

SECTION 3



NATURAL ENVIRONMENT

GOAL: Restore the Vineyard's native lands, waters and wildlife to functional and sustainable levels.

TARGETS:

- Double the natural habitat in the five Eco-Regions critical for biodiversity.
 - Create a continuous greenway/trail network from one end of the Vineyard to the other, with cross links to the north and south shores.
 - Grow enough food to meet at least 20% of our year-round needs.
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More than 40% of the open space we take for granted on the Vineyard could be developed. Favorite vistas could be blocked, wild stretches of tree-canopied rural roads could become rows of houses with front lawns, and farm fields could become subdivisions. Over time, areas of open land still large enough to support a rich population of plants and animals could become so fragmented – with a road here, a house and lawn there – as to threaten their biodiversity, and especially the survival of rare species. We need to better protect the remaining open spaces, vistas, farms, and habitat; we can also go a long way towards restoring areas that have been compromised.

This section includes several subtopics.

- **Open Space:** protecting open space and strengthening the culture of stewardship on the Island.
- **Biodiversity:** conserving the viable populations of native species within the Island's ecosystems, crucial for the health of the system.
- **Recreation:** providing for enjoyment of nature in a manner that refreshes the mind, body and spirit.
- **Natural Character:** preserving landscapes and scenic vistas provided by nature.
- **Working Landscapes:** developing land-based economic activities, such as farming.
- **Climate Change:** preparing for sea-level rise and the increasing number and severity of storms.

natural environment



Vineyarders are fortunate to be surrounded by exceptional natural bounty that makes a vital contribution to our environment, our culture, our economy, and our quality of life. Imagine how different our lives would be without the views, the beaches and trails, the farms, or the variety of plants and animals that make up the Island. The Vineyard relies on its lands and waters for survival and comfort in many ways, such as providing clean air and water, pollinating crops and vegetation, maintaining a livable climate, and fulfilling people's cultural, spiritual, and intellectual needs. The conditions and processes through which natural ecosystems sustain and fulfill human life are called ecosystem services.

However, almost half of the undeveloped open natural lands we take for granted on the Vineyard could be developed. If recent rates of development and conservation are reestablished, for every four acres that are developed only one will be protected as open space.

We can act not only to protect the natural lands that remain, but to repair some of what has been lost. We can restore habitat where it has been fragmented or destroyed, reestablish the natural character of rural roads where it has been lost, and put unused fields back into food production. We can keep large enough tracts of natural areas in good enough condition to not only support biodiversity, but also to absorb a variety of other uses including recreation, agriculture, and in some cases, carefully managed development.



With the great gifts that nature has provided comes responsibility for stewardship. Vineyarders can enjoy the many benefits provided by nature, while respecting the needs for future generations to reap the same rewards. This sense of stewardship will be most widely shared if nature continues to be prominent in the Vineyard lifestyle: in view, physically accessible, or on the dinner table.



3.1

Open Space Protection

The fact that about 40% of the Island is already permanently protected open space is a remarkable testament to generations of efforts by conservation groups, by towns, by individual property owners, and since 1986, by the Martha's Vineyard Land Bank. However, much of the 30% of the Island which is still available for development is environmentally important and should be protected as open space.

The Island Plan, with the help of the staff of the Martha's Vineyard Commission, did extensive mapping of the Island to outline the most critical areas with respect to each of four subtopics discussed in the other parts of this section. These four maps were combined to create the Open Space Conservation Suitability Map, indicating which parts of the Island are most suitable or critical to be protected as open space. Some of the areas identified for preservation are in specific locations, such as frost bottoms, roadside viewsheds, and existing farms and fields. For other concerns, there is more flexibility as to the precise location of the open space protection, provided certain objectives are met, such as providing trail/greenway linkages or an overall area of habitat.

Objective N1: Safeguard the most important natural areas of the Island as open space.

A multi-pronged approach can be used to protect open space on the Island, involving acquisition of the most critical lands, partial preservation of other properties as they are developed, restoration and management of other private and public lands, and, in some cases, undevelopment of previously developed properties.

Strategy N1-1: Increase the rate of acquisition of open space, both outright ownership and conservation restrictions.

Past efforts to protect open space on the Island have been heroic. However, with the dramatic increase in real estate costs, it is increasingly difficult to come up with the funds for open space protection. The adoption of the Community Preservation Act provides a new source of funding, though its resources are also needed for affordable housing and historic preservation. Ultimately, increased private philanthropy will be needed. Organizations involved in land preservation should re-evaluate and coordinate their priorities in light of the mapping efforts in the Island Plan, so that efforts are focused on the highest value areas (such as Source habitat, explained on page 3-7). These organizations should look for new opportunities for coordinating and leveraging funding, and expand their efforts to acquire priority properties. Acquisition could include trail easements from private owners, or buying properties and reselling them after placing a trail or other easement on it, to recoup the purchase price.

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Strategy N1-2: Establish clear standards for the MVC and local regulatory boards to require partial open space protection, or other mitigation, as properties are developed.

The MVC already has an Open Space Policy that requires most projects it reviews larger than 5 acres to include open space protection, typically of between 40% and 60%, and up to 80% in highly critical areas. This policy should be updated to reflect the mapping and other priorities of the Island Plan. It would be desirable that towns adopt similar measures for projects that are reviewed only at the town level. Town planning boards, conservation commissions, and the MVC should work together on planning each area, to identify the most important part of each property to be protected, and how to make protected areas come together as a continuous open space. The MVC could assist the local boards with policies and regulations where they find need for modification; this could include performance standards in local wetlands by-laws for buffer areas subject to conservation commission review.

Strategy N1-3: Work with property owners and public entities to restore and manage their lands in a way that furthers open space goals.

In the past, many areas on the Island were developed in ways that undermine the open space goals outlined in the Island Plan. Some current and future owners would likely be willing to restore much of their land if they were aware of the reasons for doing so, and if they were given assistance such as advice on design and

appropriate plant materials. This could include replanting native vegetation to restore habitat (see Planting the Vineyard Way, below), putting farms back into food production, and maintaining or reopening priority vistas and viewsheds. We should establish mitigation procedures (such as cap and trade) to offset impacts of existing and future development. These offsetting practices should improve, not merely mitigate, conditions.

Strategy N1-4: Give predictable tax abatements for open space preservation.

A program (similar to Chapter 61) that gives fair and uniform tax incentives to landowners for donating open space easements would encourage such donations. This would be similar to the practice among 13 towns on Cape Cod that provide standardized reductions in property taxes for conservation restrictions that provide public access. Ideally, a similar policy would be used in all Island towns.

Strategy N1-5: Establish a multi-organizational program allowing long-term voluntary undevelopment of critical natural properties.

The idea behind undevelopment is to purchase remainder interests ("life estates") from willing sellers in prioritized areas. At the end of the owner's lifetime, the house would be moved or recycled and the land restored to open space, usually as native vegetation with public access whenever possible. This strategy, successfully used at the Cape Cod National Seashore, achieves open space goals – such as habitat restoration, linking recreational open space, and view enhancement – at a lower cost, because

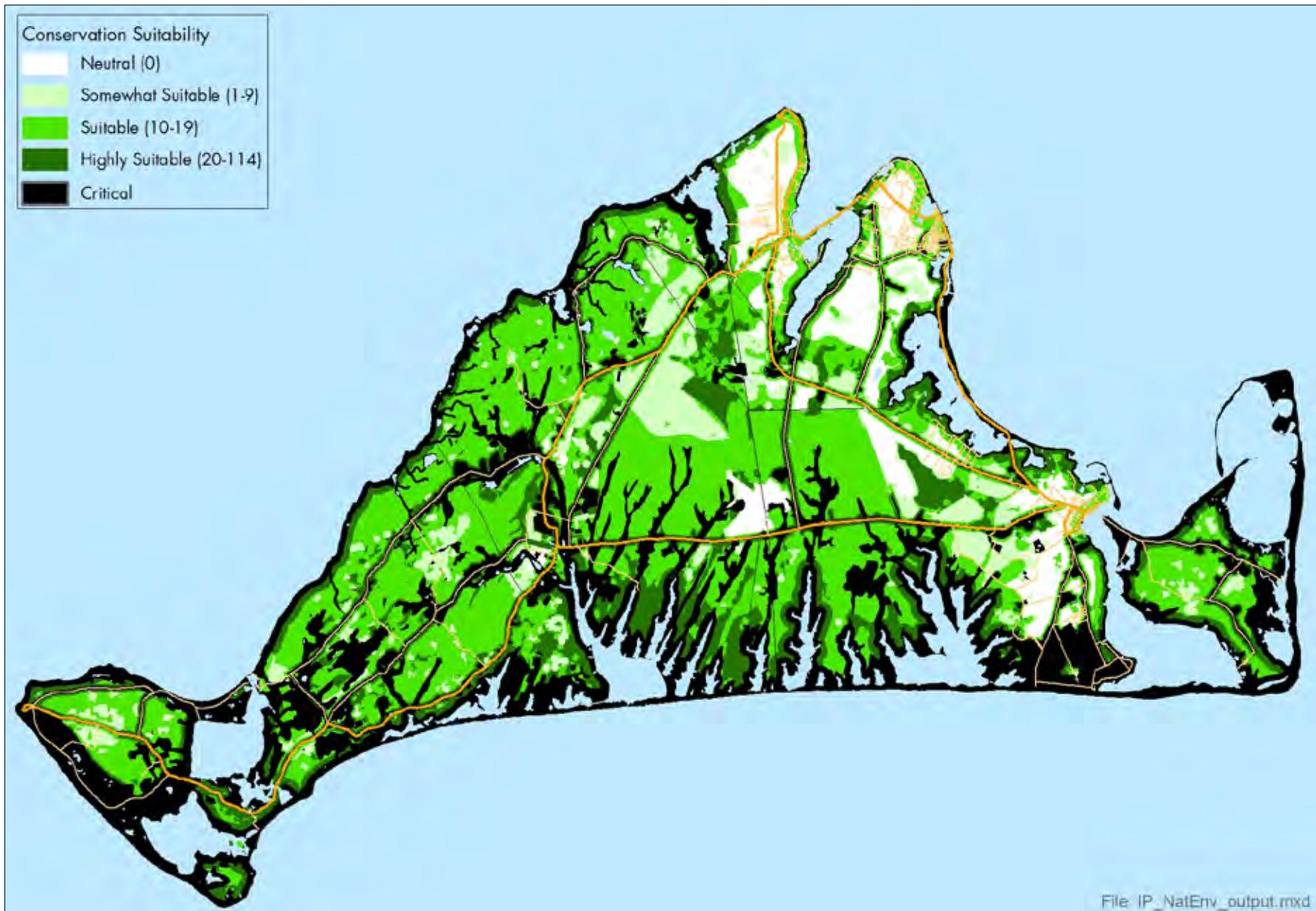
property is acquired in the future (the longer the buyer waits, the less expensive it is). It also allows owners to remain living there, it gives them additional funding at a time in their lives when they might need it, and it leaves them with an asset for heirs that is more easily divisible than real estate.

Strategy N1-6: Assist the Commonwealth in the restoration of the Manuel F. Correllus State Forest as a preeminent center for biodiversity, recreation, and natural character.

We should encourage the removal of exotic species and fire hazards, e.g. Red and Scotch Pine, and the use of prescribed fire and tree harvesting (including biomass for energy production) to improve rare species habitat. The Commonwealth should provide additional staff and resources to manage the Forest for multiple uses (e.g. hunting, horseback riding, possible lumbering, etc.) compatible with biodiversity conservation.

Strategy N1-7: Define and adopt performance standards for nearshore ocean developments.

In the nearshore ocean area (more than 0.3 miles from shore, out to the 3-mile limit of State waters) the development controls of the Oceans Sanctuaries Act were diluted by the Oceans Act to expedite development of renewable energy. The Vineyard community should adopt performance standards on what nearshore areas are appropriate for development and what types and scale of developments are appropriate in which areas. These performance standards should be adopted as part of the MVC Open



Open Space Protection Suitability: This map is a synthesis of the other maps in this section and identifies the areas where it is most important to protect land as open space.

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Space Policy (or a separate Nearshore Development Policy), and by relevant town boards. Of specific local concern and in need of local input is the determination of what is community benefit and appropriate scale.

Strategy N1-8: Cultivate a “culture of stewardship,” a Vineyard community that understands the benefits of open space and a healthy ecosystem, and acts on behalf of its restoration.

People who are in contact with nature are the most likely to care about it and protect it. Farm fields, scenic views, and a network of greenways invite Vineyarders into the world of nature, which can lead to curiosity and passion for its protection. Several programs on and off-Island (such as the Trustees Saltonstall Education Program) demonstrate that involving people in the research and restoration of habitats can lend passion to understanding and actions. A biodiversity course in the public school curriculum could teach and train young people to become stewards of the Island’s natural resources, and could use the State Forest, beaches and trails as teaching laboratories. The Island Plan Open Space Map, accompanied by specific voluntary actions that landowners can take, such as native plant landscaping, could be posted in schools and public places. Volunteers who help monitor the status of species and habitats can help conservation groups and private landowners to improve ecosystem health.



3.2

Biodiversity

Biodiversity, the variety of species, is important to the health of any ecosystem, and of particular concern in some unique and vulnerable areas. About 65% of the Island (37,225 acres) has been designated by the Commonwealth as Priority Habitat for rare and endangered species of plants and animals. Several complex ecosystems form the heart of the Island’s natural environment.

One such special area is the Sandplains, an ecosystem that is extremely rare in the world. The Sandplains are a mosaic of habitats ranging from oak and pine barrens to heathland, scrub oak frost bottoms, maritime thickets, and

– perhaps the most well-known – grasslands. Sandplain Grassland is an open field community that developed on outwash plains created at the end of the Ice Age. This ecosystem developed only on the outwash plains adjacent to that ice front, namely on Martha’s Vineyard, Nantucket, Cape Cod, Block Island and Long Island. The Sandplains are naturally stressed: droughty, acidic soils, subject to frequent fire, exposed to wind and salt spray over large areas. Even here, grasslands tend to be overtaken by shrub and forest growth in the absence of fires that historically kept the fields open, so this system is particularly vulnerable to the fire suppression that comes with human habitation.

Overall, biodiversity is threatened by development as well as by inappropriate management practices such as habitat fragmentation, fire suppression, introduction of non-native landscapes, and the spread of invasive species. Each particular system is more or less vulnerable to each of these impacts.

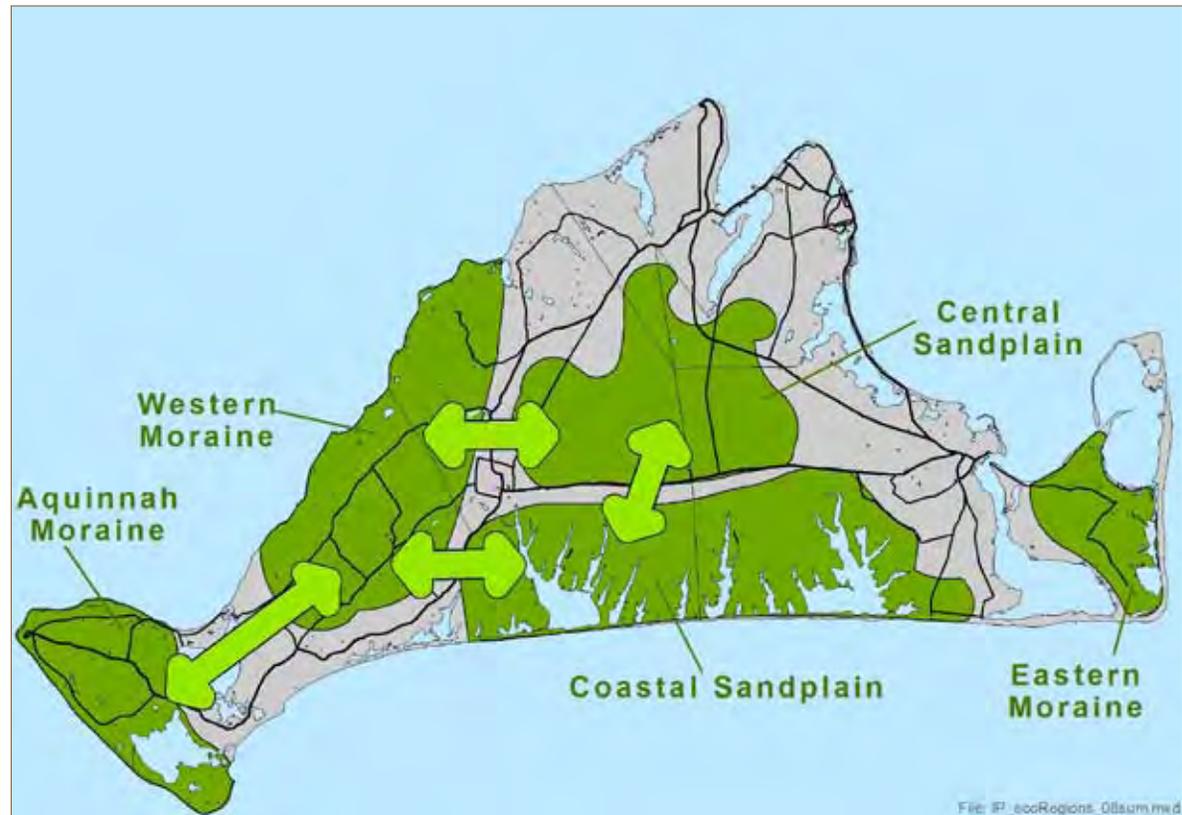
Particularly important to biodiversity is the concept of Minimum Viable Landscapes (MVL) – the amount of ecologically functional land and surface water needed to sustain viable populations of native species. Since these areas act as essential source areas for the plant and animal inhabitants that might disperse to other parts of the Island, they are referred to as Source Areas.

The Island Plan concluded that the area of Minimum Viable Landscape needed to maintain a viable ecosystem so that it functions as a Source Area is approximately 5,000 acres in the Sandplains and 3,000 acres in the moraines.

(Naturally stressed ecosystems generally have to be larger than those with richer soils and more water.) The Plan has identified five Eco-Regions on Martha's Vineyard which should be protected and restored, namely: the Central Sandplain, the Coastal Sandplain, the Western (Moist) Moraine, Aquinnah, and the Eastern (Dry) Moraine (see concept map below, and Biodiversity Classification Map on page 3-9).

The aim in these areas is to protect the remaining areas of native vegetation such as the 65% of the Island that is Priority Habitat (including 25% of Estimated Habitat) for rare and endangered species identified by the Commonwealth's Natural Heritage and Endangered Species Program. It is also to use the long-term strategies described in this section to restore these areas to ecological health. In the future, the specific assemblage of species in each of these areas might evolve as a result of climate change or other factors; however, by keeping an area of adequate size, they should be able to evolve into equally valuable natural communities.

The Biodiversity Plan uses the following tiered approach for the parts of the Island outside of town/village areas. In general, Source Areas should be maintained and restored to tracts large enough to absorb a variety of carefully managed uses, including limited human activity. Fragmentation is a particular concern.



Eco-Regions: These are the minimum viable landscape areas needed to preserve the biodiversity of the Island's five significant Eco-Regions.

Significant habitat areas that are long and narrow are particularly vulnerable to edge effects from adjacent developed areas, such as the intrusion of invasive plant species, non-native or hyper-abundant predators, and exterior lighting. These threats are even more problematic when it comes to the hundreds of houses located throughout the Source Areas.

1. Critical Source Habitats: These areas, such as scrub oak frost bottoms, barrier beaches, streams and valleys are individual habitats (parts of an ecosystem) that are particularly rare and vulnerable, and cannot absorb much human-based impact. These habitats tend to be linear features vulnerable to edge effects. Development should be avoided if at all possible.

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2. Source Areas – Intact: This category includes conservation lands. It also includes other areas where the habitat is still intact, and where it is especially important to avoid destruction or fragmentation of habitat if possible. It is especially important that these areas are managed in their optimum native habitat as they constitute the main source of wildlife that populates the other areas (called “sink” areas).

3. Source Areas – Lightly Settled: This category includes areas that are settled at a low enough density that native vegetation is, or could be, largely intact. Restoration and other management measures would allow these areas to harbor more wildlife.

4. Source Areas – Heavily Settled: This category includes areas within the overall Minimum Viable Landscape of the Eco-Region that are largely developed and fragmented. Intense management of open spaces and mitigation of impacts from development diminish the effects on neighboring intact and lightly settled areas.

5. Interface Areas: These are areas of significant habitat located between the main Source Areas and the main down-Island towns. Though they have considerable habitat value on their own, they are somewhat less critical than the more centrally located Source Areas in that they are on the edges of and are tenuously connected to the Source Areas, and are in a different Eco-Region. The fact that they are next to town makes them especially suitable for recreation and farming, as well as habitat.

Objective N2: Protect Minimum Viable Landscapes of significant Eco-Regions to restore and maintain the conditions to protect viable populations of the Vineyard’s native species, both resident and migratory.

The Island Plan has determined how much land is needed to restore and sustain viable populations of the Vineyard’s native species. The measures discussed in the previous section can be used to protect the most significant areas as additional open space, and the following measures should be implemented to protect these important habitats.

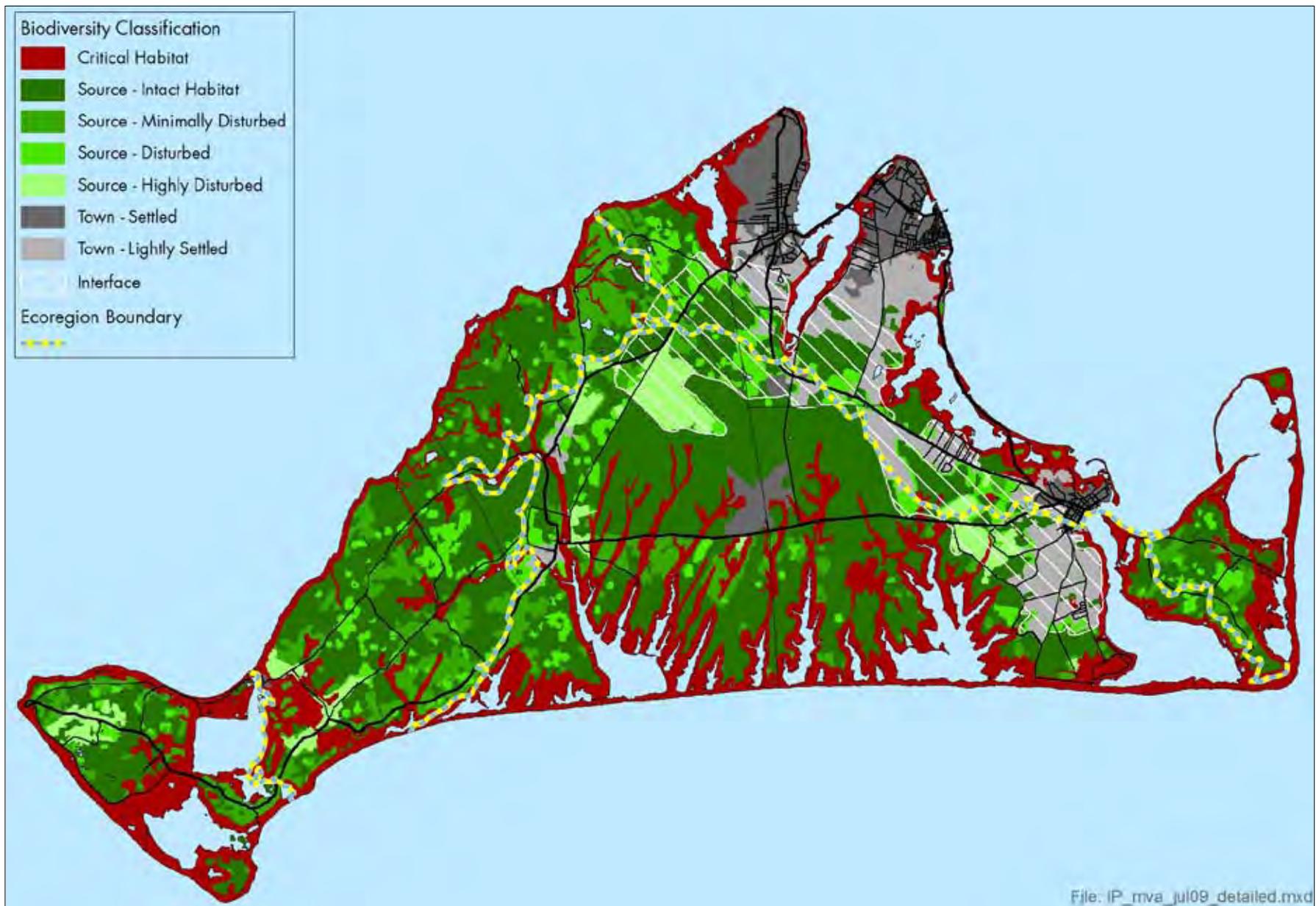
Strategy N2-1: Identify and adopt performance standards for habitat protection and restoration.

The Island Plan mapping of Minimal Viable Landscapes (MVL) should be refined and coordinated with other land uses, prioritized watersheds, storm-surge protection areas, and areas most susceptible to sea-level-rise. Local conservationists should identify essential performance standards needed from each MVL (e.g. species presence/population size, etc.) and benchmarks for measuring success, and share this information with the MVC and local regulatory authorities. Decision-makers can then use this information to promote the restoration of priority areas for habitat protection and restoration, reuniting tracts of land large enough to absorb multiple uses and still provide for biodiversity and

cleaner watersheds. Town boards, planners and conservation organizations can use the mapping to locate sites for compatible land uses and can target locations where landowners would be encouraged to embrace native plant landscaping, native-grass grazing, and undevelopment.

Strategy N2-2: Establish a program encouraging and facilitating Landscaping the Vineyard Way.

Replacement of native Vineyard vegetation with large, high-maintenance lawns or exotic vegetation reduces habitat, increases the need for fertilizers and pesticides that pollute our water supply, and erodes the Vineyard’s character. Some efforts have already been made to inform the public about Landscaping the Vineyard Way. A broader information campaign could help counter the effects of inappropriate landscaping techniques promoted by television advertising and by people moving here with off-Island perspectives for Vineyard landscapes. To minimize fragmentation and watershed pollution, we should encourage the use of native grass lawns and native plant landscaping on private lands, and native plant roadside planting and management along public roads. Garden centers and landscapers could participate with a good labeling program of native species; expanded local production and sale of native Vineyard plants (as is being developed by the Polly Hill Arboretum) will also contribute to the local economy. We should create a “black list” of known invasive plant species and species known as vectors for disease, regulate against their importation,



Biodiversity: This map shows the Island's most critical areas for preserving or restoring native habitat.

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sale, and planting, and change regulations to allow the use of biocides for removal of invasive species where no practical alternative exists. An informational campaign could help reduce the population of non-native and hyper-abundant predators (enclose compost piles and outdoor pet feeding areas, enclose crawl spaces under sheds and houses, reduce lawn areas, keep cats indoors, etc.). The possibility of taxing the sale of chemical fertilizers and biocides, and using the funds to promote the production of native plant stock by nonprofit organizations for private, public and commercial landscaping, should be investigated.

Strategy N2-3: Increase the use of specialized management techniques such as prescribed burnings and wildlife underpasses.

For thousands of years, there were periodic natural fires that played an important part in maintaining the health of the Island's Sandplains, keeping them from being dominated by forest, as they are now. Native grasslands and many of their species do not thrive without episodic burning that has always taken place in nature. This has been undermined by decades of fire suppression. The Martha's Vineyard Prescribed Burning Partnership involves town fire chiefs and the other partners to prioritize sites to burn for public safety and biodiversity reasons. The towns and County should work with the Partnership to acclimate the public to the regular and safe use of prescribed fire through daily radio reports during burn seasons, and offer annual volunteer training to assist with prescribed fire crews. They should also create and maintain a single fire cache (e.g. equipment) available for use by prescribed fire crews and Island fire departments. Paved roads fragment those special lands. One method of dealing with fragmentation of habitat caused by paved roads is to provide wildlife underpasses at key bottlenecks.



3.3

Recreation in Nature

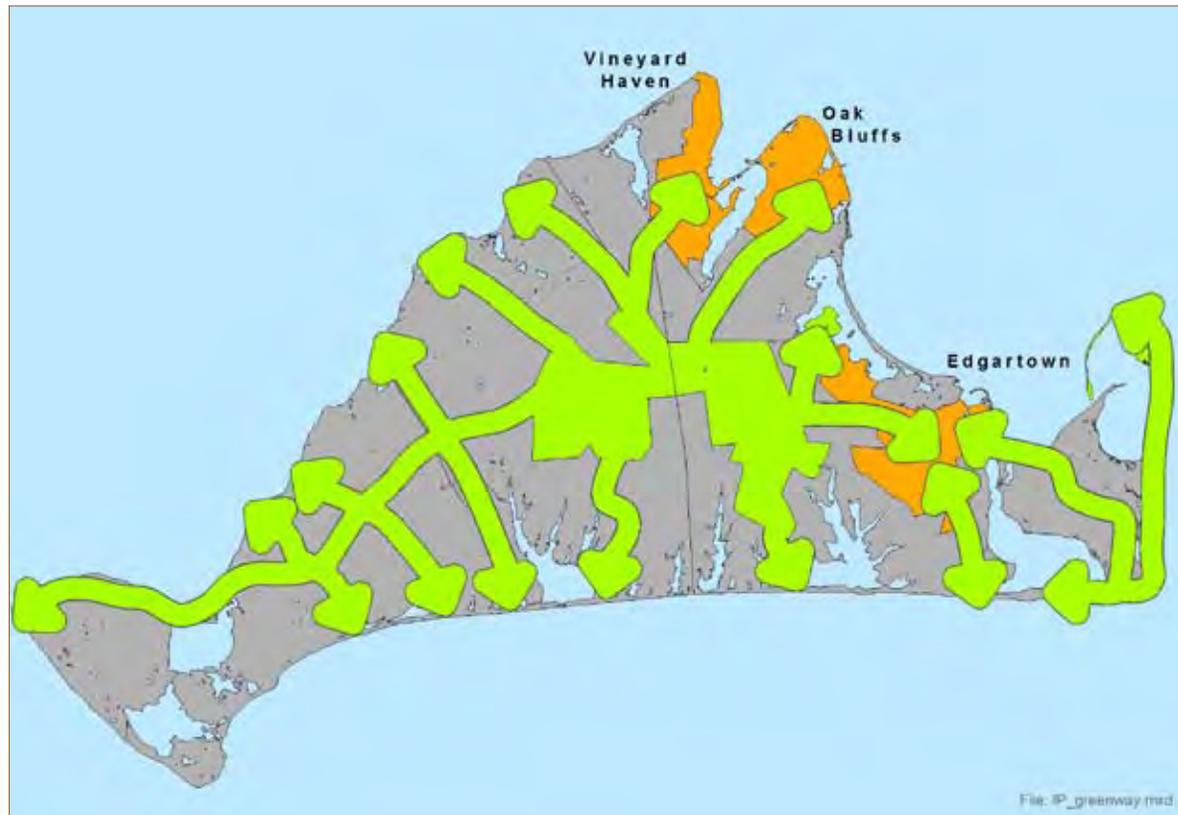
Outdoor recreation is an integral part of Vineyard life. The ability to stroll or cycle or fish is important anywhere, but the Vineyard's natural beauty and evocative landscapes and vistas bring a special restorative quality of respite from the labors and cares of civilization.

Access to and enjoyment of natural areas provides community benefits beyond those to the individual; access to nature inspires the culture of stewardship that is integral to the Island Plan. The towns, Land Bank and various conservation groups have already created more than 127

miles of trails. Expanding this into an Island-wide network of greenways will be key to improving access to all parts of the Vineyard.

There is an intimate relationship between recreational needs and the divergent needs and offerings of natural and developed areas. There is a need to provide access to open space for people who reside in the midst of developed areas, and particularly to do so without compelling them to get in their cars and drive to the open space. Open space, however, is extremely limited in the midst of civilization. Penetrating into civilized areas with greenways is a priority, and careful management of those areas will focus on keeping negative edge effects from penetrating the larger open space destinations. Those greenway corridors should not funnel invasive plants and animals into the larger open space areas.

Sometimes, public access is not compatible with habitat and groundwater protection, or with owners' wishes, including privately owned land that is under a conservation restriction. Where there is access, there are sometimes conflicts among users, or conflicts with management of the resources. User fees could help limit overuse, but may unduly impact those with lesser means. Presently, there is public access to about 73% of conserved open space as well as to 32% of the 211-mile shoreline of oceans and great ponds. Unfortunately, in spite of the apparent bounty, access to much of the most desirable land and water areas is limited, particularly at the shoreline. Only 38.8% of the outer coast is public (37.5% open to the general public



Greenways: It is recommended that a network of linear open spaces extend from the State Forest to all shores of the Island and close to the main population centers.

and 1.2% to town residents only). Of the 47 miles of barrier beach (that is the wide, sandy beach that most think of for beach-going), 33 miles are private and 14 are public.

Linear shoreline is a finite resource with correspondingly high cost of acquisition. The regulatory climate in Massachusetts tends to favor the shoreline owners' and waterways abutters' rights over those of the general public. (In the 1630s, Massachusetts adopted

the Colonial Ordinances generously ceding public rights at the waterfront to promote development of wharves; now, Massachusetts is one of the two states where property in the intertidal area may be privately owned, while the public retains the rights of fishing, fowling and navigation there. Since the Vineyard only became part of Massachusetts in 1692, the possibility has been raised of reestablishing the same shoreline rights as New York State.) An effort is also underway at the

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Commonwealth level to redefine the activities attached to the public trust uses traditionally assigned to the public in the intertidal area, to include more modern beach uses.

While some coast and beach has been acquired for the public in recent years, there is a perceived reduction in the former free and easy access. With far more people comes correspondingly higher impact, so increasing access must be accompanied by well-planned management.

Objective N3: Provide residents and visitors with access to the Vineyard's beaches and shoreline for fishing, shellfishing, walking, sitting, swimming and other recreational activities in a diverse array of settings.

Strategy N3-1: Set up an Access Revival Initiative to reestablish public access to beaches and shorelines.

There may well be shoreline accesses with public rights that have been encroached upon or forgotten. Reopening them could be an efficient means of enhancing shoreline access. This would involve methodically inventorying under-utilized shoreline access points, determining the legal viability of dormant rights and the accessibility, and then collaborating to secure and manage these assets for better public use. We should research Colonial Ordinances regarding ownership at the shoreline, and monitor and support Commonwealth efforts to redefine the uses retained by the public in intertidal areas.

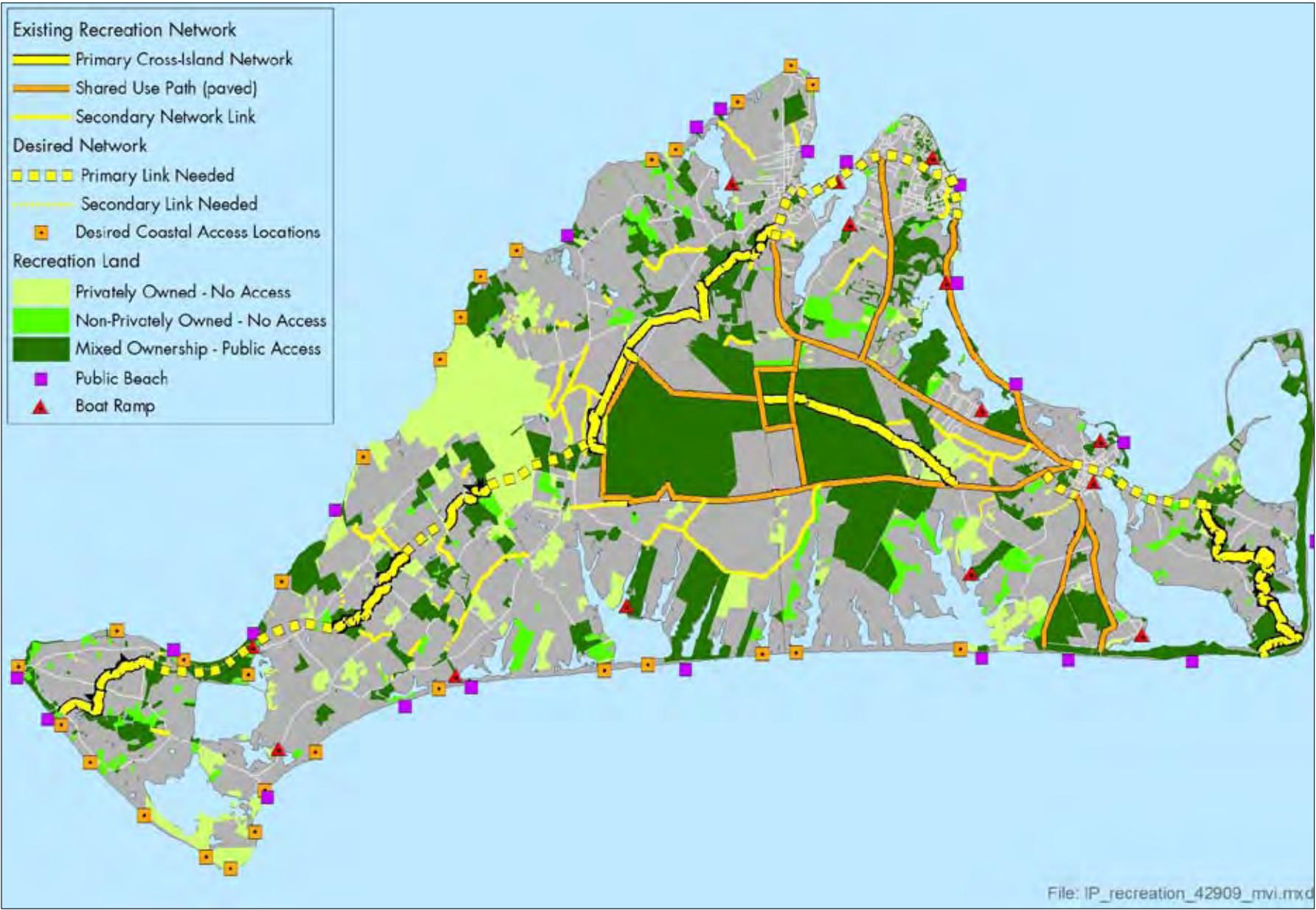
Strategy N3-2: Acquire new shoreline access.

We should map existing access points and target legal public access about every five miles. Access to at least some areas should be by road, so that the elderly and immobile can reach the shore. We should use the Surfcasters Association's identification to target spots, other than every five miles, that would be particularly good to secure fishing access. In addition to mapping access, inform the public of hours and seasons of availability. We should target the area on the north shore between Tashmoo and Menemsha inlets, where public access is scant. Great ponds may be less available than they should be, in some cases because the abutting lands are privately held. The ponds themselves (ponds greater than 10 acres in size) belong to the public and should be available for recreation. We should secure access to great ponds, possibly utilizing Chapter 91 Section 18A to request a hearing on why access to a pond should be available. (See also strategy N5-3 for waterfronts in town.)

Objective N4: Enable residents and visitors to enjoy a diverse experience of walking, cycling and horseback riding.

Strategy N4-1: Extend the greenway/trail network from Gay Head to Chappaquiddick with cross connections to the north and south shores.

The towns, Land Bank, the MVC, and private conservation groups have been working for decades to create a network of trails allowing people to enjoy nature on foot, horseback, and in some cases, bicycle. It would be desirable that enough of these trails are located within broad open spaces – greenways – to allow people to enjoy a natural experience with little intrusion of developed areas. The eventual aim should be to create a continuous greenway/trail network, ribbons of open space, which extends from the Gay Head Cliffs to Cape Pogue, with cross branches in various locations. It is desirable that branches of this future greenway network come as close as possible to the centers of each of the towns' built-up areas, so that the greatest number of people have access to the countryside as close to home as possible. These trails and greenways could be created using a combination of acquisition of properties and easements, and through the development permitting process as properties are developed. Designation of some routes as Special Ways, through the MVC's Island Road District, can address issues of possible development that could impair access. Another method is to use



Recreation: This map shows open spaces and trails open to the public, desirable additional trail connections, and desirable beach access locations. (Other open spaces in pale green)

natural environment

a community-based outreach program to link trails through a good neighbor policy, as is used by the Trails Committee of the Chappaquiddick Island Association.

Strategy N4-2: Encourage landowners to allow access for those who would use the land lightly and respect the property.

Provide financial incentives that might be helpful for land-rich and cash-poor owners, such as the 90% reduction in assessed value that is granted on Cape Cod to owners who provide conservation easements with public access. Liability and damage issues should be addressed through a risk management plan that could include an insurance pool, and by providing a package outlining liability issues and realities, for owners to use when considering providing access.

Objective N5: Provide access to public open spaces in village areas.

In the rural parts of the Vineyard, open space is plentiful and most properties are large enough to provide outdoor recreational opportunities and access to nature. This is not necessarily the case in the non-rural part of the Vineyard (see Land Use Guidance Map), where people are living in multi-family dwellings or on small lots in denser, village neighborhoods, as well as workers in business establishments, and visitors in hotels and inns. The three largest town centers on the Vineyard were built on the water's edge, but today public access to much of the waterfront is limited.

Strategy N5-1: Ensure that public open space is available within a half-mile walk from in-town neighborhoods.

The aim is to give access to nature and recreational opportunities without the need to drive there. For areas that are deficient, it might be possible to provide access to private open spaces (such as parts of golf courses or private conservation lands), or to acquire open space.

Strategy N5-2: Bring the Island's greenway network close to denser, village neighborhoods.

Bringing greenways as close as possible to the centers of the three Down-Island towns would give easy access to the countryside to people living in the population centers. This will be a challenge for the three Down-Island towns, but it appears to be achievable by using a

combination of acquisition of some properties, and partial open space protection on others as they are developed. (The Martha's Vineyard Commission and Tisbury Planning Board are currently working on a prototype study of how this could work.) Trails should lead from the neighborhoods to the gateway of the greenway in each town.

Strategy N5-3: Provide continuous waterfront access in the centers of the down-island towns.

To reconnect Vineyarders to the sea, a high priority is to open up continuous waterfront access in the densest population centers of the Down-Island towns, namely the stretch of central waterfront that is not adjacent to single-family homes. Almost all the Oak Bluffs waterfront is public and Edgartown has been using its Harbor Plan to require additional sections to be opened. Those waterfronts are faced with bulkheads and filled lands, where the public retains rights, no matter what is constructed there. Because the Vineyard Haven waterfront is mostly open beach, access to that waterfront is intermittent. There, the aim is not to construct a formal boardwalk like those in Oak Bluffs and Edgartown, but simply to allow people to have access to walk along the waterfront among the existing buildings and uses. In spots where security or safety considerations make it impossible to have this access right along the water, there should be a clearly marked by-pass.



3.4

Natural Character

The Vineyard's overall character is defined largely by its natural environment. Even the casual visitor recognizes the evocative beauty and authenticity of the Island's landscapes and vistas. The word "character" can mean many different things. Here it focuses primarily on scenic values, the visibility of the Vineyard's natural environment, especially from public places such as roadside and coastal views and vistas. This visual access contributes to the community's appreciation and stewardship of natural areas.

In the Visual Preference Survey conducted by the MVC, about half of the favorite images were of nature, and half included buildings. Of the nature spots, people chose rural farms and fields as particularly important in defining Vineyard natural character. People expressed concern for maintaining ocean vistas and viewsheds, particularly narrow view corridors such as the Tashmoo Overlook, and showed preferences for rural roadside treatments. Their choices emphasized the significance of maintaining overhead tree canopies, preference for split-rail fencing over expansive stockade fence coverage, and preference for wooden guardrails.

People's sense of the Vineyard comes largely from what they see as they drive along the Vineyard's roads. The Martha's Vineyard Commission has protected roadside views and vistas to a certain extent in the Island Road District of Critical Planning Concern created in 1975, empowering the towns to adopt special regulations. There are Major Roads in all six towns and Special Ways in five towns. Special regulations for the Major Roads Zone include such mechanisms as height and setback restrictions, protections for stone walls, and requirements to bury power lines. Regulations for the Special Ways include restrictions on paving and widening.

The public's preference for open views of roadside fields is at odds with the desire of property owners to keep them shielded. The degree of openness depends on whether they are privately or publicly owned.

Also of concern is the view from public waters, especially the ponds and ocean. There is concern that development highly visible from the water is undermining the natural character of the Island.

In some locations, the aims are to preserve the appearance of openness and great space; to foster the maintenance of existing vistas and the creation of new vistas, as well as the restoration of vistas that have been lost over time from plant succession; to match the use of land to the land's natural and visual qualities; to manage change and growth to enhance the traditional and natural landscapes of the Vineyard, and to require that development plans fit the scale and quality of the inherited landscape so that generations to come will have views and open vistas to enjoy.

natural environment

Objective N6: Protect roadside and coastal vistas and viewsheds.

The highest priority is to protect the scenic roads that are still relatively intact. However, all the public roads on the Island should be scenic, and the measures outlined below should apply to all major roads. In the longer term, roads that were excessively widened and straightened should be restored to their traditional configurations, which would also serve traffic calming objectives.

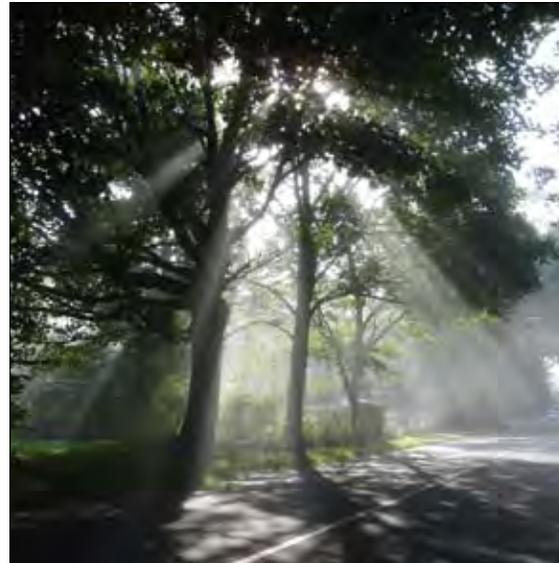
Strategy N6-1: Revise regulations to protect scenic roads.

Over the years, the character of our scenic roads has been gradually, but steadily, eroded with the construction of highly visible buildings, the erection of roadside fences (especially stockade), the clearing of natural roadside vegetation to create lawns or commercial displays, installation of exterior lighting, and the proliferation of commercial and road signs. The Island Road District DCPC can provide the framework to ensure that the natural and historic character of our scenic roads are preserved, by requiring preservation of a no-cut zone to buffer new development, ensuring that fences close to the road be low and open, and regulating signage and lighting. Official designation under the Island Road District or as a “scenic road” provides additional public review of proposals to modify the road or to cut trees. It is important to identify and protect scenic vistas, and to be vigilant for opportunities to reopen critical lost views of the Island landscape and for possibilities to open up views of roadside fields or other natural features. The impact

on roadside vegetation and vistas should be considered in the design review of new projects by the MVC or town boards. Consider adding roads to the Island Road District.

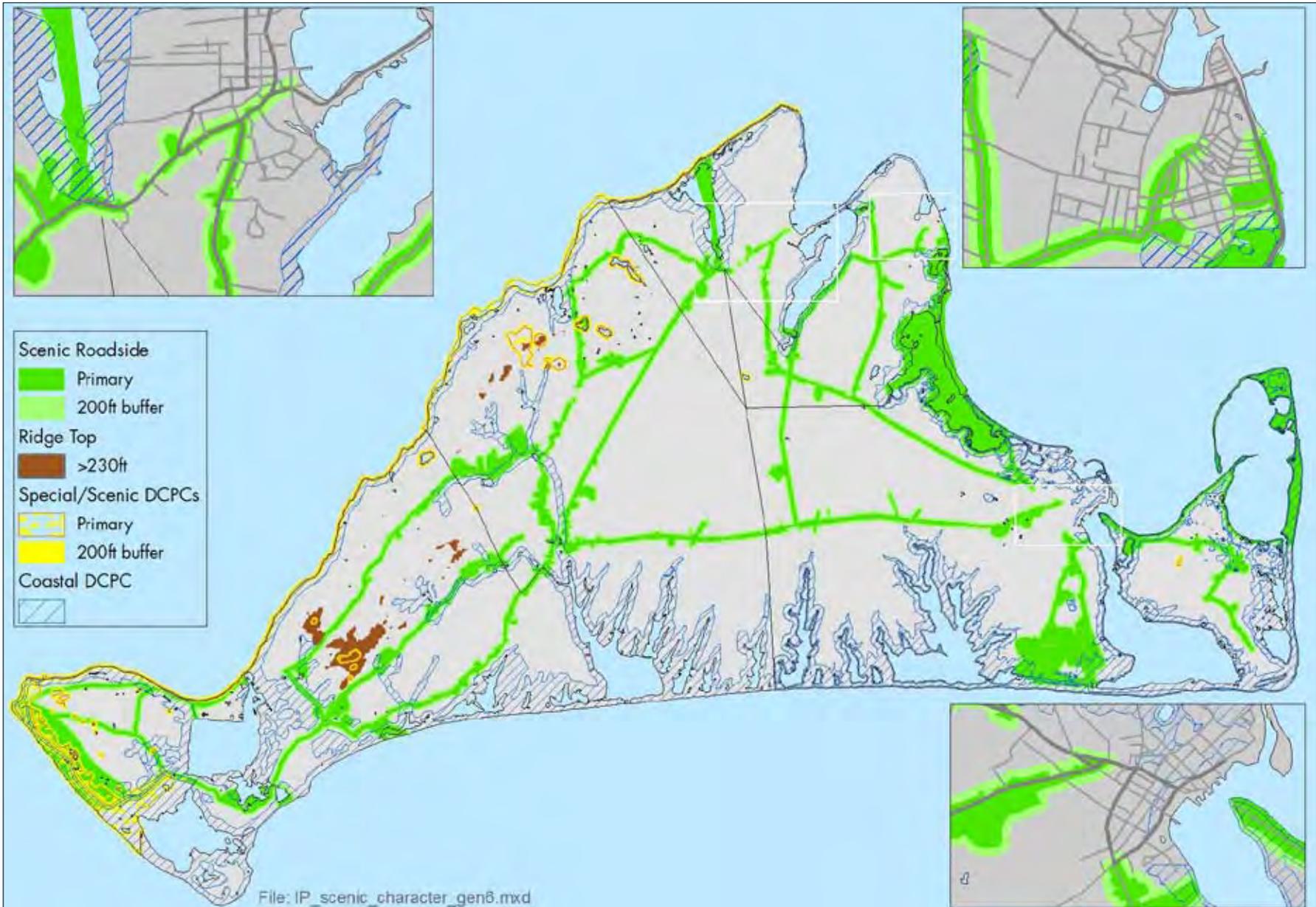
Strategy N6-2: Set up a Roadside Vegetation Initiative to protect and enhance rural road character.

A multifaceted effort could take on a series of actions to protect and restore the character of our scenic roads. A public awareness campaign



could make the community more aware of the importance of our scenic roads and how they should be protected. Roadside property owners could be encouraged to revegetate the roadside in front of newer buildings and fences, or to open views onto roadside fields and vistas, as well as to reduce lighting visible from the roads. The first priority would be to work with public

and institutional properties – such as town buildings, schools, utility company buildings – which are often the worst offenders. Town DPWs and MassHighway should implement a program to restore scenic road treatments to roads that were excessively widened and have inappropriate road “improvements,” removing unnecessary signage and eventually narrowing the roads and replacing steel guardrails with wood ones. Roadsides should be planted with hardy, attractive natives (e.g. butterfly weed), not only to add character to long stretches of road, but also to provide useful corridors for butterflies and other pollinators. Identify the key views and vistas from public spaces, prioritizing those most vulnerable to development, and ensure that new construction or inappropriate vegetation doesn’t block or disrupt them; consider purchasing key parcels (outright or conservation easements).



Natural Character and Scenic Values: This map shows the primary scenic roadside viewsheds, ridge tops, and scenic Districts of Critical Planning Concern.

natural environment



3.5

Working Landscapes and Fisheries

Note: Fishing and farming affect several topics of the Island Plan, including Natural Environment and Livelihood & Commerce. The following discussion encompasses a broad range of aspects of farming, so that this issue is treated in one place in the Plan.

There is an intimate relationship between open space and working landscapes such as farming and lumbering. These land uses tend to involve large areas, while providing open space benefits for lands which might otherwise be developed for other commercial uses or for residences. Without significant change in securing of appropriate lands and facilities, fishing and farming may not remain viable industries on Martha's Vineyard, and could disappear from the landscape and waterfront. The challenge is how to conserve working land and make it available at reasonable cost for uses that have difficulty competing economically with other kinds of development.

Fishing involves planning for critical shore-based facilities, access and water quality. Agriculture has been integral to the Vineyard's culture and economy for generations and has shaped its landscape, though much of the Island's farmland has disappeared over the last century, transformed into subdivisions or allowed to revert to wooded areas.

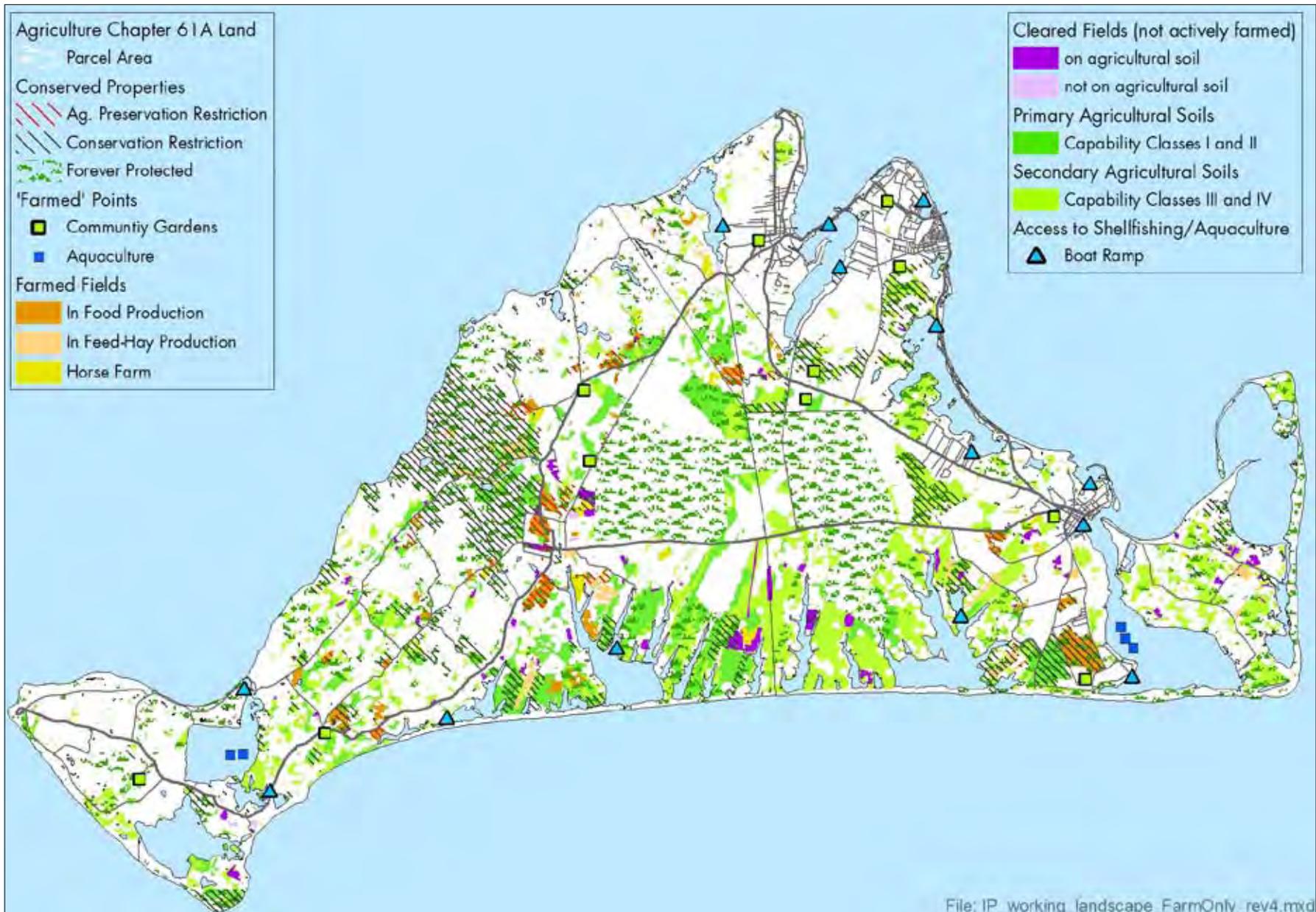
The objective of increasing fishing and farming goes well beyond the jobs created and the new economic activity directly generated. The Island's farms and fishing are icons that need to remain part of our way of life, connecting each of us to our historic roots and to the sources of our food. They are a fundamental part of the character of the Island, add to the market value of real estate, and contribute richness and authenticity to the concept of a heritage tourism program (see section 6.1). Fishing and farming and related cottage industries (e.g. products derived from Vineyard harvests) give meaningful work to those

for whom this is a passion, and in some cases combine with regular jobs to make a better living.

There are now 26 food-producing farms and 30 other farms of five acres or more on the Island, to say nothing of a large number of smaller, backyard farms. A total of 1,687 acres is classified as farmland, with 935 acres in production of food directly for human consumption, 493 acres in hay and pasture, and 259 acres of horse farms. Of the 1,428 acres of land in food-related production, only 300 acres are permanently protected.

Historically, fishing was a vital part of the Vineyard economy. Landings and revenues have gone down significantly. When offshore fishing stocks declined, large fishing vessels all but disappeared from Vineyard wharves, creating pressure to turn over those facilities to recreational uses. Once lost, it would be exceedingly difficult for fishermen to retrieve that wharfage. Fishing faces challenges from declining fish stocks in state and federal waters, the impact of pollution on shellfish stocks in local waters, limited fishing quotas, and the high cost of licensing.

Ensuring that farming and fishing flourish on Martha's Vineyard is a multifaceted challenge involving land preservation, the logistics and economics of farm operations, processing, distribution, and marketing, as well as the difficulty of finding and housing workers. Securing permanently affordable land for farming is by far the biggest challenge.



Agriculture: This map shows existing farms, types of legal protection, fields, and soil quality.

natural environment

Some lands in special areas or sensitive watersheds are not suitable for agriculture, or may be unsuitable for row crops but fine for permanent vegetative covers such as hay and pasture. Light forestry is appropriate in many locations, largely to thin the stands of trees to produce lumber or firewood.



Working landscapes can contribute to open space protection and Island character. Using farmland for food production fulfills the additional goals of making the Island more self-sufficient in food and of fostering food-related employment. We should aim to produce enough to meet at least 20% of the needs of the year-round population.

Food Self-Sufficiency

It is estimated that the present farms could theoretically produce about 8% of the food demand of the year-round population, based on dollar values of production and consumption (actual production is far less).

This percentage would drop to about 2% if only the permanently protected land remains in food production and the population grows according to the Present Trends option (section 2 – Development & Growth).

However, it could be as much as 47% with an optimistic projection of the area of land in food production (all existing farms and fields, 20% of undeveloped prime agricultural soils, and a large number of backyard gardens), with a Vineyard Food Basket (less meat, more locally viable crops), and the No Net Growth Scenario.

(These are preliminary estimates. The final estimates will be published in a Technical Bulletin: Agricultural Self-Sufficiency.)

Currently, a tomato shipped from California can cost less than one grown just down the road. As agriculture expands on the Island, leading to economies of scale, and as rising energy costs make long-distance shipping more expensive, we can anticipate that locally produced food will become increasingly price-competitive. Farming would also be aided with strategies discussed in other sections of the Island Plan, such as provision of dormitory housing for the seasonal workforce.

Objective N7: Increase farming and food production.

Ensuring that farming flourishes on Martha's Vineyard is a multifaceted challenge involving land preservation, the logistics and economics of farm operations, processing, distribution, and marketing, as well as the difficulty of finding and housing workers.

Strategy N7-1: Set up a Martha's Vineyard Agricultural Commission.

The Vineyard is fortunate to have several organizations that work directly or indirectly to promote agriculture – the Agricultural Society, the Island Grown Initiative, the Martha's Vineyard Shellfish Group, the Farm Institute, the Martha's Vineyard Conservation Partnership, the County, and the MVC. However, each of these organizations has a specific and limited mandate or role. A Vineyard Agricultural Commission could help coordinate ongoing efforts and take on new responsibilities to further agriculture on the Island. The nonregulatory AgCom could advise boards of selectmen and other town entities about agricultural and aquaculture issues, advocate for the local agricultural community, encourage the pursuit of agriculture, promote agriculture/aquaculture-based economic opportunities, preserve, revitalize, and sustain agricultural businesses and land, developing trust and a working relationship among farmers, residents, town boards, and other institutions, and oversee implementation of the other strategies listed below. It is proposed that the AgCom comprise a representative of each town and each of the

above organizations. An informal Martha's Vineyard Agricultural Alliance has been set up as a first step to creating the AgCom.

Strategy N7-2: Increase efforts to protect and increase farmland.

Efforts to preserve farmland and to maintain active farming on the Island have been heroic, often involving great personal sacrifice by property owners and farmers. The AgCom can support efforts to provide affordable farmland into the future, focusing first on protecting existing working farms which might otherwise disappear with the next generation. Next, the effort should focus on expanding farmland, targeting the fallow fields and the 2,641 acres of undeveloped land that is classified as prime agricultural soils. Lands with greater habitat value or in nitrogen-sensitive watersheds should be avoided or carefully managed. The AgCom, in collaboration with the agricultural community, and with technical assistance from the MVC, should identify important existing and potential agricultural lands. Specific techniques that could be used to increase the amount of farmland include using more public land for farming, such as appropriate Land Bank land, school properties, public and utility rights of way, and landfills after restrictions have expired; as well as using tax incentives related to Conservation Restrictions (permanent) and Chapter 61A (not permanent) protections.

Strategy N7-3: Increase food production. Several techniques could be used to make Martha's Vineyard more self-sufficient in food.

We should increase land in food production by protecting more agricultural land and by increasing the proportion of agricultural land that is in food production (such as by having the Land Bank and other land conservation entities make this a requirement for future agricultural protection agreements). We could increase yield per acre, particularly in the areas of backyard gardens and greenhouses, provided these techniques are environmentally sound. We could change what we eat, eliminating foods that don't grow well here and reducing the consumption of meat products that involve significantly more land than production of vegetables, grains and beans.

Strategy N7-4: Increase agriculture infrastructure.

Plan and execute needed agricultural infrastructure; such as a meat processing facility (building on IGI's experience with poultry processing), a fish-processing facility, a dairy co-operative (as there was on the Island from 1946-1961), a co-operative for buying and delivering farm supplies, and greenhouses for winter growing.

Strategy N7-5: Utilize value-added techniques to extend production.

Selling processed agricultural products – such as strawberry jam from Vineyard berries or sweaters from Vineyard sheep – helps take full advantage of local crops and increase sales and export possibilities.

Strategy N7-6: Resolve issues of local supply and demand.

Local food producers and contract buyers (restaurants, grocers) have identified the need for improvements to the distribution system to allow farmers to plan production and be assured of sales. Buyers also need a reliable local supply, which may mean that the farmers would have to grow extra, necessitating a market for surplus.

Strategy N7-7: Promote and market local food.

Continuing efforts to promote Island-grown foods not only support the efforts of individual producers, but also foster pride in the Vineyard as a food producer. Adoption of Right-To-Farm by-laws indicates community support for agriculture, and encourages people to be proud to live near farms and to embrace farming in their neighborhoods.

natural environment

Objective N8: Increase fishing.

Many of the strategies outlined above for farming apply equally to fishing, such as those dealing with distribution, promotion, and marketing. The following are additional strategies dealing specifically with fishing.



Strategy N8-1: Enhance shellfish stocks in coastal ponds.

Presently, the Island has three active shellfish hatcheries and a fourth that is not operating. In addition to restoring water quality and habitat, we should increase the production of shellfish seed from local brood stock. The seed then needs to be grown to survivable size and planted out into ponds. This could lead to hundreds of jobs in commercial shellfishing.

Strategy N8-2: Increase aquaculture.

Aquaculture – in coastal ponds and in open ocean waters within three miles of shore – can provide many benefits for the community, supplying local food, creating jobs, and removing nitrogen from coastal ponds. The priority is shellfish, since farming finfish involves many environmental problems. It would be best to use aquaculture techniques that minimize conflicts with recreational boating and scenic values, and protect the ecologically fragile pond bottoms.

Strategy N8-3: Protect harbor facilities for commercial fishing.

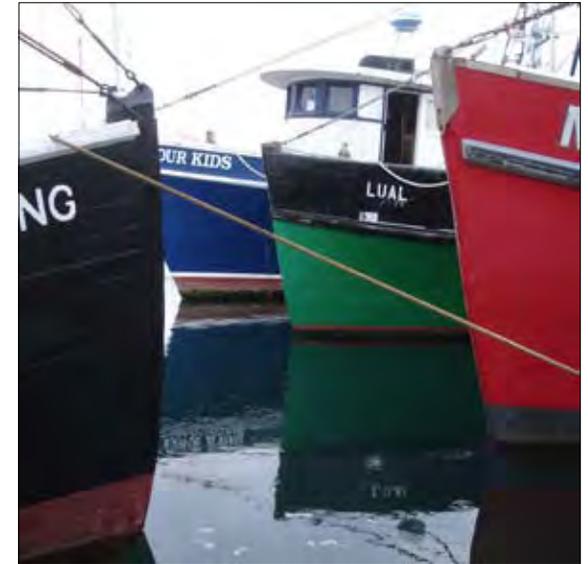
The federal government is moving aggressively to restore offshore fish stocks. It is important that we reserve wharfage and room for icing and takeout facilities, in order to reestablish a viable local large-vessel commercial fishing industry as fish stocks come back.

Strategy N8-4: Set up facilities for on-Island fish processing.

The shortage of licensed fish processing facilities means that most fish landed by local fishermen must be taken to New Bedford or other ports for processing. A cooperative processing facility on-Island would allow local fish to be sold directly to Island fish markets, grocers, and restaurants. Other measures might facilitate direct sales from fishermen to consumers, something now prohibited by state legislation.

Strategy N8-5: Purchase community-owned fishing licenses.

Since the cost of a commercial fishing license is prohibitive for local fishermen, almost all licenses are bought by corporations. A Vineyard fishing cooperative or other entity could buy one license and allow several fishermen to operate under it. This strategy has been successful in Maine, and is being investigated by the Martha's Vineyard/Dukes County Commercial Fishermen's Association.



Objective N9: Promote lumbering.

The land on Martha's Vineyard is so valuable from both an economic and biodiversity point of view that it is not realistic to expect any new commercial plantations for lumbering. However, there is potential for a limited lumber industry on the Island, mainly selective harvesting in wooded areas. Island lumber could be used to make products such as furniture and toys.

Strategy N9-1: Accommodate the homegrown lumber industry.

Encourage a small scale lumbering industry to harvest trees that need to be thinned and transform them into useful lumber, rather than simply chipping and disposing. This could include removing white pines from the State Forest. This lumber can then be used for construction or making wood products. Harvesting local firewood, especially in areas where this will also improve habitat value (e.g. State Forest) should go hand in hand with a reduction in imports of firewood, which is a key vector for tree disease.



3.6

Climate Change

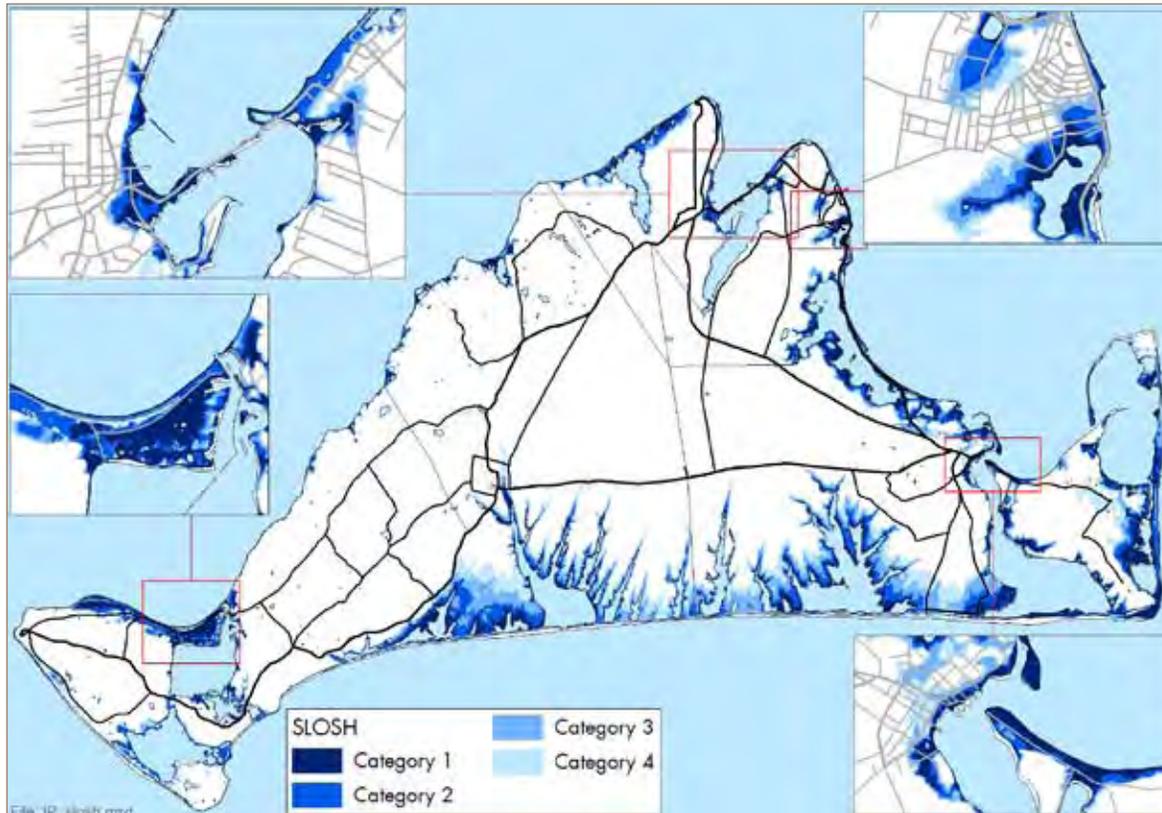
A great body of science demonstrates that the world's consumption of fossil fuels has resulted in increased dispersion of greenhouse gases, altering the planet's atmosphere to the point of global warming and resultant acceleration of sea level rise. In turn, these environmental changes may flood buildings and infrastructure, shift locations of habitats, alter growing seasons for crops, introduce new pests and invasive species, increase extreme weather events (droughts, flooding, and storms), and create more health stress from extreme heat and poorer air quality. Though the extent and timing of the changes communities can expect is uncertain,

current evidence and projections suggest that impacts to the Vineyard are potentially of such magnitude or importance that it is only prudent to anticipate and plan for such contingencies.

Much of the focus of climate change impacts has been on sea level rise. According to the Intergovernmental Panel on Climate Change, by the end of this century we may expect worldwide (eustatic) sea level rise of from 7-15 inches (from a temperature increase of 3.2 degrees F) to 10-23 inches (from a temperature increase of 7.2 degrees F). Recent projections are even greater.

The potential sea rise is much greater for Martha's Vineyard. The Cape and Islands are among many areas around the world where the earth continues to subside relative to sea level. This local subsidence has added to the submergence felt worldwide, so that in the last 100 years, sea level has risen in our area between 10.2 inches (at Woods Hole) and 11.9 inches (at Nantucket), compared to the 6.7-inch worldwide rise in sea level. It is reasonable to assume that local sea level rise may be significantly higher than worldwide projections, meaning that significant public infrastructure as well as private properties on the Vineyard are at risk and will be inundated at some point. Much of the Vineyard's activities and economy are focused on the coastline and are therefore particularly vulnerable to change.

natural environment



Storm Surge: These are the areas that could be affected by storm surge flooding associated with various intensities of hurricane, based on current sea levels.

Section 7 (Energy & Waste) outlines measures to reduce the Vineyard’s contribution to greenhouse gases by adopting practices that generate fewer harmful emissions, such as using energy more efficiently and using clean, renewable energy

sources. The open space protection measures in this section may make a small but symbolic contribution to conserving vegetation that locks up carbon and filters and cools the air.

However much the Vineyard demonstrates responsible action, it is now clear that we must prepare to adapt to the inevitable impacts of climate change.

Objective N10: Prepare for climate change.

We need to assess the vulnerability of the Vineyard to the diverse impacts related to climate change and plan accordingly to conserve human and natural resources.

Some of the measures outlined elsewhere in the Island Plan will help the community deal with the impacts of climate change. Increased heat stress to coastal ponds will probably promote growth of undesirable plants and animals, further deteriorating water quality, and making decreasing nitrogen input to groundwater even more important. The preservation of large, Minimum Viable Landscapes of native habitat will allow communities and species of plants and animals to shift in response to climate stress.

Strategy N10-1: Identify lands and infrastructure most at risk to sea level rise.

A Climate Change Plan should be prepared for the Vineyard that uses computer modeling to identify lands at greatest risk from sea-level rise, based on considerations such as previous shoreline change, topography, and a likely range of sea-level change. It should identify areas likely to become underwater, wetlands, or subject to storm surges. This Plan should identify the measures that the Vineyard should use to adapt to and/or mitigate the impacts of climate change, such as those mentioned in the other strategies below. The Oak Bluffs conservation commission’s ongoing collaboration with the Massachusetts Coastal Zone Management Storm

Smart Coasts Program to identify measures for responding to climate change could serve as a model for other towns.

Strategy N10-2: Limit construction in areas at greatest risk and adopt measures to limit impacts.

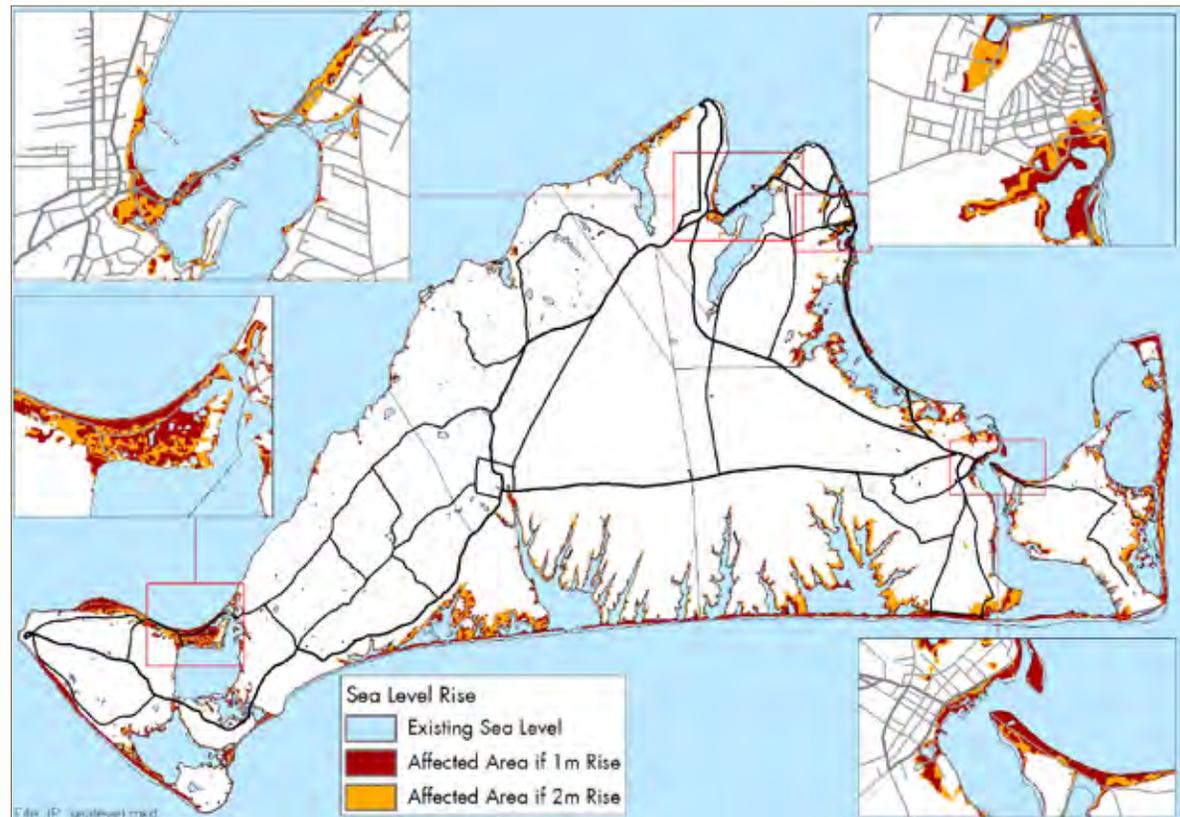
Construction – or reconstruction after storm damage – of buildings or infrastructure should be prohibited in the most highly susceptible areas, including areas which would prevent wetlands from migrating inland so they can continue to play their essential ecological/ environmental roles. Buildings that are damaged in storm surges may contribute significant impacts as toxins, debris and septage enter ponds and bays, affecting water quality, shellfish, and public use of these resources. Building codes should be updated to ensure higher elevations and distance from shorelines as protection from storms and flooding.

Strategy N10-3: Preserve lands that are susceptible to climate change impacts as open space.

Acquire lands in areas identified as highly susceptible to flooding (but not soon to be lost to erosion) – especially if they are ecologically important or serve some other open space purpose. Federal pre-disaster mitigation funds may be used acquire land to undevelop properties that cannot be mitigated.

Strategy N10-4: Carry out pre-disaster mitigation to reduce impacts from storms and flooding.

The MVC and Island towns recently prepared a Pre-Disaster Mitigation Plan to help identify



Sea-Level Rise: The colored areas represent the areas that would be underwater with one or two meter (3 or 6') rises in sea level. The areas subject to storm surges would move further inland, compared to the previous map.

facilities most at risk from natural disasters, and to identify what measures could be taken to minimize impacts in case of an event. This plan should be updated to incorporate projections related to climate change. For example, more aggressive fire-wise strategies such as removal of fuels and their replacement with native vegetation would help deal with the anticipated increased summer fire hazard. Floodplain regulations should be updated to address storms and coastal flooding.

Strategy N10-5: Minimize shoreline armoring.

As erosion rates increase with sea level rise, pressure will increase to armor shorelines to protect houses. However, this just directs the erosive forces to the next unprotected shoreline down-drift and prevents beaches from rebuilding such natural storm defenses as dune systems.