Barnstable County Assembly of Delegates

In the Year Two Thousand and Ten

Ordinance 10-07

Amendment of the Regional Policy Plan per Section 8H of Chapter 716 of the Acts of 1989, as amended.

Barnstable County hereby ordains:

Section 1.

About the Regional Policy Plan

Background

In a variety of ways, the citizens of Cape Cod have expressed their collective values and commitment to protecting the region's natural resources, enriching its communities, fostering a sustainable regional economy, and ensuring the remarkable beauty of this peninsula for future generations.

Cape Cod Commission Act

One formal expression of those values is the Cape Cod Commission Act, state legislation that was approved by the voters of Barnstable County in March 1990. The Act specifies the purpose of the Cape Cod Commission, which is "to further: the conservation and preservation of natural undeveloped areas, wildlife, flora, and habitats for endangered species; the preservation of coastal resources including aquaculture; the protection of groundwater, surface water, and ocean water quality, as well as the other natural resources of Cape Cod; balanced economic growth; the provision of adequate capital facilities, including transportation, water supply, and solid, sanitary, and hazardous waste disposal facilities; the coordination of the provision of adequate capital facilities with the achievement of other goals; the development of an adequate supply of fair affordable housing; and the preservation of historical, cultural, archaeological, architectural, and recreational values."

To ensure the protection of such a comprehensive list of values, the Act charges the Commission with preparing and overseeing implementation of a regional land use policy plan. The Regional Policy Plan (RPP) establishes a coherent set of goals, policies, and standards to guide planning and development on Cape Cod in a way that will protect its resources. The Act requires that the Regional Policy Plan:

- identify Cape Cod's critical resources and management needs,
- establish a growth policy for Barnstable County with guidelines for the protection of resources and the provision of capital facilities (defined in the Act as "public facilities and services necessary to support development"),
- set regional goals for the resource "issue areas" mandated by the Act, and
- establish a policy for coordinating regional and local planning efforts.

The Regional Policy Plan is both a planning and a regulatory document. To guide the protection of the Cape's unique resources, the plan identifies and maps resources of regional concern and provides the framework for regional and local comprehensive planning. The plan also establishes regulatory policies that impose minimum performance standards for "Developments of Regional Impact." The regional regulatory policies also serve as models for local zoning and regulations by Cape Cod towns.

Cape Cod Residents Surveys

Another way in which the citizens of Barnstable County have expressed their values and commitment to protecting the region's resources, communities, and economy is through a series of surveys conducted on behalf of the Cape Cod Commission to inform the creation and subsequent revisions of the Regional Policy Plan. In three separate surveys, complex questionnaires were distributed to a random sample of residents from all 15 towns in Barnstable County to learn their views on land use, development, environmental protection, economic development, traffic, housing, and more. Clark University conducted the first survey in 1990. The Center for Survey Research at the University of Massachusetts–Boston conducted the second survey in 1995 and the third survey in 2005. The latter helped guide this update to the Regional Policy Plan.

In all cases, the survey methodologies and sample sizes produced high response rates and statistically valid results. The 1990 survey, which had a response rate of 67 percent of the sampled recipients, indicated strong support for the protection of Cape Cod's water supply and surface waters, preservation of historic areas and open space, and control of traffic congestion as well as support for "clean, light industry" and new cultural facilities. The 1995 survey, which had a response rate of 63 percent, indicated strong support for protection of natural resources, open space, and community character.

The 2005 survey, which had a response rate of 50 percent, investigated why residents chose to live on Cape Cod, what they saw as current problems in their towns and on the Cape as a whole, what they anticipated seeing as future problems, and what their views were on development, town projects, and the Cape Cod Commission. As expressed in the responses, the issues of highest concern for the future were traffic congestion, the availability of moderate- and lower-priced housing, the pollution of ponds and coastal waters, residential sprawl, and loss of open space. Directing future growth to designated growth centers and away from sensitive natural resource areas has been a recent theme of planning work at state, regional, and local levels. Despite the complicated nature of the questions, respondents indicated support for regulations in favor of that concept on Cape Cod. These findings and more uphold the growth policy of Barnstable County, as expressed in the Regional Planning section of this Regional Policy Plan.

Regional Task Force Committees

Another way that Cape Cod citizens have expressed their values is through regional committees established to examine public policies. Twice since the Cape Cod Commission was formed, Barnstable County organized such a committee to review the agency's work: once in 1994, with a specific focus on the regional land use regulatory program, and again 12 years later. In Spring 2006, the Barnstable County Commissioners appointed the "21st Century Task

Force on the Cape Cod Commission" to evaluate the Commission's operations and make recommendations to improve the agency's effectiveness and relationships with towns. The County Commissioners specifically asked the task force to examine these questions:

1. How can the Cape Cod Commission effectively address its three-pronged mission: regional planning, regulatory review, and technical assistance?

2. How can the Commission and the towns achieve implementation of Local Comprehensive Plans (LCPs)?

3. How can the Commission and the towns better reconcile differences between regional and local interests in both planning and regulatory matters? How can coordination and communication be improved?

The task force met for six months and conducted a thorough review of the Commission's planning, regulatory, and technical assistance functions. In December 2006, the group delivered its final report with more than 35 recommendations for improvements identified in three broad themes: (a) the need for better coordination and communication between the Commission and town officials; (b) the need for more emphasis on planning and technical services to towns; and (c) the need to make the regulatory process more clear, predictable, flexible, and effective.

The County Commissioners instructed the Cape Cod Commission to implement a plan to address the task force recommendations. They also added their own priorities, emphasizing (a) close coordination with towns in modifying the thresholds for regional review of development projects, (b) stronger consideration of economic development in weighing the benefits and detriments of proposed projects (with particular attention to the creation of livable wage jobs), and (c) greater effort to keep town leaders aware of development projects under regional review in their communities so they may better provide input to the Cape Cod Commission on the merits of those projects.

The Cape Cod Commission has pursued the implementation of Task Force recommendations since that time. Major activities relevant to this Regional Policy Plan include a complete restructuring of the plan with a stronger emphasis on regional planning and technical services than in past editions; regional planning actions that are intended to be measurable and achievable in the next five years; a regional land use "vision" map that identifies resources needing protection and areas suitable for more intensive development; new regional regulatory review standards and related flexible review thresholds that are based on the regional map; stronger consideration of economic development practices during regional regulatory reviews of proposed developments; and new options for the mitigation of development impacts to transportation, water resources, open space, and affordable housing.

Process for Adoption of the Regional Policy Plan and Maps

On behalf of Cape Cod's citizens, the Cape Cod Commission prepares the Regional Policy Plan, any amendments to it, and maps adopted as part of the plan. The Planning Committee, one of three standing committees of the Commission, is responsible for reviewing draft sections of the plan during the amendment process and providing comment to such drafts. The

Commission holds public hearings on the proposed plan and then submits it to the Barnstable County Commissioners, who in turn submit it as a proposed ordinance to Barnstable County's legislative body, the Assembly of Delegates.

To inform its decision making, the Assembly also holds public hearings on the proposed Regional Policy Plan. Once approved by the Assembly as a county ordinance, the plan is recorded in the Barnstable County Registry of Deeds and becomes effective as law for the entire Cape.

The Act requires the Cape Cod Commission to review and amend the Regional Policy Plan as necessary at least every five years. The first Regional Policy Plan was adopted in 1991; this is the fourth edition of the plan. The plan may be reviewed and amendments, including amendments to the maps, may be proposed at any time. Amendments follow the same procedure for adoption. The Commission will submit amendments to the Regional Land Use Vision Map to the Assembly of Delegates as towns complete the mapping process and endorse a Land Use Vision Map.

Organization of the Plan

According to the requirements of the Cape Cod Commission Act, this Regional Policy Plan is organized into the following sections:

• Regional Planning includes the Growth Policy for Barnstable County, a statement of the rationale and preferred approach for protecting resources and providing facilities and infrastructure. The Resource Management and Protection Tools available to help achieve the growth policy are described. Resource issue areas are then organized into three groupings: Growth Management Systems, Natural Systems, and Human/Built Systems. Each resource issue area states the goals and the actions that the Cape Cod Commission will pursue to achieve those goals during the next five years. In addition, each issue area includes actions recommended for towns to pursue. Maps that illustrate the resources, facilities, and infrastructure to help guide their protection are included with each issue area. The Cape Cod Commission's intergovernmental and community relations activities, focusing strongly on interactions with the 15 Cape Cod municipalities and on technical assistance provided for local planning, zoning, and growth management, are outlined under Regional Coordination. An associated table, provided with the Regional Policy Plan on the web site www.capecodcommission.org, lists many other organizations and agencies with whom the Commission forms partnerships to achieve the goals of the plan.

• Regional Regulation introduces and summarizes the Cape Cod Commission's regulatory program for Developments of Regional Impact and briefly describes other regulatory tools. The section also organizes resource issues into the same three groupings: Growth Management Systems, Natural Systems, and Human/Built Systems. The section restates the goals for each resource area, and presents the minimum performance standards and best development practices for Developments of Regional Impact.

• Appendices provide supporting materials such as definitions of terms used in the plan, interpretation of relevant abbreviations, and a list of the major Resources of Regional Importance.

What's New in This Edition

The Regional Policy Plan has been restructured for a greater emphasis on regional planning. Regional regulation follows regional planning, both conceptually and literally within this plan.

A new Regional Land Use Vision Map, developed through a collaborative effort with Cape towns, is the basis for all regional planning and regulation. The map is a compilation of the common desires of the Cape Cod Commission and each of the 15 towns (a) to focus development in Economic Centers, Villages, and Industrial and Service Trade Areas that can support it, and (b) to discourage development in Resource Protection Areas, areas of significant natural or historical resources.

The Regional Planning section focuses the Commission's work plan on actions intended to be both measurable and achievable in the next five years. Resource maps will accompany most of the issue area goals.

The Regional Regulation section includes measures that make the Development of Regional Impact (DRI) requirements more predictable through the application of the Regional Land Use Vision Map and through a new option for cash mitigation. Additional regulatory changes that accompany this plan include an optional "Limited DRI Review" and flexible thresholds also linked to the Regional Land Use Vision Map.

Regional Planning

Regional planning is the Cape Cod Commission's central role. Regional planning addresses resources and needs that transcend municipal boundaries, identifies special districts and resources that are particularly sensitive to development pressures, and provides technical assistance to towns on a wide range of topics, including groundwater protection; transportation, open space, and hazard mitigation planning; architectural and site design; Geographic Information System (GIS) mapping; economic development; and affordable housing, to help them implement their own plans in coordination with neighboring jurisdictions. Regional planning should be broad and comprehensive, as when addressing water quality and economic development. It can also be site specific, in a regional context, as when determining the design of a building that affects the character of an historic village. The underlying principles of regional planning are to ensure sustainable growth of a region through the efficient placement of infrastructure as well as zoning and other regulations that encourage the best use of the land.

Town government is the appropriate jurisdiction for determining and administering many planning issues. Regional government, however, has a vital role in coordinating plans and strategies that affect shared resources. A partnership of local and regional governments enhances and supports the work of both. The Cape Cod Commission's best strategy for protecting resources in accordance with the Cape Cod Commission Act is to promote and participate in sound planning at every level of government.

Plans are only as good as their implementation measures. Regulations help control the amount, type, and location of development and ensure that infrastructure and environmental controls are in place to protect resources. It is from the plan, however, that regulations should logically follow. Without a clear, comprehensive plan, regulations can be haphazard, ineffective,

frustrating, and counterproductive. Coordinated planning between local, regional, state, and federal governments increases the predictability of development requirements, ensures adequate public investment in infrastructure, and fosters a regulatory structure that provides incentives for the private sector to cooperate with planning goals and strategies.

This section of the Regional Policy Plan categorizes the Cape Cod Commission's planning activities into three resource groupings: Growth Management Systems; Natural Systems; and Human/Built Systems. In those groupings, each resource issue area is described with a brief narrative, specific goals, and actions to be taken to meet those goals during the next five years. This section provides the underlying rationale for the Cape Cod Commission's regulation of Developments of Regional Impact, which is detailed in the next section.

A Growth Policy for Barnstable County

The environmental, economic, and community challenges that Cape Cod faces must be addressed comprehensively if their solutions are to be achievable and sustainable into the future. Planning where and how Cape Cod grows is critical for the region's ecological, financial, and social future.

Statement of Growth Policy

The growth policy for Barnstable County, expressed throughout this Regional Policy Plan, is to guide growth toward areas that are adequately supported by infrastructure and away from areas that must be protected for ecological, historical, or other reasons.

The growth policy expressed in this plan requires comprehensive intergovernmental cooperation. It also requires development to be efficient and innovative. It requires the integration of the planning strategies and actions in this plan to safeguard the region's ecology and character and to invest public funds wisely. If implemented properly, the growth policy in this plan will help Barnstable County and Cape Cod communities to accommodate growth and enhance economic development opportunities.

Planning partnerships between Cape municipalities, Barnstable County regional government, and state and federal agencies will help ensure that investments in infrastructure address past problems of growth and accommodate future needs. As is true for natural resources, the fiscal resources of Cape municipalities must be sustainable into the future. Comprehensive, collaborative planning and coordinated use of the resource management and protection tools described in this plan are necessary if the regional and local tax bases are to support infrastructure and growth into the future.

Resource Management and Protection Tools

Barnstable County government has established several unique and significant planning tools to help Cape Cod towns and the Cape Cod Commission plan effectively for resource protection, economic development, and growth management. Several of these tools are enabled in the Cape Cod Commission Act; others are established by Commission regulations or result from ongoing planning activities. All of these tools combine planning, regulatory approaches, and technical assistance to protect regional resources and help towns plan for growth in ways that

local zoning and state statutes cannot. (Complete descriptions, the actual regulations, and a variety of supporting materials about these tools and methods are available from the Cape Cod Commission.) Briefly described, the tools include:

Developments of Regional Impact

The Cape Cod Commission Act established a regulatory system to ensure that the impacts resulting from regionally significant development projects are publicly reviewed and mitigated, if necessary. The Act identifies these projects as Developments of Regional Impact (DRIs) and requires compliance with all the minimum performance standards of the Regional Policy Plan. Developments of Regional Impact meet or exceed a specific size or other threshold identified in the Cape Cod Commission's Enabling Regulations. The thresholds determine which projects are required to undergo DRI review. Various exemptions and modified processes are possible. The Regional Regulation section of this plan further describes Developments of Regional Impact.

Districts of Critical Planning Concern

A District of Critical Planning Concern (DCPC) is a method established under the Cape Cod Commission Act that enables the designation of specific resource-sensitive areas for special planning and regulatory efforts. The designation of a DCPC can augment existing local bylaws and regulations, allowing the creation and adoption of special rules at the local level to govern development within the district. So-called "grandfathering" protections normally afforded by Massachusetts zoning laws no longer apply once a DCPC is in place. The DCPC designation allows communities to protect resources that have been identified in the Regional Policy Plan or in a town's Local Comprehensive Plan as critical to the ecology, economy, character, or viability of the region.

The DCPC process begins with a nomination of an area, usually initiated by an individual town. Towns may also collaborate on a DCPC nomination to address shared problems or regional concerns. The Cape Cod Commission then considers the nomination and makes a recommendation for designation of the DCPC to the Barnstable County Assembly of Delegates. If the Assembly designates the District of Critical Planning Concern, the town develops and adopts special "implementing regulations" for it. The town then regulates projects within the district's boundaries under those new rules.

Development Agreements

A development agreement is a voluntary, binding contract that may be used by the Cape Cod Commission, Cape Cod municipalities, state agencies, and developers to define the scope of proposed developments. Not allowed as a matter of right under Massachusetts zoning law, development agreements are allowed under the Cape Cod Commission Act. They are an alternative to the Commission's Development of Regional Impact review process.

A development agreement provides developers greater flexibility and protection from future local zoning changes. Simultaneously, a development agreement secures certain benefits for the region and the town through improved site planning, better design, needed infrastructure,

and mitigation provided by the developer as the project proceeds. Development agreements are well suited to long-term projects designed to be constructed in phases.

Growth Incentive Zones

A Growth Incentive Zone is a specific area identified by a town as targeted for economic development. A Growth Incentive Zone facilitates compact, mixed-use growth. By creating a master plan and providing infrastructure and mitigation strategies to accommodate development, a town can pursue reduced regulatory involvement by the Cape Cod Commission for projects proposed in the zone. Some of the minimum performance standards in the Regional Policy Plan may be modified or eliminated because more comprehensive planning, area-wide mitigation, and stronger local regulatory controls take their place.

To establish a Growth Incentive Zone, a town must first ensure that all growth is properly served by adequate infrastructure. The additional development potential within the proposed zone must be offset with reduced development potential elsewhere. Techniques to achieve the offset include transfers of development rights, "down zoning" (changing zoning to reduce the number or size of development units allowed on a given parcel), conservation restrictions, and other land protection measures.

Model Bylaws

The Cape Cod Commission offers a set of model bylaws that towns can adopt. The models serve as starting points for towns seeking to create new regulations or to update existing ones for specific land use and growth management needs. Specific topics include development rate limitations; development agreements; village-style development; transfer of development rights; open space residential (cluster) development; access management; wireless service facilities; hazardous wastes; aquifer protection overlay districts; wetlands and wildlife habitat; land clearing, grading, and protection of specimen trees; floodplain development; and land-based wind energy conversion facilities. Additional model bylaws will be prepared to address specific actions in the Regional Policy Plan upon adoption of the RPP.

Other Regional Plans

The Cape Cod Commission routinely coordinates and has produced a variety of plans applicable to the entire region:

- Regional Transportation Plan: The Commission coordinates transportation planning activities under the guidance of the Cape Cod Metropolitan Planning Organization, a collaborative of local, regional, state, and federal officials. In that role, the Commission develops and implements the Cape Cod Regional Transportation Plan, which seeks to balance efforts to expand the Cape's transportation capacity and efficiency, to expand alternate modes of travel, and to implement local and regional projects through the annual Transportation Improvement Program.

- Comprehensive Economic Development Strategy: The Cape Cod Commission works cooperatively with area chambers of commerce and other agencies, including the county's Cape Cod Economic Development Council, to foster the year-round economic health of the

region. Part of the Commission's work is to coordinate the regional planning process that focuses on economic development. The result of that planning process is the five-year Comprehensive Economic Development Strategy.

- Affordable Housing Consolidated Plan: The Cape Cod Commission coordinates the Barnstable County HOME Consortium, a collaboration of the county and all 15 Cape towns, to pursue and distribute federal and state housing funds in the region. In that role, the Commission prepares a five-year "Consolidated Plan," which details the area's affordable housing needs, available resources, and top priorities for the consortium's work.

- Regional Open Space Plan: The Cape Cod Commission has created a web-based mapping tool to identify and aid the protection of "green infrastructure." By providing a means to analyze the interrelationships between natural resources (for example, rare species habitat, wetlands, wellhead protection areas), the Regional Open Space Plan may help identify significant ecological systems at the landscape scale. The mapping tool and plan can help towns and land trusts to set priorities for open space acquisition that will protect and connect Cape Cod's most sensitive natural resources.

- Natural Hazards Pre-Disaster Mitigation Plan: In 2004 Barnstable County adopted a regional hazard mitigation plan developed by the Cape Cod Commission in cooperation with many local and regional agencies. The Federal Emergency Management Agency (FEMA) approved the plan, which identifies actions to be taken across the county to prevent and lessen damage from natural hazards such as floods and windstorms (including hurricanes and tornadoes). The Commission pursues the mitigation planning, outreach, and education activities outlined in the plan, as funds allow and in coordination with Cape towns and Barnstable County departments.

Local Comprehensive Plans

The Cape Cod Commission Act promotes the establishment of local planning committees in Cape towns to prepare, update, and implement Local Comprehensive Plans (LCPs). Through the LCP and in consultation with the Commission, each town defines its vision for how to achieve the goals of the Act and articulates the town's growth policy. In addition, the LCP is an information source about existing and expected conditions. Implementation of an LCP can help a town manage growth and its impacts on local and regional resources and to plan for and fund adequate infrastructure and capital facilities.

Each town may prepare a Local Comprehensive Plan that is certified by the Cape Cod Commission as consistent with the Regional Policy Plan. In addition to setting priorities, describing actions, and establishing time frames to protect resources and identify needed infrastructure and capital facilities, a certified plan guides a community toward needed zoning and bylaw revisions. In authorizing the Commission to certify local plans, the Cape Cod Commission Act also empowers municipalities to enter into development agreements (see previous description) and to impose impact fees on new developments. In Massachusetts, only Cape Cod has this legislative authorization for certified LCPs.

Impact fees, paid by developers to a municipality, are designed to offset the adverse impacts of new development. The fees must bear a "rational nexus" to the impacts of the development and

must provide a "reasonable benefit" to the development itself. The fees may be imposed for the creation or improvement of town roads and bike paths, storm drainage, sewer systems (mains and treatment plants), water supplies (wells, mains, and treatment plants), town parks and beaches, affordable housing, public schools and libraries, and other capital facilities as planned in the LCP and in related local capital facilities/infrastructure plans.

Regional Resource Maps

The Cape Cod Commission created the maps in this plan with Geographic Information System (GIS) technology. The maps identify the locations of a wide variety of resources and land uses and are prepared for regional planning purposes. Several of them also link to the review thresholds and minimum performance standards for Developments of Regional Impact that must undergo regulatory review by the Cape Cod Commission.*

Regional Policy Plan maps are available online (www.capecodcommission.org). The Commission's GIS Department also produces and maintains geographic data on many other aspects of Cape Cod land use.

Regional Land Use Vision Map

The Regional Land Use Vision Map expresses a vision for the future of Cape Cod. The Cape Cod Commission is working collaboratively with all 15 towns in Barnstable County to develop the map through a process that clarifies existing zoning and land use elements, incorporates composite maps of resources in each town, and identifies each town's vision for desired land uses. The land uses are categorized as Economic Centers, Villages, Industrial and Service Trade Areas, Resource Protection Areas, and Other Areas. The map provides a framework for regional land use planning and identifies discrete areas to focus future development activities as well as areas for additional protection. Towns with an endorsed Land Use Vision Map may apply for flexible thresholds that trigger the Commission's regulatory review of Developments of Regional Impact. The Regional Land Use Vision Map is also a tool to encourage towns to consider zoning and other changes to guide growth toward desired areas that have infrastructure to support it and away from areas that have significant ecological or historical resources that could be degraded by inappropriate development.

Additional Maps

In addition to the Regional Land Use Vision Map, several maps are cited in the Regional Regulation section and serve to reinforce the Minimum Performance Standards, including:

Water Resources Classification Maps

Significant Natural Resource Areas Map

*NOTE: Analysts using Geographic Information System software are able to produce maps consisting of thematic layers obtained from original sources at different scales. The original maps, by themselves, can be accurate up to a quantifiable point at their original scale. When GIS software portrays them at a larger scale than was intended, they may be less accurate. Therefore, the information depicted on the maps is for planning purposes only. It is not

adequate for legal boundary definition, should not substitute for actual on-site surveys, and cannot supersede deed research.

Growth Management Systems

Land Use (LU)

As a fragile coastal peninsula, Cape Cod has a finite capacity to accommodate development and simultaneously maintain the healthy human and natural environments upon which the region's economy depends. Capacity and land use are directly related. How and where the Cape's landscape is developed has a tremendous effect on the capacity of the environment to absorb that additional growth.

The region's early development was located in dense village centers surrounded by less developed outlying areas. This compact land use pattern remained until the proliferation of the automobile and expansion of the highway system in the 20th Century. The greater access thus afforded led to substantial growth in the region's tourist industry and, beginning in the 1970s, in the year-round population. New development occurred along roadways, coastal areas, and in large residential subdivisions. Zoning regulations, first established to exclude incompatible uses from residential areas, contributed to this sprawling pattern of growth by requiring large setbacks and prohibiting the mix of uses traditionally found in village centers. In many cases, zoning bylaws, crafted more than 30 years ago, are still in effect today across Cape Cod, and preexisting nonconforming uses limit the towns' ability to reestablish compact land use patterns. Under current zoning, the sprawl development has already compromised Cape Cod's natural systems. The Outer Cape and Monomoy Capacity Studies, prepared by the Commission in the 1990s, showed that the growth of the Lower and Outer Cape is severely constrained by its transportation infrastructure and water supply. Without changes in local zoning, projected build-out levels will produce severe traffic congestion and degraded drinking water quality in the future.

A survey of Cape residents conducted in 2005 by the Center for Survey Research of the University of Massachusetts–Boston revealed that 96 percent of the respondents believed there was either enough or too much development on Cape Cod. Seventy percent of respondents cited residential sprawl as a serious problem for their town in the next five years, and 79 percent cited it as a problem for the entire Cape in the next five years. Forty-five percent of respondents supported efforts to direct new projects to growth centers by making it easier to develop in those locations while making it harder to do so in others.

The location of infrastructure and public facilities, in addition to zoning, drives land use patterns. The development of infrastructure, from wastewater to telecommunications, will be essential to regional economic growth that doesn't further degrade the human or natural environment. Compact forms of growth reduce the cost of needed infrastructure and allow for more types of residential and commercial development at a range of prices. In addition, open space in more sensitive areas may be protected, thus improving the ability of the natural environment to further absorb human impacts. Conversely, a sprawling pattern of growth not only increases infrastructure costs but also makes the delivery of services such as public transit less practical.

Land Use Goal – LU1:
Compact Growth and Resource Protection

To minimize adverse impacts on the land by using land efficiently and protecting sensitive resources, and to create vibrant communities by directing growth and redevelopment to appropriate locations.

To help reshape the development pattern on Cape Cod, measures must be taken to encourage mixed-use and compact forms of development in existing centers and to discourage sprawling development in sensitive areas. The implementation of a Regional Land Use Vision Map, developed through a collaborative effort with all 15 Cape towns, will aid those efforts. The regional map identifies general categories of desired land uses based on resource constraints, existing and desired development patterns, and local zoning. The map provides a framework for regional land use planning and identifies discrete areas to focus future development activities as well as areas for additional protection. The land use map allows towns to seek flexibility in thresholds that trigger the Commission's regulatory review. The regional map also guides Cape towns in their efforts to refine local zoning where needed to implement growth management policies more effectively and to develop needed infrastructure in appropriate locations.

<SEE DRAFT REGIONAL LAND USE VISION MAP>

Cape Cod Commission Actions

LU1-C1. Technical Assistance to Towns: The Cape Cod Commission will provide technical assistance to towns. In towns with adopted Regional Land Use Vision Maps, this assistance will be consistent with the Regional Land Use Vision Map. Examples include:

- analysis of build-out under current and future zoning
- analysis of infrastructure capacity and investment needs
- completion/certification of Local Comprehensive Plans
- preparation of local design and development guidelines
- revisions to zoning and creation of overlay zones to encourage mixed use

LU1-C2. Growth Management Tools: The Cape Cod Commission will continue to work with towns to implement regional growth management tools including Growth Incentive Zones and Districts of Critical Planning Concern (DCPC).

LU1-C3. Transfer of Development Rights: The Cape Cod Commission will evaluate the feasibility of a regional transfer of development rights (TDR) program, including evaluation of regional tax sharing between "sending" and "receiving" communities, and/or will assist with implementation of local TDR programs to help direct growth to appropriate locations while protecting sensitive areas most vulnerable to development.

Recommended Town Actions

LU1-T1. Local Comprehensive Plans: The towns should complete, update, and implement their Local Comprehensive Plans to be consistent with the Regional Policy Plan.

LU1-T2. Land Use Ordinances and Bylaws: The towns should revise local zoning as needed to achieve growth management goals and consistency with the Regional Policy Plan and, where applicable, with the Regional Land Use Vision Map.

Land Use Goal – LU2:
Capital Facilities and Infrastructure

To use capital facilities and infrastructure efficiently and in a manner that is consistent with Cape Cod's environment, character, and economic strengths, and that reinforces traditional village-centered development patterns.

The location of public facilities and infrastructure can either alter or perpetuate development patterns. Development patterns, on the other hand, can determine the need for and cost of facilities and infrastructure. Dense, concentrated village-style development requires fewer capital facilities and has lower per-person infrastructure costs than sprawling development does. The goal in maintaining and building facilities and infrastructure should be to serve as many users as possible at the lowest cost. The cost of infrastructure can be reduced by using existing structures and rights-of-way, eliminating waste, coordinating construction, and co-locating infrastructure of different types. Using land, facilities, and infrastructure efficiently also limits the impact of development on the natural environment; a healthy natural environment can better absorb adverse impacts of human habitation and act as a buffer during natural disasters.

Cape Cod Commission Actions

LU2-C1. Integrated Infrastructure Planning: The Cape Cod Commission, in completing individual plans for transportation, water resources, open space, and other Regional Policy Plan issues, will ensure that they are consistent with the Regional Policy Plan and, in communities with adopted Regional Land Use Vision Maps, the Regional Land Use Vision Map, and that implementation will be coordinated wherever possible.

LU2-C2. Impact Fees: The Cape Cod Commission will assist the towns with preparation of impact fee bylaws for the construction and maintenance of capital facilities and infrastructure for Economic Centers and other mapped areas identified on the Regional Land Use Vision Map.

LU2-C3. Hazard Mitigation: The Cape Cod Commission will incorporate natural hazard mitigation priorities and best planning practices into regional infrastructure planning work, promote the creation of hazard-based Districts of Critical Planning Concern, and provide technical assistance to communities as they develop, adopt, and implement local pre-disaster mitigation plans.

Recommended Town Actions

LU2-T1. Integrated Infrastructure: The towns should complete capital facilities plans consistent with their Local Comprehensive Plans and require coordinated planning between special districts and service areas. Towns should consider adopting "open once" road-opening policies to encourage coordinated construction and deployment of infrastructure between the various utilities and with the town.

LU2-T2. Smart Growth Investment Policy: The towns should adopt a smart growth investment policy for the development and maintenance of capital facilities and infrastructure that will reinforce the concentrated, dense mixed-use village-style development pattern.

LU2-T3. Infrastructure Efficiency Policy: The towns and the Cape Cod Commission should investigate the concept of using efficiency criteria to prioritize capital investments.

Land Use Goal – LU3:
Rural Lands

To preserve and enhance rural land uses, including agriculture, 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 rural lands, and to support activities that achieve greater food independence for Cape Cod.

Working agricultural lands are a defining element of the Cape Cod landscape. Increasingly, land values and development pressures result in the loss of these lands, including those supporting prime agricultural soils, working agricultural lands, and the open vistas of pastures enjoyed from roadsides. Protecting existing farmland and maintaining opportunities to establish or reestablish working agricultural lands ensures opportunities to enjoy traditional resource-based occupations, maintain economic diversity, as well as maintain opportunities to increase our own local food production and food independence. The support and promotion of agricultural land uses on Cape Cod benefit multiple regional goals, including reduction of sprawling growth patterns, preservation of rural character, and maintenance of resource-based economic activities.

Cape Cod Commission Actions

LU3-C1. Coordinated Agricultural Support: The Commission will work with Cape towns, the Cape Cod Cooperative Extension, the Natural Resources Conservation District, the Cape and Islands Farm Bureau, and other organizations to encourage and support continued and expanded agricultural use of land on Cape Cod, where environmentally appropriate.

LU3-C2. Regional Rural Lands Protection Tools: The Commission will investigate the use of land use protection tools, including DCPCs and TDR, as well as conservation restrictions, toward the goal of protecting significant soils, natural resources, or working agricultural landscapes.

Recommended Town Actions

LU3-T1. Municipally Owned Lands: Towns should explore opportunities to expand agricultural activities on municipal lands, where conservation, watershed protection, and sensitive habitat protection interests do not conflict.

LU3-T2. Town Rural Lands Protection Tools: Towns should adopt cluster bylaws or ordinances that make cluster subdivisions allowed by right, change zoning to protect agricultural uses, and other tools to promote the preservation of rural lands, and to direct additional development away from Resource Protection Areas as identified on the Regional Land Use Vision Map. Not all residential districts will be appropriate for increased lot sizes; consideration for affordable housing interests should be balanced with rural lands protection.

LU3-T3. Right-to-Farm: Towns should support local adoption of Right-to-Farm bylaws where environmentally appropriate as a means to inform the public of the importance of local food production, and to encourage reinforcement of state laws that protect the right to farm.

Economic Development (ED)

The Cape Cod Commission Act acknowledges that our regional economy is inextricably linked to the health and beauty of our natural and built environment. The Cape Cod Commission is charged by the Act to "ensure balanced economic development." In doing so, the Commission is to "promote the expansion of employment opportunities; implement a balanced and sustainable economic development strategy for Cape Cod capable of absorbing the effects of seasonal fluctuations in economic activity," and "establish a process and procedures to site and develop capital facilities and developments of regional impact which are necessary to ensure a balanced economy."

An economy is a public–private partnership; the government is responsible for the framework, and the private sector for the content. Economic development practice should improve public infrastructure, support quality education and training, and establish effective and fair regulatory and land use policies. Unlike business development, economic development focuses on the business environment rather than on individual enterprises. The four basic principles in economic development are:

- Protect and build on your competitive advantage.

For the Cape, this is the region's unique natural environment, historic village character, working agricultural land, harbors, and cultural heritage.

- Use your resources efficiently.

Resources include natural assets, capital facilities, infrastructure, and human capital. Population and land use patterns affect efficiency.

- Foster balance and diversity.

Economic strength and sustainability benefit from a mixture of industries, businesses, workers, ownership types, and employment options.

- Expand opportunity and regional wealth.

Methods include increasing exports, substituting imports locally, attracting capital, and fostering local ownership.

These principles guide the goals, recommended planning actions, and regulatory standards for economic development included in the Regional Policy Plan.

To obtain the goal of a balanced, sustainable economy, Cape Cod should remain unique and authentic and not become like any other place. If the competitive advantages of the region are not sustained, Cape Cod could see greater disparities in wealth, labor could increasingly need to be imported from elsewhere, and the character of Cape Cod could change dramatically. A coordinated economic development strategy, supported in this plan, will help the region achieve the goal of a balanced, sustainable economy.

Economic Development Goal – ED1:
Low-impact and Compatible Development

To promote the design and location of development and redevelopment to preserve the Cape's environment and cultural heritage, use infrastructure efficiently, minimize adverse impacts, and enhance the quality of life for Cape Codders.

This economic development goal is based on the principles of competitive advantage and efficiency: Development and policy should complement the strengths that make Cape Cod unique and economically viable without taxing the built, human, and natural resources beyond their capacity. As in the business world, regional economic success depends on differentiating the product (in this case, Cape Cod's natural environment and historic character) from the competitors' (other destination areas) and maximizing profits by using resources efficiently.

Cape Cod Commission Actions

ED1-C1. Cape Cod Economic Development Strategy: Working collaboratively to reach regional consensus with partner organizations and municipalities, the Cape Cod Commission will complete and help implement a long-term strategy for building the infrastructure, workforce, and regulatory structures needed to foster a sustainable and balanced economy characterized by innovation, creativity, and respect for Cape Cod's natural and historic assets. Progress toward this achievement will be evaluated and adjusted annually.

ED1-C2. Economic Development Education: The Cape Cod Commission will collaborate with partner organizations, municipalities, businesses, and economic development experts to improve understanding of Cape Cod's regional economy; federal, state, and regional economic development tools; obstacles to regional economic growth; and strategies to make qualitative improvements to the region's economy.

ED1-C3. Infrastructure Financing: The Cape Cod Commission will identify existing state and federal funding for infrastructure and will investigate the feasibility of regional financing mechanisms.

Recommended Town Actions

ED1-T1. Incentives to Locate in Economic Centers and Industrial and Service Trade Areas: The towns should adopt policies and regulations that encourage development within Economic Centers and Industrial and Service Trade Areas. Towns should adopt policies and regulations that discourage development in Resource Protection Areas and Other Areas identified on the Regional Land Use Vision Map. The towns should revise zoning in Economic Centers identified on the Regional Land Use Vision Map to encourage a greater diversity in size and price of commercial and residential property.

ED1-T2. Targeted Public Investment: The towns should locate public facilities, including town offices, senior centers, schools, and libraries in the Villages and Economic Centers identified on the Regional Land Use Vision Map. The towns should also give priority to infrastructure investments that serve those areas.

ED1-T3. Working Agricultural Lands: The towns should adopt policies and regulations to protect the current and future function of working agricultural lands, working waterfronts and harbors, and fin- and shellfishing grounds.

Economic Development Goal – ED2:
A Balanced Economy

To promote a balanced regional economy with a broad business, industry, employment, cultural, and demographic mix capable of supporting year-round and quality employment opportunities.

There is a fine balance in regional economics between capitalizing on an area's competitive advantage and having enough economic diversity to withstand changes in the market. The Cape has seen industries come and go with changes in tastes, technology, and the emergence of competitors. Industries that today seem to define the Cape—for example, tourism—could persist or they could die out, as did salt production, whaling, and glass manufacturing. The Cape Cod Commission will encourage flexible policies and development projects that can provide high-quality employment opportunities today and lend themselves to multiple uses over time.

Cape Cod Commission Actions

ED2-C1. Regional Cost-of-Doing-Business Analysis: The Cape Cod Commission will complete a study of the overhead costs of running a business on Cape Cod. The study will investigate the relative costs of space, staff, insurance, and utilities in different communities. It will also identify infrastructure needs that may be restricting growth and public policies (including zoning) that may affect costs.

ED2-C2. Regional Market Analysis: The Cape Cod Commission will complete a regional market analysis to identify where money is leaving and entering the regional economy. The analysis will also assess market demand and supply in sub-regions or Economic Centers to determine where opportunities for growth may exist and where markets are oversaturated.

ED2-C3. Demographic and Economic Data Clearinghouse: The Cape Cod Commission will provide electronic access to federal, state, and local data for Cape Cod and its municipalities, and prepare regular presentations based on analysis of the data. The Commission will also provide data and technical assistance to municipalities as requested, and integrate the data into the Commission's Geographic Information System.

Recommended Town Actions

ED2-T1. Workforce Housing Incentives: The towns should facilitate the development of workforce housing, for example, by adopting incentives for businesses either individually or collaboratively to invest in workforce housing through inclusionary zoning, auxiliary dwellings, and mixed-use "top of the shop" zoning in commercial areas.

ED2-T2. Preserve/Reserve Specially Zoned Areas: The towns should reserve maritime, industrial, and agricultural areas for those uses, and consider tax incentives to preserve and enhance their viability. The towns should also consider use of regional planning tools such as an economic development District of Critical Planning Concern (DCPC) to limit incompatible uses in these areas of unique economic importance.

ED2-T3. Support of Agritourism: Towns should investigate ways to support agritourism, including removing possible obstacles to agritourism (for example, sign codes).

Economic Development Goal – ED3:
Regional Income Growth

To promote economic activity that retains and attracts income to the region and benefits residents, thus increasing economic opportunity for all.

The size and stability of an economy depend on how much money is attracted to and retained in the region and how well that money is distributed across the population. The regional income goal seeks to achieve a prosperous economy by supporting local business activity and economic opportunity for all residents. Money is added to the economic "pie" either when products made locally are sold to non-residents (that is, exported) or when goods previously imported are made and sold locally (known as "import substitution"). The size of the pie is also affected by business ownership. Locally owned businesses retain and circulate money within the regional economy to a greater degree than non-local businesses. Locally owned businesses also create jobs at all skill and wage levels associated with their industries, and they are more likely to use local suppliers than non-local enterprises. As locally owned businesses support each other, opportunities for gainful employment and ownership increase for the Cape's working-age residents.

Cape Cod Commission Actions

ED3-C1. Fiscal Impact Modeling: The Cape Cod Commission will develop a fiscal impact model for Cape towns to test alternative development scenarios. The Commission will also be available to identify the fiscal impact of specific development projects.

ED3-C2. Local and Regional Economic Development Tools: The Cape Cod Commission will identify opportunities for and provide technical assistance in the use of regional planning tools such as Growth Incentive Zones and Districts of Critical Planning Concern. The Commission will also provide assistance in the use of state tools such as "district increment financing" and the creation of "economic development investment corporations."

ED3-C3. Economic and Business Development Partnerships: The Cape Cod Commission will participate in boards and committees of partner organizations and support collaboration among regional and local business, cultural, and professional organizations.

Recommended Town Actions

ED3-T1. Formula Business: The towns should adopt ordinances to guide the location, design, size, and total number of formula businesses in their community and should reduce the amount of land zoned for retail uses outside of the Economic Centers identified on the Regional Land Use Vision Map.

ED3-T2. Value-added Products and Services: The towns should collaborate with business organizations and interest groups to increase the number of products and services provided by locally owned businesses. The towns should also facilitate efforts to add value to materials currently exported off Cape as raw or partially finished products. The towns should allow and encourage farmers markets for the sale of local produce and crafts.

ED3-T3. Business Climate: The towns should attract, maintain, and encourage business by providing public services in an equitable fashion. Of particular importance to economic competitiveness are good schools; fair, easily understood, and consistently applied regulations; and the availability of transportation alternatives, including high-speed Internet access.

Economic Development Goal – ED4:
Infrastructure Capacity

To provide adequate capital facilities and infrastructure that meet community and regional needs, expand community access to services, and improve the reliability and quality of services.

Adequate, high-quality facilities and infrastructure are vital to a competitive economy and an engaged community. Capital facilities and infrastructure include everything from schools and libraries to high-speed telecommunication networks and public transit. Efficient facilities and reliable services are critical. They enable economic progress and civic participation, open new markets and educational opportunities, and protect communities from man-made and natural disasters. Cape Cod faces significant challenges to reach this goal. For example, the region currently lacks reliable energy service, sufficient high-speed and redundant telecommunication services at competitive prices, and wastewater infrastructure—all necessary for economic growth.

Cape Cod Commission Actions

ED4-C1. Infrastructure Assessment and Mapping: The Cape Cod Commission will undertake a baseline assessment of existing telecommunications, energy, wastewater, transportation (all types), and public safety infrastructure, and map this infrastructure where possible.

ED4-C2. Infrastructure Financing: The Cape Cod Commission will assist Barnstable County to identify various means of financing infrastructure improvements and maintenance, such as a regional revolving loan fund, regional infrastructure financing authority, regionalization of services, and state and federal financing.

ED4-C3. Hazard Mitigation Investments: The Cape Cod Commission will lead efforts to reduce the vulnerability of Cape residents and business to natural disasters. Efforts will include promoting the use of "intelligent transportation systems" (real-time travel information); integrated public transit (rail, ferry, bus, cab, and air); passenger rail service; telecommunications transport networks; and remediation of damaged wetlands.

Recommended Town Actions:

ED4-T1. Capital Facilities Plans: The towns should complete capital facilities plans consistent with the Regional Policy Plan goals and growth policy and with Local Comprehensive Plans. Local capital facilities plans should include detailed analysis of maintenance and development costs and how the facilities and infrastructure will be financed.

ED4-T2. Regional Collaboration: The towns should regionalize services and capital facilities where appropriate and combine forces regionally to negotiate cable and other service contracts.

ED4-T3. Distributed Energy Generation: The towns should permit and encourage small-scale local power generation that uses primarily renewable energy sources to reduce the need to import power from off Cape. Towns, with support from the Commission as desired, should explore new concepts such as energy enterprise zones (overlays) that offer streamlined permitting or other incentives to encourage use of sustainable, clean, and green practices and technologies in Economic Centers and elsewhere.

Natural Systems

Water Resources (WR)

All of Cape Cod's water resources are linked together by groundwater. The quality and quantity of the region's groundwater is of critical importance, as it is the only source of drinking water for most of Cape Cod. In 1982, the US Environmental Protection Agency (EPA) formally recognized the complete dependence of Cape Cod's communities on groundwater for their drinking water supply and designated the region's aquifer as a "Sole Source Aquifer." Two decades later, nine out of ten respondents to the 2005 Cape Cod Residents Survey chose protecting the Cape's water supply as a high-priority goal for the Cape Cod Commission.

Of equal concern are the ecological health and quality of marine waters and freshwater bodies, which are also connected to and dependent upon the aquifer system. These resources provide significant economic and recreational opportunities and serve as a defining characteristic of Cape Cod. Eight out of ten respondents to the 2005 Cape Cod Residents Survey cited protecting the Cape's recreational waters and surface water quality as a high-priority goal for the Commission.

Since all these water resources are connected, a comprehensive strategy is required to protect and preserve a sustainable supply of high-quality untreated drinking water and to preserve and restore the ecology of marine and freshwater bodies. Regional and local efforts must protect existing and future public water supplies, assess water quality in surface waters and their watersheds, and address wastewater and stormwater management. At the same time, proper infrastructure is needed to restore and protect water quality and to focus growth.

The water resources classification system of the Regional Policy Plan outlines the activities necessary to manage and protect all these resources. Mapped-based recharge areas or watershed classifications determine regional planning priorities as well as regional regulatory review standards. The classifications as identified on Water Resources Classification Maps I and II include:

- Wellhead Protection Areas
- Marine Water Recharge Areas
- Freshwater Recharge Areas
- Potential Water Supply Areas
- Impaired Areas
- Water Quality Improvement Areas

The areas pertaining directly to drinking water supply are the Wellhead Protection and the Potential Water Supply Areas. Wellhead Protection Areas are the areas of land that receive precipitation to recharge pumping wells. More than 158 gravel-packed wells provide more than 39 million gallons per day (MGD) of Cape Cod's public drinking water supply in the summer and over 26 MGD in the off season. US Geological Survey studies and other projects funded by the Massachusetts Department of Environmental Protection defined Potential Water Supply Areas as tracts of land that are suitable for water supply exploration.

Freshwater and Marine Water Recharge Areas are the watersheds to our ponds and estuaries, respectively. Watersheds are defined by the topography of the water table of the aquifer. Precipitation that falls on these areas recharges the aquifer and eventually discharges to the surface waters.

Impaired Areas are areas with water quality that has been impaired by associated land uses such as landfills and high-density development. Water Quality Improvement Areas are

impaired areas that pose a threat to primary water resources (Wellhead Protection and Water Recharge Areas) and require improvement to achieve the goals of this plan.

Water Resources Goal – WR1:
General Aquifer Protection

To maintain the hydrogeologic balance and quality of Cape Cod's aquifer, considering such factors as groundwater withdrawals, wastewater disposal, stormwater recharge, and adequate surface water levels.

Lowering water levels by excessively withdrawing groundwater for drinking water and irrigation can threaten the health and vitality of other resources that share the same aquifer, such as lakes, ponds, wetlands, and rivers. These resources are essential habitats for wildlife, including many threatened and endangered species. Balancing water withdrawals with the ecological needs of nearby resources requires a better understanding of issues on both sides of the equation. A proper balance can be maintained through water conservation, surface water monitoring, cluster development, best management practices such as Low Impact Development (LID) techniques, and turf and landscape plans that minimize the use of fertilizers and pesticides.

Cape Cod Commission Actions

WR1-C1. General Aquifer-protection Bylaws: The Cape Cod Commission will help communities to incorporate general aquifer protection and stormwater management strategies and water conservation into local regulations.

WR1-C2. Input to State and Federal Working Groups: The Cape Cod Commission will continue to provide input and technical assistance to state and federal water resource working groups about the unique hydrogeologic conditions on Cape Cod. The Commission will also encourage the use of other appropriate regional tools, such as Districts of Critical Planning Concern, for more effective management and regulation to protect and maintain the hydrologic integrity and balance of the sole source aquifer.

Recommended Town Actions

WR1-T1. Local Aquifer-protection Bylaws: The towns and municipal water districts should seek opportunities to incorporate general aquifer protection and stormwater management strategies into their local regulations and policies.

Water Resources Goal – WR2:
Drinking Water Quality and Quantity
(Wellhead Protection Areas and Potential Water Supply Areas)

To maintain the overall quality and quantity of Cape Cod's groundwater to ensure a sustainable supply of untreated high-quality drinking water.

This goal relates to Wellhead Protection Areas shown on Water Resources Classification Map I.

The drinking water for Cape residents and visitors is groundwater drawn from the sole source aquifer by the 158 gravel-packed municipal supply wells and thousands of private wells. Spills of hazardous materials and other activities can contaminate the water supply. For example, groundwater contamination by chemicals is an ongoing issue at the Massachusetts Military Reservation on the Upper Cape, where plumes of contamination have tainted four public water supply wells. Instances of smaller-scale contamination have caused similar problems for public water supply wells and private wells throughout Cape Cod. Because of the potential adverse impacts of land uses with hazardous materials on our sole source drinking water, adequate safeguards must be maintained to ensure that current and future investments in water supply infrastructure are protected. Future water supply needs must also be secured. In 1995, the Massachusetts Department of Conservation and Recreation projected that the Cape's population growth could result in a 40-percent increase in water use in 20 years.

Cape Cod Commission Actions

WR2-C1. Water Supply Data and Assistance: The Cape Cod Commission will continue to maintain and publish an updated regional database of public water quality, quantity of water pumped, and potential public water supply areas. The Commission will continue to provide ongoing technical assistance to communities and water suppliers regarding designation of zones of contribution to public water supplies ("Zone IIs"), water management permit issues for public water supply wells, and regional protection strategies for existing and future water supplies.

WR2-C2. Education about Hazardous Wastes: The Cape Cod Commission will continue to work with the Massachusetts Department of Environmental Protection, the Cape Cod Cooperative Extension, and the Barnstable County Department of Health and Environment to help towns deal effectively with hazardous waste sites, reduce hazardous materials, and educate the public about other potentially adverse impacts to drinking water and surface waters, such as contamination from personal care and pharmaceutical products.

WR2-C3. Protection and Restoration: The Cape Cod Commission will help towns and others to update standards and management strategies to protect and restore drinking water resource areas throughout the region. Working through the Cape Cod Groundwater Guardian Team and others, the Commission will continue to develop and provide educational information and participate in events to inform the public about Cape Cod's sole source aquifer and its water resources.

Recommended Town Actions

WR2-T1. Water Supply Development: The towns should continue to identify, acquire, and protect land suitable for water supply development.

WR2-T2. Local Bylaws to Protect Water Supply: The towns should consider using the Cape Cod Commission's model hazardous waste bylaw to strengthen local water-supply protection bylaws and to enforce the prohibition of land uses that involve hazardous materials and wastes in Wellhead Protection Areas.

WR2-T3. Water Quality Monitoring: The towns should establish long-term water quality monitoring programs for private wells to identify areas that may need to be serviced by public water supplies.

Water Resources Goal – WR3:
Marine Water Embayments and Estuaries
(Marine Water Recharge Areas)

To preserve and restore the ecological integrity of marine water embayments and estuaries.

This goal relates to Marine Water Recharge Areas shown on Water Resources Classification Map II.

Cape Cod has at least 59 estuary systems that have the potential to be significantly affected by excessive nitrogen loads from development in their watersheds. Excessive nitrogen leads to fundamental changes in these coastal ecosystems. Deterioration can affect the use and aesthetics of these resources and potentially lower property values. On-site septic systems are the primary source of nitrogen in most estuary watersheds, generally accounting for at least 75 percent of the nitrogen load.

To address these concerns, the Cape Cod Commission and Barnstable County have been partners for the last six years in the Massachusetts Estuaries Project (MEP). The county has provided more than $600,000 of funding to the project; these funds have allowed the Commission to provide technical expertise toward the development of watershed nitrogen-loading models. The MEP, which is led by the School of Marine Science and Technology (SMAST) at the University of Massachusetts–Dartmouth, assesses the health of each embayment/estuary system and determines an appropriate nitrogen limit or threshold for each individual estuary. The thresholds, officially known as Total Maximum Daily Loads or TMDLs, are adopted by the Massachusetts Department of Environmental Protection and the US Environmental Protection Agency and are enforceable under the federal Clean Water Act. Town Comprehensive Wastewater Management Plans and local, regional, and state regulations are being developed to meet these limits. Incorporating the TMDLs into regional and local regulations and supporting management solutions will help restore and protect coastal embayments by reducing nitrogen loading from existing and proposed land uses.

Cape Cod Commission Actions

WR3-C1. Regional Participation in the MEP: The Cape Cod Commission will continue to participate as a technical partner in the Massachusetts Estuaries Project by providing nitrogen-loading thresholds. The Commission will assist in the maintenance of the linked watershed/estuary models developed through the MEP and assist with the completion of model scenario runs for wastewater planning and evaluation of wastewater alternatives for specific embayments.

WR3-C2. Technical Assistance about Embayments and Estuaries: The Cape Cod Commission will continue to assist the towns, region, and state in the development and implementation of appropriate management solutions for protecting, remediating, and monitoring nitrogen-sensitive embayments and estuaries.

Recommended Town Actions

WR3-T1. Local Participation in the MEP: The towns should continue to participate in the Massachusetts Estuaries Project, obtain Total Maximum Daily Loads for their coastal embayments and estuaries, and work to develop and implement solutions to meet TMDLs.

WR3-T2. Regional Solutions for Shared Watersheds: The towns should consider regional solutions for shared watersheds to marine embayments, such as planning, infrastructure, and management.

Water Resources Goal – WR4:
Freshwater Ponds and Lakes
(Freshwater Recharge Areas)

To preserve and restore the ecological integrity of freshwater ponds and lakes.

This goal relates to Freshwater Recharge Areas shown on Water Resources Classification Map I.

Cape Cod has nearly 1,000 freshwater ponds and lakes covering up to 748 acres. The water quality of these resources is affected by the same wastewater, stormwater runoff, and fertilizers associated with the development that adversely impacts all water resources on Cape Cod. For these systems, excessive phosphorous from septic systems leads to fundamental changes in these freshwater ecosystems. These changes can rapidly deteriorate the use and aesthetics of these resources and potentially lower property values.

To address these concerns, the Cape Cod Commission has been a partner for the last eight years in the Cape Cod Pond and Lake Stewardship (PALS) program. The PALS program facilitates pond monitoring and assessment projects, encourages volunteer participation, shares lessons learned from pond management activities and, with UMASS–Dartmouth SMAST, supports an annual Cape-wide pond water-quality sampling ("snapshot") program with citizen volunteers. Through the PALS program, the Commission has completed several town-wide reviews of pond water-quality data and has made detailed assessments of individual ponds. The Commission has also helped develop and sustain volunteer-based monitoring programs and has held regional forums to share information with the public. Most of the ponds the Commission has reviewed through the assessment projects have been adversely affected by nutrients, and remedial solutions are needed for the ponds and their recharge areas.

Cape Cod Commission Actions

WR4-C1. Pond Assessments: The Cape Cod Commission will continue to work with towns to identify opportunities to complete individual and town-wide pond assessments.

WR4-C2. Pond-protection Priorities: The Cape Cod Commission will continue to identify priorities for monitoring, protecting, and restoring the region's freshwater ponds.

WR4-C3. Regional Outreach: The Cape Cod Commission will continue to work with the towns, pond associations, the Massachusetts Department of Environmental Protection, the

University of Massachusetts–Dartmouth's School for Marine Science and Technology, and others to conduct regional outreach programs about remediation, monitoring, and other pond-protection activities.

Recommended Town Actions

WR4-T1. Local Water-quality Monitoring: The towns should work with volunteers and pond associations to continue existing local pond water-quality monitoring networks and to develop and expand such networks to pond recharge areas that have not been addressed.

WR4-T2. Pond-remediation Priorities: The towns should set priorities for remedial activities for the freshwater ponds with identified water-quality problems.

Water Resources Goal – WR5:
Water Quality Improvement Areas
(Water Quality Impaired Areas)

To improve impaired water quality in Wellhead Protection, Marine Water Recharge, and Freshwater Recharge Areas.

Water Quality Improvement Areas are Impaired Areas shown on Water Resources Classification Map I that are also located in any of the following: Wellhead Protection Areas (Water Resources Classification Map I), Freshwater Recharge Areas (Water Resources Classification Map I), or Marine Water Recharge Areas (Water Resources Classification Map II). In such areas, improvement of water quality is a major goal.

Impaired Areas consist of other water resource areas where groundwater may have been degraded by point and non-point sources of pollution, including but not limited to areas with unsewered residential developments with an average lot size of less than 20,000 square feet; landfills, septage, and wastewater treatment plant discharge sites; and areas of high-density commercial and industrial development. Some of these densely developed areas have been identified as Economic Centers in this plan's Regional Land Use Vision Map or as Growth Incentive Zones. To move forward with revitalization of these areas and to restore water quality overall, comprehensive wastewater and water-supply infrastructure planning will be necessary.

Cape Cod Commission Actions

WR5-C1. Update Water-quality Maps: The Cape Cod Commission will continue to update maps of Water Quality Impaired Areas in order to assist the towns in their comprehensive wastewater planning efforts.

WR5-C2. Maintain Wastewater Planning Database: The Cape Cod Commission will continue to maintain a database on community wastewater planning efforts to restore and improve water quality.

WR5-C3. Technical/Planning Assistance: The Cape Cod Commission will continue to work with the towns on their efforts to plan and implement appropriate wastewater infrastructure through the towns' comprehensive wastewater planning processes.

Recommended Town Actions

WR5-T1. Community Plans: The towns should integrate community planning goals for Economic Centers (identified in the Regional Land Use Vision Map) into their comprehensive wastewater planning efforts.

WR5-T2. Update Water Quality Maps: The towns should continue to update maps of local water-quality conditions.

Water Resources Goal – WR6:
Public and Private Wastewater Treatment Facilities

To encourage the use of public and private wastewater treatment facilities in appropriate areas where they will provide environmental or other public benefits and where they can be adequately managed and maintained.

The technical reports produced for the Massachusetts Estuaries Project indicate that significant amounts of nitrogen from wastewater, stormwater runoff, and fertilizers need to be removed to restore coastal water quality and to comply with the Total Maximum Daily Load thresholds. The MEP has identified many estuary watersheds as impaired, requiring removal of all present wastewater flow to meet TMDLs in many cases. Nine of the 15 Cape Cod towns are now engaged in comprehensive wastewater planning to evaluate scenarios and develop cost estimates to meet the TMDLs. Cape Cod needs comprehensive wastewater management solutions to ensure that the region's surface waters continue to be desirable places for recreation and other maritime pursuits. At the same time, interim efforts are needed to minimize the amount of nitrogen from new development.

Cape Cod Commission Actions

WR6-C1. Assistance with Comprehensive Wastewater Management Plans: The Cape Cod Commission will continue to provide technical assistance to the towns to complete and implement their Comprehensive Wastewater Management Plans and work to achieve complementary local, regional, state and federal guidance.

WR6-C2. Oversight of Operational Plans: The Cape Cod Commission will maintain records and provide oversight of operation and compliance monitoring plans for private and public wastewater treatment facilities, as required in the Commission's regulatory decisions.

WR6-C3. Regional Groundwater Observation Network: The Cape Cod Commission will continue to maintain the regional network of groundwater observation wells and collect monthly readings for use in aquifer investigations and high groundwater calculations for Title 5 septic system designs.

Recommended Town Actions

WR6-T1. Comprehensive Wastewater Management Plans: The towns should initiate and complete their Comprehensive Wastewater Management Plans.

WR6-T2. Regional Wastewater Solutions: The towns should participate in discussions of regional wastewater solutions such shared infrastructure, management, and financial offsets.

WR6-T3. Local Operational Reviews: The towns should participate in operation and compliance reviews of private and public wastewater treatment facilities.

Water Resources Goal – WR7:
Stormwater Quality

To protect the overall water quality of the aquifer and its resources by minimizing impervious surfaces and improving stormwater quality as much as possible.

The Cape's sandy soils easily absorb stormwater runoff from parking and roadways; however, this runoff can contain toxic substances such as petroleum products, heavy metals, and nutrients including fertilizer. Comprehensive efforts to protect drinking water and marine and fresh surface waters require that stormwater systems treat runoff before it is discharged into the aquifer. Although stormwater contributes contaminants, it also recharges the aquifer. Low Impact Development (LID) stormwater treatment mimics a site's natural drainage functions, improves water quality, and lowers development costs by treating stormwater close to the source through a variety of simple, nonstructural methods.

Cape Cod Commission Actions

WR7-C1. EPA Stormwater Regulations: The Cape Cod Commission will continue to assist the towns in the appropriate management of stormwater, including their implementation of EPA Phase II stormwater requirements and the state's wetlands and watershed regulations.

WR7-C2. Stormwater Education: The Cape Cod Commission will continue to participate in and coordinate "Project Storm" educational and outreach events for local officials and citizens.

WR7-C3. LID Techniques: The Cape Cod Commission will continue to help developers to integrate LID techniques into site plans undergoing regional regulatory review.

Recommended Town Actions

WR7-T1. Upgrade Existing Bylaws: The towns should work to upgrade existing local bylaws and health regulations to integrate EPA Phase II stormwater requirements and to incorporate LID stormwater treatment concepts.

WR7-T2. Public Education on LID Techniques: The towns should continue to educate residents about the importance of treating stormwater. The towns could provide incentives, implement examples of LID in public places, maintain pet-waste disposal stations in public areas, and promote the creation of neighborhood rain gardens.

Coastal Resources (CR)

Coastal resources arguably constitute the foundation of life on Cape Cod and have shaped the Cape's society, culture, and economy since the days of shipbuilding and salt works. The emphasis has shifted today to the value of the region's coastal resources for recreation, tourism, and private development, as well as for commercial fishing, shellfishing, and aquaculture. Good stewardship of the Cape's coastal resources is inherently linked with the past and is critical to the region's future.

As relative sea level rises in our region, future challenges will be presented that require adaptive planning and well-implemented coastal management strategies. Expected sea-level rise in our region will increase flooding, both elevating the height of storm surges and flood levels and exacerbating inundation and storm surge by sending floodwaters farther landward than expected today. Sea-level rise is also expected to exacerbate erosion and other coastal hazards, thus threatening vital infrastructure, settlements, and facilities, and is likely to cause saltwater intrusion into wells, septic systems, and groundwater close to the shore. Thus, an important consideration for coastal floodplain management is factoring relative sea-level rise into development projects.

The 2005 Cape Cod Residents Survey revealed that access to the coast was very important or important in the decision to live on the Cape by 87 percent of the respondents who did not grow up on the Cape. In addition, 74 percent of the respondents assigned a high priority to the goal of preserving and enhancing the fishing and shellfishing industries on the Cape. Eighty-eight percent of the respondents supported or strongly supported possible Cape Cod Commission regulations restricting new developments in or near wetlands, ponds, floodplains, dunes, and critical habitat areas. Additionally, 78 percent of the respondents foresaw pollution of ponds or coastal waters as a future serious problem for the Cape.

The coastal resources section of the Regional Policy Plan lays a framework for the Cape Cod Commission and towns to plan for and regulate development and redevelopment in a way that contributes to and respects the maritime character and historic development patterns of the coastal zone; protects and preserves coastal access and scenic views and vistas; protects the natural beneficial functions of coastal landforms; protects public health and safety and reduces the risk to people, property, and municipal safety personnel from storm damage and relative sea-level rise; and preserves coastal water quality and coastal ecosystems.

Inappropriate use and development of the shoreline can adversely affect the Cape's coastal zone for use and enjoyment by residents and visitors, as a livelihood, and for its natural beneficial functions. Comprehensive coastal planning and regulation of development in the coastal zone are essential to accommodate both use and preservation.

Cape Cod has 586 miles of tidal shoreline—all of it vulnerable to the forces of regular storm activity and relative sea-level rise and to the catastrophic forces of northeasters and hurricanes. The risk of damage from winds, waves, storm surge, and flooding continues to increase as the level of coastal development increases. Development continues to locate infrastructure and people in hazardous areas, adding to the Cape's already high vulnerability to storm events.

In 2004, a Geographic Information System analysis conducted by the Cape Cod Commission estimated that 43.2 percent of the Cape's year-round population resides in a SLOSH (Sea, Lake, and Overland Surges by Hurricanes) zone. The SLOSH is a computer model by the National Weather Service designed to forecast surges that could occur from wind and pressure forces of hurricanes. SLOSH/surge limits shown on community maps can be used for planning purposes to equate to potentially hazardous areas that may suffer storm surge flooding during a hurricane. This is just one available tool that should be utilized to make better decisions about where to build and how to protect existing development from severe storm events.

Harmful levels of nitrogen, stormwater runoff, and boat waste and debris—directly attributable to growth in the region—cause changes in habitat quality and quantity and contribute to poor coastal water quality that can cause the closure of shellfish-harvesting beds, the loss of eelgrass beds, and the closure of public beaches. Improvements in stormwater management and the designation of federal "No Discharge Areas" that prohibit the release of wastes from boats in coastal waters have allowed municipalities to reopen shellfish-harvesting beds and have contributed to water-quality improvements in several towns. Much work remains to be done, however, to develop and implement comprehensive management plans for coastal resource areas.

Coastal Resources Goal – CR1:
Maritime Industry, Character, and Public Access

To protect and enhance public and traditional maritime interests and the public trust rights for fishing, fowling, and navigation, to preserve and manage coastal areas so as to safeguard and perpetuate their biological, economic, historic, maritime, and aesthetic values, and to preserve, enhance, and, where appropriate, expand public access to the shoreline.

Ensuring public access, protecting access in locations needed by maritime industries, and preserving the nature of the Cape's coastal resources must be paramount considerations in any coastal development. Regulatory standards to support this goal are intended to maintain or improve public access, protect maritime industry, and preserve coastal aesthetics.

Cape Cod Commission Actions

CR1-C1. Coastal Planning Program: The Cape Cod Commission will develop a regional coastal planning program intended to provide technical assistance to advance regional interests on issues such as conflicts between use and conservation; development performance standards and best management practices for coastal resources; hazard mitigation planning and implementation of mitigation action plans; "watersheet" zoning (the equivalent of land-based zoning but in open water bodies such as the ocean); preservation of working waterfronts; and appropriately scaled structures in the coastal landscape. The Commission will collaborate with organizations such as Massachusetts Coastal Zone Management, the Woods Hole Oceanographic Institution Sea Grant Program, and the National Estuary Program's Mass Bays Program.

CR1-C2. Designation of Districts of Critical Planning Concern: The Cape Cod Commission will investigate the viability of DCPC designation(s) for maritime or historic character and

coastal aesthetics in order to help guide regulations and planning for appropriate coastal development across the Cape.

CR1-C3. Local Bylaw and Regulation Technical Assistance: The Cape Cod Commission will assist town boards and committees with the protection of coastal resources by providing technical assistance and encouraging the development of new or revised zoning bylaws and other regulations or standards.

Recommended Town Actions

CR1-T1. Working Waterfront and Harbor Management: The towns should develop and implement harbor management plans and implement zoning to protect coastal resources and to minimize conflicts for recreational and commercial uses of coastal and marine resources.

CR1-T2. Town Ways-to-Water: The towns should inventory all active and inactive town ways-to-water and develop a needs assessment for public access improvements and infrastructure.

CR1-T3. Coastal Planning Technical Assistance: The towns should assess local coastal planning needs so that they can be incorporated into the regional coastal planning program.

Coastal Resources Goal – CR2:
Coastal Hazard Mitigation

To limit development in the coastal zone, particularly high-hazard areas, in order to protect the natural beneficial functions of coastal resources so that they serve to prevent or minimize human suffering and loss of life and property or environmental damage resulting from storms, flooding, erosion, and relative sea-level rise.

Uncontrolled and unplanned shoreline development continues to increase rapidly. Local assessors' data demonstrate that the inventory of homes and other structures in coastal areas is extremely valuable to individual property owners and is a significant contributor to each town's tax base. The projected impacts of relative sea-level rise and the dangers of continuing development within coastal hazard areas must be addressed to protect the public's health, safety, and welfare. Damages to property, degradation of the natural function of coastal resources, and risk to residents and public safety personnel all increase as development continues and structures increase in size and number within FEMA-designated flood zones. Coastal banks and dunes must be allowed to erode and their sediments to be transported without interruption if beaches, dunes, and barrier beaches are to continue to exist. Only with comprehensive shoreline planning and foresight will these resources survive for future generations. Regulatory standards to support this goal are intended to regulate and prohibit development effectively in known coastal hazard areas.

Cape Cod Commission Actions

CR2-C1. Pre-Disaster Hazard Mitigation Planning: The Cape Cod Commission will continue to provide technical assistance to the towns to implement the 2004 Barnstable County Natural Hazards Pre-Disaster Mitigation (PDM) Plan. The Commission will support

implementation of FEMA-approved pre-disaster mitigation plans as needed and will continue to encourage development of local pre-disaster plans in towns without such plans. The Commission will seek collaboration with the state congressional delegation, FEMA, MEMA, the insurance industry, and others in an effort to establish mechanisms that may be used to help towns that wish to remove existing and future development from the regions' coastal floodplain.

CR2-C2. Coastal Floodplain Zoning: The Cape Cod Commission will update a model floodplain bylaw and help towns to adapt the model as a local floodplain district zoning bylaw.

CR2-C3. Coastal Hazards-based Districts of Critical Planning Concern: The Cape Cod Commission will investigate the viability of and encourage communities to consider DCPC designation(s) for coastal floodplain and hazard areas in order to help guide regulations and planning for appropriate coastal development across the Cape. The Commission will also provide other planning and coastal management techniques for new coastal development, and will help towns to adopt development performance standards to protect the natural beneficial functions of coastal resources.

Recommended Town Actions

CR2-T1. Pre-Disaster Hazard Mitigation Planning: The towns should implement and update FEMA-certified local PDM plans as needed. Towns without local PDM plans should develop them.

CR2-T2. Coastal Floodplain Management: The towns should review local standards and regulations that affect development within the coastal floodplain and adopt the Cape Cod Commission's model coastal floodplain bylaw if necessary to strengthen local zoning. The towns should consider adopting various floodplain management techniques, such as coastal erosion engineering standards, and best management practices for new coastal development. The towns should consider coastal hazards-based DCPCs and work with the Commission to nominate appropriate areas.

CR2-T3. Remove Development from the Floodplain: The towns should consider outright purchase, using Community Preservation Act funds or other grants, and other methods to remove development rights from parcels in and adjacent to coastal high-hazards areas and structures classified by FEMA as repetitive-loss properties.

Coastal Resources Goal – CR3:
Coastal Water Quality and Habitat

To maintain and improve coastal water quality in all coastal waters and to protect the health of coastal ecosystems.

Cape Cod's coastal waters, beaches, estuaries, and tidal flats are threatened by pollution, development, relative sea-level rise, and demands for increased commercial and recreational uses. The Cape Cod Commission's regulatory, planning, and technical assistance programs

help towns to protect coastal water quality and ecosystems and to guide development in order to avoid undue harm to these resources. Comprehensive coastal resources planning can lead to measures that prevent further degradation to coastal water quality and habitat. Comprehensive planning can also help communities identify ways to mitigate any damage already done. Regulatory standards to support this goal are intended to mitigate pollution sources by protecting buffers and managing septic and stormwater contamination, and to minimize negative impacts to coastal resources by upholding dock, pier, marina, and dredging standards and other measures to protect eelgrass, fish, shellfish, crustaceans, and aquaculture.

Cape Cod Commission Actions

CR3-C1. Tidal Restriction Remediation: The Cape Cod Commission will explore the feasibility of updating the Cape Cod Atlas of Tidally Restricted Salt Marshes. The atlas, published by the Commission in 2001, has helped local and state agencies to pursue remediation work for the health of salt marsh ecosystems.

CR3-C2. Coastal Resources Management Planning: The Commission's coastal planning program, as it develops under CR1-C1 above, will work toward developing a regional coastal resources management plan. Such work would investigate the use of "watersheet" zoning to help address coastal water quality and habitat preservation, to manage the location of coastal infrastructure and development, and to research and promote tools available to towns that could help them address near-shore water quality.

CR3-C3. Training for Local Boards: The Cape Cod Commission will organize training sessions about best management practices for docks and piers, coastal "No Discharge Area" designations, low-impact techniques of managing stormwater, and other available coastal resources management planning tools, such as watersheet zoning.

Recommended Town Actions

CR3-T1. Local Regulations and Performance Standards: The towns should enact additional methods to preserve coastal water quality and habitat, such as local buffer zone standards, low-impact development stormwater management standards, dock and pier regulations, and designation of federal "No Discharge Areas."

CR3-T2. Coastal Resources Management Planning: The towns should develop a long-term comprehensive Coastal Resources Management Plan that addresses, at minimum, conflicts between shellfish (and other) habitat, navigation, recreation and development; addresses dredging, dredge disposal needs, and alternatives to these activities; and analyzes beach nourishment needs.

CR3-T3. Coastal Habitat Remediation: The towns should work with their public works departments and with state agencies to develop plans to rectify tidal restrictions, repair anadromous and catadromous fish runs, and capitalize on opportunities to restore degraded coastal ecosystems if possible when local roads and infrastructure are repaired or maintained.

Wetlands (WET)

One out of every four acres on Cape Cod is wetland. These areas include red maple swamps, Atlantic white cedar swamps, bogs, fresh and salt marshes, and wet meadows. These wetland resources are important to both the environment and economy of Cape Cod. Wetlands serve important natural functions including groundwater recharge and attenuation of pollutants. They protect water quality for shellfishing and provide wildlife and fisheries habitat. They serve as an attraction for residents and visitors seeking opportunities for outdoor recreational activities, including bird watching, fishing, and recreation. In addition, wetlands and their buffers often contain archaeological resources.

The Massachusetts Wetlands Protection Act provides some protection for wetlands by regulating any work within a coastal or inland wetland resource area and any work within a 100-foot buffer zone that is likely to affect a wetland. Yet the state Wetlands Protection Act does not provide any protection for the buffer areas themselves. Wetland buffers serve important functions including stormwater mitigation, sedimentation and erosion control, nutrient removal, and groundwater recharge. Buffer areas also provide critical habitat for wildlife species that depend on wetlands and their buffers for foraging, breeding, and nesting. Studies indicate that buffers 100- to 300-feet wide are needed to protect surface water bodies from sedimentation and to maintain wildlife habitat, and even greater buffer widths (300 to 1,000 feet) are needed to remove 50 percent to 90 percent of man-made nutrients.

In the 2005 Cape Cod Residents Survey, 88 percent of respondents supported or strongly supported potential Cape Cod Commission restrictions on new development in or near wetlands, ponds, floodplains, dunes, and critical habitat areas. Wetlands protection programs at both the state and federal levels are subject to changes that are beyond the control of Cape residents. If the Cape's wetland resources are to be protected, it must be accomplished through regional policies and local bylaws and regulations.

Wetlands Goal – WET1:
Wetlands Protection

To preserve and restore the quality and quantity of inland and coastal wetlands and their buffers on Cape Cod.

This goal recognizes the irreplaceable value of natural wetlands, prohibits any further wetland degradation, and promotes the restoration of previously degraded wetlands as a means to improving overall wetland performance. Most Cape communities have passed local wetlands bylaws that regulate activities within wetlands or require setbacks for construction activities. Although these bylaws are generally stricter than the state Wetlands Protection Act, many still do not provide adequate protections, such as a minimum 100-foot undisturbed buffer. To that end, stronger wetland-buffer protections are recommended for both conservation regulations and zoning bylaws in order to promote a minimum 100-foot buffer requirement.

Cape Cod Commission Actions

WET1-C1. Local Bylaw Technical Assistance: The Cape Cod Commission will provide technical assistance to conservation commissions, boards of health, and planning boards in developing and modifying their local bylaws and ordinances to protect the Cape's valuable wetland resources.

WET1-C2. Wetland Restoration Projects: The Cape Cod Commission will continue to work with local, state, and federal agencies to encourage wetland restoration projects that enhance their ability to provide natural functions.

Recommended Town Actions

WET1-T1. Mapping of Wetlands and Vernal Pools: Wetlands and vernal pools should be identified and mapped by communities at an appropriate scale to facilitate their protection through local regulatory programs.

WET1-T2. Adoption of Local Bylaws: The towns should consider adopting local wetlands bylaws or ordinances that provide for the following:

- protection of vernal pools as well as isolated wetlands;
- policy of no alteration/replication of wetlands for all (public and private) applicants;
- expansion of jurisdiction beyond 100 feet where appropriate;
- improved enforcement authority; and
- ability to hire consultants to review applications at the applicant's expense.

WET1-T3. Remediation of Tidal Restrictions: The towns should seek ways to restore tidal flow under roads and through undersized culverts, by incorporating improvements to restricted areas into planned road and bridge work and by seeking funding and partnering opportunities with the state and affected private entities.

Wildlife and Plant Habitat (WPH)

Cape Cod hosts an unusually diverse mix of wildlife and plant communities, including many species that are rare or declining in number. Seventy-five species of plants and wildlife on Cape Cod are listed by the Massachusetts Natural Heritage and Endangered Species Program as endangered or threatened, and another 57 are "special concern" species that are declining in number or could easily become threatened. Additional species are on a "watch list" and could become listed in the future based on further review. Threatened and endangered species that are also on the US Fish and Wildlife Service federal list of threatened and endangered species include the sandplain gerardia, northern right whale, piping plover, and roseate tern.

These species depend on undisturbed and healthy habitats for their survival. For example, the Cape's woodlands provide important upland wildlife and plant habitat. Poorly planned development can harm species by fragmenting large tracts of forest and severing wildlife corridors and other ecological connections. The Cape's wetlands, vernal pools, and ponds also provide vital habitat for diverse rare and endangered species. These areas can be damaged not only by adverse impacts such as pollution and disturbance but also by groundwater withdrawals that can reduce water levels needed to support aquatic and shoreline species.

When asked about the priority of protecting critical habitat areas, 88 percent of respondents to the 2005 Cape Cod Residents Survey indicated support or strong support for potential Cape

Cod Commission regulations that restrict new developments in or near wetlands, ponds, floodplains, dunes, and critical habitat areas. Similarly, respondents to the survey demonstrated support or strong support for regulations that would ensure the clustering of development (77 percent) and the protection of land for public open space (72 percent).

Accurate information about the nature, location, and extent of sensitive resources in combination with the application of appropriate regulations can result in improved project site selection and site design. The Regional Policy Plan includes a Capewide Significant Natural Resource Area Map (as amended), based on existing natural resources and protected open space that presently provides a system of wildlife habitats and corridors across the Cape. In addition, several other maps, including the state's BioMap of critical plant and wildlife habitat and the Compact of Cape Cod Conservation Trusts' Wildlife Conservation Project, may provide guidance in selecting preferred locations for development. Maintaining wildlife corridors and large patches of existing heterogeneous habitat types would be a first step toward maintaining the viability of wildlife habitat on Cape Cod.

Wildlife and Plant Habitat Goal – WPH1:
Prevent Loss, Minimize Adverse Impact, and Maintain Diversity

To prevent loss or degradation of critical wildlife and plant habitat, to minimize the adverse impact of new development on wildlife and plant habitat, and to maintain existing populations and species diversity.

Growth management approaches are needed to reduce the amount of land converted to development and to improve the design and performance of new development to ensure protection of valuable habitat. A renewed commitment to protect the most ecologically sensitive undeveloped lands through land acquisition and other permanent conservation measures is also warranted. Restoration and better land stewardship are needed to improve areas that have already been developed.

Cape Cod Commission Actions

WPH1-C1. Contiguous Habitats: The Cape Cod Commission will work with communities through the regional open space plan, Local Comprehensive Plans, and other planning efforts to identify and protect a contiguous network of plant and wildlife habitats, sensitive or unusual natural communities, and corridors of sufficient width and dimensions to be of value as wildlife habitat and to preserve ecosystem health and diversity on Cape Cod.

WPH1-C2. Invasive Species Education: The Cape Cod Commission will work with the Cape Cod Cooperative Extension and other agencies to help educate citizens and train municipalities about the threat of invasive species to plant and wildlife habitat.

WPH1-C3. Coordinated Rare Species Review: The Cape Cod Commission will continue to coordinate with the Massachusetts Natural Heritage and Endangered Species Program on review of projects affecting rare species, and will help educate the public about the importance of rare species protection.

Recommended Town Actions

WPH1-T1. Vernal Pools: The towns should identify vernal pools for certification by the state Natural Heritage and Endangered Species Program and encourage local schools to participate in this effort.

WPH1-T2. Critical Habitat Areas: Critical plant and wildlife habitat areas should be identified in Local Comprehensive Plans, and the towns should develop a review and regulatory process at all levels of local permitting for activities that could adversely impact such habitat, including referral of projects that affect rare species habitat to the Natural Heritage and Endangered Species Program.

WPH1-T3. Land Clearing Bylaws: The towns should adopt bylaws/ordinances limiting land clearing and alteration of natural topography prior to development review.

Open Space and Recreation (OS)

Open space has helped define Cape Cod's heritage and economy. Open space, and the rural character it imparts, is one of the region's most valuable assets. Marshes, beaches, farms, and woodlands contribute directly to key industries on Cape Cod, attracting tourists and providing areas for farming and cranberry growing, hunting, fishing, and swimming. As of 2004, approximately 30 percent of the land mass of Cape Cod including federal, state, and local holdings can be considered preserved open space, although the percentage in each town varies widely.

Perhaps the most notable open space area is the Cape Cod National Seashore. This area, established through the visionary efforts of citizens and the federal government in 1961, contains more than 27,000 acres of outstanding natural, scenic, and recreational resources in six Lower Cape towns. The Commonwealth of Massachusetts also holds large areas of protected open space on Cape Cod including Nickerson State Park in Brewster, Hawksnest State Park in Harwich, Crane Wildlife Management Area in Falmouth, the Hyannis Ponds in Barnstable, and numerous other smaller parks and preserves.

Thanks in large part to the adoption of the Cape Cod Land Bank in 1999 and the Community Preservation Act in 2005 as local revenue sources for open space acquisition, Cape towns have protected more than 4,000 acres of open space. Many Cape communities have sought to protect significant natural and fragile areas and outstanding water resources, including lakes, rivers, aquifers, shore lands, and wetlands.

Private land trusts play a vital role in land protection as well. Land trusts can serve as valuable intermediaries in preserving lands through less expensive means than outright acquisition, such as donations or purchases of conservation restrictions. The success of land trusts underscores the importance of public–private partnerships for land protection.

Open Space Protection Goal – OS1:
Open Space and Natural Resources

To preserve and enhance the availability of open space that provides wildlife habitat and recreational opportunities, and protects the region's natural resources and character.

Much of the Cape's open, rural character comes not only from protected lands but also from the thousands of acres of unprotected open space that remains. These undeveloped lands are rapidly being replaced by development. Despite the substantial land holdings of federal, state, and local governments, and private land trusts, the region is nevertheless at great risk of losing the very attributes that residents value and which draw millions of tourists to its resort communities each year.

The integration of open space into the fabric of the landscape and the lives of Cape residents will define the Cape's future. To preserve the opportunity for solitude, large blocks of remaining land need to be protected. Fragments of open space that serve only as buffers between developments are not enough.

Meeting this Regional Policy Plan goal will ensure that open space, largely in its natural form, remains the dominant feature of the Cape landscape. Most importantly, the protection of open space will require a continued partnership between all levels of government and private organizations in order to ensure the necessary financial resources are available to meet this target.

Cape Cod Commission Actions

OS1-C1. Regional Open Space Plan: The Cape Cod Commission will complete the draft regional open space plan and utilize the plan to identify and protect the most sensitive resource areas.

OS1-C2. Protection of Significant Areas: The Cape Cod Commission will continue to work cooperatively with towns, local land trusts, and state and federal agencies to protect significant natural and fragile areas and to promote undevelopment in these areas. High priority will be given to the following areas:

- zones of contribution to public water supply wells;
- recharge areas to nitrogen-sensitive marine embayments;
- potential public water supply areas;
- rare species habitat and other critical habitats and natural communities, including the state's BioMap and Living Waters map; and
- unfragmented forest habitat adjacent to previously protected open space.

OS1-C3. Transfer of Development Rights Program: The Cape Cod Commission will investigate the viability of transfer of development rights (TDR) programs for the Cape to ensure protection of the most sensitive resources, as an incentive for protecting working agricultural lands, and to provide contiguous open space. The Commission will provide training to municipalities on the mechanics of TDR, as necessary.

Recommended Town Actions

OS1-T1. High-priority Areas: The towns should actively seek to protect high-priority areas that have been identified by the Commission and town boards as Significant Natural Resource Areas. The towns are encouraged to preserve sensitive resources through local bylaws and regulations including downzoning, mandatory clustering, increased lot sizes, and overlay districts. However, not all residential districts will be appropriate for increased lot sizes. Towns may develop bonus provisions through their local bylaws to allow increased density in designated Villages and Economic Centers to preserve high-quality open space in more environmentally sensitive areas.

OS1-T2. Land Conservation Organizations: The towns should work with local land conservation organizations to identify, acquire by fee simple or conservation restriction, and manage open space to meet projected community needs. Priority should be given to the protection of significant natural and fragile areas as identified on the Cape Cod Significant Natural Resource Areas map or as described in Minimum Performance Standard (MPS) OS1.4.

OS1-T3. Tax-title Lands: The towns should investigate acquisition of tax title lands with high natural resource values for open space preservation. Environmentally sensitive properties should be placed under the care and control of the conservation commission or other appropriate board.

Recreation Goal – OS2:
Passive/Active Recreation

To preserve and enhance opportunities for passive and active recreation to meet the needs of both residents and visitors.

Outdoor recreation is one of the great amenities that visitors and residents of Cape Cod value alike. Our ponds, lakes, harbors, and estuaries support fishing, shellfishing, boating and swimming, while our beaches, heathlands, and wooded uplands allow walking, hiking, and birdwatching. In addition to these activities, Cape communities have an ever-increasing need to provide recreational facilities such as community centers, ballfields, parks, and playgrounds to meet the needs of an expanding year-round population. Opportunities to enjoy these resources actively continue to draw new residents and visitors to Cape Cod. Keeping the natural resources pristine, siting facilities carefully, providing adequate access, and managing use are ongoing challenges that will define how residents and visitors experience our recreational resources, and to a large extent, the health of our economy.

Cape Cod Commission Actions

OS2-C1. Recreational Facility Siting: The Cape Cod Commission will assist towns in finding appropriate sites for public regional recreational facilities to ensure protection of sensitive natural resources. The Cape Cod Commission will also encourage the location of public recreational facilities in village center areas when appropriate.

OS2-C2. Cape Cod Pathways: The Cape Cod Commission will continue to promote the Cape Cod Pathways program and to provide technical assistance to communities seeking to expand the Pathways network of walking trails.

Recommended Town Actions

OS2-T1. Local Pathways Committees: The towns should consider forming a Pathways committee to investigate, promote, and create walking trail linkages throughout conservation lands. The town Pathways committee should work toward the specific regional goal of creating a linked network of walking trails from one end of Cape Cod to the other.

OS2-T2. Public Access: To the extent feasible, towns should maintain and protect public access for recreation to both freshwater and saltwater bodies. Possible projects could include identifying existing underused public ways to water, and improving access.

Human/Built Systems

Transportation (TR)

Transportation is the movement of people and freight to, from, and around Cape Cod. Transportation involves many aspects of everyday life that affects most, if not all, people either living on or visiting Cape Cod. Respondents to the 2005 Cape Cod Residents Survey identified traffic congestion as a serious or moderate problem for their town (92 percent) and for the Cape as a whole (98 percent).

Maintaining an adequate transportation system is necessary for quality of life, economic vitality, and public safety. It is an important part of the Cape's infrastructure, providing a link between housing, jobs, and shopping areas. Conversely, an inadequate system deters visitors and frustrates residents.

The Cape's transportation system should also respect the region's natural and historic resources. There are obvious visual impacts when trees are removed and the landscape is permanently altered to accommodate road and intersection widening. Additional pavement also increases stormwater runoff that can negatively impact drinking water supplies and lead to pollution of the Cape's ponds and bays.

The Regional Policy Plan is one document that addresses the transportation needs of the people of Cape Cod. The Regional Policy Plan proposes a strategy that will maintain and improve a transportation system on Cape Cod for present and future year-round and seasonal needs that is safe, convenient, accessible, cost effective, and consistent with the Cape's historic, scenic, and natural resources.

In addition to the RPP, Cape Cod Commission members and staff are involved in many aspects of transportation planning through the Cape Cod Metropolitan Planning Organization (MPO). The MPO is a regional body made up of state, regional, and local officials that directs, oversees, and approves regional transportation plans and studies, and makes regional federal transportation funding decisions. The MPO produces an annual Unified Planning Work Program (UPWP), which includes a number of short- and long-range transportation planning

studies that are prepared by Commission staff. More information on the MPO, the Regional Transportation Plan, and the UPWP can be found on the web at www.capecodcommission.org.

The Cape Cod Regional Transit Authority (CCRTA) is a public entity providing transit service on Cape Cod. Cape Cod Commission transportation staff provides technical assistance to the CCRTA as part of the Commission's planning efforts. In addition, the regulatory section of the RPP provides incentives for locating projects along existing CCRTA transit routes and for offering assistance to employees and patrons to use the CCRTA transit service.

The Regional Policy Plan transportation planning efforts can be divided into three distinct categories: transportation safety, high-occupancy vehicles/alternative modes of travel, and the movement of people by passenger vehicles. The transportation planning goals of the Regional Policy Plan are based on these issues. Safety is of paramount importance. It is unacceptable for the safety of residents or visitors to be compromised. Secondly, the RPP encourages a balanced and efficient transportation system that considers all modes of transportation including air, transit, ferries, rail, walking, and bicycling. While maintaining the unique character of Cape Cod, roadway capacity projects (road widening, traffic signals, etc.) are sometimes necessary to address congestion. Roadway improvement projects should be designed to complement historic and scenic areas or areas with sensitive natural resources.

Transportation Goal – TR1:
Safety

To improve safety and eliminate hazards for all users of Cape Cod's transportation system.

Safety for all users of the transportation system is the most important transportation goal. Safety applies not only to motor vehicle operators and passengers but also to walkers, bicyclists, and bystanders. Through its planning process, the Cape Cod Commission transportation staff works closely with the 15 Cape Cod towns, the Massachusetts Highway Department, the Metropolitan Planning Organization, and other state and federal agencies to identify safety issues and advance safety improvements. Through the Commission's regulatory process, Developments of Regional Impact are required to identify and implement mitigation at locations where project traffic is expected to degrade transportation safety. Finally, the towns should make transportation safety a cornerstone of the local review process. Developing and adhering to the proper principles of access management and sight distance when considering driveway location is essential. In addition, the construction of sidewalks and bikeways (shoulders, bike lanes, or separate paths) should be considered in any development review or any road improvement project.

Cape Cod Commission Actions

TR1-C1. Identification of Safety Problems: The Cape Cod Commission will continue to identify safety problems and advance solutions to improve transportation safety. The Cape Cod Commission, through the MPO planning process, annually identifies three high-crash locations and proposes improvements to address the safety concerns. The Cape Cod Commission will continue to provide technical assistance to any town to help address transportation safety concerns.

TR1-C2 Transit, Walking, and Bicycling Amenities: The Cape Cod Commission will work with the towns, the Massachusetts Highway Department, and the Cape Cod Regional Transit Authority (CCRTA) to improve safety for walkers, bicycle riders, and transit riders. This will include crosswalks, sidewalks, bike lanes, bike paths, crosswalks at major transit stops, bus turnouts, safe waiting areas, and signage.

TR1-C3. Access Management: The Cape Cod Commission will work with the towns and the state to improve access management and to minimize new driveways and traffic conflict points (locations where vehicle paths cross) to improve safety.

Recommended Town Actions

TR1-T1. Local Access Management: The towns should adopt access management bylaws and related driveway standards.

TR1-T2. Walking and Bike Paths: The towns should consider the needs of pedestrians and bicyclists as part of the review of any development or road improvement project.

TR1-T3. Crash Data Reports: The towns should provide crash data to the Cape Cod Commission on a regular basis.

Transportation Goal – TR2:
Traffic Reduction/Transportation Balance and Efficiency

To reduce and/or offset the expected increase in motor vehicle trips on public roadways, reduce dependency on automobiles, and reduce air and noise pollution. To promote a balanced and efficient transportation system that includes alternatives to automobile travel.

Eighty percent of respondents to the 2005 Cape Cod Residents Survey cited the availability of public transportation as a serious or moderate problem for their town; 84 percent cited it as a serious or moderate problem for the entire Cape. Providing more bus, rail, and ferry service, better opportunities to bicycle between areas, and more walkable communities are firmly supported by the survey responses. At the regional level, the Cape Cod Commission works with the state, regional agencies (such as the Cape Cod Regional Transit Authority and the Steamship Authority), and towns to provide better bus and ferry services, expand the bicycle path network, and improve the ability of pedestrians to walk safely. Although automobiles are likely to remain the travel mode of choice on Cape Cod for the foreseeable future, it is important to offer alternative modes of travel. The Cape Cod Commission, various state and regional organizations, the towns, and developers all have roles and responsibilities in advancing alternatives to automobile travel.

Cape Cod Commission Actions

TR2-C1. Cooperation and Coordination: The Cape Cod Commission will continue to serve as a member of and staff to the Cape Cod Metropolitan Planning Organization (MPO) and the Cape Cod Joint Transportation Committee (JTC). In this role, the Cape Cod Commission shall assist in the planning and development of improved transportation services to, from, and within

the region and promote cooperation and coordination of services among the various transportation agencies that have a responsibility for the Cape's transportation system.

TR2-C2. Expansion of Alternative Services: The Cape Cod Commission will work with transportation providers and agencies to expand the viability of sidewalks, bikepaths, carpooling, bus service, rail service, and other forms of non-automobile transportation. Efforts will include the advancement of real-time information systems to provide travelers with up-to-date information on bus, ferry, and other forms of transportation.

TR2-C3. Development Strategies: The Cape Cod Commission will continue to ensure that Developments of Regional Impact identify and implement strategies to provide alternatives to single-occupant vehicle automobile travel.

Recommended Town Actions

TR2-T1. Local Parking Requirements: The towns should evaluate parking bylaws and not allow parking in excess of minimal requirements under local zoning, except in well-documented circumstances. Towns should institute more flexible parking requirements such as allowing shared parking lots, reducing the number of spaces required per development, requiring secure bicycle parking in shopping and business districts, allowing reserve parking strategies and, where safety permits, encouraging curbside parking in village centers in order to slow traffic and buffer pedestrians.

TR2-T2. Alternative Modes in Bylaws and Capital Plans: The towns should include transit, pedestrian, and bicycle-oriented requirements in zoning bylaws and capital outlay plans.

TR2-T3 Human Service Coordination: Towns should encourage their Councils on Aging and other human service agencies to coordinate human service transportation. This coordination should not be limited to town-supported services but should include other towns and regional service providers.

Transportation Goal – TR3:
Level of Service

To maintain or improve travel times and Level of Service on roads and intersections and to ensure that all road and intersection construction or modifications are consistent with community character, historic resources, and scenic resources.

Respondents to the 2005 Cape Cod Residents Survey ranked traffic congestion as the biggest problem among 20 issue areas for their town and for the Cape as a whole at the time of the survey (92 percent and 98 percent, respectively), as well as five years into the future (91 percent and 94 percent, respectively). Traffic volumes have doubled on many Cape Cod roads over the last 10 to 20 years. Indeed, the summer volumes many residents and visitors found so frustrating 20 years ago are the average year-round traffic volumes of today.

Fundamentally, it is important to match land use with the available transportation infrastructure. Proposed transportation infrastructure projects are outlined in the Regional Transportation Plan. Maintaining capacity of roadways can be accomplished by allowing

denser development in Economic Centers identified on the Regional Land Use Vision Map and reducing development potential in Resource Protection Areas or other areas less suited for additional development. Next, in reviewing Developments of Regional Impact, the Cape Cod Commission should first consider low-impact mitigation that does not require infrastructure changes. Access-management techniques such as driveway location, spacing, turn restrictions, and connections with adjacent parcels are initial low-cost ways to mitigate adverse traffic impacts. Road and intersection widening should be considered as mitigation for Developments of Regional Impact only in situations where there is a year-round, not just seasonal, need and only in locations where community character, scenic, historic, or natural resources will not be adversely affected.

Cape Cod Commission Actions

TR3-C1. Funding: The Cape Cod Commission will continue to work as a member of Cape Cod's Metropolitan Planning Organization to use available state and federal funding programs and to identify sources of funding for transportation initiatives that are consistent with the Regional Policy Plan and the Regional Transportation Plan.

TR3-C2. Regional Development Standards: The Cape Cod Commission will develop policies and implement review standards that strive to match the traffic intensity of development with the capacity of the transportation system, consistent with community character, scenic, historic, and natural resources.

TR3-C3. Real-time Travel Information: The Cape Cod Commission will work with appropriate agencies and organizations to develop real-time information system to provide travelers with information on road conditions, including congestion, crashes, weather, and travel delays.

Recommended Town Actions

TR3-T1. Local Traffic Thresholds: The towns should incorporate thresholds for review of traffic impacts of proposed projects within their zoning or site plan review bylaws. The towns should establish a traffic-impact assessment and mitigation program to identify and mitigate adverse impacts of new development and redevelopment on the transportation system. Transportation mitigation should be consistent with the Regional Policy Plan, the Local Comprehensive Plan, and the Cape Cod Regional Transportation Plan.

TR3-T2. Transportation Capacity: The towns should adopt zoning bylaws to ensure that future levels of development are consistent with the capacity of the local transportation system. Future development should be targeted in areas where alternative modes of travel (walking, bicycling, transit service) already exist.

TR3-T3. Shared Parking and Access Management: The towns should adopt bylaws that encourage shared parking, shared driveways, and connections between adjacent businesses, consistent with the Cape Cod Commission Model Access Management Bylaw.

Waste Management (WM)

Municipal solid waste (MSW) includes garbage and refuse generated in homes, offices, and industries, leaf and yard wastes, and construction and demolition (C&D) debris. This Regional Policy Plan sets forth a vision of managing solid wastes in a cost-effective and environmentally responsible way. This means first reducing, at the source of production or purchase, the total amount of solid waste created. For organic wastes such as food or yard waste, the plan promotes composting. Collection and marketing of recyclables are regarded as an essential element in reducing the waste stream. Incineration of wastes should be used only when all of the previously mentioned options have been exhausted. The highest priority should be for waste reduction and composting.

Like other regions of New England, Cape Cod faces the challenge of managing its solid and hazardous wastes in an environmentally sound manner. Thousands of households and businesses dispose of small quantities of hazardous materials and/or wastes at the SEMASS waste-incineration facility in Rochester, Massachusetts, or pour hazardous materials or wastes down the drain to septic systems and sewage treatment plants. Environmental regulations require increasingly sophisticated waste management strategies and administrative arrangements to ensure compliance. Cape Cod citizens support efforts to protect the environment from the adverse impacts of solid waste collection, transport, and disposal. Nine out of 10 respondents to the 2005 Cape Cod Residents Survey called "protecting the Cape's drinking water supply" a high priority, while the regulation most supported by respondents was one that "prohibits storage or use or hazardous materials or waste near public water supplies."

Waste Management Goal – WM1:
Hazardous Materials and Waste Management

To protect Cape Cod's water resources by prohibiting activities that contaminate the water supply, and to support actions by households and businesses that promote the handling, storage, and disposal of hazardous materials and wastes in an environmentally sound manner.

The Cape Cod Commission promotes the protection of the Cape's drinking water supply. In cooperation with the Cape Cod Cooperative Extension and local household hazardous waste management programs, the Commission works to educate consumers and businesses about buying, using, and disposing of hazardous materials and wastes.

Cape Cod Commission Actions

WM1-C1. Hazardous Waste Education: The Cape Cod Commission will work to educate and assist residents, businesses, institutions, and governments to reduce hazardous materials and wastes.

WM1-C2. Hazardous Waste Policy: The Cape Cod Commission will assist the state with its development of hazardous waste policies and regulations by participating on advisory committees to the Massachusetts Department of Environmental Protection.

WM1-C3. Hazardous Waste Collection and Reporting: The Cape Cod Commission will assist towns with bid processes, coordination, data collection, and development of educational materials for household hazardous waste collection programs.

Recommended Town Actions

WM1-T1. Hazardous Waste Bylaw: The towns should adopt a toxic and hazardous materials bylaw or regulation, using the Cape Cod Commission's model bylaw or similar regulations.

WM1-T2. Hazardous Waste Collection: The towns should hold periodic household hazardous waste collection events and establish other programs at transfer stations to manage other hazardous wastes such as mercury-containing wastes, fluorescent bulbs, antifreeze, and waste oil.

WM1-T3. Hazardous Waste Emergency Response Plan: The towns should develop and maintain an emergency response plan for spills of hazardous materials during transit.

Waste Management Goal – WM2:
Solid Waste Management

To manage solid waste using an integrated solid waste management system that includes waste reduction, recycling, and composting, and to divert 60 percent of municipal solid waste from incinerator and landfill facilities through recycling and composting programs by 2012.

Communities are seeking economical and innovative ways to manage municipal solid waste properly. On Cape Cod, these trends are clearly demonstrated by:

- an emphasis on increasing the percentage of household waste that is recycled and on expanding markets for recyclables;
- waste-to-energy facilities with advanced air-pollution control technologies; and
- a trend towards regionalization of waste management.

Cape residents strongly support recycling efforts. Every town on Cape Cod has a recycling program, and six towns have mandatory recycling bylaws. In 2006, residential recycling rates here varied by town from 15 to 50 percent, with the Cape-wide average being approximately 30 percent. To increase recycling rates, the Regional Policy Plan recommends regional efforts in cooperation with realtors, tourism businesses, and chambers of commerce to encourage recycling by tourists and seasonal residents, with a goal of achieving a Cape-wide recycling rate of 60 percent by 2012.

In 1985, 14 Cape Cod towns signed 30-year contracts with SEMASS. With the current contracts due to expire by 2015, renegotiation of disposal contracts should be a priority for Cape communities. If Cape towns work cooperatively to manage solid waste as a region, they will gain economies of scale and greater bargaining power. Partnerships between all Cape towns and Barnstable County will help the region to manage solid wastes in a safe, cost-effective manner.

Cape Cod Commission Actions

WM2-C1. Solid Waste Financing: The Cape Cod Commission will assist towns, at their request, in adopting full-cost accounting methods in solid waste management to demonstrate the financial benefits of adopting a pay-as-you-throw solid waste disposal program.

WM2-C2. Solid Waste Disposal: The Cape Cod Commission will monitor SEMASS contractual issues through participation in the Council of SEMASS Communities. The Commission will also research long-term alternatives to SEMASS waste-incineration services for solid waste disposal.

WM2-C3. Recycling: The Cape Cod Commission will, at a town's request, prepare a model agreement between a town and private waste and recycling haulers for the mandatory collection and transport of recyclables.

Recommended Town Actions:

WM2-T1. Solid Waste Financing: The towns should adopt accounting methods that reflect all capital costs and operational expenses of municipal recycling and waste disposal services.

WM2-T2. Integrated Waste Management: The towns should develop an integrated system of waste management that involves recycling, composting, incineration, and landfilling for dealing with municipal solid waste, bio-solids, and construction and demolition materials.

Energy (E)

The United States' dependence on fossil fuels has a variety of adverse environmental, economic, and social impacts, and contributes to worldwide greenhouse gas emissions and global climate change. Continued reliance on this resource leaves the Cape's economy vulnerable to global market forces. Energy conservation, energy efficiency, and the use of the Cape's abundant clean renewable energy resources are ways to reduce greenhouse gas emissions, manage energy costs, and decrease reliance on fossil fuel imports for homeowners and businesses. Harnessing these resources in conjunction with energy efficiency and conservation practices will help create a stable, sustainable energy future for Cape Cod.

Energy efficiency and conservation represent the most cost-effective ways to reduce greenhouse gas emissions and stabilize energy costs. The federal government's ENERGY STAR® program reports that Americans using ENERGY STAR® equipment and practices saved enough energy in 2005 to avoid greenhouse gas emissions equivalent to those from 23 million cars—while saving $12 billion on their utility bills. The efficiency measures installed over the three-year planning period of the Cape Light Compact's Energy Efficiency Plan Phase III: 2005–2007 are expected to save roughly 29 Megawatts per hour per year for the Cape and Islands. The cumulative annual efficiency savings could substantially reduce emissions of carbon dioxide (CO2), sulfur dioxide (SO2), nitrogen dioxide (NO2), fine particulates, mercury, and other harmful chemicals, as well as the monthly energy bill for Cape consumers. Fuel savings attributable to the conservation-incentive programs of National Grid (formerly called KeySpan Energy Delivery) and other local initiatives could have similar benefits.

Cape Cod's natural conditions and geography offer real opportunities for the production of clean renewable energy. Reliance on local solar, wind, wave, tidal, geothermal, and bio-energy resources may reduce emissions from on-Cape energy providers, provide a buffer against the fluctuations in supplies and prices in fossil-fuel energy markets, and keep more money in the local economy. Increased use of renewable energy technologies along with a well-trained workforce of local installers and service contractors for conservation, efficiency, and renewable energy systems could help establish an emerging clean-energy cluster as an important component of the regional economy.

Rising energy costs have direct and indirect economic implications, such as increasing the costs of running a business and a household. The large number of older homes in the Cape's housing stock, many of which do not meet current state and national energy code standards, incur even greater energy costs. Beyond price, however, Cape Cod's economy could also suffer if pollution, sea-level rise, storm damage, erosion, and flooding reduce the region's attractiveness as a second home and tourist destination. As an example, the near-complete withdrawal of private homeowner insurance companies from the Cape market has already increased the cost and risk of holding property here.

Building standards should require buildings to be located and designed for higher energy efficiency. In addition, compact mixed-use development within walking distance of village centers, which reduces the need for private automobile trips and makes the use of alternate transportation modes such as transit, walking, and bicycling more viable, should be encouraged. Appropriate building design standards may also expand opportunities for the cost-effective use of distributed energy systems designed to meet localized needs for electricity and/or heating fuel.

Finally, Cape Cod is vulnerable to the effects of global climate change, including relative sea-level rise and extreme weather events. To avert these growing concerns, the Cape Cod Commission will take a leadership role in advancing a comprehensive regional energy policy for Cape Cod. The Commission, in coordination with the Cape Light Compact's mission and energy programs, will assist towns that seek funding from local, state, federal, and regional agencies to implement and evaluate local energy initiatives. The Commission will require the provision of renewable energy generation in its regulatory review of Developments of Regional Impact (DRIs), and will collaborate with local builders and stakeholders to use building technologies and standards that maximize energy efficiency while maintaining Cape Cod's unique character. The Commission will assist Cape towns in developing local energy policies and with siting renewable energy installations, as needed. Finally, the Commission will work with regional agencies and towns to leverage benefits of the Green Communities Act.

Energy Goal – E1:
Emissions and Energy Use

To promote a sustainable economic, natural, built, and social environment by reducing greenhouse gas emissions and energy consumption through design and construction practices that increase energy conservation, promote energy efficiency, and promote self sufficiency through the use of locally distributed renewable energy.

Cape Cod Commission Actions

E1-C1. Regional Collaboration on "Green" Building Standards: The Cape Cod Commission will collaborate with other regional agencies and stakeholders to lead the effort to develop "green" building practices for Cape Cod that promote energy efficiency, energy conservation, resource protection, and locally distributed renewable energy production.

E1-C2. Consumer and Business Education: The Cape Cod Commission will participate in the programs of the Cape Light Compact and other regional entities to educate residents, institutions, and businesses about measures they can adopt to reduce emissions through greater energy efficiency, self sufficiency, energy conservation, and use of alternative fuels.

E1-C3. The Green Communities Act: The Cape Cod Commission will collaborate with other regional agencies and towns to take full advantage of the provisions of the Green Communities Act.

Recommended Town Actions

E1-T1. Sustainable Practices for Municipal Facilities: The towns should consider adopting sustainable management practices for town facilities and departments such as conducting a baseline emissions inventory and developing a local energy action plan; participating in the Cape Cod Renewable Fuels Partnership; updating fleets with fuel-efficient vehicles; adopting "green" building standards for municipal projects; adopting ENERGY STAR® standards for municipal projects; and using clean renewable energy such as wind, solar, geothermal, biomass, and tidal. Towns should actively encourage businesses, institutions, and homeowners to follow similar practices such as they have modeled.

E1-T2. Policies to Reduce Vehicle Use: The towns should help to reduce greenhouse gas emissions through adoption of both land use and municipal policies that reduce vehicular travel, address vehicle miles traveled (VMT), encourage energy conservation (such as "no idling" public awareness efforts that encourage drivers to turn off their vehicles' engines when parked), and use infrastructure more efficiently.

E1-T3. Participation in Energy Efficiency Programs: The towns should fully participate in the Cape Light Compact's programs to reduce energy consumption, such as the Community Choice Power Supply Program, the Energy Efficiency Program, and the Distributed Generation Program.

Affordable Housing (AH)

Affordable housing generally is defined as dwelling units that are deed restricted for households at or below 80 percent of the county median income and with a housing cost of no more than 30 percent of the household's gross income.

Despite the decline in the real estate market in the last two years, the housing needs reported in the 2002 Regional Policy Plan have deepened and become more acute. The 2005 HUD Consolidated Five-year Housing Plan recognized that, although the housing crisis in the region has affected households over a wide range of incomes, very low income households, renters, homeless individuals and families, and special needs populations are particularly at risk. The 2007 housing wage—the wage a household needs to afford a two-bedroom rental unit at the

fair market rent—is over $22 per hour, as compared to the average Cape hourly wage of $17.25 per hour. Therefore, the Five-year Plan identified rental housing as the region's top affordable housing priority.

Since 2000 the median value of single-family homes appreciated nearly 200 percent, while the median family income increased 50 percent. The "affordability gap"—the difference between housing costs and the proportion of one's income that can be reasonably allocated to pay for housing—has become much more severe for renters and home buyers alike. An income of about $100,000 is now needed to purchase the median-priced single-family home in the region. Middle income (80–120 percent of area median income) and low income (under 80 percent of area median income) households are affected. Despite the addition of more than 1,350 affordable units to the region's subsidized housing inventory since the end of 2001, only 5 percent of Cape Cod's year-round units are affordable to low-income households. More than 5,000 affordable units are needed to reach the 10-percent statewide and regional goal.

The Barnstable County Nexus Study conducted for the Cape Cod Commission in 2005 confirmed that the creation of affordable housing is extremely challenging on Cape Cod, which has lower average wages and higher housing costs than state averages. In a region dominated by lower-wage service sector and tourism-related employment, it is critical to have a sufficient amount of housing that is affordable in order to attract and retain a diverse workforce. Without an adequate supply of affordable housing, Cape Cod's employers would need to import a significant share of the year-round workforce from outside the region, and the social and economic diversity that has helped to sustain the Cape's character and attractiveness to visitors would be reduced.

High housing costs result from the increased demand for second and/or retirement homes and from local zoning and other regulatory policies. The fastest-growing segment of the Cape's population in the last decade was the 45–59 age group. This group and baby boomers in general will continue to play a significant role in the region's housing market. One third of the Cape's housing stock is used for seasonal purposes. With an average income nearly double that of the region's, second home owners can compete for the existing housing stock and drive housing prices higher overall.

In an effort to control growth and to protect the region's groundwater, most Cape communities over the last 20-plus years have adopted large-lot zoning bylaws. The combination of escalated land prices and this type of zoning has rendered the creation of affordable housing nearly impossible without some sort of relief from limits on development density. More than 87 percent of the newly constructed affordable housing units created in the region over the last six years has been permitted with higher density under the Chapter 40B comprehensive permit process.

To create the 5,000-plus affordable units that are needed to achieve the 10-percent regional goal by 2015, progress must be made in all of the following areas: (1) significant local zoning changes that promote affordable housing and allow the density that makes affordable housing creation financially feasible; (2) enhanced wastewater infrastructure that no longer relies on individual Title 5 systems; and (3) increased resources—both public and private—devoted to affordable housing. Significant citizen support and political will are needed to make progress on all of these fronts.

Affordable Housing Goal – AH1:
Promotion and Creation of Affordable Housing

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. At a minimum, each town should seek to raise its affordable housing stock to 7.5 percent of all year-round units by 2010, and 10 percent of all year-round units by 2015.

The Cape Cod Commission has had a positive effect on affordable housing through its administration of the federal HOME Program and the state's Soft Second Loan Program, attracting more than $12 million in state and federal resources to the region. To help Cape communities achieve their 10-percent goal and to support other efforts to create new affordable housing, the Commission will continue to administer these programs and to promote effective affordable housing strategies. Based on the findings of the 2005 Nexus Study, the Commission, through its regional regulatory authority, will also require developers to mitigate the adverse impacts of their commercial projects on affordable housing and will continue to require 10-percent affordable housing of all residential developments under its review. The Commission will encourage affordable housing development within designated Economic Centers, Villages, or other areas that have infrastructure to accommodate the increased densities necessary for affordable housing to be feasible.

Cape Cod Commission Actions

AH1-C1. Regional Housing Programs: The Cape Cod Commission will continue to administer the Barnstable County HOME Consortium and the Soft Second Loan Program (SSLP), determining the annual allocation of HOME Program funds, submitting annual action plans, renewing cooperative agreements, updating the HUD Consolidated Plan, and pursuing additional funds for the SSLP.

AH1-C2. Advisory Role in Chapter 40B Reviews: The Cape Cod Commission will continue to comment on and provide technical assistance on Chapter 40B permit applications submitted to local zoning boards of appeal (ZBAs).

AH1-C3. Fair Housing Plan: The Cape Cod Commission will update the region's Fair Housing Plan that will include action items to address any impediments to fair housing that exist in the region.

Recommended Town Actions

AH1-T1. Local Bylaws and Incentives: The towns should consider adopting zoning bylaws to foster the development of affordable housing; for example, inclusionary zoning; affordable accessory dwelling bylaws; motel or other commercial-to-residential conversion bylaws with affordability requirements; Chapter 40R or comparable affordable housing overlay districts; and zoning that provides for mixed-use development. The towns should also consider exempting affordable housing from any growth caps, giving priority to a specific number of building permits for affordable housing, and adopting other policies that provide incentives for the creation of affordable housing. Finally, towns should focus affordable housing efforts

within designated Economic Centers, Villages, or other areas that have infrastructure to accommodate the increased densities necessary for affordable housing to be feasible.

AH1-T2. Use of Town-owned Land: The towns should continue to donate or lease appropriate parcels of town-owned land for affordable housing.

AH1-T3. Use of CPA Funds: The towns should strive to allocate at least one third of their Community Preservation Act (CPA) funds for affordable housing.

Affordable Housing Goal – AH2:
Fair Housing/Equal Opportunity

To promote equal opportunity in housing and give special consideration to meeting the housing needs of the most vulnerable segments of the Cape's population, including but not limited to homeless individuals and families, very low income (50 percent of median income), low income (51–80 percent of median income), single heads of household, racial minorities, and others with special needs.

The 2005 HUD Consolidated Five-year Housing Plan recognized that, although the housing crisis in the region has affected households over a wide range of incomes, very low income households, renters, homeless individuals and families, and special needs populations are particularly at risk. To address the needs of the most at-risk households, the Cape Cod Commission will continue to give priority in its HOME development project funding decisions to applications that propose to serve these populations. The Commission will also continue its active participation in the region's efforts to end homelessness.

Cape Cod Commission Actions

AH2-C1. Participation on Homelessness Council: The Cape Cod Commission will continue to play an active role in the Leadership Council to End Homelessness on the Cape & Islands and in its efforts to secure annually at least $1 million in HUD McKinney funding for the region.

AH2-C2. Promotion of Construction Accessibility Standards: The Cape Cod Commission will promote the use of "visitability" standards in the construction of affordable and market-rate housing. These standards ensure that the entries, door widths, and bathrooms on first floors are all accessible to persons in wheelchairs.

AH2-C3. Fair Housing Plan: The Cape Cod Commission will update the region's Fair Housing Plan that will include action items to address any impediments to fair housing that exist in the region.

Recommended Town Actions

AH2-T1. Local Action Plans: Within their housing action plans, the towns should include action items related to homelessness and people with disabilities.

AH2-T2. Support for Local Homelessness Prevention: The towns should provide resources to organizations engaged in homelessness prevention and/or provide resources toward the creation of permanent housing for homeless individuals or families.

AH2-T3. Local Construction Accessibility Standards: The towns should encourage developers of affordable housing to construct units that are "visitable."

Affordable Housing Goal – AH3:
Community Participation

To promote the participation of all segments of the community to address the housing needs of Cape Cod residents, with particular attention to the needs of low- and moderate-income households.

Respondents to the 2005 Cape Cod Residents Survey considered the availability of moderate and lower-priced housing to be a serious or moderate problem for their own towns (87 percent) and for the Cape as a whole (89 percent). In addition, results from the 2006 Housing Poll conducted by the University of Massachusetts Donahue Institute and the statewide Citizens Housing and Planning Association indicated that respondents considered Cape Cod to be threatened with the loss of its fabric, sustainability, and economic diversity unless dramatic progress is made in creating significant amounts of affordable housing. To support and build public awareness, the Cape Cod Commission will continue to provide current information on affordable housing needs, successes, and best practices through technical assistance, workshops, regional studies, and its web site.

Cape Cod Commission Actions

AH3-C1. Assistance for Local Housing Plans: The Cape Cod Commission will assist towns in developing their action plans and will assist, when requested, in the implementation of those plans. The Commission will promote sharing of implementation functions of those action items common to neighboring communities.

AH3-C2. Information Sharing: The Cape Cod Commission will convene information/training workshops about affordable housing issues and best practices for local housing committees and other local boards at least once a year and will attend at least one meeting a year of active local housing partnerships/committees/trusts.

AH3-C3. Public Information: The Cape Cod Commission will provide the public with information on affordable housing and will update its housing web site to make it a more timely and substantive resource for the region. The site will include a best practices component that describes effective, innovative affordable housing strategies.

Recommended Town Actions

AH3-T1. Local Awareness and Action: Local affordable housing committees, local housing partnerships, and comparable agencies should develop housing policies and annual action plans for adoption by their elected leadership, review and comment on affordable housing proposals,

advocate for specific local actions, and educate the public about affordable housing needs and solutions.

AH3-T2. Needs Assessments and Action Plans: The towns should develop local housing needs assessments and housing action plans that are updated at least every five years. Housing plans should meet the standards for the state's Housing Production program.

AH3-T3. Site Selection and Coordination: The towns should continue to inventory public and private land suitable for the development of affordable housing and to coordinate with local housing and open space committees to develop opportunities for joint housing and conservation projects. At a minimum, local housing and environmental advocates should be involved in the site-selection process.

Heritage Preservation and Community Character (HPCC)

Cape Cod's character is defined by its villages, structures, and landscapes. The built environment on this peninsula is a reflection of the region's history, illustrating its agricultural beginnings, its maritime industrial successes, and its growing popularity as a resort. This history is expressed in the region's traditional development pattern of densely developed village centers surrounded by more sparsely developed outlying areas. It is also expressed in the region's distinctive vernacular architecture of generally modest, pedestrian-scaled buildings that respect the natural environment and use locally available natural materials. The buildings, neighborhoods, working waterfronts, and cultural landscapes that tell the Cape's story are both historically significant and critical to maintaining the unique character that draws so many people to the region.

Protecting the Cape's historic resources from demolition and guiding the design of new development to follow existing regional patterns will preserve Cape Cod's history and character for generations to come. The challenge is to limit commercial development that is out of scale with the existing surroundings and to limit residential development that demolishes significant historic buildings and cultural landscapes. Development in previously open agricultural and woodland areas should be discouraged. The focus instead should be to retain and revitalize the region's traditional village centers. These efforts can work hand-in-hand with other growth management goals to guide development density in locations with adequate infrastructure, to protect important open spaces in the region, and to support Cape Cod's tourism industry.

Failure to protect the Cape's historic resources and distinctive character will harm the region's economy and make the Cape a less desirable place to live. The region's rural character and historic villages are consistently ranked as important factors influencing people's decisions to move to, visit, or live on Cape Cod. The 2005 Cape Cod Residents Survey results report that, of respondents who did not grow up on the Cape, 68 percent said the region's historic character was an important or very important factor in their decision to live here. Eighty-three percent of all survey respondents either supported or strongly supported Cape Cod Commission regulations that require new buildings to conform to architectural styles in keeping with the character of Cape Cod.

The Commission is directed by the Cape Cod Commission Act to protect the Cape's historical, cultural, archaeological, and architectural resources. The Regional Policy Plan sets forth a vision for protecting these resources through attention to the region's historic buildings, cultural landscapes, and archaeological sites, as well as through design strategies for new development.

Heritage Preservation and Community Character Goal – HPCC1: Historic, Cultural, and Archaeological Resources

To protect and preserve the important historic and cultural features of Cape Cod's landscape and built environment that are critical components of the region's heritage and economy.

Cape Cod has thousands of properties listed on the National Register of Historic Places, dozens of local historic districts, and numerous well-known archaeologically sensitive areas. These resources receive some protection under the Cape Cod Commission Act or through local historic district bylaws, but many have no protection at all because they have never been inventoried or designated as part of an historic district. Significant buildings continue to be demolished in every Cape town, especially in waterfront neighborhoods where development pressures are greatest. Historic agricultural lands and other working agricultural lands that comprise the region's cultural landscapes are continually lost to new development. The towns have had varied levels of success in protecting their historic and archaeological resources through historic districts and other means. This Regional Policy Plan goal directs the Cape Cod Commission to work with the towns and other agencies to expand and update the region's inventory of historic resources—whether buildings, structures, landscapes, or archaeological sites—and to pursue educational efforts and improve regional and local preservation regulations to protect the resources from destruction.

Cape Cod Commission Actions

HPCC1-C1. Protection of Cultural Landscapes: The Cape Cod Commission will continue to inventory the region's distinctive cultural landscapes, including historic agricultural lands, and will make recommendations to preserve these significant resources through land protection, preservation or conservation restrictions, educational efforts to increase public awareness, and other means.

HPCC1-C2. Training for Historic Boards: The Cape Cod Commission will provide regular training on preservation tools and effective review procedures for local historic district commissions and historical commissions through meetings, educational programs, and annual regional conferences to address current historic resource protection issues.

HPCC1-C3. Regional Preservation Tools: The Cape Cod Commission will work with towns, nonprofit organizations, and state agencies to strengthen existing preservation tools used on the Cape, and to develop new regional tools to protect the region's historic and cultural resources.

Recommended Town Actions

HPCC1-T1. Historic Resource Inventories: The towns should update and expand their inventories of historic resources to focus on areas that are not inventoried or are facing

significant development pressures. Better inventories will increase public awareness and provide a firm basis for regulatory decisions by local boards.

HPCC1-T2. Local Preservation Regulations: The towns should enact additional methods to protect their historic and archaeological resources, such as local historic districts, nominations for listings on the National Register of Historic Places, demolition-delay bylaws, and subdivision regulations that address potential impacts to historic and archaeological resources.

HPCC1-T3. Zoning Compatible with Preservation Goals: The towns should adopt changes to their zoning bylaws and regulations that require new development in historic areas to be consistent with their existing scale and character. The towns should also remove regulatory incentives for demolition and inappropriate alteration of historic properties, and should establish protections for significant cultural resources and scenic landscapes.

Heritage Preservation and Community Character Goal – HPCC2:
Community Character/Site and Building Design

To encourage redevelopment of existing structures as an alternative to new construction, and to ensure that development and redevelopment respect the traditions and distinctive character of historic village centers and outlying rural areas consistent with Designing the Future to Honor the Past, Design Guidelines for Cape Cod, Technical Bulletin 96-001, as amended.

The character of a place is determined by such factors as how buildings are sited, their scale and design, landscaping, the location of parking, as well as lighting and signage. In many Cape communities, building design is not considered during routine regulatory processes unless a project is within an historic district. Local boards may lack specific expertise in design-related disciplines, and communities may have difficulties trying to shape new development in a manner that is consistent with desired patterns. The Cape Cod Commission's regulatory and technical assistance programs help towns to protect community character and to guide development to respect the local and regional context.

Cape Cod Commission Actions

HPCC2-C1. Assistance with Local Bylaw and Regulation Revisions: The Cape Cod Commission will assist town boards and committees to protect community character through new or revised zoning bylaws and regulations. Efforts will promote village-style development, limit strip development, foster redevelopment and infill construction, promote residential-scale bylaws to protect neighborhood character and public views, establish appropriate vegetated buffer standards, and encourage preservation and reuse of historic properties.

HPCC2-C2. Expanded Design Manual: The Cape Cod Commission will complete and implement an addendum to the existing design manual Designing the Future to Honor the Past (Technical Bulletin 96-001, as amended), to address the design of moderate- to large-scale commercial projects consistent with the region's traditional development patterns.

HPCC2-C3. Visioning Tools: The Cape Cod Commission will work with towns to develop presentation materials such as computer visualizations, photographs, and conceptual plans to

help illustrate potential changes in local zoning that would be more consistent with community character and preservation goals.

Recommended Town Actions

HPCC2-T1. Local Development Bylaws: The towns should revise zoning and regulations governing dimensional standards and provide redevelopment incentives to encourage development consistent with traditional patterns and local resource-protection goals.

HPCC2-T2. Design Review/Design Guidelines: The towns should develop a design review process and local design guidelines for areas of distinctive development as discussed in the Cape Cod Commission's manual, Designing the Future to Honor the Past, as amended.

HPCC2-T3. Land Clearing and Alteration: The towns should adopt a bylaw that limits land clearing and alteration of natural topography before development review, as discussed in the Cape Cod Commission's Model Land Clearing, Grading, and Protection of Specimen Trees Bylaw. The towns should also adopt a local landscape ordinance that protects significant trees and requires landscaping and screening of new development from regional and scenic roads.

Regional Coordination

The Cape Cod Commission Act requires the Regional Policy Plan to establish a policy for coordinating planning efforts by working with local, regional, state, and federal governmental agencies and with civic, educational, and nonprofit organizations. This section of the plan outlines the Commission's intergovernmental and community relations activities, which focus strongly on partnerships and interactions with the 15 Cape Cod municipalities for land use and infrastructure planning, growth management, and economic and community development endeavors. The Commission's web site (www.capecodcommission.org) also lists other organizations and agencies with whom the Commission forms partnerships to achieve the goals of the Regional Policy Plan.

The Cape Cod Commission's policy is to serve the 15 towns of Barnstable County on land use planning and technical issues, to communicate regularly with municipal officials and staff, and to create partnerships with the towns, other branches of Barnstable County's regional government, other regional planning agencies including the Martha's Vineyard Commission and Nantucket Planning and Economic Development Commission, many agencies of the Commonwealth of Massachusetts and the United States government, and organizations in the private, educational, and nonprofit sectors.

The Cape Cod Commission's public relations policy (adopted in July 2007) emphasizes strengthening and maintaining close working relationships with government officials, civic associations, and community organizations; setting specific outreach goals and priorities; and using an appropriate variety of communications methods to build and maintain public awareness of the agency's policies and activities. The Commission seeks opportunities for outreach in Cape communities, appoints members and staff to serve on relevant committees and councils across the region, organizes and participates in seminars and educational sessions on land use planning, resource protection, and legal and regulatory topics on a regular basis,

and presents technical and policy information to the general public and government officials as requested.

Partnerships with Cape Municipalities

The Cape Cod Commission is committed to seeking the municipal perspective on issues before making policy or project decisions. The board of selectmen in each Cape town (the town manager in Barnstable) designates a representative to the Cape Cod Commission; the town representative's role is articulated in the Cape Cod Commission Act, in the agency's communications policy, and in the supporting materials and training sessions provided to each representative. The Commission also seeks each town's designation of a municipal staff member to serve as a Development of Regional Impact (DRI) liaison. In addition, the Commission's management team designates a Commission staff planner to serve as a staff liaison on planning issues with each Cape town.

Coordination of regional land use planning and regulatory work with the 15 Cape Cod municipalities is emphasized throughout this Regional Policy Plan. In addition, formal meetings between boards of selectmen or town council and the Cape Cod Commission's executive director and each town-appointed Commission member, for example, are pursued regularly to answer questions, report on regional activities, identify needed technical assistance, and discuss regional priority setting. Working sessions with municipal staff and Commission staff also take place on a regular basis to foster a comprehensive and coordinated approach to significant planning, technical, growth management, and regulatory matters.

Local Comprehensive Planning

The Cape Cod Commission works with and supports local planning committees as the towns develop their Local Comprehensive Plans (LCPs). Preparation of LCPs requires the participation of all relevant town boards, including boards of selectmen and town administrators (town council and town manager in Barnstable), planning boards and town planners, zoning boards of appeals, conservation commissions and conservation administrators, boards of health and health agents, housing partnerships and committees, historical commissions and historic district committees, recreation commissions, water and sewer commissions, energy and recycling committees, natural resource departments and shellfish officers, public works directors and town engineers, harbormasters, and building inspectors.

The Cape Cod Commission encourages local planning committees to seek the broadest possible input from within their communities when preparing and updating their Local Comprehensive Plans. Since its inception, the Commission has provided substantial financial and technical assistance to towns to help them create, implement, and update LCPs. In addition, the Commission works directly with town boards and staff to provide data and technical analyses that assist local planning and capital facilities/infrastructure planning efforts.

Regulatory Coordination

In addition to supporting the efforts of local planning committees and infrastructure-related committees, the Cape Cod Commission coordinates with local boards on the regulatory review of Developments of Regional Impact. Commission decisions are consistent with local bylaws

and regulations, as required by the Cape Cod Commission Act. (The Commission may, however, impose more stringent conditions on development than may be required by local review.)

As mentioned previously, the Cape Cod Commission seeks each town's designation of a Development of Regional Impact (DRI) municipal staff liaison to the agency. The DRI liaison is a primary point of contact between the Cape Cod Commission staff and the town officials on DRI-related matters and facilitates communication between the two. The DRI liaison's responsibilities also include:

- informing Commission staff of town concerns and issues during DRI review;
- ensuring that the town's view point has been communicated to the Commission DRI subcommittee through written or verbal testimony;
- soliciting the review and confirming letter or testimony for the record regarding consistency or inconsistency with the town's Local Comprehensive Plan, Districts of Critical Planning Concern, and local zoning;
- ensuring that town officials are informed regarding DRI status and pending issues;
- attending DRI pre-application meetings;
- attending DRI public hearings, subcommittee meetings, site visits, and Commission meetings;
- coordinating meetings with other town officials as needed;
- facilitating communication between town officials and local technical staff;
- providing town comments to Commission staff to assist in the preparation of Cape Cod Commission comment letters to the Massachusetts Environmental Policy Act (MEPA) office;
- reviewing DRI procedures, processes, and thresholds;
- reviewing final Commission staff reports and DRI draft decisions, and distributing copies of them to local officials and town technical staff;
- coordinating joint review with the town in accordance with the town's Memorandum of Understanding with the Commission (if applicable); and
- assisting in the coordination of Commission hearing/meeting dates to avoid timing conflicts with scheduled town hearings.

Partnerships within Barnstable County and with Regional Committees and Authorities

In 1988 Barnstable County adopted a home rule charter that established an executive branch (the County Commissioners) and a legislative branch (the Assembly of Delegates). The Cape

Cod Commission Act specifies the formal roles that the County Commissioners and the Assembly of Delegates have in reviewing and approving certain Commission activities.

A member of the County Commissioners must serve as a member of the Cape Cod Commission. In addition, the County Commissioners appoint two additional members of the Commission: a Native American representative and a minority representative. As for other departments of Barnstable County, the County Commissioners are the appointing authority for Cape Cod Commission staff.

The Assembly of Delegates approves most of the Commission's regulations by ordinance, including those governing Developments of Regional Impact. The Assembly of Delegates also adopts the Regional Policy Plan by ordinance and establishes a procedure for review and amendment of the plan. The Assembly must also review and designate by ordinance all Districts of Critical Planning Concern.

The Cape Cod Commission works with the County Commissioners, the Assembly of Delegates, other departments of Barnstable County, and other regional committees and authorities on projects of regional interest to further the goals and policies in the Regional Policy Plan. See the Cape Cod Commission's web site for the county departments and regional committees with whom the Commission works most actively.

Partnerships with the Commonwealth of Massachusetts

State agency policies and regulations have a significant influence on Cape Cod. Consequently, the Cape Cod Commission works closely with representatives from the various executive offices, agencies, and departments of the state government, including the Executive Offices of Energy and Environmental Affairs, Housing and Economic Development, Labor and Workforce Development, and Transportation and Public Works, to coordinate state initiatives and policies with the duties, responsibilities, plans, and policies of the Cape Cod Commission. The Commission also works cooperatively with the other 12 regional planning agencies in Massachusetts.

In addition, the Cape Cod Commission has streamlined permitting processes where state regulatory review of development proposals overlap with regional review. For example, the Commission established a joint review process with the Executive Office of Energy and Environmental Affairs for projects subject to review under the Massachusetts Environmental Policy Act (MEPA) and the Cape Cod Commission Act. The process helps to coordinate review of such projects among local, regional, and state authorities.

The Cape Cod Commission has ongoing partnerships with state agencies and committees on a wide variety of issues, as indicated on the Commission's web site. Many of the activities are discussed in more detail in earlier sections of the Regional Policy Plan. The Commission's partnerships with all of these agencies and offices aim to build an understanding of how state policies and actions can best protect and enhance Cape Cod's character, environment, and economy and better address Cape Cod's regional and community goals.

Partnerships with Federal Agencies

Many federal agencies serve the Cape Cod region, and several major federal installations are located here, such as the US Army Corps of Engineers at the Cape Cod Canal, several branches of the Departments of Defense and Homeland Security at the Massachusetts Military Reservation, the US Fish and Wildlife Service at the Monomoy National Wildlife Refuge, and the National Park Service at the Cape Cod National Seashore. See the Commission's web site for a list of the federal agencies and offices with whom the Cape Cod Commission has the most active, ongoing relationships. The Commission will continue to coordinate with these and other federal agencies on cooperative planning and research efforts and will undertake new initiatives as necessary. Many of the activities are discussed in more detail in earlier sections of the Regional Policy Plan.

Partnerships with Civic, Educational, and Nonprofit Organizations

The Cape Cod Commission works with many civic, educational, research, and nonprofit institutions and organizations to further the policies and programs in the Regional Policy Plan. See the Commission's web site for the organizations with whom the Commission works most actively.

Regional Regulation

The Regional Policy Plan sets a direction for the future of Cape Cod land use. The Growth Policy expresses the overall concept and framework to guide growth and help the region meet its environmental, economic, and community challenges. The Regional Planning section establishes the goals and actions that the Cape Cod Commission will pursue. This section identifies another way that the Commission will implement those regional planning goals: through a regional regulatory program that serves the Growth Policy.

The Cape Cod Commission Act established a system of regulatory review to ensure that the impacts resulting from regionally significant development projects—projects that, due to their size, location, or character, affect more than one community—are adequately reviewed, minimized, and mitigated. The Act identifies these projects as "Developments of Regional Impact," or DRIs. The Regional Regulation section of the Regional Policy Plan sets forth the minimum standards that future developments on Cape Cod are required to meet and recommends practices that Barnstable County government believes will promote better development.

In many cases, a project is able to meet the regulatory standards of the Regional Policy Plan only once the developer takes specific steps to address or minimize—that is, to mitigate—the project's potential impacts to the resources and values identified in the Cape Cod Commission Act. Mitigation is a way to ensure that proposed development "pays its own way," either by taking certain actions or by contributing funds to facilities and services that are needed to manage the land use demands created by that development.

The Cape Cod Commission's regulatory program serves the region by helping to guide development to the right places, addressing public infrastructure and other land use and

development problems (thereby saving taxpayer dollars), avoiding developments that are not well suited for certain areas, and improving the overall quality of development.

Application of Regulations, Standards, and Practices

The Regional Policy Plan does not change or alter any existing local, state, or federal regulations. The requirements set forth in the plan are in addition to other regulatory requirements and do not exempt any person from complying with applicable local, state, and federal laws.

A distinction is made between Minimum Performance Standards, which are requirements, and Best Development Practices, which are recommendations. The Minimum Performance Standards and Best Development Practices included in the Regional Policy Plan are used by the Commission in the Development of Regional Impact review process.

The Minimum Performance Standards and Recommended Town Actions, found in the Regional Planning section of the RPP, are also used as a guide in the Commission's consistency review of Local Comprehensive Plans. In addition, the Commission encourages towns to consider applying some of the Best Development Practices through their local regulations.

Flexibility

The Minimum Performance Standards are mandatory standards; hence, they use the word "shall." If it can be demonstrated by an applicant, however, that the interests protected by a given Minimum Performance Standard can be achieved by an alternate approach including appropriate mitigation, the Cape Cod Commission or the local permitting authority may modify the application of these standards. In approving such a modification, the Commission or the local permitting authority must make a finding that the proposed use will not be more detrimental to the protected resource than would be allowable under the applicable Minimum Performance Standard. The burden to prove the applicability of this provision shall be on the applicant.

Private Property Rights

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 Minimum Performance Standards of the Regional Policy Plan. In such cases, the Cape Cod Commission or the local permitting authority may modify the application of such standards provided that the applicant demonstrates to the satisfaction of the Commission that he or she has complied to the maximum extent feasible with the relevant performance standards. The intent of this section is to ensure that reasonable use may be made of such property; however, the extent of use shall be limited insofar as is necessary to protect the resources of interest, and to ensure that there is no foreseeable danger to public health or safety. The burden of proof shall be on the applicant to demonstrate maximum feasible compliance with the relevant performance standards.

Developments of Regional Impact

Developments of Regional Impact are projects that meet a specific size or other threshold identified in the Cape Cod Commission's "Enabling Regulations for the Purpose of Reviewing Proposed Developments of Regional Impact." These projects are required by the Cape Cod Commission Act to go through DRI review. A DRI review is initiated when an applicant requests a local development permit. If the proposed project meets one of the thresholds, the town is required to refer the project to the Commission for DRI review; the local review is suspended until the regional review is complete.

Criteria for DRI Review

DRI Thresholds

The Cape Cod Commission Act established the standards and criteria for Developments of Regional Impact, based on a variety of factors. DRI review thresholds, which may be revised as needed through the Barnstable County ordinance process, are set forth in Chapter A, Section 3 of the Cape Cod Commission Regulations ("Enabling Regulations for the Purpose of Reviewing Proposed Developments of Regional Impact"). In accordance with Section 12(a) of the Cape Cod Commission Act, the Commission may propose and the Barnstable County Assembly of Delegates may adopt different standards and criteria for DRIs for different areas of Barnstable County. These may be changed by ordinance at any time and are not determined by the Regional Policy Plan.

Coinciding with this edition of the Regional Policy Plan, the Cape Cod Commission is proposing new, more flexible DRI thresholds to help implement a regulatory approach that encourages appropriately located and designed development. The flexible thresholds are related to the new Regional Land Use Vision Map. The framework for flexible DRI thresholds will be adopted through the Barnstable County ordinance process described above.

Examples of Standard DRI Thresholds:

- subdivisions of 30 acres or more
- development of 30 or more residential lots or dwelling units
- development of 10 or more business, office, or industrial lots
- commercial development or change of use for buildings greater than 10,000 square feet
- new construction or change of use involving outdoor commercial space greater than 40,000 square feet
- transportation facilities for passage to or from Barnstable County
- demolition or major changes to some national or state-recognized historic structures
- bridge, ramp, or road construction providing access to several types of water bodies and wetlands
- wireless communication facilities greater than 35 feet in height if a lattice tower, and greater than 80 feet in height if a concealed antenna monopole
- site alterations greater than two acres without local permit
- mixed-use residential and non-residential developments greater than 20,000 square feet

Review under MEPA

Projects requiring state review under the Massachusetts Environmental Policy Act (MEPA) may also require regional review as DRIs. Projects that meet certain state thresholds must file an Environmental Notification Form (ENF) with the Massachusetts Secretary of Energy and Environmental Affairs, Massachusetts Environmental Policy Act Unit. When an applicant files an ENF for a proposed project, the Cape Cod Commission may vote that the project presents regional impacts and therefore must undergo DRI review. If the state Secretary of Energy and Environmental Affairs determines that an Environmental Impact Report (EIR) is required, the project automatically becomes a DRI. An applicant may request a joint review with the state and Cape Cod Commission to streamline the two review processes.

Jurisdictional Determinations

An applicant or a town may request from the Cape Cod Commission a formal determination as to whether a project meets the criteria for DRI review. The Commission must make a jurisdictional determination within 21 days of receipt of a fully completed application.

Types of Regional Reviews

The following types of Development of Regional Impact reviews are described in detail in the Cape Cod Commission's Enabling Regulations:

Mandatory Referrals

Town permitting agencies that receive permit applications for projects that meet or exceed the criteria listed previously, or any new or revised regional threshold adopted through the DRI Enabling Regulations, must refer the projects to the Cape Cod Commission. These are known as "mandatory referrals." A DRI approval is generally valid for seven years and may be modified and extended up to an additional five years with Commission approval.

Discretionary Referrals

Under Section 12(e) of the Act, DRI review may also be sought by Cape towns for projects that do not meet or exceed a DRI threshold. The projects are referred to the Cape Cod Commission by the town in which they are located or by another town's board of selectmen (or the town council in Barnstable). The town may request a DRI review for all issues or request a DRI review limited to certain issues only. The Commission votes at one of its regular meetings whether or not to accept this type of project, known as a "discretionary referral," as a development that has regional impacts.

DRI Exemptions

A project that otherwise meets or exceeds a DRI threshold may be granted an exemption from DRI review if the applicant can demonstrate that the project does not have regional impacts as defined by Section 12(k) of the Act. A DRI Exemption decision is valid for three years.

Hardship Exemptions

Projects that are determined to be DRIs may, under certain circumstances, receive a hardship exemption from full DRI review subject to the standards outlined in Section 8 of the DRI Enabling Regulations. To qualify, the applicant must demonstrate to the Cape Cod Commission's satisfaction that a financial hardship or a hardship in the land or otherwise exists such that the applicant needs relief from meeting the Regional Policy Plan's Minimum Performance Standards. The Commission may grant relief where such relief will not be a substantial detriment to the public good and will not nullify or substantially derogate from the intent and purposes of the Cape Cod Commission Act. Projects should comply with the Minimum Performance Standards of the Regional Policy Plan to the maximum extent feasible; any relief granted from compliance should relate directly to the nature of the hardship and be

the minimum needed to address the hardship. A Hardship Exemption is valid for seven years from its date of issuance unless less time is specified in the decision.

Projects of Community Benefit

A specific type of hardship exemption may be granted for a project that can demonstrate, in addition to the standards for a hardship exemption, that has been determined by the Commission to confer distinct benefits to the community and the region but would not be feasible if required to fully comply with the Minimum Performance Standards of the Regional Policy Plan. A Project of Community Benefit (POCB) Hardship Exemption is valid for seven years unless otherwise stated in its decision.

Limited DRI Reviews

Limited Review is a new DRI review process for which any project may be eligible. Through a public process before a Cape Cod Commission subcommittee, the scope of a project's review under the various issue areas is determined. Applicants seeking a limited review of a development project are encouraged to answer the Limited Review questions and use the Regional Policy Plan resource maps to locate and design their projects in ways that minimize the number of issue areas for which the project will be evaluated and regulated at the regional level. Cape Cod Commission staff can meet with a prospective applicant at no cost to provide general guidance for siting and designing the project. A Commission subcommittee must then hold a formal Limited Review scoping process, after which a written decision may be issued that specifies the issues for which a project will be reviewed.

Redevelopments/Changes of Use

Redevelopment projects that meet or exceed DRI thresholds may be reviewed under the Cape Cod Commission's DRI regulations or, in appropriate instances, under the Limited Review regulations for redevelopment projects. Minimum Performance Standards and the Limited Review process have been designed to encourage redevelopment in appropriate locations.

Modifications to Previously Approved DRIs

If a project received a favorable decision from the Cape Cod Commission, that decision may be modified. The applicant must make a written request to the Commission, seeking a meeting with the Commission's Regulatory Committee. The Regulatory Committee determines the extent of the modification, whether the proposed changes produce additional impacts to the resources and values protected by the Cape Cod Commission Act, and whether the modification is minor or major. Changes determined to be major modifications must undergo DRI review and the full Cape Cod Commission must make a final decision whether to approve the proposal.

Criteria for DRI Approval

Once the Cape Cod Commission has jurisdiction over a project, the project is reviewed by the staff, a subcommittee of the Commission, the full Commission, and the public through a series of hearings to determine its impacts—positive and negative—on the regional resources and

values prescribed by the Act. For the Commission to grant DRI approval, projects must be consistent with:

- the Minimum Performance Standards of the Regional Policy Plan;
- local zoning;
- certified Local Comprehensive Plans; and
- Districts of Critical Planning Concern in the area.

In addition, the Cape Cod Commission must find that the probable benefits of the proposed project outweigh the probable detriments. The Commission may, in its discretion, consider Best Development Practices that exceed the Minimum Performance Standards in its analysis of benefits and detriments.

If approved, the applicant will receive a DRI decision, or permit, that specifies the conditions under which the project shall be built and operated. The local review then resumes.

DRI Mitigation

One important aspect of the regional review of DRIs is based on the concept that development should provide or contribute to the provision of the necessary facilities and services to manage the demands created by that development. The mitigation approach adopted by Barnstable County in the Regional Policy Plan helps Cape towns and the region as a whole to better respond to the rate of growth and to better coordinate public and private investments to meet demands resulting from that growth.

Mitigation required through the DRI process can be physical improvements on or off the project site or cash contributions toward certain kinds of public improvements in the town(s) affected by the development. Examples of physical improvements include the installation of wastewater and stormwater management systems to protect the water quality of groundwater or surface water bodies, improvements to road intersections to address traffic congestion and safety, the permanent protection of open space through conservation restrictions to preserve wildlife and plant habitats, improvements to building design, landscaping, parking lots, and lighting to minimize the visual impacts of a project, construction of housing units that remain permanently affordable for households at certain income levels, and more.

In this edition of the Regional Policy Plan, developers have additional options for mitigation instead of required physical improvements to offset a project's adverse impacts in designated areas on Cape Cod. The options are available to enable developers to better anticipate the costs for projects to meet the criteria and standards of the plan. Choosing these mitigation options may also help to expedite the regional review process. The expanded options are tied closely to the Regional Land Use Vision Map and are available to offset some project impacts in the issue areas of affordable housing, open space, transportation, and water resources.

If a developer makes monetary contributions instead of physical improvements to a project to meet the standards of the Regional Policy Plan, the Cape Cod Commission collects the funds

on behalf of the affected town(s), sets the funds aside in restricted accounts separate from any other Barnstable County funds, and redistributes them to the town, at the town's discretion, for the purposes for which the funds were collected.

Supporting Materials

Regional Land Use Vision Map: Overview

The Cape Cod Commission is working collaboratively with each of the 15 Cape towns to create a Regional Land Use Vision Map. The process for developing the map involves meetings with local planning officials in each town, identifying significant resources, existing land use and zoning in each town, and holding a public forum at which town officials and members of the public discuss their collective vision for future land use. The resulting maps designate Economic Centers, Villages, Industrial and Service Trade Areas, Resource Protection Areas, and Other Areas. These land use categories address local interests and the local vision for future growth, as well as regional interests in cross-boundary resource protection. To ensure consistency in the mapping throughout the region, the Regional Land Use Vision Map includes the following resources as minimum Resource Protection Areas: Wellhead Protection Areas; Land Subject to Coastal Storm Flowage (LSCSF) or Sea, Lake, and Overland Surges by Hurricanes (SLOSH); historic districts; and the Cape Cod National Seashore. Towns may elect to include additional resources within Resource Protection Areas.

Regional Land Use Vision Map: Benefits

The Regional Land Use Vision Map adopted with this Regional Policy Plan is linked to mitigation options, minimum performance standards, and development practices in this plan, and some of the "scoping questions" applicable to the Limited DRI Review process. DRIs proposed within Economic Centers identified on the Regional Land Use Vision Map are eligible for modified Minimum Performance Standards. In addition, inclusion in the Regional Land Use Vision Map allows a town to request modification of DRI thresholds for designated mapped areas.

Regional Land Use Vision Map: Process

Inclusion in the Regional Land Use Vision Map requires completion of the following steps: 1) A town completes a public forum, including invitation to all town boards and interested civic groups; 2) The Town's Planning Board endorses a Land Use Vision Map utilizing the five land use categories identified above; 3) Review and recommendation by the Commission's Planning Committee for adoption by the full Commission; 4) Public Hearing and recommendation for adoption by the full Commission; 5) Adoption of the amendment to the Regional Land Use Vision Map by the Barnstable County Assembly of Delegates. Towns may also modify their mapped areas and/or adopt a Land Use Vision Map following the process outlined above. Modifications to the Regional Land Use Vision Map will follow the same designation process described herein. The Commission will propose a draft Land Use Vision Map in towns where a map is not endorsed to the Board of Selectmen in the towns that incorporates, at a minimum, the Resource Protection Areas described above. Upon endorsement, the town's Land Use Vision Map will be incorporated into the Regional Land Use Vision Map following steps 3-5 above.

It is the intent of the Commission to adopt revised Water Resources Classification Maps and Significant Natural Resources Areas Maps as periodic updates to state and/or local data become available. Such data will be incorporated into the map if, as and when:

1) It is officially released by the MA Department of Environmental Protection (DEP), the MA Estuary Project (MEP), MA Natural Heritage and Endangered Species Program, Cape Cod Commission, or other state or local agency;

2) It is approved as the official map for the Cape Cod Commission;

3) Upon approval, it is filed with the Clerk of the Commission and recorded in the Registry of Deeds.

Commission Clerk will then submit an affidavit for recording that certifies that the attached is a true copy of the plan approved by the vote of the Commission.

Copies of the new official map will then be distributed to all towns' Planning Boards and/or Conservation Commissions, posted on the Commission's website and noticed in the Reporter and in the Environmental Monitor.

Technical Bulletins

The Regional Policy Plan also references numerous technical bulletins prepared and adopted by the Cape Cod Commission. The bulletins are policy guidance documents that explain in greater detail how some of the Regional Policy Plan's technical standards (such as traffic, nitrogen loading, open space, natural resources, lighting, and design) can be met. The technical bulletins are not regulations but they provide guidance for preparing technical studies needed for proposed projects to demonstrate compliance with the Minimum Performance Standards of the plan.

Local Comprehensive Plans

Not all development on Cape Cod is regulated by the DRI review process. Local Comprehensive Plans that are consistent with the Regional Policy Plan also guide local zoning and regulatory changes to help ensure that all development projects are reviewed and regulated with the same standards.

Organization of This Section

The balance of the Regional Regulation section of the plan is organized as follows:

- Resource Grouping
- Issue Area
- Goal
- Minimum Performance Standards

- Best Development Practices
- Goal
- Minimum Performance Standards
- Best Development Practices

Growth Management Systems

Land Use (LU)

The purpose of this section of the RPP is to encourage development and redevelopment in appropriate locations in accordance with the Regional Land Use Vision Map and to provide infrastructure that reinforces compact land use patterns. Developments of Regional Impact proposing commercial development are encouraged to locate in Economic Centers, as well as Industrial and Service Trade Areas and Villages where appropriate, through lesser standards and mitigation requirements adopted in other sections of the RPP, such as transportation, affordable housing, and open space.

Land Use Goal – LU1:
Compact Growth and Resource Protection

To minimize adverse impacts of development on the land by using land efficiently and protecting sensitive resources, and to create vibrant communities by directing growth and redevelopment to appropriate locations.

Minimum Performance Standards

LU1.1 Development Location

Development and redevelopment shall be consistent with the category of desired land use where the project is located as well as the characteristics of that category, both as identified on the Regional Land Use Vision Map. Notwithstanding this requirement, the Commission may find that development and redevelopment has met this requirement, if, in its discretion, it finds each of the following:

1) The proposed project is a redevelopment, or the expansion of a previously approved DRI; and,

2) The Commission finds that the proposed development does not present a threat to the resources and/or characteristics intended to be protected and maintained by its land use category.

This standard does not apply until the town has an endorsed Land Use Vision Map.

LU1.2 Compact Development

Nonresidential development and redevelopment shall be clustered on the site and with adjacent uses to the maximum extent possible by incorporating features, as applicable, such as multistory buildings, mixed use development, minimal setbacks from the street, limited and/or shared parking, and a pedestrian-friendly design that encourages walking, biking, and transit. All residential subdivisions of five or more lots and all commercial subdivisions of land shall cluster the proposed development unless inconsistent with local bylaws. Cluster plans shall use site designs that maximize contiguous open space, respect the natural topography and character of the site, and employ shared wastewater treatment, community water supply alternatives and Low Impact Development (LID) landscaping to allow more compact development.

Best Development Practices

LU1.3 Redevelopment/Reuse

DRIs are encouraged to incorporate redevelopment and/or reuse of existing buildings or developed sites in appropriate locations.

LU1.4 Reuse of Historic Buildings

DRIs within Economic Centers or Villages as identified on the Regional Land Use Vision Map involving an historic structure are encouraged to include its rehabilitation and reuse in accordance with federal standards for treatment of historic properties.

LU1.5 Location of Municipal Offices

New municipal offices are encouraged to locate in Village Centers and designated Economic Centers in order to reinforce the character, vitality, and economic viability of these areas.

Land Use Goal – LU2:
Capital Facilities and Infrastructure

To use capital facilities and infrastructure efficiently and in a manner that is consistent with Cape Cod's environment, character, and economic strengths, and that reinforces traditional village-centered development patterns.

Minimum Performance Standards

LU2.1 Connections to Existing Infrastructure

Proposed or expanded infrastructure shall support compact development patterns, and in towns with a Land Use Vision Map, shall support the land use categories and characteristics of designated Economic Centers, Industrial and Service Trade Areas, and Villages, as identified on the Regional Land Use Vision Map.

LU2.2 Co-location of Telecommunication Facilities

New wireless telecommunications facilities shall be required to demonstrate the commitment of two or more co-locators into the design of the facility. Additional guidance on the location and design of wireless facilities can be found in Guidelines for DRI Review of Wireless Communication Towers, Technical Bulletin 97-001, as amended.

Best Development Practices

LU2.3 Co-locate Public Infrastructure

Developments of Regional Impact proposing additional infrastructure should co-locate with or allow co-location of public services, infrastructure, and utilities and utilize existing rights-of-way.

LU2.4 Access to Emergency Responders

The construction of new wireless telecommunication facilities should provide access to emergency responders into the design of the facility.

Land Use Goal – LU3:
Rural Lands

To preserve and enhance rural land uses, including agriculture, 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 rural lands, and to support activities that achieve greater food independence for Cape Cod.

Minimum Performance Standards

LU3.1 Buffers to Agricultural Uses

New development adjacent to rural landscapes and those lands in active agricultural production shall maintain or provide a thickly vegetated buffer of sufficient width to prevent conflicts between the development and existing uses.

LU3.2 Impacts to Agricultural Lands

Development unrelated to agricultural operations shall be designed so as to avoid or minimize development on lands capable of sustained agricultural production as evidenced by soils, recent agricultural use, and/or surrounding agricultural use.

Best Development Practices

LU3.3 Best Management Practices

Management practices such as those developed by the Cape Cod Cooperative Extension and the Natural Resources Conservation Service are encouraged to maintain the productivity of

agricultural lands and minimize the use of chemical fertilizers and pesticides and manage manure that could adversely impact the environment or water quality.

Economic Development (ED)

Economic Development Goal – ED1:
Low-impact and Compatible Development

To promote the design and location of development and redevelopment to preserve the Cape's environment and cultural heritage, use infrastructure efficiently, minimize adverse impacts, and enhance the quality of life for Cape Codders.

Minimum Performance Standards

ED1.1 Location in Economic Centers

Development shall be located in Economic Centers or Industrial and Service Trade Areas, or where appropriate, Villages as designated on the Regional Land Use Vision Map unless waived in accordance with ED1.3. For towns without a Land Use Vision Map, all DRIs shall meet the waiver requirements under ED1.3. This standard does not apply to residential subdivisions or wireless communication towers.

ED1.2 Industrial and Service Trade Areas

Industrial and Service Trade Areas shall be reserved for light industry, warehousing, business-to-business wholesale, research and development facilities, and other uses related to the development, production, and/or distribution of goods. For towns without a Land Use Vision Map, all DRIs shall meet the waiver requirements under ED1.3.

ED1.3 Waiver

The Commission may waive ED1.1 and/or ED1.2 if the applicant demonstrates that new development meets four of the following criteria or that redevelopment meets two of the following criteria:

Mixed Use

The project is a mixed-use building or development.

Variety

The project includes units (two or more) designed and sized (less than 3,000 square feet) to accommodate small businesses (10 or fewer employees).

Preservation

The project rehabilitates or re-uses and maintains an historic structure in accordance with federal standards for treatment of historic properties.

Green Design

The project is, at a minimum, LEED/New Construction-certified at the base level.

Shared Infrastructure

The project is tied into existing infrastructure, such as wastewater treatment, telecommunications, and on-site energy-generation facilities, with excess capacity and where possible allows proximate development to do the same.

Emerging Industry Clusters

The project is designed to and will accommodate a business or businesses within the region's Emerging Industry Clusters, which include marine sciences and technology; arts and culture; information and related technology; renewable and clean energy, and education and knowledge-based industries or other high-skill, high-wage, knowledge-based business activity.

Un-development

The project contributes to the reduction of sprawl development, in equal proportion to the proposed development, through the purchase of land, development rights, or other methods approved by the Commission. Un-development achieved to meet this criterion must be in addition to any un-development or open space contributions made in order to meet other Minimum Performance Standards.

Distributed Energy Generation

The project generates, using renewable sources, at least 25 percent of the electrical demand required by the development on site.

Municipal Endorsement

The location of the project outside of a designated Economic Center, Industrial and Service Trade Area, or Village as identified on the Regional Land Use Vision Map is endorsed through a resolution from the selectmen or town council of the town(s) in which the project is located. The resolution should state that the proposed location is consistent with both the goals of the town's Local Comprehensive Plan as well as the town's capital facilities and infrastructure planning or plan.

ED1.4 Resource-based Economic Areas

Development shall not eliminate or significantly impair the current and future function of working agricultural land, working waterfronts and harbors, fin- and shellfishing grounds, and recreational areas.

Economic Development Goal – ED2:
A Balanced Economy

To promote a balanced regional economy with a broad business, industry, employment, cultural, and demographic mix capable of supporting year-round and quality employment opportunities.

Minimum Performance Standards

ED2.1 Gaming

Development shall not involve Class III gaming given the stresses it places on the region's environment, transportation infrastructure, and economy.

Best Development Practices

ED2.2 Quality Employment Opportunities

DRIs are encouraged to provide competitive wages consistent with the state average for that industry, employer-supported medical and retirement benefits packages, training opportunities beyond that need to perform the current job, and opportunities for advancement.

ED2.3 Employee Housing

Commercial developments are encouraged to provide housing for 10 percent of their year-round employees. This may be fulfilled by providing actual units or through participation in the Housing Assistance Corporation's Employer Assisted Housing Program (or its equivalent) for 10 percent of year-round employees.

Economic Development Goal – ED3:
Regional Income Growth

To promote economic activity that retains and attracts income to the region and benefits residents, thus increasing economic opportunity for all.

Best Development Practices

ED3.1 Local Labor and Service Providers

Commercial DRIs are encouraged to employ a majority of local residents and use a majority of local contractors, suppliers, professional service providers, and products during the planning, construction, and operational phases of the project.

ED3.2 Local Ownership

Commercial DRIs are encouraged to allow for local ownership of non-formula businesses consistent with the economic, environmental and community character goals of this RPP.

ED3.3 Diverse Employment Opportunities

Commercial DRIs are encouraged to employ or directly benefit residents with disabilities, minorities, elderly, unemployed, and under-employed residents, and/or hires minority- and women-owned contractors.

ED3.4 Regional Export Growth

Commercial DRIs are encouraged to export goods and services not previously exported.

ED3.5 Regional Import Substitution

Commercial DRIs are encouraged to provide goods and services locally that were previously imported into the region.

ED3.6 Value-added Manufacturing

Commercial DRIs are encouraged to add value to goods prior to their final sale not previously added locally.

ED3.7 Local Fiscal Impact

Commercial DRIs are encouraged to have a positive net fiscal impact on the community in which it is located.

Economic Development Goal – ED4:
Infrastructure Capacity

To provide adequate capital facilities and infrastructure that meet community and regional needs, expand community access to services, and improve the reliability and quality of services.

Minimum Performance Standards

ED4.1 Demonstrated Need and Public Benefit

Development of infrastructure and/or capital facilities shall be in response to existing regional demand and shall improve the availability, reliability, quality, and cost of services.

Best Development Practices

ED4.2 Telecommunications Access

DRIs are encouraged to provide fiber optic or equivalent high-speed broadband connections for businesses, residents, and institutions, without restrictions on applications, devices, and content and without connection preferences to any individual provider of telecommunications services.

ED4.3 Reliable Emergency Access

Telecommunications infrastructure is encouraged to connect and contribute to a regional network that will withstand a natural disaster and may be accessed and used by public safety officials in the case of an emergency.

ED4.4 Quality of Service

Infrastructure and capital facilities are encouraged to be fully integrated and telecommunications networks should provide symmetrical connections allowing data/video/voice content to move in and out at same speeds.

Natural Systems

Water Resources (WR)

The Regional Policy Plan uses a classification system of mapped water resource areas to guide the management and protection of Cape Cod's water resources. The classification system identifies Wellhead Protection, Marine Water Recharge, Freshwater Recharge, Potential Water Supply, and Impaired Areas. The watershed classification system determines regulatory review standards. All development and redevelopment shall comply with the Minimum Performance Standards in accordance with the classification system. If a property is located where two classifications overlap, the more stringent standards shall apply. The water resources classification system is illustrated on the Cape Cod Water Resources Classification Maps I and II. Minimum Performance Standards for aquifer protection, wastewater treatment facilities, and stormwater quality apply to all areas regardless of water resources classification.

Water Resources Goal – WR1:
General Aquifer Protection

To maintain the hydrogeologic balance and quality of Cape Cod's aquifer, considering such factors as groundwater withdrawals, wastewater disposal, stormwater recharge, and adequate surface water levels.

The following Minimum Performance Standards apply to all development and redevelopment.

Minimum Performance Standards

WR1.1 Five-ppm Nitrogen Loading Standard

All development and redevelopment shall not exceed a 5-parts per million (ppm) nitrogen loading standard for impact on groundwater unless an alternative standard applies in accordance with the water resources classification system as described in the Water Resources planning section found on p. _. Guidance on methodology to meet this standard can be found in Cape Cod Commission Nitrogen Loading Technical Bulletin 91-001, as amended.

WR1.2 Identification of Drinking Water Wells

Development and redevelopment shall identify their proposed drinking water wells and existing private drinking water wells on abutting properties within 400 feet and assess the impact of the development on the water quality of these wells and all other existing wells that

may potentially be affected by the proposed development. Septic systems and other sources of contamination shall be sited to avoid adversely affecting downgradient existing or proposed wells.

WR1.3 Groundwater Study Requirement

Developments of Regional Impact that withdraw more than 20,000 gallons of water per day shall demonstrate through a groundwater study that the project will not have adverse impacts on groundwater levels or adjacent surface waters and wetlands. The study shall include mapping of surface water morphology and comparison of existing and affected water-table fluctuations.

WR1.4 Cluster Development

All residential subdivisions of five or more lots and all commercial subdivisions of land shall cluster the proposed development unless inconsistent with local bylaws. Cluster plans shall use site designs that maximize contiguous open space, respect the natural topography and character of the site, and employ shared wastewater treatment, community water supply alternatives and Low Impact Development (LID) landscaping to allow more compact development.

WR1.5 Turf and Landscape Management Plan

Development and redevelopment shall adopt Best Management Practices such as a turf and landscape management plan that incorporates water conservation measures including the use of native and drought resistant plantings and the use of drip irrigation, and minimizes the amount of pesticides and chemical fertilizers.

Best Development Practices

WR1.6 Management of Water Withdrawals/Wastewater Discharges

Water withdrawals and wastewater discharges are encouraged to be managed so that they do not adversely affect surface water resources, wetlands, private wells, or the safe yield of the aquifer.

WR1.7 Use of Water-conservation Technologies

Development and redevelopment are encouraged to use water-conservation technologies or other strategies to obtain a 40-percent reduction of water use.

WR1.8 Alternatives to Chemical Fertilizers and Pesticides

Development and redevelopment are encouraged to utilize alternatives to synthetic chemical fertilizers and pesticides in favor of organic and biological methods.

WR1.9 Greater Protection of Groundwater/Surface Water

Development and redevelopment are encouraged to attain greater groundwater or surface water protection than provided for in the Minimum Performance Standards.

WR1.10 Wastewater and Stormwater Reuse

Development and redevelopment are encouraged to incorporate reuse of wastewater and stormwater for irrigation.

Water Resources Goal – WR2:
Drinking Water Quality and Quantity
(Wellhead Protection Areas and Potential Water Supply Areas)

To maintain the overall quality and quantity of Cape Cod's groundwater to ensure a sustainable supply of untreated high-quality drinking water.

The following Minimum Performance Standards apply to development and redevelopment in Wellhead Protection and Potential Water Supply Areas as shown on Water Resources Classification Map I.

Minimum Performance Standards

WR2.1 Five-ppm Nitrogen Loading Standard

The maximum nitrogen loading standard for impact on groundwater shall be 5 ppm for development and redevelopment unless a cumulative impact analysis indicates a more stringent loading standard is necessary.

WR2.2 Prohibition on Hazardous Materials/Wastes

Development and redevelopment that involves the use, treatment, generation, handling, storage, or disposal of Hazardous Materials or Hazardous Wastes, with the exception of household quantities, shall not be permitted in Wellhead Protection Areas, except as provided in WM1.2 and WM1.3.

WR2.3 Restrictions on Public and Private Wastewater Treatment Facilities

Public and private wastewater or treatment facilities with Title 5 design flows greater than 10,000 gallons per day shall not be permitted in Wellhead Protection Areas, except as provided in MPS WR5.2 below and subject to MPS WR6.1 through WR6.9.

WR2.4 Prohibited Uses under State Regulations

Uses prohibited in Zone IIs by state regulations shall not be permitted.

In addition to the above standards WR2.1 to WR2.4, for areas mapped as Potential Public Water Supply Areas, the following minimum performance standards shall apply. The Commission may determine that WR2.5 and WR2.6 do not apply provided that supporting information from the Town or Water District demonstrates to the Commission that the area will not be considered as potential water supply areas.

WR2.5 Future Well Site Restrictions

No development shall be permitted within 400 feet of an identified future well site.

WR2.6 One-ppm Nitrogen Loading Standard

The maximum nitrogen loading standard for impact on groundwater shall be 1 ppm for development. Guidance on methodology to meet this standard can be found in Cape Cod Commission Nitrogen Loading Technical Bulletin 91-001, as amended.

Water Resources Goal – WR3:
Marine Water Embayments and Estuaries
(Marine Water Recharge Areas)

To preserve and restore the ecological integrity of marine water embayments and estuaries.

The following Minimum Performance Standards shall apply to development and redevelopment in Marine Water Recharge Areas as shown on Water Resources Classification Map II.

Minimum Performance Standards

WR3.1 Critical Nitrogen Load Standard for Development

In watersheds to estuaries/embayments where a critical nitrogen load has been determined, through either a Total Maximum Daily Load (TMDL), or a Massachusetts Estuaries Project-accepted technical report, development and redevelopment shall not exceed the identified critical nitrogen loading standard for impact on marine ecosystems, except as provided in WR3.3. The Commission shall maintain a list and map of estuary/embayment critical nitrogen loading standards that shall be the basis for applying this MPS; the list and map will be updated on a regular basis as TMDLs are approved by the Massachusetts Department of Environmental Protection and the US Environmental Protection Agency.

WR3.2 Maintenance or Improvement of Nitrogen Loading

In watersheds to estuaries/embayments where there are documented marine water quality problems and a critical nitrogen load has not been developed, including but not limited to those embayments shown on the Cape Cod Water Resources Classification Map, development and redevelopment shall maintain or improve existing levels of nitrogen loading, except as provided in WR3.3 and WR3.1.

WR3.3 Local Management Plans

In lieu of the requirements set forth in MPS 3.1 and 3.2, in watersheds with Commission-approved watershed nutrient management plans, or Commission-approved comprehensive wastewater management plans, nitrogen loading from development and redevelopment shall attain the nitrogen loading limit specified by the plan.

WR3.4 Nitrogen Offset Contribution

In watersheds to estuaries/embayments where development and redevelopment must meet either WR3.1 or WR3.2, development and redevelopment may meet these standards by providing an equivalent nitrogen offset contribution to be used toward meeting the intent of WR3.1 or WR3.2 as provided in the following paragraph.

The load requirements of WR3.1 and WR3.2 above may be achieved by providing wastewater treatment for the development or redevelopment and additional treatment capacity for nearby land uses, installation of alternative denitrifying technologies for existing septic systems in the same Marine Water Recharge Area, and/or an equivalent contribution of $1,550 per kg/yr of nitrogen towards a municipal or watershed effort that achieves the intent of WR3.1 and WR3.2.

WR3.5 Monetary Contribution

In watersheds where the critical nitrogen load has not been determined, development and redevelopment may be required to make a monetary contribution toward the development or implementation of appropriate nitrogen management strategies not to exceed $20 per gallon of design flow of wastewater per day.

WR3.6 Public and Private Wastewater Treatment Facilities

Public and private wastewater treatment facilities may be used within Marine Water Recharge Areas subject to MPS WR5.2 and MPS WR6.1 through MPS WR6.9 below.

Water Resources Goal – WR4:
Freshwater Ponds and Lakes
(Freshwater Recharge Areas)

To preserve and restore the ecological integrity of freshwater ponds and lakes.

The following Minimum Performance Standards apply to Freshwater Recharge Areas as shown on Water Resources Classification Map I.

Minimum Performance Standards

WR4.1 Limits on Subsurface Disposal Systems

In order to limit phosphorus inputs, no subsurface wastewater disposal systems shall be permitted within 300 feet of maximum high water of freshwater ponds, unless a groundwater study prepared by the applicant demonstrates to the satisfaction of the Commission that groundwater from the site does not discharge into the pond or a tributary. Guidance on the high groundwater adjustment methodology can be found in Estimation of High Groundwater Levels for Construction and Land Use Planning, Technical Bulletin 92-001, as amended. Redevelopment shall comply with this standard to the maximum extent possible.

WR4.2 Monetary Contribution

If a fresh water pond has documented water quality problems, DRIs located in the pond's watershed shall be required to make a monetary contribution toward the development or implementation of appropriate water quality assessment work or management strategies.

WR4.3 Public and Private Wastewater Treatment Facilities

Public and private wastewater treatment facilities may be used within Freshwater Recharge Areas subject to Goal WR6 and MPS WR6.1 through MPS WR6.9 below.

Water Resources Goal – WR5:
Water Quality Improvement Areas
(Water Quality Impaired Areas)

To improve impaired water quality in Wellhead Protection, Marine Water Recharge, and Freshwater Recharge Areas.

The following Minimum Performance Standards shall apply to development and redevelopment in Water Quality Improvement Areas. Water Quality Improvement Areas are Impaired Areas shown on Water Resources Classification Map I that are also located in any of the following: Wellhead Protection Areas (Water Resources Classification Map I), Freshwater Recharge Areas (Water Resources Classification Map I), or Marine Water Recharge Areas (Water Resources Classification Map II). In such areas, improvement of water quality is a major goal.

Minimum Performance Standards

WR5.1 Nitrogen Loading Standard

Development and redevelopment shall not exceed the nitrogen loading standards for Wellhead Protection Areas or an identified marine water quality standard as applicable. Where existing development within the watershed exceeds the identified loading standard or where there are documented marine water quality problems, nitrogen loading from development and redevelopment shall be maintained or improved.

WR5.2 Public and Private Wastewater Treatment Facilities

Use of public and private wastewater treatment facilities shall be as follows: Within Water Quality Improvement Areas that are in Wellhead Protection Areas, public and private wastewater treatment facilities may be used to remediate existing problems; within Water Quality Improvement Areas that are in Freshwater and/or Marine Water Recharge Areas, public and private wastewater treatment facilities may be used in conjunction with any development or redevelopment.

WR5.3 Monetary Contribution in Designated Mapped Areas

Development and redevelopment in designated Economic Centers, Industrial and Service Trade Areas, Villages, and Growth Incentive Zones within Water Quality Improvement Areas that

have been identified as requiring comprehensive wastewater treatment solutions shall, in the Commission's discretion, be required to provide a monetary contribution, not to exceed $20 per gallon of design flow of wastewater per day, towards community wastewater facility planning or implementation efforts that may include infrastructure for wastewater management, if in the Commission's judgment, such contribution would assist in the planning or implementation of such infrastructure. In towns without designated a Land Use Vision Map, this MPS shall only apply to development and redevelopment in Water Quality Improvement Areas.

WR5.4 Nitrogen Loading Standard in Impaired Areas

For Impaired Areas outside of other mapped water resource areas, development and redevelopment shall generally meet a 5-ppm nitrogen loading standard for impact on groundwater, but the standard may be increased where it can be demonstrated to the Commission that such increase will cause no adverse impact on ponds, wetlands, marine waters, public or private drinking water supply wells, and potential water supply wells as identified under Goal WR2.

WR5.5 Alternative Water Supply in Designated Mapped Areas

Development in designated Economic Centers, Industrial and Service Trade Areas, Villages, or Growth Incentive Zones in areas serviced by private water supplies shall connect to public water supply, and at the Commission's discretion, shall connect existing development to public water supply in the event that said development impacts such existing development. In towns without a Land Use Vision Map, this MPS shall only apply to Impaired Areas.

Best Development Practices

WR5.6 Chapter 21E Site Assessments

Development and redevelopment are encouraged to submit Chapter 21E site assessments or other water quality information indicating the condition of the site relative to hazardous waste.

WR5.7 Reduction of Nitrogen Loading in Water Quality Improvement Areas

Development and redevelopment in Water Quality Improvement Areas within Marine Water Recharge Areas are encouraged to reduce nitrogen loading by providing for the removal of 2 kilograms of nitrogen for each kilogram added.

Water Resources Goal – WR6:
Public and Private Wastewater Treatment Facilities

To encourage the use of public and private wastewater treatment facilities in appropriate areas where they will provide environmental or other public benefits and where they can be adequately managed and maintained.

The following Minimum Performance Standards shall apply to development and redevelopment proposing public and private wastewater treatment facilities.

Minimum Performance Standards

WR6.1 Private Wastewater Treatment Facilities

Private treatment facilities shall be permitted only if the implementation timetable of an approved Comprehensive Wastewater Management Plan indicates that there are no feasible public treatment facility options available within three years of the proposed date of construction of a project.

WR6.2 Tertiary Treatment

All public and private wastewater treatment facilities with greater than a design flow of 10,000 gallons per day shall be designed to achieve tertiary treatment with denitrification that meets a maximum 5-ppm total nitrogen effluent discharge standard either through advanced treatment to achieve 5 ppm in the effluent or 5 ppm in groundwater at the downgradient property boundary. The standard may be increased to 10 ppm total nitrogen for redevelopment in Impaired Areas where it can be demonstrated to the Commission that such increase will cause no adverse impact on ponds, wetlands, marine waters, public or private drinking water supply wells, and potential water supply wells.

WR6.3 Hydrologic Balance

Sewage treatment facilities and their collection and discharge areas shall maintain the hydrologic balance of the aquifer and demonstrate that there are no negative ecological impacts to surface waters.

WR6.4 Development Density Limitations

The construction of private wastewater treatment facilities shall not allow development to occur at a higher density than would be allowed by local zoning unless anticipated and approved through a Commission approved Comprehensive Wastewater Management Plan.

WR6.5 Ownership and Maintenance of Treatment Facilities

The construction of private wastewater treatment facilities shall be consistent with municipal capital facilities plans as applicable. Development and redevelopment using private wastewater treatment facilities shall specify that the municipality shall have the opportunity to assume ownership and maintenance responsibilities for such facilities where desired by the municipality.

WR6.6 Restrictions in FEMA Flood Zones/Other Sensitive Areas

Public and private wastewater treatment facilities shall not be constructed in FEMA V-Zones and floodways, Areas of Critical Environmental Concern (ACECs), wetlands and buffer areas, barrier beaches, coastal dunes, or critical wildlife habitats. Public and private wastewater treatment facilities may be constructed in FEMA A-Zones only to remediate water quality problems from existing development within such A-Zones and consistent with MPS CR2.2 and CR2.8.

WR6.7 Long-term Ownership of Treatment Facilities

The long-term ownership, operation, maintenance and replacement of private wastewater treatment facilities shall be secured as a condition of approval in accordance with Commission, state, and local guidelines.

WR6.8 Sludge Disposal

Applications for approval of public and private wastewater treatment facilities shall include a plan for sludge disposal.

WR6.9 Operation, Monitoring, and Compliance Agreement

Private wastewater treatment facilities greater than 2,000 gallons per day (gpd) design flow that require advanced treatment efficiencies greater than that allowed by a DEP permit to meet Commission Minimum Performance Standards, shall demonstrate operation, monitoring and compliance through a Operation, Monitoring and Compliance agreement between the Board of Health and the Cape Cod Commission.

Best Development Practices

WR6.10 Improvement of Existing Wastewater Treatment

Development and redevelopment are encouraged to increase aggregation and improve the level of treatment of existing wastewater flows.

WR6.11 Water Quality Remediation

When allowing additional development in areas where existing high-density development or large numbers of failing septic systems have led to public health or water quality problems, development is encouraged to install a private wastewater treatment facility or DEP-approved alternative systems with enhanced nitrogen removal as a remedial measure.

Water Resources Goal – WR7:
Stormwater Quality

To protect the overall water quality of the aquifer and its resources by minimizing impervious surfaces and improving stormwater quality as much as possible.

The following Minimum Performance Standards apply to all development and redevelopment.

Minimum Performance Standards

WR7.1 No New Direct Discharges of Untreated Stormwater

New direct discharge of untreated stormwater, parking-lot runoff, and/or wastewater into marine and fresh surface water and natural wetlands shall not be permitted.

WR7.2 On-Site Infiltration

Stormwater for all roadways and parking areas shall be managed and infiltrated on site, close to the source, to minimize runoff and maximize water quality treatment. Stormwater water quality treatment shall be provided for the first inch of rainfall (25-year 24-hour storm) consistent with 310 CMR and the Massachusetts Stormwater Management Handbook to attain 80-percent total suspended solids removal and to reduce nutrients. All designs shall provide for at least 44-percent total suspended solids removal shall be designed prior to discharge into structured infiltration systems.

WR7.3 Roof Runoff

Roof runoff shall be managed separately and directly infiltrated unless there is an identified rooftop water quality concern that requires additional treatment or management.

WR7.4 Biofiltration Practices

Stormwater design for the first inch of stormwater flow from development parking and roadways shall use biofiltration practices including, but not limited to, vegetated swales and filter strips, constructed wetlands, tree box filters, bio-retention basins and rain gardens for treatment of stormwater runoff. Bioretention areas shall be constructed in accordance with the Massachusetts Storm Water Management Volume One: Stormwater Policy Handbook, March 1997. Approved biofiltration areas may be counted as open space within Wellhead Protection Areas.

WR7.5 Structured Infiltration Devices

Structured infiltration devices shall be used to accommodate frozen flow conditions and storms that exceed the 25-year 24-hour storm and designed to be consistent with the Massachusetts Stormwater Standards under 310 CMR10 and the Massachusetts Storm Water Management Handbook.

WR7.6 Impervious Surfaces

Roadway and parking design shall limit impervious surfaces. Parking lots shall be designed for the minimum required by the town in accordance with MPS TR2.9. Overflow peak parking design shall be constructed from pervious materials such as porous pavement, permeable pavers, or biomaterial such as grass pavers unless inconsistent with local bylaws. Bioretention shall be incorporated into parking islands and roadway perimeters. Permeable paving shall be encouraged where appropriate.

WR7.7 Structured Infiltration Devices in Designated Mapped Areas

Structured detention basins, infiltration basins and galleries may be used for redevelopment in Impaired Areas, Economic Centers, Industrial and Service Trade Areas, Villages, and Growth Incentive Zones. In towns without a Land Use Vision Map, this MPS shall only apply to redevelopment in Impaired Areas.

WR7.8 Minimum Two-foot Separation to Groundwater

New infiltration basins or other stormwater leaching structures shall maintain a minimum two-foot separation between points of infiltration and maximum high water table except as required under MPS CR3.4. Guidance on the high groundwater adjustment methodology can be found in Estimation of High Groundwater Levels for Construction and Land Use Planning, Technical Bulletin 92-001, as amended.

WR7.9 Best Management Practices during Construction

Construction best management practices for erosion and sedimentation controls shall be specified on project plans to prevent erosion, control sediment movement and stabilize exposed soils.

WR7.10 Stormwater Maintenance and Operation Plan

Development and redevelopment shall submit a Professional Engineer-certified stormwater maintenance and operation plan demonstrating compliance with the Massachusetts Stormwater Guidelines including a schedule for inspection, monitoring, and maintenance. The plan shall identify the parties responsible for plan implementation, operation and maintenance. The identified responsible party shall keep documentation of the maintenance and inspection records and make these available to the Commission or local board of health upon request. One year from completion of the system, a Professional Engineer shall inspect the system and submit a letter certifying that the system was installed and functions as designed.

WR7.11 Shut-off Valve in Wellhead Protection Areas

In Wellhead Protection Areas, stormwater systems for land uses that have a high risk of contaminating groundwater, such as vehicle maintenance areas and loading docks, shall install a mechanical shut-off valve or other flow-arresting device between the catch basin or other stormwater-capture structure draining this area and the leaching structures.

Best Development Practices

WR7.12 Road Widths

DRIs are encouraged to limit roadway lane widths to 9 feet (18 feet total for two-lane roadways) to minimize runoff from impervious surfaces.

Coastal Resources (CR)

Coastal Resources Goal – CR1:
Maritime Industry, Character, and Public Access

To protect and enhance public and traditional maritime interests and the public trust rights for fishing, fowling, and navigation, to preserve and manage coastal areas so as to safeguard and perpetuate their biological, economic, historic, maritime, and aesthetic values, and to preserve, enhance, and where appropriate, expand public access to the shoreline.

Minimum Performance Standards

CR1.1 Public Access

Development and redevelopment along the coast shall not interfere with existing legal public access and historic public rights of way to the shore. In addition, public access shall not impair the natural beneficial functions of coastal resources.

CR1.2 Public Access to Beach Nourishment Sites

Public access shall be provided for all publicly funded beach-nourishment sites where such access will not significantly impair natural resources.

CR1.3 Maritime Industry

Existing water-dependent facilities within 250 feet of the mean high water line or shoreward of the first public way, whichever is less, shall not be changed to a non-water-dependent use unless an overriding public benefit is provided to accommodate for the loss of the water-dependent use. Marine infrastructure that supports maritime industry shall be preserved.

CR1.4 Maritime Aesthetics

Development and redevelopment shall reflect the traditional maritime character and/or architecture typical of the area and shall be designed to maintain and enhance views of the ocean and/or shoreline from public ways, waterways, access points, and existing development.

Best Development Practices

CR1.5 Walkways

The construction of walkways, where environmentally acceptable, are encouraged to enhance shoreline access for the public, including people with disabilities. Such activities should not degrade undisturbed resources or contribute to adverse impacts to habitat, aesthetics, or storm damage prevention.

CR1.6 Coastal Structures

Coastal engineering structures are encouraged to be designed so as to allow the public to pass along the shore (either above or below the structure) in the exercise of its public trust rights to fishing, fowling, and navigation.

CR1.7 Water-dependent Facilities

Development or redevelopment of water-dependent facilities is encouraged to provide public coastal access benefits, which should minimize interference with such use.

Coastal Resources Goal – CR2:
Coastal Hazard Mitigation

To limit development in the coastal zone, particularly high-hazard areas, in order to protect the natural beneficial functions of coastal resources so that they serve to prevent or minimize human suffering and loss of life and property or environmental damage resulting from storms, flooding, erosion, and relative sea-level rise.

Minimum Performance Standards

CR2.1 Prohibiting Development in V-Zones

No development or redevelopment shall be permitted within V-Zones, except as specified in MPS CR2.7. Existing structures may be reconstructed or renovated provided there is no increase in gross floor area, footprint, or intensity of use (including but not limited to increases in wastewater flow, impervious area, or parking spaces, or conversion from seasonal to year-round use). As an exception, where there is no feasible alternative, water-dependent structures and uses and maintenance of marine infrastructure may be permitted provided the activity minimizes impacts to coastal resources and is subject to the approval of all permitting authorities.

CR2.2 Accommodating Relative Sea-level Rise

All new buildings, including replacements, or substantial improvements to existing structures shall be designed as follows to accommodate documented relative sea-level rise rates in Massachusetts:

1) Within A-Zones, the lowest horizontal structural member shall be a minimum of one foot above Base Flood Elevation (BFE); or

2) Within V-Zones, due to wave action, the lowest horizontal structural member shall be a minimum of two feet above BFE.

CR2.3 Migration of Coastal Resources

New development and redevelopment within the 10-year floodplain shall not impede the landward migration of resources, such as salt marshes, coastal dunes, coastal beaches, tidal flats, or coastal floodplain. The landward migration of coastal resources in response to relative sea-level rise shall be incorporated into the location, design, and construction of structures and other activities proposed.

CR2.4 Damage Prevention and Flood Minimization

To maintain the storm damage prevention and flood control functions of Land Subject to Coastal Storm Flowage (LSCSF):

1) No activity within a V-Zone shall increase the existing site elevations; and

2) No activity within a V- or A-Zone shall increase the velocity of flood waters or increase flows due to a change in drainage or flowage characteristics on the subject site, adjacent properties, or any public or private way; and

3) Placement of fill in hydraulically constricted areas shall not be permitted.

CR2.5 Barrier Beaches, Coastal Dunes and Their Buffers

New Development

New development shall not be permitted on barrier beaches or coastal dunes within, or 100-feet landward of, Land Subject to Coastal Storm Flowage (LSCSF), or if located in an Area of Critical Environmental Concern (ACEC), or if determined to be or mapped as rare or endangered species habitat. Exception shall be given to construction and maintenance of non-structural beach or dune restoration projects. Any development allowed shall be designed as follows:

1) If located outside LSCSF, the structure shall be elevated at least two feet above grade.

2) To allow for storm flowage, wave action, and/or beach and dune migration, the structure shall be on open pilings or columns.

3) Any allowed new development shall be set back from the shoreline at least 30 times the average annual erosion rate of the shoreline or 100 feet, whichever is greater. The average annual rate of shoreline erosion shall be determined by averaging the erosion over the previous 30-year period at a minimum or other time frame determined by the Commission to appropriately reflect current and future shoreline conditions.

Redevelopment/Reconstruction

Existing structures on barrier beaches or coastal dunes may be reconstructed or renovated, provided there is no increase in the total combined building footprint and existing impervious area, or intensity of use including but not limited to increases in wastewater flow, impervious area, or parking spaces, or conversion from seasonal to year-round use. An applicant shall demonstrate that any allowed redevelopment/reconstruction will not adversely affect the natural beneficial function(s) of coastal resource(s) and that it will not increase the flood hazard. Additionally, if the reconstruction/renovation is greater than 50 percent of the assessed value of a structure it shall be designed as follows:

1) Within V-Zone: The lowest horizontal structural member shall be elevated at least two feet above the BFE.

2) Within A-Zone: The lowest horizontal structural member shall be elevated at least one-foot above the BFE or two feet above existing grade, whichever is higher.

3) Outside LSCSF: The structure shall be elevated at least two feet above grade.

4) To allow for storm flowage, wave action, and/or beach and dune migration the structure shall be on open pilings or columns, and if within LSCSF it shall not have breakaway walls.

Water-dependent Marine Infrastructure or Public Recreation Facilities Exception

Water-dependent marine infrastructure and public recreational facilities proposed on barrier beaches or coastal dunes within LSCSF may be developed or renovated in accordance with MPS CR2.2. If outside LSCSF such facilities shall be elevated at least two feet above grade on open pilings or columns without breakaway walls to allow for beach and dune migration. In either case, the applicant shall demonstrate that the proposed project will not:

a. Adversely affect the natural beneficial function of coastal resources;

b. Contribute to the loss of public access to the coast; and

c. Negatively impact the character of the area in accordance with Goal CR1 and the Commission's Design Manual, Technical Bulletin 96-001, as amended.

CR2.6 Coastal Banks and Their Buffers

New Development

New development shall not be permitted on a coastal bank. The setback from the top of the coastal bank for all new non-water dependent development shall be at least 30 times the average annual erosion rate of the shoreline or 100 feet, whichever is greater. The average annual rate of shoreline erosion shall be determined by averaging the erosion over the previous 30-year period at a minimum or other time frame determined by the Commission to appropriately reflect current and future shoreline conditions.

Redevelopment/Reconstruction

Redevelopment and reconstruction shall be designed to have no adverse effect on the height, stability, or use of the bank as a natural sediment source, as all coastal banks are sediment sources. Every feasible effort shall be made to reduce adverse impacts to the resource, such as to maintain the same footprint or relocate structures landward.

Water-dependent Marine Infrastructure or Public Recreation Facilities Exception

The setback from the top of the coastal bank for all new water-dependent marine infrastructure or public recreation facilities shall be as far landward as feasible and shall be designed to minimize adverse impacts to the greatest extent feasible.

CR2.7 Disaster within A- and V-Zones

Where fire, storm, or similar disaster has caused damage to or loss of buildings of greater than 50 percent of their assessed value in FEMA A- and V-Zones, or barrier beaches, coastal banks, or coastal dunes, all reconstruction shall be in compliance with current applicable regulations and shall be designed in accordance with Minimum Performance Standards CR2.2, CR2.3, CR2.4, CR2.5, and CR2.6. Any reconstruction shall not increase the total combined building footprint and impervious area of the pre-existing structure, or intensify the use of the pre-existing structure (including but not limited to increases in wastewater flow, impervious area, or parking spaces, or conversion from seasonal to year-round use).

CR2.8 Public Infrastructure in Land Subject to Coastal Storm Flowage

No new non water-dependent public infrastructure or expansion of existing non water-dependent public infrastructure shall be made in LSCSF, unless it is shown that there is no feasible alternative location and there is an overriding public benefit, and provided that such infrastructure will not promote new growth and development in flood hazard areas.

CR2.9 Dredged Material

Wherever feasible, clean, compatible dredged material shall be used on public beaches. When infeasible, dredged material shall be reused within the same littoral cell to enhance storm damage prevention provided that public access is afforded in accordance with MPS CR1.2.

CR2.10 General Exceptions

Notwithstanding MPS CR2.1, CR2.3, CR2.4, and CR2.8, the following activities may be permitted provided the applicant demonstrates to the satisfaction of the Commission that best available measures are utilized to minimize adverse impacts on all critical characteristics of Land Subject to Coastal Storm Flowage (LSCSF), and provided that all other RPP MPS for underlying resource areas are met:

1. Beach, dune, and bank nourishment and non-structural restoration projects that do not impair the natural beneficial functions of the resource, including temporary fencing and other devices composed of natural material intended to facilitate the resources' natural beneficial function. Monitoring and maintenance plans may be required.

2. Appropriately designed and sited pedestrian walkways and elevated decks with appropriate orientation, height, and spacing between planks to allow sufficient sunlight penetration to maintain underlying vegetation and resource migration.

3. Maintenance and use of existing public boat launching facilities.

4. Maintenance of existing public infrastructure.

5. Maintenance required to preserve the aesthetics or structural integrity of existing marine infrastructure.

6. Projects that restore or rehabilitate salt marsh, freshwater wetlands, fish runs, or shellfish beds.

7. Underground utility crossings that do not disturb protected resources.

Best Development Practices

CR2.11 Remove Development from Coastal Floodplains

Applicants are encouraged to seek opportunities to remove development from coastal floodplains, either on or off site. The removal of development in V-Zone or of FEMA-designated repetitive-loss properties is particularly encouraged.

CR2.12 Use Mean Sea Level Data

Use of the most recent Mean Sea Level datum available for a site is encouraged to determine base flood elevation and inform all coastal construction activities. When determining Mean Sea Level, applicants are encouraged to use the 1988 datum of NAVD88, rather than the more commonly used 1929 datum of NGVD29. The difference is generally between 0.8 feet and 1.2 feet and account for relative rise in sea level as well as the increased accuracy of newer measuring devices.

CR2.13 Calculation of Setback from Top of Coastal Bank

Use of calculating a setback from the top of the coastal bank (per standard CR2.6 above) of at least 70 times the average annual erosion rate of the bank (or 100 feet if greater) is encouraged in order to reflect the typical 70-year lifetime of a residential building, as based on a study conducted for the Federal Insurance Administration to establish reliable estimates for the life of residential coastal structures.

Coastal Resources Goal – CR3:
Coastal Water Quality and Habitat

To maintain and improve coastal water quality in all coastal waters as appropriate, and to protect the health of coastal ecosystems.

Minimum Performance Standards

CR3.1 Buffers to Coastal Wetlands

Undisturbed buffer areas of at least 100 feet surrounding coastal wetlands and/or landward of the mean high water mark of coastal water bodies shall be protected in accordance with MPS WET1.2.

CR3.2 Septic Systems in V-Zones

New mounded septic systems shall be prohibited within FEMA V-Zones except to upgrade existing failed systems where such systems pose a demonstrated threat to public health, water quality, or natural resources. Structural components of failed systems shall be removed from V-Zones, unless such removal would cause irreversible adverse impacts to protected resources.

CR3.3 Stormwater Discharges

No direct untreated stormwater discharges shall be permitted into any coastal waters or wetlands, including discharges above or below the mean high water level. New treated stormwater discharges shall be located a minimum of 100 feet from wetlands and water bodies, consistent with MPS WET1.4. For redevelopment, treated stormwater discharges shall be located a minimum of 100 feet, or the farthest distance practicable, from wetlands or water bodies. All stormwater discharge shall be consistent with MPS WET1.4.

CR3.4 Stormwater Management Designed to Accommodate Relative Sea-level Rise

The design and construction of stormwater management systems proposed within 300-feet of the spring high water contour shall incorporate the historic rate of relative sea-level rise in Massachusetts of one-foot per 100 years by designing a system that achieves a three-foot separation from groundwater. This design shall be incorporated into National Pollution Discharge Elimination System (NPDES) Phase II Plans (where required) and individual project design and construction.

CR3.5 Docks and Piers

In order to reduce cumulative adverse impacts to coastal ecosystems, community docks and piers, rather than separate structures serving individual lots, shall be required. The construction or expansion of docks and piers shall not be permitted in significant shellfish habitat areas, as identified and documented by the Division of Marine Fisheries and/or local shellfish officials. Previously licensed private docks and piers more than 50 percent damaged or destroyed by storms may be replaced in accordance with federal, state and local regulations. In areas identified and documented as significant shellfish habitat, replacement structures shall be designed to minimize adverse impacts to these resources.

CR3.6 New Marinas

New marinas of 10 or more slips, moorings, or active landward storage berths, and expansions of existing marinas by 10 or more slips, moorings, or berths shall provide or contribute to the provision of adequate boat sewage pump-out facilities in each harbor and shall provide restrooms for their patrons. Such marinas shall also provide or contribute to the provision of adequate collection facilities for solid waste and waste oil for their patrons.

CR3.7 Prohibition on Improvement Dredging

Improvement dredging shall be prohibited except when necessary to accomplish a substantial public benefit and no feasible alternative exists.

CR3.8 Maintenance Dredging

All projects proposed as maintenance dredging shall provide prior permitting authorities, permit numbers, dates of issuance and re-issuance, and documentation that clearly demonstrates the location, width, depth and length of the previously permitted project.

CR3.9 Beneficial Reuse of Dredged Material

Beneficial reuse of clean dredged materials associated with any development project shall be required, consistent with MPS CR2.9.

CR3.10 Eelgrass

Development shall have no direct or indirect adverse effects to eelgrass beds, unless there is no feasible alternative location or design for the project and the project is necessary to accomplish

an overriding public benefit. If a project adversely affecting eelgrass is permitted, the Commission shall require appropriate mitigation.

CR3.11 Fish, Shellfish, Crustaceans

Development and redevelopment shall be designed and constructed to minimize direct and indirect adverse impacts to fish, shellfish, crustaceans and their habitat.

CR3.12 Aquaculture

Coastal aquaculture shall be designed to have no significant adverse impacts to water quality or marine habitat. Temporary structures may be allowed provided that they are permitted by the Division of Marine Fisheries and all other appropriate regulatory agencies and specifically intended to increase the productivity of land containing shellfish or to enhance marine fisheries, and provided that there is no significant impact to public trust rights and navigation safety as determined by the Army Corps of Engineers and local Harbormaster.

Best Development Practices

CR3.13 Waterfront-fueling Facilities

Waterfront-fueling facilities are encouraged to be upgraded to ensure that best management practices are used to avoid adverse impacts to water quality.

Wetlands (WET)

Wetlands Goal – WET1:
Wetlands Protection

To preserve and restore the quality and quantity of inland and coastal wetlands and their buffers on Cape Cod.

Minimum Performance Standards

WET1.1 Wetlands

Wetland alteration shall not be permitted except as provided herein and in Minimum Performance Standard WET1.3. As an exception, where there is no feasible alternative, water-dependent projects involving wetland alteration with appropriate mitigation may be permitted subject to the approval of all permitting authorities. Such permission may be granted subject to a finding that there is no feasible alternative location for the project and that any necessary alteration is the minimum necessary to accomplish the goals of the project. Appropriate mitigation shall not include wetland creation or replication.

WET1.2 Wetland Buffers

Vegetated, undisturbed buffer areas of at least 100 feet in width shall be maintained and/or provided from the edge of coastal and inland wetlands including isolated wetlands, to protect their natural functions. This standard 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 Cape Cod Commission and local Conservation Commissions may require a larger buffer area where necessary to protect sensitive areas or where site conditions such as slopes or soils suggest that a larger buffer area is necessary to prevent any adverse impact to wetlands and associated wildlife habitat. Where a buffer area is already altered such that the required buffer cannot be provided without removal of structures and/or pavement, this requirement may be modified by the Cape Cod Commission and other relevant permitting authorities, provided it makes the following findings: (1) that the proposed alteration will not increase adverse impacts on that specific portion of the buffer area or associated wetland, and (2) that there is no technically demonstrated feasible construction alternative.

WET1.3 Wetlands, Buffers, and Utility Line Installation

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 as provided below. Installation of new utility lines through these areas may occur where the Cape Cod Commission finds no feasible alternative to the proposed route for 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.

WET1.4 Stormwater

Stormwater management plans for new development shall preclude direct discharge of untreated stormwater into natural wetlands and water bodies. New stormwater discharges shall be located a minimum of 100 feet from wetlands and water bodies.

Best Development Practices

WET1.5 Wetland Restoration

Measures to restore altered or degraded inland and coastal wetlands, including nonstructural bank stabilization, revegetation, and restoration of tidal flushing are encouraged; however, such areas should not be used as mitigation for wetland alteration projects (mitigation banking).

WET1.6 Artificial Wetlands

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.

WET1.7 Agricultural Areas

For agricultural areas in wetlands and buffer areas, management practices that would improve water quality and conserve water as recommended by the Natural Resources Conservation Service are encouraged.

Wildlife and Plant Habitat (WPH)

Wildlife and Plant Habitat Goal – WPH1:
Prevent Loss, Minimize Adverse Impact, and Maintain Diversity

To prevent loss or degradation of critical wildlife and plant habitat, to minimize the adverse impact of new development on wildlife and plant habitat, and to maintain existing populations and species diversity.

Minimum Performance Standards

WPH1.1 Natural Resources Inventory

Applications for Developments of Regional Impact that propose to alter undeveloped areas shall contain a natural resources inventory. Such inventory shall identify the presence and location of wildlife and plant habitat, including vernal pools, and serve as a guide for the layout of the development. Developments shall be planned to minimize adverse impacts to wildlife and plant habitat. Guidance on preparation of natural resources inventories can be found in Development of Regional Impact Guidelines for Natural Resources Inventory (Plant and Wildlife Habitat Assessment), Technical Bulletin 92-002, as amended.

WPH1.2 Clearing and Grading

Clearing of vegetation and alteration of natural topography shall be minimized, with native vegetation planted as needed to enhance or restore wildlife habitat. Standing specimen trees shall be protected. The Commission may require designation of building envelopes (for structures, driveways, lawns, etc.), where appropriate, to limit removal of vegetation.

WPH1.3 Wildlife and Plant Habitat

Fragmentation of wildlife and plant habitat shall be minimized by the establishment of greenways and wildlife corridors of sufficient width to protect not only edge species but also 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 shall be provided with opportunities for passage under or across roads and through developments where such opportunities will maintain the integrity of wildlife corridors. Fencing shall not be constructed so as to interfere with identified wildlife migration corridors.

WPH1.4 Rare Species

DRIs within critical wildlife and plant habitat areas shall submit the development proposal to the Massachusetts Natural Heritage Program for review and comment. DRIs 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 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.

WPH1.5 Vernal Pools

Where a project site is located adjacent to a vernal pool (as defined herein), development shall be prohibited within a 350-foot undisturbed buffer around these resources. New stormwater discharges shall be located a minimum of 100 feet from vernal pools.

WPH1.6 Invasive Species

Development on sites where a natural resources inventory identifies the presence of invasive plant species shall provide and implement a management and restoration plan detailing the management of, and where possible, the eradication of the invasive species present, and for revegetating the site with native species. A current listing of invasive species can be found on the web at www.massnrc.org/mipag/invasive.htm.

Best Development Practices

WPH1.7 Habitat Restoration

Measures to restore altered or degraded upland habitat areas are encouraged where ecologically appropriate (for example, sandplain grasslands, pine barrens, etc.).

WPH1.8 Un-development

In redevelopment projects in sensitive or significant habitats, including mapped estimated or priority habitat as identified by the Natural Heritage Program, efforts to remove existing development from sensitive or significant habitat areas are encouraged.

Open Space Protection and Recreation

Open Space Protection and Recreation Goal – OS1:
Open Space and Natural Resources

To preserve and enhance the availability of open space that provides wildlife habitat and recreational opportunities, and protects the region's natural resources and character, Barnstable County shall strive to protect remaining developable land.

Minimum Performance Standards

OS1.1 Clustering of Development

Development or redevelopment within Significant Natural Resource Areas, as illustrated on the Cape Cod Significant Natural Resource Area (SNRA) Map, as amended, shall be clustered away from sensitive resources and maintain a continuous corridor to preserve interior wildlife habitat. Where a property straddles the boundary of an area shown on the SNRA map, development shall be clustered outside the boundary.

OS1.2 Open Space Connections

Preserved open space within proposed developments shall be designed to be contiguous and interconnecting with adjacent open space, and shall be subject to permanent protection under Article 97 of the Massachusetts state constitution, or similar conservation mechanism. Additional guidance on dedication of open space for Developments of Regional Impact can be found in the Guidelines for Calculation and Provision of Open Space in Developments of Regional Impact, Technical Bulletin 94-001, as amended.

OS1.3 Open Space Requirements

All development, excepting municipal projects serving municipal purposes, that qualifies as a DRI shall provide permanently restricted upland open space in accordance with the proportional calculation described below:

Total Development Area to Total Open Space Provided

Proportion Required	Location of Development
2:1	Development in Growth Incentive Zones/Economic Centers
1:2	Development in Significant Natural Resource Areas
1:1	Development in all other areas

For towns without designated Economic Centers, a DRI shall comply with the open space requirements based on its location relative to SNRA.

Calculation Based on Development Area

A project's open space requirement is calculated in direct proportion to the project's development area. For the purposes of calculating the open space requirement, the development area for new development and redevelopment is any previously undisturbed upland area (including upland areas that are functioning as habitat) affected by "development" as defined in the Definitions section of this document. Additional guidance can be found in Guidelines for Calculation and Provision of Open Space in DRIs, Technical Bulletin 94-001, as amended.

Protection of Areas with Highest Natural Resource Values

Open space shall be designed to protect those portions of the site with the highest natural resource values as identified by a natural resources inventory. Within open space areas, the maximum amount of natural vegetation shall be maintained. Where development is located in more than one area as identified in the chart above, open space totals shall be determined for each area and added together. Where new development is proposed within Significant Natural Resource Areas, open space shall be provided within these areas. The requirements for

Significant Natural Resource Areas shall apply to projects located in Growth Incentive Zones/Economic Centers that are located within a Significant Natural Resource Area, with exceptions as noted in Minimum Performance Standard OS1.7.

Provision of Off-Site Open Space

Where appropriate and at the Cape Cod Commission's discretion, credit may be obtained for set aside of off-site open space or a contribution of funds may be made to the town, state, land trust, or the Compact of Cape Cod Conservation Trusts' Land Fund for open space acquisition at a rate determined by the calculation specified below and to be updated annually per town in the Guidelines for Calculation and Provision of Open Space in Developments of Regional Impact, Technical Bulletin 94-001, as amended. The Commission shall give priority to towns when determining the recipient of off-site open space donations or cash contributions. Off-site open space shall be provided in the town where development is proposed, unless the Commission finds, in consultation with the relevant towns, that the provision of off-site open space in an adjacent community on Cape Cod is appropriate.

Calculation of Cash Mitigation Open Space Option

On an annual basis, Commission staff shall calculate the per acre cash equivalent for open space for each town based on the following formula: Select all residentially zoned developable parcels in excess of two acres from town assessor's data. Determine per acre value for each of these properties, sort by value, remove top and bottom 10 percent of properties. The average of the remaining properties is the per acre open space value for that town for current assessor's data.

The per-acre open space value may be adjusted by a reasonable inflation factor for years where current assessor's data is not available.

Credit for Stormwater Low Impact Development

In public water supply Wellhead Protection Areas, stormwater management structures may be counted toward meeting the open space requirement where Low Impact Development (LID) Best Management Practices are used for stormwater infiltration (for example, vegetated swales, rain gardens and bio-retention areas).

Restrictions on Open Space Credit

No credit may be obtained for land that is set aside as open space on a residential lot on which a dwelling exists or may be built, unless the lot is at least three acres in size. No credit may be obtained for areas that have been dedicated as open space prior to the date of a DRI application.

Redevelopment within Growth Incentive Zones/Economic Centers

As an incentive for infill and redevelopment in appropriate locations, redevelopment within Growth Incentive Zones/Economic Centers is not required to provide open space. For the purposes of this exception only, redevelopment shall include projects expanding into greenfields, not to exceed 50 percent of the pre-existing development area on the site.

Requirements for the protection of rare species, wetlands and vernal pool buffers shall continue to be met, if relevant. For towns without designated Economic Centers, this provision shall not apply.

Protection of Farmland

In the design of developments, and in the consideration of on-site or off-site open space, agricultural soils and agricultural uses shall be protected. In suitable locations and where conflicts with sensitive habitats and/or state law do not arise, conservation restrictions may reserve the right to farm.

Removal of SNRA Designation for the Calculation of Open Space Requirement

Notwithstanding the foregoing, where an applicant can provide the following documentation required by subsections 1, 2, or 3 below apply, and where Commission staff has recommended such removal, the Commission in its discretion may remove the Significant Natural Resources Area designation from all or a portion of the subject property for which the facts in subsections 1, 2, or 3 apply, and open space requirements may be reduced consistent with the chart, Total Development Area to Total Open Space Provided, above, without the SNRA requirements.

1) For projects located within a Potential Public Water Supply Area, provide written supporting information from the Town or Water District that demonstrates to the Commission that the area will not be considered as a potential public water supply area.

2) For projects located within an estimated or priority habitat for rare species as mapped by the Natural Heritage and Endangered Species Program, provide written supporting information from the Natural Heritage and Endangered Species Program that demonstrates to the Commission that the area is no longer considered endangered species habitat, and that NHESP will be changing the Natural Heritage Atlas to that effect.

3) For projects located within mapped DEP wetland areas, provide written supporting information from a wetlands specialist that an onsite field evaluation establishes that no wetland resources as defined in the RPP are present on or within 100 feet of the proposed development site.

OS1.4 Sensitive Natural Resources

In the design of developments, significant natural and fragile areas including critical wildlife and plant habitat, significant natural communities, water resources such as ponds and lakes, rivers, aquifers, shore lands, and wetlands; 100-foot buffers to wetlands; historic, cultural, and archaeological areas; significant scenic roads and views; and significant landforms shall be protected. Development should be located outside of 300-foot buffers to ponds and lakes and 200-foot buffers to rivers to the greatest extent feasible, and consistent with state law.

OS1.5 Residential Cluster

All residential subdivisions of five or more lots and all commercial subdivisions of land shall cluster the proposed development unless inconsistent with local bylaws. Cluster plans shall use site designs that maximize contiguous open space, respect the natural topography and character of the site, and employ wastewater treatment alternatives to allow more compact development.

OS1.6 Sensitive Open Space Resources

Where development is proposed adjacent to land held for conservation and preservation purposes, or adjacent to rural landscapes or lands in active agricultural production, the development shall be configured so as to prevent adverse impacts to these lands and in a manner that maximizes contiguous open space. Additional vegetated buffers may be required where necessary to screen or separate uses.

OS1.7 Open Space in GIZ/Economic Centers

Notwithstanding Significant Natural Resource Area designation, where development is proposed in Growth Incentive Zones/Economic Centers, the open space requirement shall be reduced to the proportion required for Growth Incentive Zones/Economic Centers where a natural resources inventory demonstrates that there are no wetlands, surface water bodies, vernal pools, estimated rare species habitat, agricultural soils, priority natural communities, critical upland areas, public water supply Wellhead Protection Areas, or other unique or fragile habitat within 100 feet of the site boundary.

OS1.8 Open Space Requirements and Parking Garages

As an incentive toward minimizing impervious areas, protecting open space, and maintaining or improving community character, projects meeting parking requirements under proposed buildings or as a multi-storied parking garage may reduce their open space requirement by an amount equivalent to the square footage of garaged parking. Open space credit as provided by this MPS may not be obtained for parking spaces provided in excess of the minimum number of spaces required by local zoning.

Best Development Practices

OS1.9 Location of Open Space

Wherever possible, off-site open space provided through MPS OS1.3 is encouraged within or contiguous to Cape Cod Significant Natural Resource Areas or in the areas identified in MPS OS1.4.

OS1.10 Open Space Credits

As an incentive for the increased protection of sensitive or significant natural resources, and at the discretion of the Commission, the open space requirement may be reduced by 20 percent where (1) high quality, naturally vegetated open space is provided in a Significant Natural Resource Area contiguous to existing permanently protected open space and is made permanently accessible for use by the public, or (2) all development provides a 350-foot

undisturbed buffer from the mean annual high water line of pond or lake, or (3) all development provides a 200-foot undisturbed buffer from the mean annual high water line of a river, as determined by the local Conservation Commission consistent with the Rivers Protection Act (310 CMR 10.58), or (4) all development provides a 500-foot undisturbed buffer from a vernal pool, or (5) the protected open space provides significant vistas of the natural Cape Cod landscape. A developed shoreline refers to structures, roads, driveways, parking areas, cultivated lawns, and other uses within 300 feet of the mean annual high water line that cause the relative long-term alteration of the shoreline. No more than 20 percent of the open space requirement may be reduced for any one project.

Open Space Protection and Recreation Goal – OS2:
Passive/Active Recreation

To preserve and enhance opportunities for passive and active recreation in the natural environment to meet the needs of both residents and visitors.

Best Development Practices

OS2.1 Recreation Needs

Recreational needs as identified in the 2000 Statewide Comprehensive Outdoor Recreation Plan, Local Comprehensive Plans, and local and regional open space plans should be addressed in the development of projects on Cape Cod. Such needs include opportunities for wildlife study, expansion of trail corridors, protection of scenic roadways, development and expansion of access for the disabled, additional public beaches, and water-based recreational opportunities with associated parking facilities to the extent these minimize alteration of natural shorelines and do not harm wildlife habitat.

OS2.2 Provision of Recreation Areas

New development should provide suitable recreation and play areas to meet the needs of the residents of that development such as playing fields, playgrounds, basketball courts, or bicycle and walking paths.

Human/Built Systems

Transportation (TR)

The following Minimum Performance Standards apply to all DRIs:

TR0.1 Source(s) of Trip-generation Data

For the purpose of DRI review and analysis, trip-generation data from the Institute of Transportation Engineers shall be used as the preferred source. A project-specific trip-generation study may be used at the discretion of the Cape Cod Commission. In the event the applicant elects to complete a project-specific trip-generation study, traffic counts from existing development shall be collected and submitted using the methodology identified in the Cape Cod Commission Guidelines for Transportation Impact Assessment, Technical Bulletin 96-003, Revised January 9, 2003, as amended.

TR0.2 Traffic Credit for Past Uses

For analysis and mitigation purposes a traffic credit may be allowed, at the discretion of the Commission, for past uses on the site of the DRI based on the estimated average daily and peak-hour trip generation of the immediate prior use. Outside of Economic Centers or in towns without designated Economic Centers, a Redevelopment/Change of Use shall not be eligible for traffic credit if the previous use has been discontinued or vacated for three or more consecutive years. Traffic counts to establish credits from existing development shall be collected and submitted using the methodology identified in the Cape Cod Commission Guidelines for Transportation Impact Assessment, Technical Bulletin 96-003, Revised January 9, 2003, as amended.

TR0.3 Permits for Roadwork prior to Construction

All necessary approvals and permits from federal, state and/or local government agencies for transportation mitigation or DRI site access and egress shall be obtained and copies submitted to the Cape Cod Commission prior to the issuance of a preliminary Certificate of Compliance for the DRI.

TR0.4 Alternative Method for Compliance within Economic Centers

For DRIs located within Economic Centers, the applicant may choose to meet certain trip-reduction and congestion standards of the RPP as identified in this MPS by making a payment of funds based on the DRI's daily or peak-hour trip generation. The applicant may elect to pay either $500 per daily trip or $5,000 per peak-hour trip as determined by MPS TR0.1 to mitigate all trip-reduction and congestion impacts (the "transportation mitigation payment"). Compliance with the requirements of MPS TR0.4 shall be in lieu of compliance with Minimum Performance Standards TR2.10, TR2.11, TR2.13, TR3.4, TR3.5, TR3.6, TR3.7, TR3.8 and TR3.9. Funding for and implementation of any access/egress or on-site mitigation/improvements required of the DRI shall be the responsibility of the applicant and be in addition to the requirements of MPS TR0.4. For towns without designated Economic Centers, DRIs shall comply with all trip-reduction and congestion Minimum Performance Standards.

Funds collected for congestion mitigation shall be used to support projects or strategies that encourage alternatives to automobile travel consistent with MPS TR3.12 or to support actual expansion of roadway capacity including but not limited to planning, engineering, permitting, and construction. Such funds shall be used within the town in which the development is located or shall be divided between towns based on the development's impact area. The determination of how these funds are utilized shall be determined by the town impacted by the DRI, in consultation with Cape Cod Commission staff. Funds not accessed within 10 years of receipt may, at the Executive Director's discretion, be distributed to the Cape Cod Regional Transit Authority or successor agency(ies) to fund public transit on Cape Cod.

TR0.5 Incentive for Mixed Use Development in Economic Centers

DRI transportation mitigation requirements as outlined in MPS TR2.2 (trip reduction), MPS 3.3 (traffic study requirements), and MPS TR3.4 (mitigation of congestion impacts) shall be

waived for residential and/or office development above the first floor in areas that have been mapped as designated Economic Centers on the Regional Land Use Vision Map. For towns without designated Economic Centers, DRIs shall comply with all trip-reduction, traffic study, and mitigation of congestion impacts Minimum Performance Standards.

Transportation Goal – TR1:
Safety

To improve safety and eliminate hazards for all users of Cape Cod's transportation system.

Minimum Performance Standards

TR1.1 No Degradation of Safety

Regardless of project traffic generation, DRIs shall not degrade safety for pedestrians, bicyclists, or motor vehicle operators or passengers.

TR1.2 Crash Frequency at Key Locations

Review of crash frequency over the most recent three years shall be required on all intersections of regional roads as well as at local road intersections with regional roads that are used by a project for access to the regional road network, where the DRI is expected to increase traffic by 25 vehicle trips or more during the project's peak hour. The most recent three available years of crash data shall be reviewed; the source(s) of the data shall be approved by the Cape Cod Commission staff. The applicant shall collect and submit crash data using the methodology identified in the Cape Cod Commission Guidelines for Transportation Impact Assessment, Technical Bulletin 96-003, Revised January 9, 2003, as amended.

TR1.3 Identification of Safety Impacts

The applicant shall identify safety impacts at road and intersection locations with three or more crashes per year where the project is expected to add 25 or more peak-hour trips. If applicable, funds to implement safety improvements shall be deducted from the transportation mitigation payment. The applicant shall be required to implement the needed safety improvements as determined by the Commission prior to obtaining a final Certificate of Compliance and shall be responsible for the safety improvements even if the cost of these safety improvements exceeds the transportation mitigation payment amount. Remaining transportation funds shall be paid to the County of Barnstable, prior to obtaining a final Certificate of Compliance, to be used for transportation-related purposes within the area affected by the DRI. All measures to mitigate safety impacts shall be consistent with Goal TR3 and its supporting Minimum Performance Standards.

TR1.4 Standards for Driveway Construction

All access and egress locations for DRIs shall meet local, county, and/or state and federal access management bylaws, technical bulletins, standards, and/or policies for driveway spacing and separation from the nearest intersections. Redevelopment projects that are unable to meet this standard and have no other roadway access shall meet spacing and separation distances to

the greatest extent feasible. DRIs with frontage on more than one street shall be restricted to access and egress via the lower volume road when deemed appropriate by the Commission. The width of driveway and/or curb-cut openings to serve DRIs shall not exceed 12 feet per travel lane, except where deemed appropriate by the Commission. Driveway openings of more than 24 feet shall include a center pedestrian refuge island where deemed appropriate by the Commission.

TR1.5 Route 6 Access/Egress

To reduce safety conflicts between local and through traffic, DRIs located within limited-access portions of Route 6, as defined by the Massachusetts Highway Department, shall not be allowed to create new direct access or egress onto Route 6 in Bourne (Scenic Highway), Eastham, Wellfleet, Truro, or Provincetown unless no alternative access or egress is available. DRIs that utilize existing access or egress onto any of these sections of Route 6 shall be allowed provided that there is no increase in expected daily or peak-hour traffic volumes utilizing those driveways during the summer and provided the historic crash rate for the driveway does not exceed three crashes per year based on the most recent three-year crash history.

TR1.6 Sight-distance Obstructions

Human-made objects such as signage, utility poles and boxes, and lighting to service DRIs shall be located to minimize visual obstruction and possible safety conflicts for the traveling public, including glare or other distractions for drivers, bicyclists, and pedestrians. New utility service and relocation of existing utility service shall be placed underground, where deemed feasible and appropriate by the Commission. Further, landscaping and plantings shall be selected and placed in a manner that does not create obstructions to safe sight distances for motorists, bicyclists, and pedestrians.

TR1.7 Bicyclists and Pedestrians Safety and Access/Egress Requirements

Site planning and access/egress for DRIs shall minimize adverse impacts on the adjacent road system and shall adequately and safely accommodate all users including pedestrians, bicyclists, and motorists. DRIs with drive-up windows shall be designed to confine the maximum expected vehicle queue on site to not interfere with traffic on public roadways.

TR1.8 Sight-distance Requirements

Acceptable sight distances shall be met and maintained at all access and/or egress locations for DRIs regardless of project traffic generation. At a minimum, sight distances shall meet the stricter of the Massachusetts Highway Department and American Association of State Highway Transportation Officials guidelines for safe-stopping sight distances.

TR1.9 Mitigation Timing

Transportation mitigation to address or offset safety concerns at a minimum shall occur prior to issuing a Final Certificate of Compliance for the DRI.

Best Development Practices

TR1.10 Transportation Safety

DRIs are encouraged to promote and assist in improving transportation safety on Cape Cod.

TR1.11 Curb Cuts

DRIs are encouraged to minimize, eliminate, and/or consolidate curb cuts.

Transportation Goal – TR2:
Trip Reduction/Transportation Balance and Efficiency

To reduce and/or offset the expected increase in motor vehicle trips on public roadways, reduce dependency on automobiles, and reduce air and noise pollution. To promote a balanced and efficient transportation system that includes alternatives to automobile travel.

Minimum Performance Standards

TR2.1 Trip Reduction Outside Growth Incentive Zones or Economic Centers

DRIs located outside Growth Incentive Zones or Economic Centers, or DRIs in towns without designated Economic Centers shall implement adequate and acceptable measures to reduce and/or offset 25 percent of the expected increase in site traffic resulting from the DRI on a daily basis. Examples of acceptable trip-reduction plans to reduce site traffic are available in the Cape Cod Commission Guidelines for Transportation Impact Assessment, Technical Bulletin 96-003, Revised January 9, 2003, as amended.

TR2.2 Trip Reduction Inside Growth Incentive Zones or Economic Centers

DRIs located within Growth Incentive Zones or Economic Centers shall implement adequate and acceptable measures to reduce and/or offset 12.5 percent of the expected increase in site traffic resulting from the development on a daily basis. Examples of acceptable trip-reduction plans to reduce site traffic are available in the Cape Cod Commission Guidelines for Transportation Impact Assessment, Technical Bulletin 96-003, Revised January 9, 2003, as amended. DRIs in towns without designated Economic Centers shall comply with MPS TR2.1.

TR2.3 Interconnections

DRIs shall implement procedures to allow connections (vehicular and pedestrian) between parcels to minimize curb cuts, driveways, and vehicle turning maneuvers. DRIs shall provide vehicular and pedestrian connections on the project site and connect to the adjacent property if an interconnect agreement can be reached. The DRI shall agree to allow a future connection if an agreement cannot be reached with the adjacent property owner at this time.

TR2.4 Incentives for Connections between Adjacent Properties

DRIs that allow for site traffic to travel conveniently and safely to adjacent properties without traveling on or crossing a public way or that allow for mixed-use development that minimizes

dependence on automobile travel shall be allowed a 10-percent traffic credit apportioned between the two properties or, if greater, a traffic credit as outlined in the Institute of Transportation Engineers Trip Generation Handbook, October 1998, or another acceptable methodology subject to Commission approval.

TR2.5 Estimating Trip Reduction

The estimates of the number of trips reduced through proposed trip-reduction measures including trip-reduction support measures, transportation services, economic incentives, and locating on a transit line shall be based on an analysis that is accepted and approved by the Commission based upon the methodology provided by the Cape Cod Commission Guidelines for Transportation Impact Assessment, Technical Bulletin 96-003, as amended.

TR2.6 Bus Stops, Turn-outs, and Shelters

Where appropriate, the Commission may require construction of a bus stop and/or bus turn-out and/or bus shelter as part of DRI approval either internal to the property or along the property's roadway frontage.

TR2.7 Bicycle and Pedestrian Accommodations

DRIs shall accommodate the needs of bicyclists, pedestrians, and other non-automobile users in site planning and roadway and/or intersection changes. Site design shall minimize motor vehicle interaction with bicycles and pedestrians while accommodating pedestrian and bicycle access and circulation.

TR2.8 Preservation of Frontage

Where deemed appropriate by the Commission, DRIs shall provide appropriate rights-of-way along their street frontage to accommodate expected needs for bicycle and pedestrian accommodation and/or relocation of utilities. DRIs shall also provide for pedestrian and bicyclist connections across their property to allow for possible future connections with adjoining properties, where necessary. Construction of bicycle and pedestrian sidewalks, paths and/or connections may be required by the Commission.

TR2.9 Parking Spaces

The maximum parking allowed for DRIs shall be no more than the minimum number of spaces required by the town(s) in which the DRI is located unless, in the Commission's discretion, a greater number of spaces are justified by a parking analysis accepted by the Commission.

TR2.10 Acceptable Trip-reduction Strategies

To meet the requirements of Goal TR2 and the applicable Minimum Performance Standards, DRIs may, at the applicant's option, utilize the following strategies to meet the portion of the trip-reduction requirements not otherwise met:

(a) Cash payment: Payment of funds per expected daily trip to be reduced or offset. The amount of payment shall be calculated based upon the estimated cost of funding for alternatives

to automobile transportation or the estimated cost of vacant developable land within the town in which the project is located and shall be subject to Commission approval. The amount of payment shall also be commensurate with the number of vehicle trips to be reduced or offset.

(b) Project-specific strategies: Implementation and/or construction of measures to reduce vehicular travel.

(c) Any combination of (a) and (b).

TR2.11 Other Trip-reduction Strategies

To meet the requirements of Goal TR2 and the applicable Minimum Performance Standards, the Commission may, at its discretion, allow DRIs to utilize the following strategies to meet the portion of the trip-reduction requirements not otherwise met:

(a) Preserve land: The conservation of vacant developable land, in excess of other RPP open space requirements, as permanent open space. Examples of acceptable vacant developable land and the trip credit calculations are available in the Cape Cod Commission Guidelines for Transportation Impact Assessment, Technical Bulletin 96-003, Revised January 9, 2003, as amended.

(b) Remove existing development: The removal of existing development and conservation of the land as permanent open space, in excess of other RPP open space requirements; the development must be removed and the land returned to a natural and/or landscaped state, as determined by the Commission.

(c) A payment of funds per expected daily trip to be reduced or offset. The funds shall be used to support alternatives to automobile travel in the town within which the project is located, including but not limited to traffic monitoring, planning, design, engineering, acquisition, implementation, marketing, and operation or the purchase of vacant land for protection of open space in excess of other RPP or municipal requirements. The amount of payment per daily trip to be reduced shall be based upon the estimated cost of funding for alternatives to automobile transportation or the estimated cost of developable land within the town in which the project is located. The amount of payment shall also be commensurate with the number of vehicle trips to be reduced or offset.

(d) Any combination of (a), (b), or (c).

Specifics regarding location of land to be preserved and estimating trip-reduction value: The land shall be located within the town(s) containing the DRI and shall be appropriately development restricted to protect the trip-reduction benefit. The trip-reduction credit for all options above shall be calculated by the Commission based on the estimated amount of net traffic that the proposal will remove taking into consideration size, location, zoning, accessibility, current land use, any trip-generation data available for existing developments, and future land use. In deciding whether to allow land as a traffic mitigation strategy, the Commission may consider but is not limited to issues of enforceability of land restrictions, whether the land is within a Growth Incentive Zone or designated Economic Center, current

adjacent land uses, town zoning and plans, input from local and state officials, and overall land-use goals in the RPP.

TR2.12 Trip-generation Credit

The Commission may allow a DRI to exceed the requirements of this section and receive a corresponding reduction in trip generation for the purpose of meeting MPS TR3.4.

TR2.13 Inflation Factor

Where deemed appropriate by the Commission, an annual inflation rate, determined at the time of the DRI decision, shall be applied to any trip-reduction payment amounts. The period of increase shall be from the date of the Commission DRI decision until the funds are paid. Guidance on the inflation rate can be found in the Cape Cod Commission Guidelines for Transportation Impact Assessment, Technical Bulletin 96-003, as amended.

TR2.14 Uses of Trip-reduction Funds

Funds collected for trip reduction shall be used only to support projects or strategies that encourage alternatives to automobile travel. These include but are not limited to planning, design, or construction of alternatives to automobile travel such as bicycle paths and sidewalks; supporting, marketing, or promoting transit or shuttle services; the purchase of land for the creation of bicycle or pedestrian ways; the purchase of land capable of generating trips and the preservation of such land in a way that permanently prohibits trip generation; and/or the monitoring of traffic volumes, speeds, and vehicle classification. Such funds shall be used within the town in which the development has impacts or shall be divided between towns based on the DRI's impact area. Funds not accessed within five years of receipt may be, at the Executive Director's discretion after written notification to the town, distributed to the Cape Cod Regional Transit Authority or successor agencies to fund public transit on Cape Cod.

Best Development Practices

TR2.15 Bike Racks and/or Storage

All DRIs proposing industrial or commercial uses are encouraged to provide secure bicycle racks and/or storage within close proximity of a building entrance for five percent or more of all building users (measured at peak periods), and provide shower and changing facilities in the building or within 200 yards of a building entrance for one-half percent of Full-Time Equivalent occupants.

TR2.16 Alternate Modes of Travel

All DRIs are encouraged to include trip-reduction programs to encourage alternative modes of travel including carpooling, transit, bicycling, walking, and, where appropriate, working at home to reduce congestion, pollution, and energy usage; flexible work hours; and incentives for alternatives to automobile travel.

TR2.17 Buffers around Airports

Regional and local airports are encouraged to maintain a buffer area to ensure current and future development is protected from noise, exhaust fumes, and loss of life or property.

TR2.18 Rail and Marine Freight Shipment

Rail and marine freight shipment to and from Barnstable County is encouraged as an alternative to truck freight shipments, when appropriate.

TR2.19 Preferred Parking Spaces for Car/Van Pools

DRIs proposing office or industrial uses are encouraged to provide preferred parking spaces for car pools and van pools, marked as such, for five percent of the total parking spaces and be located closer to building entrances than general-use parking spaces.

TR2.20 Parking Structures

Strategically located parking structures that serve several developments are encouraged where appropriate to serve Economic Centers and Growth Incentive Zones, provided such structures also comply with historic, community character, and environmental Minimum Performance Standards.

TR2.21 Shared Parking

DRIs are encouraged to share parking with adjacent uses to the maximum extent feasible.

Transportation Goal – TR3:
Level of Service/Congestion Management

To maintain travel times and Level of Service on roads and intersections and to ensure that all road and intersection construction or modifications are consistent with community character, historic resources, and scenic resources.

Minimum Performance Standards

TR3.1 Operational Requirements

Regardless of traffic volumes, Level of Service analysis shall be required at all access and/or egress points onto the road system for DRIs. All new access and/or egress onto the road system for DRIs shall operate at Level of Service C or better during the project's peak hour for a maximum of five years after project occupancy, except that Level of Service D or better shall be allowed for a minimum of five years after project occupancy for projects located within designated Economic Centers or Growth Incentive Zones. For towns without designated Economic Centers, the Level of Service C standard shall apply. For unsignalized driveways, the Level of Service standards shall be met for each turning or non-turning maneuver; for signalized driveways, the Level of Service standards shall apply to the overall intersection Level of Service.

TR3.2 Credit for Trip-reduction Mitigation

For the purpose of meeting the requirements of Goal TR3 and the supporting Minimum Performance Standards, DRIs shall be allowed to reduce their estimated trip generation by 25 percent after compliance with all Minimum Performance Standards under Goal TR2.

TR3.3 Traffic Studies

DRIs shall provide an appropriate traffic study in accordance with the Cape Cod Commission Guidelines for Transportation Impact Assessment, Technical Bulletin 96-003, as amended, as determined by the Commission in consultation with the town and the applicant. The traffic study shall identify and include analysis for the area impacted by the development. Guidance on providing a traffic study can be found in the Cape Cod Commission Guidelines for Transportation Impact Assessment, Technical Bulletin 96-003, as amended.

TR3.4 Mitigation of Congestion Impacts Required

DRIs shall provide for full mitigation of adverse impacts on all road links, and at all intersections that are used by the DRI, including but not limited to bridges, intersections, rotaries, roundabouts, interchanges, and U-turns where the DRI is expected to increase peak-hour traffic after traffic adjustments in compliance with the Minimum Performance Standards supporting Goal TR2. At all adversely impacted locations, mitigation shall be proposed and funded to maintain year-round Level of Service at "no-build" conditions as measured by travel speeds, control delay, density, and/or flow rate as defined by the Highway Capacity Manual 2000 or its successor documents.

TR3.5 Mitigation Fee

At impact locations, as specified in MPS TR3.4, where the increase is less than 25 peak hour trips, DRIs may make a payment per peak-hour trip to comply with MPS TR3.4. The fee shall be $5,000 per peak-hour trip up to a maximum of 25 peak-hour trips.

Funds collected for congestion mitigation shall be used to support projects or strategies that encourage alternatives to automobile travel consistent with MPS TR3.12 or to support actual expansion of roadway capacity including but not limited to planning, engineering, permitting, and construction. Such funds shall be used within the town in which the development is located or shall be divided between towns based on the development's impact area. The determination of how these funds are utilized shall be determined by the town impacted by the DRI, in consultation with Cape Cod Commission staff. Funds not accessed within 10 years of receipt may, at the Executive Director's discretion, be distributed to the Cape Cod Regional Transit Authority or successor agency(ies) to fund public transit on Cape Cod.

TR3.6 "Fair-share" Payments

In lieu of construction and/or implementation of measures to mitigate adverse traffic impacts prior to a final Certificate of Compliance, the Commission, at its discretion, may allow a payment of funds to Barnstable County to meet the requirements of MPS TR3.4 commensurate with the DRI's impact. As determined by the Commission, in considering whether to allow

such payments, the Commission will take into account factors including but not limited to safety, congestion, area land uses, community character, environmental impacts, seasonal traffic variations, input from public officials, public testimony, and may include costs for 20 years of operations and maintenance, where necessary. Guidance on payment methodology can be found in the Guidelines for Transportation Impact Assessment, Technical Bulletin 96-003, as amended.

Funds collected for congestion mitigation shall be used to support projects or strategies that encourage alternatives to automobile travel consistent with MPS TR3.12 or to support actual expansion of roadway capacity including but not limited to planning, engineering, permitting, and construction. Such funds shall be used within the town in which the development is located or shall be divided between towns based on the development's impact area. The determination of how these funds are utilized shall be determined by the town impacted by the DRI, in consultation with Cape Cod Commission staff. Funds not accessed within 10 years of receipt may, at the Executive Director's discretion, be distributed to the Cape Cod Regional Transit Authority or successor agency(ies) to fund public transit on Cape Cod.

TR3.7 Restrictions on Road Widening or New Signals

Road and intersection widening and new traffic signals shall not be used as actual mitigation or to support mitigation payments under MPS TR3.6 in local or regional historic districts. Road widening, intersection widening, and/or new traffic signals proposed as mitigation for DRIs or used to support development of payment mitigation plans under MPS TR3.6 shall be consistent with community character and not degrade scenic or natural resources.

TR3.8 Year-round Structural Mitigation

Road widening, intersection widening, and new traffic signals shall be allowed as mitigation for DRIs only if the Commission finds that the improvement will have substantial benefit to the transportation system throughout most of the year. Road widening, intersection widening, and new traffic signals necessary to accommodate strictly summer travel demand shall not be allowed as part of development and redevelopment.

TR3.9 Bicycle and Pedestrian Accommodation

All road and intersection widening and new traffic signals or modification of existing traffic signals required as DRI mitigation shall include appropriate bicycle and pedestrian accommodation.

TR3.10 Preserve Existing Rights-of-Way

Existing transportation rights-of-way shall be preserved for transportation uses as well as to limit trip generation.

TR3.11 No Capacity Increases on Controlled-access Highways

DRIs shall not increase the mainline capacity of limited-access highways on Cape Cod, including portions of Route 6, Route 3, and the Route 25 extension within Barnstable County.

No additional travel lanes shall be allowed. Appropriate improvements to safety and traffic flow (such as additional ramps, improved merge areas, traffic signals, etc.) at the existing interchanges along limited-access highways shall be a permissible mitigation strategy, as long as such mitigation complies with standards regarding historic character, community character, and environmental impact as well as seasonal versus year-round need.

TR3.12 Consistency with Other Plans

All roadway infrastructure projects proposed as DRI mitigation, including but not limited to roadway segment widening, intersection widening, new traffic signals, interchange ramp changes, and grade separation, shall be consistent with local and regional plans, including but not limited to Local Comprehensive Plans, and the Cape Cod Metropolitan Planning Organization's latest Regional Transportation Plan.

TR3.13 Operation and Maintenance Costs

Where deemed appropriate by the Commission, all new traffic signals under town jurisdiction proposed as DRI mitigation shall include payments for 20 years of operations and maintenance costs. All new traffic signals used to support development of payment mitigation plans under MPS TR3.6 shall include payments for 20 years of operations and maintenance. The funds shall be paid in a single payment. The applicant shall calculate the operation and maintenance costs in accordance with the Cape Cod Commission Guidelines for Transportation Impact Assessment, Technical Bulletin 96-003, Revised January 9, 2003, as amended.

TR3.14 Traffic-monitoring Devices

Where deemed appropriate by the Commission, all roadway widening, intersection signals, and other roadway capacity alterations proposed as DRI mitigation to accommodate automobile travel shall include continuous year-round traffic-recording devices to monitor traffic volumes, vehicle classification, and travel speeds, and shall include devices to access the data remotely both at the data-collection site and at the data-processing site. Where deemed appropriate by the Commission, the applicant shall make a payment of funds to support maintenance and operation of the devices for 20 years.

The applicant shall determine traffic-counting equipment costs based on the Cape Cod Commission Guidelines for Transportation Impact Assessment Technical Bulletin 96-003, Revised January 9, 2003, as amended.

TR3.15 Inflation Factor

Where deemed appropriate by the Commission, an annual inflation rate, determined at the time of the DRI decision, shall be applied to all congestion mitigation payments. The period of increase shall be from the date of the final Commission decision until the funds are paid.

TR3.16 Use of Congestion Mitigation Funds

Funds collected for congestion mitigation shall be used to support projects or strategies that encourage alternatives to automobile travel consistent with MPS TR2.13 or to support actual

expansion of roadway capacity including but not limited to planning, engineering, permitting, and construction. Such funds shall be used within the town in which the development is located or shall be divided between towns based on the development's impact area. Funds not accessed within 10 years of receipt may, at the Executive Director's discretion, be distributed to the Cape Cod Regional Transit Authority or successor agencies to fund public transit on Cape Cod.

Best Development Practices

TR3.17 Automatic Data Collection

DRIs are encouraged to provide for or contribute to automatic data collection and information-based technologies in the region beyond the requirements of MPS TR3.14 that assist travelers in making efficient travel decisions regarding travel mode and time of travel.

TR3.18 Consistency with Federal and State Plans

Transportation mitigation is encouraged to be consistent with federal and state acts and plans, including the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) and successor transportation acts and amendments, the Clean Air Act Amendments of 1990, the Americans with Disabilities Act, Massachusetts laws regarding access for disabled persons, the Massachusetts State Implementation Plan, the Metropolitan Planning Organization's Regional Transportation Plan, and the applicable Local Comprehensive Plan.

Waste Management (WM)

Waste Management Goal – WM1:
Hazardous Materials and Waste

To protect Cape Cod's drinking water by prohibiting land use activities involving the handling, storage, and disposal of hazardous materials and wastes that pose a significant threat to groundwater supplies.

Minimum Performance Standards

WM1.1 Hazardous Materials/Waste Restrictions

Development and redevelopment that involves the use, treatment, generation, handling, storage, or disposal of Hazardous Materials and/or Hazardous Wastes, with the exception of Household Quantities or less, shall not be allowed within Wellhead Protection Areas and Potential Public Water Supply Areas, except as provided in WM1.2 and WM1.3.

WM1.2 Credit for Redevelopment

Redevelopment within Wellhead Protection Areas that involves use, treatment, generation, handling, storage, or disposal of Hazardous Materials and/or Hazardous Wastes may be allowed to exceed the limits in WM1.1 provided that the quantity of hazardous materials is less than the quantity from the prior use and provided adequate documentation of the previous volume is approved by the Commission.

WM1.3 Credit for Removal of Development

Development and redevelopment within Wellhead Protection Areas that involves the use, treatment, handling, storage, or disposal of Hazardous Materials and/or Hazardous Wastes may be allowed to exceed the quantity limits of hazardous materials in WM1.1 up to, but not exceeding the amount, that the development or redevelopment permanently eliminates at another facility, project, or site within the same Wellhead Protection Area and provided adequate documentation of the volume eliminated is approved by the Commission.

WM1.4 Pollution Prevention and Emergency Response Plan

Development and redevelopment in Wellhead Protection Areas and Potential Public Water Supply Areas shall prepare a Pollution Prevention and Emergency Response plan for both the construction phase and normal operations that identifies potential contamination sources, threats of Hazardous Material and Hazardous Waste releases to the environment, describes material storage and handling details, containment and contingency plans for spill response, and documents regular inspection and employee education opportunities.

WM1.5 Compliance with Massachusetts Hazardous Waste Regulations

Any development or redevelopment that uses, handles, generates, treats, or stores Hazardous Waste shall be in compliance with Massachusetts Hazardous Waste Regulations, 310 CMR 30.0 for the purposes of Cape Cod Commission review by providing the Commission with evidence of the following:

(a) registration with or notification to the Massachusetts Department of Environmental Protection as a generator of Hazardous Waste;

(b) a written plan or protocol to manage the Hazardous Waste prior to disposal;

(c) a signed contract with a registered, licensed company to dispose of the Hazardous Waste.

Best Development Practices

WM1.6 Elimination of Hazardous Materials/Waste

Development and redevelopment is encouraged to eliminate Hazardous Materials or Hazardous Waste handled, treated, generated, used, or stored at a pre-existing facility, site, or project.

Waste Management Goal – WM2:
Solid Waste

To manage solid waste using an integrated solid waste management system that includes waste reduction, recycling, and composting and to divert 60 percent of municipal solid waste from incinerator and landfill facilities through recycling and composting programs by 2012.

Minimum Performance Standards

WM2.1 Construction Waste

Development and redevelopment projects shall address the disposal of construction waste at both the construction and post-construction phases of development or redevelopment. To do so, a plan shall be provided to demonstrate how the applicant proposes to handle solid wastes, construction and demolition (C&D) wastes, and recyclable materials currently categorized by the Massachusetts Department of Environmental Protection (DEP) as a waste ban material.

WM2.2 C&D Waste Plan

If C&D waste is to be generated as a part of the proposed development or redevelopment, a plan shall be provided that specifies:

- a listing of C&D wastes that will be generated during the development or redevelopment;
- the method for separating, storing, transporting, and disposing of gypsum (wall board and sheetrock) from the remainder of the waste stream; and
- the methods that will be used to recycle or dispose of those remaining materials in the C&D waste stream.

WM2.3 Post-construction Waste

A solid waste and recycling management plan shall be provided that identifies how both solid wastes and recyclable materials will be handled in the post-construction phase of the development. In particular, the applicant shall provide a plan detailing how waste ban materials (particularly plastic, glass containers, and cardboard) will be collected, stored on site, and recycled.

WM2.4 Food-waste Recycling

A post-construction management plan shall be provided by those developments (primarily supermarkets) generating significant amounts of food wastes to demonstrate how an applicant will recycle organic materials. A plan shall specify, at a minimum:

- the anticipated amounts of organic wastes to be generated;
- the manner by which the organic wastes will be stored on site prior to being sent off site; and
- the destination of the organic waste materials that will be composted.

The organics recycling program shall be consistent with the standards outlined in the DEP voluntary Supermarket Recycling Program Certification guidelines.

Energy (E)

Energy Goal – E1:
Emissions and Energy Use

To promote a healthy and sustainable economic, natural, built and social environment by reducing greenhouse gas emissions and energy costs through design and construction practices that increase energy conservation, promote energy efficiency, and promote self sufficiency through the use of locally distributed renewable energy.

Minimum Performance Standards

Minimum Performance Standards E1.1 – E1.5 shall not apply to the following: wireless communication facilities, wastewater treatment facilities, landfills, or air traffic control towers.

E1.1 Redevelopment Energy Audit

Redevelopment shall perform an energy audit of existing conditions and incorporate recommendations into the project design. Guidance on audit components can be found in Technical Bulletin 09-002, Development of Regional Impact Guidelines for Energy Compliance, as amended.

E1.2 Designated to Earn ENERGY STAR® Certification

Nonresidential development and redevelopment shall be designated to earn the ENERGY STAR® Target Rating of 75 or higher.

E1.3 ANSI/LEED Standards

Nonresidential development and redevelopment shall comply with current ANSI/ASHRAE/IESNA Standard 90.1-2007, Section 5.4 – Insulation, Fenestration, and Doors or current prerequisite LEED-certified standard, or successor standards designated by the Commission.

E1.4 Multi-family Projects

All multi-family residential projects (townhouses, condominiums, apartments) shall be designed according to current ENERGY STAR® National Attached Builder Option Package specifications.

E1.5 On-site Renewable Energy Generation

Except for mixed-use projects located in designated Economic Centers as identified on the Regional Land Use Vision Map, non-residential commercial development and redevelopment involving net new construction shall provide a minimum of 10 percent of a building's projected annual (kWh) electrical demand through on-site renewable energy generation. In the case of redevelopment, the 10-percent calculation shall be based solely on the gross floor area of the additional new development in excess of 10,000 square feet. EPA average energy-intensity levels by building type and square feet are used as a baseline to calculate the 10-percent energy demand. In addition, applicants may provide an energy model to determine annual site-demand input for their project. Guidance on calculating energy demand can be found in Technical Bulletin 09-002, as amended. The Commission may waive this requirement if:

- The project provides 5 percent of electrical demand through on-site renewable energy systems and participates in the Cape Light Compact Green Program for 100 percent of their remaining electricity needs.

–or–

- The project is LEED certifiable.

–or–

- The project demonstrates compliance with six of the following:

Installs ENERGY STAR®-compliant reflective roofing, or a vegetated roof.

Re-uses existing structures (including shell and non-shell).

Incorporates renewable energy.

Installs a geothermal heating system.

Incorporates passive solar design.

Installs energy-conserving landscapes (for example, native species).

Complies with ANSI standards (6.4 – HVAC; 7.4 – Load Calculations, Equipment Efficiency, Service Hot Water Piping Insulation, Service Controls, Pools, Heat Traps; 9.4 – Lighting Control, Tandem Wiring, Exit Signs, Exterior Grounds Lighting).

E1.7 Alternative Method of Meeting MPS E1.1 through E1.6

To meet the requirements of Goal E1 and applicable Minimum Performance Standards, commercial DRIs may, at the applicant's option, provide 25 percent or more of their projected annual electrical demand (kWh) through on-site renewable energy.

Affordable Housing (AH)

Affordable Housing Goal – AH1:
Promotion and Creation of Affordable Housing

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. At a minimum, each town should seek to raise its affordable housing stock to 7.5 percent of all year-round units by 2010, and 10 percent of all year-round units by 2015.

Minimum Performance Standards

AH1.1 Residential Requirement

Residential construction and redevelopment projects of 10 units or more shall provide at least 10 percent of the proposed units as affordable units. In lieu of providing such units on site, the

applicant may satisfy these requirements by providing comparable housing units off site through the purchase of existing units, redevelopment, new construction, a contribution of land that can support as of right the required number of affordable units or a cash contribution as described in MPS AH1.3. A contribution of land shall be accompanied by a development plan acceptable to the Commission.

AH1.2 Ten-percent Requirement for Subdivisions of 10-plus Lots

Residential subdivision plans of 10 lots or more shall provide at least 10 percent of the proposed lots as affordable housing sites. In lieu of providing such lots on site, the applicant may develop, or contribute comparable off-site lot(s) that can support as of right, the required number of affordable units. The applicant may also offer comparable housing units off site through the purchase of existing units, redevelopment, or new construction. The applicant may also provide a cash contribution as described in MPS AH1.3. A contribution of land shall be accompanied by a development plan acceptable to the Commission.

AH1.3 Cash-contribution Option

In lieu of providing such units or lots on site, an applicant may provide a cash contribution of equivalent value for funding or purchase of affordable housing that (a) has a plan acceptable to the Commission to expend those funds within the same time frame as the applicant's development, and (b) will result in a greater number of units or lots than had they been created on site. The method and timing of the payment(s) shall be secured as a condition of development approval.

Equivalent value shall be determined through one of the following methods: (a) for lot subdivisions, current appraised value of the affordable lots; (b) for ownership projects, the difference between the affordable sales price(s) and the market sales price(s) of similar bedroom units within the project; (c) for rental projects, the difference in appraised value between the value of the project with and without the affordable units. The appraiser shall be selected by the Commission from a list approved by the Commission and the applicant and shall be paid for by the applicant.

AH1.4 Calculation of Affordable Units

For the purposes of calculating the 10-percent affordable housing contribution, all numbers shall be rounded to the highest whole figure.

AH1.5 Off-site Option Criteria

Prior to the rendering of a DRI decision by the Commission, an applicant shall demonstrate to the Commission that off-site lots are buildable and/or units habitable per federal Housing Quality Standards (24 CFR 200.925 or 200.926). In the event that the off-site lots or units do not meet those standards as determined by Commission staff, an acceptable alternate contribution shall be required.

AH1.6 Location of Off-site Option

For DRIs, the units or lots resulting from Minimum Performance Standards AH1.1, AH1.2, and AH1.3 shall be in the town where the DRI is located.

AH1.7 Timing of Off-site Contributions

For DRIs, all affordable housing contributions shall be made prior to the conveyance of any of the subdivision lots or the issuance of a building permit for the project, whichever occurs first.

AH1.8 Timing and Mix of Affordable Units

For DRIs, development of affordable housing shall take place at the same rate and within the same time frame as the development of the market-rate units. There shall be a similar proportion of affordable and market-rate units in those DRIs with a mix of unit/bedroom sizes and/or in those DRIs with a mixture of housing types (for example, ownership and rental; independent living and assisted living, etc.).

AH1.9 Integration and Size of Affordable Units

On-site affordable housing units created by this section shall be integrated with the rest of the development and shall be compatible in exterior design, appearance, construction, and quality of materials with other units. For DRIs, location of the affordable units and construction specifications shall be approved by the Commission prior to the start of construction. To ensure that affordable units qualify for the state's Subsidized Housing Inventory (SHI), both on site and off site affordable housing units shall meet the Department of Housing and Community Development's Local Initiative Program (LIP) unit size guidelines.

AH1.10 ENERGY STAR® Requirement

Newly constructed affordable housing units created by this section shall meet at least the minimum ENERGY STAR® construction standard.

AH1.11 Pricing and Rents of Affordable Units

For ownership DRIs, the affordable sales prices shall be calculated using the Barnstable County HOME Consortium methodology and guidelines. For rental DRIs, the affordable rents shall be the "high" HOME rents, as published annually by the US Department of Housing and Urban Development (HUD). If comprehensive services are included in the monthly rent (for example, continuing-care retirement communities (CCRC), assisted living, and/or skilled nursing facility projects), and the monthly rent exceeds the limits set forth by the HOME Program, the Commission shall utilize existing state housing program guidelines (for example, MassHousing's Elder Choice program, the Massachusetts Department of Housing and Community Development's CCRC guidelines, etc.) to determine the amount of household income that must be devoted to rent and services. Prior to the occupancy of the affordable units, the applicant shall demonstrate that the occupants are income-eligible in accordance with HOME Consortium guidelines.

AH1.12 Permanent Affordability

Affordable housing units created by this section shall use affordable housing restrictions that are recorded at the Barnstable County Registry of Deeds and that require the units to remain affordable in perpetuity.

AH1.13 Monitoring of Affordability

A monitoring agreement between the applicant and a third party organization acceptable to the Commission with experience in affordable housing income verification shall be required for all affordable housing developed under this section. For rental DRIs, the monitoring agent shall be responsible for certifying initial tenant income eligibility, rents, and compliance with the affirmative marketing and tenant-selection plan; thereafter, the agent shall annually certify income eligibility and rents. For ownership DRIs, the monitoring agent shall be responsible for certifying initial buyer income eligibility and compliance with the affirmative marketing and buyer selection plan.

AH1.14 No Reduction in Number of Existing Units

For DRIs, residential and/or commercial construction, redevelopment, or subdivision development projects resulting in the reduction of non-condemned residential units shall not be allowed except in the discretion of the Commission.

Best Development Practices

AH1.15 Location of Affordable Housing

Affordable housing is encouraged as part of residential development in designated Economic Centers, Villages, and Growth Incentive Zones and convenient to transportation corridors. The Commission encourages the use of redeveloped properties for affordable housing in these locations.

AH 1.16 Priority for Affordable Rental Housing

DRIs are encouraged to create rental housing for all age groups as the region's priority affordable housing need, as identified in the 2005–2009 HUD Consolidated Plan.

AH 1.17 Moderate-income Homeownership

Residential DRIs are encouraged to provide units that are affordable to moderate-income households (those between 80 and 120 percent of area median income).

Affordable Housing Goal – AH2:
Fair Housing/Equal Opportunity

To promote equal opportunity in housing and give special consideration to meeting the housing needs of the most vulnerable segments of the Cape's population, including but not limited to homeless individuals and families, very low income (50 percent of median income), low

income (51–80 percent of median income), single heads of household, racial minorities, and others with special needs.

Minimum Performance Standards

AH2.1 Non-discrimination

In all of its actions the Commission and project proponents shall work to prevent discrimination in housing because of race, color, creed, religion, sex, national origin, primary language, age, political affiliation, source of income, disability, sexual orientation, or any other consideration prohibited by law, and shall not knowingly approve any development that so discriminates.

AH2.2 Visitability and/or Accessibility Requirement

Residential construction and redevelopment projects shall provide at least 10 percent of the affordable units, or one unit, whichever is greater, of the proposed units as either legally handicapped accessible unit(s) or unit(s) that meet visitability standards: one entrance with zero steps; 32-inch clear passage through all interior main-floor doors; and at least one half bath on the main floor.

AH2.3 Affirmative Marketing and Selection of Buyers/Tenants

For DRIs, the applicant shall submit a marketing plan to the Commission for its consideration and approval that describes how the affordable units will be affirmatively and fairly marketed to potential home buyers and/or renters. The plan shall include a description of the lottery process to be utilized for selecting the home buyers and/or renters. The lottery shall have either one pool for all applicants or two pools: a regional resident pool for up to 70 percent of the units and all applicants in the second pool. The marketing and selection plan shall be consistent with the state's LIP guidelines so that the affordable units will qualify for the state's Subsidized Housing Inventory.

AH2.4 Relocation Requirement

Residential construction, redevelopment, or subdivision development projects resulting in dislocation of existing residential occupants shall be subject to the provisions of the federal Uniform Relocation Act.

Affordable Housing Goal – AH3:
Community Participation

To promote the participation of all segments of the community to address the housing needs of Cape Cod residents, with particular attention to the needs of low- and moderate-income households.

Minimum Performance Standards

AH3.1 Mitigation Standard

For commercial DRIs, in accordance with the findings, methodology, and recommendations of the July 2005 Barnstable County Nexus Study along with recent real estate and income data, the following contributions listed below shall be made for the purpose of creating affordable housing in the town in which the DRI is located:

DRIs Located in Economic Centers

Office	$3.58 Per Square Foot (PSF)
Health and Medical	$4.73 PSF
Retail	$4.87 PSF
Restaurant/Food Service	$6.95 PSF
Warehouse/Distribution	$1.15 PSF
Other	$2.31 PSF x (# jobs paying less than regional average wage/[total sf/1,000])

DRIs Not Located in Economic Centers/Towns Without Designated Economic Centers

Office	$7.16 PSF
Health and Medical	$9.45 PSF
Retail	$9.74 PSF
Restaurant/Food Service	$13.89 PSF
Warehouse/Distribution	$2.29 PSF
Other	$4.62 PSF x (# jobs paying less than regional average wage/[total sf/1,000])

Guidance on the calculation of mitigation for developments in the "Other" category can be found in Technical Bulletin #10-001: Guidelines for Calculation of Mitigation for Developments of Regional Impact in "Other" Category for Minimum Performance Standard AH3.1.

AH3.2 Alternate Mitigation Calculation Option

An applicant who provides information satisfactory to the Commission that the development will result in a higher percentage of employees earning wages greater than the regional average wage than that determined by the Nexus Study shall receive an adjustment to the mitigation amount outlined in MPS AH3.1 and AH3.3. The Nexus Study determined that the following types of development will result in the following proportion of employees earning wages greater than the regional average wage: Office – 59 percent; Health/medical – 46 percent; Restaurant/food service – 5 percent; Retail – 11 percent; and Warehouse/distribution – 6 percent. Guidance on the information to be provided and the method of mitigation adjustment can be found in Technical Bulletin #09-001: Guidelines for Mitigation Credit and Reduction of Minimum Performance Standard AH3.2.

AH3.3 Annual Adjustment of Mitigation

The amount of the required contribution in AH3.1 shall be adjusted on March 1st of each year based upon the annual change in the US Department of Labor's Consumer Price Index (CPI) – All Urban Consumers – for the Boston Metropolitan Statistical Area. For example, if the CPI increased by 4 percent in 2008, then all mitigation amounts would be multiplied by 1.04 (for example, office development mitigation would now be $3.72 PSF inside Economic Centers and $7.45 PSF outside of Economic Centers respectively.

AH3.4 On-site Units Option

In lieu of the cash-contribution requirement of AH3.1, the applicant may provide affordable year-round units on or off site that total 10 percent of the number of projected employees that will earn less than the average wage of the region (as determined by the most current information from the Massachusetts Division of Career Services/Division of Unemployment Assistance). The affordable housing created under this section shall comply with the relevant MPSs under Goals AH1 and AH2.

AH3.5 Redevelopment/Change of Use

Redevelopment and change of use projects involving nonresidential uses shall receive a credit for the amount of mitigation required based upon the existing use and existing square footage. A change of use from a nonresidential use to a residential use shall meet the requirements under Goals AH1 and AH2.

Heritage Preservation and Community Character (HPCC)

Heritage Preservation and Community Character Goal – HPCC1:
Historic, Cultural, and Archaeological Resources

To protect and preserve the important historic and cultural features of Cape Cod's landscape and built environment that are critical components of the region's heritage and economy.

Minimum Performance Standards

HPCC1.1 Historic Structures

An historic structure's form, massing, and key character-defining features, including the relationship to its site and setting, shall be preserved. Additions and alterations to historic structures shall be consistent with the building's architectural style and shall not diminish its historic and architectural significance. Removal or alteration of distinguishing original stylistic features or examples of skilled craftsmanship of historic or aesthetic significance shall be prohibited unless the Commission determines that such removal or alteration will not have a significant negative impact on the integrity of the historic property, surrounding historic district, or otherwise distinctive neighborhood. Demolition is considered only if a building or structure is found no longer eligible for listing on the National Register or no longer contributing to the historic significance of the district. There is a presumption in favor of retaining all National Register-eligible structures, and all contributing structures in an historic district due to the determination of significance by the Massachusetts Historical Commission and/or the National Park Service. If a demolition request is based upon structural instability or deterioration, a technical report prepared by a registered architect or engineer may be required, detailing the nature and extent of the problems and a reasonably adequate estimate of the cost to correct them. The Commission may hire its own structural engineer to evaluate the property and verify the content of the applicant's report, and the applicant may be required to pay a portion of that cost.

HPCC1.2 Cultural Landscapes

The distinguishing original features of an historic or cultural landscape shall be preserved. New development adjacent to or within historic or cultural landscapes shall be located to retain the distinctive qualities of such landscapes and shall be designed to maintain the general scale and character-defining features of such landscapes. In particular, historic agricultural lands and other working agricultural lands shall be retained to prevent further loss of these dwindling resources that speak to the Cape's agricultural past.

HPCC1.3 Archaeological Sites

Where development is proposed on or adjacent to known archaeological sites or sites with high archaeological sensitivity as identified by the Massachusetts Historical Commission (MHC) or the Local Historical Commission during the review process, it shall be configured to maintain and/or enhance such resources where possible. A predevelopment investigation of such sites shall be required early in the site planning process to serve as a guide for layout of the development. Archaeological sites determined eligible for listing on the National Register of Historic Places shall be preserved and protected from disturbance.

In reviewing projects affecting historic resources, the Commission will refer to the Secretary of the Interior's Standards for Rehabilitation of Historic Properties and other current guidelines and bulletins prepared by the National Park Service Heritage Preservation Services Division. The MHC has agreed to review any projects that require a state or federal license, permit or funding, as defined by the National Historic Preservation Act, for their conformance with the Secretary of the Interior's Standards for Treatment of Historic Properties and for their effects on the historic significance of the property and any surrounding historic district. The MHC will also assist the Commission in reviewing other projects that will affect properties listed on the

State or National Registers of Historic Places. A town's Local Historical Commission and, where appropriate, the Massachusetts Commission on Indian Affairs will also assist the Commission in reviewing projects that will affect properties with historic and archaeological significance.

Best Development Practices

HPCC1.4 Local Preservation Efforts

Development projects that do not include an historic preservation or rehabilitation component are encouraged to contribute to public or nonprofit preservation efforts in the community.

HPCC1.5 Preservation Restrictions

Protection of significant historic structures, cultural landscapes, and archaeologically sensitive areas is encouraged through conservation restrictions or preservation restrictions that ensure their long-term preservation.

Heritage Preservation and Community Character Goal – HPCC2:
Community Character/Site and Building Design

To encourage redevelopment of existing structures as an alternative to new construction, and to ensure that all development and redevelopment respects the traditions and distinctive character of historic village centers and outlying rural areas consistent with Designing the Future to Honor the Past, Design Guidelines for Cape Cod, Technical Bulletin 96-001, as amended.

Minimum Performance Standards

Project Siting Standards

HPCC2.1 Strip Development

Creation or extension of strip development shall not be permitted. Reuse, redevelopment, or infill within existing strip developments in a way that does not extend the linear nature of the development or increase traffic conflicts may be permitted.

HPCC2.2 Protection of Existing Roadway Character

New development proposed on local and regional roadways shall be sized such that it can be accommodated without significant changes to the existing character of the roadway. Any necessary structural improvements shall be consistent with the existing character of the roadway, unless the Commission and the community deem alternatives appropriate.

HPCC2.3 Scenic Roadways and Vistas

New development shall be sited and designed to avoid adverse visual impacts to scenic areas. Visual impact assessments may be required as part of the project review. Development proposed adjacent to scenic roads or vistas shall preserve distinctive features of the scenic resource including tree canopy, wooded road edges, stone walls, winding road character, and

scenic views. Development adjacent to or within scenic vistas shall be clustered and designed to limit the visibility of the new development.

Building Design Standards

HPCC2.4 Consistency with Regional Context or Surrounding Distinctive Area

All development and redevelopment shall be consistent with the region's traditional development patterns, reflecting features such as modest building mass, height, scale, roof shape, roof pitch, building materials, and proportions between doors and windows. In areas with a distinctive character, such as historic districts, village centers, cultural landscapes, and historic properties, any design shall be consistent with the character of the area and reflect the surrounding context. Distinctive features of the area such as proximity to the street, views to historic structures, water and/or landscapes, and significant open spaces shall be preserved. A building design narrative is required as part of the DRI application to justify how the building relates to the surrounding context. Contemporary design and green design are encouraged and sometimes required in response to standards in the Energy chapter under Goal E.1, but must be supported by the design narrative.

HPCC2.5 Footprints over 15,000 Square Feet

For all new development, no individual structure shall exceed a footprint of 15,000 square feet unless it is designed as multiple distinct massings differentiated by significant variations in roofline and building footprint, or is fully screened. The method of screening shall be consistent with the character of the surrounding area, but shall typically consist of traditionally scaled frontage buildings within developed areas, and vegetated buffers of 200 feet in depth in outlying areas. Redevelopment projects may expand to a single massing of 50,000 square feet without full screening if the expansion occurs on previously developed impervious or landscaped areas.

HPCC2.6 Building Forms and Façades

For all development and redevelopment involving new construction, the massing, façades, and roof configuration of a building shall be varied. If a building façade is more than 50 feet in length, it shall include a minimum of 10 feet of variation in the building footprint (set-back or projection in the building wall) for every 50 feet of façade length, and related changes in the roofline in order to reduce the apparent mass of the building.

HPCC2.7 Non-traditional Materials and Designs

In industrial parks or areas not visible from scenic or regional roadways or other distinctive areas noted above in MPS HPCC2.4, use of nontraditional materials, forms, and site designs may be appropriate. In such areas, maintenance of adequate buffers on the subject property shall be required to ensure that the proposed development is screened from view.

Parking and Landscaping Standards

HPCC2.8 Parking to the Side or Rear of Buildings

The building and layout of all parking lots shall follow good design practices and reinforce regional development patterns. Parking for all development shall be located to the rear or the side of a building or commercial complex unless such location would have an adverse or detrimental impact on environmental or visual features on the site. In such cases, alternative means of minimizing environmental or visual impacts of the proposed parking shall be required.

HPCC2.9 Landscaping Improvements for Redevelopment

Redevelopment shall significantly improve buffers between parking areas and the street, as well as interior parking-lot landscaping, and shall provide façade improvements and frontage buildings, as necessary and if appropriate, to improve the visual character of the site.

HPCC2.10 Landscape Plan Requirements

All development shall provide landscaping that integrates buildings with their environment, enhances architectural features, fosters sustainable practices, clearly divides parking lots into smaller areas, includes tree planting, and provides amenities for pedestrians. All development shall implement a landscape plan that addresses the functional aspects of landscaping, such as drainage and innovative stormwater technologies, erosion prevention, screening and buffering, provision for shade, and energy conservation. When vegetative buffers are necessary to prevent adverse visual impacts from new development, existing vegetation shall be retained and unaltered in the buffer area. A maintenance agreement shall be provided by all development for a minimum of three growing seasons to insure vegetation is properly established.

Lighting, Signage and Roadway Appurtenances

HPCC2.11 Exterior Lighting

Site lighting and exterior building lights in all development shall meet the following standards. This Minimum Performance Standard shall not apply to aviation warning or marking lights as may be required by the Federal Aviation Administration.

- Employ "shoe-box" type or decorative fixtures, consistent with the architectural theme of the development and which are fully shielded.

- Use a mounting configuration that creates a total cutoff of all light at less than ninety (90) degrees from vertical (flood, area, and up-lighting are prohibited).

- Provide total cutoff of all light at the property lines of the parcel to be developed.

- Meet a maximum initial horizontal foot-candle level of not more than 8.0 foot-candles, as measured directly below the luminaire(s) at grade.

Additional guidance can be found in Technical Bulletin 95-001, as amended.

HPCC2.12 Signage

The installation of billboards, off-site advertising (except approved directional signs), and internally lit or flashing signs shall not be permitted. The size and color of all signs shall be in scale and compatible with the surrounding buildings and street. When more than one sign is used, the graphics shall be coordinated to present a unified image. Wooden signs, either painted or carved, are usually most appropriate.

HPCC2.13 Underground Utilities

All utilities for development including cable shall be placed underground except where the presence of natural features such as wetlands or archaeological resources prevent such placement.

HPCC2.14 Roadway Appurtenances

Ornamental signals and mast arms shall be required when the town and the Commission deem it appropriate. Crosswalks shall be constructed of a different texture. In historic areas, the design of roadway appurtenances shall be consistent with historic district styles.

Best Development Practices

HPCC2.15 Conservation Restrictions for Landscapes and Viewsheds

Maintaining the integrity of natural landforms and broad, open views of the landscape as seen from any public way or waterway is encouraged and should include long-term protection through conservation restrictions or other means.

HPCC2.16 Specimen Trees and Original Topography

Preserving the distinguishing original features of a site such as specimen trees, existing plantings, and topography is encouraged.

HPCC2.17 Impervious Parking Areas

Shared parking, on-street parking, and community parking lots are encouraged in order to reduce the amount of land devoted to parking. In individual developments, methods to reduce exposed paved areas such as parking underground or in a portion or the building's first floor, separate parking structures consistent with the Commission's Design Manual, and use of alternate paving materials are encouraged.

HPCC2.18 Public Open Spaces, Public Art, and Related Amenities

Public open spaces with benches and amenities, as well as public artworks, are encouraged in developments accessible to the public.

HPCC2.19 Multiple Stories to Reduce Building Footprint

Two-story buildings are encouraged to reduce the building footprint and to incorporate mixed use into the design of buildings.

HPCC2.20 Underground Utilities

Roadway improvement projects associated with DRIs are encouraged to include undergrounding of overhead utilities.

Appendices

Definitions

The definitions outlined below are designed specifically for their application in the Regional Policy Plan. They may not be identical to definitions used in the Cape Cod Commission Act or in other state and local programs. Except where specifically defined herein, all words in the Regional Policy Plan carry their customary meanings.

A-Zone – A-, AE-, A1-30 and A-99 Zones are those portions of Land Subject to Coastal Storm Flowage (LSCSF) that are subject to inundation by types of 100-year flooding where still-water flooding predominates. AO-Zone is the area subject to inundation by moving water (usually sheet flow on sloping terrain) where average depths are between one and three feet and are subject to hazardous flooding, wave impact, and, in some cases, significant rates of erosion as a result of storm wave impact and scour. A-Zone, in conjunction with V-Zone, is designated by FEMA as Special Flood Hazard Area.

Affordable Housing – Dwelling units available to households at or below 80 percent of the county median income, as reported by the US Department of Housing and Urban Development (HUD), with a housing cost of no more than 30 percent of the household's gross income. Housing costs for rental units include rent and utilities; housing costs for ownership units include mortgage principal and interest, property taxes, property insurance, mortgage insurance, and condominium and/or homeowners' association fees. Housing costs for continuing-care retirement communities, assisted living, and skilled nursing facility units may include specific comprehensive services that result in a housing cost in excess of 30 percent of a household's gross income.

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.

Articles – A manufactured item other than a fluid or a particle which:

(a) is formed into a specific shape or design during manufacture;

(b) has an end use function dependent in whole or in part on its specific shape or design; and,

(c) under normal conditions of use does not release more than very small quantities (e.g., trace amounts) of a Hazardous Material or Hazardous Waste.

Base Flood Elevation – The flood having a one-percent chance of being equaled or exceeded in any given year and used to define areas prone to flooding, and describe, at a minimum, the depth or peak elevation of flooding.

Best Management Practices – Effective practical, structural, or nonstructural methods which prevent or reduce the movement of sediment, nutrients, pesticides, and other pollutants from the land to surface or groundwater (or which otherwise protect water quality from potential adverse effects of similar activities).

Breakaway Wall – A wall that is not part of the structural support of the building and intended, through its design and construction, to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.

Cape Cod Metropolitan Planning Organization (MPO) – The official body having the responsibility for making decisions about transportation investments and related matters for Barnstable County, as required under Title 23 of the US Code. Currently, the members of the Cape Cod MPO include the Secretary of the Executive Office of Transportation and Public Works; the Commissioner of the Massachusetts Highway Department; the Chairman of the Cape Cod Regional Transit Authority; the Chairman of the Barnstable County Commissioners; the Chairman of the Cape Cod Commission; the President of the Barnstable Town Council; a Selectman representing Bourne, Falmouth, Mashpee, and Sandwich; a Selectman representing Brewster, Chatham, Dennis, Harwich, and Yarmouth; a Selectman representing Eastham, Orleans, Provincetown, Truro, and Wellfleet; or their representatives. The Cape Cod Joint Transportation Committee acts in an advisory capacity to the Cape Cod MPO. The structure of the MPO may change from time to time, in accordance with state and federal requirements.

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, that lies at the landward edge of a coastal beach, land subject to tidal action, or other wetland. Any minor discontinuity of the slope notwithstanding, the top of the bank shall be as defined in the Massachusetts Department of Environmental Protection's (DEP) Policy 92-1, Definition and Delineation Criteria for Coastal Bank, dated March 3, 1992, or any superceding guidance that is subsequently issued by the department.

Coastal Dune – Any natural hill, mound, or ridge of sediment landward of a coastal beach deposited by wind action or storm overwash. Coastal Dune also means sediment deposited by artificial means and serving the purpose of storm damage prevention or flood control.

Coastal Engineering Structure – Any breakwater, bulkhead, groin, jetty, revetment, seawall, weir, rip-rap, gabion, marine mattress, sandbag, or any other structure that is designed to alter waves, tidal action, or sediment transport processes.

Coastal Floodplain – The Regional Policy Plan and coastal resource managers use certain terms interchangeably to reference the area considered to be the coastal floodplain. The following terms and resource areas are all synonymous:

- Land Subject to Coastal Storm Flowage
- 100-year floodplain
- the sum of V-Zone and A-Zone
- Special Flood Hazard Area

Coastal High Hazard Areas – Coastal High Hazard Areas/Zones are synonymous with V-Zones.

Consumer Products – Any product that when released into the environment will not pose a significant contaminant threat to groundwater and drinking water supplies, including, but are not limited to, liquid chlorine bleach, borax, boric acid, dish detergents, laundry detergent, laundry fabric softener, laundry detergent boosters, and ammonia-containing glass, window cleaners, clay, lime or other broken or crushed rock, drugs, fertilizer without insecticides, herbicides, pesticides or rodenticides, glazing compound, latex paint, latex driveway sealer, latex roofing tar, soap, tobacco products, water-based stains, water-based wood finishes, water-based glues, and wood products.

Cosmetics – Articles, fluids, or particles intended to be rubbed, poured, sprinkled, sprayed, introduced into, or otherwise applied to the human body for cleansing, beautifying, or altering the appearance. This includes insecticides that are Cosmetics (e.g., mosquito repellents).

Crash – An event that produces death(s), injury or injuries, and/or property damage, involves a motor vehicle, and occurs on a road or while a vehicle is still in motion after running off a road.

Critical Nitrogen Loading Rate – Also referred to as the critical nitrogen loading standard, this rate expresses the nutrient loading threshold for surface water bodies. Nutrient loads above the critical nitrogen loading standard will result in eutrophication. The critical loading rate is the annual critical nitrogen load, usually expressed in kilograms, divided by the area of the watershed, usually expressed in acres.

Cultural Landscape – A geographic area (including both cultural and natural resources and the wildlife or domestic animals therein) associated with an historic event, activity, or person, or exhibiting other cultural or aesthetic values. There are four general types of cultural landscapes, not mutually exclusive: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes.

Developed Area – Any area that currently contains buildings, paved parking, and other development-related infrastructure or that has had such infrastructure removed but was in use within the past five (5) years. Developed areas do not include those areas or portions of sites that are vegetated.

Development – Any of the following undertaken by any person provided it is a Development of Regional Impact pursuant to Section 2 of the Cape Cod Commission Enabling Regulations Governing Review of Developments of Regional Impact, Barnstable County Ordinance 90-12: any building, construction, renovation, mining, extraction, dredging, filling, excavation, or drilling activity or operation; any material change in the use or appearance of any structure or in the land itself; the division of land into parcels; any change in the intensity of use of land, such as an increase in the number of dwelling units in a structure or a change to a commercial or industrial use from a less intensive use; any activity which alters a shore, beach, seacoast, river, stream, lake, pond, canal, marsh, dune area, woodland, wetland, endangered species habitat, aquifer, or other resource area, including coastal construction or other activity in Barnstable County within the jurisdictional limits of Barnstable County; demolition of a structure; 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.

Development of Regional Impact (DRI) – A development which, because of its magnitude or the magnitude of its impact on the natural or built environment, is likely to present development issues significant to or affecting more than one municipality, and which conforms to the criteria established in the applicable standards and criteria for developments of regional impact pursuant to Section 12 of the Cape Cod Commission Act.

District of Critical Planning Concern (DCPC) – A geographic area of Cape Cod identified by the Commission as requiring special protection and designated by the Assembly of Delegates in accordance with the criteria, procedures, and requirements set forth in Sections 10 and 11 of the Cape Cod Commission Act.

Economic Centers (EC) – Areas designated on the Regional Land Use Vision Map as appropriate for growth and redevelopment. These areas serve the region or sub-region and could include characteristics such as civic and institutional uses, retail, and mixed use.

Emerging Industry Clusters – A cluster of industries that:

include similar, related, or complementary businesses;

include mostly early-stage and growth-stage businesses;

benefit from an active interchange of knowledge, technology, and innovation;

share specialized infrastructure, labor markets, and services; and,

sell products and services outside Barnstable County.

Specific Emerging Industry Clusters named within the Regional Policy Plan were identified through the Governor's Regional Competitiveness Council using an analysis of the Cape and Islands regional competitiveness completed by Professor Michael E. Porter of the Harvard Business School.

Flood Zones – Areas of flood hazard designated by the Federal Emergency Management Agency (FEMA) to represent the potential extent of flooding based on 100-year storms.

Various zones are determined by topographical analysis done under a Flood Insurance Study. Areas of minimal flood hazard are outside of the Special Flood Hazard Area (or A- and V-Zones). See Special Flood Hazard Area definition below.

Formula Business – A type of retail sales establishment, restaurant, tavern, bar, or take-out food establishment which, along with 14 or more other establishments, maintains two or more of the following features:

(1) Standardized menu or standardized array of merchandise with 50 percent or more of in-stock merchandise from a single distributor bearing uniform markings.

(2) Trademark or service mark, defined as a word, phrase, symbol, or design, or a combination of words, phrases, symbols, or designs that identifies and distinguishes the source of the goods from one party from those of others, on products or as part of store design.

(3) Standardized interior décor including but not limited to style of furniture, wall-coverings, or permanent fixtures.

(4) Standardized color scheme used throughout the interior or exterior of the establishment.

(5) Standardized uniform including but not limited to aprons, pants, shirts, smocks or dresses, hat, and pins (other than name tags).

Freshwater Recharge Area – Watershed area to a pond defined by the topography of the water table of the aquifer as identified by Water Resources Classification Map I.

Growth Incentive Zones (GIZ) – Areas suitable for concentrated mixed-use development that qualify for more streamlined regulatory standards under the Regional Policy Plan for projects reviewed as Developments of Regional Impact (DRIs). These zones are proposed by a municipality and designated by the Commission through a process separate from that of Certified Growth/Activity Centers. This process does not require that a town have a certified Local Comprehensive Plan.

Hazard Mitigation – Any sustained action that permanently reduces or eliminates long-term risk to people, property, and resources from natural hazards and their effects.

Hazardous Material – Any chemical or substance that when released into the environment will pose a significant contaminant threat to groundwater and drinking water supplies, including petroleum products, petroleum distillates, organic and inorganic solvents, oil-based paints, oil-based stains, insecticides, herbicides, rodenticides, and pesticides. Hazardous Materials do not include Hazardous Wastes, Articles, Consumer Products, and Cosmetics.

Hazardous Material or Hazardous Waste, Household Quantity of – Any combination, or all of the following:

(a) 275 gallons or less of oil on site at any time to be used for heating of a structure, or to supply an emergency generator; and

(b) 25 gallons or equivalent dry weight, total, of Hazardous Material(s) on site at any time, excluding oil for heating of a structure or to supply an emergency generator; and

(c) A quantity of Hazardous Waste generated at the Very Small Quantity Generator level as defined in the Massachusetts Hazardous Waste Regulations, 310 CMR 30.000 and which is accumulated or stored in 55 gallons or less at any time on the site.

Hazardous Waste – Any Hazardous Waste, Universal Waste or Waste as defined in the Massachusetts Hazardous Waste Regulations, 310 CMR 30.010. Hazardous Wastes do not include Hazardous Materials and bio-medical wastes regulated by 105 CMR 480.000.

Historic Structure – Any building, structure, or site that is now listed on the National or State Registers of Historic Places or is determined by the State Historic Preservation Officer to be eligible for listing on the National Register of Historic Places 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:

(a) association with events that are historically significant;

(b) association with person(s) significant in our past;

(c) embodiment of distinctive characteristics of a type, period, or method of construction; and

(d) likelihood of yielding information significant in history or pre-history.

Impact Fees – An assessment paid by a person or entity undertaking a development to a municipality or municipalities pursuant to the provisions of Section 15 of the Cape Cod Commission Act, designed to offset the adverse impacts of a development. Impact fees may be applied to items such as creation or improvement of streets, sewers, water supplies, parks, affordable housing, and similar capital facilities, in compliance with Section 15(c) of the Act.

Impaired Area – Area with water quality that has been degraded by land uses such as high-density residential, commercial, and industrial development, landfills, septage and wastewater treatment discharges, and those downgradient areas where groundwater may have been degraded by those sources as identified on Water Resources Classification Map I.

Improvement Dredging – Any dredging under a license or permit in an area which has not been previously dredged or which extends the original dredged width, depth, length, or otherwise alters the original boundaries of a previously dredged area.

Industrial and Service Trade Areas (ISTA) – Areas designated on the Regional Land Use Vision Map for industrial uses, construction trades, and/or public works facilities. Areas are intended for uses that are incompatible with residential and village settings, with a high square-footage-to-employee ratio.

Industrial, Heavy – The mechanical, physical, or chemical transformation of raw materials and/or unfinished components into new finished goods and/or products ready for utilization and/or consumption.

Industrial, Light – The assembly, compounding, fabrication, manufacturing, packaging, and/or processing of semi-finished or finished goods and/or products from previously prepared materials and/or components, where all such activities are conducted wholly within an enclosed building. This may include limited associated storage of the previously prepared materials or components, or the semi-finished or finished goods and/or products. Such activities may also include engaging in research and/or development of new products and/or goods, or innovations to existing products and/or goods, including the development of prototypes, computer software, and/or hardware, and multimedia and/or video technology.

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

Infrastructure – Capital 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.

Intersection Widening – Any increase in the width of pavement or constructed roadway surface at the junction of two or more roads or driveways, or a combination thereof.

Invasive Plants – Non-native species that have spread into native or minimally managed plant systems in Massachusetts. These plants cause economic or environmental harm by developing self-sustaining populations and becoming dominant and/or disruptive to those systems. As defined here, "species" includes all synonyms, subspecies, varieties, forms, and cultivars of that species unless proven otherwise by a process of scientific evaluation.

Land Subject to Coastal Storm Flowage (LSCSF) – Land subject to inundation caused by coastal storms from the seaward limit at mean low water up to and including that resulting in a 100-year flood, surge of record, or flood of record, whichever is greater. The 100-year flood (or the base flood as it is also referred to) means the flood having a one-percent chance of being equaled or exceeded in any given year. LSCSF includes the sum of the A- and V-Zones and is also synonymous with the Special Flood Hazard Area. LSCSF is considered significant to storm damage prevention, flood control, the protection of wildlife habitat, and the prevention of pollution.

Level of Service (LOS) – A measure of public facility and service quality for a variety of services such as roads, schools, parks, open space, police and fire protection, and other related services; in particular, for roads, a standardized, qualitative measure of 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. The LOS for roads shall be determined based on the most recent edition of the Transportation Research Board's Highway Capacity Manual.

Locally Owned – A business or manufacturer that:

(a) is responsible for its own decision making regarding marketing, operations, and legal proceedings; and

(b) if a corporation, has a majority of its outstanding shares beneficially owned by individuals who are residents of Barnstable County; or

(c) if a partnership, its partners owning a majority beneficial interest in the partnership are residents of Barnstable County; or

(d) if an individual or a sole proprietor, he or she is a resident of Barnstable County.

Low Impact Development (LID) – A comprehensive land planning and engineering design approach with a goal of maintaining and enhancing the pre-development hydrologic regime of urban and developing watersheds.

Maintenance Dredging – Dredging in accordance with a license or permit in any previously authorized dredged area that does not extend the originally dredged depth, width, or length.

Marine Infrastructure – Docks, piers, and wharves that service commercial fisheries, marine transportation, and derricks, navigational aids, and existing coastal engineering structures that preserve navigable channels to harbors supporting marine transportation and fishing.

Marine Water Recharge Area – Watershed to a marine embayment defined by the topography of the water table of the aquifer as identified on the Water Resources Classification Map II.

Maritime Forest – A type of forest typically occurring on barrier beaches, estuarine fringes, and coastal banks. Underlying soils are usually well-drained, consisting of sand or loamy sand. They are often sheltered to some extent from extreme winds and salt spray by topographic features or distance from the ocean. Stratification of the vegetative layer varies but is often pronounced with a thick canopy above a low shrub layer or close ground cover. Maritime forests are often co-dominated by species of oak, although holly, beech, and tupelo are common associates and may dominate in some locations. Maritime forests are important fringe communities that provide the transition from the coastal to the upland environment. Due to the distribution of vegetative cover and their proximity to dense cover and open foraging habitat, they are often significant for large mammals such as deer, fox, and coyote as well as passerine species.

Mitigation – Appropriate measures (financial or otherwise) that, at a minimum, substantially offset any adverse impacts of a proposed development.

Mixed Use Development – A single building or a single development of more than one building that contains residential and commercial land uses planned as a unified whole and functionally integrated, with residential use constituting between 40 percent and 70 percent of the total gross floor area.

Multi-family – Four or more attached residential units.

Net Economic Impact – Measurement of gross increase in activity minus gross reduction in economic activity resulting from development.

Net Fiscal Impact – Measurement of revenues generated minus costs of serving development.

Office – A place of business where professional, administrative, and/or clerical services are conducted or offered and which does not include or involve the receipt, assembly, compounding, fabrication, manufacturing, packaging, processing, storage, and/or sale of goods, products, and/or merchandise, and/or the keeping of stock in trade.

Open Space – Upland set aside and permanently restricted for conservation, agriculture, or passive recreation purposes by a municipality, nonprofit conservation organization or land trust, homeowners association, or person. As appropriate to the site, open space may include woodlands, pasture, passive recreation areas, walking and riding trails, and similar areas, but shall not include structures such as tennis courts, buildings, swimming pools, or other impervious areas. Where projects located on severely degraded areas such as gravel pits and landfill sites are regraded and revegetated, the revegetated areas may be counted toward meeting the open space requirement. Undisturbed naturally vegetated areas of golf courses or vegetated areas of golf courses that are minimally maintained may be counted as open space. Open space may be available for public use, or access to such areas may be restricted.

Passive Recreation – Recreation that involves the use of existing natural resources and does not require any development or alteration of existing topography or use of motorized vehicles. Certain kinds of passive recreation may necessitate minimal alteration of existing vegetation for trail creation, maintenance, and other management activities.

Potential Water Supply Area – Tracts of land that are suitable for water supply exploration that have been identified on Water Resources Classification Map I.

Redevelopment – The reconstruction, reuse, intensification, or change in use of any developed property within the Developed Area. Redevelopment includes but is not limited to the following: reuse of existing buildings; reconstruction of buildings destroyed due to fire or natural disaster; 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. Construction on portions of a site other than developed areas does not constitute redevelopment.

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.

Regional Intersection – The area where two or more regional roads meet, join or cross, including the approaches and the traffic controls for motorized and non-motorized movement within it.

Regional Road – Any way or section of a way with a functional classification higher than a Local Road, as adopted by the Cape Cod Metropolitan Planning Organization.

Regional Road Links – The portions of a regional road between two regional intersections or the portions of a regional road between the access and egress points of a development or redevelopment and the adjacent regional intersections.

Rehabilitation – The act or process of making possible a compatible use of a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.

Resource Area – Any wetland, coastal bank, habitat area, coastal dune and/or coastal beach, filled tidelands, or other site characteristics defined herein.

Resource Protection Area (RPA) – Areas designated on the Regional Land Use Vision Map that warrant protection and where additional growth is not desired due to the presence of one or more sensitive resources. These resources shall include at a minimum Wellhead Protection Areas, Land Subject to Coastal Storm Flowage (LSCSF) or Sea, Lake, and Overland Surges by Hurricanes (SLOSH) zones, historic districts, and the Cape Cod National Seashore. Resource Protection Areas may also include but not be limited to wetlands, vernal pools, protected open space, and designated Districts of Critical Planning Concern (DCPCs).

Retail, Sales and Other Commercial – A place of business that provides goods and/or products directly to a consumer, and which involves the keeping of goods and/or products on the premises as stock in trade, and where such goods and/or products are available for immediate purchase and removal from the premises by the purchaser. Such place of business may also involve the provision of services incidental to the sale of such goods and/or products.

Road Widening – Any increase in the width of pavement or constructed roadway surface.

Roundabout – A circular intersection with specific design and control features, including yield control of all entering traffic, channelized approaches, and appropriate geometric curvature to ensure that travel speeds on the circulatory roadway are typically less than 30 miles per hour.

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

Seasonal Use – Occupancy and use of a seasonal structure or use of any other structure less than year-round.

Significant Natural Resource Area (SNRA) – Areas as shown on the Cape Cod Significant Natural Resource Area Map, as amended, including Wellhead Protection Areas, designated Potential Public Water Supply Areas, rare species habitat, priority natural communities, wetlands, critical upland areas, and land within 350 feet of vernal pools and 300 feet of ponds.

SLOSH Zone – The SLOSH, or Sea, Lake, and Overland Surges by Hurricanes, is a computer model developed by the National Weather Service designed to forecast surges that could occur from wind and pressure forces of hurricanes. The model was applied to the Cape by the Army Corp of Engineers to estimate potential flooding from hurricanes that may make landfall in New England. The mapped SLOSH zones show surge limits that represent potential flooding

that may occur from critical combinations of hurricane track direction, forward speed, landfall location, and high astronomical tide.

Sole Source Aquifer – A US Environmental Protection Agency designation under the Safe Drinking Water Act that recognizes that the sole source of drinking water to a community is groundwater in the aquifer. The Cape Cod aquifer received its designation as a Sole Source Aquifer in 1982.

Specimen Tree – A native, introduced, or naturalized tree that is important because of its impact on community character, its significance in the cultural landscape, or its value in enhancing the functions of wildlife habitat. Although size is an important consideration, the classification of a specimen tree is not determined solely by its diameter at breast height (four feet above ground surface), but also by whether it has a significant impact on its surroundings.

Special Flood Hazard Area (SFHA) – The term given to the Land Subject to Coastal Storm Flowage (LSCSF). It is comprised of the V-Zones plus A-Zones.

Strip Development – Continuous or intermittent linear roadside development generally one building deep, characterized by multiple roadway access points, highly visible off-street parking, and an assortment of commercial or other uses with direct access to abutting roads.

Substantial Damage – Where fire, storm, or similar disaster has caused damage to or loss of buildings of greater than 50 percent of their assessed value.

Substantial Improvement – Reconstruction or renovation of an existing structure that totals greater than 50 percent of the assessed value of a structure.

Total Maximum Daily Load (TMDL) – A term, also referred to as critical load, commonly used to convey the nutrient loading threshold for surface water bodies. Nutrient loads above the TMDL will result in eutrophication. The federal Clean Water Act requires that TMDLs be identified for priority waters across the nation.

Transfer of Development Rights (TDR) – A mechanism that allows owners of land to transfer all or some of the rights to develop the land or a portion thereof to another designated area or entity.

Trip Generation – Traffic volume as measured at the site drive(s) of development or redevelopment over a specified time.

Trip Reduction – A volume of vehicular traffic to be removed from the site drive of a development or redevelopment or from existing traffic on the adjacent road system.

Untreated Drinking Water – Water that is not treated for anthropogenic contamination. Includes public water supplies of Cape Cod that receive treatment to neutralize naturally acidic conditions and, in some instances, naturally high iron.

Velocity Zone/V-Zone – Area extending from the mean low water line to the inland limit within the 100-year floodplain supporting waves greater than three feet in height. V-Zones are mapped on the FEMA Flood Insurance Rate Maps (FIRM), but also include all land area

extending to the landward toe of the frontal dune (which area is often not depicted on the FIRM but defined as V-Zone by FEMA). V-Zones are subject to hazardous flooding, wave impact, and in some cases significant rates of erosion as a result of storm wave impact and scour and are synonymous with Coastal High Hazard Areas/Zone. V-Zone, in conjunction with A-Zone, is designated by FEMA as Special Flood Hazard Area.

Vernal Pool – A seasonal freshwater body contained in a confined basin depression that holds water for at least two consecutive months in most years, is free of adult fish populations, and provides breeding and other important 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.

Villages – Areas designated on the Regional Land Use Vision Map to preserve historic and/or community character. Consist of small, compact areas with development at a local scale. Characteristics could include civic uses, mixed use, and/or home occupations.

Water-dependent Use – Any use that requires direct access to or location in fresh or marine waters, and that cannot be located away from said waters including but not limited to those uses identified by MGL Chapter 91 regulations. Such uses include commercial or recreational boating and fishing facilities, water-based transportation, water-based recreational facilities, pedestrian facilities that promote appropriate 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.

Water Quality Improvement Area – Impaired areas that pose a threat to Wellhead Protection Areas and Water Recharge Areas that require improvement.

Wellhead Protection Area – Land that receives precipitation to recharge pumping wells.

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 may border water bodies or may be isolated. Wetlands are characterized by the presence of wetland vegetation and hydrology as generally described in the Wetlands Protection Act and delineated in accordance with the boundary delineation methods set forth in the relevant sections of 310 CMR 10.00. These include 10.32(2), 10.33(2), 10.35(2), 10.55(2) with the exception of the "bordering" requirement, and 10.56(2).

Working Waterfront – Land abutting inland or coastal waters that supports water-dependent use as defined herein.

Zone II – A Wellhead Protection Area or zone of contribution, approved by the Massachusetts Department of Environmental Protection under a rigorous "New Source Approval" program, that is the area of land receiving the rainfall that replenishes the portion of the aquifer from which a well derives its water.

Abbreviations

AASHTO	American Association of State Highway Transportation Officials
ACEC	Area of Critical Environmental Concern
BDP	Best Development Practices
C&D	Construction and Demolition
CCC	Cape Cod Commission
CCEDC	Cape Cod Economic Development Council
CCMPO	Cape Cod Metropolitan Planning Organization
CCNS	Cape Cod National Seashore
CCPEDC	Cape Cod Planning and Economic Development Commission
CCRTA	Cape Cod Regional Transit Authority
CMR	Code of Massachusetts Regulations
DCPC	District of Critical Planning Concern
DEP	Massachusetts Department of Environmental Protection
DRI	Development of Regional Impact
EC	Economic Center
EPA	US Environmental Protection Agency
EOEEA	Executive Office of Energy and Environmental Affairs
EOTPW	Executive Office of Transportation and Public Works
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
gpd	gallons per day
HHW	Household Hazardous Waste
HUDUS	Department of Housing and Urban Development
ISTA	Industrial and Service Trade Area

ISWMF	Integrated Solid Waste Management Facility
LCP	Local Comprehensive Plan
LEED	Leadership in Energy and Environmental Design
LHA	Local Housing Authority
LID	Low Impact Development
LOS	Level of Service
LSCSF	Land Subject to Coastal Storm Flowage
MCZM	Massachusetts Coastal Zone Management
MEMA	Massachusetts Emergency Management Agency
MEPA	Massachusetts Environmental Policy Act
MGL	Massachusetts General Laws
MHC	Massachusetts Historical Commission
MHD	Massachusetts Highway Department
MPO	Metropolitan Planning Organization
MPS	Minimum Performance Standard
ppm	parts per million
PSTF	Private Sewage Treatment Facility
RPA	Resource Protection Area
RPP	Regional Policy Plan
SCS	Soil Conservation Service
SEMASS	Southeastern Massachusetts Resource Recovery Facility
SLOSH	Sea, Lake, and Overland Surges by Hurricanes
SMAST	University of Massachusetts-Dartmouth School for Marine Science and Technology
SNRA	Significant Natural Resource Area
TDR	Transfer of Development Rights

TMDL	Total Maximum Daily Load
USGS	US Geological Survey
VOC	Volatile Organic Compounds
WTE	Waste-to-Energy
ZOC	Zone of Contribution

Resources of Regional Importance

The Cape Cod Commission Act requires that the Regional Policy Plan identify Barnstable County's critical resources and management needs. Regional resources are significant to more than one town or cross jurisdictional boundaries. They include natural and man-made resources, areas with public value, and areas vulnerable to damage from uncontrolled or inappropriate development.

Regional resources on Cape Cod include those listed below and more (most have been mapped by the Cape Cod Commission's Geographic Information System):

Natural Resources

- Recharge areas to existing and future public water supply wells
- Recharge areas to coastal embayments
- Inland and coastal wetlands and their recharge areas
- Inland and coastal ponds
- Floodplains, beaches, banks, and dunes
- Shellfish and finfish habitat areas
- Rare plant and animal habitat and unusual biological habitats (for example, sandplain grasslands, cedar swamps, and more)
- Designated Areas of Critical Environmental Concern
- Federal, state, and regional parks and nature reserves (for example, Cape Cod National Seashore, Nickerson State Park, Massachusetts Audubon Society sanctuaries, and more)
- Town and local conservation lands
- Private open space (for example, conservation restrictions)

Economic, Historic, and Cultural Resources

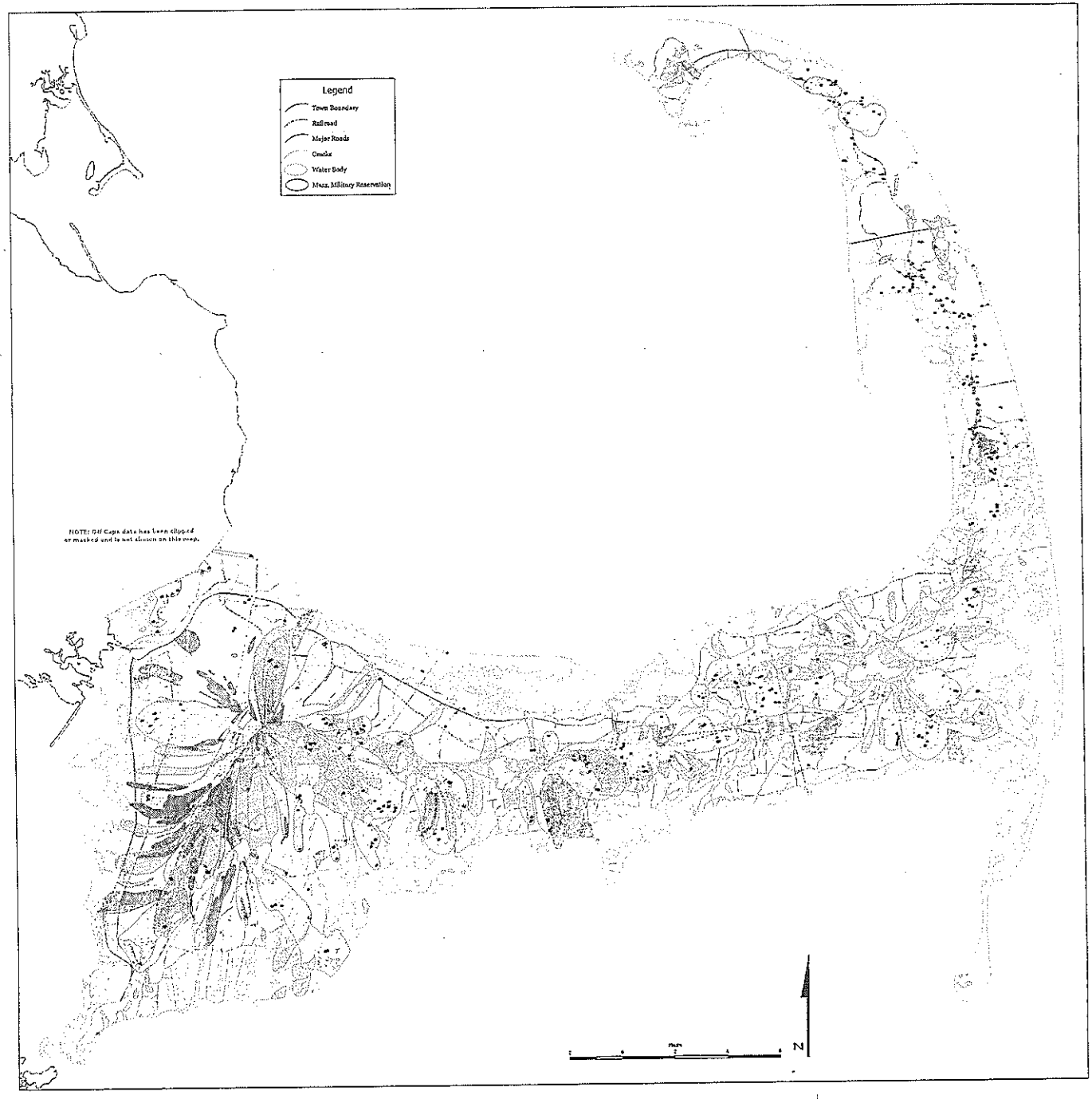
- Historic village centers

- Working waterfronts and harbor areas
- Active aquacultural and agricultural areas, including cranberry bogs
- Economic centers
- Affordable housing
- Properties listed or eligible for listing on the National or State Register of Historic Places
- Scenic landscapes
- Archaeological resource areas
- Military installations
- K-12 and higher educational institutions
- Oceanographic and research institutions
- Performing and visual arts facilities/venues
- Historic and cultural sites and facilities

Facilities and Infrastructure

- Regional transportation corridors (roads, rail lines, bikeways)
- Major airports and ferry ports
- Landfills, transfer stations, recycling centers
- Public water supply and distribution systems
- Public wastewater and sewage collection and treatment systems
- Regional health care facilities
- Regional telecommunications systems
- Local public safety infrastructure

Cape Cod Water Resources Classification Map I



Regional Policy Plan (Effective January 16, 2009)
Amended – Effective July 3, 2009
Amendment – Proposed Summer, 2010

Primary Resource Areas:

Wellhead Protection Areas

Identified Wellhead Protection Areas: (Zones of Contribution). Department of Environmental Protection and EOEA MassGIS 2010, Cape Cod Commission Water Resources Staff, and various private consulting firms.

Public Supply Wells

- Public Water Supply Well
- Small Volume Wells, Non-Transient
- Small Volume Wells, Transient
- Proposed Public Water Supply Well
- Surface Water Supply

Locations of public community surface and groundwater supply sources and public non-community supply sources. Department of Environmental Protection and EOEA MassGIS 2010, and Cape Cod Commission Water Resources Staff.

Potential Water Supply Areas

Potential Public Water Supply Tracts: From the "Priority Land Acquisition Assessment Project" (PLAAP), June 1999, updated 2008. Lower Cape data from the Lower Cape Water Quality Task Force, 2001.

Freshwater Recharge Areas

Freshwater Recharge Area: Areas shown are those identified TO DATE by the USGS (see reports 2004-5014 and 2004-5181), the Massachusetts Estuaries Project, and the Cape Cod Commission Water Resources Staff, 2008.

Water Quality Impaired Areas:

Developed Areas

Development such as medium and high density residential, multi family residential, unsewered residential lots less than 20,000 square feet, commercial and industrial areas determined from digital parcel and assessors' data and MacConnell landuse: 1999. Created by UMass-Amherst Resource Mapping Project in cooperation with the EOEA MassGIS project and the Cape Cod Commission.

Potential Plumes from Waste Sites

Potential Plumes from Waste Site Areas: Created from private consulting firms, the Air Force Center for Engineering and the Environment and the Cape Cod Commission Water Resources Staff.

Waste Site Areas

Areas that include landfills, septage, and wastewater treatment plant discharge sites determined from digital parcel and assessors' data and digital MacConnell land use: 1999. Created by the UMass-Amherst Resource Mapping Project in cooperation with the EOEA MassGIS project and the Cape Cod Commission.

Water Quality Improvement Areas:

Water Quality Impaired Areas that are located in Primary Resource Areas.

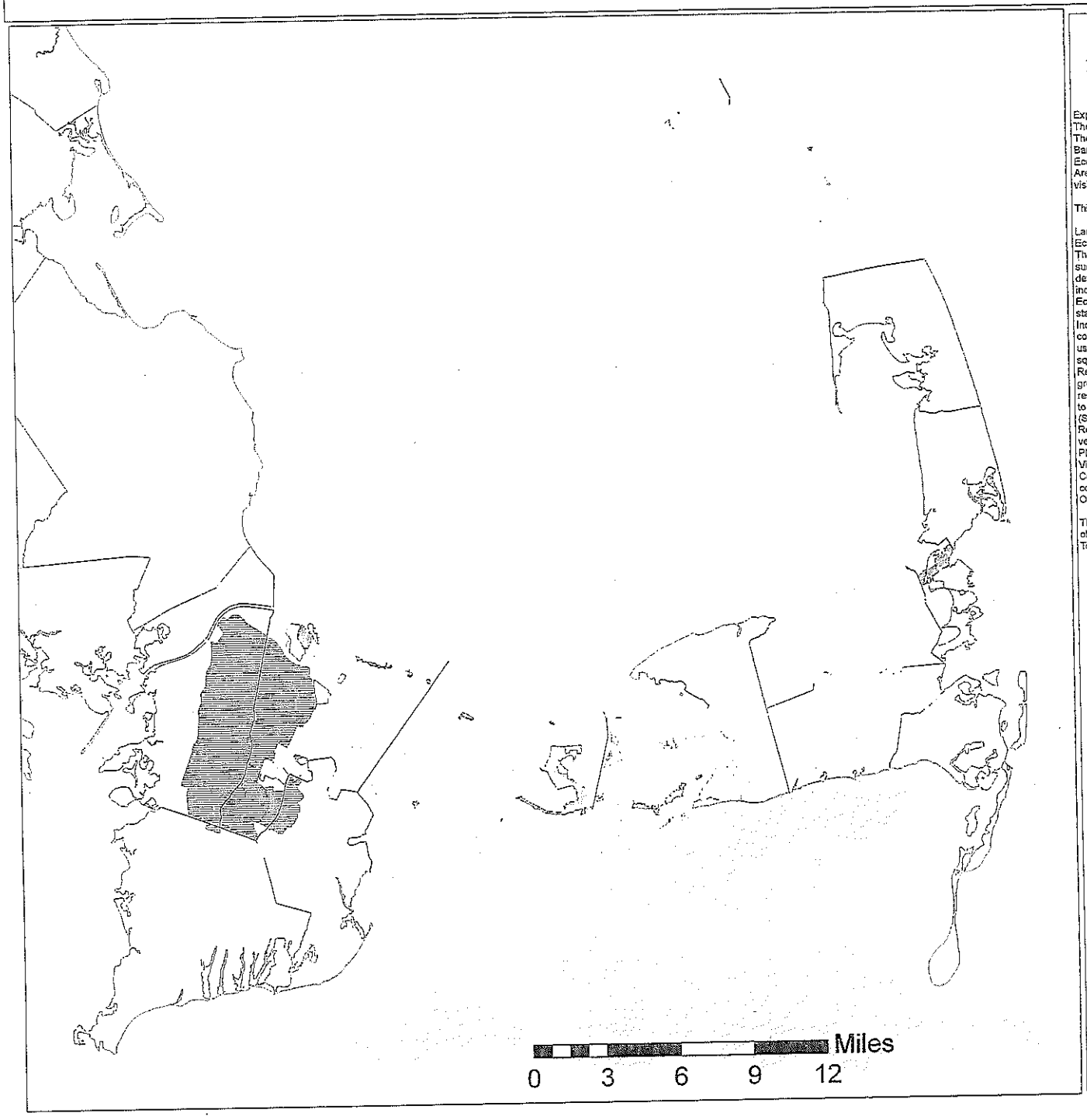
This Map was produced by the Cape Cod Commission's Geographic Information System Department for the Regional Policy Plan update, effective January 16, 2009, with any amendments listed below:
Data amendments effective July 3, 2009 including DEP Zone IIs, DEP Public Supply Wells, and the Cape Cod Commission PLAAP.
Data amendments proposed Summer 2010 including Wellhead Protection Areas and DEP Public Supply Wells.

The Cape Cod Commission is a division of Barnstable County. Corrections are welcome at the Cape Cod Commission office or contact gis@capecodcommission.org.

This map is illustrative and all depicted boundaries are approximate. It is intended for planning purposes only – – not site specific purposes.

CAPE COD COMMISSION

Cape Cod Regional Land Use Vision Map



Regional Policy Plan (Effective January 16, 2009) amended to include Barnstable May 4, 2009 Proposed to include revisions to Sandwich _____ Cape Cod Regional Land Use Vision Map

Explanation and Data Sources:
The Regional Land Use Vision Map expresses a vision for the future of Cape Cod. The Cape Cod Commission is working collaboratively with all 15 towns in Barnstable County to develop this vision. The land uses are categorized as Economic Centers, Villages, Industrial and Service Trade Areas, Resource Protection Areas, and Other Areas. Towns where the planning board has endorsed the vision map for their community are included on the Regional Land Use Vision Map.

This map is to be utilized in conjunction with the 2008 Regional Policy Plan (RPP).

Land Use Categories:
Economic Centers – Areas designated as appropriate for growth and redevelopment. These areas serve the region or sub-region and could include characteristics such as civic and institutional uses, retail, and mixed use. Economic Centers are defined by parcel data and/or zoning district boundaries, shown in detail on individual town maps. Developments of Regional Impact (DRI) proposed within Economic Centers may benefit from some reduced minimum performance standards during DRI review under the RPP.
Industrial and Service Trade Areas – Areas designated for industrial uses, construction trades, and/or public works facilities. Areas are intended for uses that are incompatible with residential and village settings, with a high square-footage-to-employee ratio.
Resource Protection Areas – Areas designated as not appropriate for additional growth due to the presence of one or more sensitive resources. These resources shall include at a minimum Wellhead Protection Areas, Land Subject to Coastal Storm Flowage or Sea, Lake, and Overland Surges by Hurricanes (SLOSH) zones, historic districts, and the Cape Cod National Seashore. Resource Protection Areas may also include but not be limited to wetlands, vernal pools, protected open space, and designated Districts of Critical Planning Concern (DCPCs).
Villages – Areas designated to preserve historic and/or community character. Consist of small, compact areas with development at a local scale. Characteristics could include civic uses, mixed use, and/or home occupations.
Other – Areas remaining after the other areas have been identified.

The land use category boundaries are based on digital data obtained from MassGIS, Army Corps of Engineers, NHESP, and Town GIS Departments, including town-based zoning and parcel information.

Regional Land Use Vision Categories

- ECONOMIC CENTER
- INDUSTRIAL AND SERVICE TRADE AREA
- VILLAGE
- RESOURCE PROTECTION AREA
- OTHER

This Map was produced by the Cape Cod Commission's Geographic Information System Department for the Regional Policy Plan update, effective January 16, 2009, with any amendments listed below:
Amended to include Barnstable May 4, 2009.
Proposed to amend Sandwich _____.

The Cape Cod Commision is a division of Barnstable County. Corrections are welcome at the Cape Cod Commission office or contact gis@capecodcommission.org.

This map is illustrative and all depicted boundaries are approximate. It is intended for planning purposes only - - not site specific purposes.

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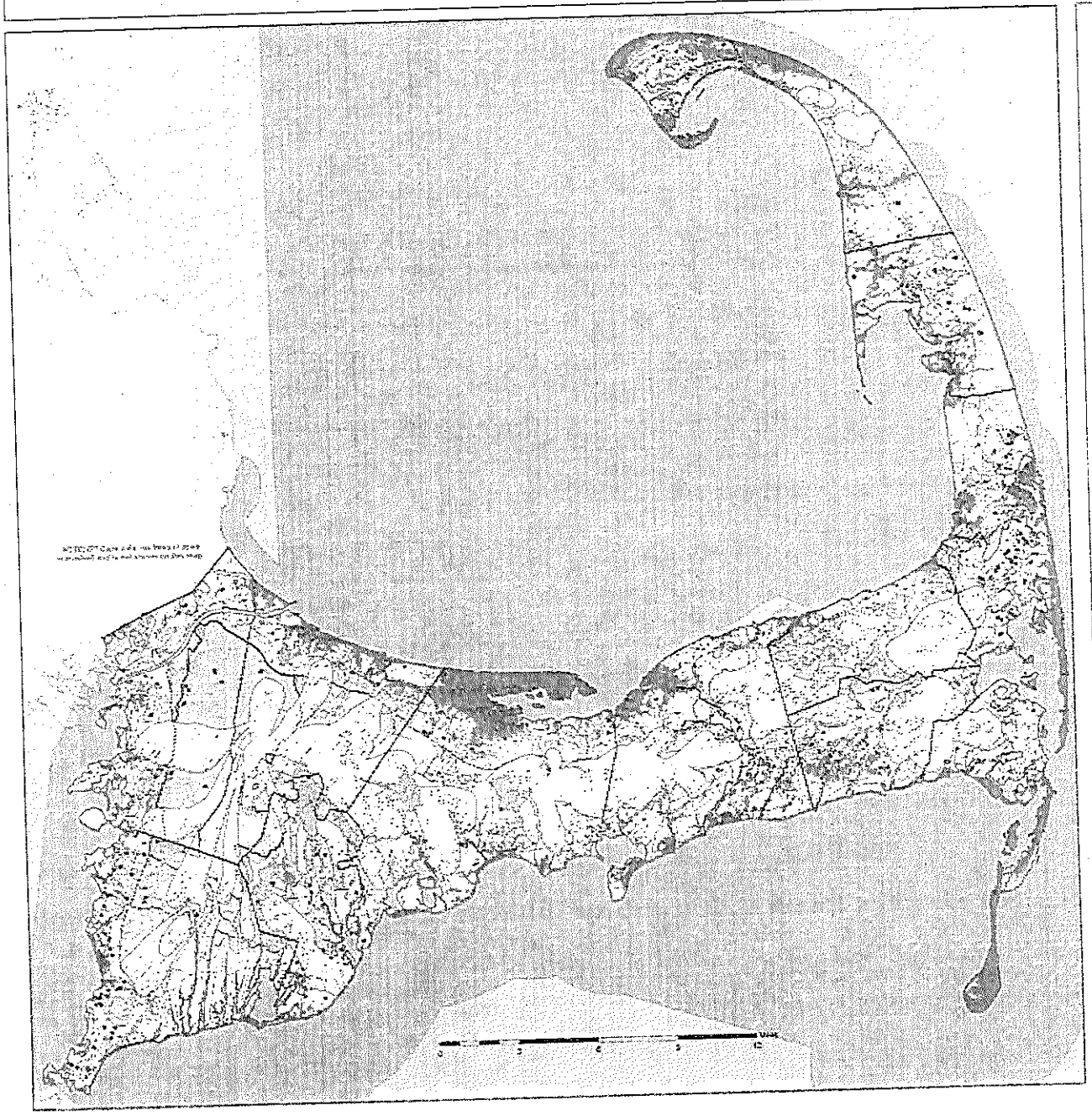
CAPE COD COMMISSION

Cape Cod Significant Natural Resource Areas



Regional Policy Plan (Effective January 16, 2009)
Amended – Effective July 3, 2009
Amendment – Proposed Summer, 2010

- Identified Wellhead Protection Areas
- Major Roads
- 350 feet buffer of Certified Vernal Pool
- Water Body
- 300 feet buffer from pond shore
- Mass. Military Reservation
- Potential Public Water Supply Area (PLAAP)
- Priority and Estimated Habitats (NHESP 2008)
- CEP Wetland Area

Data Sources:

Habitat Information: Mass. NHESP Vernal Pools, February 2009.
Priority and Estimated Habitats for Rare Species, October 2008.
Identified Wellhead Protection Areas: (Zones of Contribution).
Department of Environmental Protection and EOEA MassGIS 2010.
Cape Cod Commission Water Resources Staff, and various private consulting firms.

Potential Public Water Supply Tracts: From the "Possibly Land Acquisition Assessment Project" (PLAAP), November 2008, CCC Water Resources Office. This was the follow-up investigation of USGS's "Water Resources Investigations Report" of 1984. Also Lower Cape data from the Lower Cape Water Quality Task Force, 2001.

Wetlands: 1:12,000, April 2007 DEP Wetlands Conservancy Program.

Non - digital data was automated by the Cape Cod Commission GIS staff using the ESRI ArcGIS software.

This Map was produced by the Cape Cod Commission's Geographic Information System Department for the Regional Policy Plan update, effective January 16, 2009, with any amendments listed below.
Data amendments effective July 3, 2009 adopting Certified Vernal Pools, DEP Zone II, and PLAAP.
Data amendments proposed April 2010 include Identified Wellhead Protection Areas and Certified Vernal Pools, NHESP, February 2010.

The Cape Cod Commission is a division of Barnstable County. Corrections are welcome at the Cape Cod Commission office or contact gis@capecodcommission.org.

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Adopted by the Assembly of Delegates on May 19, 2010.

Ronald Bergstrom, Speaker
Assembly of Delegates

Approved by the Board of Regional Commissioners 5-26-10 at 11:30 A.M.
Date Time

Mary Pat Flynn

William Doherty

Sheila Lyons