategy 4.7.6.1.2 The town shall take all precautions to avoid any financial decision which would negatively impact current credit ratings on existing or future debt issues.

Strategy 4.7.6.1.3 Effectively utilize debt capacity in relation to town growth and tax burden to meet long-term capital requirements.

Strategy 4.7.6.1.4 When planning for issuance of new debt, the town shall consider the impact of such new debt on overlapping debt and the financing plans of taxing entities that overlap, or underlie the town.

Strategy 4.7.6.1.5 When issuing debt, the town shall assess financial alternatives to include new and innovative financing approaches, including whenever feasible categorical grants, revolving loans or other state/federal aid.

Strategy 4.7.6.1.6 Minimize debt interest costs.

Strategy 4.7.6.1.7 The town's financial management policies shall seek to improve the overall well-being of the citizens, maintain and improve essential municipal services, and enhance the financial capability of the town.

Policy 4.7.6.2 Capital Improvement Program - The Capital Improvement Program (CIP), shall be prepared annually and shall determine the town's annual capital budget. The program shall be a 5-year plan for acquisition, development, repair, replacement and/or improvement of the Town's capital facilities. Projects shall be prioritized and the means for financing each shall be identified.

Strategy 4.7.6.2.1 The CIP shall specify the period of usefulness for each project. The town shall not authorize the issuance of bonds or other long-term debt obligations for any improvements or capital purpose with a useful life of less than five years.

Strategy 4.7.6.2.2 The duration of debt shall not exceed the economic or useful life of the improvement or asset that the issue is financing.

Strategy 4.7.6.2.3 All debt issues shall be sold through competitive bidding process based upon the lowest offered Net Interest Cost.

Strategy 4.7.6.2.4 The town shall make use of both domestic and international capital markets as the products and conditions of each best fits the town's financing needs.

Strategy 4.7.6.2.5 The town may enter into agreements with commercial banks or other financial entities for the purpose of acquiring letters of credit, municipal bond insurance, or other credit enhancements that will provide the town with access to credit under terms and conditions as specified in such agreements when their use is judged cost effective or otherwise advantageous.

Policy 4.7.6.3 Funding Sources - The town shall explore alternate and innovative funding sources, such as:

Strategy 4.7.6.3.1 Impact fees.

Strategy 4.7.6.3.2 BID Districts (Business Improvement Districts).

Strategy 4.7.6.3.3 Adequate Public Facilities Ordinance.

Strategy 4.7.6.3.4 Federal and state grants.

Strategy 4.7.6.3.5 Betterments

Strategy 4.7.6.3.6 Other public contributions.

Section 4.8 Energy

ISSUE - High Energy Costs

Residents of Barnstable County pay some of the highest costs of energy in the nation. Electricity costs the residential customer on average 13.87 cents per kilowatt-hour, eighth highest in the country as of February 1991. The utility projects a 20 cents per kilowatt-hour cost by the year 2004. The Cape has averaged the highest fuel oil and gasoline costs in the Commonwealth since the Massachusetts Division of Energy Resources started keeping records in 1980, and fuel oil still has the highest market share of the total residential sector at 54%. Natural gas prices per therm are second highest in the country with an average cost per therm of \$1.07 as of February 1991.

Goal 4.8.1 To encourage energy conservation and improved energy efficiency, to encourage and stimulate investment in energy conservation and renewable energy resources and to manage land uses to maximize energy efficiency.

Policy 4.8.1.1 Development and redevelopment shall be designed to promote the efficient use of energy including orienting structures to take advantage of solar gain and to maintain solar access for adjacent sites. See the Barnstable County Energy Plan for details.

Policy 4.8.1.2 Energy efficient construction techniques and materials should be encouraged for all development and redevelopment.

Strategy 4.8.1.2.1 The Town of Barnstable shall consider a tax incentive to commercial establishments for the use of energy conserving building improvements and renewable energy devices in all existing and new buildings if cost-effectiveness over the improvements' expected lifetime can be demonstrated.

Policy 4.8.1.3 Energy saving transportation activities including carpooling, mass transit programs, bicycling and walking should be encouraged.

Policy 4.8.1.4 Alternative fuels shall be studied for feasibility of use by Barnstable's municipal vehicle fleets. Vehicles could be operated by electricity, hydrogen, and alcohol. Other energy saving methods should be studied:

- a. Enhanced oil recovery.
- b. Changes in land use.
- c. Improved signalization and timing at intersections and improved signage. *(See Transportation)*
- d. Four-day workweek

Policy 4.8.1.5 Encourage the Barnstable County Energy Management Plan developed by the Cape Cod Commission and Self-Reliance Corp. to:

Strategy 4.8.1.5.1 Quantify the current energy requirements of all sectors of the economy and identify the economic impacts of these requirements.

Strategy 4.8.1.5.2 Project the potential energy savings under different types of energy regulations and preservation strategies.

Strategy 4.8.1.5.3 Define requirements for building efficiency and renewable energy devices.

Strategy 4.8.1.5.4 Establish a procedure for certifying installers of alternative energy equipment.

Strategy 4.8.1.5.5 Develop a procedure for funding and implementing all proposed energy-saving strategies.

Strategy 4.8.1.5.6 Disseminate practical information.

Section 5.0 Affordable Housing

Introduction

During the two-year village planning process, residents in each of the villages identified a need for affordable housing. This reflects the fact that median income in the Town of Barnstable falls 25 percent below the income required to buy a median-priced house. Median sales price for a Barnstable home has increased by 50 percent in the past five years. If all Barnstable households were to re-enter the housing market today, only 30 percent could afford a median-priced home.

Almost one-third of Barnstable homeowners pay more than 30 percent of gross income for housing, and 57 percent of renters exceed that threshold, which is considered the limit for safe financial burden, according to the federal Department of Housing and Urban Development (HUD). Forty percent of the community falls below low- to moderate-income levels (defined as 80 percent of county median for household income -- \$26,729, according to the 1990 U.S. census). That income threshold defines "affordable housing" -- sales or rentals that fall within the means of low- to moderate-income households. "Affordable Housing" is protected through long-term affordability restrictions ensuring that below-market values are passed from one owner/tenant to the next. The affordability gap in Barnstable often is widest for the disabled, those on public assistance, the elderly, minorities and the unemployed. The need for more affordable housing is clear.

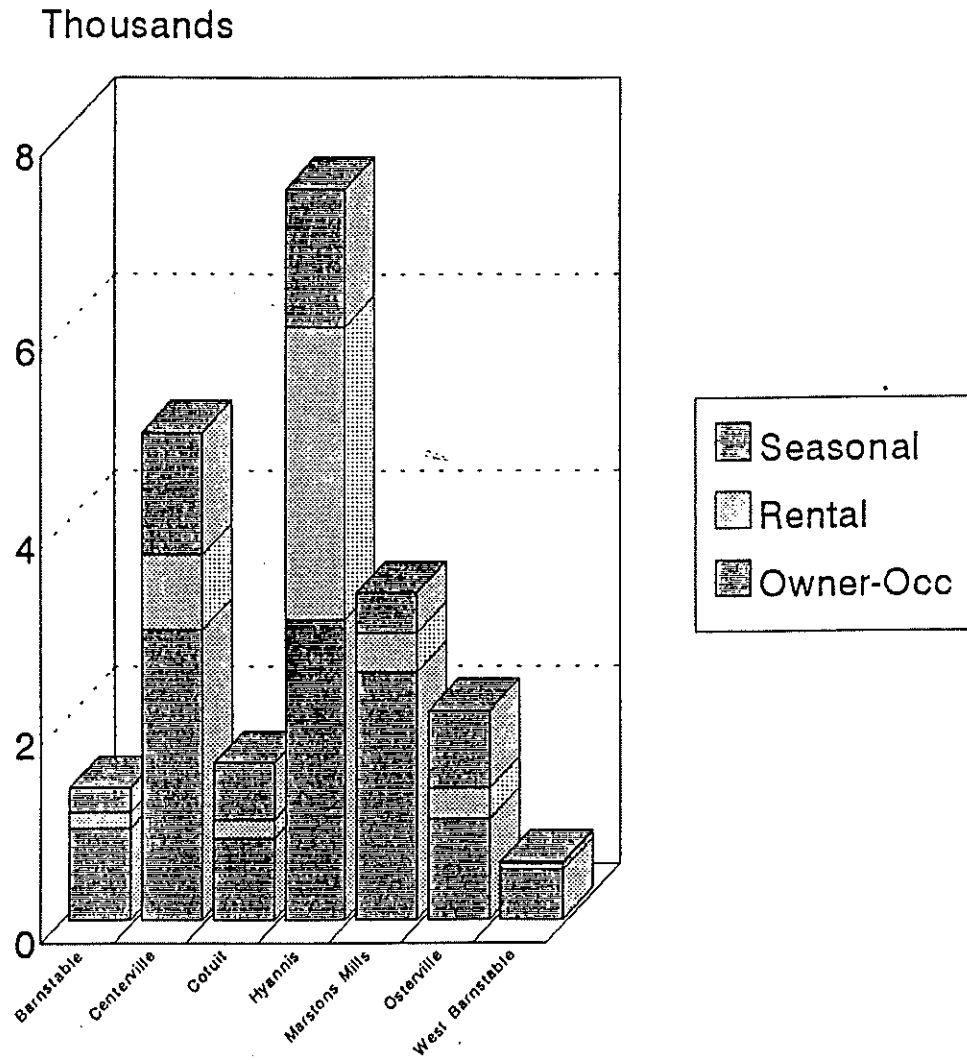
As of July 1, 1997, only 4.35 percent of the town's housing stock is qualified to be counted as "affordable," through various local, state and federal programs. Nine different programs provide a mechanism to consider 771 units within the Town as affordable. The Town of Barnstable intends to increase its affordable housing stock to ten percent by the year 2015 as a goal and achieve the goal through the addition of over 1150 additional qualifying units during the period. While Barnstable's plan to increase its affordable housing stock echoes the goals and policies outlined in the Cape Cod Commission's Regional Policy Plan, it must be understood that the town will be under extreme pressure to find ways to document qualified units by the year 2015 as recommended in the 1996 Regional Policy Plan. Due to the size of the affordability gap and the limited resources with which to close that gap, it will require the increase of qualifying units at the rate of almost 6% of the gap per year, or 68 units per year on the average.

In order to attain the 2015 goal, a multi-part strategy will be necessary. Use of existing housing is the preferred method, but a number of other strategies will also be needed (in order of priority):

- a) Use of existing housing;
- b) Development of town-owned land;
- c) Creation of multi-family housing districts (apartments);
- d) Incentives for new construction.

BARNSTABLE HOUSING BY TENURE

Housing Distribution by Village



Source: 1990 US Census

Existing housing will be made affordable through down payment assistance and rehabilitation assistance. The federal HOME program will provide up to \$750,000 annually for tenant/homeowner assistance and rehabilitation shared by a consortium of Cape Cod towns. Funds from the Community Development Block Grant and assistance from the local banking community through the Community Reinvestment Act (CRA) will also be used to make existing housing "affordable." Acquisition of property by the town is the most expensive and lowest priority in utilizing existing housing.

Town-owned lands will be used for the development of affordable housing through the town's housing authority. Four sites totaling more than 25 acres have received comprehensive permits that were never used. If developed, this land will provide up to 70 units. The town owns 10 parcels larger than two acres. These parcels total almost 60 acres. Private sites previously considered for affordable housing include another 17 acres.

Creation of multi-family housing districts will allow construction of apartments in a more traditional residential setting and act as a buffer between primary residential areas and activity centers.

Incentives for new construction will include reduction in permitting and impact fees for conversion or new construction of affordable housing. Relief from laws governing lot coverage and density will be granted. Developers of large projects will be required to contribute a percentage of total construction cost to the town's affordable housing fund.

The town's plan to increase its affordable housing stock is consistent with its vision and growth policy in its emphasis on the protection of natural resources through the use of existing housing. It also encourages any new development to occur in activity centers where the potential impacts will be the least.

The plan also meshes with the goals and policies of the Regional Policy Plan, among them: to promote the provision of fair, decent, safe, affordable housing for rental or purchase that meets the needs of present and future Cape Cod residents; to promote equal opportunity in housing to all vulnerable segments of the population; and to develop innovative strategies to address these housing needs. Elements of the plan particular to Barnstable include the following:

- 1) Enough structures already exist to meet affordable housing needs, but affordability must be maintained through restrictions.
- 2) High rents disrupt the normal housing cycle. Priority must be given to providing affordable rental units to allow potential homeowners to save enough to purchase houses in Barnstable.
- 3) Slow production rate of affordable housing in the past, a large affordable housing deficit, and scarce funding make the use of existing units a high priority.
- 4) Barnstable must distribute affordable housing throughout the seven villages. About 87 percent of the town's present affordable housing stock is located in

Hyannis. The issue of decentralizing affordable housing provides a microcosm of the town's growth management policy, which balances protection of natural resources with encouragement of appropriate economic development.

Just as some associate all economic development with the degradation of natural resources, some associate the presence of affordable housing with the decline of community character. But if the town is to attain a true balance in its growth management policy, all villages must recognize the need to distribute affordable housing. The success of this plan will be based on its ability to provide that housing without detracting from natural resources or community character.

Goals, Policies and Strategies

ISSUES

Housing in the Town of Barnstable is unaffordable for most year-round residents -- primarily because of the impact of seasonal rentals and the second home market. Median home prices and rents are above the means of low- and moderate-income individuals, those with incomes less than 80% of the county median (\$26,729). Almost 40% of the community falls below this income threshold. Many of these townspeople are without means, disabled, on public assistance, elderly, or cannot find work. Some are part of the "at risk" population, those in jeopardy of losing shelter and potentially becoming homeless. The 1990 US Census reports 273 homeless people in the town and the NOAH (No Other Available Housing) Shelter operated by the Housing Assistance Corporation receives over 500 different guests annually. The community must focus on providing a variety of housing types and opportunities.

Goal 5.1 Promote the provision of fair, decent and safe affordable housing, for rental or purchase, which meets the present and future needs of the low-to-moderate income residents (incomes less than 80% of the county median income) of Barnstable.

Policy 5.1.1 In all of its actions the Town of Barnstable shall work to prevent discrimination in housing because of race, color, creed, religion, sex, national origin, primary language, age, political affiliation, disability, sexual orientation or any other consideration prohibited by law, and shall not knowingly approve any development that so discriminates.

Policy 5.1.2 Petition the Department of Housing and Community Development (DHCD) [the successor to the Executive Office of Communities and Development (EOCD)] to redefine "Affordable Housing" in MGL, Ch 40B, to realistically reflect the existing inventory of housing locally available at affordable prices. Subsidy should not be the only criteria for achieving the requirements of Ch 40B.

Strategy 5.1.2.1 As a component of the Ch 40B housing stock, allow the lowest number of housing units leased through Section 8 and MRVP funds over the last 15 years on an annualized basis to be included within the inventory of Chap. 40B units.

Strategy 5.1.2.2 Allow all units that have been granted zoning relief through a Ch 40B Comprehensive Permit to be included within the inventory of Ch 40B units.

Policy 5.1.3 Commit appropriate town resources coordinated through the Planning Department and other town agencies to support affordable housing initiatives.

Strategy 5.1.3.1 Provide technical assistance in preparing grant applications for affordable housing projects.

Strategy 5.1.3.2 Allocate a percentage of the town's Community Development Block Grant program funding to support affordable housing development activities and for conversion or rehabilitation of existing housing stock to affordable units.

Strategy 5.1.3.3 Coordinate maximum participation within the Barnstable County HOME Consortium and the County's "Soft Second Loan Program" to access financial resources to stimulate affordable housing.

Strategy 5.1.3.4 Assist in updating and implementing the Town's Fair Housing Plan and provide biannual updates to the Housing Needs Assessment.

Strategy 5.1.3.5 When future sources of Federal/State funding become available identify and access them to facilitate the development of additional affordable housing stock.

Strategy 5.1.3.6 Study the feasibility of establishing a Housing Trust Fund through either a "Real Estate Transfer Tax" or "Deed Recording fee" to fund affordable housing initiatives.

Policy 5.1.4 Improve the housing situation for homeless residents through programs which lead to self-sufficiency.

Strategy 5.1.4.1 Encourage projects that assist with job training opportunities addressing measures for becoming self-sufficient.

Policy 5.1.5 Residential construction and redevelopment projects of 10 units or more and Residential subdivision plans of 10 lots or more shall provide at least 10% of the proposed units or lots as affordable units /or lots. Unless developed by the applicant, such affordable housing lot sites shall be contributed to an eligible local entity. In lieu of providing such units on site, the applicant may satisfy these requirements by providing equivalent housing units off site through the purchase of existing units, redevelopment, new construction, or a contribution of land. For the purposes of calculating the 10% affordable housing contribution, all numbers shall be rounded to the nearest whole figure.

Strategy 5.1.5.1 In lieu of providing such lots on site an applicant may develop, sell, or contribute equivalent off-site lot(s) that possess the capability of supporting the designated number of affordable units.

Strategy 5.1.5.2 In lieu of providing units or lots, an applicant may provide a cash contribution of equivalent value to a local fund for affordable housing. Equivalent value will be determined by the Town of Barnstable. The method of payment shall be defined by the Town and shall be secured as a condition of development approval.

Strategy 5.1.5.3 Prior to final review by the authorized board or commission, an applicant must demonstrate that off-site lots are buildable and/or units habitable. In the event that the off site lots or units prove to be unsuitable for any reason, an acceptable alternate contribution will be required.

Strategy 5.1.5.4 All affordable housing contributions shall be initiated upon the conveyance of any of the subdivision lots or the issuance of a building permit for any of the lots, whichever occurs first. The applicant shall notify the Town of Barnstable prior to conveyance of any of the lots and/or application for a building permit for any of the lots.

Policy 5.1.6 Development of on-site 10% affordable housing units in construction or redevelopment housing projects of ten or more units shall take place at a rate and time frame to be defined by the Town of Barnstable and shall be secured as a condition of approval. Every effort will be made to phase in the affordable units in a manner compatible with the project's overall development schedule. A similar plan, if necessary, will be employed in regards to off-site mitigation. This condition does not prohibit an applicant from satisfying the affordable housing component sooner.

Policy 5.1.7 Affordable housing units created by Policies 5.1.5 and 5.1.6 shall remain affordable year-round through the use of deed restrictions that require the units to remain affordable for 99 years. Such restrictions shall be made known to the homebuyer or renter prior to the purchase/occupancy of the unit.

Strategy 5.1.7.1 Affordable housing units within market rate developments shall be integrated with the rest of the development and shall be compatible in design, appearance, construction and quality of materials with other units. Location of the affordable units and construction specifications are to be approved by the Town of Barnstable prior to the start of construction.

Strategy 5.1.7.2 The applicant shall submit a marketing plan, or other method approved by the town through its local comprehensive plan, to the Commission for its approval which describes how the affordable units will be marketed to potential home buyers. This plan shall include a description of the lottery process utilized for selecting the home buyers.

Strategy 5.1.7.3 Prior to the purchase of the affordable units the applicant must demonstrate that the home buyers are income-eligible as defined by the Cape Cod Commission (See Definition of Affordable Housing in the Regional Policy Plan). The applicant will be required to use the Commission's application package and format in determining income eligibility.

Policy 5.1.8 Residential construction, redevelopment, or subdivision development projects which are entirely comprised of housing units that are affordable for households at or below the median income may qualify for a waiver of the 10% affordable housing requirement.

Policy 5.1.9 Incentives to maximize the number of affordable units should be considered. These should include, but not be limited to, waivers of certain fees, expedited permitting processes and town-approved density bonuses.

Policy 5.1.10 Nonresidential development projects should be evaluated as to the need for affordable housing created by such development and should provide such housing or should contribute to its development by one of the methods cited above.

ISSUES

The Regional Policy Plan and MGL Chapter 40B require that ten percent (10%) of the year-round housing stock in each town be affordable. Barnstable's Housing Needs Assessment documented the town's affordable housing percentage at 3.85%, a deficit of 1,142 units. Further analysis concluded there is an adequate supply of housing to meet resident needs, but that this surplus of housing is priced far beyond the means of most households within the town. Two figures illustrate this point: 1) the "income gap" of \$15,391 between the income necessary to purchase a median-priced home and the average income of low- to moderate-income households; 2) 57% of rental households pay more than 30% of their income for housing.

A solution to this problem is to provide various permanently affordable housing opportunities, including rental or limited equity cooperatives, the utilization of existing housing and the construction of new housing. In conjunction with the conversion of existing housing, the development of vacant parcels owned by the Barnstable Housing Authority should be considered to assist in meeting the deficit.

The number of units required is quite large and logistically the town is not structured to oversee the occupancy of new units. The report on local public and private housing organizations identifies those groups with management and development experience and makes recommendations for soliciting administration expertise.

Goal 5.2 The Town should raise its affordable housing stock to 10% of the year-round units which are permanently affordable, with an effort to achieve this Goal by the year 2015.

Policy 5.2.1 Utilize the Local Initiative Program (LIP), under 760 CMR 45.00, as a means of qualifying units for the town's affordable housing stock with permanent affordability restrictions for a period of 30 years. Coordinate the certification of the Barnstable's LIP through the town's Local Housing Partnership, the Cape Community Housing Trust.

Strategy 5.2.1.1 Refine the model Regulatory Agreement and Deed Rider from the Local Initiative Program documents with approval from the Executive Office of Communities & Development (EOCD.) [newly reorganized as the Department of Housing and Community Development or DHCD] for use with local initiative projects.

Strategy 5.2.1.2 Complete a Housing Development Action Plan as part of the Local Initiative Program coordinated with the Comprehensive Housing Affordability Strategy (CHAS) required for the Consortium.

Strategy 5.2.1.3 Establish site design guidelines at the density required for affordable housing in relation to environmental and neighborhood conditions.

Policy 5.2.2 Modify existing zoning regulations to remove impediments to the development of affordable housing.

Strategy 5.2.2.1 Amend the Town's Zoning Map to include the re-zoning of the "Vacant Public Land" identified in the Housing Needs Assessment from their current residential zoning to "RAH" Residence-AH.

Strategy 5.2.2.4 Create a "MF" (Multi-Family) Residential zoning district based upon the modified text from Section 3-2.1(1)(J) of the Town's Zoning Ordinance.

Policy 5.2.3 Provide regulatory incentives to stimulate the creation of affordable units to be added to the town's stock.

Strategy 5.2.3.1 Grant a reduction in permitting fees to contribute to the financial feasibility of the conversion of existing housing to affordable rental units.

Strategy 5.2.3.2 Grant a reduction from impact fees for developments that provide more affordable housing than required by the Local Initiative Program in Activity Centers.

Strategy 5.2.3.3 Amend 3-2.1(1)(J)(i) of the Zoning Ordinance to condition the grant of a Special Permit that allows an increase in the maximum lot coverage to 50% based on the developer agreeing to provide a 50% of the additional units as affordable housing.

Strategy 5.2.3.4 Grant density bonuses upon site analysis for developments that provide all units as affordable for the vulnerable segments of the community: the elderly, very low income (50% of the county median income), single-family heads of households, racial minorities, homeless, disabled and others with special needs.

Policy 5.2.4 Promote the development of innovative home ownership options for low-to-moderate income households.

Strategy 5.2.4.1 Assist in creating Limited Equity Cooperatives.

Strategy 5.2.4.2 Create a down payment assistance program for First Time Home buyers.

Strategy 5.2.4.3 Work with local banks to participate in a lottery process using foreclosed properties for First Time Home buyers.

Policy 5.2.5 Establish a management program with the Barnstable Housing Authority to oversee the development and occupancy of all the affordable units created.

Strategy 5.2.5.1 Transfer all on-site and off-site property contributed by a developers as a result of the Development of Regional Impact (DRI) review by the Cape Cod Commission to the BHA.

Strategy 5.2.5.2 Coordinate a Request For Proposal program for the development of BHA owned parcels.

Policy 5.2.6 Promote the adaptive re-use of existing structures to meet the resident's needs through innovative housing options, such as Single Room Occupancy (SRO's), Congregate and/or Special Needs housing.

Strategy 5.2.6.1 Identify properties suitable for conversion to this type of residential use.

Strategy 5.2.6.2 Create a program where the Town assists in the acquisition of those properties.

ISSUE

The town provides a microcosm of the unequal distribution in affordable housing throughout the region. The village of Hyannis communicates the same concerns about being overburdened that the Town of Barnstable expresses on the regional level. Hyannis contains 87% of the town's affordable housing stock, also a reflection of the regional picture. This issue reflects both the favorable and less favorable aspects of being a community that provides the services and amenities desired with affordable housing. The other villages do not have the infrastructure necessary to support high-density developments, but must in turn assume some of the responsibility for providing affordable housing.

Goal 5.3 Ensure the decentralization of affordable housing through out the Town of Barnstable.

Policy 5.3.1 Promote all types of housing (elderly, family and special needs) in all villages.

Strategy 5.3.1.1 All villages shall aim to provide 10% of that village's year round housing stock as affordable in accordance with MGL Chapter 40B.

Strategy 5.3.1.2 Encourage mixed use affordable housing concepts within the village centers with access to the town transportation network.

Strategy 5.3.1.3 Require developers to document their efforts to obtain the participation of village residents to consider the design and development of Local Initiative Program projects for affordable housing.

Strategy 5.3.1.4 Promote innovative technologies that would allow higher densities in areas with inadequate infrastructure.

Policy 5.3.2 Encourage small scale (4 to 6 units) affordable housing developments within the village activity centers.

Strategy 5.3.2.1 Provide financial assistance to those projects which convert existing housing stock to affordable.

Strategy 5.3.2.2 Create a streamlined permitting process for mixed use (Commercial & Residential) projects that supply an adequate amount of common space.

Strategy 5.3.2.3 Implement essential infrastructure improvements for the village centers to support affordable housing developments.

Goal 5.4 Integrate the development of affordable housing with protection of the Cape's environment.

Policy 5.4.1 Any new affordable housing development which increases density levels above the existing permitted zoning densities shall also comply with the policies and Strategies of Section 2.1.3 - Nitrogen Management.

Strategy 5.4.1.1 In aquifer protection zones small scale Affordable Housing developments may be permitted to exceed 5 ppm nitrogen provided that the development is not located in a specified environmentally fragile area, and where regulatory authorities find a substantial public benefit. [See Strategy 2.1.3.5.3].

Strategy 5.4.1.2 Use of cumulative loading analyses to identify and set aside areas where there is adequate nitrogen capacity for development of affordable housing should be encouraged.

Policy 5.4.2 A moderate increase in density of development in areas served by municipal sewer should be allowed, when treatment capacity exists, provided the intensity is consistent with other open space and community character requirements. [See Policy 2.1.3.6].

Policy 5.4.3 Use of alternative septic technologies in conjunction with the development of affordable housing should be encouraged and expanded, insuring that the costs of such technology and the required maintenance over the life of such systems does not add additional economic burden to such housing, subject to Policies 2.1.4.9 through 2.1.4.21, Alternative Wastewater Treatment Facilities.

Strategy 5.4.3.1 Affordable housing developments located adjacent to designated activity centers and served by Public Sewer Treatment Facility (PSTF) systems established by the town according to the Wastewater Facilities Plan may be permitted. [See Policy 2.1.4.10].

Policy 5.4.4 Cluster development shall be encouraged as a means of providing affordable housing.

Goal 5.5 Develop and implement an affordable housing action plan that addresses the Goals, Policies and Strategies of this Section through the following key actions:

- Develop basic processes to facilitate the development of affordable housing;
- A plan of the use of existing structures;
- A plan for the use of town owned or Housing Authority owned land;
- A package of legislative / regulatory recommendations; and
- A timeline for performance.

Section 6.0 Recreation and Open Space

Introduction: Open Land and Human Enjoyment

Open land, sea and waters provide enjoyment to residents, visitors and vacationers alike. These features have given the Town of Barnstable its international reputation as a vacation Mecca. It is a landscape of rapid changes in terrain, from the hilly Cape Cod Moraine through pine and scrub oaks forests, past kettle ponds and glacial boulders to the sandy coastlines, North and South. It is a landscape established by glacial remains from the great ice flow over North America which ended over 12,000 years ago. Constant scouring, by the warm Gulf Stream on the South shore and the cold Newfoundland current on the North side, has washed away some and built up other edges of this fragile peninsula.

Traditionally both the land and sea were harvested; cranberries were grown in its numerous bogs, sea grass gathered from its marshes, shellfish collected from its shores, fish from its waters, wild game and birds were hunted in its woods and fields. Barnstable's 60 square miles¹, is a diverse landscape, blessed with various flora and fauna. The natural resources were utilized. Bricks were made from native clay, glass from the white sands, and salt taken from the sea's waters. The native forest fired the brick and glass furnaces and provided fuel to extract oil from sperm whales which were once so numerous in the cold waters to the North.

With time and evolution the Cape became a place for summer vacationers and concern for the open lands increased. Access to the coastline and inland water bodies became scarce. With continued development and the rise in the popularity of second homes, preservation of open space, for its natural beauty, recreational use, wildlife habitat and groundwater protection, increased. It became apparent that the amount of this land and its resources are indeed finite.

As awareness of the Cape's aquifer, its sole source of fresh water, grew, it became apparent that open lands could protect the quantity and quality of the groundwater aquifer. The interior long narrow "wood lots" which provided free fire wood for early residents, and which were at one time commonly given or gambled away, grew greatly in monetary, resource and esthetic value.

Wetlands, once considered wasteland to be filled in and built upon, are today recognized for their ability to hold and purify surface water runoff. Coastal wetlands, acting in concert with barrier beaches, provide protection against the violent surge of the sea; the beaches and marshes absorb the energy of the wave action, while the wetlands provide a holding area for the tidal surges. They are a most productive ecosystem, providing the 'nursery grounds' for marine species and a vital food source for marine life, animals and birds. Gone are the days of filling the land and building upon this natural system of protection, and resulting in destruction of the vital ecosystem.

¹ 1990 U.S. Census - area excludes 2.74 square miles of open water ponds and rivers but includes wetlands and marsh area.

A new and strong realization grew that open lands, which provide for public enjoyment, were being divided and limited in access and use. We were destroying the very scenic attraction the Cape has always offered. Grassy fields and vegetated forests continued to be divided and developed for homes, roads and commercial establishments. The Cape Cod landscape, which attracted that development, was quickly vanishing. Priorities were set and the public responded during the 1980's with a conscious effort to conserve, preserve, protect and acquire land in its natural open state.

Problem Statement

Open land for human enjoyment and for the preservation and protection of natural resources is threatened by rapid and uncontrolled land development within the town.

The problem related to growth is the steady depletion of irreplaceable open space resources. The problem of limited open space is not new. It has been with the town for generations. However, with the rapid development of the town during recent years, the ability to balance protected open land with continuing development has reached a level of critical concern. The lack of sufficient open space and recreational area was first documented in the Town of Barnstable's 1926 Comprehensive Plan. Later, in the 1962 Comprehensive Plan and again in the early 1980's Open Space and Recreation Plan, the impacts of continued uncontrolled growth and development were documented. Today more than ever, that scenario still applies. Views of rural landscapes and activities, concentrated village settlements, traditional New England open spaces and landscapes are disappearing. The woodlands and fields are being replaced with suburban subdivisions showing little respect for the land. Unique and irreplaceable natural resources are being degraded and destroyed. Lands open to public use are limited. Vegetation coverage is being removed and our water resources, lakes and streams are being polluted.

The implications of uncontrolled growth and the problem of limited open space and recreational areas remain one of the top priorities to residents and visitors in Barnstable. The issues facing open space conservation and recreation are:

- a deficiency exists in the location, type and linkage of neighborhood open spaces, linkage of public lands, access to water and preservation and protection of natural resources;
- many natural resources including rivers, estuaries and water courses, remain unprotected
- the number of large undeveloped vacant parcels is small, land values are high and funds for acquisition of open space are limited; and
- the need to address preservation and management of harbors, tidal areas and open waters for both recreation and business remains critical.

Issue Statements

Open Space Deficiencies:

Although there is a considerable amount of open space, there are critical deficiencies in the location and type of open space to satisfy neighborhood recreation, provide linkage between public lands and access to water, especially the sea coast and Wequaquet Lake, and to protect natural resources of the Town of Barnstable.

Today, approximately 12,071 acres, or 26.9% of land within the Town² can be considered within the public interest³. That land has many forms of ownership and is generalized as 10,228 acres of government owned land or land within the public domain, 1,016 acres of quasi-publicly owned land and 827 acres of privately owned land which provides for public open space benefit.

The open lands are utilized for numerous purposes, including municipal facilities, resource protection and recreation. Approximately 2,720 acres are developed and committed to a municipal or quasi-public use. 3,800 acres are limited in public access and are committed to resource protection (wetlands and well-fields). Of the total, 3,472 acres, or 30%, is used for recreational purposes.⁴

Of the 12,071 acres of open lands in the public interest, approximately 9,150 acres (19.7% of the Town) are considered "Protected Open Space". Over half of all protected open space (4,800 acres) is located within the Sandy Neck/Great Marshes and the West Barnstable Conservation Areas.

Of the protected open space, 1,436 acres are utilized for public active and passive recreational use, community centers and parks, public beaches and the public golf course. Of this, 216 acres are maintained and managed by the Town's Recreational Department for active recreational purposes.

Control of open space has taken many forms, from the traditional municipal or government ownership to quasi-public ownership such as the Barnstable Land Trust, Museum of Natural History and Mass. Audubon Society. Privately owned open space, like that found in clustered subdivisions, or land with conservation restrictions, like those granted for golf courses or agricultural use, all contribute to the amount of open lands within the Town. The location and control of open lands is shown in Information Summary I-1 - Open Space and Controlling Agencies.

Knowledge and understanding of the location and accessibility of public lands is important in picturing the availability of open space throughout the town, its ability to

² 1995 Town of Barnstable Planning Department estimate based upon 69.94 sq.mi. in town, inclusive of surface water area due to inclusion of Barnstable Harbor and major coastal embayment waters.

³ Land in the Public Interest is defined as all those lands owned a public government agency, those held by a quasi-public agency or trust whose primary purposes is open space and conservation, recreational and or educational, and private lands under certain restrictions related to conservation, agriculture or recreation.

⁴ Town of Barnstable, Planning Department estimates, based on 1992 Assessor's Records

satisfy neighborhood and regional recreational needs, provide access to lakes, ponds and beaches, and to protect natural resources.

Access and multiple use of open space has a wide range of degrees based upon individual sites and the carrying capacity. In some cases access and human use may be curtailed and limited to assure protection of the natural resource on the land. Open space as habitat for animals and plants may dictate that human use is limited; in other cases, human use may be very active and a high level of development and access may be encouraged.

On the village scale, Centerville, with only 289 acres of open land, and Hyannis, with 1,443 acres, seriously lack neighborhood open spaces. Many of the large recreational areas that exist in Centerville and Hyannis are regional facilities. Facilities in Centerville are Craigville and Coville Beaches (21.6 acres). In Hyannis, Kalmus Beach, Aselton Park, Veterans Memorial Park and other areas around the Hyannis Harbor (78 acres) are regional facilities. Hyannis' open space also includes the 438 acre Barnstable Municipal Airport.

The peninsula village, Cotuit, with a total of 750 open space acres, has only 4.4 acres with access to water. Cotuit is severely deficient in salt water access. Its 1.6 acres of ocean beaches and the 1.6 acres of narrow ways-to-water or 'Town Landings', provide the only salt water access.

Centerville and Hyannis, with a total of 23,310 persons or 57% of the town's 1990 population, have a total of 1,727 acres of open space or 14.4% of all open land. Hyannis has practically no conservation lands. Both Hyannis and Centerville are deficient in lands for well-field protection and open land for visual landscape relief.

Hyannis has the largest acreage devoted to schools, with 156.4 acres of public and semi-public lands. This land supports four public schools and outdoor playgrounds, ball fields, court and track facilities that supplement the recreational needs of Hyannis residents as well as all town residents. Hyannis also provides the regional Joseph P. Kennedy Jr. Skating Rink, an indoor recreational facility that is heavily utilized. Both Hyannis and Centerville are densely populated, with an average of 1,324 persons per square mile,⁵ yet these villages have few neighborhood playgrounds.

The 1,350 acres of Sandy Neck, isolated by the 2,280 acres of the Great Marshes, is environmentally and archaeologically sensitive. Together, Sandy Neck and the Great Marshes account for 36.7% of all publicly held lands or those in the public domain. Sandy Neck provides 5.1 miles of public access on Cape Cod Bay. Other usable beach access on the north side of Town amounts to only 10.8 acres and provides only 0.1 miles of public access.

To the South, only 111 acres of public beaches exist on the 12.7 miles of the Nantucket Sound. Most of this acreage, 76.8 acres is in Hyannis, and the remainder, 17.9 acres in Centerville, 14.9 acres in Osterville and 1.6 acres in Cotuit. Access to the ocean is finite and limited. As large lot coastal estates are divided, the ability to secure areas sufficient to provide public access will diminish.

⁵ from 1990 U.S. Census, Centerville @ 7.8 sq.mi., Hyannis @ 9.8 sq.mi.

Over the years the Town has had to rely upon the 11 acres of narrow public rights-of-way to provide public landings for boat access to ocean waters. These roads, which dead-end on the coast or embayments, generally do not provide good water access. They lack sufficient maneuvering area, vehicle parking and proper ramp development. Often they must double as local and regional beaches for summer residents, a use which can conflict with boating activities. Some of these landings are affected by the littoral drift and chronic sand accretion that obstruct boat launching.

The 580 acre Wequaquet Lake, the Town's largest inland body of water, with 7.8 miles of shoreline, has limited public access. Only 0.78 acres, bordering 510 feet on the lake, provide public access. The lake's edge is largely developed and the potential for public access is very limited.

Greenbelt and Linkages

The open space "greenbelt and finger link" concept was originally conceived in the Town's 1973 Open Space Plan and refined in the 1985 update of the plan. Those plans envisioned a greenbelt corridor located along the crest of the Cape Cod Moraine with open, green areas - "fingers", penetrating down through prime natural and recreational areas to the coast lines. The recent purchase by the state of 330 acres in Independence Park west of Mary Dunn Road represents one of the largest and most important acquisitions in the creation of the Cape Cod greenbelt. That acquisition provides for the continuity of the greenbelt from Barnstable to Yarmouth and is critical in preserving rare species and plant life and in protecting groundwater resources.

In 1992, the Cape Cod Commission developed its greenbelt plan for Cape Cod which has much in common with the early Town open space plan. This greenbelt concept with its finger-links is still valid today, altered through changes in the template to account for the development that has occurred within the greenbelt. Also, today the mechanisms to achieve the greenbelt linkages need to be reexamined and new mechanisms need to be crafted. The recently initiated Cape Cod Pathways is one program that has shown success in providing trails that link open space.

Existing large vacant parcels are few in number and are scattered across the Town. Many are isolated from others due to intervening development. In many instances options for future linkages are closed except via existing road rights-of-way or utility corridors. It is estimated that some 11,600 acres within the Town are vacant. Most of this vacant land is scattered individual small lots. The number of large lots, over 5 acres in size, is limited to approximately 330 parcels representing only 2,470 acres of the estimated 11,600 acres of vacant land.

According to the 1991 Planning Department Buildout Study: of the 22,629 parcels within the Town, 249 vacant parcels exist which are 5 to 9.99 acres in area, 63 parcels exist with 10 to 19.99 acres, 18 with 20 to 49.99 acres and only 1 is greater than 50 acres.⁶

Within the Town there are currently 482 miles of road. Their rights-of-way are estimated to contain 2,772 acres of land. Major utility lines, totaling 24 miles of open corridors, are

⁶ Planning Department estimates from 1991 Buildout Study, Jacqueline Etsten. The figure has been updated to account for the states acquisition of Independence Park.

estimated to contain 420 acres. Another corridor, the Cape Cod Railroad right-of-way, traverses into neighboring Yarmouth and Sandwich. It has a distance of 9.5 miles within Barnstable and links Hyannis with Barnstable Village and West Barnstable.

Utility lines and corridors are in most instances easements over private lands; these public and quasi-public easements link large areas of open public land. The transmission lines and corridors presently are used as and do provide linkages between large areas of public open space. In some instances it is the only space remaining that could provide for the interconnection of open lands. It is also important to note that the grassland and forest tree line of their utility ways are creating ecological corridors in the diversity of vegetation and habitat.

While roadways also provide linkages, only 39% are in public ownership, and of that 91.38 miles are designated Scenic Roads which require additional consideration if being proposed for bicycle or pedestrian links to open space.

The option to link the Mid-Cape Greenbelt with the coastal open space has in many cases been closed by development. The use of public roadways or easements over private land is the only viable option remaining to link some areas of open space.

Watercourse Protection

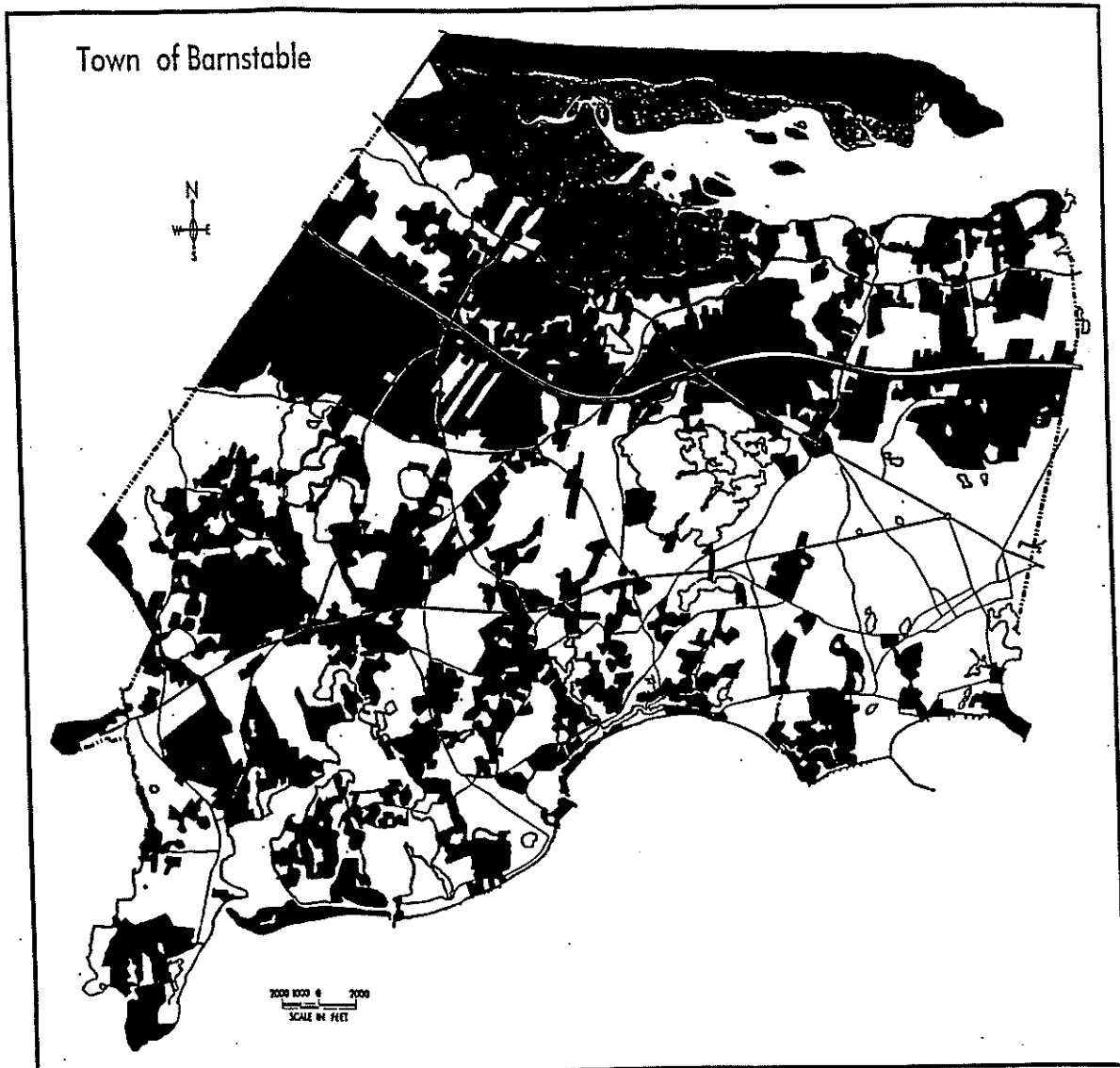
The Town's valuable river ways, estuaries, wetlands, flood plains and natural drainage areas are not adequately protected nor preserved.

Over the course of history and development of the Town, inland and coastal waterways and wetlands have been altered, filled and drained. Coastal barrier beaches have been built up and man-made landscapes have been imposed upon them. In many cases, seawalls, groins and jetties have been installed to protect the development but they are not compatible with the protection of natural systems.

To the north, Cape Cod Bay is the most natural coast line within the Town. The Southern coast of Nantucket Sound, however, has only 3.37 miles, or 24% of its 14 miles of coastline in open sea coast space, and has been changed by the installation of man-made groins and seawalls. Five of its six major harbor entrances to protected waters (Lewis Bay, Hyannis Harbor, Squaw Island, Centerville River, and East and West Bays) have jetties to protect their openings from the effects of the long-shore current. The harbor jetties are essential to maintaining the safety of navigational channels for both commercial and recreational use.

Almost 1,560 acres of the Town's 1,840 acres of barrier beaches are under public control. Most of that publicly controlled barrier beach acreage is within Sandy Neck, which has 1,350 acres protected and 150 acres remaining unprotected. Of the 340 acres of barrier beaches along Nantucket Sound, 207 are protected but 133 acres (39%) remain unprotected and susceptible to future development⁷.

⁷ Planning Department estimate (*Sandy Neck, Sampson's Island, Dowse's Beach, Long Beach to Coville Beach, Squaw Island and Hyannis to Dunbar's Point*)



Town of Barnstable Greenbelt and Fingerlinks Corridors Map

This map illustrates all of the available potential land for the creation of the greenbelt and fingerlinks within the Town of Barnstable. This graphic representation is a refinement of the Cape Cod Commissions Open Space / Greenbelt Network Plan.

This map is Barnstable's "precise greenbelt boundaries," as required by the Commissions Regional Policy Plan. The map represents most vacant or under-developed parcels in the town that are over approximately 4 acres. The map also includes existing open space, Town and government owned land (4 acres or more, vacant and developed), quasi-public land, golf course (protected and unprotected) and wetlands (undevelopable) (1995 data).

This map represent the areas where acquisition can occur without acquisition of improved land (purchasing a home or business on the land). All areas in white on this map are developed (1988 data). Also, all future subdivision activity (creation of 4 or more lots) will only occur within those area that are black on the map. The white areas are developed and the lots located therein are less than 4 acres (1988 data).

Over the last 20 years, the Town has been fortunate in gaining 19.2 net acres of land from the build-up of coastal sands⁸. This accretion of land has been limited to only three areas, which are; the easterly extension of Sandy Neck, Kalmus Beach and Sampson's Island's west end. On the other hand, erosion has been eating away Cotuit's coastal beaches and Centerville's Long Beach. Also of concern has been severe storm erosion along Sandy Neck's Primary Dune.

Wetlands are also threatened by developmental pressure. Development on uplands which surround wetlands threaten them with increased runoff. To a lesser extent wetlands are also threatened from increased agricultural use. The Town has been fortunate over the last 20 years in its vigilance to protect its wetland resources. Between 1971 and 1990 only 0.05 acres of wetland were lost due to fill and man's activity⁹. However, an estimated 55.8 acres were lost through natural means. Today there are 3,840 acres of salt marshes and wetlands, 480 acres of inland freshwater wetlands and 432 acres of cultivated cranberry bogs within the Town, for a total of 4,752 acres¹⁰.

The Great Marshes (salt wetlands) represent almost 3,100 acres of the total 4,752 acres of wetlands. Public ownership and control of the Great Marshes amounts to 2,280 acres or 74%, leaving 820 acres without protection. Toward the southern side of town are much of the remaining wetlands and bogs (1,650 acres). The vast majority are not protected by either public ownership, conservation restriction, easement or agricultural exemptions.

Marinas account for 64 acres on land, and from 500 to 750 acres are estimated to be utilized on the water. Coastal waters and embayments within the town total 8,802 acres¹¹. There are increased demands on coastal waters and embayments for boat moorings. Shellfish habitat within these recreation and public access areas is at risk.

Land Cost Limitations

The amount of land in Barnstable is finite and is being consumed at an alarming rate. The number of large undeveloped parcels is few and their market cost high. Funds for acquisitions are limited.

Barnstable has 60.1 square miles of land area (inland open water area excluded). Other than minor accretion or erosion, this area is finite. Of this finite land area, 27.4 square miles or 45.6% has been built upon, another 4.4 square miles, 7.3%, is being utilized for service to the developed area and 9.7 square miles, 16.1%, is in publicly owned and protected open space¹². An estimated 18.6 square miles, (11,600 acres) or 31% of the town, remains undeveloped.

⁸ University of Massachusetts, Amherst, Department of Forestry and Wildlife Management, Resource Mapping Project, 1990 update.

⁹ Town of Barnstable, Department of Conservation

¹⁰ University of Massachusetts, Amherst, Department of Forestry and Wildlife Management, Resource Mapping Project, 1990 update.

¹¹ Planning Department estimate 1993

¹² Planning Department estimates utilizing U.S. Census area, Department Buildout statistics and Open Space Data for Conservation Land only

During the 1980's, the Town developed and began to implement an ambitious program of acquisition and protection of open space. That undertaking was in response to the rapid and uncontrolled development of the town. Acquisition was seen as the only alternative that could ensure permanent protection of critical open space. In other cases, open space subdivisions were encouraged, conservation restrictions and conservation land trusts were successful in protecting and preserving land from a limited amount of development. Those techniques retained the appearance of open space and were successful in protecting certain natural resources.

The last major land purchase by the Town was the 35 acre Hathaway's Pond purchase in 1992. This land purchase - after the 1980's land devaluation - was secured for \$375,000. The 1980's inflated value for the land was \$2,550,000. The difference ratio can be estimated by comparing the value of the land in an undeveloped state as opposed to the value of the land based on its development potential.

Today, the value of protected open space varies from the average assessed value of \$10,250/acre for large conservation inland tracts to \$205,400/acre for town owned waterfront property.

As vacant land continues to be developed, the value of the remaining undeveloped land will increase. The amount of Barnstable land is finite. This fact will further serve to drastically impact the value of remaining undeveloped land. These facts underscore the need for a more intense concern for protecting our water surfaces, tidal lands and harbors.

Given the economy in the 90's, there will be increasing difficulty in securing adequate funds for acquisition of open space. New and creative ways of preserving and acquiring open space will have to be established. Better utilization and management of existing open space and recreational areas will be required.

Harbor, Tidal and Open Water Protection

There is a need to address the preservation and management of Barnstable's harbors, tidal areas and open waters for their recreational, business and public value.

It is necessary to look at our coastal waters and tidal lands as open space and as a recreational and commercial resource. Open space preservation, in concert with efforts for harbor and other natural resource preservation, must address tidal flats, protected waters, bays, coves and estuaries. These resources must be preserved and balanced for recreational and commercial fin and shellfishing, boating, harbor protection, marinas and public enjoyment.

Within the Town, there are an estimated 4,730 acres of protected seacoast waters. They provide for swimming, boating, fishing, beach enjoyment, and other leisure time and business pursuits and probably provide the most important resources Barnstable has to offer.

The ocean shoreline of Barnstable is over 18.7 miles. Although 97% of Sandy Neck on the North side is publicly owned (5.9 mile of its 6.1 mile length), the South side has only

28% (3.6 miles) of its 12.7 mile length in public control. This percentage drops even further to 9% if the South shore embayments are taken into consideration.

The bays, harbors and coves provide an estimated 6,178 acres of shellfish habitat. Approximately 264 acres of this habitat are closed due to contamination and another 809 acres are prohibited in use for management purposes by the Division of Marine Fisheries.¹³ Within the protected seacoast waters an estimated 600 acres are utilized for boat moorings. There are estimated to be over 300 piers located in these protected waters¹⁴.

The recreational beach shoreline is over 9.4 miles (publicly controlled), however when Sandy Neck's 5.1 miles are removed from the figure, only 4.3 miles (34%) are held in the public interest on the South side. Much of this length, including 1.9 miles on Sampson's Island/Dead Neck, is privately held in the public interest and is not necessarily accessible to the general public due to covenants and restrictions that are protecting sensitive environments.

The tidal lands were recognized state-wide in 1868 as a vital natural resource. Today this recognition and protection has evolved into Mass. General Law, Chapter 91 coastal waterways licensing program. This licensing of structures and uses along the tidal lands was developed to ensure that water-dependent uses were preserved and maintained and that the tidal flats remain open and an integral part of the coast. The law also provides for jurisdiction to 1,650 feet from the high water mark to provide for the regulation of uses and activities in close proximity to these environmentally sensitive areas.

In 1992, the Town issued 1,871 boat mooring permits town-wide. This figure represents a growth of 33.6% (approximately 470 new moorings) in five years. The majority of the 1992 permits issued, 693 (36.99%) were for waters surrounding Cotuit where a waiting list now exists for moorings¹⁵. In 1989 a Coastal Zone Management Plan for the Town recognized the inefficient mooring practices and proposed that detail mooring plans be developed for all of the embayments of the Town. The recommendations of that plan still need to be implemented.

In 1992, commercial shellfishing permits totaled 126 and the family recreational permits totaled 2,354¹⁶. Over recent years, the number of permits have fluctuated drastically and the trend in this area is difficult to generalize. The industry hinges on that years availability and growth rate of shellfish, the frequency and severity of coastal storms and the weather conditions, coastal pollution and man's intervention in stocking of the beds as well as the economic climate of that particular year.

Aquaculture, man's controlled propagation, growth and harvesting of marine life, should be encouraged as suitable activity in our coastal region. This could assure that marine resource is maintained.

¹³ From: The Town of Barnstable Open Space and Recreation Draft Plan, 1992

¹⁴ Planning Department estimate based upon projection made in the Coastal Resources Management Plan

¹⁵ Planning Department Estimates based on data from 1992 Town of Barnstable Annual Report

¹⁶ Source: 1992 Town of Barnstable Annual Report

Recreation Programs:

Recreational programs have been overwhelmed by the recent increase in population, facilities have been deteriorating due to limited funds, and in some instances the needs of certain age groups and populations have not been adequately met.

Barnstable's diverse and well-rounded recreational programs, provided by the Town's Recreation Department [including the Office of Community Development, Olde Barnstable Fairgrounds Golf Course, Senior Services Department, Council on Aging and the Barnstable School Department] have attempted to grow with the increasing population and to meet the needs of the varying groups within the Town. However, the rapid increase in population and the unusual shifts in age groups has placed demands on recreational services and the programs these agencies provide. Many programs have been expanded to meet the need. Others still require expansion.

The Recreation Department maintains 70 park and landscaped sites totaling 218 acres.¹⁷ The majority of the sites are for active recreation, generally consisting of play equipment, field sports and court games. Many of the sites are operated by and associated with elementary schools. The Recreation Department cooperatively utilizes these indoor gymnasium facilities.

The waterfront sites are generally beach facilities and associated parking. These sites total over 155 acres in 18 beach sites, both pond and coastal shoreline. A parking capacity of over 2,070 vehicle spaces exists along the 12 coastal beaches. In addition there 46 other coastal shoreline access points, including ramps, ways to water and docks, most containing few if any parking spaces.

Besides major beaches, the Recreation Department also operates and maintains several major Town-wide recreational and leisure time facilities. They include the Senior Center, the Kennedy Memorial Skating Rink, and the Youth Center.

The Barnstable Recreation Department affords many residents their only opportunity for wholesome recreation. The Town has an obligation to provide adequate lands for playgrounds and parks and to provide those recreational and leisure time programs for the residents in a democratic and equitable manner.

During the village planning efforts, the need for improved tennis courts and recreational facilities in the village centers was expressed. Revitalizing and improving existing community centers is important to this effort as is the expansion of the recreational, leisure time, and community service activities the centers provide. It was discovered that in densely populated areas of the town it is important to residents to have recreation provided close to home and within the local neighborhood.

Parks and recreational opportunities has improved the quality of life in Barnstable by providing neighborhood recreation close to home, public access to our ponds and ocean

¹⁷ Source, Barnstable Recreation Commission Property List 1993

waters, by expanding educational and cultural opportunities and by facilitating the physical and social well being of the residents.

Private and Quasi-Public Resources

As the Town matures and grows, there is greater need for coordination with private sector recreational and cultural and artistic pursuits.

Barnstable and Hyannis act as the "Hub" of Cape Cod and also as its population center. The area has evolved into the Cape's cultural, educational and leisure activity center. Barnstable's private and quasi-public institutions include; Cape Cod Community College, the Cape Cod Conservatory, the YMCA, the Cape Cod Ballet Society, and numerous museums, community theaters, private health clubs, country and social clubs.

Other cultural activities, such as the Cape Cod Symphony, which should be centered in Hyannis, are not. The Symphony must perform in other areas of the Cape due to the limited size of the facilities within the Town.

Cultural activities enhance the quality of life on Cape Cod and complement the public sector's commitment to that quality of life. Government has generally not been involved in these activities except for specific events. Coordination and cooperation between the two should be fostered. These activities enhance the desirability of Barnstable and are important to the cultural, social and economic evolution of the Town.

Goals Policies and Strategy

Goal 6.1 Open Space in Barnstable: The Town shall continue to ensure that prime open space is preserved and retained and is used for the good of the public at large.

Policy 6.1.1: Land Acquisition: The Town shall continue to promote the acquisition of prime open space for the purposes of conservation and protection of resources, preservation of wildlife habitats, provision of recreational opportunities and to maintain the visual quality of town.

Strategy 6.1.1.1 Spatial Quality Standards: In 1990 public open space amounted to 215 acres per 1,000 residents.¹⁸ This ratio shall be maintained and should be increased over the next 10 years. The goal of this plan is to attempt to increase the ratio to 225 acres per 1,000 residents by 2,000.¹⁹ In 1995, the ratio is 219.5 acres per 1,000 residents.²⁰

¹⁸ This ratio is established by the total amount of land, 8,150 acres, in government ownership "Protected Open Space" and the total 1990 population of 40,949.

¹⁹ Note: The population in the year 2000 is projected to be 53,600 persons (as projected by 1988 Population Projection Report, Department of Planning) and if met would require public ownership of 12,060 acres.

²⁰ The 1995 ratio is based upon 9,480 acres of "Protected Open Space" and the estimated 1995 population of 43,184.

Research on the various components of this ratio shall be undertaken to delineate in detail its make-up in terms of open land for recreation, resource protection, fresh water access, ocean beaches, public facilities and the like. In some instances, particular ratios may be changed to assure critical needs are satisfied.

Strategy 6.1.1.2 Land Acquisition Seed Fund: An annual appropriation is necessary to ensure the continuance of land acquisition. This "seed" fund is necessary to provide sufficient capital to assist in securing independent land appraisals, payment of gift taxes, tax title takings, and to secure options on the purchase of critical land areas.

Strategy 6.1.1.3 Land Acquisition Appropriations: Some predictable amount is necessary to ensure funding will be available for the purchase of large areas and critical linkages within the open space plan. This fund should be established with the ability to "roll over" the unused portion to permit the fund to build for a future acquisition.

Strategy 6.1.1.4 Property Transfer Tax: The County should establish a Real Property Transfer Tax placed on the value of all property transferred within Barnstable. This fund should be collected at the County level and transferred back to each town equal to the amount collected for the town. This open space transfer tax should be applied separately from other transfer taxes and that portion of the tax should be earmarked exclusively to Open Space acquisition.

Strategy 6.1.1.5 Grant Funds: Land and Water Conservation Funds have been utilized in the past for acquisition of open space. In the future the town should take a more aggressive role in seeking those funds and other land acquisition funds. Grant funding should include the development of open space and recreational facilities. The State Self-Help and Urban Self-Help grant programs should be given greater focus in this area.

Strategy 6.1.1.7 New Grant Sources: New open space and recreational grant sources should be investigated and an aggressive program undertaken for those grants which would benefit the town. The nature of grants sought should include trails and bicycle ways, handicapped accessibility, special needs, cultural and artistic, resource protection, land preservation and other projects.

Policy 6.1.2: Open Space Preservation: The Town shall encourage the preservation of open space and secure public access through creative means of conservation restrictions, fee interest, land easements, tax abatements, gifts and zoning.

Strategy 6.1.2.1 Golf Course Preservation: Wianno, Hyannis and Cummaquid Golf Courses do not have conservation or open space restrictions on the land. Continued pursuit of conservation restrictions is necessary to ensure preservation of their open space and recreational aspects.

Strategy 6.1.2.2 Public and Private Partnerships: Partnerships with private businesses should be forged to foster the improvement and expansion of existing facilities and programs and to secure additional public open space.

Strategy 6.1.2.3 New Options in Funding for Open Space and Recreation: New funding options such as impact fees, payment-in-lieu of land contributions for open space, and off-site contribution of open space should be further explored as to their applicability and usability within Barnstable. If found to be viable options, a process and mechanism should be established to implement these options as they relate to new growth and development.

Policy 6.1.3: Residential Subdivisions: All new residential subdivisions greater than 4 acres and located within the refined Town of Barnstable Greenbelt and Fingerlinks Corridors Map (as illustrated on Page 6-7) shall be Open Space Residential Development. From 40 to 60 percent of the total upland area shall be reserved as permanent open space. The amount of required open space within a particular division shall be determined on the environmental protection needs of a particular site.²¹ The town should investigate granting of a development bonus when preservation of additional high quality open space is desirable.”

Strategy 6.1.3.1 Land Division Within the Greenbelt: As land is divided within the area identified as the Town of Barnstable Greenbelt and Fingerlinks Corridors Map (as illustrated on Page 6-7), at least 40% of the all non-residential land shall be reserved for open space. Within residential subdivisions, from 40 to 60% shall remain open space. This land shall be located to protect natural resources and to ensure continuity with existing public open land and linkage to future development of the greenbelt. Consideration shall also be given to the provision of ground water recharge, flora and fauna habitat, open space, scenic roadways, appropriate recreational opportunities, use buffer zones and protection of the Cape's natural character.

Policy 6.1.4: Commercial and Industrial Subdivisions: Regulations shall be developed for commercial and industrial subdivisions that incorporate the concept of 40 percent of all land as open space, shared parking, entrances and landscape amenities. These regulations shall be incorporated into guidelines for commercial and industrial subdivisions.

Strategy 6.1.4.1 Land Development Within the Greenbelt: For existing lots within the area identified as the greenbelt or fingerlink, 40% of all nonresidential developments shall remain open space, 30% of which, shall be retained in its natural state and located to supplement the continuity of the greenbelt.

Strategy 6.1.4.2 Site Development Guidelines: A clear set of guidelines needs to be developed that illustrates the implementation of the Greenbelt, Fingerlinks and Framework concepts. This should be incorporated into the generalized site guidelines developed through Site Plan Review.

Policy 6.1.5: Redevelopment: All redevelopment shall strive to preserve existing vegetation and shall enhance the open space impression by incorporation of green

²¹ Note: In implementing the open space plan elements it is envisioned that Section 3-1.7 - Open Space Residential Development Provisions of the Zoning Ordinance shall be reworked to allow a more flexible grouping of open space to protect resources and certain criteria will be established requiring a larger lot area for lots on private wells.

buffers. When redevelopment is located in proximity to public open space, trail easements and buffers shall be planned and developed as part of the redevelopment.

Policy 6.1.6: Land Regulatory Activities: The Town shall continue to promote and enforce regulations which ensure development within Barnstable is compatible with and protects natural resources.

Strategy 6.1.6.1 Open Space Framework: The concept that open land creates and frames the skeleton upon which all other land uses hinge is to be implemented by the Comprehensive Plan. This framework concept shall include consideration for buffering between unlike land uses, tree lined roadways, green corridor linkages, and the continuity in the natural vegetation and environs of Cape Cod. Development within and adjacent to the greenbelt shall be configured so as to minimize adverse impacts and in a manner that maximizes contiguous open space.

Strategy 6.1.6.2 Linkages: As land is divided or developed adjacent to an identified "linkage" of the Open Space Concept Plan, a minimum of 25 feet should be retained and permitted for public access adjacent to the way identified. In business areas, this 25 feet shall be developed with appropriate linked walks and landscape as approved by Site Plan Review Committee. These linkages are designated to provide for future trail and bicycle ways, and to protect animal corridor habitats.

Strategy 6.1.6.3 Zoning Relief and Bonuses: Implementation of the plan involves land rights and development potential that need to be accounted for. Select relief should be drafted into the Zoning Ordinance for reduction in parking, shared parking areas, overflow and compact car parking. Lot coverage by buildings, pavement and uses need to be clarified as well as defining those uses permitted within front, side and rear setbacks.

Strategy 6.1.6.4 Planned Unit Development: To provide the flexibility in large developments and to better arrange uses of our land, a planned unit development (PUD) amendment to zoning should be considered. This planning tool would allow for a large development to be planned and integrated into the larger perspective of land use and community needs.

Strategy 6.1.6.5 Performance Standards: Performance standards should be investigated as an additional zoning tool. For open space and recreation, performance standards can provide a vehicle to assure that certain open land characteristics remain and that certain developments provide open areas for recreational use and corridor access. It can provide for the compatibility of unlike land uses that traditionally may conflict with each other.

Policy 6.1.7: Resource Protection: Open Space shall be selected for its ability to protect natural resources, preserve ecological systems and retain archeological and culturally important sites.

Strategy 6.1.7.1 Groundwater Protection: Continued acquisition and regulation of uses are needed to ensure that the Cape Cod sole source aquifer is

protected. Mitigation measures shall be instituted to remove and lessen potential groundwater pollution and detrimental effects created by human use within recharge areas to public supply wells.

Strategy 6.1.7.2 Historic Considerations: Historic landscapes should be preserved, and where and when appropriate, recreated. These historic landscapes may be modified to meet modern day needs for recreational purposes.

Strategy 6.1.7.3 Significant Features and Areas: In the design of developments, significant natural and fragile areas including critical wildlife and plant habitat, water resources such as lakes, rivers, aquifers, shorelands and wetlands; historic, cultural and archeological areas, significant scenic roads and views, and significant landforms shall be protected.

Goal 6.2. Recreation in Barnstable: Maintain and expand recreational opportunities throughout Barnstable and ensure that every community and village is served appropriately.

Policy 6.2.1: Multi-Use Recreation Facilities: Public recreational facilities and open space areas shall be designed for year round and multi-use where appropriate.

Strategy 6.2.1.1 Multi-Use Facilities and Land: In the acquisition, planning, design and development of open space and recreational facilities, the multi-use potential of the resource shall be considered. Whenever possible, public investment shall be initiated to satisfy an array of compatible needs.

Strategy 6.2.1.2 Community Recreation Buildings: Freedom Hall in Cotuit, West Barnstable Community Center, Osterville Community Center, and the Centerville Community Center all are in need of continuous repairs and improvements to the structures, grounds and outdoor facilities. Expanded and new community programs and uses need to be incorporated into the facilities.

Strategy 6.2.1.3 Public School Playgrounds and Recreational Facilities: Existing school playgrounds and indoor recreational facilities should be looked at for year-round use. These facilities should be designed in the future as usable entities by both the school and neighboring communities. The cost and expense of developing the facilities and maintaining them may have to be shared between both the schools and the Town's Recreation Department working cooperatively.

Strategy 6.2.1.4 Open Space Carrying Capacity: The ability for land to support human use is limited by the land's natural and environmental limitations, balanced with the degree of development and control. The capacity of open space must be assessed and mitigation undertaken to ensure that human use does not impact the resource or degrade the human experience. Critical areas of concern include the Ocean Beaches, Sandy Neck and the Great Marshes, all the Great Ponds, Herring Runs and wetlands.

Policy 6.2.2: Renewal of Facilities²²: The town shall undertake assessment of all existing recreational facilities and shall develop and fund a program for repairs, improvements and rehabilitation of the facilities to meet today's needs and standards. All renewal of facilities shall strive to meet national standards.

Strategy 6.2.2.1 Community Development Block Grant Funds: A new source of funds for renewal of open space and recreational areas is the Community Development Block Grant fund. This funding source has traditionally been utilized to renew older parks and community facilities. It should also be considered when new recreational facilities are needed in a densely developed area of the Town.

Strategy 6.2.2.2 Recreation and Athletic Standards: All new recreation and athletic facilities should be designed to meet minimum design and dimensional standards for the intended use. In rehabilitation, these standards should be met when feasible. All facilities should be developed with a minimum of a 40 year life.

Strategy 6.2.2.3 Ridgewood Park: Upgrade of park for family and neighborhood activities, including playground equipment and free play areas. The restoration and improvement of this Hyannis neighborhood park should be included as a Community Development Block Grant activity.

Strategy 6.2.2.4 Landscapes and Vegetation: In open space preserve areas, the indigenous vegetation types and the natural evolutionary cycle should be maintained and supported by man's interactions. Traditional open views and vistas should be maintained. When an area is being utilized for a high degree of activity, a landscape design conducive to that activity and inclusive of indigenous and appropriate non-indigenous vegetation should be maintained.

Policy 6.2.3: Expansion of Programs and Facilities: The town shall undertake an analysis of its recreational needs and shall develop plans to fulfill those identified needs.

Strategy 6.2.3.1 Neighborhood Parks: Additional land is needed to satisfy neighborhood recreational needs in Hyannis, Centerville, Cummaquid and within the densely populated areas of the other villages within Barnstable. Neighborhood park areas are needed to provide traditional recreation (ball fields and courts, play equipment, exercise trails and free-play) close to home.

Strategy 6.2.3.2 Kennedy Memorial Skating Rink: Rehabilitation to the rink, its mechanical systems, building and grounds, has been authorized. Consideration should be given to the fact this is one of the most utilized

²² Renewal is defined as taking an existing facility and bringing it up to today's expected standards. It may include simple repairs (fixing a leaking roof, resurfacing a running track), improvements (drainage tiles installed under a ball field where none presently exist, adding drinking fountains or bathrooms where none exist), or rehabilitation (total remake of an area or structure that has deteriorated beyond that point where repairs or improvements are too costly to be effective).

recreational facilities within the Town and consideration should be given to its future expansion.

Strategy 6.2.3.3 Veterans Park: Improve senior citizen activities, including bocci and shuffle board court and game tables. Existing playground and outdoor picnic area needs to be upgraded and expanded.

Strategy 6.2.3.4 Burgess Park: Improve for senior citizen activities, upgrade trails and water access to Hamblin's Pond and expansion of outdoor picnic area. Protective action taken to stop the deterioration of the Burgess House and determination of its reuse made.

Strategy 6.2.3.5 Long Pond Beach: Improve beach, parking and access and provide bath house.

Policy 6.2.4: Awareness of Recreational Opportunities: The Recreation Department, in concert with other Town agencies shall strive to educate the public on the availability of programs, facilities, and services, and to promote public use.

Policy 6.2.4: Special Needs: Open space and recreational facilities shall be made accessible to handicapped persons and program opportunities shall be available to special population when possible and practical.

Strategy 6.2.4.1 Handicapped Accessibility: All Town buildings and facilities need to ensure convenient handicap accessibility to the greatest degree possible. This is especially critical for Town beaches and bath houses (Covells, Dowses, Joshua's Pond, Loop, and Hamblin's Pond). Natural open space and protected land needs to provide for some type of suitable handicap access to permit the experience of the natural setting. Old Jail Lane, Sandy Neck, Burgess Park, Veterans Memorial Park and the West Barnstable Conservation Area have been initially identified.

Strategy 6.2.4.2 Handicap Participation: Consideration must also be given to ensure that handicap participation is possible in the activities and functions within our parks and open space. Swimming (water and pool access), fishing, special playgrounds, boating and other activities should be provided for handicapped individuals whenever feasible or when the demand warrants.

Policy 6.2.5: Group Recreation: Town agencies shall work cooperatively to ensure that public facilities meet the needs of local and community groups and facilitate nonprofit and social gatherings and events.

Strategy 6.2.5.1 Senior Center: A renewed senior center is needed for the ever growing elderly population of the town. Expanded programs, recreational as well as social, are also required to meet the growing demands.

Strategy 6.2.1.2 Expanded Cultural Facilities: The improvements to and development of expanded cultural facilities and programs are viewed in this plan as a necessary component for leisure time enjoyment. Cultural facilities and programs provide expanded options for residents and visitors.

Policy 6.2.6: Revenue Producing Recreation and Facilities: In all revenue producing programs and facilities, assurances must be obtained that the opportunity for an individual or family to participate is not closed due to fees or expenses. All revenues received shall be utilized to provide or expand recreational opportunities for the general public.

Strategy 6.2.6 User Fees: For select activities user fees should be considered, however the fees should be kept minimal and based on a sliding scale to ensure that no resident would be kept from participation because of the inability to afford the fee.

Policy 6.2.7: Visitors and Tourists Facilities: The position of Barnstable, especially Hyannis, shall be maintained and improved as the central Cape Cod area for tourist and visitors. Major tourist facilities and services, large coastal beaches, marinas, open space and multi-modal transportation facilities shall be encouraged. Quality design standards shall be encouraged for all tourist facilities and in all visitor services.

Strategy 6.2.7.1 Beach Shuttle Services: During peak summer, bus shuttle service should be initiated to major public beaches. The services should originate from nearby alternative public and quasi-public parking lots and transport persons to the beaches via village centers where applicable. The regular "B" bus services should also promote the use of the buses for beach goers. Safe and convenient bus drop-off and pick-up areas need to be incorporated into the beach areas.

Strategy 6.2.7.2 Craigville and Coville Beach: Connection of the two beach areas by an improved roadway to include walkway and pedestrian activity zone. Landscape with natural dune setting and vegetation, expand beach area, provide for bus drop-off and pick up area and for an overflow parking area.

Strategy 6.2.7.3 Sandy Neck: Improved accessibility, relocation of parking lots to appropriate location, construction of boardwalks over fragile areas, reconstruction of a concession area and the incorporation of an interpretative and awareness center are all needed.

Strategy 6.2.7.4 Hyannis Walkway to the Sea: The open space and recreational plan recognizes and supports the need for the open greenway linkage between Hyannis downtown and the Hyannis Harbor. This linkage would provide that traditional association of the downtown with the harbor and would provide a leisure time walkway for residents and visitors alike. A major extension of this idea is a water's edge walkway around the Inner Harbor.

Strategy 6.2.7.5 Hyannis Main Street Renewal: The renewal of Main Street Hyannis with street trees, pleasant walks and green areas is visualized and supported in this Open Space Plan.

Strategy 6.2.7.6 Coordination of Bicycle trails and Paths: Bicycle trails and pathways must be coordinated to facilitate movement to select facilities within the villages and town and must support the Cape-wide network of trails.

Policy 6.2.7: New Residential Subdivisions: New residential subdivisions should provide suitable recreation and play areas to meet the needs of the residents of that

development such as ball fields and courts, playgrounds, walking, bicycling or jogging paths, exercise courses, out door sitting areas, swimming pools and other outdoor or indoor recreation and leisure time options as appropriate to the residents and scale of the development.

Goal 6.3 Marinas, Water and Coastlines of Barnstable: Public access should be secured to and along all water to protect and preserve the natural amenities of the water's edge - its land and water sides, and, where appropriate, to expand water based recreation, boat launching and fishing.

Policy 6.3.1: Waterfront Activities: All construction and land division along the coastlines shall provide at minimum the public benefit of view easements to the coast and to tidal lands. All commercial development along the coastline shall provide for public access along the water's edge where possible and practical.

Strategy 6.3.1.1 Coastal Protection: As large coastal estates and lots are divided, public access to the coast must be secured. New residential building and all associated lot development shall be located, when possible, a minimum 100 feet from the high water mark and the land shall retain or be restored to its natural state. Public access along the beach shall not be hindered nor shall the public's rights within the tidal waters be limited.

Strategy 6.3.1.2 Inland Water Protection: Whenever possible, a 100 foot natural edge shall be retained or reestablished along all water bodies, streams, ponds and wetlands. This edge shall preclude any building except for compatible and approved water dependent uses.

Strategy 6.3.1.3 Coastal Lands and Access: Acquisition of new coastal areas should concentrate on lots that augment existing beaches and Town ways to coastal waters and bays. Lots that adjoin existing publicly accessible areas should be a priority for public access. Consideration must also be given to those lots in close proximity to public coastal areas to provide for parking and services to improve public access.

Strategy 6.3.1.4 Inland Water Lands and Access: Priority must be given to securing additional access to the numerous fresh water ponds, lakes and streams within the Town. Special consideration is needed to secure and improve public access and land area along Wequaquet Lake.

Strategy 6.3.1.5 Wequaquet Lake: Wequaquet is the largest inland waterbody in Barnstable and is the least accessible. Few large undeveloped lots exist along the waterbody or within the surrounding neighborhood, which is already densely developed. The single most important priority of the Open Space and Recreation plan is the securing of what open space still exists and the development of that land for public access to the water.

Policy 6.3.2: Marinas and Harbors: All development, redevelopment and building along or within a zoned Marina District shall allow for public access to and where possible along the waters edge.

Strategy 6.3.2.1 Efficient Mooring Plans: The planning, design and implementation of efficient mooring plans dealing with the protection of coastal

embayments is needed. Those plans should reduce the water area covered by boats while increasing the number of boats moored. The greater use of star-docks and boat moorings by size needs to be planned.

Policy 6.3.3: Shellfish Resource: Inventory and assess shellfish habitats and resources of the town and assure the continuation of this commercial and recreational asset through proper management and propagation.

Strategy 6.3.3.1 Aquaculture: Man's controlled propagation, growth and harvesting of marine life, should be encouraged. This use, in existing areas or other sites is one additional means of protecting the resources of our coast. It may provide for the continued growth of this traditional use of our coastal waters and preserve the shellfish and fishing industry from continued decline.

Policy 6.3.4: Herring Runs: Continue to protect, acquire and preserve easements along all herring runs within the town to assure this natural resource for future generations.

Policy 6.3.5: Flood Plain: The 100 year coastal flood plain should be revisited both in designation and in development techniques to ensure that the concern for nature's forces are accounted for in this precarious environment.

Strategy 6.3.5.1 Flood Plain Protection: New development within the 100 year flood plain shall not be permitted in the future. Expansion of existing structures and uses shall be provided for only with special detailed analysis of the natural forces at work in this precarious environment.

Policy 6.3.6: Coastal Pollution: Existing development which contributes to the pollution of the coastal waters shall be mitigated. New development and redevelopment that poses an unmitigated threat of pollution shall not be permitted.

Goal 6.4. Public Lands and Facilities in Barnstable: All public properties of the town shall be managed for their intended public benefit and to protect natural resources, preserve wildlife habitat, provide recreation and maintain the visual and cultural qualities of town.

Policy 6.4.1: Land Management: Existing Town-owned properties shall be managed and maintained to ensure appropriate use and public benefit.

Strategy 6.4.1.1 Town Land Management Program: The Town should also initiate a review of current policy related to all town-owned property (land and buildings). Consideration should be given to the multi-use potential of government property and to the continued maintenance and protection of this resource. Areas of special concern which need to be resolved in a timely fashion include:

- the Darby property for open space and passive recreation,
- location of Sandy Neck Parking lots,
- use of vacant Barnstable Marina property,
- relocation of the youth center, and
- the senior center.

Strategy 6.4.1.2 Independence Park Management: Continuing efforts are needed to assure that the recent acquisition of 330 acres of Independence Park, located east of Mary Dunn Road is managed and utilized for the protection of the groundwater resources and natural habitat located there as well as for human enjoyment and to provide continuity of natural land within the regional greenbelt.

Strategy 6.4.1.3 Open Space and Recreation Committee: A standing committee on open space and recreation needs to be permanently established between the Conservation, Recreation, Natural Resources, Public Works and Planning Departments, Senior Citizens Services and the School Department. Other private and quasi public organizations who hold land in the public interest should also be represented on this committee. This committee should be charged with implementation, monitoring of issues, needs and problems, and updating the Open Space and Recreation Plan as required.

Policy 6.4.2: Roadways: The improvement of public roads shall provide for the planting of street trees or natural canopy vegetation as appropriate. Public roads which link public open space, schools, ways to water, and recreational sites shall provide bicycle, walking and jogging trails between facilities where appropriate.

Strategy 6.4.2.1 Roadways: Public and private roadways should be improved and standards incorporated for existing and new roads that assure a natural, rural, village or town image. Planting of native trees and vegetation, street trees, shade and shrub trees shall continue. Development of trails, walks or sidewalks, curbing or road berms and appropriate levels of lighting will continue and improve. Continuous tree planting and maintenance shall be maintained and improved with specific attention paid to scenic roadways, village centers and major routes within the Town.

Goal 6.5. Wildlife Habitats in Barnstable: Protect and increase the wildlife population and habitats of Barnstable.

Policy 6.5.1: Wildlife Corridors: Identify and preserve those wildlife corridors that foster diversity in habitat and link known wildlife resource areas.

Strategy 6.5.1.1 Wildlife Corridors and Habitats: Wildlife corridors need to be mapped in detail. These corridors and known wildlife habitats shall be protected in the division and development of the land.

Policy 6.5.2: New Development: In all new developments, including single family dwellings, which are located in identified wildlife corridors and habitats, it shall be required to institute measures to ensure the preservation and the continuity of the wildlife corridor/habitat.

Policy 6.5.3: Program Development: Wildlife protection programs shall be instigated and extended to promote the increase of wildlife populations and diversity.

Section 7.0 Historic Preservation and Community Character

Introduction: Preservation Means

Preservation means conserving irreplaceable resources. Historic preservation is much more than just saving landmark buildings, archaeological sites and historic houses. The scope has been broadened to include older commercial and industrial structures, landscapes, barns, churches, schools, even walls, fences, and entire streetscapes. Those entities collectively give us our sense of place, our consistency with the past, our community character. Continuity and character can be preserved and enhanced if the past is "built with" rather than "in place of".

One of the few good results of urban renewal as practiced in the 1950's and 60's is the fact that preservationists were stirred to create a counter-movement that has resulted in the restoration of thousands of streetscapes and historic districts. The cities caught our attention first because they were where the battle raged that ended in a preservation mood growing across America.

Alongside their love for the historic city, Americans retain an irrepressible wistfulness for the small town, the village, the rural life. The weathered sun-struck country buildings, the white clapboard farmhouses, the village center around a common green punctuated by a church steeple creates an instant sense of harmony within the American soul. Nowhere are these features more evident than on Cape Cod. The warm colors and pleasing textures, real materials and ornament offer harmony and variety to both the trained and casual observer's eye. As a contrast, one has only to experience the barren monotony of a development of suburban split-levels or the metal and concrete flatlands of the local shopping mall to know the visual deprivation that results from removing buildings that once were.

Historic preservation does not take place in a vacuum--change is inevitable. Seldom remaining static, buildings and neighborhoods grow, diminish and continue to evolve over decades and centuries to meet the needs and aspirations of individuals and families. We are still growing and changing by adding to the past a new history and an added preservation reference that acknowledges change while protecting historical significance. Preservation maintains that the esthetic value of buildings and sites deeply affects our sense of well-being. It believes that historic resources must be safeguarded because they are irreplaceable, once gone they are lost forever; cultural assets are non-renewable assets.

A community's belated appreciation of what it once had is not rare. Imagine Barnstable without bow roofed Cape Cod cottages, clapboard farmhouses and their barns and connected outbuildings, village halls and meeting places, narrow winding lanes with overhanging trees, old stone division walls and views across ancient pastures. All are an integral part of our historic landscape. Without these visual reminders of our past, our community becomes just another indistinguishable town of faceless buildings, treeless landscapes, shopping strips and numbered highways.

Problem Statement

Barnstable is losing its "community character and image" both town-wide and within its seven villages at an alarming rate.

Throughout the course of Barnstable's 350 year history a distinctive image has evolved, establishing a unique seacoast setting of seven distinct villages and seventy-four identifiable areas of development and growth¹. The rural and small town image is created by the location, built architecture and its man-made and natural landscape.

The rapid change and development over the last 15 years has, in many cases, not respected that established character, resulting in a loss of community image and historic features. This loss can be attributed to a host of situations and generalized in terms of problems related to the issues of:

- changing land uses and activities on the land;
- standardization of development design;
- domination of the landscape by the automobile;
- a lack of public awareness and declining government resources;
- un-met potential in tourism and related problems; and
- the deterioration and loss of historic and unique architectural and landscape elements.

Issue Statements

Changing Land Use and Activities On the Land

Traditional open space and woodlands, farms/pasture lands, beaches and water access are disappearing to development at an alarming rate. The reduction in open space, closure of access and the disappearance of traditional activities represent a loss of community character.

The department estimates that today 71.7% of all the land area of the town is developed. Between 1977 and 1990, an estimated 9,390 acres, or 24.5% of all land area of the town, was developed within those 13 years of the town's 350 year history². During those 13 years, available figures show, 6,927 new single-family homes, 839 new multi-family dwelling units and 238 new commercial developments were created. New construction in those years was estimated at well over \$500 million.

The town once supported a large number of small farms comprised of dairy farming and the raising of beef, sheep and hogs. Farmsteads were commonplace in Barnstable until the 1920's, concentrated mainly on the north side of the town, on the more fertile lands.

¹ Background Report - Unique Areas of Growth and Development, Draft Report of the Planning Department and LPC Subcommittee on Historic Preservation and Community Character 1992.

² Planning Department estimates based on 1989 air photos (GIS) and comparison with USGS 1977 Map.

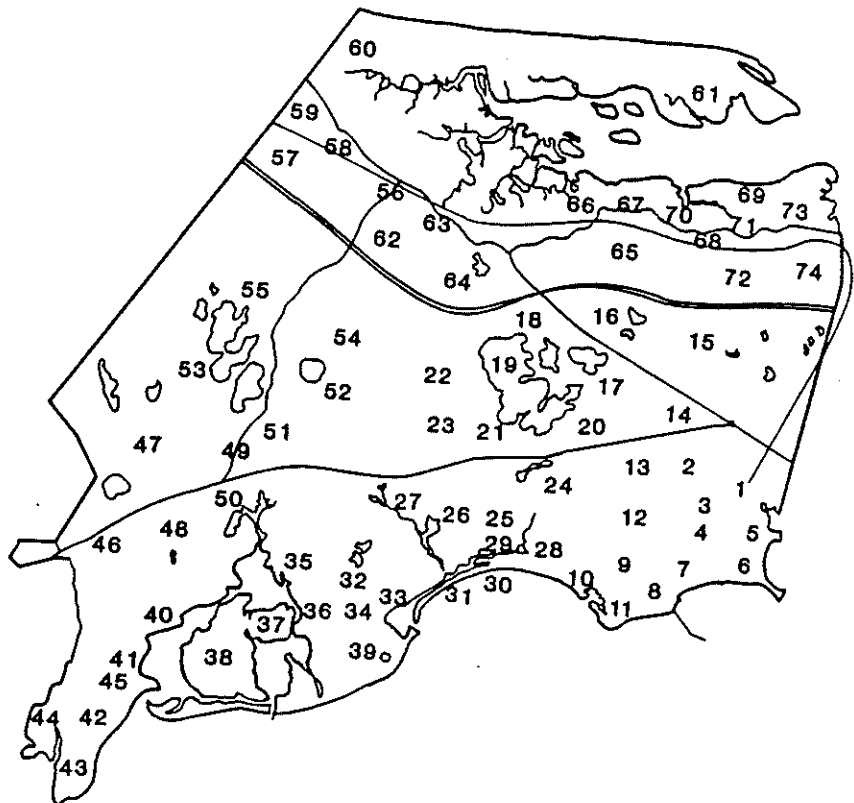
1. East End Hyannis
2. West End Hyannis
3. Main Street Hyannis
4. Glenmere
5. Fish Hills
6. Kalmus:
7. Sea Street
8. Hyannis Port
9. West Hyannis Port
10. The Avenues
11. Squaw Island
12. West Hyannis
13. North Hyannis
14. Routes 132 & 28
15. Independence Park
16. Hathaway's Pond
17. Shallow Pond
18. Shootflying Hill
19. Wequaquet Heights
20. Phinney's Neighborhood
21. Wequaquet Yacht Club
22. Skunknett
23. Centerville Highlands
24. Long Pond
25. Centerville River
26. Centerville Village Center
27. Bumps River
28. Coville Beach
29. Craigville
30. Short Beach
31. Long Beach
32. Tower Hill
33. East Bay
34. Osterville Village Center
35. Seapuit
36. Osterville Harbor
37. Little Island
38. Grand Island (Oyster Harbors)
39. Wianno
40. Little River
41. Cotuit Port
42. Cotuit Highlands (High ground)
43. Rushy Marsh
44. Poponesset (Crocker Neck)
45. Cotuit Village Center
46. Santuit
47. Newtown
48. Putnam
49. Marstons Mills Village Center
50. Prince Cove
51. The Mills
52. Shubael Pond
53. The Ponds
54. Timberland
55. Hamblin's Plain
56. West Barnstable Village Center
57. Cedar Street
58. Honey Bottom
59. Scorton Hill
60. Sandy Neck
61. Beach Point
62. Church Street
63. Proctor's Crossing
64. Garretts Pond
65. Old Jail Lane
66. Pond Village
67. Lothrop Hill
68. Barnstable Village Center
69. Common Fields
70. Barnstable Harbor
71. Cobb's Hill
72. Flint Rock
73. Dimmock's Great Lot
74. Cummaquid

Unique Areas of Growth and Development

This division of the town into 74 unique areas within the seven villages is important in identifying a sense of place for the future development of design guidelines which will ensure protection, preservation and growth that respects the diversity found in Barnstable.

Within the seven villages, there is an awareness of the existence of distinct areas within each of the villages. These "neighborhoods" share common interests and concerns. During village meetings to discuss village planning efforts, neighborhood groups emerged to address items affecting them. As the town and each village continues to grow, the need for more representation by small neighborhood associations is desirable.

The identity of the 74 areas of the town is rooted in the historic growth and development of the town and in the distinct geographic location of each area. They are distinct locations with established community patterns. In preservation and in future development respect is needed to assure that continued growth does not adversely affect existing functional relationships or the sense of place. To date, there has been no coordinated town-wide effort to identify "neighborhood" associations/groups within the villages.



Today only two farmsteads remain intact and preserved; however they are not working farms. They are the Whelden/Jenkins Farmstead (at Pine Street West Barnstable) and the Ebenezer Crocker Farm (Putnam Avenue Cotuit)³. Other than the traditional agricultural cranberry bogs, recent farm trends have been toward "gentleman farms", horse farms or commercial greenhouses and garden centers.

According to 1983 Assessors' records, 3 parcels totaling 112.72 acres are assessed as forest lands under MGL Chapter 61 Forest Lands Assessment Act, and 43 parcels totaling 625.90 acres are assessed as agricultural lands under MGL Chapter 61-A Mass. Farmlands Assessment Act. No private land within the town is assessed as recreational land under MGL Ch. 61-B⁴. Although these exemptions offer some relief from rising land values and pressure from development, they do not constitute permanent assurance of farm and forest lands, nor do they provide general public access.

Barnstable borders on 66 miles of seacoast and sea estuaries. Of that coastline, 18.77 miles are ocean shores, with 9.47 accessible to the general public and in public ownership. Much of it is associated with the 6 mile barrier beach known as Sandy Neck. Only 3.59 miles of the 12.71 miles on Nantucket Sound provide public access. As for inland fresh water bodies, there are 55 ponds and lakes,⁵ providing 47.58 miles of freshwater beaches. Of that, only 9.21 miles provide for public access⁶.

Sea and pond access, both physical and visual, has become increasingly important as recreational and tourism activities expand. The number and area of beaches has remained static during the period of dramatic growth of the last 15 years. Much of the seacoast and pond edges are privately owned, and when developed, public access to the water is lost. In many instances, the indigenous water edge of sand, marshland and woodland also vanishes.

Over recent years, the town and conservation groups have responded to the loss of open space through development by acquisition and other protective measures and programs to conserve open lands. Today 6,430 acres of the town are preserved for conservation; 1,270 acres for groundwater protection; 520 acres for public recreation use, and an additional 2,075 acres are held by private and quasi-public groups for conservation, preservation or private recreation⁷.

Standardization of Development Design

Design of newer developments, especially for business and commercial use, has not respected Barnstable's uniqueness and sense of place established by its architectural and landscape identity.

The 1970's saw the introduction of "The Strip Mall" and the beginning of disinvestment in downtown Hyannis. More recently, the 1980's introduced the architectural

³ Historic Preservation Plan Update 1990 Town of Barnstable, pages 46-49.

⁴ Town of Barnstable Open Space & Recreation Plan 1992.

⁵ An Inventory of Ponds, Lakes, and Reservoirs of Massachusetts by James A McCann from Town of Barnstable Open Space & Recreation Plan p. 23

⁶ Town of Barnstable Planning Department.

⁷ Town of Barnstable Open Space & Recreation Plan 1992.

standardization of commercial building (typified in fast-food restaurants and gas stations) and the asphalt landscape. Businesses, disappointed in the image of the malls, the sameness of commercial and office structures and the associated traffic problems, are creating development pressures on the village center.

Hyannis has evolved from its small-town image because it has become the commercial and regional hub of Barnstable and of Cape Cod. The village images of the other 6 centers are giving way to or at risk of developing an "anywhere USA" image in their buildings and landscaping. Marstons Mills village center has lost its streetscape and its landscape has been ripped away. Barnstable village is maximized in commercial development. West Barnstable is at risk of commercial over-development if utilities are installed. Cotuit has lost its quaint village identity. Osterville has lost its historical identity from redevelopment, poor restoration and the effects of "mansionizing" (to convert a small building, house or seasonal cottage occupying a small lot of land and greatly expand and enlarge it so that it becomes out of scale with the area and/or lot on which it stands). Centerville is the best example of a village center; it should be maintained as such. Unfortunately, it, too, has been facing the issue of potential impacts of large structures in the heart of the traditional village.

The 1980's was a period of building across the whole country and Cape Cod was no exception. Tax credits for commercial and office ventures spurred the direction, followed by unprecedented escalation in property values. For the Cape and Barnstable, however, it was further exacerbated by the corresponding growth in the tourist industry and an increase in permanent residence population.

Permanent year-round population grew 11,056 during the 1970's and 10,051 during the 1980's. Today's permanent year round population is 40,949⁸. It is estimated that the town's seasonal population (summer) adds another 24,822⁹ persons, and that overnight tourists add 9,200¹⁰ persons per day during the summer months.

During the early settlement of Barnstable, Hyannis was noted as having the deepest and best harbor on the south side of town. The railroad arrived in Hyannis in 1854 and brought an increase in accessibility to the area and also carried freight and passengers to and from various ports along the eastern seaboard via its connection with Railroad Wharf in Hyannis Harbor. The railroad thrived in Hyannis only until the 1880's when the company opened up a new line to Woods Hole that took away steamer business to and from the Islands as well as other nearby ports. By the postwar ear and the formation of the Hyannis Land Company the first Hyannis land boom was underway and the area was transformed into a tourist center.

Hyannis, like all the villages, was impacted by the development and growth of the 1980's. The image of downtown Hyannis as a traditional small New England seacoast town started fading in 1940 and has since further deteriorated. Today, Hyannis has to struggle against a negative image and impression.

⁸ 1990 US Census data.

⁹ 1992 Town of Barnstable, Planning Department estimate based upon 5,516 seasonal units (US 1990 Census) and average population for each of 4.5 persons.

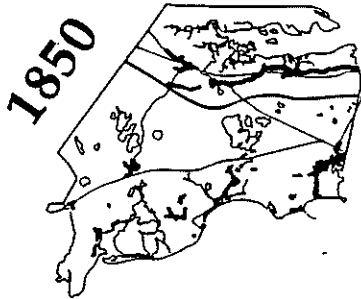
¹⁰ Cape Cod Planning and Economic Development Commission, 1984 Projections.

Historic Development Patterns of Barnstable

Settlement Pattern 1850

By 1850, development within the town had established linear patterns along Route 6A and along the early crossroads of Church Street in West Barnstable, Sea Street in Hyannis and to a lesser degree in spotted areas along Phinney's Lane in Centerville and West Main Street in Hyannis. By this time, clusters of developed areas also established the village centers, which in 1850 numbered eleven and included Ponds ville, Cotuit Port, Cotuit Highland (High Ground) and Hyannis Port. Settlement clusters are noticeable at each of the rail stations and the major seaports of that era.

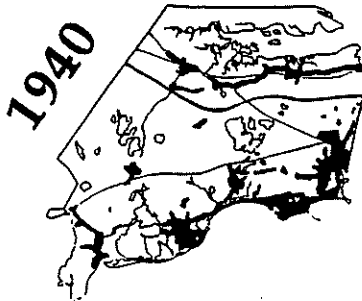
1856 - H.F. Walling, 1856 Map of the Town of Barnstable



Settlement Pattern 1940

By 1940, development had spread outwards from Hyannis and along the south coast in the areas of Hyannis Port, Centerville and Osterville. The north side of the town remained relatively similar to early years with only slight expansion at rail station and along Route 6A. Development has linked Santuit with Cotuit Port and the Highland (High Ground) along Main Street. Hyannis' radial pattern emanates from the rail station and Main Street. The settlement patterns also depict initial development of golf courses and the airport. Overall growth patterns still follow early roads especially South County and Craigville Roads.

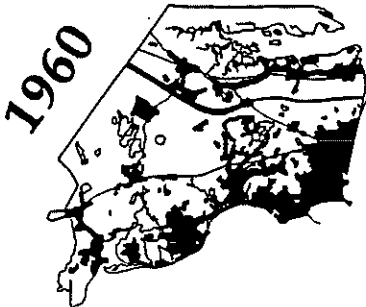
1942 - U.S. Department of the Interior Geological Survey Map



Settlement Pattern 1960

By 1960, major changes had occurred in the development patterns of the town. With the dominance of the private automobile, development of the town was spurred by the construction of the Mid Cape Highway to Route 132. Development occurred along the shores of Wequaquet Lake and along the roads to Centerville. Development in Hyannis continues to spread radially outwards and along Routes 28 and 132. The other villages show continuous infilling and spread of development. Recreational golf courses continue to be developed as do other major land uses including the Cape Cod Airport and the Barnstable Fairgrounds.

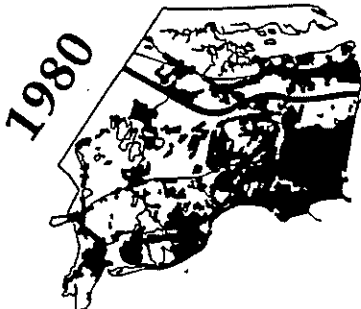
1962 - Town of Barnstable Generalized Land Uses Map



Settlement Pattern 1980

The 1980 pattern shows the filling in of development between the village of Hyannis and Centerville, development along Route 132 and expansion into the Industrial Park area. The Mid-Cape Highway has been completed through the town. Marstons Mills is beginning to show signs of its initial growth along major roads and in areas of its freshwater ponds. The northern half of the town, although mostly undeveloped, has grown in the areas surrounding the village centers, in Cummaquid and in the Barnstable Harbor Area. Spot development can also be seen along and adjacent to Route 28.

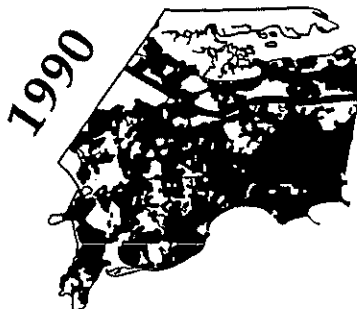
1977 - U.S. Department of the Interior Geological Survey Map



Settlement Pattern 1990

The 1990 map shows the extent of present development within the town. The village centers are no longer recognizable as separate settlement entities, as development has spread throughout all sections of the town. Much of the undeveloped lands that remains is due, in large part, to publicly held land and to unusable wetlands. Most of the larger areas remaining for development exist in the villages of Barnstable, West Barnstable, and Marstons Mills. The other villages contain only isolated areas for new development, and scattered sites for infill and redevelopment in the future.

1988 - Town of Barnstable Air Photos



Route 132, the major entrance to Hyannis and the town, is choked with over 32,000 vehicles per day, most attributable to the commercial strip mall developments along this roadway. The once tree-lined street is now dominated by signs, asphalt drives and parking lots. Clear-cutting of commercial lands prior to a development plan is still seen as the preferred preparation of a site to be offered for sale.

The small New England seacoast town image of a narrow, tree-lined "Main Street" accented with white steeples, the public green and views to the harbor and water has given way to the wide barren street, "modern" facade covered buildings, signs, asphalt parking and the closure of harbor and water views.

Residential development patterns have not been kind to the character and image of Barnstable. Spread out "suburban" one-house-per-lot has replaced the "compound". Private residential lots, clear-cut and enclosed by fencing, are adding to the loss of woodlands. Standardized wide, straight and flat roadways with broad intersections have been the response to increased speed and traffic. The early Subdivision Rules and Regulations, developed in 1973, set one standard for development across the town. They did not preserve or enhance the village character or image, nor did they respect the individual nature of a place.

Zoning Ordinance standards, needed for protection of the public good, have also added to the development of standardized design and encouraged a "sameness" in development. Parking and Site Plan Review standards have, in many cases, imparted a look-alike image for development. Many of the zoning standards are based upon "Suburban" development patterns and are not representative of a town with a history of 350 years. The standards do not encourage creativity in development. The Ordinance also is remiss in not allowing for flexibility, mixed-use planned development, performance standards and incentives to encourage good design and preservation.

Domination of The Landscape By The Automobile:

Both commercial and residential areas are being dominated by the automobile. Street development and expansion, parking standards and paved parking lots, traffic speed and design requirements all add to the domination of the landscape (our beaches, waterfronts, neighborhoods and village centers) by the automobile. Roadways are being developed for a level of service that is only needed for 2 months out of the year.

In 1988, there were 1,686 developed and named roadways, totaling 482.3 miles. Of that, 188.5 miles were privately owned; 219 miles were town owned; 65 miles were in state and county ownership, and 9.8 miles were identified as "Ancient Ways"¹¹. Many of the roadways in town are visually poor, lacking in street trees and architecturally pleasing signage. Some roadways are paved in excess of what is needed; others lack necessary pavement, drainage, sidewalks, pedestrian amenities, lighting and curbs.

It is estimated that 2,772 acres of land is devoted to roadway rights-of-way or 7.2% of the land areas of Barnstable. This land, like a ribbon of asphalt, stretching to every

¹¹ A Report Related to Layout and Acceptance of Private Roads and Betterments, Town of Barnstable, Department of Public Works, Nov. 1988.

Barnstable's Scenic Views and Vistas

Scenic Areas

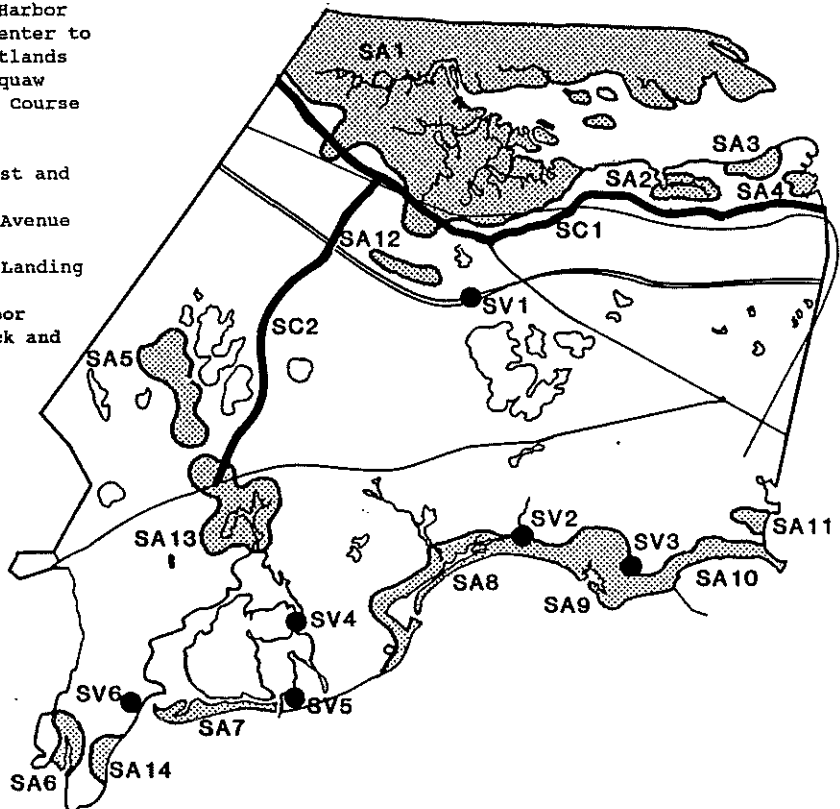
- SA1 Sandy Neck and the Great Marshes
- SA2 Maraspin Creek along Commerce Road
- SA3 Bone Hill and Harbor Point Area
- SA4 Ballets Mill Pond Area and wetlands
- SA5 Cranberry Bogs along Bog and River Roads
- SA6 Fullers Marsh and Pinquickset Cove
- SA7 Sampsons Island and Dead Neck Barrier Beach
- SA8 Centerville Harbor Area, including; Dowses, Long, Craigville, Coville Beaches
- SA9 Squaw Island and Hyannis Port Golf Course
- SA10 Hyannis Harbor, including; Hyannis Port, Keyes Memorial and Kalmus Beaches
- SA11 Veterans Memorial Park
- SA12 Pine Street and Parker Roads Area, including; Whelden/Jenkins Farm, and Cranberry Bogs
- SA13 Mills River and Prince Cove Area
- SA14 Rushy Marsh Pond and Area

Scenic Vistas

- SV1 from Mid Cape Highway at Shootflying Hill looking over Lake Wequaquet to Centerville Harbor and to Barnstable Harbor
- SV2 outlook from craigville center to Centerville River over wetlands
- SV3 Sunset Hill overlook to Squaw Island, Hyannis Port Golf Course and Centerville Harbor
- SV4 Views from Bridge Street, Osterville overlooking West and North Bays
- SV5 View from end of Seaview Avenue overlooking Dead Neck
- SV6 View from Town Docks and Landing to Sampsons Island
- SV7 View from Barnstable Harbor looking over to Sandy Neck and the Lighthouse

Scenic Corridor

- SC1 Route 6A (entire length)
- SC2 Route 149



home and being used constantly, has an influence on the image and perceived character of the Cape. Many of the principal roadways, established in the 18th and 19th centuries, have very limited right-of-way and today offer little room for roadway expansion, sidewalks, trails and street trees.

Over the years of development, few priorities were established for roadways as major arteries, collector streets and local streets. Because of that, many of the town ways are relatively the same width, and some serve the same destinations. The federal, state and county roads, however, were prioritized in the mid-1920's and were improved to meet traffic needs in the decades that followed. Those ways established the Mid-Cape Highway and the two major arteries, Routes 28 and 132. Today, these roadways, along with Route 149, impart the first impressions to visitors and travelers to Barnstable.

The Mid-Cape Highway, the expressway for the Cape, was opened in 1950. This divided, limited access route varies from 400 to 500 feet wide¹². The right of way provides for automobile traffic and bicycle routes on its service road. The existing right-of-way could facilitate trails to link larger interior open space lands. Within Barnstable, there are 56 designated Scenic Roadways, totaling 91.38 miles of drives¹³. Protection of Scenic Roadways is governed by the General Ordinance of the Town of Barnstable (Chapter III, Art. XLI). This Ordinance only permits review and approval of roadway development and improvement activities within the public right-of-way. It does not address bordering activities on private lands. A buffer zone is needed which will assist in protection of those features that add to the scenic nature of the roadway, but are located on private property. Those Scenic Roadways located on the northside of the town within the Old King's Highway Regional Historic District (OKH) receive limited protection through the OKH's rules and regulations.

Scenic Roadways designation is limited only to "Local Roadways". However, the state has made exceptions in the designation of Routes 149 and 6A as Scenic Roads.

The automobile has also had secondary impacts on the visual aspects of the town by requiring additional signage, lighting and parking lots. All have contributed to the visual pollution of the environment. Commercial establishments, hoping to attract the public, have oriented parking lots at the front of the buildings, removed vegetated buffers and screens and added signs and lights. In an effort to attract customers by an open view, today these stores shout for attention over a field of parked autos.

A Lack of Public Awareness and Declining Government Resources:

There exists a lack of awareness, funds, programs and incentives to encourage and promote reuse, preservation and conservation of historic and community assets.

Government (Federal, State, and Local) grants and loans for historic preservation have been declining and are limited today. Other preservation incentive programs, such as tax credits and real estate tax abatements, do not exist. Awareness and technical

¹² 992 Town of Barnstable, Planning Department. This figure includes the right-of-way of the Service Road.

¹³ 1993 data, Town of Barnstable Planning Department

assistance programs have been initiated, but are in need of further development and refinement.

Barnstable has a 350-year history of development and untold centuries of pre-European development, which has left the land with countless archaeological artifacts. There are over 40 known Native American archaeological sites, and 70 recorded 18th- and 19th-century historic archaeological sites, 74 individually designated historic structures, estates, farmsteads and markers, 14 nationally and state recognized districts, and 1 regionally designated district, the Old King's Highway Regional Historic District¹⁴.

It is estimated that this list comprises only about half of the known historic resources of Barnstable¹⁵. Many more surveys are needed to ensure a complete list of the town's historic resources. The Old King's Highway Regional Historic District, extending from Route 6 to Cape Cod Bay, is the only area with enforceable design guidelines.

Attempts to designate Centerville's village center were defeated; however present studies are underway on the potential of designating downtown Hyannis and an area in Cotuit/Santuit as Local Historic Districts.

There is an emerging recognition that historic preservation has economic benefits. As the town continues to evolve, and redevelopment of existing areas dominates over development of newer areas, there will be increasing pressure on many designated and identified significant historic structures. Existing village centers and downtown Hyannis can utilize preservation as a marketing tool to redevelopment and continued growth.

Un-Met Potential of Tourism and Related Problems:

Tourist facilities have not reinforced the image of traditional Cape Cod, and in some cases, they have degraded the character and lessened the "experience" of vacationing in Barnstable.

Barnstable, being the geographic service and commercial center for Cape Cod and the Islands, attracts the lion's share of the 500,000 estimated total visitors on Cape Cod on any given day.¹⁶ Hyannis is the transportation hub of the Cape, containing the Barnstable Municipal Airport, the Plymouth and Brockton bus line terminal, The Steamship Authority and Hy-Line Boat Services, Amtrak rail service (summer) and the Hyannis Harbor. It is also the commercial and service center, established by the extensive development of regional shopping, businesses and industries, facilities for tourists, hotels, restaurants, convention centers and medical care (Cape Cod Hospital).

Hyannis, and to a degree Centerville, are the most visited villages by tourists. Although the other five villages have tourism, the extent, degree and its nature are not as heavy. The Hyannis Chamber of Commerce has estimated that within the town's central area of Hyannis, 81,000 tourists arrive on any one day.¹⁷

¹⁴ 1992 Town of Barnstable, Historical Commission.

¹⁵ 1992 Town of Barnstable, Historical Commission Estimate.

¹⁶ Estimate supplied by the Cape Cod Chamber of Commerce.

¹⁷ Estimate supplied by Hyannis Chamber of Commerce.

Barnstable's Designated Scenic Roads

Designated Scenic Roads

In 1983 the town, through the enactment of General Ordinance Ch.III, Article XLI "Scenic Roads" implemented the 1973 Massachusetts Scenic Roads Act in Barnstable. This Ordinance allows for identification, nomination and designation of certain roadways as having special characteristics and deserving of protection as Scenic Roads. To date the town has designated fifty-six (56) roadways, totaling 91.38 miles, as Scenic Roads. This represents 18.9 percent of the total 482.3 miles of roadways within the town.

The Scenic Roadways vary in length, the shortest is Old Shore Road measuring only 1,500 feet in length; the longest is that portion of Rte 6A, the historic Old King's Highway, that is within the Town of Barnstable, measuring 8.43 miles. Recently designated by an act of the State Legislature, the Old King's Highway is one of the original Native American trails traversing the length of Cape Cod. Many of Barnstable's Scenic Roads date back to a network of trails and paths created by local Indian inhabitants, others were cart ways that linked the first settlers to each other and to the sea.

Today, these roads not only represent attractive and historically important ways within the town, but also provide vital links to open space, historical sites and conservation lands. Travel along the Scenic Roads presents a capsule of the 350 year history of Barnstable and a field trip through a rich and varied natural environment.

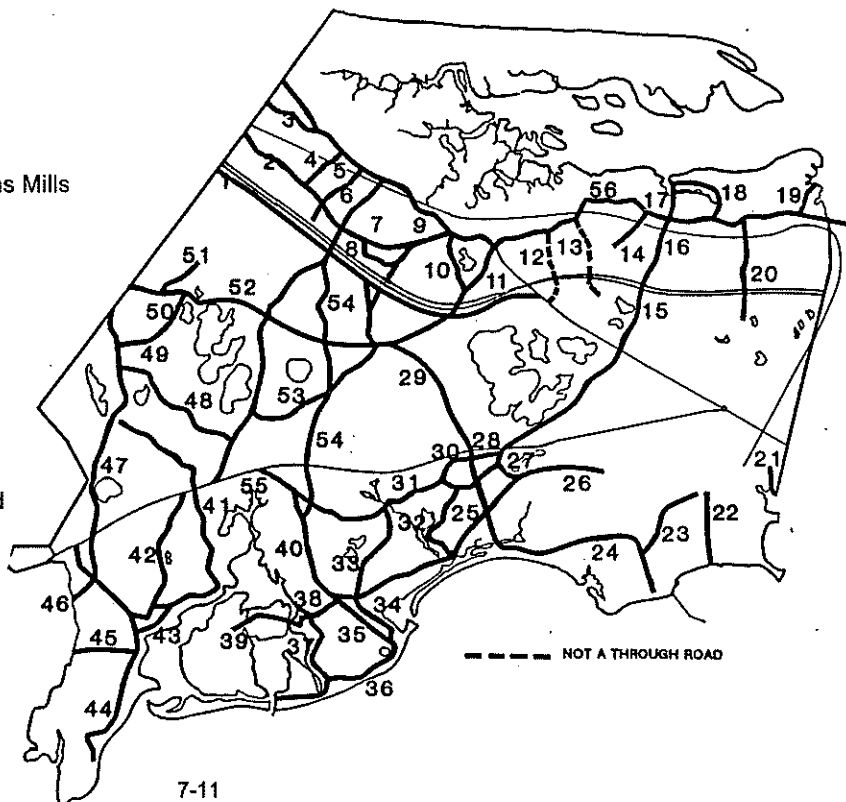
Town Article XLI "Scenic Roads" authorizes the Planning Board, Conservation Commission, Historical Commission or Old King's Highway Regional Historic District Commission to nominate a road as a Scenic Road. The Town Council, by majority vote, is responsible for designation. The designation allows for the preservation of the scenic qualities of the roadways, such as stone walls, trees, bridge pylons and road markers. It requires Planning Board approval for all construction, improvements and removal activities within the public right-of-way of any designated Scenic Road except Rte 6A which is under the jurisdiction of the Old King's Highway Regional Historic District Commission. Activities permitted within the public way of a Scenic Road are those which:

1. preserve historic values;
2. preserve scenic and aesthetic qualities;
3. protect natural resource and environment;
4. are necessary for public safety; and
5. compatible with surrounding neighborhood.

State Routes:

The designation of State Routes 149 and 6A were unique cases in that the state numbered routes were provided for through passage of special state legislation.

- 1 Service Road
- 2 Cedar Street
- 3 High Street
- 4 Maple Street
- 5 Willow Street
- 6 Route 149
- 7 Church Street
- 8 Pine Street, W. Barnstable
- 9 Parker Road
- 10 Plum Street
- 11 Oak Street
- 12 Old Neck Road
- 13 Aunt Hatch's Lane
- 14 Pine Lane
- 15 Phinney's Lane
- 16 Hyannis Road
- 17 Mill Way
- 18 Commerce Road
- 19 Keveney Lane
- 20 Mary Dunn Road
- 21 Lewis Bay Road
- 22 Sea Street
- 23 Scudder Avenue
- 24 Craigville Beach Road
- 25 South Main Street
- 26 Pine Street, Hyannis & Centerville
- 27 Main Street, Centerville
- 28 Old Post Road, Centerville
- 29 Old Stage Road
- 30 Fuller Road
- 31 Bumps River Road
- 32 Bay Lane
- 33 Old Mill Road, Osterville
- 34 East Bay Road
- 35 Wianno Avenue
- 36 Sea View Avenue
- 37 Eel River Road
- 38 West Bay Road
- 39 Bridge Street
- 40 Main Street, Osterville
- 41 Old Post Road, Cotuit & Marstons Mills
- 42 Putnam Avenue
- 43 Old Shore Road
- 44 Main Street, Cotuit
- 45 School Street, Cotuit
- 46 Old Kings Road
- 47 Santuit-Newtown Road
- 48 River Road
- 49 School Street, Marstons Mills
- 50 Old Mill Road, Marstons Mills
- 51 Farmersville Road
- 52 Race Lane
- 53 Old Barnstable-Falmouth Road
- 54 Osterville-West Barnstable Road
- 55 South County Road
56. Route 6A, Old King's Highway



Many facilities used by tourists could be more inviting and should be developed in keeping with the character, image and architecture of Cape Cod. Overall, the town has made strides in providing public buildings that are attractive and impart a Cape Cod image. However, not all public and private tourist facilities are designed in the architectural style of Cape Cod.

Services and infrastructure have not kept pace with the ever-increasing number and demands of tourists. Beaches and areas impacted by overuse are not served by adequate public facilities (especially sewer and access). Parking lots and entrances need to be enhanced, signed, and appropriately landscaped, for both aesthetics and function.

The Cape has also seen a social change in vacationing preference. The traditional family get-a-way vacation, revolving around the beaches, picnicking and quiet nights with family and friends has given way to more active tourist pursuits. This is especially true for the village of Hyannis and the neighboring towns to Barnstable. To a lesser degree it is also true in Centerville. Today, however, there is a developing trend towards the "Green Tourist" and "Heritage Tourist" who seeks nature and history. For this trend to continue and mature to its fullest degree, preservation and community character should be viewed as an economic development tool to this end.

Loss and Degradation of Architectural and Landscape Elements

Traditional elements of Barnstable's landscape setting and built architecture are being lost, degraded and abused at an alarming rate.

There has been a appalling loss of historic elements and landscapes, caused by neglect, disregard, and development pressures. Historic structures and settings have been demolished and sites developed without regard for the loss it imparts to the surrounding neighborhood and streetscape. It is estimated that over the period from 1980 to 1990, the town lost over 500 historic structures and sites¹⁸. Examples include, S/B Ancient Town Boundary Marker, Grace Grey Barn, Historic Site off High Street, Historic Site S.W. Cor. Pine Lane and Rte 6A, Bodfish House, Native American burial in Hyannis, Prehistoric sites located on Indian Trail, Baxter Neck, Ice House Lane and many others town wide, Goodspeed Barn.

Historic elements such as stone walls, fencing and hedges have been lost to roadway expansion, new development and neglect. "Country ways" and "wooded roads" are being widened, cleared and paved to "subdivision standards", thus increasing pavement and decreasing the overhead tree canopy, which results in the loss of country character. It is estimated that between 1980 and 1990, some 400 new roadways were created, many from ancient ways and old wooded roads¹⁹.

Views, vistas and access are being blocked by fencing and building expansion. Especially noticeable are those which limit visual access to water and the sea. Barnstable has been experiencing "mansionizing" trends. That is the development of huge homes where once stood small homesteads or cottages on small lots. The

¹⁸ 1992 Town of Barnstable, Historical Commission Estimates.

¹⁹ Planning Department estimate from Road Atlas 1992 and development figures.

conversion of small seasonal cottages to large year round homes has visual and environmental implications which have not been adequately addressed in the town. At present, "mansionizing" on small lots is being seen along our coast lines, adjacent to open beaches and on barrier beaches, in historic areas, village centers and on our harbor fronts. This trend will continue if unchecked as undeveloped land becomes limited and as redevelopment pressures increase.

Goals, Policies and Strategies

Goal 7.1 Development in Barnstable: New development on the land shall respect environmental, cultural and esthetic values on- and adjacent off-site. Redevelopment and revitalization shall protect and conserve historic and cultural assets (structures, landscapes, sites and features). In all development on the land, traditional character, image and land activities shall be reinforced.

Policy 7.1.1 New Development: New development shall be controlled, limited and directed into areas suitable and compatible with the intended use. The height and scale of a new building or structure and any addition to an existing building shall be compatible and harmonious with its site and surrounding buildings. Care shall be taken to respect the scale, texture, materials, height, building style, aesthetics, bulk, vegetation and character of the neighborhood

Strategy 7.1.1.1 Districts Revisited: To ensure compatible residential development, the existing residential zoning district should be revisited and evaluated based upon natural features and the level of existing services in an area. Performance standards should be investigated as a means of assuring that residential development is suitable to the locality. Zoning Districts should be developed to reflect the uses and pattern of development that presently exists on the land.

Strategy 7.1.1.2 Existing Regulations: Existing town regulations need to be revisited from a community character and historic preservation point of view. Amendment of those regulations to assist in the preservation and improvement of community character should be initiated and focused on; Subdivision Rules & Regulations, the Zoning Ordinance, Conservation Regulations, Waterways and Wetlands General Ordinance, Dept. of Public Works Roadway Standards, Scenic Roads Designation and Regulations, Old King's Highway Historic District Regulations, and the Hyannis Commercial Area Redevelopment District (CARD) Architectural Review Process.

Strategy 7.1.1.3 Permit and Development Tracking: Site Plan Review should act as the coordinator for monitoring and tracking of all development and permitting activities within the Town.

Areas of Concern for Improved Scenic Value - map

Areas of Concern for Improved Scenic Value

The following areas have been identified as needing special attention for improvements to the scenic qualities and impressions.

Linear Corridors:

- LC1 Mid Cape Highway (entrance to Cape Cod)
- LC2 Route 132 (entrance to Barnstable)
- LC3 Route 28 (through road for the Town - special concern through Centerville and Hyannis)
- LC4 Bearses Way (entrance to Hyannis)
- LC5 Barnstable Road (entrance to Main Street Hyannis)
- LC6 Main Street Hyannis
- LC7 Yarmouth (Willow) Road, including Rail Road Tracks (entrance to Barnstable)

Specific Points:

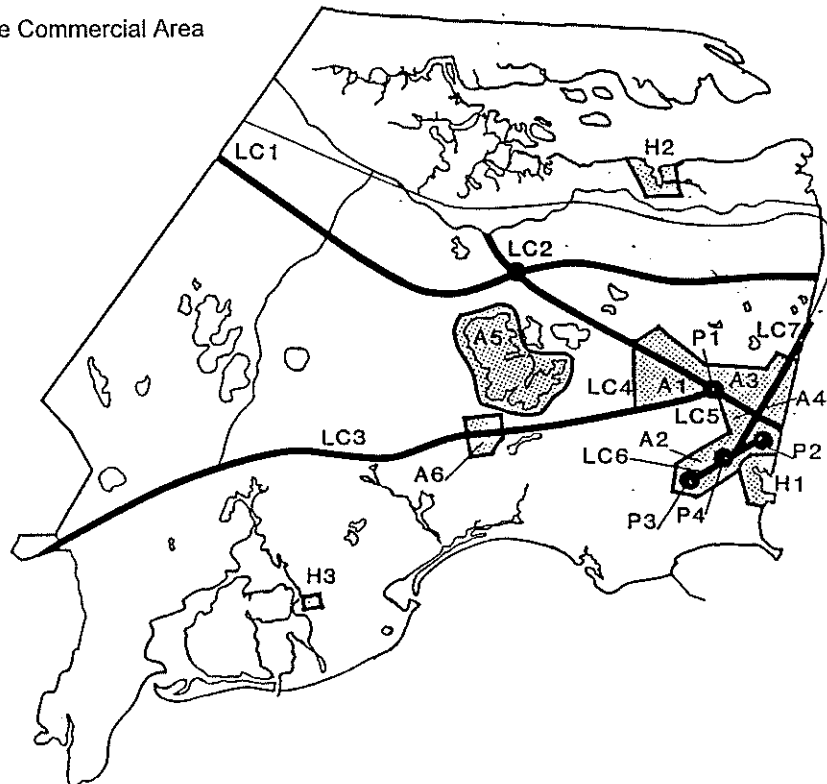
- P1 Airport Rotary
- P2 East End Rotary
- P3 West End Rotary
- P4 Depot Square (Main Street & Old Colony Rd.)

Areas:

- A1 Hyannis Malls Surrounding Route 132 and Route 28
- A2 Downtown Hyannis
- A3 Barnstable Airport (destination point and entrance to Barnstable)
- A4 Rail yards, including Rail Station and Roundhouse (destination point and entrance to Barnstable)
- A5 Wequaquet Lake
- A6 Route 28 Centerville Commercial Area

Harbors:

- H1 Hyannis Harbor
- H2 Barnstable Harbor
- H3 Osterville Harbor



Policy 7.1.2 Revitalization and Redevelopment: Revitalization and redevelopment of existing areas shall provide necessary services, utilities and safeguards to ensure compatibility with their surroundings and the environment. Care shall be taken to respect the scale, texture, materials, height, building style, aesthetics, bulk, vegetation and character of the neighborhood.

Strategy 7.1.2.1 Development Standards: Specific development standards and recommendations, structured through Site Plan Review, are needed to set minimum requirements to ensure a functional and aesthetic manmade environment.

Strategy 7.1.2.2 Bulk and Setback Regulations: The strip mall concept of a long linear building with parking to the front shall be prohibited. Clustered building with staggered roof lines and facade fronts shall be encouraged in the zoning ordinance and in all design guidelines.

Strategy 7.1.2.3 Planned Unit Developments (PUD): Investigations should be made into amending the Zoning Ordinance to include Plan Unit Development - PUD. PUD's should be considered for large scale new development and redevelopment as may be appropriate given underlying zoning. In PUD's, design controls and phasing should be included.

Policy 7.1.3 Residential Development: Upper limits, based upon the carrying capacity of land, utilities and services shall be set for the town and its villages. These limits shall not be exceeded.

Strategy 7.1.3.1 Residential Development Rate Limitations: To ensure a consistent rate of growth and development, controls on the number of annual building permits should be investigated. The purpose of this controlled growth would be to stabilize the construction industry and to ensure integration of new development into the landscape at a reasonable pace.

Strategy 7.1.3.2 Subdivision Special Permits: All subdivisions of land should require a Special Permit to permit additional restrictions and conditions to be imposed upon the land. This would permit the protection of a multitude of resources at the discretion of the Planning Board.

Strategy 7.1.3.3 Density Zoning: All division of land should be based on density rather than lot area. This would allow for aggregation of home sites into a "compound-like" setting in the area most suitable for development and would also provide the option for common ownership of the land.

Policy 7.1.4 Commercial, Industrial and Office Development: Future needs and desired locations for expansion and revitalization of businesses shall be determined. Those limits shall be phased and controlled to ensure aesthetic compatibility with the preservation of community character.

Strategy 7.1.4.1 Commercial Development Rate Limitations: Yearly building permits need to be regulated by limiting the square footage of new commercial,

industrial and office space being developed. This limitation should be imposed only on the development of new space that is uncommitted for occupancy.

Strategy 7.1.4.2 Performance Standards: The Zoning Ordinance should be improved with the addition of performance standards that are developed to ensure quality new developments, meet specific area characteristics, visual amenities and public convenience standards. Excess lighting and glare shall not be permitted.

Strategy 7.1.4.3 Development Design Guidelines: Select areas of the town have been identified as needing specific detail design, development and/or redevelopment guidelines structured to ensure that development is appropriate, and improves or retrofits architectural and site character. Specific Areas of Concern for **new development** are:

- **Route 132** Preserve and protect the vehicular entrance to the town and its functional and aesthetic aspects.
- **Industrial Zones** Ensure an attractive and functional work place in the town.
- **Old King's Highway** Ensure new subdivision development follows traditional patterns which respect character and capacity of Route 6A.

Specific areas of concern for **major redevelopment** are:

- **Routes 28 & 132** Provide for functional and attractive areas for business.
- **Town Airport** Ensure a Cape Cod image for visitors and create that sense of arrival.
- **Hyannis Harbor** Capture the harbor character and ensure views, vistas and activities of a harbor setting.
- **Downtown Hyannis** Ensure historic integrity and maintain a New England Main Street scale.
- **Barnstable Harbor** Protect and strengthen the existing working harbor activity and image.
- **Osterville Harbor** Maintain and improve views to water and water dependent activities.

Strategy 7.1.4.4 Site Plan Review: Site Plan Review needs to become the central permitting and monitoring mechanism for all town-issued development, demolition, improvements and occupancy/use permits. The committee must represent all departments/divisions which service any Board, Commission or development-related committee, inclusive of Historic Preservation.

Policy 7.1.5 Design and Development Review: All existing ordinances, rules and regulations and established town standards shall be reviewed, and guidelines for their impact on community character developed. A design review process that will encourage and provide assistance in quality environmental design shall be developed.

Strategy 7.1.5.1 Review for Preservation: The Zoning Ordinance needs to be reviewed and scrutinized from the perspective of redevelopment. Initial areas of concern have been identified. They are:

- Retain and preserve existing building height, scale and bulk, and ensure a compatible and harmonious relationship with its site and existing surrounding buildings.

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- Retain and ensure the preservation of existing building height.
 - Shared parking for neighboring uses needs to be evaluated.
 - Parking lots shall not obscure the visual aspects of building facades, shall be restricted from the front yard and may only be permitted to a limited extent within the side yard if it is completely unfeasible to be located to the rear of the structure.
 - Parking requirements have to be revisited and adjusted to the specific location and nature of surrounding uses.
 - Buffer zones are needed between commercial and residential zones.
 - Limitations on the extent of lot coverage by both buildings and pavement need to be revised downward.
 - Zoning Districts by lot lines should be considered.
 - Improved signage and the elimination of interior illuminated signs shall be incorporated into revisions of the Zoning Ordinance.
 - Open storage areas, exposed machinery, refuse and waste removal areas, service yards and exterior work areas shall be visually screened from roads and adjacent residential areas with either landscaping that will produce the desired height, density and depth within three years or, if plantings are not an alternative due to site limitations, screen from public view with materials harmonious with the building.

Strategy 7.1.5.2 Site Plan Review: The administrative process of Site Plan Review should take a larger role in guiding and assisting site design. The review committee should be able to suggest and require site and building design details, color, guide building forms and oversee the quality of the landscape and vegetation, lighting and signage. An Historic Preservation Division representative should be made a part of the Site Plan Review Committee.

Strategy 7.1.5.3 Site Development Review: A development review process, with specific guidelines for each of the village centers, shall be implemented through Site Plan Review. For development of two acres or more, this process should attempt to include a citizen input process. All developments shall be required to take into consideration neighboring lots and uses and shall be required to be linked when appropriate.

Policy 7.1.6 Residential Subdivision: Open space clustered development shall be strongly encouraged in all residential subdivisions.

Strategy 7.1.6.1 Clustered Subdivisions: When environmentally proper and when it fits into the established character of surrounding neighborhoods, clustered Open Space Residential Subdivisions should be encouraged for all land divisions of five (5) acres or more. At least fifty percent (50%) of the land shall remain open space. The arrangement of this open space should be made more discretionary - perhaps at the recommendation of Site Plan Review - to allow for buffering of roadways, protection of historic and prehistoric resources and environmentally sensitive areas, to preserve on- and off-site vistas and views, to provide areas for public linkages between open space.

Strategy 7.1.6.2 Subdivisions: Site Plan Review should make recommendations to the Planning Board on the configuration of open space, its uses, the level of road development, avoidance of prehistoric and historic sites, and aesthetic and environmental concerns related to land division.

Goal 7.2 The Seven Villages of Barnstable: The individuality and character of each of Barnstable's seven villages and their centers shall be protected, preserved and reinforced.

Policy 7.2.1 Character Identity: Identify those elements of community character of importance to the residents of the seven villages of Barnstable (including landscape and development patterns, views and vistas, community reference points and use patterns) and strive to ensure that the neighborhood, village and small town-image, as appropriate, is preserved for future generations.

Strategy 7.2.1.1 Village Design Awareness: Each of the villages should be inventoried with respect to design character. This inventory should be utilized to provide awareness of village character and to assist in scenic and vista designation, design guidelines and potential historic district designation. Traditional building materials such as wood shingle, clapboard, and brick shall be used for new construction and rehabilitation of existing structures as appropriate to the immediate surrounding neighborhood.

Strategy 7.2.1.2 Developer Awareness Program: An awareness program to educate and assist developers, design professionals and home builders in respecting historic structures and landscapes, needs to be established. This program should provide the basis for tradesmen and contractors in identifying archaeological remains and sites and the proper protection of them. This needs to be an ongoing program with occasional updates and refresher sessions.

Strategy 7.2.1.3 Town and Area Design Guideline: A set of design guidelines shall be developed for the town overall. This set of guidelines shall relate the minimum concerns for the town and shall be developed to respect the existing historical design character and quality of Barnstable. In conjunction, a minimum set of guidelines for select areas of the town will be studied and appropriate guidelines developed for each.

Policy 7.2.2 The Village Centers: Further identify the character and elements establishing and defining the village centers. Ensure that these elements are protected and retained for future generations.

Strategy 7.2.2.1 Village Center Design Guidelines: Each of the village centers will require detailed design inventories and guidelines. These guidelines should strive to represent the character of the existing village center.

Strategy 7.2.2.2 Preservation of Village Center Activities: The cultural heritage should be reinforced and preserved within the village centers through zoning and through creative preservation incentives. Traditional services, like postal services, libraries and churches must be maintained within the village centers. Certain other activities, like a train depot (public transportation), should be reestablished when and where appropriate.

Strategy 7.2.2.3 Community Development Program: Community Development Block Grants should structure community development programs for the older residential neighborhoods (Hyannis, Centerville and the other village

centers). This program should foster rehabilitation of older homes, neighborhood streets and utilities and improve public buildings and facilities.

Strategy 7.2.2.4 Village Business Areas: The present zoning within those defined village centers should be reviewed, and revisions or new districts should be created to ensure the preservation of the existing character and to allow for the desires of the residents.

Policy 7.2.3 Residential Areas: The residential areas shall be protected from encroachment by business and office uses. Home occupation use shall be limited to ensure compatibility with the villages as safe, convenient and attractive places to live.

Strategy 7.2.3.1 Residential Buffers: Buffers and transition zones between residential neighborhoods and commercial, business and industrial areas should be incorporated. This transition is needed from the overall town-wide aspect of zoning districts to the site specific aspect of vegetated buffers between differing and adjacent uses.

Strategy 7.2.3.2 Home Occupation: Retail sales permitted by Special Permit as a Professional and Home Occupation under zoning, needs to be re-evaluated in relationship to desired village patterns and community culture character.

Strategy 7.2.3.3 Zoning Enforcement Officer: Certain non-discretionary administrative powers for family apartments, certain home occupations, parking relief and others, that are now vested in the Zoning Board of Appeals, should be delegated to a Zoning Enforcement Officer.

Policy 7.2.4 Business Areas: Business areas within the villages shall be clearly identified and limited to the appropriate size based upon anticipated needs, utilities and services provided. Business areas and developments shall be attractively designed as a unit, with shared parking and entrances, coordinated pedestrian amenities and vegetated green space. Strip mall commercial developments and front-yard parking lots shall be prohibited.

Strategy 7.2.4.1 Zoning Bonuses and Incentives: For the preservation and restoration of historically significant buildings, Zoning incentives and bonuses should be added to the Zoning Ordinance.

Strategy 7.2.4.2 Zoning Enforcement: The existing enforcement section of the zoning ordinance should be revised to structure a mechanism that tracks projects from conception to implementation and occupancy. A periodic site inspection process is needed.

Strategy 7.2.4.3 Yard Setbacks: For all commercial districts, the required front, side and rear yard areas shall be retained as open space and landscape. Use of the setback areas for parking or other business activities shall be prohibited. The concept of a building locator line, which exists in the Zoning Ordinance, but which has become muddled over the course of time, should be re-clarified in the ordinance and utilized to dictate the location of structures.

Strategy 7.2.4.4 Sign Review: Signage should be reviewed, for conformance to Zoning and for its architectural design merit, materials and location (see Site Plan Review). Priorities for sign review should include: Route 6A by the Old Kings Highway Historic District Committee, Route 132 and Route 28, Downtown Hyannis and the Harbor Area and in each of the village business districts.

Policy 7.2.5 Hyannis: The small New England seacoast town image and character is to be reinforced in redevelopment and in-fill development of Hyannis. Historic buildings and sites are to be preserved and respected in the redevelopment and continued growth.

Strategy 7.2.5.1 Zoning - Hyannis & Harbor: Zoning for Hyannis should ensure that existing height limitations and water views are protected. Building heights should stagger down to the harbor front. Zoning should encourage use of below-grade levels, sharing of parking, pedestrian environment and protection of residential use.

Strategy 7.2.5.2 Tax Increment Financing District: Tax increment financing districts should be explored as a mechanism to assist in historic preservation and community improvements. These districts would be created to assist in redevelopment by ensuring that increased tax revenues created by investment into an area is channeled back to support reinvestment.

Goal 7.3 Infrastructure and Services in Barnstable: All improvements to infrastructure and services shall be provided with consideration for the aesthetic and environmental nature of the town and site.

Policy 7.3.1 Scenic Roads: Scenic Roads shall be further protected to ensure the preservation and retention of the rural character of the ways. Private land bordering the way and those features which contribute to the character of the road must be included in preservation.

Strategy 7.3.1.1 Improve Scenic Road Data Base: A detailed inventory documenting the location and type of major features that create and contribute to each of the Scenic Roadways should be initiated that focuses on: stone wall details, type of fencing, bridge designs, lighting, tree types and surrounding vegetation, views and vistas along the roadways and other relevant information. Detailed elevation drawings, description and photographs should be initiated for select features that have important value to the Scenic Road. The town's Geographic Information System (GIS) should initiate this data base.

Strategy 7.3.1.2 Uniform Marker (Scenic Roadways): A uniform regional marker should be developed for the Scenic Roadways on Cape Cod. This marker should alert persons to the scenic drive and, where possible, include a turn-off and short description of history. An awareness touring map and a brochure should be considered.

Policy 7.3.2 Roadways: Roadways shall be improved attractively and in keeping with the established character. The addition of street trees and the recreation of traditional

roadway elements shall be encouraged. Existing four-lane roads shall be permitted but new and expansion of existing shall be discouraged. All four lane roadways shall require division of the pavement with properly maintained vegetated median strips.

Strategy 7.3.2.1 Roadway Standards: A re-thinking of certain roadway design standards is needed to retain and protect neighborhood character. Consideration is needed for promoting one-way streets in new developments, recreation and preservation of traditional roadway elements and alignments, preservation of existing trees as canopy over new roadways, and pedestrian and bicycle linkages that the street should provide.

Strategy 7.3.2.2 Street Tree Program: An improved street tree planting program is needed town-wide. This program should be developed with a "sense of place" in the selection of trees, size and form. Initial priority areas are: traditional village business centers, harbor areas, older village neighborhoods (coordinate with Community development program), public beaches and ways to water, scenic roads and designated historic areas.

Strategy 7.3.2.3 Road Repair and Rebuilding: When roadways are repaired or rebuilt, consideration shall be given to the reduction in pavement when possible, and to the incorporation of sidewalks or trails, street trees, limited signage, suitable lighting and other appropriate roadway elements.

Policy 7.3.3 Utilities: All new utilities shall be buried whenever possible and existing overhead utilities shall be phased underground.

Strategy 7.3.3.1 Underground Utilities: A program and funding mechanism for relocating utilities underground should be initiated. Priorities for relocation are Hyannis Main Street and surrounds, all harbor areas, all village business centers, all major public beaches and parks and all identified scenic areas.

Strategy 7.3.3.2 Easily Definable Utility Access Trenches: In relocating of utilities underground, groups of utility services should be located together in common trenches and identified by pavement changes. This is to facilitate identification and ease of access for the future.

Strategy 7.3.3.3 Lighting: Unnecessary bright lighting of buildings or grounds shall not be permitted. All exterior lighting within developments should be designed as a part of the architectural and environmental setting. Fixtures, standards and exposed accessories should be concealed or harmonious with other project design materials. Within all developments lighting shall be screened to illuminate only on-site and shall not produce glare off-site.

Policy 7.3.4 Tourist Facilities: All tourist facilities shall be designed in a Cape Cod style utilizing traditional architectural elements. Tourist sites and user areas shall be attractively landscaped in a traditional style using traditional elements.

Strategy 7.3.4.1 Rethinking Tourism: During the 1990's, tourism in Barnstable needs to be realigned and expanded to include the concepts of "Green Tourism, Historic Tourism, and Preservation as Good Business".

Promoting historic, environmental and cultural enjoyment of the Cape should be expanded by the private and public sectors. Tourism can assist in the preservation of historic buildings and cultural activities.

Strategy 7.3.4.2 Major Public and Quasi-Public Facilities: Government should take the initiative in implementing policy towards improved visitor facilities, with improvements and redevelopment at Barnstable's Municipal Airport, the proposed Hyannis Transportation Center, the Railroad and at Barnstable Village and the Hyannis Harbor areas (Steamship Authority).

Strategy 7.3.4.3 General Tourist Facilities: Public beaches, rest stops, information booths, public ways and paths, open space and recreation areas, signs and markers, and those persons servicing visitors and tourists all impart an image and impression of Cape Cod. These first impressions must be of the highest quality.

Strategy 7.3.4.4 Historic Markers: All of the historic markers, boulders, plaques, traffic islands and other important features should be categorized. A brochure booklet should be developed on their history and their locations throughout the town and within the village centers.

Goal 7.4 Coastal and Land Environment of Barnstable: The uniqueness of Barnstable's location, its coastline and open waters, inland ponds and water bodies, agricultural, woodlands and natural environmental features are to be protected and enhanced.

Policy 7.4.1 Open Space: The rural character of open lands, woodlands, farmsteads, seacoast, ponds and wetlands, including the views to and from, shall be identified and measures implemented to ensure preservation for future generations and retention of that image and its "sense of place".

Strategy 7.4.1.1 Development Landscape Design: Attractive landscapes that integrate buildings with their environment, enhance architectural features and provide amenities for pedestrians shall be provided in all new development and redevelopment. All design of development and redevelopment shall implement and maintain a landscaping plan that addresses the functional aspects of landscaping including drainage, erosion control, wildlife, wind barriers, provision for shade, energy conservation, sound and noise absorption, dust abatement and the reduction of glare. Landscape materials which are suitable to the climate and location of the site should be used. Distinguishing original landscape features such as trees greater than 6" diameter, existing plants and topography should be preserved where possible. Planting should be encouraged on the street-facing side of buildings, flowers are encouraged as well as creative use of natural grasses when appropriate.

Policy 7.4.2 Beaches and Water's Edge: The beaches and water's edges shall be retained in a natural state, open to public use to the maximum extent possible. The built environment shall be limited to necessary facilities for their uses and designed to protect the fragile environment. Those built elements shall be compatible with and attractively

designed to be in keeping with the nature, style and scale of Cape Cod and its landscape.

Strategy 7.4.2.1 Beach Character: In all improvements, the open character of the beaches and the views to water shall be maintained.

Strategy 7.4.2.2 Coastal Zone: Enact for a depth of one thousand feet (1,000') an overlay district for coastal area to ensure proper development within this sensitive area and include historic preservation and community character considerations.

Strategy 7.4.2.3 Pond, Lake, Stream and Ocean Edge Protection: The protection of the natural waters edge shall be initiated along all water bodies, streams and the ocean's edge. This edge of fifty (50) feet shall preclude any building except for water dependent uses, and all landscape activities shall strive to maintain the natural conditions.

Strategy 7.4.2.4 Beach Maintenance and Facilities: Barnstable's beaches are among its major resources, and they shall be continuously maintained during peak seasonal use. Needed facilities for the comfort and enjoyment of the user should be installed (changing rooms, showers, potable water, waste receptacles, parking, concessions when and where appropriate, parking and activity areas, bicycle racks, etc...). Priorities for implementation are Sandy Neck, Kalmus, Craigville, Dowse's, Hamblin's Pond and Hathaway's Pond Beaches.

Strategy 7.4.2.5 Beach Parking Areas: Given that the majority of use of the beaches is summer, unpaved overflow parking areas for those three months of the year should be considered in the design and development. Parking lots shall be located away from fragile and sensitive area. Bus service to major beaches should be developed for the peak season and for special events.

Policy 7.4.3 Scenic Views and Vistas: Scenic views and vistas of open lands, woodlands, farmsteads, sea coast and water, inland ponds and wetlands shall be identified and techniques developed to protect and retain the views and enjoyment of the sites for future generations.

Strategy 7.4.3.1 Scenic Areas Identification and Protection: Major scenic views and vistas have been initially identified. Those areas should be protected by formally adopting, in site plan and in subdivision review, a mechanism to account for and preserve those views and vistas.

Strategy 7.4.3.2 Scenic Area and Vista Ordinance: A scenic vista designation process, similar to Scenic Roadway should be developed. This designation will identify the location and qualities of unique scenic vistas and areas. Specific scenic preservation guidelines for each area should be developed, along with a review board for enforcing those guidelines and include views to the shoreline and unique landscapes from surrounding areas.

Strategy 7.4.3.3 Scenic Easements and Controls. Specific scenic viewsheds should be identified and controls implemented through either easements or by

use of building codes to ensure that important views and structures are preserved.

Strategy 7.4.3.4 Open Space Subdivisions: Clustered subdivision with dedicated open space should be encouraged for all new division of land of five (5) acres or more when it is environmentally proper and when it fits into the character of the established neighborhood. Provisions need to be revisited to ensure that the subdivision layout and location of structures respects scenic and historic qualities, both on- and off-site.

Policy 7.4.4 Harbors and Marinas: Harbor and marine activities shall be encouraged to retain a public edge to the water, provide views and vistas to boats and boating activities, improve water quality in the harbor, retain traditional uses and provide compatibility with surrounding land uses.

Strategy 7.4.4.1 Harbor and Marine Edge: A water's edge walk, a minimum of 15 feet wide, shall be incorporated in all harbors and marinas, wherever possible. This edge shall be publicly accessible to the extent possible within the village plans. (Barnstable, Hyannis and Osterville Harbors).

Policy 7.4.5 Existing Town Properties: All existing town properties (in use or protected) shall be appraised for their aesthetic quality and shall be maintained and improved to impart an attractive and natural landscape image.

Strategy 7.4.5.1 Town Land Management Program: Review current policy related to all town-Owned Property (land & buildings) and promote the multi-use, maintenance and protection of town resources. Ensure that the historic and community character is preserved and that these sites and buildings set a high standard for public maintenance and design.

Strategy 7.4.5.2 Capital Improvements and Repair Budgets: The town should itemize those needed improvements and repair items for its historic properties. It should initiate them through its Capital Improvements Program.

Goal 7.5 Historic and Archaeological Resources of Barnstable: Continue to identify, protect and preserve Barnstable's historic structures, sites, landscapes and archaeological resources, and encourage compatible reuse when appropriate.

Policy 7.5.1 Preservation Standards: Encourage the restoration of historic structures and properties in accordance with the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings by offering various incentives (local tax credits, zoning bonus, etc.).

Strategy 7.5.1.1 Restoration Standards: Additions or alterations to historic structures shall be consistent with the buildings architectural style and shall not diminish its historic or architectural significance. Rehabilitation of historic structures shall conform to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. The distinguishing, original qualities of an historic building, structure or site and its

environment shall be preserved. The needless destruction, removal or alteration of historic material or architectural features shall be avoided unless the Historical Commission or Historic District Commission believes such removal will not damage the integrity of the building.

Strategy 7.5.1.2 Retention of Historic Structures: Historic buildings that may be threatened with demolition or relocation should be preserved on-site and incorporated into the overall design of the development. Distinguishing original stylistic features or examples of skilled craftsmanship of historic or aesthetic significance should be maintained or replaced with similar elements. If no alternative to incorporation of the historic structure into a redevelopment on-site exists, off-site relocation may be considered but only with the approval and guidance of the Historical Commission or the Historic District Commission.

Policy 7.5.2 Archaeological Resources: Ensure that all archaeological resources are protected. Those threatened are to be properly investigated and respectfully treated for the archaeological and cultural benefit they hold.

Strategy 7.5.2.1 Archaeological Protection: To ensure that archaeologically significant areas are properly researched and investigated prior to development, the Land Clearance and Disturbance Ordinance, Site Plan Review and Subdivision Rules & Regulations need to address a 500-foot buffer to fresh water, a 1,000-foot buffer to the salt water, and increased protection of known historic and prehistoric sites, trails and burial areas. archaeological concern correspond to those areas of importance for open space preservation, public water access and resource conservation and protection.

Strategy 7.5.2.2 Archaeological Pre-Development Investigation: At the vote of the Historical Commission, with advice and recommendation from the Historic Preservation Division, any plan proposed before the Site Plan Review Committee on or adjacent to an identified archaeological site shall be required to have a site pre-development investigation made for historic or prehistoric materials prior to site plan review actions on the plan. This information and finding shall be made available to the Historical Commission and Division and the Site Plan Review Committee. The information shall be utilized in readjusting the design of the site to assure no impacts on found resources.

Archaeological Sensitivity Areas in Barnstable

When the European settlers first encountered Barnstable some 350 years ago, they found a land inhabited by the native Wampanoag Indians. These Native Americans had inhabited the land for seven or eight millennia before, hunting, fishing, gathering and growing crops on the land. During the summer months they camped on Sandy Neck and the southern shorelines and spent winters in dome huts of bark and animal skins on the northern side of Barnstable.

The first settlers utilized Indian trails and lived in harmony with the Native Americans. For their own needs, they learned how the Indians utilize the land and sea, however, they learned little about the Indians themselves, their customs and language. Much of what we know today about the Wampanoags has been interpreted from those artifacts and remnants long buried in our soils.

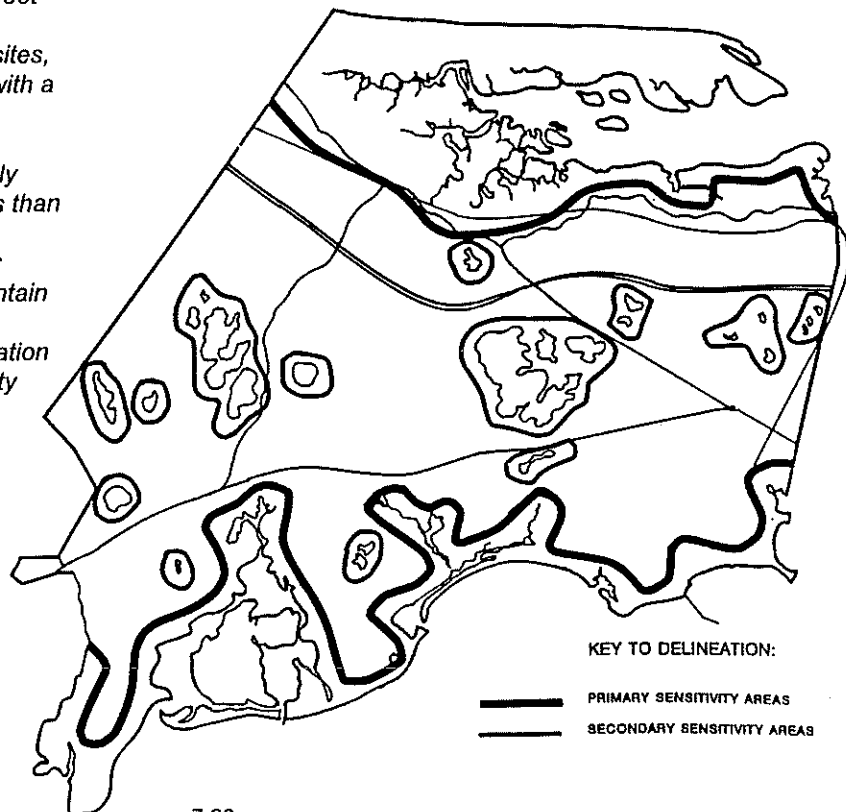
Today, it is known that the Wampanoag Indians located their villages and summer encampments in close proximity to water, freshwater for drinking and farming, and sea water for fishing. It is our responsibility, as the caretakers of this land to ensure that the historic and prehistoric resources buried in our soil are respected, protected, and properly investigated for the information and knowledge they contain about the ancestral heritage of Barnstable and America.

Area Sensitivity - Key to Delineation:

Primary: Areas within 1,000 feet of a marine or marine related ecosystem. These areas have a high probability of containing prehistoric archaeological sites.

Secondary: Areas within 500 feet of a pond or lake greater than 500 feet in width. These areas are likely to contain prehistoric archaeological sites, particularly if found in association with a primary sensitivity area.

Tertiary: Areas immediately adjacent to ponds and lakes of less than 500 feet in width, and areas immediately adjacent to freshwater ecosystems. These areas may contain prehistoric archaeological sites, particularly when located in association with primary or secondary sensitivity areas.



Policy 7.5.3 Historic Districts: Continue to refine and identify those important elements within the 14 identified National and State Registered Historic Districts within Barnstable and encourage the local designation of an historic district when appropriate.

Strategy 7.5.3.1 Historic District Designation: All fourteen (14) existing nationally designated historic districts should be reviewed for local designation. Those threatened by redevelopment or loss through neglect should take priority for local district designation. Regardless of designation, Site Plan Review must be empowered to protect historic features and to direct historically sensitive design.

Strategy 7.5.3.2 Adaptive Re-Use: Zoning must encourage the adaptive re-use of existing buildings and sites. Cape Cod's architecture provides a unique form of structure that can easily be re-used for a multitude of activities. The Zoning Ordinance must encourage this reuse of buildings and their elements. Larger structures in village centers should be considered as bed and breakfast homes, used for home occupation and other multiple uses, where appropriate.

Policy 7.5.4 Public/Private Restoration: Encourage and assist in the development of a private-public partnership for preservation, restoration and reuse of historically important buildings. Utilize the concept of a revolving fund program to ensure continuation.

Strategy 7.5.4.1 Historic Restoration Revolving Fund Program: For the villages, an historic preservation revolving fund program should be initiated to assist in restoration of residential and business buildings of architectural and historic merit. This program should be set up in conjunction with a Community Development Program and should strive to be a revolving self-funding loan program. This fund would provide low interest funds to assist the private sector in restoration and reuse of historic structures and elements.

Strategy 7.5.4.2 Preservation Tax Credits: For private restoration and reuse of historically significant buildings, a five-year tax credit should be investigated and initiated to encourage historic preservation.

Strategy 7.5.4.3 Development Linkages: New development often affects older and established areas of the town through increased demands on housing, businesses, services and facilities. In some cases, new development can spur disinvestment in other older areas. A program that "links" new development to restoration, redevelopment or improvement in another older areas should be investigated.

Areas of Concern for Future Historic Designations

The following areas contain numerous historic structures and sites and which should be considered for future historic designations.

Pondville

Marstons Mills Village Center

Santuit

Cotuit Village Center

Wianno

Osterville Village Center

Centerville Village Center

Craigville

Hyannis Port

Hyannis Main Street - Waterfront

Yarmouth Camp Grounds



Implementation

In implementing the goals and policies related to Historic Preservation and Community Character, the subcommittee of the Local Planning Committee identified 68 individual actions to be considered. The actions generally advance several policies and usually apply to more than one goal.

The specific actions are initial statements that will require further study, council resolution, coordination or other details to implement. Many of the actions rely upon existing town regulations, ordinances and rules, and the authority invested in Boards, Commissions and Administration Agencies to accomplish the tasks. Others rely upon the new planning and development tools granted by the Cape Cod Commission Act to regulate, direct and control development, which include impact fees, developers' contributions, transfer of development rights, development agreements and design guidelines. Specific Actions - Strategies - have been sorted into eight generalized categories and the major activities in each category are summarized.

Existing Administrative Mechanisms

The existing Historic Preservation Division and the Town's Historical Commission must be strengthened and continue its mandated duties and responsibilities in the areas of traditional Historic Preservation planning mechanisms. They include, identification and surveying of historic and cultural resources, nominations to the State and National Registers of Historic Places, recommendations for designation of local historic districts and landmarks in the community.

Several existing administrative processes need to be revised to incorporate aesthetic concerns for the future growth of Barnstable. Most important is **Site Plan Review Process** which must be strengthened to be able to provide a design review that appraises and encourages good, aesthetic development that is environmental, cultural and historically fitting. Towards this goal, Site Plan Review Committee should include an Historic Preservation Division representative on its list of participants. Site Plan Review must also take a greater role in advising permitting officials, boards, committees, the Old King's Highway Historic District Committee and commissions.

The Town's Subdivision Rules & Regulations, Zoning Ordinance, General Ordinances, Department Standards and Regulations, and Board and Committee rules and regulations need to be re-visited from a community character and historic preservation point of view.

In addition, critically needed protection and preservation ordinances, such as an **Archaeological 500' Freshwater and 1,000' Coastal Water Protection District** and an improved **Historic Preservation Ordinance** should be enacted. Also needed is the authority to institute **Aesthetic Control and Guidelines** and to establish **Historic Restoration and Preservation Funding and Financing Program**.

Programmatic Actions

Awareness and Education Activities and Programs need to be implemented for residents and visitors on the historical resources and cultural heritage of Barnstable. The town needs to encourage and promote a **Rethinking of Tourism** in Barnstable specifically including the concepts of **Green Tourism and Historic Tourism**. Its objective must be to realize that "preservation is good business".

The Town of Barnstable, being the largest single owner of historic properties and sites, must coordinate and promote the **Multi-Use, Maintenance and Protection of Town-Owned Historic Property** and should demonstrate the benefits of good historic preservation to the private sector.

Funding Mechanisms

The ability to implement newer and expanded historic and community preservation programs and activities will require securing of new sources of funds and/or new implementation tools to foster preservation. Those funding techniques which have proven to be beneficial in many other areas are **Historic Restoration Revolving Fund Programs, Tax Increment Financing District, and Preservation Tax Credits**. Support of legislation that is presently before the state is needed to ensure that these funding mechanisms are made available to the town.

Community Development Block Grants (CDBG), for which Barnstable has become entitled, have traditionally assisted in the preservation of historic properties in older neighborhoods. This should be our town's initial thrust, also. Another innovative mechanism that should be explored and utilized is the concept of **Development Linkages or Linked Development** by which new development is required to assist in redevelopment.

Design and Development Guidelines

A critical component of implementing this element of the comprehensive plan will be the ability to **Develop and Implement Design Guidelines**. It is envisioned that an initial set of design guidelines will be developed for, at minimum, those areas most likely to be impacted by rapid development or redevelopment. A second front will attempt to address design minimums on a town-wide basis. After that initial two-front approach, more detailed area design guidelines will be structured, based upon a survey of the villages and unique areas of development in Barnstable.

The critical areas for initial draft design guidelines will include the commercial and town entrance areas along Route 132 and Route 28, the Industrial and Service & Distribution zoned areas, Downtown Hyannis and its Waterfront, and the other six village centers. Due to the increase in land division activities and redevelopment activities, the Old King's Highway Regional Historic District also qualifies for initial priority in the development of usable design guidelines.

Improved Data and Inventories

It is estimated that only about half of the historic resources of the town have been inventoried. **Continued Inventorying** is needed as well as constant updating of the existing inventories. A **Detailed Inventory of Scenic Roads** needs to be initiated to document physical design details and their locations along the way. A system of **Uniform Markers and Information Signs** town-wide should be considered. The location and relevant historic information on all existing **Historic Markers** should be compiled into one pamphlet to promote awareness and as a tour guide for visitors. The town's **Geographic Information System (GIS)** should serve as the coordination point for the **Inventories and Data Base**.

Identified **Scenic Areas** need to be further inventoried for the physical and natural elements that created them and to provide protection for them. All 14 existing **National Register Historic Districts** should be investigated for local designation.

Zoning Recommendations

Zoning has traditionally been one of the single most "form giving" controls over development. Barnstable's Zoning Ordinance needs to be strengthened in the areas that can protect and

preserve community character and foster new creative mechanisms of preserving and promoting good community character and design. Amendments to the Zoning Ordinance should consider **Performance Standards** for the industrial, commercial and business zoned properties that ensure development meets specific area characteristics, visual amenities and public convenience standards. **Reworking of the Zoning Ordinance** should be accomplished by a series of amendments over time, and not by a singular comprehensive new zoning ordinance.

Open Space Clustered Subdivision should be encouraged for all new division of land of 5 acres or more and be required to retain 50% of the land in natural open space. The arrangement of the open space should be discretionary to allow the buffering of roadways, protection of historic and prehistoric resources and environmentally sensitive areas, to preserve on- and off-site vistas and to provide public linkages between open space. Investigation is needed as to requiring a Special Permit for all subdivisions of land to permit additional restrictions and conditions to be imposed. All division of land should be based on density rather than lot area.

For preservation, consideration needs to be given to **decreasing the permitted height of buildings, the use of shared parking, restricting of parking within the front, side or rear yard setbacks, landscape buffers between commercial and residential uses and further limiting lot coverage by both buildings and pavement.** The commercial strip mall concept should be discouraged and replaced with regulations and guidelines that encourage building with low, staggered facades and roof lines. All parking should be screened and located to the back of the building.

The **Zoning Map and its Districts** need to be revisited and indisputable zoning boundaries and clear district regulations established. In older developed areas, the zoning should encourage proper adaptive re-use of historic structures.

The town needs a monthly publication to **monitor all construction and development activities**, including proposed developments under review, demolition, and occupancy/use permits. This should be a coordinated effort among existing permitting departments.

Infrastructure

Public infrastructure improvement, roadways, lighting, signage, public and private utilities, and public and quasi-public facilities need to take into consideration the aesthetics and the character of their locations.

Road Repairs and Rebuilding should reduce pavement when possible and incorporate sidewalks or trails as needed. Street trees and restoring of native vegetation should be factored into all roadway projects. A re-thinking of certain roadway design standards is needed. The existing town-wide **Street Tree and Landscape Improvements Program** should be expanded, with initial priority for the plantings in traditional village centers, the harbor areas and the older neighborhoods.

Underground Utilities are needed throughout the town. Designation of special taxing districts could assist in funding a program for relocating overhead utilities underground.

Improvements and repairs of the town's many historic properties should be prioritized in its annual **Capital Improvements Program.** **Major Public and Quasi-Public Facilities and Tourist Facilities** must be of the highest quality. Barnstable's **Beaches and Harbors** need continuous maintenance and coordinated facility and infrastructure improvements. A six (6) to thirty (30) foot, publicly accessible, perimeter **Waters Edge Walk** should be incorporated in all harbors and marinas. Beaches need seasonal grooming and improved facilities - changing and showering

rooms, parking and access, concessions, landscaping and user areas - as appropriate for the specific villages in which they are located.

Controlled Growth Regulations

After the 1980's period of vigorous and rapid development, it became clear that uncontrolled development has a disruptive side. Today, not only are the physical and economic effects seen on our landscape, but the social impact on human lives and families is evident. To respond to this situation, **Development Rate Limitations** are needed to ensure a consistent rate of growth and development. Phased **Planned Unit Developments (PUD)** should be required for all large scale new development. Controls that would discourage the "mansionizing" of structures on small lots and preserve the environmental, historical and cultural aspects of Barnstable should be enacted.

Barnstable's **Ponds, Lakes, Streams and Coastal Zone** need an undisturbed natural edge of 50 feet around all fresh water bodies and streams and 100 feet for the coastal edge. In addition, protection overlays should be developed for the **Archaeological Sensitivity Area** of 500 feet for major freshwater bodies and 1,000 feet for coastal waters.

A Scenic Area and Vista Ordinance, inclusive of authorization and implementation of **Scenic Easements and Controls** needs to be researched and proposed as a General Town Ordinance.

STRATEGY		LEAD AGENCY*	NEW REG	PROGRAM COST**
	EXISTING ADMINISTRATIVE MECHANISMS			
Strategy 1	Site Plan Review	Building/Planning		
Strategy 2	Zoning Enforcement Officer	Town Manager	Zoning	
Strategy 3	Subdivisions	Planning Board	Zoning	
Strategy 4	Permit and Development Tracking	Planning Board	Board R&R	\$6,000
Strategy 5	Development Standards	Permitting Department		
Strategy 6	Sign Review	Planning	Guidelines	\$6,000
Strategy 7	Existing Regulations	Site Plan Review		
Strategy 8	Archaeological Protection	Planning	yes	\$2,000
Strategy 9	Archaeological Pre-Development Investigation	Historic Preservation	Yes	\$2,000
		Hist. Pres./Site Plan Review	Yes	
	PROGRAMMATIC ACTIONS			
Strategy 10	Developer Awareness Program			
Strategy 11	Rethinking Tourism	Hist. Pres./Building		\$2,000
Strategy 12	Town Land Management Program	Public/Private		
		Town Manager		\$12,000
	FUNDING PROGRAMS			
Strategy 13	Historic Restoration Revolving Fund Program			
Strategy 14	Community Development Program	Historic/Accounting	Local	\$50,000
Strategy 15	Tax Increment Financing District	Planning		
Strategy 16	Preservation Tax Credits	Hist. Pres./Assessors	State	\$10,000
Strategy 17	Development Linkages	Hist. Pres./Assessors	State	
		Planning	Yes	\$5,000
	DESIGN AND DEVELOPMENT GUIDELINES			
Strategy 18	Restoration Standards			
Strategy 19	Town and Area Design Guidelines	Hist. Pres./ Planning	Guidelines	
Strategy 20	Village Design Awareness	Planning/Site Plan Rev.	Guidelines	
Strategy 21	Village Center Design Guidelines	Hist. Pres./Planning		
Strategy 22	Preservation of Village Center Activities	Planning	Guidelines	
Strategy 23	Development Landscape Design	Hist. Pres./Planning		
Strategy 24	Development Design Guidelines	Site Plan Review	Rev. Exist.	
Strategy 25	Retention of Historic Structures	Planning/Public Works		\$5,000
		Hist. Pres./Site Plan Review	Rev. Exist.	
	IMPROVED DATA INVENTORIES			
Strategy 26	Scenic Road Data Base Created			
Strategy 27	Uniform Scenic Road Marker Program	Hist. Pres./Public Works		\$12,000
Strategy 28	Historic Markers	Historic Preservation		\$50,000
Strategy 29	Scenic Areas Identification and Protection			
Strategy 30	Historic District Designation	Historic Pres./Legal		\$10,000
		Historic Preservation		\$30,000
	ZONING			
Strategy 31	Performance Standards			
Strategy 32	Open Space Subdivisions	Planning	Zoning	\$10,000
Strategy 33	Site Plan Review	Plan. Board/Planning	Zoning	
Strategy 34	Review for Preservation	Planning/Building	Zoning	
Strategy 35	Districts Revisited	Site Plan Review	Zoning	
Strategy 36	Village Business Areas	Planning	Zoning	\$10,000
Strategy 37	Home Occupation	Planning		
Strategy * 38	Zoning Bonuses and Incentives	Planning		
Strategy 39	Zoning Enforcement	Planning/Legal		
Strategy 40	Residential Buffers	Building/Permitting		
Strategy 41	Site Development Review	Planning		
Strategy 42	Yard Setbacks	Planning/Public Works		\$15,000
Strategy 43	Bulk and Setback Regulations	Planning		
Strategy 44	Cluster Subdivisions	Planning	Zoning	
Strategy 45	Subdivision Special Permits	Planning		
Strategy 46	Density Zoning	Planning		\$10,000
Strategy 47	Zoning - Hyannis and Harbor	Planning		\$15,000
Strategy 48	Adaptive Reuse	Planning		
	INFRASTRUCTURE			
Strategy 49	Street Tree Program			
Strategy 50	Capital Improvements and Repair Budget	Public Works		\$50,000
Strategy 51	Road Repair and Rebuilding	Public Works		
Strategy 52	Beach Maintenance and Facilities	Public Works		
Strategy 53	Beach Parking Areas	Public Works/Harbor		
Strategy 54	Beach Character	Public Works/Harbor		
Strategy 55	Underground Utilities	Public Works		
Strategy 56	Easy Definable and Utility Access Facilities	Public Works		
Strategy 57	Lighting	Public Works		
Strategy 58	Major Public and Quasi-Public Facilities	Site Plan Review	Guidelines	
Strategy 59	General Tourist Facilities	Public works		
Strategy 60	Roadway Standards	Town Manager		
Strategy 61	Harbor and Marine Edge	Public Works		
		Harbor		
	CONTROLLED GROWTH REGULATIONS			
Strategy 62	Residential Development Rate Limitations			
Strategy 63	Commercial Development Rate Limitations	Planning/Legal	Yes	
Strategy 64	Planned Unit Development (PUD)	Planning/Legal	Yes	
Strategy 65	Scenic Area and Vista Ordinance	Planning/Legal	Yes	\$10,000
Strategy 66	Scenic Easements and Controls	Hist. Pres./Legal	Yes	
Strategy 67	Ponds/Lakes/Streams & Ocean Edge Protection	Hist. Pres./Legal	Yes	
Strategy 68	Coastal Zone	Conservation/Legal	Yes	
		Conservation		

Section 8.0 Health and Human Services

Introduction

The Barnstable County Health & Human Services Advisory Council requested all communities on Cape Cod to consider including a section on social services within their Local Comprehensive Plans to add the "human factor" to the long range visions.

The Town of Barnstable through its geographic location and development, has become a regional provider of social services. This has led to a concentration of more and more service providers locating in Barnstable.

The Town, through the budget process, has provided grants to human service agencies to implement programs that provide housing, employment training, economic development, community development and social welfare services for the residents of the community. Therefore, with these agencies focusing more on regional problems, the need for some type of County reimbursement is necessary.

The Town has recently been designated a Metropolitan Statistical Area, and will receive an "Entitlement" Community Development Block Grant (CDBG) from the Department of Housing & Urban Development (HUD). The purpose of that funding is to provide for the development of viable communities, by providing decent housing, a suitable living environment and expanded economic opportunities, principally for persons of low and moderate income.

Traditionally, the CDBG program has funded programs and activities for housing rehabilitation, job training, park rehabilitation, infrastructure improvements and public social services, all of which aid in providing a suitable living environment for people with limited resources.

The area of human services is vast, and with funding sources dwindling, the need for action-oriented strategies is a necessity. The following priorities have been identified by state and federal agencies as the major areas of need in the nation:

1. **Transportation** - for people to access services and employment opportunities.
2. **Affordable Housing** - for the homeless and low income populations. Shelter is a primary need.
3. **Child Care** - The need for affordable daycare services is becoming apparent with increasing numbers of working women with children, and single parent families..
4. **Disabling and Chronic Health Concerns** - Major health problems impair a person's ability to provide for their own welfare.
5. **Youth Recreation Needs** - the need for constructive alternatives is necessary with the rapid growth of this segment of the population.
6. **Elder Services** - the town has a rapidly growing elderly population that will require more care and attention

Goals Policies and Strategies

Goal 8.0 Quality of life: Enhance the quality of life for all Barnstable residents by ensuring a full range of health and human services in an efficient, coordinated and cost effective manner.

Policy 8.1.1 The Town Council or its designated agent will evaluate Land Use and Developmental Decisions in a manner consistent with Health and Human Services Needs and to determine responses necessary to maintain and enhance the delivery of those services. This should be a process by which decisions are measured against human service impacts prior to final approvals.

Strategy 8.1.1.1 Guidelines should be developed to evaluate land use and development impacts on population, location, employment opportunity, and specific affected services; and to establish notification procedures for major land use & development decisions, to include Site Plan Review, DRI notifications, ZBA actions, and major project grant applications.

Policy 8.1.2 A Health & Human Service Needs and Resource Assessment will be developed by the Town Council in cooperation with the service providers and related businesses. At a minimum, health and human service delivery systems for all ages shall include child care, elder care, youth support, substance abuse, mental health, job training and disabled persons. The objective is to identify needs and gaps in service, establish priorities and identify impediments and opportunities. This assessment should occur annually as part of Policy 8.1.3.

Strategy 8.1.2.1 The County Needs Assessment and Data Bank should be utilized as a basis for the needs assessment and the review should be inclusive of visitors and residents.

Policy 8.1.3 The Town Council, utilizing the Needs and Resources Assessment developed under Policy 8.1.2 will assist in the creation of an annual Health and Human Services Roundtable with all health and human service providers within and/or offering services within the boundaries of the Town of Barnstable. The Town Council will appoint additional representatives in an advisory capacity. The purpose is to review current issues and alternatives to their resolution, and provide advice and recommendations on implementing health and human service delivery efforts. The annual findings will be utilized as the basis for Policy 8.1.4.

Policy 8.1.4 A Health & Human Services Action Plan shall be developed by the Town Council in coordination with service providers and be based upon meeting Health and Human Service assessment needs through the allocation of available health and human service resources. Shortfalls in resources will be noted, and recommendations made to assist in their resolution.

Strategy 8.1.4.1. The following areas shall be initially listed to identify and focus upon health and human service needs and service delivery methods:

1. Transportation
2. Health/Chronic Disease
3. Child Care/Welfare/Protection/Development
4. Elder Affairs/Home Health Care
5. Legal Services
6. Recreation
7. Substance Abuse
8. Clergy
9. Mental Health/Disabled Persons
10. Job Training
11. Housing/Homeless
12. Adolescent Services
13. Education

Policy 8.1.5 A Public Education and Awareness effort to promote the Town's health and human service environment will be developed by the Town Council and established as an on-going resource. The intent of this policy is to develop a continuous flow of information on health and human service eligibility, system capabilities, and service delivery contacts.

Strategy 8.1.5.1 The Educational Awareness effort will identify target populations with appropriate information needs, provider side information, and Media opportunities and nature of information distribution capabilities.