

Martha's Vineyard Regional Transportation Plan



2011 Update

**Prepared by the Martha's Vineyard Commission
on behalf of the Martha's Vineyard
Metropolitan Planning Organization**

This Regional Transportation Plan was prepared by the staff of the Martha's Vineyard Commission on behalf of the Martha's Vineyard Metropolitan Planning Organization, made up of:

- The Massachusetts Department of Transportation,
- The Martha's Vineyard Commission, and
- The Martha's Vineyard Regional Transit Authority.

Martha's Vineyard MPO
c/o The Martha's Vineyard Commission
P.O. Box 1447, Oak Bluffs, MA 02557
Telephone: 508-693-3453
Fax: 508-693-7894
E-mail: info@mvcommission.org

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Preface

The Martha's Vineyard Regional Transportation Plan (RTP) is updated every four years as required by the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU), a federal statute intended to facilitate the development, management and operation of our nation's transportation system. The RTP outlines Martha's Vineyard's transportation issues, and offers proposals to improve the transportation system.

The Martha's Vineyard Commission serves as one of the Commonwealth of Massachusetts' thirteen Regional Planning Agencies (RPAs). Ten of these thirteen regional planning agencies are federally designated Metropolitan Planning Organizations (MPO). The federal regulations require that an MPO be formed in urbanized areas with a population of 50,000 or more. While Martha's Vineyard, Franklin County, and Nantucket do not meet these criteria, the Governor of Massachusetts designated these areas MPOs in the 1970s, and the Massachusetts Department of Transportation (MassDOT) provides funds for transportation planning in these MPOs.

The Martha's Vineyard MPO consists of a Committee of Signatories that decides on transportation planning goals, projects, priorities, and funding. Martha's Vineyard Committee of Signatories' members are the Massachusetts Department of Transportation, the Martha's Vineyard Commission, and the Martha's Vineyard Regional Transit Authority. This document will refer to the Committee of Signatories as the Martha's Vineyard MPO.

In its role as an MPO member, the Martha's Vineyard Commission follows federal transportation planning regulations, including the establishment of a citizen advisory group, known as the Joint Transportation Committee (JTC), to participate in transportation planning activities. The Committee consists of appointed representatives of the six Island towns, transportation providers, and members of the public. The JTC guides regional transportation decision-making, serves as a forum for discussing transportation issues, and advises the Committee of Signatories.

This Regional Transportation Plan update, as did those in the past, deals primarily with the Island of Martha's Vineyard. The Town of Gosnold, part of Dukes County and represented by the Martha's Vineyard Commission, comprises the Elizabeth Islands, a largely uninhabited chain. Presently, a village of mostly seasonal dwellings on the island of Cuttyhunk, with a year-round population of about 100 people, is served by ferry service from New Bedford. The village has about three miles of roads, used mainly by golf carts. Naushon and Penikese islands also have small, primarily seasonal, populations.

1. Introduction

Transportation on Martha's Vineyard faces special challenges:

- As an island, it is only accessible by boat or air;
- As a summer resort, there is a four-fold fluctuation in the number of people on the Island with seasonal patterns leading to congestion, safety problems and straining of infrastructure capacities;
- As a predominantly rural or semi-rural area, the land-use pattern makes it more challenging to offer alternative means of transportation to the car;
- As a locality of unique environmental, scenic, and historic qualities, there is ongoing concern about the impact of transportation on these important features of the Vineyard.

The Island's explosion in popularity over the past generation has resulted in rapid growth that threatens the very qualities of the Island that many find so attractive. Transportation deficiencies have been one of the most readily apparent symptoms of rapid Island growth. The economy depends heavily on people who are drawn to the Island's scenic beauty; but the Island's burgeoning popularity could threaten the very attributes that make it attractive. Without good transportation planning, future population growth holds the specter of increasing congestion or inappropriate engineering solutions.

In 1995, a special task force on transportation outlined a vision for major improvements. There has been much progress since then.

- Since 1997, the Steamship Authority (SSA) has limited the summer car capacity to the 1995 level by limiting vessel capacity and number of trips, turning the "lifeline" into a control valve. Although this led more seasonal residents to keep cars here permanently, it appears to have discouraged shorter-term visitors from bringing cars.
- The Vineyard Transit Authority (VTA) has been a success, going from a limited, seasonal service transporting 71,000 people in 1997 to an Island-wide, year-round, service that carried 1.1 million people in 2009 and 2010.

Since the last update of the Regional Transportation Plan in 2007, many of the recommendations in that plan were completed or are currently underway. These include the following:

- Improvements to the network of bike paths and pedestrian facilities including the creation of an additional mile of shared-use path (SUP) on Herring Creek Road in Edgartown, and extensive pedestrian and bicycle improvements in the congested heart of Oak Bluffs.
- Operational or physical improvements were made to, or are planned for, most of the critical roadway locations identified in the 2007 Regional Transportation Plan, including improvements to the intersection of State and Old County Roads in West Tisbury, plans for a roundabout at the intersection of Barnes and Edgartown-Vineyard Haven roads, and plans for construction of a system of connector roads in Tisbury which should relieve congestion at the intersection of State and Edgartown-Vineyard Haven roads and on upper State Road.

- A temporary drawbridge has been constructed to replace the aging and dilapidated drawbridge over the Lagoon Pond between Tisbury and Oak Bluffs. A permanent bridge is in the advanced planning stage. Construction on two smaller replacement bridges over the Sengekontacket Pond Inlets in Oak Bluffs and Edgartown serving the popular State Beach were completed in the spring of 2011.
- In the last four years, the MVC has undertaken an extensive Island-wide planning effort, called the *Island Plan*, to address the consequences of likely future trends and potential development. According to its mission statement: "The Island Plan charted a course to the kind of future that the Vineyard community wants, and designed a series of actions to help us navigate that course." This major planning effort focused on a variety of topics including transportation, and this update of the Regional Transportation Plan reflects that exercise. The planning process was coordinated by a twenty-member Steering Committee of concerned Island citizens, with the assistance of a Network of Planning Advisors with approximately 550 members. The *Island Plan* Transportation Work Group held a series of meetings and public forums to generate recommendations.

The 2011 Update of the Regional Transportation Plan considers regional transportation needs in a continuing, cooperative and comprehensive manner. Based on analyses of travel, demographic, and land use data, combined with the opinions of Island residents and property and business owners, it outlines the current status of transportation issues on the Island and provides a framework for the upcoming transportation and related planning work. A fundamental purpose of the Regional Transportation Plan is to promote the development of intermodal transportation facilities including roads, public transit routes, terminals, bicycle and pedestrian paths, and parking. Another crucial task of the Plan is to consider the concept of "livability" as it relates to transportation. Livability essentially means creating communities that offer alternatives to automobile usage. Martha's Vineyard has been putting this concept into practice long before it had this name, but this iteration of the RTP addresses livability directly.

This update of the Regional Transportation Plan is organized as follows:

- Section 2 describes the administrative and planning context for the preparation of the plan including previous transportation planning efforts on the Island;
- Section 3 gives an overview of the Island and its people including estimates of present and future population and employment;
- Section 4 discusses the concept of 'livability' as it applies to the Island of Martha's Vineyard, and especially to transportation;
- Section 5 outlines the principal components of the transportation network and as well as the ten main goals of the Plan;
- Sections 6 and 7 describe the ways to get to the Island, by water and by air; each Section is in four sections: a description of the present situation, trends and analysis, objectives and proposed projects and actions;

- Sections 8, 9, and 10 describe various modes for getting around on the Island, dealing with the road network and congestion management, buses/taxis and bicycles/pedestrians;
- Sections 11 and 12 deal with issues that cut across several modes of transportation, namely freight and intermodality/information;
- Sections 13, 14, 15, and 16 discuss the topics of Safety, Security, Environmental Considerations, and Climate Change;
- Section 17 discusses implementation of the plan and includes a list of short and long-term transportation improvement projects;
- Section 18 is the conclusion;
- There are appendices on air quality, the participation process, a glossary, and the official endorsements of the plan.

2. The RTP Update Process

2.1 Guiding Legislation

This Regional Transportation Plan is being prepared within the framework of the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU), a federal statute intended to facilitate the development, management and operation of an integrated, intermodal transportation system that enables the safe, efficient, and economic movement of people and goods. This Act provides funding for transportation planning and improvements across the nation, with revenues derived primarily from a tax on the sale of gasoline.

SAFETEA-LU mandates consideration of the following planning factors:

- Support economic vitality - The RTP recognizes that the Vineyard's transportation system is critical to the economic success of the Island. This is true not only in the efficient movement of people and goods, but in protecting the special character of the Island, from which the Island derives much of its tourism and desirability as a place to live. Each section of the RTP describes the ways in which this Plan Update will improve the transportation system while protecting the Island's character, but the reader is particularly directed to section 3 for a discussion of economic development.
- Increase accessibility and mobility - Seasonal traffic is a problem on the Vineyard, and section 8 discusses the ways in which the RTP intends to deal with congestion. Sections 9 and 10 spell out the ways in which the Vineyard intends to encourage buses, bicycles, and walking as alternatives to private automobiles, and thus increase the access for those without cars.
- Protect and enhance the environment - As the natural beauty of the Vineyard is paramount to residents and visitors alike, every aspect of the RTP is designed to minimize impact on the environment. Section 15 discusses this issue specifically. While section 16 specifically discusses climate change in relation to transportation on the Vineyard.
- Enhance modal integration - As an island, any trip to or from Martha's Vineyard requires at least two modes, so the RTP is particularly cognizant of modal integration. This is particularly true as the Island increasingly encourages the use of alternative modes to reduce the impacts of automobile traffic. Each mode is discussed in its own section, and section 12 discusses intermodality directly.
- Promote efficient system management - Management responsibilities for each mode is discussed in the relevant section, and the financial considerations of the planned improvements are discussed in section 16.
- Preserve the existing system - Vineyard residents are generally averse to major construction projects, so the RTP relies on preservation of the existing system rather than building any major new facilities. This approach is discussed throughout the RTP, and section 16 details specific projects intended to preserve our current transportation system.
- Increase safety - Safety is a key theme throughout the RTP, and section 13 address safety generally.

- Increase transportation security - Recognizing the importance of vigilance in the current political climate, section 13 addresses security.

The Clean Air Act Amendments (CAAA) of 1990 also governs the Plan Update. Eastern Massachusetts exceeds national ambient air quality standards and is classified as a “serious non-attainment ozone area”. Ozone levels are highest during the summer when the weather is warmest, sunlight most intense and motor vehicle activity highest.

The 1990 Americans with Disabilities Act (ADA) guarantees “equal and equivalent” access to transportation facilities and services funded by federal government agencies. The ADA, in effect, is a civil rights law for which Congress found that:

- The number of Americans having one or more physical disabilities is growing and is expected to increase as the population ages.
- Discrimination against individuals with disabilities continues to be a “serious and pervasive social problem”.
- The Nation’s proper goals regarding individuals with disabilities are to “assure equality of opportunity, full participation, independent living and economic self-sufficiency”.

The Act’s scope pertains to the design and construction of roads, traffic controls, sidewalks and crosswalks and parking lots. The Act has also influenced fixed-route and demand-responsive transit services, such as bus routes, taxis, and shuttles.

With respect to environmental justice, Title VI of the 1964 Civil Rights Act says that “...each Federal agency is required to ensure that no person is excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving Federal financial assistance on the basis of race, color, national origin, age, sex, disability, or religion...” Executive Order 12898 takes Title VI further by saying that “... each Federal agency shall, to the greatest extent allowed by law, administer and implement its programs, policies, and activities that affect human health or the environment so as to identify and avoid ‘disproportionately high and adverse’ effects on minority and low-income populations.” Section 15 discusses Environmental Justice as it relates to the RTP.

2.2 The 3-C Process

In the early 1970’s Massachusetts adopted the federal government’s comprehensive, cooperative, continuing (3-C) transportation planning process.

The intent of the 3-C process is to decentralize transportation decision-making by ensuring that “all reasonable and prudent alternatives to transportation problems are considered and analyzed adequately.” Decisions must give full consideration to all impacts, emphasize physical, economic and social consequences and include the “participation of elected officials, public and private groups and individual citizens.”

Establishing an “open and participatory planning” process led to a Memorandum of Understanding (MOU) between state and regional representatives in 1980. The MOU resulted in the Joint Transportation Committee (JTC). Its purposes and responsibilities are to:

- Guide regional transportation decision-making,

- Serve as a forum for discussing all transportation issues and,
- Advise the Committee of Signatories – the Massachusetts Department of Transportation, The Martha’s Vineyard Commission, and Martha’s Vineyard Regional Transit Authority.

In 2008 the Commonwealth of Massachusetts adopted the *youMove Massachusetts* planning and public outreach initiative, which engaged the public in order to develop a high-level vision for transportation statewide. The *youMove* initiative will also include the development of a Statewide Strategic Transportation Plan which will link *youMove* themes to data and guide future transportation planning. Based on public input, ten core themes were developed to guide the planning, design, and operation of the transportation system:

- Improve transportation system reliability
- Focus attention on maintaining the transportation system
- Design transportation systems better
- Encourage shared use of infrastructure
- Increase capacity by expanding existing facilities and services
- Create a more user-friendly transportation system
- Broaden the transportation system to serve more people
- Provide adequate funding and collect revenue equitably
- Minimize environmental impacts
- Improve access to the transportation system

In addition, MassDOT has also issued the GreenDOT Policy Directive, which incorporates environmental concerns into transportation planning. The GreenDOT Policy will be discussed in more detail in sections 4, 15, and 16. The three goals of the initiative are:

- Reduce greenhouse gas emissions,
- Promote the healthy transportation options of walking, bicycling, and public transit,
- Support smart-growth development.

2.3 Roles of the Martha’s Vineyard Commission and Martha’s Vineyard Regional Transit Authority

The Martha’s Vineyard Commission (MVC) as the “lead transportation planning agency for the region...shall be principally responsible for the maintenance of the transportation planning process and for the support and operation of the JTC”.

The Martha's Vineyard Regional Transit Authority (VTA) assists “in obtaining and ensuring input and participation in multi-modal transportation from local elected officials and the public”. It also “represent[s] the region’s concerns for public transportation needs and solutions to transportation problems”.

As members of the MPO and working with the JTC, the Commission and the Transit Authority:

- Develop regional goals and objectives,
- Adopt the regional transportation plan, and
- Formulate regional transportation improvement priorities in partnership with Island towns.

2.4 Previous Planning Efforts

The Donaher Report (1995): A sixteen-person Martha's Vineyard Special Task Force on Transportation carried out an extensive community-based reflection on Island transportation. It set, as its long-range goal, the creation of "a radically different transportation system that is a model for minimizing the impact of the automobile and is designed for the special qualities of Martha's Vineyard." The main thrust was to propose an integrated system of transportation to greatly expand the use of transit and discourage the use of the automobile. Action items included:

- creation of an Integrated Transit System, limiting the vehicular capacity on the ferry, and a campaign to encourage visitors to "leave their cars and cares at home",
- creating a seamless express bus service from parking lots on the mainland to the ferry and thence to a parking/service lot on the Vineyard; the aim is to allow relocation of pick-up and drop-off as well as other services needed by arriving passengers away from congested ferry terminal areas.

A large number of the recommendations, particularly related to transit improvements, have been implemented. Others are included in this document.

State Forest Bicycle Path Connector Plan: This study outlined paths for the eastern side of the forest (circa 1999-2000).

Port Areas Infrastructure Capacity Study: (2000) Sponsored by the Steamship Authority, this study examined the infrastructure at and around the seven ferry terminals serving the Island in the summer of 1999, observed how people used the infrastructure, and made recommendations for improvements.

The 2002 Build-out Study: Estimates were made of the ultimate potential development based on available land and current zoning, as a basis for future land use and transportation planning.

The 2007 Regional Transportation Plan: The last update of the RTP inventoried the Island's transportation modes, projected demographic, land-use and development patterns, identified existing and future transportation needs, and set forth proposed projects and actions. It incorporated the transportation planning recommendations of previous regional transportation plans and, in turn, the 2011 Plan incorporates the pertinent recommendations from the 2007 Plan.

2.5 Recent Transportation Studies

Surveys: In the early 2000s the Martha's Vineyard Commission conducted a series of surveys to gain a better understanding of the characteristics, activities, and attitudes of permanent and seasonal residents as well as of visitors to the Vineyard. The surveys were funded in part by MassDOT and the Federal Highway Administration. Surveys of 1,857 ferry and airport users in 2003, and a survey of 1,068 people distributed with local newspapers in 2004, constitute the most extensive surveys ever carried out on the Vineyard. From these surveys, information was

obtained regarding the characteristics of the respondents, their off-Island travel origins, length and location of stay, activities and degree of satisfaction with services available, vehicle ownership and use, Island travel activity, means of travel to and from the ferry, off-Island origins and destinations, mode of transportation used on Island, and opinions on various issues generally relating to Martha's Vineyard development. Results are summarized in Figure 1, and more detail is included in relevant sections.

Travel Demand Model: A model was prepared by Louis Berger Group, based on available year-round average population, economic and land use data. Based on this, the MVC plans to create a summer peak model that will allow projection of future traffic levels, identification of future congestion points based on various growth scenarios, and testing of possible solutions.

Lagoon Pond Bridge Report: This 2004 report by a committee set up by the Oak Bluffs and Tisbury Boards of Selectmen recommended how to deal with MassDOT proposals to replace the aging drawbridge. The Drawbridge Committee has continued to work actively and issued comments at various stages of planning for the temporary and permanent drawbridges.

Lagoon Pond Drawbridge Assessment: A private engineering firm assessed the structural integrity of the drawbridge on Beach Road spanning the inlet to Lagoon Pond separating Oak Bluffs from Tisbury, concluding that replacement was necessary in the near term (see section 8.4).

Tisbury Connector Roads Study: This study, carried out in 2005, was prepared on behalf of the Tisbury Planning Board and Department of Public Works. It analyzed a proposal developed in cooperation with the Martha's Vineyard Commission to create a network of connector roads between the Edgartown-Vineyard Haven Road and State Road in order to relieve congestion at the intersection of those two roads, to provide better access to the Tisbury Park-and-Ride lot and its shuttle to the Vineyard Haven Ferry Terminal, and to serve as the road network for future infill development. This was one of the most problematic intersections identified in the 2003 Regional Transportation Plan. The study included an origin-destination study of vehicles passing through the intersection. The Town is moving ahead with the implementation of this plan (see section 8.4, projects 1 and 2).

Blinker Intersection Study: This study, prepared in 2006 by the Martha's Vineyard Commission for the Town of Oak Bluffs, looked at five alternative solutions for the possible redesign of the intersection of the Edgartown-Vineyard Haven Road and Barnes Road, another 2003 RTP problematic intersection (see section 8.4, project 4).

Upper Main Street, Edgartown, MA: An Assessment of Permanent and Seasonal Traffic Management Actions: The MVC conducted an origin-destination study in 2005. Subsequently, the MVC commissioned a study by Fay, Spofford, and Thorndike for the Edgartown Planning Board that outlined various possible solutions for this problematic intersection. (see section 8.4, projects 6 and 7).

Five Corners/Water Street Short-Term Improvements: This effort, involving various Tisbury town boards, the Steamship Authority, and the Martha's Vineyard Commission, proposed a series of short-term improvements to the area around the Vineyard Haven ferry terminal and Five Corners, another problematic intersection identified in RTP. Several measures were subsequently put in place and others are being considered (see section 8.4, project 3).

Pre-feasibility Study of the Extension of the Martha's Vineyard Network of Shared-Use Paths (2009). This study examined the feasibility of closing existing gaps in the Island's popular SUP system.

Old County Road Design Alternatives (2010): This study, prepared by the MVC at the request of the West Tisbury Board of Selectmen, looked at alternative geometries for the reconfiguration of the intersection of Old County Road and State Road in West Tisbury.

Road Safety Audit - State Road at Old County Road: (2010) MassDOT, in coordination with local authorities studied the safety of this intersection in West Tisbury. Suggested short-term improvements were implemented. See section 8.

Scenic Roads on Martha's Vineyard: (2010) This study analyzed the existing scenic roads and possible methods of protecting and enhancing them.

Congestion and Accident Study: (2010) MVC staff looked at the most congested and dangerous areas on the Vineyard.

Figure 1: Summary of Survey Results Related to Transportation

The MVC carried out very extensive surveys of residents, visitors, and businesses, the reaching out to the equivalent of 20% of the year-round population. Though these 2003 and 2004 surveys are several years old, they can be reasonably expected to reflect current conditions, and are cited here because they represent the most complete information we are likely to get for many years to come.

Number of Vehicles

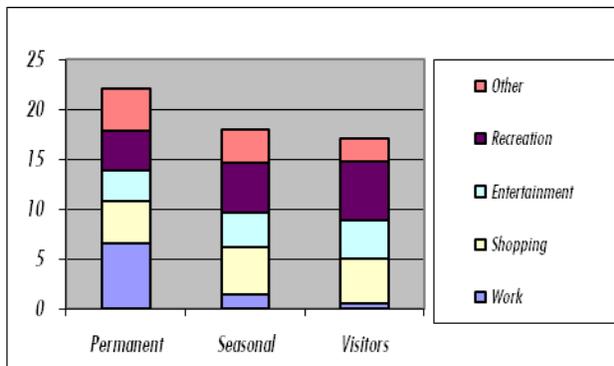
- The average number of registered motor vehicles per year round household is between 2.0 (Vineyard Survey) and 2.5 (Ferry Survey). This held true across all towns and across almost all incomes, except that 65% of householders with incomes under \$25,000 had just one vehicle.
- Seasonal residents and visitors, on average, have access to 1.5 vehicles on the Vineyard. Only 7% of visitors' vehicles are rented.
- About 40% of seasonal residents register one or more vehicles on the Vineyard. More than half the seasonal residents leave their vehicles on the Vineyard all year, and one-quarter of these leave more than one vehicle.
- 20% or more residents and visitors on Martha's Vineyard keep another car on the Cape. Another 20% of permanent residents has access to a vehicle on the Cape. An even higher ratio – nearly one in four (24%) – of seasonal residents and visitors reported having access to a vehicle on the Cape. [Possibly their vehicles parked during their stay on the Vineyard.]

Volume and Purpose of On-Island Vehicle Trips

According to the surveys, the average number of personal vehicle trips made per week on the Island was 22 for permanent residents, 18 for seasonal residents, and 17 for visitors. The additional trips by permanent residents were work trips. The permanent residents' number seems unusually low. [The averaged estimate of permanent residents is less than two-thirds the customary average ascribed for residences.]

[Note that the surveys asked for information about the numbers of vehicular trips, for use in transportation planning; however, this methodology cannot be considered as accurate as other techniques such as using traffic counters or having motorists fill out travel logs of their movements over a period of time. While these survey results help in comparing the number of trips by type of destination and type of user, traffic counts conducted by the Martha's Vineyard Commission suggest that the actual total number of trips would be higher than the numbers indicated here.]

Trip Purpose



	Permanent	Seasonal	Visitors
Work	29%	8%	3%
Shopping	19%	26%	26%
Entertainment	13%	19%	23%
Recreation	18%	28%	34%
Other	21%	19%	15%
All Purposes	100%	100%	100%

Weekly Trips (Vineyard Survey)

- Recreational trips comprised the largest share of trips for visitors (six per week or over one-third of all trips) and for seasonal residents (five per week, or almost one-quarter of all trips).
- Work and business accounted for the most trips for permanent residents.
- Shopping accounted for a major portion of the travel for all groups, with about four trips per week for each group. However, the ambiguity of the question had some respondents including grocery shopping in this category while others did not.

Opinions

People favored maintaining the status quo with respect to the ferry and road capacity.

- In the Vineyard Survey, half the people thought that the ferry capacity for cars during the summer should continue to be restricted, even though it meant that they might not be able to make a reservation when they wanted, compared to 30% who disagreed (20% had no opinion).
- Less than 30% of respondents favored increasing the number of ferries to and from the Island. However, people surveyed on the ferries were less inclined to agree; only about one-third of the permanent and seasonal residents, and just 13% of visitors, surveyed on the ferries agreed with the restriction on cars.
- Only 20% of people in the Vineyard Survey (24% of permanent residents) thought the road network should be expanded.
- Slightly more respondents to the Ferry Survey agreed with the expanding the road capacity, although a lower percentage (15%) of permanent residents favored this.

Opinions On-Island Transportation Issues				
Percentage of respondents agreeing with the following propositions	Ferry Survey / Vineyard Survey			Business Survey
	Permanent Residents	Seasonal Residents	Visitors	
Island road system should be expanded to handle increased traffic.	15 / 24	24 / 17	26 / 14	24
Cars on summer ferries should continue to be limited to 1995 levels.	35 / 49	34 / 52	13 / 49	38
Run more ferries in the summer.	na / 29	na / 26	na / 29	na
Need traffic lights at certain intersections	na / 40	na / 34	na / 49	na

2.6 Purposes of the 2011 RTP Update

- Incorporate changes in the last four years particularly with respect to population information, modifications to the Island’s transportation system, and newly defined objectives or possible actions.
- Outline transportation planning and improvements from 2011 to 2035.
- Serve as basis for defining Transportation Improvement Program projects.
- Be consistent with the state’s overall plan for air quality, being prepared by the Massachusetts Department of Transportation, for the benchmark years of 2016, 2020, and 2035.
- Outline the framework for upcoming transportation planning to be carried out over the next few years as part of an Island-wide comprehensive planning effort.

2.7 Process for Preparing the 2012 RTP Update

This Update of the Regional Transportation Plan was carried out throughout 2010 and 2011, and involved the participation of many Island individuals and groups. As mentioned in section 2.2, the federal planning process is a 3-C process: Comprehensive, Cooperative and Continuing. SAFETEA-LU takes this a step further to ensure consistency between Regional Transportation Plans

and planned growth and economic development plans, such as the *Commonwealth of Massachusetts Long-Range Transportation Plan*. The process of updating the RTP and ensuring consistency with other plans involved the following groups:

- Island Plan Transportation Work Group: An important input into this RTP update was the efforts of the Island Plan Transportation Work Group. This was part of the major three-year community effort to prepare a new regional comprehensive plan for Martha's Vineyard. The Transportation Work Group included participation from town boards, non-profit organizations, and interested individuals. The Transportation Work Group held public forums and committee meetings to analyze the issues and outline a set of recommendations, which have been largely included in this version of the RTP. An important part of this comprehensive planning effort was to deal with the interrelation between transportation planning and other topics, especially development and growth on the Island.
- Joint Transportation Committee: The Joint Transportation Committee, made up of representatives of all Island towns, was responsible for coordinating the plan update process and, recommending the draft version of the final plan. The JTC built on the efforts of previous planning efforts from several other agencies (see section 2.4).
- Town and Public Participation: In addition to the above efforts, town boards, the County of Dukes County, and the general public were invited to participate in various other ways. First, the previous RTP was forwarded directly to the Selectmen and Planning boards of each town and the Tribe. A public forum on the RTP update was then held December 1, 2010 at which the previous plan was discussed and public input was sought about what should be in the updated version of the plan. Preliminary drafts of several new sections were presented. The public was informed of the RTP process through advertisements in both Island newspapers and press releases were sent out at key stages of the process. A final public meeting was held on August 29, 2011 to discuss the current draft.
- Bicycle/Pedestrian Subcommittee: In response to serious and continuing concerns about bicycle and pedestrian issues, and in recognition of the need to revise the Regional Transportation Plan for 2007, the Joint Transportation Committee set up a Bicycle/Pedestrian Subcommittee. It worked actively in the substantial revision to the Bicycle and Pedestrian Section of the last RTP update, and has provided additional comments for revisions in the current version. The Bicycle/Pedestrian Subcommittee has continued to advocate for alternative modes and provide input on transportation matters.
- Formal review process: The RTP was reviewed by the Martha's Vineyard MPO and was approved in September 2011 after a 30-day public review period that began on July 29, 2011. Comments received are outlined in Appendix 2.
- Martha's Vineyard MPO (Committee of Signatories): This committee, made up of The Massachusetts Department of Transportation, the Martha's Vineyard Commission, and the Martha's Vineyard Regional Transit Authority, named the membership of the Joint Transportation Committee (JTC) and endorsed the final plan in September 2011. MassDOT, authors of the *Commonwealth of Massachusetts Long-Range Transportation Plan*, provided comments on the RTP throughout the process.

- Martha's Vineyard Commission: After approval by the Martha's Vineyard Commission, the Transportation Plan will be incorporated into the MVC's current Regional Island Plan. The MVC also ensures that the RTP is consistent with the development policies of the Commission, such as those for Developments of Regional Impact and Districts of Critical Planning Concern.

This Regional Transportation Plan update includes certain goals, objectives, and proposed actions that are carried forward from the previous plan, some that were identified in the other planning studies described above, and others that were suggested in the course of the various planning and public participation activities.

2.8 Criteria for Project Prioritization

Many sections in the RTP include lists of proposed actions. The Joint Transportation Committee uses the following criteria to evaluate and prioritizing projects, and for selecting which ones should be in the upcoming Transportation Improvement Program (see section 17). In brackets is the relative weighting assigned to each criterion.

1. Safety: Promotes greater roadway, bicycle and pedestrian safety (3).
2. Alternative Modes: Favors the use of modes of transportation other than the private automobile (2).
3. Congestion: Reduces traffic congestion with physical improvements, particularly at the most problematic locations (2).
4. Infrastructure Improvement: Reconstructs deteriorated existing road and bridge infrastructure, improves drainage, enables American with Disabilities Act (ADA) compliance, increases amenities (2).
5. Project Readiness: A measure of the project's ability to move forward (2).
6. Character: Respects and reinforces the scenic, historic, and natural values of the Vineyard (1).

The JTC also considers the extent of use and whether it promotes or conforms to other goals of this Regional Transportation Plan such as intermodality and livability.

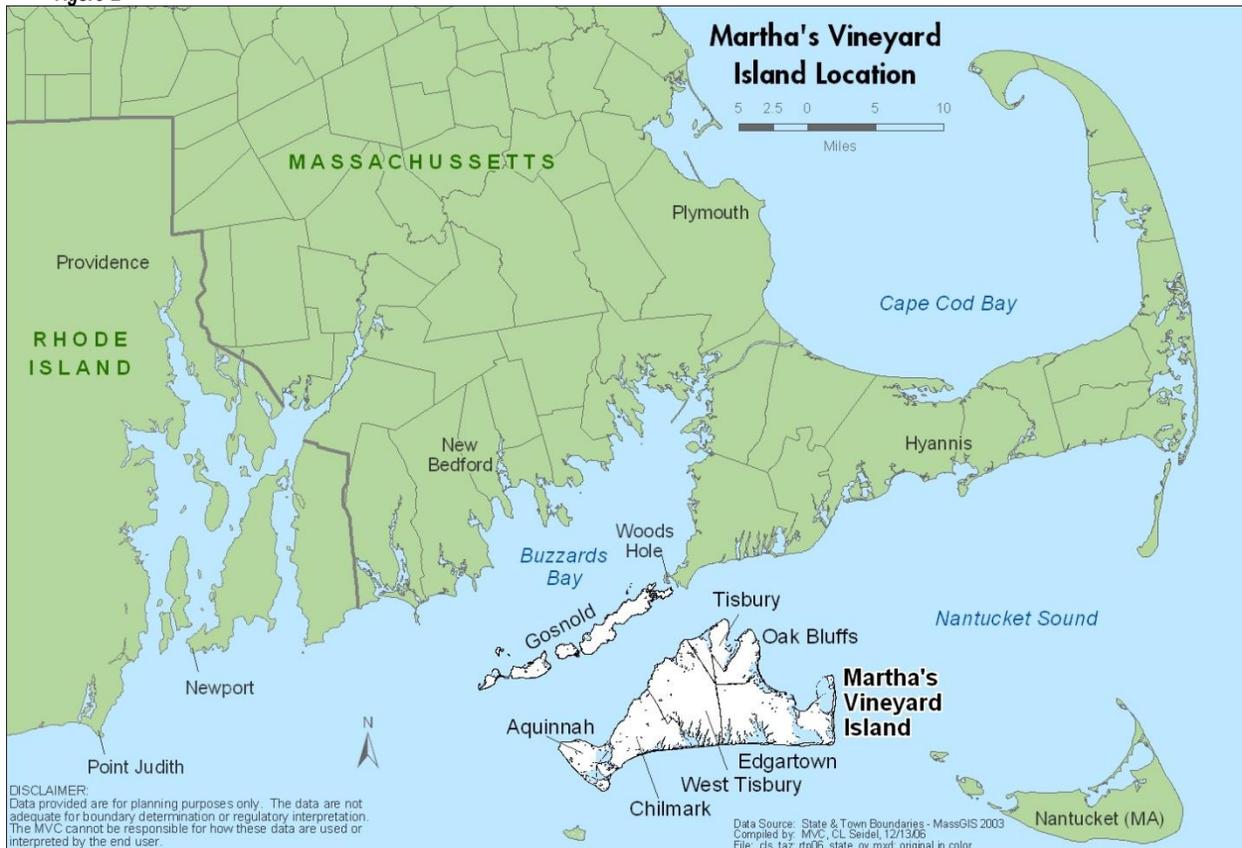
3. The Island, its People, and its Economy

3.1 Description of the Island

Martha's Vineyard is a 100-square-mile island located three miles off the coast of Cape Cod. Its topography, in fact its very existence, results from its location at the southern extremity, or terminal moraine, of the part of North America covered by ice during the last Ice Age. Home to the Wampanoag Tribe, it was settled by Europeans in the mid 17th century.



Figure 2



Today, year-round residents, seasonal residents – many of whom own second homes – and hundreds of thousands of short-term visitors live on or come to the Island, attracted by the unique natural, ecological, historical, and cultural values that define the beauty and character of Martha’s Vineyard.

Each of the Island’s towns reflects its origins: Edgartown as the home of master seamen and the seat of County government; Tisbury as the Island’s gateway and market town, West Tisbury and Chilmark as agricultural villages, Aquinnah (formerly Gay Head) as the Wampanoag tribal settlement and a fishing village, and Oak Bluffs as the first summer resort. Three-quarters of the Island’s population is concentrated in the three “Down-Island” towns: Tisbury, Oak Bluffs and Edgartown, each with a busy commercial town center. Vineyard Haven in Tisbury serves as the Island’s main port, seconded by Oak Bluffs in the summertime. The three “Up-Island” towns, West Tisbury, Chilmark and Aquinnah are more rural in character.

3.2 Population and Households

Population Growth

The Island’s population grew slowly from 1900 to 1970. Since 1980, Martha's Vineyard’s year-round population has grown significantly, far outpacing most other regions. This is seven times faster than Massachusetts generally, and three times faster than the country as a whole. Although the pace of growth on the Vineyard has slowed dramatically in the last decade, it was the fastest growing county in the Commonwealth.

Each decade from 1980 to 2010, Martha's Vineyard’s year-round population grew about a third, for a total of 86% (30% in the 1980s, 30% in the ‘90s, and 10% in the ‘00s). The 2010 Dukes County population estimate of 16,535 represents a 10% increase over 2000.

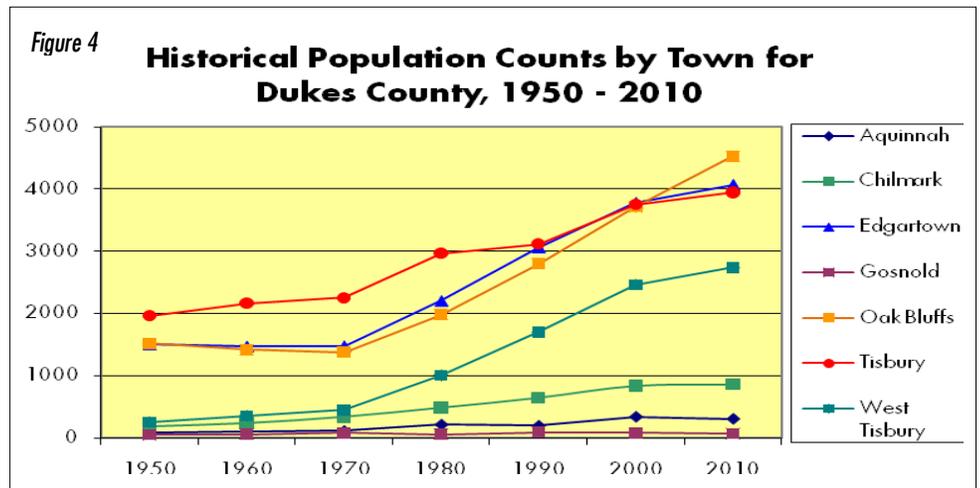
Figure 3: Year-Round Population - 1900 to 2010								
	1900	1950	1960	1970	1980	1990	2000	2010
<i>Aquinnah</i>	173	88	103	118	220	201	344	311
<i>Chilmark</i>	324	183	238	340	489	650	843	866
<i>Edgartown</i>	1,209	1,508	1,474	1,481	2,204	3,062	3,779	4,067
<i>Gosnold</i>	N/A	N/A	N/A	83	56	98	86	75
<i>Oak Bluffs</i>	1,100	1,521	1,419	1,385	1,984	2,804	3,713	4,527
<i>Tisbury</i>	1,149	1,966	2,169	2,257	2,971	3,120	3,755	3,949
<i>West Tisbury</i>	442	260	360	453	1,010	1,704	2,467	2,740
Total	4,397	5,526	5,763	6,034	8,879	11,541	14,987	16,535

Source: U.S. Census

The year-round population for just Martha's Vineyard was 14,901 in the 2000 Census and climbed to 16,460 in 2010.

The rural "Up-Island" towns are not growing as rapidly as seen in previous years. Between 2000 and 2010, Oak Bluffs was the town with the greatest growth rate on the Island at 22%,

(from 3,713 to 4,527) double that of the island-wide rate. West Tisbury experienced the second highest growth of 11% over the past decade (from 2,467 to 2,740).



Age

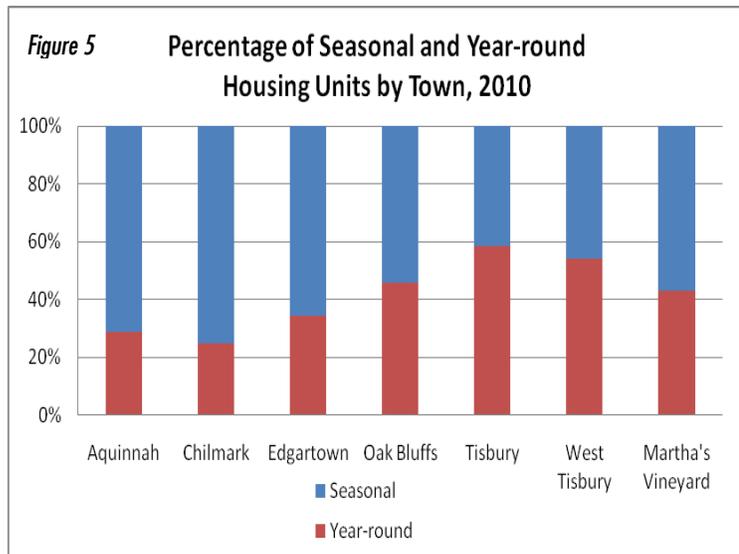
- The Vineyard's year-round population is the second oldest to Barnstable County in Massachusetts. The median age for Dukes County in 2010 is 45.3 compared to 39.1 for Massachusetts and 49.9 for Cape Cod.
- The Vineyard has 20.8 percent of its population between the ages of 15 to 35 while Massachusetts has 27.3 percent (down from 44.2 in 2000) while the population age over 60 was 24.3 for Dukes County and 19.5 for Massachusetts.
- There is a population surge moving through the year-round population. The "baby-boom" cohort born between 1945-1955 was mostly in the 45-60 age bracket (25.9%) in the 2010 Census. Since 2010, many of these individuals have already begun to hit retirement.

Income

- The Vineyard's year-round population has a somewhat lower average income than the Commonwealth as a whole.
- The median household income of year-round Dukes County households was (in 2000) \$57,076 which is only 89% of the state-wide figure of \$64,057. This compares with the highest household income of \$79,548 in Norfolk County and the lowest of \$44,061 in Berkshire County.
- According to the 2008 Economic Profile for Martha's Vineyard Study, the average wages of year-round residents was 27% below the state's average, while according to a 2008 Cost of Living Study by the MVC, the overall cost of living on the Vineyard is about 70% higher than the national average and 26% higher than Boston.

Seasonality

- As a resort area, the population changes dramatically from one season to the next.
- In 2010, about 57% of the Vineyard's 17,188 homes are seasonally occupied (see Figure 3).
- The Vineyard's seasonal housing occupancy rate at 57% is second to Nantucket's at 64% of the 14 counties in Massachusetts.
- The fact that 43% of the Island's housing stock is occupied year-round is a testament to the tremendous demand from seasonal homes in a highly desirable vacation and retirement destination. This strong demand equates to high cost of housing.
- Of the 7,368 occupied housing units 66.5% are owner occupied while 33.5% are renter occupied. The percentages for the state's 2,547,045 housing units – 62.3% owner occupied, 37.7% renter occupied.



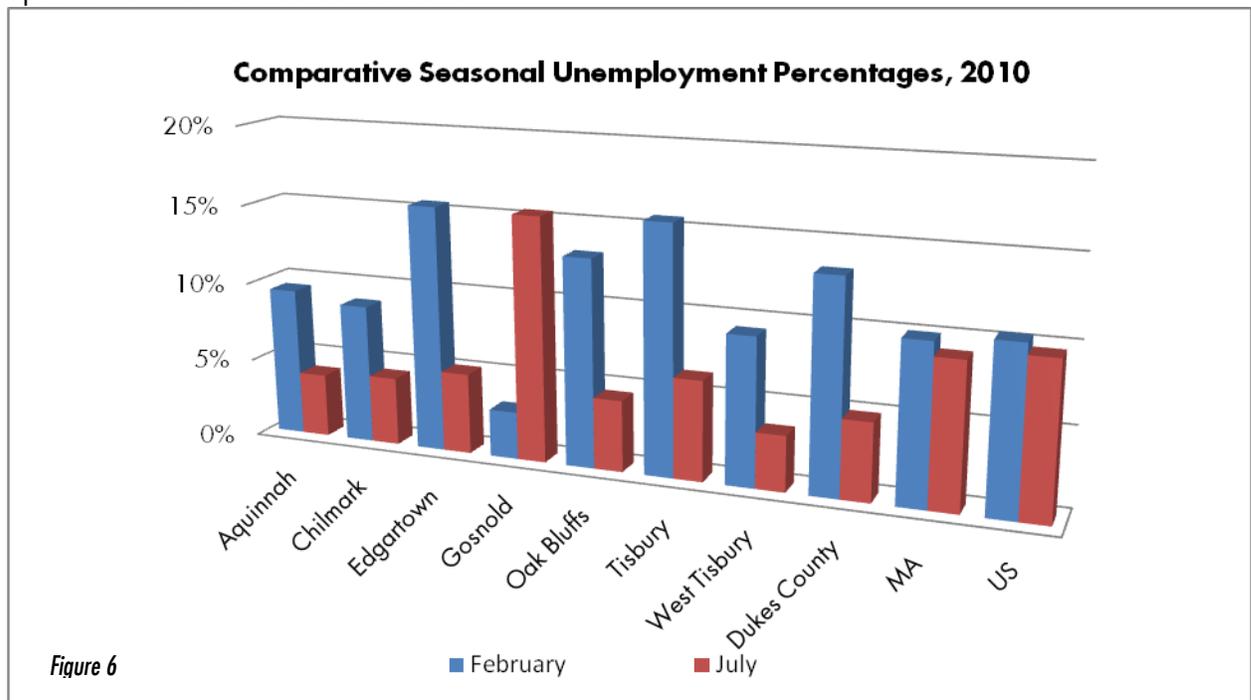
Housing Stock

- Over 91% of the Island's housing stock is single-family homes compared to a statewide average of 52% (2000). The percentage of single-family homes in Cape Cod was 83% and 86% in Nantucket.
- Multi-family dwellings are located almost exclusively in Down-Island towns.
- In Oak Bluffs 98%, Tisbury 80%, of all homes are on town water while in Edgartown, it is about 65%.
- A small percentage of homes in Edgartown, Oak Bluffs and Tisbury are connected to town sewers.
- There are no town water and sewer services in the three Up-Island towns of West Tisbury, Chilmark and Aquinnah, except for a small water system in Menemsha (Chilmark).
- In 2010, the percentage breakdown of the Island's total housing stock is as follows: Edgartown 33%, Oak Bluffs 26%, Tisbury 18%, West Tisbury 13%, Chilmark 9%, and Aquinnah 3%.
- The Island's median home sale prices from 1997 – 2006 more than tripled from \$205,000 to \$695,000. While the economic recession caused the median sale price to dip to about \$615,000 in 2009, this price would still require a purchaser to have an income of \$125,000. That is more than twice the Vineyard's median income of \$57,553 as reported by the 2000 U.S. Census.

3.3 Economic Development and Employment

Seasonal, Visitor-Based Economy

- For decades Martha's Vineyard has been a classic seasonal, visitor-based economy. With the exception of some remaining commercial fishing employing only a very small number of people, there are no significant exports of Island goods or services.
- The driving force of the Island's economic base is visitors, especially second homeowners who purchase goods and services during their stay. Consumer spending can vary widely among sub-groups: year-round resident, seasonal resident, vacationer, transient (staying for less than a week), or day-tripper.
- Second-home owners pay property taxes, but do not require the most costly of public services – education. This, and the philanthropy of the seasonal residents, allow for a much higher level of services on the Vineyard – both government and private – while also keeping tax rates relatively low.
- The extreme fluctuations in population from winter to summer place severe strains on the towns' infrastructure: water, sewer, solid waste, and especially the Island's road network.
- Up until 2008, the off-season unemployment rates were two to four times summer rates. But since the 2007 national recession, the Vineyard's winter unemployment rates for 2009 and 2010 have exceeded double digits which peaked in January 2010 at 13.4 percent exceeding Massachusetts's rate at 9.5 and the U.S.'s rate at 9.7 percent for that month
- Within the past twenty years, seasonal retail and service businesses have extended their operations into the shoulder seasons.



- The seasonal nature of the Vineyard has an adverse impact on housing availability and affordability, for both year-round residents and seasonal workers. The majority of dwellings are occupied seasonally (except in Tisbury and West Tisbury). The additional demand for

summer housing brought on by an estimated 5,000 seasonal workers place more strains on the already limited rental market. The lack of readily available and affordable housing for year-round residents and seasonal workers affects the community as a whole. The resulting difficulty of maintaining a stable workforce has a significant negative economic impact on the Island.

Economic Growth

Figure 7: Population, Jobs, and Number of Employers by Town

	1990			2000			2010	2009	
	Pop	Jobs	Employers	Pop	Jobs	Employers	Pop (2010)	Jobs	Employers
AQ	201	59	12	344	77	14	311	82	6
CH	650	152	35	843	303	59	866	291	65
ED	3,062	1,451	226	3,779	2,004	308	4,067	2,343	359
OB	2,804	1,210	173	3,713	1,849	193	4,527	1,817	212
TI	3,120	1,971	324	3,755	2,327	361	3,949	2,474	371
WT	1,704	221	48	2,467	578	109	2,740	812	137
MV	11,541	5,064	818	14,901	7,138	1,044	16,460	7,819	1,150

Source: U.S. Census; Source: Massachusetts Office of Labor and Workforce Development

Note: These figures do not include 2008 estimate of 3278 Non-employer Statistics from the US Census

Large increases in jobs and employers from 1980 to 1990 reflect the Island’s economic and building boom of the mid-80s, paralleling national rates.

The same categories then grew at a slower and much more uniform pace compared to the 1980’s with the impact of a national recession during the late 80’s and early 90s. Population and development growth resurged in the mid 1990’s and early years of the 21st Century while the 2001 national recession was felt more mildly in the Cape and Islands region than other parts of the Commonwealth.

With high unemployment rates and a decline in construction, Island businesses still struggle to cope with the impacts of the 2007 – 2009 recession more acutely in areas of retail, construction, and hospitality because of the Vineyard’s visitor based economy.

Location of Economic Development

Business is concentrated in the Down-Island Towns. The primary economic activities, both seasonal and year round, take place predominantly within the town centers of Edgartown, Oak Bluffs, and Tisbury. Each town center is located around its own harbor and waterfront areas that are surrounded by dense commercial, mixed-use, and residential development. The waterfronts of Edgartown and Oak Bluffs, and to a lesser extent Tisbury, are comprised of primarily visitor-oriented establishments that typically close in the off-season. Many year-round retail and office activities are still located in these Down-Island towns, but have grown away from the historical commercial centers, most notably along and near Upper Main Street in Edgartown and Upper State Road in Tisbury.

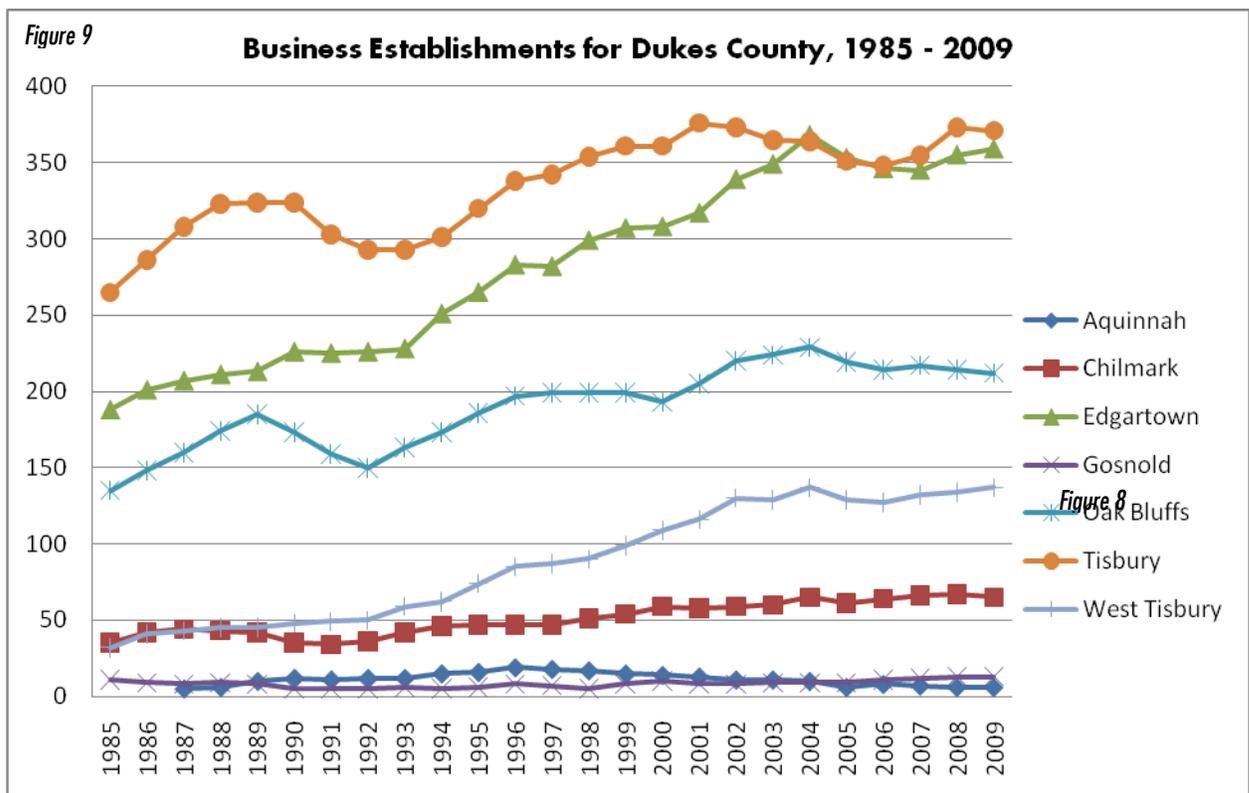
Other retail and office activities are located in smaller Up-Island centers such as the West Tisbury village center, Menemsha fishing village, and Chilmark's Beetlebung Corner. The newest and largest is North Tisbury center, relatively close to the Down-Island towns.

Industrial activities are found in various in-town and rural locations scattered in different parts of the Island, notably in the Airport Business Park. Traditional industries include farming and fishing. Although at reduced levels from previous generations, they contribute to the character of the Island and its appeal to visitors.

Martha's Vineyard has a considerable number of home businesses throughout the Island. The location of employment is also dispersed across the Island due to the businesses and activities related to the construction, renovation, maintenance, and landscaping of properties.

Growth of Business Establishments

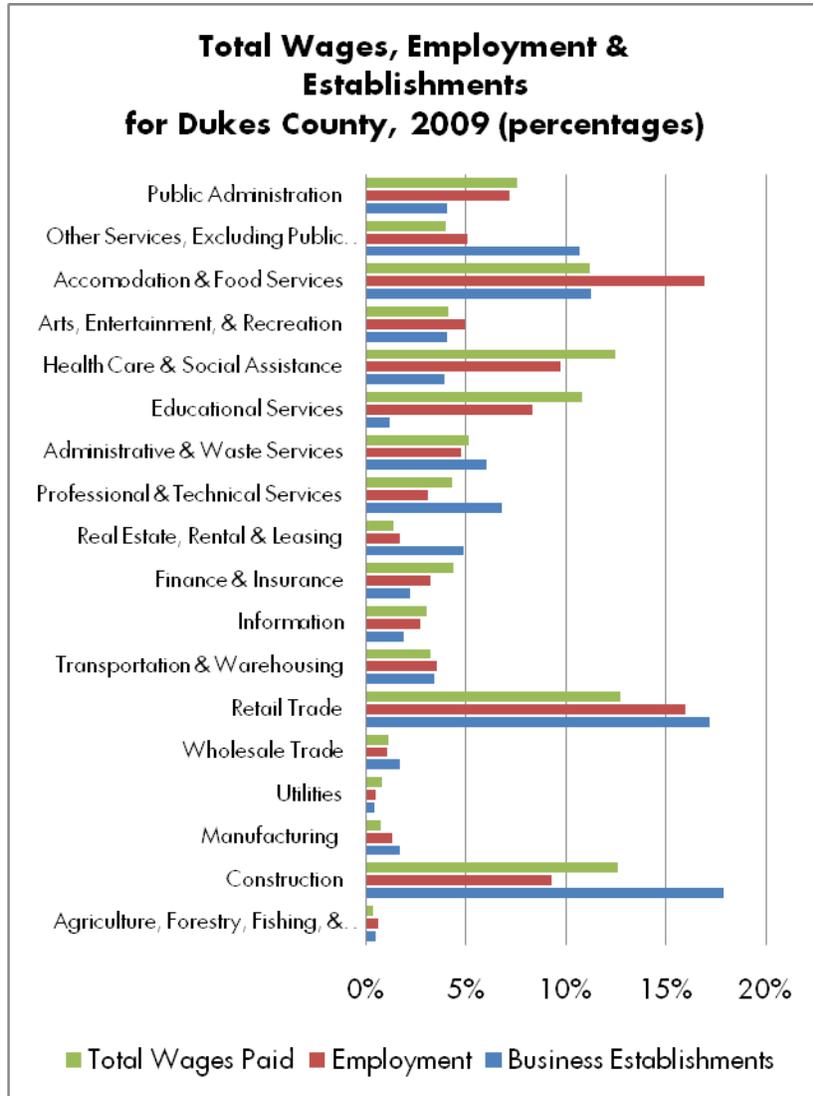
- The number of business establishments (employers reporting payroll withholding taxes) between 1985 and 2009 increased 75% (666 to 1,163) compared to the approximate 62% increase in year-round population. Since 2004 the number of businesses has leveled off.
- The percentages of establishments for the Island have remained steady, despite the recession.
- Approximately two-thirds of the establishments on Martha's Vineyard employ between one and four individuals, according to the U.S. Census Bureau's *County-to-County Business Patterns*; 70% have 1-4 employees and 17% have 5-9 employees compared to 54% and 19% respectively for Massachusetts as a whole.
- The 2003 Business Survey conducted jointly by the MVC and the MV Chamber of Commerce



indicated a somewhat larger business size (possibly because there was an under-representation of home businesses) with an average of five to six full-time employees in retail businesses and eight to ten full-time workers in non-retail businesses. The survey figures did not include part-time workers or seasonal workers.

Employment

- Vineyard retail, construction, and hospitality jobs have consistently accounted for 54% of all reported employment. (See Figure 9.) Note that employment statistics from State sources do not include sole proprietors, which is estimated at 3,278 for Dukes County according to Census Bureau’s Non-Employer statistics).
- Since 1985, construction consistently represented 8-9% of total employment.
- In 2008, educational and public administration jobs accounted for 15% of employment.
- As the Vineyard’s “baby boom” population surge reaches retirement age in the coming decades, the demand for health care and social services will grow, increasing employment needs in those sectors.



3.4 Land Use and Development Patterns

A rapidly increasing population and changing patterns of development have a great impact on the nature of transportation on the Island. A generation ago, most residents lived in the small, village centers of the three Down-Island towns. Their everyday destinations, from grocery store to post office, were a short walk away, so car use was limited.

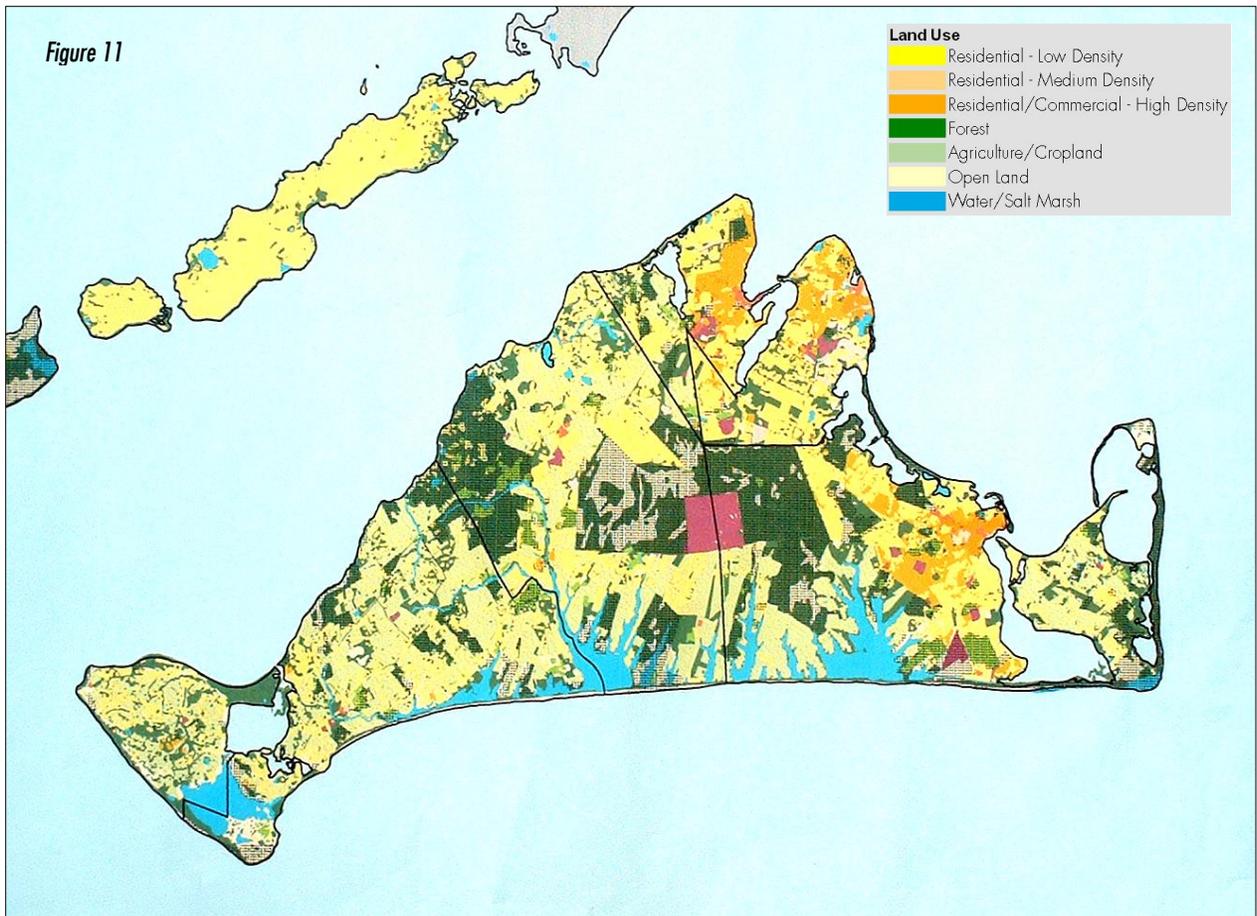
In the past 30 years, much of Martha's Vineyard's enormous residential and commercial growth took place on the outskirts of Down-Island towns, and Up-Island. The car became the only way to reach an increasing number of homes, jobs, businesses, and services (such as post offices), many of which relocated outside traditional town centers. This led to a significant increase in car traffic. With the potential for even more growth, traffic problems could get considerably worse, especially if development continues to take place in a dispersed pattern. The increasingly dispersed development means that people increasingly live in locations that are not accessible by public transit.

Presently, 33% of the land of the Vineyard is developed or is unbuildable (e.g. wetlands), 36% is protected open space, and 31% is "available" either for development or protection. Figure 11 depicts how current development patterns on the Vineyard could result in a landscape dominated by low-density residential land use, diminishing the forested and agricultural quality of the Island.

The process recently completed to prepare a comprehensive plan for the Vineyard – the *Island Plan* – looked at various issues related to future development, notably the location and rate of different types of development that would result from different combinations of market forces and mechanisms to manage growth. The *Island Plan* considers several possible futures, development scenarios based on different possible growth rates and patterns. These include the possibility of low, medium and high growth rates. Possible patterns of growth are: dispersed (continuation of present trends), compact (concentration of future development in already built-up areas, mostly Down-Island) and compact/Island-wide (concentrations Down-Island and in other Island locations.) These scenarios could be used to evaluate, for example, the relative merits from a transportation point of view, of having retail dispersed at various locations around the Island compared to reinforcing existing centers.

Figure 10: The Vineyard by the Numbers

	AQ	CH	ED	OB	TI	WT	Total
Population Year-Round (2010)	311	866	4,067	4,527	3,949	2,740	16,460
All Housing Units (2000)	463	1,409	4,360	3,820	2,720	1,849	14,621
Seasonal Housing Units (2000)	70%	73%	64%	58%	39%	44%	56%
Annual New Home Starts (2000-08)	6	17	75	35	27	30	192
Affordable Housing Units % (2008)	26.5%	0.7%	4.9%	8.4%	6.2%	2.1%	5.9%
Affordable Housing Units (2008)	41	3	84	141	108	23	400
Businesses with employees (2008)	6	67	355	214	373	134	1,162
Jobs (2008)	73	271	2,407	1,657	2,555	806	7,814
Property Assessed Values - \$ millions (2008)	778	3,166	7,559	3,130	3,129	2,985	21,027
Total Area - acres	3,960	13,553	18,184	4,680	4,142	16,878	61,127
Total Area - square miles	6.02	20.58	26.79	7.14	7.19	25.46	93.18
Population Density - per sq mi (2010)	52	42	152	634	549	108	177



3.5 Estimates of Future Growth

It is difficult to predict how the Island's population will grow in the next quarter century since the impact of the limited amount of land available for development will play an increasingly important role in mitigating the natural growth tendencies (births, deaths and migration).

To illustrate the range of growth possibilities, the Massachusetts Office of Transportation Planning (OTP) estimated the year-round population growth at low, medium and high rates based on three different assumptions of possible rates. These projections are used in land use and transportation planning (see Figure 12).

- The low projection assumes that population growth will taper off, but

even at such a low rate, in 2030 the Island will achieve over 80% of the ultimate "build-out" capacity, i.e. 20,000 people.

- The middle projection assumes a steady annual growth at about the present rate of roughly 400 people per year.
- The high projection assumes a continuation of the 1990's growth rate of 3% annually.

Note that achievement of the medium and high rates would imply that one or more factors would come into play to allow exceeding the "build-out" study targets, namely: that there be an increase in the number of guest houses, that the proportion of all houses that are occupied year-round

Figure 12: Estimates of Future Growth (MassDOT)							
<i>Population</i>	<i>2000</i>	<i>2010</i>	<i>2017</i>	<i>2020</i>	<i>2025</i>	<i>2030</i>	<i>2035</i>
<i>Aquinnah</i>	344	311	325	339	352	367	376
<i>Chilmark</i>	843	866	906	943	979	1,021	1,047
<i>Edgartown</i>	3,779	4,067	4,255	4,427	4,600	4,796	4,919
<i>Gosnold</i>	86	75	78	82	85	88	91
<i>Oak Bluffs</i>	3,713	4,527	4,736	4,928	5,120	5,339	5,476
<i>Tisbury</i>	3,755	3,949	4,132	4,299	4,466	4,657	4,777
<i>West Tisbury</i>	2,467	2,740	2,867	2,983	3,099	3,231	3,314
Total	14,987	16,535	17,300	18,000	18,700	19,500	20,000
<i>Employment</i>	<i>2000</i>	<i>2010</i>	<i>2017</i>	<i>2020</i>	<i>2025</i>	<i>2030</i>	<i>2035</i>
<i>Aquinnah</i>	78	82	86	92	94	95	96
<i>Chilmark</i>	303	292	304	327	334	338	342
<i>Edgartown</i>	2,000	2,355	2,446	2,630	2,691	2,722	2,752
<i>Gosnold</i>	49	43	45	48	49	50	51
<i>Oak Bluffs</i>	1,842	1,625	1,688	1,815	1,857	1,878	1,899
<i>Tisbury</i>	2,320	2,486	2,583	2,777	2,841	2,874	2,906
<i>West Tisbury</i>	575	816	848	911	933	943	954
Total	7,167	7,700	8,000	8,600	8,800	8,900	9,000
<i>Households</i>	<i>2000</i>	<i>2010</i>	<i>2017</i>	<i>2020</i>	<i>2025</i>	<i>2030</i>	<i>2035</i>
<i>Aquinnah</i>	141	145	153	159	167	175	181
<i>Chilmark</i>	382	398	419	438	459	481	497
<i>Edgartown</i>	1,582	1,794	1,887	1,972	2,070	2,167	2,242
<i>Gosnold</i>	46	39	41	43	45	47	47
<i>Oak Bluffs</i>	1,590	1,989	2,092	2,187	2,295	2,403	2,484
<i>Tisbury</i>	1,646	1,806	1,900	1,985	2,083	2,182	2,255
<i>West Tisbury</i>	1,034	1,197	1,259	1,316	1,381	1,446	1,495
Total	6,421	7,368	7,751	8,100	8,500	8,901	9,201
<i>Source: MassDOT</i>							

would increase beyond the present 44%, and/or that there be zoning changes or exceptions (such as 40B projects) over the next 25 years allowing higher density than presently allowed.

It would be useful to identify the growth trends by income, age and number of people per household, since different groups have different transportation demands. This will allow, for example, clarification of the apparent trend of younger families leaving the Island and being replaced by retirees.

The OTP is using the middle projection estimates to model the impact on air quality in the Commonwealth, and these projections are also used for the rest of this document.

Since the Island's transportation capacities of roads, ferries, planes, and transit are based on the summer peak and most problems occur during this period, most of the transportation planning is based on this period. The summer population has been estimated for different categories of people, each of which would have different travel patterns. Off-season and shoulder-season figures are also important, especially for working out appropriate ferry, air and transit services for these time periods. Population during the shoulder season is growing as result of the increasing number of year-round residents, and, apparently, the number of seasonal visitors (possibly second home owners) coming in the spring and fall. Some transportation proposals that address short-term visitors (e.g. encouraging them to leave their cars behind) will do little to deal with the growing demands in the shoulder season and in the winter.

The MVC estimates that the summer population on a peak day is about four to five times the year-round population. This was estimated in two ways:

- by estimating the number of seasonal residents, vacationers, and guests based on the number of seasonal homes; adding the number of transients in hotels, inns, bed & breakfasts, and boats in harbors; and adding the number of day trippers including cruise passengers;
- by calculating the number of people that arrive and leave the Island each month, and calculating the increasing and decreasing cumulative totals.

3.5 Transportation Demand Projections

Federal Rules (23 CFR 450.322[b][1]) require that the transportation plan identify the projected transportation demand of persons and goods in the planning area over the period of the plan. The increase in population/visitors is expected to increase the demand for transportation, subject to certain limitations. The seasonal nature of the Vineyard is important to note, as the peak summer transportation needs dictate the required infrastructure.

Water Transportation

The key player in water transportation is the Woods Hole, Martha's Vineyard and Nantucket Steamship Authority (SSA), which furnishes year-round ferry service from the mainland. As detailed in section 5, the SSA (and the other passenger-only ferry services) has experienced a slight drop in traffic since around 2000. The SSA has also limited vehicle spots in June, July, and August since 1997. The SSA has not forecast traffic since 2000, and for budgeting purposes the SSA assumes level traffic from year to year. While the Island's year-round population grows relative to the seasonal and visitor population, the traffic on the ferries will grow, but primarily in

the off-season. It is also likely the growth will be less than proportional to the increase in population, especially for vehicles.

Air Transportation: The Martha's Vineyard Airport (MVY), as detailed in section 7, forecast robust growth in 2000, but the expected growth has not materialized to date, for a variety of reasons. The rate of growth MVY suggests is most sustainable is in the 1.5% annual range for both commercial and general aviation.

Automobile Transportation: As detailed in section 8, while there has been no comprehensive statistical analysis of traffic data, traffic on the Vineyard, while generally flat in recent years, has of late grown more in the off-season and in the less-developed areas of the Island than in the peak-season at locations already at or near capacity. This reflects the increasingly year-round nature of the Island, and these trends should continue. Since the RTP seeks to mitigate the impacts of peak summer traffic, the infrastructure should be sufficient to handle traffic at other times.

Buses and Taxis: One area of robust growth in recent years is in the VTA buses. As detailed in section 9, VTA boardings grew from around 71,500 in 1997 to roughly 1.1 million in 2010 as the VTA acquired routes from private companies and added routes of their own. After a few years of level ridership, the VTA saw excellent growth in recent years, due primarily to increases in off-season boardings as off-season service improved. Peak-season ridership on popular routes is at or near current capacity already. As the VTA service matures, and the Vineyard continues to develop, passenger growth will likely exceed population growth.

Bicycles and Pedestrians: While cycling and walking are already popular ways to experience the Island, the RTP expects excellent growth in these areas as facilities and other incentives improve. Section 10 details the list of improvements expected, but if the Vineyard is to accommodate a growing population while retaining the character that ensures its popularity, bicycling and walking will by necessity play a greater role in the future.

Freight: Freight transportation (see section 11) is very likely to mimic most closely the growth in the Vineyard's economy and population. See sections 3.3 and 3.4 for more detail on growth scenarios.

4. Livability in Transportation

4.1 The Concept of “Livability”

U.S. Secretary of Transportation Ray LaHood defined a livable community as one where, “If you don't want an automobile, you don't have to have one.” “Livability means being able to take your kids to school, go to work, see a doctor, drop by the grocery or post office, go out to dinner and a movie, and play with your kids at the park – all without having to get in your car.”

There are many definitions of livability, with different organizations emphasizing concerns of interest to them, and with the concept evolving since it was first articulated in the 1970s.

In many ways, Martha's Vineyard is still a very livable community, though we must continue to be vigilant. The Vineyard avoided many of the changes to development patterns and social structure that took place in many parts of America and undermined livability.

Like many older communities whose development pattern was largely established before the age of the automobile, the down-Island towns – where most of the Island's population lives – offer access to a wide variety of services without a car. Walking, cycling, and public transit are a large component of the Island transportation network, if only because the Island's generations-old infrastructure cannot accommodate the personal vehicles of all the Island's residents and visitors in the summer months.

But more than mere physical constraints, the character of Martha's Vineyard, the slower Island pace, the feeling of history, and the sense of community and peace that Island residents and visitors hold dear are goals that the concept of livability is meant to develop or reinforce. In many ways, the people and agencies of Martha's Vineyard have always thought in terms of livability, even if the term was not used until recently. For the Vineyard, it will be easier to preserve, and in some cases rediscover, the Island's “livability,” rather than engage in the much harder process of trying to create a livable environment from one that was designed for the convenience of the automobile rather than the human being.

Terms such as livability, smart growth, new urbanism, walkable communities, healthy neighborhoods, complete streets, and others simply recognize that transportation planning is connected to other community goals – environmental goals, public health goals, economic goals,

A livable community is one that has affordable and appropriate housing, supportive community features and services, and adequate mobility options, which together facilitate personal independence and the engagement of residents in civic and social life.

American Association of Retired People

Livable communities offer:

- *choices in housing, shopping, recreation, and job opportunities;*
- *transportation alternatives, interweaving spaces for pedestrians, bicycles, buses, trains, and cars;*
- *a variety of open spaces and places for active recreation, walking, and public gatherings; and*
- *a shared identity and sense of pride that results from the visual character and vitality of the community.*

American Institute of Architects

affordable housing goals, and others. Livability is particularly essential to the economic goals of Martha's Vineyard, as the Island must retain the "livable" character that makes it such a desirable destination for the visitors and seasonal residents that support the year-round population.

The U.S. Department of Transportation recognizes six livability principles:

- Provide more transportation choices to reduce transportation costs, as well as environmental and public health costs.
- Promote equitable, affordable housing by increasing the mobility and lowering the transportation costs of people of all ages, incomes, and ethnicities.
- Enhance economic competitiveness by providing easier access to businesses, employment, education, and other needs.
- Support existing communities by focusing on community revitalization, with the added benefit of protecting rural landscapes.
- Coordinate and leverage Federal policies and investment that will support livability efforts nationwide.
- Value communities and neighborhoods by investing in healthy, safe, and walkable neighborhoods – urban, suburban, and rural.

The U.S. DOT also lists six approaches to livability that coincide with livability in the transportation planning process:

- Visioning means a forward-thinking, unconstrained, comprehensive, flexible, inclusive, and action-oriented approach to develop a clear understanding of transportation choices and potential outcomes that incorporate non-transportation issues.
- Planning is the more concrete process of engaging stakeholders to reach the goals of livability, with an emphasis on real community input and an accounting of the true costs of transportation decisions.
- Policy recognizes that livability goals may require changes to policies and even laws through a political process, and recognizing budgetary restraints.
- Partnership is an understanding that the public, private, institutional, and civic sectors are all fundamental in supporting transportation projects to fruition.
- Design requires bringing the concepts of livability to the technical work of the transportation planner and engineer, and may require that longstanding practices or standards be re-thought.
- Implementation and funding brings the process of planning for livability to completion, often in a climate of severe budgetary constraints.

In addition to the U.S. DOT goals and initiatives, MassDOT has developed the GreenDOT Policy Directive that supports livability goals directly. Two of the main goals of the GreenDOT Policy are "promoting the health transportation options of walking, bicycling, and public transit," and "support[ing] smart-growth development."

4.2 Livability on Martha's Vineyard

As noted, Martha's Vineyard is a fundamentally livable community, partially due to the accidents of geography, and partly to the desire of the Island community to keep it that way. The Vineyard's 18th and 19th century "downtowns" – Edgartown, Oak Bluffs, and Vineyard Haven – were built to

accommodate foot and horse traffic. As a small island, the Vineyard has been buffered from the more dire consequences of car-centric development. Since it is only about 100 square miles and is connected to “America” primarily by ferry, there was not the pressure to widen roads or build expressways.

The Island has retained much of its “people first, cars second” feel as a result of the strong desire of Vineyarders to protect both the historic character of the Island and the seasonal tourism economy that depends on Martha’s Vineyard “feeling” different from the mainland. This wish to remain a place protected from certain types of “inappropriate” development has been aided greatly by the creation of the Martha’s Vineyard Commission in 1974. The MVC, in addition to its function as a regional planning agency, has unusually broad powers to restrict and control development on Martha’s Vineyard. Partly as a result of the MVC’s activities, the Island’s rapid growth in population and visitors has generally not translated into development that would erode the Island’s livable characteristics, especially its walkable downtown areas.

That is not to say that the Vineyard does not have improvements to make in the area of livability. As a primarily rural and semi-rural Island, most recent development has taken place outside of the town centers in places that generally require a car for essentially all transportation. Many of the areas outside of the town centers that were developed in the last fifty years are less than hospitable to alternative modes. And while the smallish size of the Island and generally excellent bus transit favor alternative modes, only in the summer months when traffic and parking are difficult and the weather is fine does an uptick occur in walking, cycling, and transit use Island-wide.

4.3 Livability Principles on Martha’s Vineyard

With livability as a primary transportation goal on Martha’s Vineyard both by necessity and by popular demand, it is important to see how the Island’s transportation and planning processes and initiatives match the principles and approaches set out by the U.S. DOT.

- With respect to *transportation choices*, the Island makes a great effort to provide a variety of modes to all residents and visitors, though it remains a largely car-oriented society. The following chapters discuss the transportation modes in great detail, but while there is work still to be done especially in improving facilities for non-automobile transport, several transportation choices are generally available.
- The Vineyard does suffer from a lack of *affordable housing*, but considerable effort has been made in recent decades to deal with this. Many affordable units are centrally located, including several major public developments, though the remote location of some new affordable housing can be seen as a step in the wrong direction from this point of view. However, given the very high property values in town centers, there is little choice other than seeking less expensive land outside of town.
- The *economic competitiveness* of the Island, as mentioned before, is not just predicated on a functional transportation system, but one that reflects the cultural and aesthetic desires of the tourism-based economy.

- As the Island continues to develop, the focus of growth has been outside the *existing communities* of the down-Island towns, but the town centers remain strong. If the Island is to retain both its rural character and healthy environment, it is preferable to focus more development on already developed areas.
- With six towns, one county, a regional planning agency, a federally recognized Native American tribe, and various other entities active in transportation policy and implementation on Martha's Vineyard, *coordinating policy* is a challenge, but the Island community generally works well together to meet common goals.
- Most importantly, the Martha's Vineyard *values its communities and neighborhoods*; the strong sense of connection Vineyarders feel toward their Island make livability a common goal.

4.4 Livability Approaches on Martha's Vineyard

Visioning: Martha's Vineyard is not a place wanting for robust public input on civic matters. In an effort to translate the strongly expressed opinions of the Island community into a coherent set of goals and activities related to development, the Martha's Vineyard Commission created the *Island Plan* as a way to bring community voices together in a three-year visioning exercise. Completed in 2009, the *Island Plan* charted goals, objectives, and strategies for eight general topics, including transportation. The *Island Plan* involved input from hundreds of Island residents and visitors. As stated above, the *Island Plan's* goal for transportation was to promote alternative modes. The five transportation objectives (and associated strategies) enumerated the *Plan* all support that goal, namely:

- Promote and fund alternative modes of transportation;
- Improve the efficiency and promotion of the Island's buses, taxis, and ferries;
- Make town and village areas more pedestrian and bicycle friendly;
- Expand and enhance a safe and efficient network of off-road shared-user paths, on-road bicycle routes, and walking trails; and
- Use physical traffic calming techniques to slow traffic and improve safety in neighborhoods.

Planning: The planning process on Martha's Vineyard is a cooperative effort of the the six towns and a number of regional, tribal, non-profit entities. The Martha's Vineyard Commission, as the Regional Planning Agency and the repository of planning expertise used by the towns, exercises a positive influence for livability concepts in transportation planning. A good example of this is the process for reviewing Developments of Region Impact (DRIs), wherein the MVC often requires developers to take alternative modes into account. The MVC and towns also work to introduce livability issues into the design of transportation improvement projects. For example, considerable community effort has gone into three current bridge design projects, namely the two Sengekontacket Pond inlet bridges and the Lagoon Pond Drawbridge, to ensure that the designs incorporate shared use paths, have good pedestrian accommodations including viewing and fishing areas, and harmonize with the character of their surrounding areas. Another example is

the MVC's and towns role in the planned construction of a roundabout in Oak Bluffs; unfamiliarity with the use of roundabouts continue to require efforts to inform members of the public of the benefits of roundabouts as a safe, traffic calming measure.

Policy: The Martha's Vineyard Commission has been a leader in the area of revamping transportation policy on Martha's Vineyard, both in its reviews of DRI projects, and in providing the expertise and encouragement to towns, the county, and other entities operating on Martha's Vineyard. This Regional Transportation Plan provides the framework for transportation decisions on the Island including programming projects to be financed through the Transportation Improvement Program.

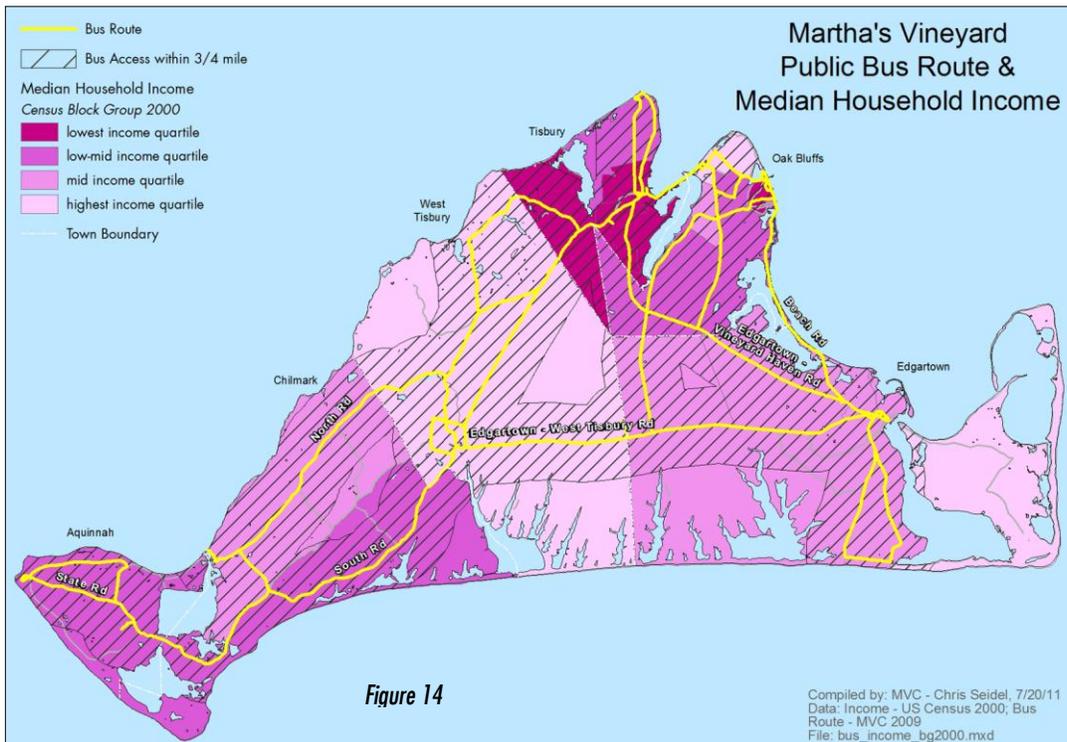
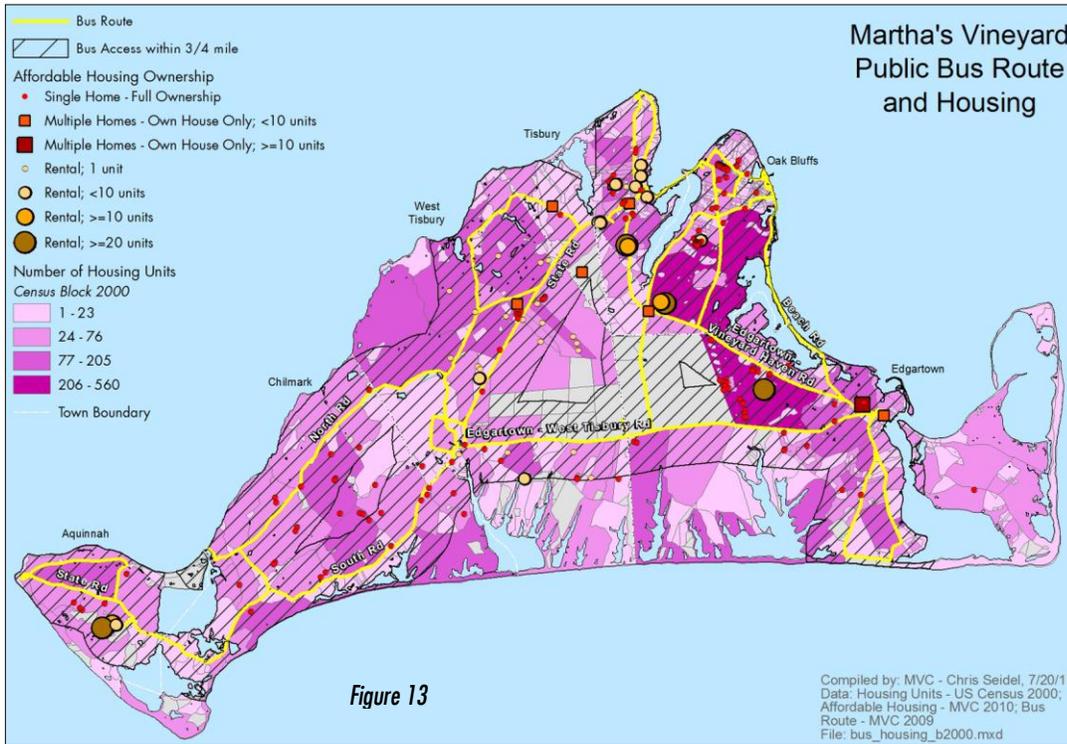
Partnerships: Few projects are accomplished on Martha's Vineyard without effective partnerships and this is especially true for transportation projects. For example, the towns of Oak Bluffs and Tisbury set up the Lagoon Pond Drawbridge Committee to work with MassDot that included not only representatives of various town committees, but also members from other towns, the MVC, the Martha's Vineyard Bicycle and Pedestrian Advisory Committee, and the public at large. Another recent example of partnering on a transportation improvement that had a positive effect on livability is the redesign of the sidewalks in part of downtown Oak Bluffs. The gateway to the Island for hundreds of thousands of pedestrian visitors annually, the downtown of Oak Bluffs featured many poorly designed and undersized sidewalks, often leading to pedestrians spilling out into the street. The revamping required buy-in from dozens of businesses, the state, and the Town. Completed in 2010, the new pedestrian areas calm traffic, provide improved pedestrian and bicycle amenities, dramatically improve aesthetics for visitors, and improve traffic flow.

Design: The concept of livability is made concrete with design. For example, considerable effort has gone into the design of the reconstruction of the permanent Lagoon Pond drawbridge to come up with a design that increases bicycle and pedestrian access not just to the bridge, but to a nearby beach and public access area.

Implementation and Funding: The implementation and funding of transportation projects in a highly constrained budgetary environment requires a focus on what is most important to a community. As the principles of livability are widely recognized as critical to Island, the transportation priorities reflected in the *Island Plan*, the Transportation Improvement Program, and town projects largely support the goals of livability: better bus transit, improved cycling and walking facilities, and safer roads.

The principles and approaches that define the concept of "livability" are almost second nature on Martha's Vineyard. The Island's natural and human environments are critical to the economic and cultural life of the population. With robust planning expertise and a supportive population, the Vineyard is well-positioned to improve the livability of the Island, even in the face of development pressure.

An important element of livability is to ensure that a transportation system provides all sectors of the community good access to jobs and services. The two maps below illustrate the extent of the network of VTA bus routes in relation to areas of high density housing as well as concentrations of lower-income residents. The highest concentrations of lower-income residents tend to be in the newer subdivisions built on the edges of the down-Island towns.



5. The Regional Transportation Network

5.1 Overview of the Island's Transportation Network

The characteristics of the regional transportation network, travel patterns and an inventory of the network's components are reviewed in this section. Essentially, the network consists of various means of transport to and from the Island by water and air, and various modes for movement around the Island, both on roads (private vehicles, public transit, tour and school buses, taxis) and off road (bicycles, pedestrians). Each of these modes is discussed in the upcoming sections of this plan, as are issues of intermodality (transfers from one mode to another) and information, as well as freight.



As an island, the only means of access is by water (Steamship Authority and private ferries, cruise ships, barges, smaller boats) and air (commercial and general aviation). Travel on the Island is by car, bus, bike, motorcycle, moped, and foot. Travel flows to and on the Island vary considerably throughout the year, from relative ease during the winter with 15,000 year-round residents, to the summer intensity with more than 40,000 additional seasonal residents and visitors. The spring and fall shoulder seasons are in between, and increasingly active.

5.2 Objectives

The overarching goal is to establish and maintain a transportation system that is safe, reliable, convenient, accessible, economical, affordable, and is consistent with the Vineyard's scenic, historic and natural resources.

Specific objectives are as follows:

- 1) Promote a variety of transportation options that efficiently meet the mobility needs of all of the Island's residents and visitors using the Vineyard's existing transportation infrastructure.
- 2) Reduce dependence on private automobiles by promoting alternate modes of travel (bus, bicycle, etc.) for both residents and visitors; continue to encourage visitors – especially short-term visitors – to come to the Vineyard without their car.
- 3) Encourage residents and visitors to use public transportation, by continually improving bus and park-and-ride services.

- 4) Improve safety and security for all transportation system users.
- 5) Favor the seamless integration of various transportation systems (physical installations, scheduling, etc.) to increase the efficiency and convenience of alternate modes.
- 6) Ensure that the road network is designed and managed to minimize congestion, pollution, and safety problems, and to preserve scenic roadside views and the character of rural roads.
- 7) Minimize transportation-related pollution, promote energy conservation and sustainability, and support preservation of natural resources.
- 8) Address problems at the Island's most congested locations, emphasizing traffic management over major physical modifications (more roads, wider roads, or inappropriate traffic controls) that would degrade the character of the Island.
- 9) Expand and enhance a safe and efficient network of shared-use paths (SUPs), walking trails, and in-town bicycle and pedestrian accommodations.
- 10) Work with the transit system to enhance the transportation options of those with limited mobility (disabled, elderly, young people), and for other disadvantaged populations.
- 11) Integrate infrastructure improvements (particularly harbors and the airport) with economic development strategies.
- 12) Promote cooperation among the Vineyard's various transportation agencies, the public, and private transportation providers.
- 13) Coordinate regional land-use and transportation planning policies, favoring land-use decisions that reinforce the other objectives such as:
 - Consolidation of mixed-use, pedestrian-friendly village areas within the limits of already developed areas, where daily needs can be met without a car;
 - Outside village areas, development within walking distance of bus stops, and encouragement of general stores to reduce the need for routine trips.

6. Water Transportation

6.1 Description

Most Island residents and visitors travel to and from the Island on scheduled ferries. The dominant carrier of passengers, vehicles and freight is the Woods Hole, Martha's Vineyard and Nantucket Steamship Authority (SSA), which furnishes year-round service. The Island is also served by several passenger-only ferry services as well as tugs and barges for freight. (Freight is discussed separately in Section 11.) Private vessels and recreational boating also play a part in the Vineyard's transportation system, as well as its culture and history.

The *Martha's Vineyard Port Infrastructure Capacity Study* (MVC, 2000) found that, on a typical sunny day in August 1999, seven ferry carriers ran approximately 50 ferry trips to the Island with a total vessel capacity to bring 28,000 people each way. This study estimated that nearly 12,000 people, 43 percent of capacity, were actually ferried. About 9,400 passengers traveled without a motor vehicle, roughly split between Vineyard Haven and Oak Bluffs; Edgartown received less than 2% of the Island's ferry passengers.



The major parts of the Island's water transportation system are described below.

Steamship Authority: Operating with the motto "Lifeline to the Islands," the SSA provides year-round service from Woods Hole to Vineyard Haven and seasonal service from Woods Hole to Oak Bluffs.

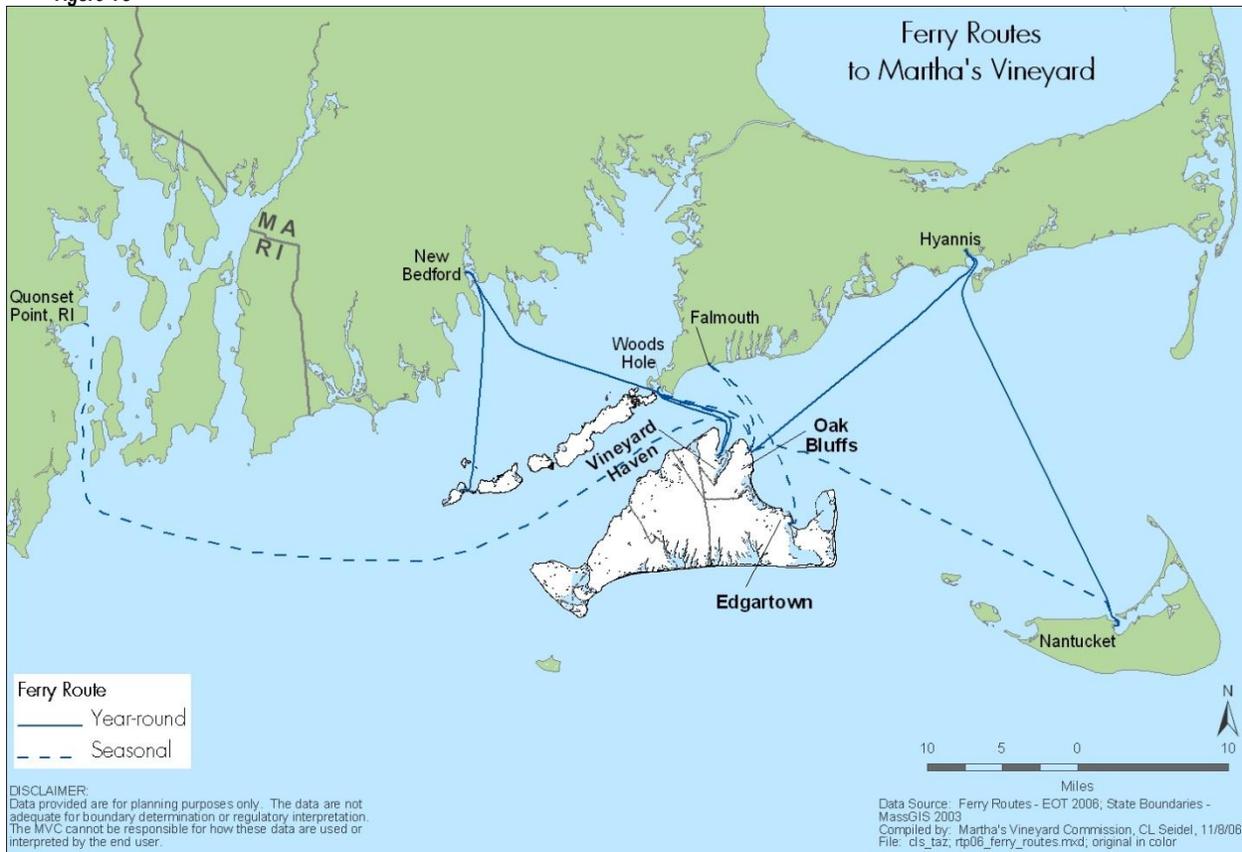
- The SSA is a public instrumentality created by the Massachusetts legislature to provide for adequate transportation for Nantucket and Martha's Vineyard, and is the only ferry service that carries both passengers and vehicles. The Authority also regulates private freight operators and vessels certified by the U.S. Coast Guard to carry in excess of forty passengers in their operation between the Massachusetts mainland and the Islands.
- The Authority has ferry terminals in Woods Hole and Hyannis on Cape Cod, terminals at Vineyard Haven and Oak Bluffs on Martha's Vineyard, and a terminal on Nantucket. The Authority employs 750 people in peak season, with a budget of over \$80 million.

- The SSA is governed by a five-member board: A Nantucket resident appointed by the Nantucket County Commissioners, a Martha's Vineyard resident appointed by the Dukes County Commissioners, and one resident each from Falmouth, Barnstable, and New Bedford appointed by the towns. Each of the Island board members has 35% of the members' combined vote; and each of the mainland board members has 10% of the vote. The Authority also has a seven-member advisory board known as the Port Council, whose members are appointed by the towns of Barnstable, Fairhaven, Falmouth, Nantucket, New Bedford, Oak Bluffs, and Tisbury.
- Seven Steamship Authority vessels operate on the Martha's Vineyard routes. The *M/V Island Home*, the *M/V Governor* and the *M/V Martha's Vineyard* serve the Vineyard exclusively. The freight vessel *M/V Katama* normally works the Nantucket route, but occasionally fills in on the Vineyard routes. Vessel sizes and carrying capacities are shown in Table 15. The Authority's newest ferry vessel, the *Island Home*, entered operation in March 2007, replacing the *Islander* that had been in service for more than half a century. The faster, larger *Island Home* has improved ferry operations. Reconstruction of the Oak Bluffs ferry terminal was completed in 2010, and involved rebuilding the pier to accommodate some of the staging that had previously occurred on the street, and reorganizing the former staging area to allow for more efficient pick-up and drop-off – all to reduce the impact on through traffic. The terminal in Vineyard Haven was built in 1995.

Figure 15: Steamship Authority Vessels serving Martha's Vineyard

<i>Vessel</i>	<i>Length</i>	<i>Width</i>	<i>Passenger Capacity</i>	<i>Vehicle Capacity (car equivalents)</i>
<i>Martha's Vineyard</i>	<i>230'</i>	<i>60'</i>	<i>1376</i>	<i>52</i>
<i>Island Home</i>	<i>255'</i>	<i>64'</i>	<i>1200</i>	<i>76</i>
<i>Governor</i>	<i>246'</i>	<i>46'</i>	<i>250</i>	<i>45</i>
<i>Sankaty</i>	<i>235'</i>	<i>50'</i>	<i>290</i>	<i>40</i>
<i>Nantucket</i>	<i>230'</i>	<i>60'</i>	<i>784</i>	<i>50</i>
<i>Katama</i>	<i>235'</i>	<i>52'</i>	<i>143</i>	<i>30</i>
<i>Gay Head</i>	<i>235'</i>	<i>52'</i>	<i>140</i>	<i>40</i>

Figure 16



Island Queen: Island Commuter Corporation operates the *Island Queen* between Oak Bluffs and Falmouth, with a capacity of 594 passengers. During their operating season of mid-June to mid-September, the *Island Queen* operates seven daily round trips, with additional sailings on the weekends. Limited service is provided in May and October. (Statistics are not public because Island Commuter Corp. was licensed before this became a requirement.)

Hy-Line: Hy-Line Cruises operates between Hyannis and Oak Bluffs, with a schedule that varies from season to season. In peak season, the 450-passenger M/V *Brant Point* makes four round trips. Since 2005 Hy-Line has operated a year-round fast ferry service aboard the 140-passenger M/V *Lady Martha* between Oak Bluffs and Hyannis.

SeaStreak Martha's Vineyard: Formerly New England Fast Ferry, this seasonal fast ferry service operates between Vineyard Haven and New Bedford (and seasonal service to Oak Bluffs) aboard the M/V *SeaStreak* with a capacity of 150 passengers. This service replaced the *Schamochi*, which had been operated seasonally for several years by the Steamship Authority.

The Patriot: Patriot Party Boats owns three boats that serve the Island and connects Oak Bluffs and Falmouth (*Patriot Too*, *Minuteman*, *Quickwater*). These 40-passenger boats are small enough to not require licensing from the Steamship Authority. The service runs eight round trips per day Monday through Friday, largely serving work commuters and delivering newspapers each morning.

Martha's Vineyard Fast Ferry: This seasonal, high-speed service aboard a 400-passenger catamaran between Quonset Point, Rhode Island and Oak Bluffs started in 2003.

Pied Piper: Falmouth - Edgartown Ferry & Charter Service operates this 120-passenger seasonal ferry service between Falmouth and Edgartown.

Cruise Ships: There have been up to 30,000 annual visitors brought to the Vineyard by cruise ships operated by major companies, such as Norwegian and Royal Caribbean. These large vessels anchor off Oak Bluffs and tenders ferry passengers to the Oak Bluffs Harbor. Smaller cruise ships berth at Vineyard Haven Harbor and annual bring up to 1,000 passengers.

On-Island Ferries: In addition to the ferries providing access to the Island, there are also two ferries that serve movement on the Vineyard. The 3-car *On-Time* ferries provide the only vehicular access to the Island of Chappaquiddick (other than sporadic four-wheel drive access along the beach), operating year-round from the Edgartown Harbor. A seasonal bike ferry allows cyclists to travel from the village of Menemsha to Lobsterville Road in Aquinnah.

Harbors: The three Down-Island towns have harbors with anchorage or marina facilities for transient recreational boats (Edgartown: 102; Oak Bluffs: 216; Tisbury: 150) in addition to hundreds more marina dockages, harbor moorings and anchorages used by residents. In addition, Menemsha, in the Town of Chilmark, has a smaller harbor with facilities for commercial fishing boats, as well as for recreational boats. A brief description of Vineyard harbors and anchorages follows.

- Vineyard Haven Harbor – ferry and tug/barge service from mainland, with a breakwater, dockage, and anchorage;
- Oak Bluffs Harbor – ferry service from mainland, pleasure boat dockage and moorings, featuring permanent jetties;
- Edgartown Harbor – ferry from Falmouth, pleasure and fishing boats, ferry to Chappaquiddick;
- Menemsha Harbor and Pond – Fishing and pleasure boat anchorage, dockage, and mooring, with a permanent opening to Sound;
- Tashmoo Pond – pleasure boat anchorage, boat launch, with a small jettied opening without a real channel;
- Lagoon Pond – pleasure boat anchorage, fish hatchery, pond opening with a breakwater jetty;
- West Basin – fishing, pleasure boat anchorage;
- Off-Island ferry harbors at Woods Hole, New Bedford, Falmouth, Hyannis, Lewis Bay, Nantucket, and Quonset Point, RI;
- Island ponds for recreational boating, fishing, and swimming, including Quitsa Pond, Tisbury Great Pond, Oyster Pond, Edgartown Great Pond, Sengekontacket Pond, and Pocha Pond;
- Katama Bay – small ferry, pleasure boating, boat ramp, shellfishing;

- Cape Poge Bay – pleasure boating, swimming, fishing and shellfishing;
- Hart Haven Harbor – private harbor with dockage and anchorage.

Other Vessels: Miscellaneous vessels operating in Vineyard waters include:

- USCG Rescue vessels from Woods Holes and Menemsha,
- Coastal cruise ships docking in Vineyard Haven,
- Small pleasure boats docking and mooring in all of island harbors,
- Large pleasure boats berthing, mooring, anchoring in deeper water,
- Parasailing and personal watercraft rental in Vineyard Haven,
- Harbormaster boats operating safety patrols in the four major Island harbors,
- Bilge pumpout boats in island harbors,
- Small sailboats for recreational, competitive, and instructional sailing,
- Large sailing vessels in vicinity,
- Sport fishing boats chartered from Island ports,
- Commercial fishing boats operating from local ports,
- Shellfishing vessels primarily operating on inland island waters,
- Cruising catamaran *Mad Max*, a passenger vessel in Edgartown,
- Tugs and towboats for barges and emergency towing,
- Deck barges carrying bulk aggregate and modular homes,
- Fuel barges used to transport petroleum products,
- Dredges (public and private) used for waterway projects.

Recent developments include:

- Oak Bluffs Ferry Terminal – The SSA replaced the aging Oak Bluffs ferry terminal and dock with an improved facility that has upgraded the ability and safety for vehicles, particularly long trucks, to board and disembark, eased the staging of vehicles and traffic flow in the vicinity.
- Vineyard Haven Harbor – A new mooring field has been placed in the inner harbor to take better advantage of the recently opened gut at the beach end of the harbor jetty. The Tisbury Harbormaster is compiling SSA, barge, and other vessel traffic data in preparation for future dredging of the harbor.
- Lake Tashmoo – Tisbury recently established a new mooring field to take best advantage of the improvements in the dock adjacent to the existing boat ramp.
- Menemsha Harbor – A fire in August 2010 destroyed a large section of the dock owned by the Town of Chilmark, as well as a U.S. Coast Guard boathouse. Reconstruction of the dock is expected to take at least a year.
- Oak Bluffs Harbor – Oak Bluffs recently rebuild the North Bluff bulkhead to better accommodate the many ferries and tenders that use this portion of the harbor. The improvements included infrastructure integral to pedestrian and vehicular circulation and staging. The town is now building new bulkheads in the vicinity of the East Chop Beach Club to improve the berthing of motor vessels, including a fire and rescue boat that was obtained recently through a federal emergency management grant.

- Tashmoo Opening – Tisbury is engaged in initial studies and planning for making the opening permanent.
- Katama Bay Opening – A 2007 storm breached the barriers beach separating the south end of Katama Bay from the ocean, leaving a gap of about 2 miles wide between the south shores of Edgartown and Chappaquiddick – making Chappaquiddick a true island. The breach substantially altered currents between the bay and Edgartown Harbor, especially in the narrow channel between the two water bodies, which is also where the Chappaquiddick Ferry crosses. The 4-wheel drive vehicles that previously could use this alternative access now must use the congested Chappaquiddick ferry.
- Coastal Salt Ponds – Massachusetts Estuary Study of selected island embayments has begun to yield recommendations for improvements in water quality, which will increase their attractiveness for recreational activities.

6.2 Trends and Analysis of Issues

Ferry traffic has grown considerably over the past generation, although it has leveled off in the past decade (see Figures 17, 18, and 19).

Increasing concern about ferry traffic growth came to a head in the late 1990's. At that time, SSA consultants estimated that "August demand in 2005 will be 22 percent higher than 1995 volumes requiring an additional 700 parking spaces daily and 25-40% more passenger capacity unless constrained in some way by SSA carrying capacity or growth management policies on the Islands". (KJS Associates and FXM Associates, 1996.)

Concern about the growing number of vehicles carried by the ferries led to a 1997 decision to limit summer automobile capacity on ferries (approved by voters in all Island towns).

Subsequently, the SSA Board of Governors constrained ferry slots to the Island from June to August.

Figure 17

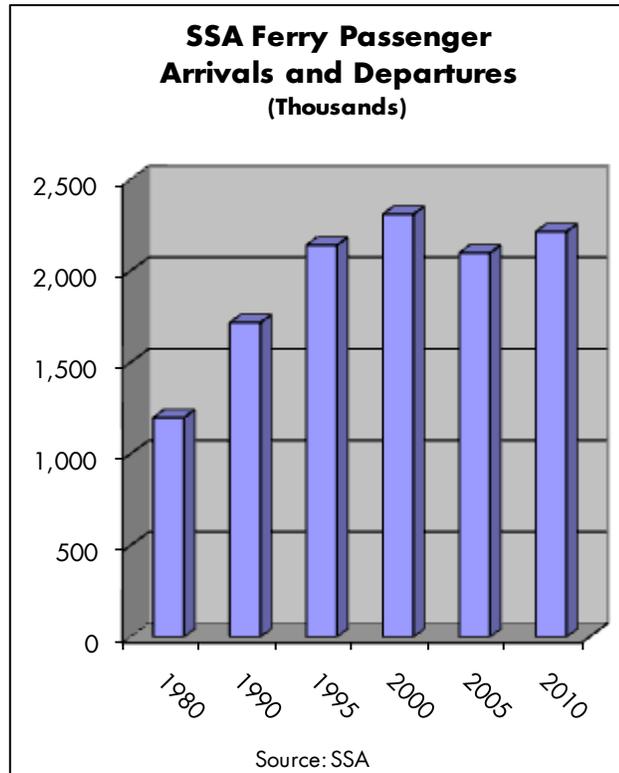


Figure 18: SSA Traffic 2000-2010 Source: SSA

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Annual Growth
Passengers Carried	2,309,181	2,396,759	2,401,286	2,283,627	2,164,169	2,098,037	2,105,128	2,143,160	2,174,185	2,179,567	2,213,800	-0.42%
Automobiles Carried	409,516	417,453	416,024	412,823	391,260	385,305	379,927	381,930	383,188	368,704	373,668	-0.91%
Trucks Carried	72,542	73,271	72,451	70,546	87,166	97,595	103,939	98,257	98,393	115,600	116,461	4.85%
Total Vehicles	482,058	490,724	488,475	483,369	478,426	482,900	483,866	480,187	481,581	484,304	490,129	0.17%
Change in Passengers	0.30%	3.80%	0.20%	-4.90%	-5.20%	-3.10%	0.30%	1.80%	1.40%	0.20%	1.60%	
Change in Vehicles	0.80%	1.80%	-0.50%	-1.00%	-1.00%	0.90%	0.20%	-0.80%	0.30%	0.60%	1.20%	

Figure 19: Passenger Arrivals & Departures by Ferry

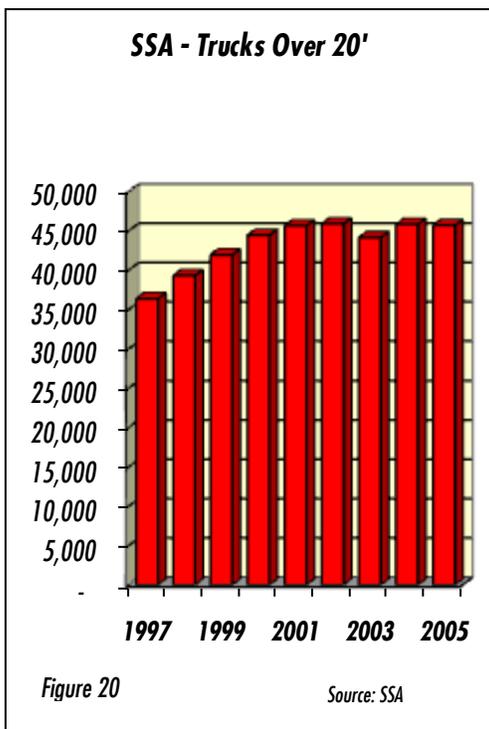
	SSA	Private Ferries	Total
1960	233,828	N.A.	233,828
1965	442,853	N.A.	442,853
1970	736,067	N.A.	736,067
1975	989,761	N.A.	989,761
1980	1,197,852	219,209	1,417,061
1985	1,347,467	227,706	1,575,173
1990	1,717,238	240,308	1,957,546
1995	2,139,599	242,503	2,382,102
2000	2,309,181	263,845	2,573,026
2005	2,098,037	267,883	2,365,920
2010	2,213,800	179,385	2,393,185

Excludes the Island Queen and the Rhode Island Fast Ferry. Source: SSA

- The number of passengers on Steamship Authority boats grew steadily up to a peak of about 2.4 million one-way trips in 2002, and has since dropped off to 2.2 million trips, less than the number a decade ago. Note that part of this decline (approximately 90,000 passengers) is because the ferry to New Bedford which had been operated by the SSA has since been privatized.
- The number of vehicles on the SSA peaked in 2001 at 490,724 trips, and has since dropped to 484,300 trips. In the past five years, the percentage of all vehicles under twenty feet in length comprised of Islanders traveling on reduced-fare excursion rates grew from 39.4% in 2000 to 42.6% in 2005. This percentage peaked at 66.6% in December 2005. Note that until 2004, personal pick-ups under 20' long were classified as cars whereas they were subsequently classified as trucks; this explains

part of the decline in the number of cars and the increase in the number of trucks. The number of freight trucks (over 20') has not risen in recent years.

- Limit on Automobiles Ferried: The limit on ferry automobile capacity appears to have led to an increase in the number of people that keep one car on the Island and another one on the mainland, so the reduction in on-Island vehicle traffic is perhaps not as great as hoped. The



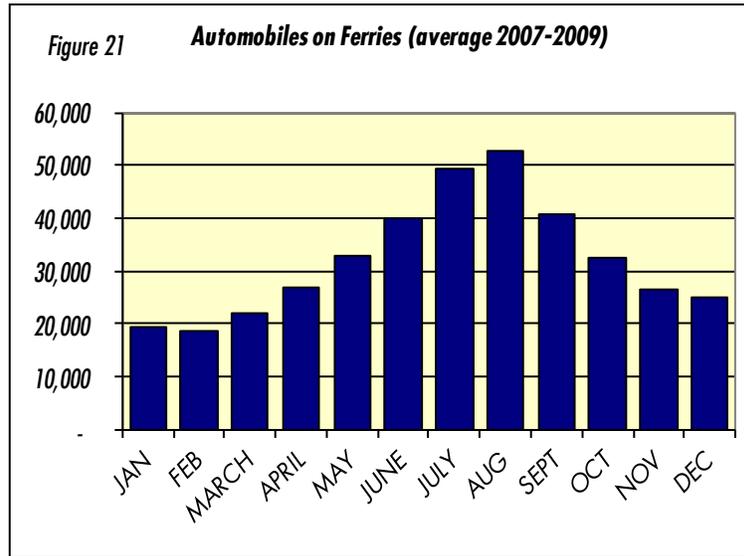
Steamship Authority operates over 4,000 parking spaces on the Upper Cape; 500 in Woods Hole, 2,700 in Falmouth, and 900 in Bourne. The number of permit-holders in the SSA's Falmouth parking lots has doubled in recent years, whereas the number of transients has remained about the same. The number of automobiles registered on the Island has also doubled, although it is not clear exactly how many cars are physically on the Island at a given time. Thus, the limit on ferry automobile capacity might have had a dampening effect on short-term visitors choosing to bring a car across.

- Respondents to the 2003 summer ferry survey indicated that about 10% were permanent Island residents, slightly under 20% were seasonal residents who spend at least one

month on the Vineyard, and over 70% were shorter-term visitors.

- Length of Stay: Almost one third (31%) of all visitors arriving on the ferries in the summer do not stay overnight but return to the mainland on the same day. One quarter of all visitors spend only one or two nights, and another quarter spend three to six nights. Those staying a week or more account for just under 20% of the ferry passengers.

- Seasonality: The SSA reports about 19,000 return automobile trips in January and over 52,000 trips in August (3-year average, 2007 to 2009). Passenger trips averaged 92,577 in January and 357,790 in August.



Source: SSA

- Traffic on the Cape and in Falmouth: An issue directly related to ferry operations is traffic on Cape Cod. Concern has been expressed, especially by residents of Falmouth, that traffic headed to the ferries, particularly the SSA ferry in Woods Hole, is a major cause of traffic problems in that community. However, studies by the Cape Cod Commission indicate that less than 3% of traffic on the Bourne Bridge is headed to the ferry. Within Falmouth, the main cause of traffic would appear to be the considerable growth that has taken place within Falmouth itself. Even on Woods Hole Road, about 82% of the traffic is local and only 18% is ferry traffic. This road is uncongested (level of service of C or better) virtually all the time, excepting brief periods (averaging 4 to 10 minutes) after a boat discharges vehicles and passengers. Nevertheless, representatives from the Vineyard and Falmouth agreed to work together to limit traffic in Falmouth, especially the transportation of hazardous materials. The subsequent elimination of guaranteed same-day ferry travel without reservations (“guaranteed standby”) during peak times has had a significant effect on reducing traffic and congestion in Wood’s Hole.

- Port areas: The 2002 *Martha’s Vineyard Port Areas Infrastructure Capacity Study*, indicated that high levels of congestion – cars immobilized in parking lots, brief and not-so-brief street backups, pedestrians weaving among stopped vehicles – were repeatedly observed with the arrival of most ferries at Island terminals. Typical shortcomings involved the inadequate management of pedestrian movement: narrow or non-existent pedestrian ways, a scarcity of direction signs, and problems with crosswalk design, location, or use. Most terminals had insufficient room for cars picking up or dropping off passengers.

Significantly, the congestion accompanying the dispersal of arriving passengers was of relatively short duration – usually less than 30 minutes for the larger SSA vessels, and less

than 15 minutes for the private carriers. After these periods, activity returned to, or was slightly elevated from, background activity levels that existed prior to the ferries' arrival. Some terminals experienced very little activity between ferry arrivals. The fact that groups of a few hundred ferry passengers can disperse into or beyond the background so quickly suggests that capacity may exist to accommodate larger groups, or increase the frequency that the groups are received.

Suggestions for improving the infrastructure focus on:

- completing pedestrian ways and upgrading their width or condition;
 - controlling pedestrian street crossings through a combination of improved or additional crosswalks, physical barriers, and education and enforcement efforts;
 - improving way-finding signage at the terminals and the village centers; and
 - re-evaluating vehicular circulation patterns as they affect the three terminals in Oak Bluffs.
- Improved information regarding the characteristics of ferry passengers may lead to a better understanding of their movements.

Since then, some improvements have been made, notably to the area around the Oak Bluffs Steamship Authority Terminal and nearby streets (Lake Avenue project) and to Water Street in Tisbury.

Embarkation Fees: The Commonwealth enacted legislation adding a 50-cent fee to passenger trips to and from the Vineyard, to be used to help defray costs incurred by the port towns in dealing with the impacts related to the presence of these ferry

Figure 22: SSA Embarkation Fees – 2010

	Barnstable	Falmouth	Nantucket	Oak Bluffs	Tisbury	Total
<i>Total Passenger Trips</i>	260,008	1,111,873	262,339	252,646	849,281	2,736,147
<i>Total Exempt Trips</i>	61,943	402,375	63,876	41,733	360,823	930,750
<i>Trips subject to Fee</i>	198,065	709,498	198,463	210,913	488,458	1,805,397
<i>Fee</i>	0.50	0.50	0.50	0.50	0.50	
<i>Fees Payable to Town</i>	\$99,032	\$354,749	\$99,231	\$105,456	\$244,229	\$902,698

Note: Barnstable fees are distributed 75% to Town of Barnstable, 25% to Town of Yarmouth. Source: SSA

services. Commuter, excursion, and student trips are exempted. The funds collected have been remitted to the port towns where they have been used for a variety of purposes such as ensuring police presence to direct traffic around the ferry terminal and at nearby intersections.

Reservations: Increasing use of the Internet makes it easier for customers to make reservations and reduces the need for a separate trip to the ferry terminal or ticket office to pick up tickets. The SSA introduced on-line reservations at the end of 2003 and now, more than a quarter of all reservations are made on the web.

Figure 23: SSA Internet Reservations

	Web	Total	% Web
<i>2007</i>	95,690	317,958	30.1%
<i>2008</i>	101,382	312,021	32.5%
<i>2009</i>	116,385	310,159	37.5%
<i>2010</i>	123,985	315,329	39.3%

Source: SSA

6.3 Objectives

- Maintain the summer capacity of vehicular access to the Island at the 1995 levels, based on the results of the 1997 Island-wide referendum on the subject.

- Encourage visitors to come to the Island without their cars.
- Reduce vehicular traffic to the ferry passing through Vineyard Haven and Oak Bluffs in addition to Falmouth, the Cape Cod Canal bridges and on the Cape, particularly cars (and for the Cape side, buses) that are dropping passengers off at the ferry (as well as freight as discussed in section 11).
- Improve vehicular and passenger access to and from ferry terminals including better remote parking-ferry connection, drop-off, queuing and better distribution between the two Island ferry terminals.
- Seek to achieve a seamless experience whereby passengers can check in at mainland SSA parking lots, including leaving their baggage, and be brought from bus, to ferry, to bus and then to a parking/service center on the Vineyard where they would have all transportation opportunities available (bus, taxi, car rental).

6.4 Proposed Projects and Actions

Actions

- Encourage passenger drop-off and pick up at Park-and-Ride facilities, to reduce traffic congestion in town and especially near terminals. Consider setting up remote check-in facilities.
- Continue to make improvements to the reservations system and queuing for passenger convenience and to reduce unnecessary traffic.
- Identify performance measures to improve the operating performance of marine transportation services.
- Coordinate the capacities of the boat lines with the capacities of the region's roads and public surface transportation services.

7. Air Transportation

7.1 Description

Martha's Vineyard Airport (MVY): This is an FAA-certified non-hub commercial service airport, which provides general aviation, air carrier, and freight service to the Island. Located in the towns of Edgartown and West Tisbury, the airport is near the Island's geographic center. The airport has two runways, an airline passenger terminal, air traffic control tower, aircraft parking areas, fueling facilities and aircraft rescue/firefighting and maintenance facilities. A business park adjacent to the airport offers industrial and commercially zoned lots for non-aviation use.



- Runway 6-24 is 5,504 feet long, 100 feet wide, and is equipped with a precision instrument approach. Its high-intensity runway lighting can be pilot controlled. The runway was reconstructed and grooved in 1993. The Airport Reference Code is C-III, which designates the aircraft size and speeds for which the area is designed
- Runway 15-33 is 3,297 feet long, 75 feet wide, and is a visual-flight-rules runway with medium intensity runway lighting that can be pilot controlled. The runway was reconstructed in 1992. The Airport Reference Code for this runway is currently B-II.

The Airport Commission is a seven-member body appointed by the Dukes County Commission. adopted the Martha's Vineyard Airport Master Plan Phase II in December 2002, and the associated Environmental Review encompassing 14 projects was completed and approved in 2003. The Airport Reference Code is C-III, which accommodates the aircraft now using the airport that generally have greater wingspans and faster approach speeds. Many of the projects proposed in the Airport Master Plan are designed to support the new aircraft mix that MVY now sees. These projects are to ensure that MVY remains a safe and adequate facility into the future and will be funded through a variety of Federal, State, and Airport resources.

Katama Airfield: This visual flight rules grass strip airfield, is open to recreational aircraft from May to October. Sited in an environmentally sensitive sandplain grassland, any expansion must conform to the Katama Plains Management Agreement, which is administered jointly by the Nature Conservancy and the Town of Edgartown's Conservation and Airfield Commissions. Development must also conform to the regulations enacted by the MVC for the Katama Airport District of Critical Planning Concern.

Trade Winds Airstrip: This airstrip, at Trade Wind Fields Preserve in Oak Bluffs, is maintained by the Martha’s Vineyard Land Bank Commission. There are few operations because pilots must receive advance permission.

7.2 Trends and Analysis of Issues

- Air travel accounts for about 5% of passenger travel to the Island. The total number of passengers departing by air grew dramatically from 1970 to 2000, coinciding with the period of most rapid development on the Island, and has since settled back to levels similar to those in the mid 1980s.
- The number of annual commercial enplanements (one passenger departing on a scheduled airline flight) fluctuated from about 60,000 in the mid 1980s, to under 40,000 in the early 1990s, to 71,953 in 2000, and back down to 36,740 in 2010. This variation results from several factors, primarily changes in commercial service such as addition or deletion of air carriers, reduction of commercial service during the off-season, and revised flight schedules.
- Although the Master Plan for the Martha’s Vineyard Airport anticipated airline enplanements increasing at an average annual rate of 5.5% through 2005, and then slowing to an average annual rate of 2.1% through 2020, enplanements from 2000 to date have decreased.
- General Aviation includes all non-airline activity such as military, charter and private aircraft regardless of aircraft size and accounts for over 50% of passenger trips (passenger figures in Figure 24 are estimated based in takeoffs). The General Aviation market segment growth is expected to slightly increase while air carrier traffic is expected to remain stable.
- Airline traffic is likely affected by the economy, changes in patterns of leisure activities, fuel costs, and terrorism fears. Many airports experienced a significant decrease in traffic after September 11, 2001; however the Island’s popularity has remained strong, and the airport saw air travel drop a minor amount since then, a change more related to changes in commercial service than such fears.
- The MVY Airport continues to focus on safety by addressing the needs of the aviation community through the implementation of the projects identified in the Airport Master Plan.

Figure 24: MVY Passengers Departing by Air (By Category) Source: MVY

	<i>General Aviation</i>	<i>Commercial</i>	<i>Total</i>
<i>1970</i>			<i>33,550</i>
<i>1975</i>			<i>45,305</i>
<i>1980</i>			<i>58,540</i>
<i>1985</i>			<i>105,194</i>
<i>1990</i>			<i>119,448</i>
<i>1995</i>	<i>94,087</i>	<i>54,454</i>	<i>148,541</i>
<i>2000</i>	<i>100,125</i>	<i>71,953</i>	<i>172,078</i>
<i>2005</i>	<i>80,670</i>	<i>48,977</i>	<i>129,647</i>
<i>2006</i>	<i>82,104</i>	<i>45,381</i>	<i>127,485</i>
<i>2007</i>	<i>80,745</i>	<i>45,924</i>	<i>126,669</i>
<i>2008</i>	<i>72,766</i>	<i>40,892</i>	<i>113,658</i>
<i>2009</i>	<i>66,865</i>	<i>34,730</i>	<i>101,595</i>
<i>2010</i>	<i>59,087</i>	<i>36,740</i>	<i>95,827</i>

Long Term Projects (2014-2025)

- Construct General Aviation Terminal facilities, including vehicle parking areas and access roads;
- Construct airline and Connector Roads to reduce vehicle traffic at the intersection of Edgartown - West Tisbury Road and Barnes Road, and complete the inter-airport roadway system associated with the development of the airport business park and the terminal areas;
- Construct infrastructure improvements adequate to meet current and future fire protection needs as relates to water supply and pressure for fire protection systems;
- Air safety improvements;
- Re-construct or add taxiways as appropriate;
- Construct sewage treatment plant improvements;
- Construct access roads, parking areas and utilities;
- Extend secondary runway and install runway safety areas;
- Expand existing airline terminal building.

Other Actions

- Enhance year round air service to hub airports;
- Identify performance measures to improve the operating performance of air transportation facilities;
- Coordinate the capacities of the air carriers with the capacities of the region's roads and public surface transportation services;
- Monitor operating policies at "hub" airports that affect Island air carriers;
- Monitor the operation of the Martha's Vineyard Airport Terminal.

8. Road Network and Congestion Management

8.1 Description

Martha's Vineyard's rural road network, created when the Island population was less than 5,000, must now accommodate the travel demands of over 60,000 people during the peak summer months.

There are 177.4 miles of public, paved roads classified into four functional road types with varying widths, lengths and access features on Martha's Vineyard (see Figure 26). *Minor arterial roads* that link the Down-Island towns are designed to carry high volumes of traffic at relatively high travel speeds. *Major and minor collector (or secondary) roads* constitute routes between towns and to shops, schools, parks and beaches on which travel distances and speeds are, relative to arterials, shorter and slower. The remaining roads, which provide access to homes and places of businesses, are referred to as *local roads*. The paved roads are never more than two lanes wide, limiting capacity to about 1,500 vehicles per hour in each direction.



Ferry routes from Woods Hole to Vineyard Haven and from Hyannis to Oak Bluffs are classified as regional arterials making them eligible for federal and state transportation funding.

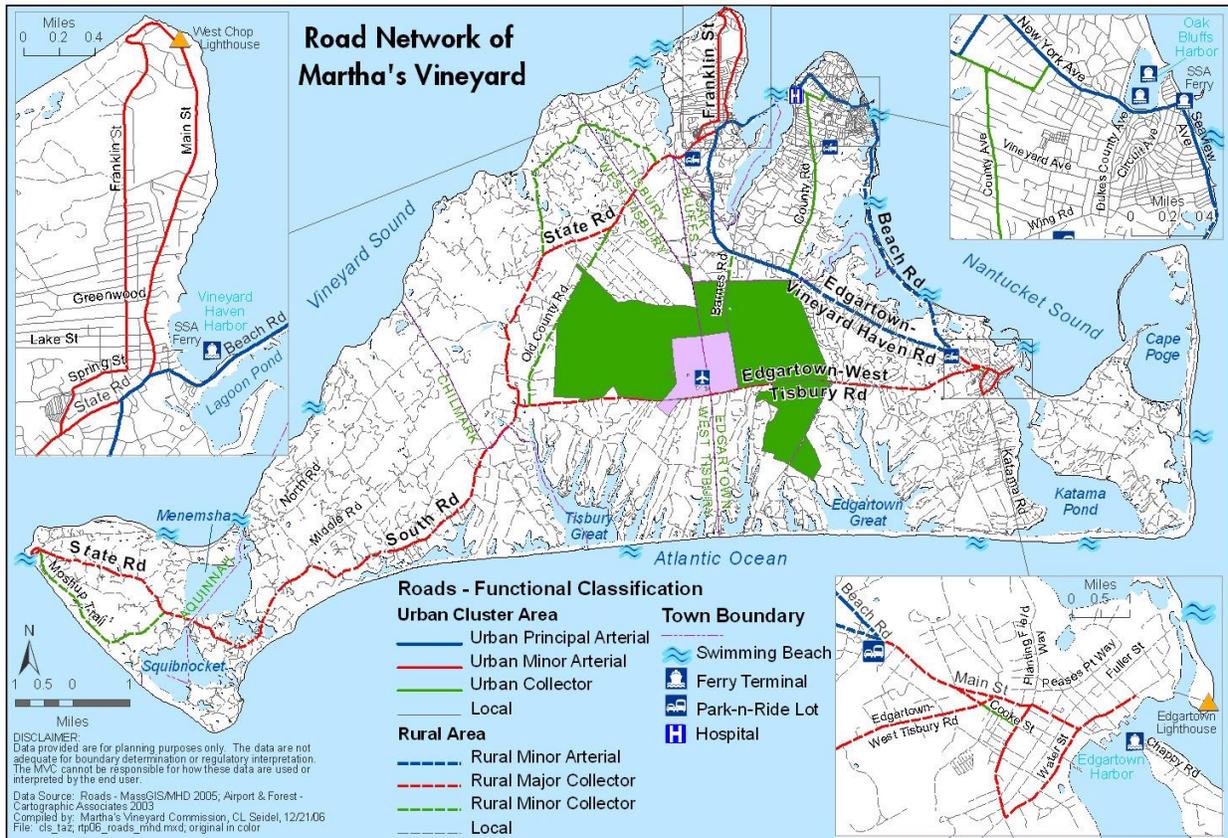
8.2 Trends and Analysis of Issues

For most of the year, the regional transportation network performs satisfactorily. However, during July and August, and increasingly during the "shoulder" season months of June and September, congestion and an increased number of accidents occur at several Down-Island intersections and stretches of road (for detailed information on safety, see Section 12).

Vehicles on the Island

For year-round households, there were about 11,630 vehicles or 1.82 vehicles per household in 2000, up from 1.66 vehicles in 1990 (US Census); the current rate is typical of other communities in the United States with similar population densities.

Figure 26



Vehicle availability is influenced by: population size, household size, workers per household, household incomes, land use patterns, age and gender of heads of households and lifestyles.

A total of about 28,000 vehicles are registered on the Vineyard (including trailers, Registry of Motor Vehicles), with many belonging to seasonal residents, although it is not clear how many are physically on the Island at any given point in time. Some might be registered here but kept elsewhere most of the time. Nor is it clear how many vehicles are registered off-Island but are kept on the Island. SSA figures indicate that an additional 10,000 vehicles are on-Island in the summer.

According to the 2004 MVC survey, the number of vehicles available to the average seasonal household is slightly lower than for year-round residents. Of these seasonal households, about one half leave one or more vehicles on the Island all year.

Respondents to the 2003 ferry survey indicated that about only one half of the seasonal residents brought vehicles with them, which is consistent with the availability of vehicles to these part-time residents. The same survey showed that about three quarters of visitors staying a week or more brought their vehicles on the ferry. Of the visitors staying three to six nights, fewer than one third brought vehicles, and of those staying only or two nights, only five to ten percent had their vehicles with them.

This reflects the fact that short-term visitors, particularly those staying in town centers (hotels, inns, bed & breakfasts) are the easiest to accommodate without having a vehicle on the Island since

they have ready access to most visitor destinations on foot, or by taxi, bicycle, or bus. Also, they are most impacted by the inconvenience of bringing a car on the ferry for only a few days, especially the difficulty of getting a car reservation that fits their travel plans and the relatively high cost of a ferry ticket for a vehicle (\$155 round-trip for peak-season 2011) that may not be justified for a short-term stay.

There are approximately 300 rental mopeds and 400 to 500 rental cars available during the summer season from business located in the Down-Island towns and at the airport.

Increase in Traffic

Traffic counts conducted by the MVC indicate that although there has been a generally steady increase in traffic across the Island, roads and intersections already close to or at capacity have experienced less growth.

The peak-season traffic levels have held relatively steady since the late 1990's. However, mid-winter traffic has steadily increased each year. The winter trend reflects the increase in second-homeowners traveling to the Island year-round, and an increase in the number of Island residents, including those who commute to work or school on the mainland. The leveling of mid-summer traffic is the direct result of deliberate ferry-capacity constraints approved by the residents of Martha's Vineyard and imposed by the Steamship Authority management.

Previously, the Commission analyzed traffic volume trends at several Down-Island locations. From 1981 to 1996, traffic volumes increased 1.7% annually. The study locations were: Main Street in Edgartown; Edgartown/Vineyard Haven Road in Edgartown, Oak Bluffs, and Tisbury; New York Avenue in Oak Bluffs; and Beach Road in Edgartown, Oak Bluffs and Tisbury.

While traffic volumes have trended upward since 1996 on most Island roads, Up-Island traffic volumes have generally outpaced traffic growth in Edgartown, Oak Bluffs, and Tisbury. For example August weekend travel in 2003 was little changed from comparable activity in August 1997 (as measured at New York Avenue in Oak Bluffs). But traffic crossing the Tiasquam River at the Chilmark/West Tisbury town line grew at a 7% annual rate (as recorded May 1996 and May 2003).

As might be expected, traffic volumes peak in July and August, and are heavily influenced on-Island by weather conditions and time of day. They are at their lowest during February. As analyzed by the Martha's Vineyard Commission, July and August traffic volumes are typically three times greater than in February.

Figure 27: Drivers on Vineyard Roads				
	<i>at Vineyard Haven¹</i>		<i>at Edgartown²</i>	
	<i>Weekday</i>	<i>Saturday</i>	<i>Weekday</i>	<i>Saturday</i>
Permanent residents	68%	59%	53%	39%
Seasonal residents and long-term visitors	30%	38%	43%	55%
Short-term visitors	2%	3%	4%	6%

Long-term visitors defined as staying one week or more
1- Source: Origin-Destination study carried out by the MVC in 2004 at the intersection of State Road and Edgartown/Vineyard Haven Road
2- Source: Origin-Destination study carried out by the MVC in 2005 at five locations in Edgartown

Historically, summer traffic volumes have been nearly twice shoulder season volumes, though the trend is subsiding as the number of non-resident property owners increases.

Two of the most heavily traveled major roads are the State/Beach Road corridor in Vineyard Haven and Upper Main Street in Edgartown, where daily volumes of 20,000 vehicles are counted in the summer. Traffic levels are also high at the intersection of Edgartown-Vineyard Haven and Barnes Road with summer daily counts of over 20,000 vehicles.

Although Vineyarders like to blame traffic congestion on short-term visitors, summer traffic surveys at busy Down-Island locations indicate that the majority of the travelers are permanent residents, seasonal residents and long-term visitors, who account for 96% to 98% of summer weekday traffic (see Figure 27). Short-term visitors make up only a very small part of the total traffic.

Congestion Management

- During the summer, there are several intersections and roads that have been highly congested for a long time and feature delays of up to 20 minutes (see section 8.4). Although the delays are presently less problematic off-season, traffic growth in the shoulder season threatens to negatively impact congestion then too.
- An increase in traffic in critical locations will have an impact on congestion far out of proportion to the general increase in traffic. For example, a relatively small increase in traffic at an intersection that is close to capacity could lead to a large increase in delays. To avoid this, many drivers would take other routes if available, avoid driving during peak hours, or some visitors might simply stop coming to the Vineyard because of the unpleasantness of traffic problems.
- Although some congestion-related delays are merely an inconvenience, congestion can be especially problematic for unavoidable trips, such as cars and trucks taking the ferry, where there is no real alternative and unplanned delay can mean missing the boat.

As traffic volumes on main roads approach their design limits at peak hour, more and more traffic is being channeled onto local roads in order to avoid congested intersections.

Figure 28: Public Support for Road System Expansion			
<i>To what extent do you agree or disagree to the following statement – Martha’s Vineyard road system should be expanded to handle increased traffic?</i>			
	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>
<i>Permanent residents</i>	68%	17%	15%
<i>Seasonal residents</i>	42%	34%	24%
<i>Visitors</i>	32%	45%	23%
<i>Survey conducted in 2004</i>			

The fact that certain roads and intersections are congested for several months of the year does not mean that there should be physical changes. The recent opinion surveys indicate that people are generally against such expansion. The challenge is how to deal with increases in population and traffic with a historic road network, and keep congestion within bearable levels. In cases where expanding a road’s capacity would result in a significant detriment to the surrounding environment, the decision should be against the expansion. Those who choose to live on the Island year-round or seasonally do so for a unique experience, and should be willing to accept

necessary restrictions. Alternatives to road improvements that should be considered where roads are chronically at or over capacity include:

- the use of bus, taxi, bicycle and foot;
- limitations on use, such as restricting oversize vehicle traffic or restricting vehicle traffic in certain areas;
- converting two-way roads into one-way systems;
- traffic management techniques.

Parking

- Since so much of the Vineyard is rural or semi-rural, a large number of people have no alternative but to travel by car or truck for at least part of their trip. This makes the availability of parking, either near the destination, or outside of town and linked to town with an efficient transit system, of primary importance.
- There is great difficulty in finding parking in town centers during the summer season. Physical constraints related to existing buildings or natural conservation areas make it difficult to add parking areas, particularly in town so the need to provide parking outside of town – either on the outskirts or in more rural areas – with an efficient shuttle into towns will become increasingly important. Parking shortages in the town centers was an issue highlighted by the *Island Plan* transportation workgroup.
- There are two Park-and-Ride lots on the Vineyard, primarily intended to serve employees (freeing up in-town spaces for shoppers), ferry passengers, and visitors (see figure 26). The Vineyard Transit Authority links these lots to town centers.
 - The Tisbury lot has a capacity of 420, is free for parking up to seven days, and has a charge for longer-term parking. An agreement between the Town of Tisbury, the VTA, and the Steamship Authority set up a free, year-round shuttle service from the Park-and-Ride to the ferry terminal with at least two trips an hour based on the SSA boat schedule. Use of the Tisbury lot has increased significantly in the past two years, since the free shuttle and the free short-term parking were instituted.
 - The Edgartown lot has a capacity of 150 and is free of charge. Only a short walk to downtown, it is serviced by shuttle bus five months a year. This lot uses less than half its capacity in the shoulder months, but operates three-quarters to full in July and August.

Many residents and visitors are unaware of the existence of Park-and-Ride lots, or are unclear how they operate. There have been concerns about how user-friendly they are and about vandalism. It should be noted that the some Towns have relaxed enforcement of in-town parking regulations in the shoulder seasons, which promotes parking in the town centers. The Joint Transportation Committee and the towns have worked to promote awareness and use of the Park-and-Rides and to create new ones. A small Park-and-Ride at the Oak Bluffs public works yard was operated on a trial basis in 2005. The JTC also supports seasonal parking at the Oak Bluffs School and at the Edgartown School.

- The SSA leased a property at the airport for possible use in the longer term as an off-site parking/service center.

Pavement Management

Most of the 177.8 miles of paved, public roads on Martha's Vineyard are municipally owned and maintained. The most important arterial roads are improved and maintained by MassDOT and are categorized as federal-aid-eligible roads because 80% of these MassDOT expenditures are reimbursed by the Federal Highway Administration (FHWA). There are 102.8 lane-miles, approximately 51.4 miles, of federal-aid-eligible roads on Martha's Vineyard.

The purpose of a Pavement Management System is to keep the roadway system in the best possible condition with the most efficient use of available funds. The aim is to manage pavement condition with preventative or rehabilitation measures rather than wait until a road is in need of reconstruction at a significant cost. Ideally all roads should be maintained in Excellent condition. However, the cost of doing this, even for federal-aid-eligible roads, far exceeds available resources.

The first step in an effective Pavement Management System is to assess the current condition of roads. The most efficient and objective way to analyze pavement condition is with specialized vehicles with automated detectors to collect data. MassDOT has such equipment and has analyzed a large number of federal-aid-eligible and municipal roads in the Commonwealth. It was not possible to arrange to get the specialized MassDOT equipment on the Island in time to include the results in this RTP update.

In the coming year, the Martha's Vineyard Commission will work with MassDOT and town departments of public works in an active pavement condition data collection effort. Beginning with the FY 2012 Unified Planning Work Program, Task 2.4 – Demographic Observation and Road Inventory Update, a greatly expanded Pavement Management System effort will be underway. Results of these efforts will provide the Martha's Vineyard MPO and towns with more up-to-date and accurate data for improved pavement management decision-making.

The Pavement Management analysis will include categorizing the condition of all roads – municipal and federal-aid – into four categories: Excellent, Good, Fair, and Poor. It will discuss whether improvements are necessary, and if so, what the goal conditions of those roadways should be. Finally, it will include a cost estimate associated with achieving various goal pavement conditions.

In general, the federal aid roads on Martha's Vineyard are in relatively good condition. The main travelling road surfaces generally show few signs of deterioration and ride quality is good, though constant maintenance is needed to keep them in this condition. More problematic is often the shoulders and road edges, whose deterioration can pose special challenges for the cyclists travelling in this part of the roadway.

In order to provide a preliminary estimate the cost of pavement improvements for this RTP, the following estimates were prepared based on the experience of other regions.

- Cape Cod was used as a model for road condition, in that the roads are similar and are likely to be in similar condition to those of Martha's Vineyard. On Cape Cod, an analysis of 85 miles of roads indicated that 27% are in Excellent condition, 33% are in Good condition, 26% are in Fair condition, and 14% are in Poor condition.
- Some regions in Massachusetts have well-advanced Pavement Management Systems.

Based on costs estimated by the Old Colony Planning Council, improving a Good road to Excellent requires \$40,400 per mile; improving from Fair to Excellent requires \$405,146 per mile; and improving from Poor to Excellent requires \$697,980 per mile. We use rounded figures of \$40,000, \$400,000, and \$700,000 respectively.

Based on these figures, the total cost of bringing the pavement of all roads up to Excellent condition would exceed \$10,000,000 which is far greater than the projected available funding of \$5,000,000 (based on a projection of recent expenditures). Although it clearly is more costly per mile, the highest priority is dealing with the roads that are in Fair or Poor condition. The following table indicates the estimated costs based the available funds for pavement improvements over the next 25 years.

Figure 29: Pavement Management

	Current Conditions	Miles (est.)	Improvements						
			per mile	All Roads	Available Funds	Recommended Approach			
						miles	total cost	resulting miles	resulting %
Excellent	27%	13.9						22.6	44%
Good	33%	17.0	\$40,000	\$678,480			\$0	17.0	33%
Fair	26%	13.4	\$400,000	\$5,345,600		3.8	\$1,500,000	9.6	19%
Poor	14%	7.2	\$700,000	\$5,037,200		5.0	\$3,500,000	2.2	4%
		51.4		\$11,061,280	\$5,000,000		\$5,000,000	51.4	

Overall, the pavement management strategy for the region will be developed in a financially constrained way that takes into account the projected revenues that will be available to the region.

The results of the Pavement Management Study will be published when completed and a section on Pavement Management will be updated with the update of each RTP based on annual data collection by the MVC and/or town departments of public works.

8.3 Objectives

- Improve road congestion and safety with improvements to the quality of the infrastructure, traffic calming, new or improved sidewalks and signage, and possibly installing traffic control devices. Make or plan for improvements to the least-safe locations.
- Ensure the maintenance of the road network while preserving the character of rural roads by maintaining and repairing them while respecting their existing “footprints” and designs. To maintain the Island’s historic character, avoid street widening, new turning lanes, or traffic lights. Put in place a process whereby a thoughtful commitment to rural road design creates the opportunity for the roads to become a resource themselves, rather than being generally considered an adverse impact on the Island’s scenic resources.
- Consider additional park-and-ride programs, pedestrian zones, new loop roads and rerouting of traffic as means to improve the flow of traffic.
- Reduce vehicular traffic to the ferry passing through Vineyard Haven, Oak Bluffs and Falmouth by eliminating non-essential trips, such as cars dropping passengers off at the ferry. Offer alternate ferry departure points on the mainland.
- Adopt traffic management strategies in regionally significant corridors.
- Explore methods to limit summer auto traffic so as not to exceed the capacity of the Island’s roads and parking.
- Support programs promoting energy conservation that discourage car use by using alternative means of transportation and that encourage use of energy-efficiency cars and buses. This will help achieve air quality objectives and reduce traffic congestion.

8.4 Key Locations – Planning and Projects

This section gives the current status of efforts to improve the seven most critical intersections and corridors on the Island from a traffic-safety and congestion point of view. The *Island Plan* identified improvements at these intersections as a primary objective.

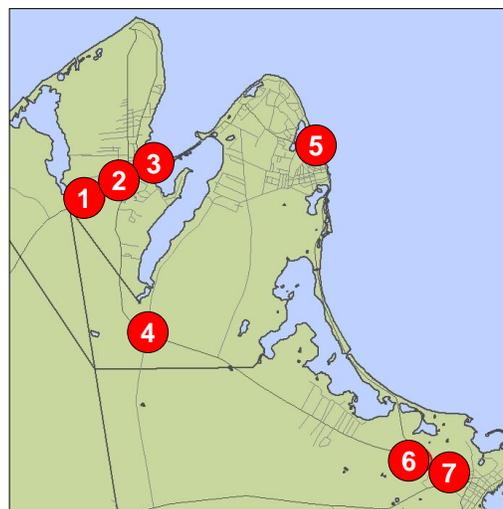
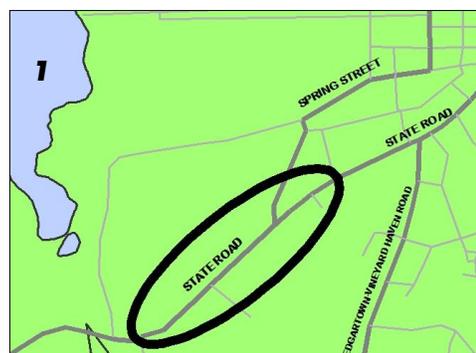


Figure 30: Critical Intersections and Corridors

1	<i>Upper State Road Corridor</i>	<i>Tisbury</i>
2	<i>Look Street Intersection (Edgartown-Vineyard Haven Rd. and State Rd.)</i>	<i>Tisbury</i>
3	<i>Five Corners (including the vicinity of the Vineyard Haven ferry terminal)</i>	<i>Tisbury</i>
4	<i>The "Blinker" intersection (Edgartown-Vineyard Haven Rd. and Barnes Rd.)</i>	<i>Oak Bluffs</i>
5	<i>Downtown Oak Bluffs (vicinity of ferry terminals/Harbor/Circuit Avenue)</i>	<i>Oak Bluffs</i>
6	<i>The Triangle (intersection of Beach and Edgartown-Vineyard Haven Roads)</i>	<i>Edgartown</i>
7	<i>Upper Main Street</i>	<i>Edgartown</i>

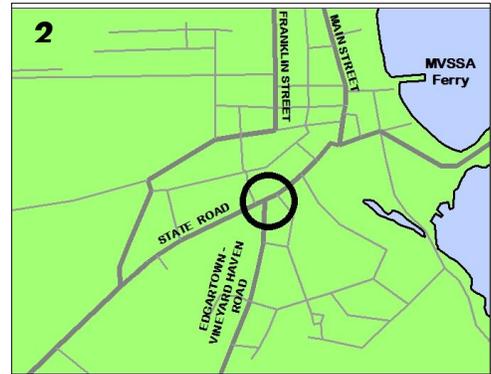
1. Upper State Road, Tisbury: A commercial corridor along an urban minor arterial/rural major collector, this area frequently experiences congestion related to the many access points.

- In the 1990's, the State Road Corridor Committee commissioned a study by MS Transportation that, among other things, recommended limiting curb cuts and suggested the possibility of local commercial roads on both sides of State Road and parallel to it, which would better handle the local commercial traffic and relieve congestion on State Road itself. Some projects in the area that were reviewed by the Martha's Vineyard Commission as Developments of Regional Impact have been conditioned to include easements to all for the future construction of such roads.
- Another measure to limit growth in congestion on State Road is to limit new high traffic-generating uses in the area. The MVC has been doing this in recent years in this area through the DRI process.



2. Look Street Intersection, Tisbury: An urban principal arterial (Edgartown-Vineyard Haven Rd.) ends at an urban minor arterial (State Rd.) to create delays of several minutes at this intersection, with a much-used local road (Look St.) also in the immediate vicinity. The left-hand turn from Edgartown-Vineyard Haven Rd. is particularly problematic.

- The Tisbury Planning Board and Public Works Commission are working together to develop a system of up to three connector roads that would provide alternative routes between the Edgartown-Vineyard Haven Road and the Upper State Road corridor. Plans have been completed and the Town is currently working on securing funding. A study carried out by the MVC for the Town indicated that, provided all three planned links to State Road are constructed, it would offer the following advantages.
 - Relieve traffic along the Upper State Road corridor and at the Look Street intersection by allowing much of the traffic between the Edgartown-Vineyard



Haven Road and the congested Upper State Road commercial area, as well as traffic heading Up-Island, to bypass the intersection and part or all of the busy portion of Upper State Road.

- Provide better access to the Park-and-Ride and the shuttle to the ferry.
 - Provide easier access to the properties south of Upper Main Street as part of a proposal by the Tisbury Planning Board for extensive “smart growth” infill development.
- The possibility of making Look Street one-way exiting the intersection should also be analyzed.

3. Five Corners, Tisbury: This intersection features three local roads (Water St., Beach St. Ext., and Lagoon Pond Rd.) converging on an urban principal arterial road (Beach/State Rd.). The Vineyard Haven ferry terminal on Water St. generates a great deal of traffic throughout the day. Much commercial, municipal, and pedestrian activity in the immediate area contributes to summertime delays of ten minutes or more.

- In 2005, the Tisbury Town Administrator and representatives of the Planning Board, Police and Fire Departments, Steamship Authority, and Martha's Vineyard Commission worked to formulate recommended improvements to Five Corners.
- Improvements that are completed or underway include:

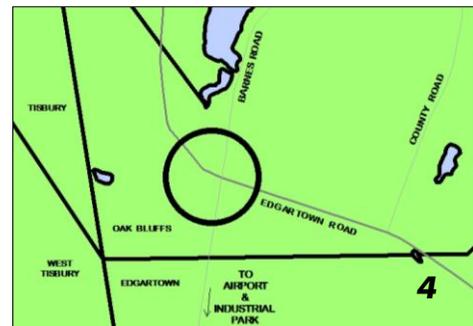


- Having police officers direct traffic at key locations during peak summer periods;
- Improving the ferry vehicle staging area, including improved signage, moving the check-in booth farther back from Water Street, and improving the short-term parking layout so back-ups do not extend into the street;
- Reorganizing the Water Street Parking Lot so that cars can circulate without having to go back onto the street.
- Other proposed improvements include:
 - Changing the direction of Union Street to allow local traffic (but not vehicles disembarking the ferry) to leave the area without passing through Five Corners.



4. Blinker Intersection, Oak Bluffs: The intersection of Barnes Rd. (a rural minor collector) and Edgartown-Vineyard Haven Rd. (an urban principal arterial) features a four-way stop (blinking red light) and summertime delays of up to twenty minutes.

- This intersection had a relatively high number of accidents as well as long delays on Barnes Road when it was a two-way stop. After it was converted to a four-way stop in 2003, the accident rate declined although during the summer, the back-ups on the Edgartown-Vineyard Haven Road average eight minutes, and are considerably longer at some times of the day.



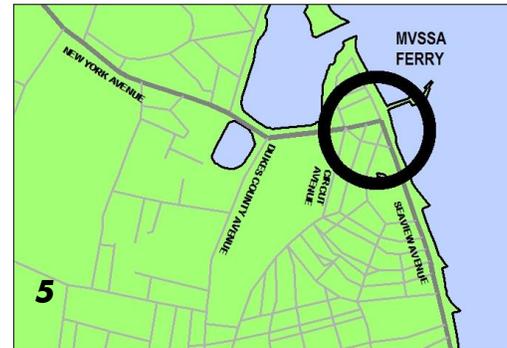
- A 2006 study by the Martha's Vineyard Commission, based in part on a 2001 study by MS Transportation, analyzed five options including the four-way stop with or without a turning lane, a traffic signal with and without turning lanes, and a roundabout. The options were evaluated according to a series of criteria including safety, congestion, and air pollution. The roundabout was



deemed the most effective solution, and in 2006 the Joint Transportation Committee recommended construction of the roundabout.

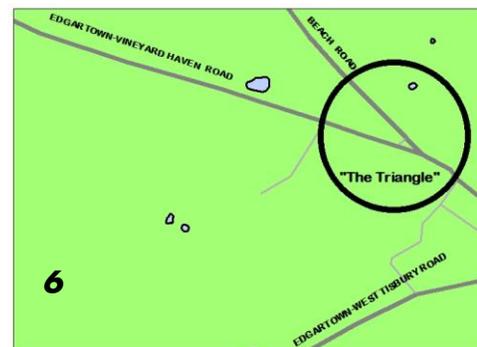
- In September 2006, the Board of Selectmen decided to build a roundabout. Construction is expected to cost \$1.1M and is scheduled to take place in 2012.

5. Downtown Oak Bluffs: The vicinity of ferry terminals, the Oak Bluffs Harbor and Circuit Avenue features an urban principal arterial snaking through one of the most popular and busiest areas of the Vineyard. Dense concentrations of commercial activity, one of the Island's largest public beaches, three ferry terminals, a popular park, and high volumes of pedestrian and bicycle traffic result in congestion. In the past few years, several successful improvements have increased safety, as well as aesthetics, in the area.



- In 2009 the Steamship Authority made improvements to the area around the SSA ferry dock, including moving some of the staging, presently adjacent to the street, to an enlarged dock. The former staging area was reorganized in order to reduce the impact of ferry operations on traffic in the area.
- Also in 2009, the Town of Oak Bluffs completed a major redesign of the Lake Avenue area that improved pedestrian facilities, implemented traffic calming measures (mainly curb bump-outs) and improved lane markings in this area, which has one of the highest concentrations of pedestrians on the Island, but where sidewalks were either extremely narrow or missing altogether.
- The town also slightly redesigned the North Bluffs Harbor Area in 2008 to make it work more efficiently and to improve pedestrian accommodation.

6. The Triangle, Edgartown: The convergence of Beach Road and Edgartown-Vineyard Haven Road (both rural minor arterials) results in delays of well over a minute, especially for vehicles entering and exiting Edgartown-Vineyard Haven Road.



7. Upper Main Street, Edgartown: This heavily-commercialized corridor with many access points is also a rural major collector. Two other rural major collectors (Edgartown-West Tisbury Rd. and Cooke St.) also converge on this corridor, resulting in intense summer congestion.

- In 2007, the Town of Edgartown asked the MVC to commission Fay, Spofford, and Thorndike (FST) to study the Triangle/Upper Main Street area, using traffic data collected by the MVC in an origin-destination study on the surrounding roads. The *Assessment of Permanent and Season Traffic Management Actions* assesses several physical and operational improvements,

but makes no recommendations, and to date the Town has not seriously considered implementation of any of the studied options, due to the many drawbacks cited in the report.

- A previous study, *The Edgartown Transit/Traffic/Parking Study* and the *Upper Main Street Traffic Study*, was also conducted by FST in 1990 with a view to improving access to and the flow of traffic on the business areas congested roads. The following recommendations were made: maximize safety; promote public transportation and adapt to the seasonal nature of traffic problems; support VTA and SSA efforts to develop a better coordinated Island-wide public transportation services; obtain a right-of-way and construct a roadway at the end of the Triangle, and develop a park-and-ride lot for use by riders of the Edgartown shuttle. These measures have been implemented, but the area remains congested.
- The Town of Edgartown has improved the park-and-ride lot in the area, including paving and expanding the parking area, improving drainage, increasing lighting. Possible future improvements include adding a waiting room and public restrooms.



Other Bridge and Road Improvements

Old County Road Intersection: The intersection of Old County Road and State Road in West Tisbury is poorly configured, leading to considerable driver confusion. As a result, it has raised concerns about the possibility of head-on accidents at relatively high speeds. The MVC prepared a study that suggests reconfiguring it as a T-shaped intersection. Since it is a State road, it is the responsibility of MassDOT District 5, which conducted a Road Safety Audit in August 2010. The safety audit led to immediate installation of flexible yellow reflective delineators along the center line of State Road on the westbound approach to Old County Road to provide a temporary physical barrier that slows traffic down and requires westbound left-turning vehicles to begin their turn from a point further west where there is greater visibility. Discussions are planned to come up with the most appropriate long-term solution.

Lagoon Pond Drawbridge: The drawbridge over the inlet into Lagoon Pond was in poor condition and was removed in 2009, with temporary replacement bridge installed. The design and construction process for a permanent bridge began in 2006 and, is currently at the 25% design stage, including the public design hearing, with a planned construction date of 2013. The Lagoon Pond Drawbridge Committee was established by the Tisbury and Oak Bluffs Boards of Selectmen to work with MassDOT in the planning and design process and to make every effort to see that the concerns of the Island are fully recognized. As a result, many aspects of the bridge design have been improved, including design features and improvements to public access in the area.

Sengekontacket Pond Inlet Bridges: These two bridges in Oak Bluffs and Edgartown – locally referred to as the “Big” and “Little” bridges – were just replaced by MassDOT with new concrete bridges that have wood railings similar to the former bridges at a cost of \$16,245,092 dollars according to the MassDOT Project Information webpage: <http://www.mhd.state.ma.us>

Mill Brook Bridge: Other Bridges: MassDOT and the Town of West Tisbury are considering replacing the bridge over Mill Brook. The total estimated project cost for the replacement, according to the MassDOT Project Information webpage: <http://www.mhd.state.ma.us>, is \$888,450 dollars.

8.5 Other Proposed Actions

Actions - General

- Investigate the possibility of limiting the number of rental cars available and encouraging or requiring the use of alternative fuel vehicles.
- Investigate the possibility of limiting the total number of vehicles on the Island (refer to initiatives in Bermuda, Nantucket, Catalina Island).
- In the framework of the Cape and Island Rural Roads Initiative, carry out a series of demonstration projects that illustrate context-sensitive solutions to specific issues related to roadway design including: guardrails, road shoulders (width, materials, maintenance), roadway edges (vegetation, signage, reflectors, curbs, utility poles, etc.), roadside bicycle and pedestrian paths, bridge design, and dirt roads.

Actions - Traffic Mitigation

- Expand the MVC's traffic data collection program to systematically compile information from all sources. Evaluate the capacity of Island roads and bridges to carry traffic, and establish a level of service (LOS) monitoring program.
- In reviewing Developments of Regional Impact (MVC) or other projects (towns), establish pedestrian and cyclist amenity design guidelines. When appropriate, require transportation management associations (TMA). Require proper driveway location, spacing and frequency. Specify proper turn restrictions and access controls. Coordinate local land use permitting with The Massachusetts Department of Transportation curb cut applications.
- Investigate the feasibility of auto-restricted zones, "road pricing" strategies and alternative work hours.
- Develop car and van pooling programs.
- Investigate the feasibility of traffic-reduction ordinances.
- Coordinate traffic regulations.

Actions - Roads and Bridges

- Use physical traffic calming techniques to slow traffic and improve safety in neighborhoods. This was a primary objective identified in the *Island Plan*, and will likely require a traffic calming workgroup to suggest locations for traffic calming and the proper techniques, which could include short-term efforts such as speed feedback signs and delineators (as currently at the intersection of State and Old County Roads), and more permanent improvements such as speed tables, curb extensions, and narrowing of roads ("road diets").
- Put in place a Pavement Management System for state and local roads in conjunction the Massachusetts Highway Department and the towns that would include the information on the history of construction and repair, the physical design (e.g. thickness and composition of

pavement and roadbed as a result of borings, drainage), their current condition, the priority for repair or improvement. Establish a regional road and bridge monitoring and information-sharing program. Conduct pavement-monitoring workshops.

- Enhance road vistas by identifying important viewsheds and by establishing a vegetation planting and maintenance program.
- Develop a comprehensive and coordinated road signage program intended to clearly deliver essential messages while eliminating the roadside clutter from unnecessary repetitive signage.
- Establish uniform “best management practices” in order to minimize the effects of stormwater runoff on environmentally sensitive areas.
- Experiment with prototype road and bridge design features that reconcile safety concerns with preservation of Vineyard character. These could include road guardrails (e.g. the use of steel-backed timber or Corten steel), bridge guardrails (e.g. the use of stone-covered concrete), shoulder design and maintenance (e.g. presence of paving, parking, bus pull-off zones, trees and other vegetation), etc.
- Examine the process by which MassDOT and town highway departments consider aesthetic, historic, and environmental issues in road and bridge decisions and how they solicit and respond to community involvement in order to design projects that respond to the particular needs and circumstances of each community, such as in the ongoing process to replace the Lagoon Pond drawbridge.

Actions – Parking

The shortage of parking was identified as a critical problem in the *Island Plan*. Essential to this was the creation of a parking plan, which would assess parking strategies.

- Increase promotion of Park-and-Ride lots and make them more user-friendly, such as by increasing the frequency of shuttles between the park-and-ride lots and town centers.
- Explore resident parking permits.
- Consider means to ensure that in-town parking during the summer is used primarily for short-term parking (e.g. time limits, meters), with Park-and-Ride lots are an attractive and convenient alternative for longer visits.
- Explore the possibility of creating other Park-and-Ride lots for the peak season located further from congested areas. This could include a location in Oak Bluffs as well as Up-Island locations that would allow people living too far from bus routes, to leave their cars and take the bus when heading to Down-Island locations.
- Investigate the feasibility of other parking management programs in town centers, such as agreements for sharing private off-street lots during off-hours; creating preferential parking for car and van pooling vehicles.
- Encourage the MVC and towns to develop project design guidelines concerning the location, size, landscaping, and use of parking areas for developments of regional impact (DRI) and for other developments regulated solely by towns.

9. Buses and Taxis

9.1 Description

Public Buses: The Martha's Vineyard Transit Authority (VTA) is the Island's regional transit authority. A fleet of 28 fully accessible vehicles, with seating capacities ranging from 18 to 37 passengers, provide service on 14 fixed routes from mid-May through mid-October. Due to the great success of a two-year pilot program funded by the towns, the VTA is able to provide public transit service to 12 of these established fixed-route corridors throughout the off-season. The VTA routes cover all major roads and all parts of the Island including the main public beaches and two park-and-ride lots (see Figure 32). Timed transfers at various locations on the Island allow passengers to plan efficient longer trips. Single one-way fares are \$1 per town, including town of origin, or \$2 to \$4 for most trips. The cost of bus passes ranges from \$7 for one day to \$100 for an annual pass. Lower cost passes are available to Island students through the schools and to seniors through the Councils on Aging. All buses are equipped with bike racks accommodating 2 to 3 bikes.



The VTA operates paratransit van service, as required by law, giving access to the bus routes to eligible disabled individuals. The service runs within $\frac{3}{4}$ mile of each route. In addition to paratransit trips, the VTA provides contract transportation to the Adult Day Care Program and Senior Lunch Programs and provides a van to Windemere Nursing Home for use by its residents. In addition, one day each week a van goes to Boston-area medical facilities. Collectively, these services are known as 'The Lift'. Service is provided with five 10- to 16-passenger vans. Paratransit and other van services are the most expensive transportation the VTA operates and the population in need of these services is growing.

Fare-box revenues provide about one third of the required funding, with the balance coming from Federal, State, and Local sources. Annual financial planning for VTA operations and capital programs is hampered because the extent of guaranteed funds, in recent years, is often undetermined prior to the end of the fiscal year. A summary of recent VTA capital and operating revenue sources is section 17.

The VTA is governed by a six-member Advisory Board comprising one representative from each island town. In addition, in 1998 the VTA created the VTA Consumer Advisory Group, which meets quarterly and consists of local social service agency members, business community members, transit consumers, VTA staff, and members of the public. The purpose of this group is

9.2 Trends and Analysis of Issues

Public Buses: With the acquisition of private bus companies in 2001, the Regional Transit Authority's annual fixed route ridership has grown from 71,500 in 1997 to roughly 1.1 million in 2010 (see Figure 33). Initial growth after this consolidation was in-season, and was due to the large increase in routes providing regular service on previously underserved roads and towns. Peak-season ridership continues to grow, with levels affected by the weather and the availability of vehicles. Robust growth has been seen in the off-season.

The growth in transit use and consolidation of the year-round, Island-wide public transit service has eliminated the need for a large number of automobile trips and has improved the quality of life for residents and visitors. It has provided increased mobility for older children, teenagers, the growing elderly population and many others.

The substantial increase in the Tisbury park-and-ride ridership in recent years is the result of a commitment from the Steamship Authority to wait for the park and ride before the boat departs, and the elimination of bus and parking fees. The Tisbury park-and-ride service – the cost of which is split between the town and the Steamship Authority – significantly reduces traffic congestion around the SSA's Vineyard Haven terminal and Five Corners area.

Paratransit and contract human-service transportation made 13,368 trips in FY2010, a 20% decline from FY06. The operating cost of this service was about \$495,000 and the fare box recovery was 4%, more than two and a half times the FY06 recovery rate. The increased coverage and frequencies of the fixed-route system meets the needs of many previously Lift-dependent individuals, fostering greater mobility and independence.

The biggest issue facing the VTA is guaranteed capital and operating funding. The VTA is considered a rural transit authority. There are no Federal formula funds for rural systems. Federal operating assistance for rural systems is administered by the Massachusetts Department of Transportation. The VTA has no guaranteed capital funds. VTA capital funds primarily come from MassDOT in the form of Regional Transit Authority Capital Assistance Program. The VTA is given a contract for capital funds annually. The VTA is not made aware of how much capital money it will receive until the beginning of the fiscal year for which the money is intended, making funding capital plans challenging.

Figure 33: VTA Ridership (by fiscal year ending June 30)

	2001	2005	2007	2008	2009	2010
July	74,760	200,671	218,789	228,006	261,735	245,214
August	76,748	214,511	235,105	254,856	286,044	265,384
September	31,680	89,664	102,510	118,503	107,317	131,257
October	16,313	44,558	51,790	62,250	69,594	60,675
November	5,562	12,894	20,081	24,920	29,142	28,092
December	3,194	9,173	16,424	18,739	23,381	22,859
January	2,714	7,008	14,605	18,827	20,659	20,364
February	3,129	8,013	12,987	18,980	20,720	20,040
March	4,082	10,741	18,050	23,792	25,737	26,987
April	10,867	17,843	25,265	34,355	38,125	39,630
May	43,484	43,891	69,461	78,874	84,607	91,324
June	88,062	110,243	133,831	149,095	136,628	147,514
TOTAL	360,595	769,210	918,898	1,031,197	1,103,688	1,099,340

As of August 2010 the VTA had replaced 50% of its fixed route fleet, but the majority (85%) were funded by the federal American Reinvestment and Recovery Act with and State RTACAP funded the balance.

Taxis: Because each town licenses taxis individually, fares and policies differ in each town, creating confusion for customers. The fact that taxis taking people from one town to another are not allowed to pick up fares on the return trip results in less efficiency and in empty taxis traveling unnecessarily. The growth in the public transit system has undercut part of the market for taxis so the sightseeing part of their business has become more important. There is a concern that there are too many taxis to allow companies to operate profitably. There have been complaints about cleanliness and fares charged. Island-wide licensing would allow better coordination and efficiency, but raises concerns that it could threaten the investments of those companies that have more lucrative licenses.



Charter Tour Buses: SSA figures show that over the last several years, a greater number of large charter coaches have decided to bring their bus over on the ferry for the day. This issue is of concern because many of these coaches are very long and wide given the Vineyard's road structure. Towns restrict tour buses to certain roads.

9.3 Objectives

- Improve efficiency, coordination of service, and promotion of all means of "collective" transportation, as an alternative to the use of private automobiles.
- Encourage increased use of public transit for year round and seasonal residents.
- Encourage greater use of the public transit to older children and teenagers for all purposes of trips.
- Continue to optimize passenger facilities, scheduling, routing and maintenance as well as promotion and information of public transit to present or potential riders.

9.4 Proposed Projects and Actions

Short-Term Actions (2012-2016)

- Increased operating assistance to the VTA from the Massachusetts Department of Transportation and rural Federal funds.
- Guaranteed capital funds for bus replacement (Section 17).

- Lobby to change the current formula and policy for federal and state funds for the region. Current formulas are based on year-round population and are not an accurate portrayal of the region's transportation needs.
- Improve the locations and physical installation of bus stops including the construction of shelters, in harmony with the character of Island roads.
- Continue the installation of intelligent transportation systems (ITS), automatic vehicle locators (AVL) and on-board cameras to increase the use of public transit by increasing the awareness about transit services through the dissemination of reliable real time transit information to passengers.
- Make a commitment to year-round residents on minimum fixed-route service levels on all routes year round.
- Offer detailed trip planning on-line and in mobile applications.
- Community outreach and education of transit services, with perhaps a re-branding of the transit system.

Other Actions

- Work with the Towns to allow transit vehicles on less-congested roads during peak travel times.
- Work with local zoning, approval, and licensing boards to make transit considerations part of the permitting process, as the VTA can (and does) substantially mitigate traffic congestion. Town and other various licensing boards must be educated to the benefits of transit and must include a mitigation fee to projects Island-wide.
- Focus on the non-peak travelers by continuing to improve service in the off-season months.
- Publicize the availability of off-season public transportation services by continuing to improve signage, coordinated scheduling, use of printed material and web sites, and other marketing techniques.
- Work with surrounding regions, especially Cape Cod and Nantucket, to lobby for changes to current methodology for distribution of federal and state capital and operating funds to take greater consideration of seasonal demands.
- Analyze uniform taxi fares and regulations – including driver testing (driving ability, Island knowledge, visitor courtesy, drugs), vehicle inspections (safety, cleanliness) – either through coordination among the towns or with Island-wide taxi licensing (taxi board, County). Encourage posting fares at main stands (ferry and airport) and/or on vehicles.
- Promote the complete network of non-automobile transportation facilities – buses, tour buses, taxis – as offering a complete and viable alternative to car use. Improve the information provided to arriving visitors about their travel options so they quickly understand the relative merits of bus, taxi and tour bus – for example in flyers with ferry tickets, brochures available in tourist information booths, and signage at ferry terminals and at the airport.
- Work to improve pedestrian and bicycle facilities to complement bus service.

10. Bicycles and Pedestrians

10.1 Context

Walking and bicycling play a vital role in the Vineyard's transportation network. Non-motorized modes have many benefits - economic, health, and cultural - not associated with the motorized modes of travel:

- Physical fitness;
- Emission-free, cleaner air;
- Means of experiencing the Vineyard's natural character - the principal asset the Island offers visitors and Islander's alike;
- Reduced demand on existing road infrastructure, which enables retention of narrow roads and scenic qualities;
- Cost-effectiveness - walking and cycling are generally cheaper than other modes.



To further highlight the importance of walking and cycling, MassDOT has made the promotion of walking and cycling (as well as public transit) one of the three primary goals of the 2010 GreenDOT Policy Directive.

The relatively compact nature of the Down-Island population centers are conducive to walking and cycling, but the narrow road rights-of-way and very low-density of Up-Island towns are impediments. Nevertheless, in light of the community's concern about increased vehicular congestion and the resulting environmental damage, non-motorized transportation holds great promise for alleviating traffic congestion Down-Island, where it is most intractable.

Several major and minor projects to improve the bicycle and pedestrian environment have been completed in the last four years: the sidewalks in much of downtown Oak Bluffs were redesigned and widened with added curbing for traffic calming, the final segment of SUP was completed on Herring Creek Road in Edgartown, and the busy stretch of road between the Lagoon Pond drawbridge and Oak Bluffs was resurfaced with much better shoulders. Despite these improvements, there is still much work to be done.

A large number of trips on the Island are pedestrian, and the majority of visitors to the Island come on foot. The town centers depend upon people being able to walk comfortably and safely from place to place, rather than having to drive or take a bus. Walking is also a popular recreational activity.

Bicycling is one of the most popular recreational activities on Martha's Vineyard, regarded by many as one of the best ways of experiencing the Island environment. The slower pace and quiet nature of bicycling are well matched with the Vineyard's rural characteristics. Many bike riders

combine bicycling with any number of other recreational activities: beach-going, visiting friends, shopping, water sports, hiking, antiquing, picnicking, bird watching, visiting local farms, and a host of other Island offerings. While transportation is often a key purpose for riding, it is not the sole purpose, which is a key distinction from other modes of transport.

As a seasonal resort community, the Vineyard must keep in mind the perspectives of its visitors. Many are unfamiliar with the local roads, unaccustomed to being in close proximity to high-volume traffic when cycling or walking, and ill-prepared to deal with roadside hazards such as sand on the road shoulders. A significant portion of residents and visitors are elderly, who may have particular difficulty with uneven sidewalks.

10.2 Description and Analysis of Existing Facilities

Pedestrians and cyclists share many characteristics, and largely share transportation infrastructure. This infrastructure includes four types of surface routes that, combined, comprise the network for both walking and bicycling: on-road, sidewalk, shared-use path (SUP), and trail. These two transportation modes also have distinctions that need to be taken into account if they are both to be properly accommodated.

Roadways

The Island's narrow roadways are a key feature defining the Vineyard's character—from the intimate, human scale of the town centers to the winding, tree-canopied rural roads. These attributes make them attractive for cyclists and pedestrians despite the hazard posed by narrow roads. Both pedestrians and cyclists are also often compelled to use the roadways, as there is inadequate additional right-of-way for a path, sidewalk, or trail, and no alternative public-access route. Competition by various transportation modes for use of this limited roadway width, combined with the high speed of motor vehicles, reduces the level of comfort and safety for all modes of travel. This is especially so for pedestrians and cyclists, who may be less visible to or less anticipated by motorists, and at the same time more physically vulnerable.

Cyclists may also use the roadway even when a shared-use path is available to *increase* safety: experienced road cyclists often travel at relatively high speeds (in excess of 15 miles per hour), and do not mix well with slower-moving cyclists, pedestrians, and in-line skaters on shared-use paths. Also, the shared-use paths are less likely to be clear of surface debris that is hazardous for narrow road-bike tires. Debris on the roadway shoulders typically force experienced cyclists to the vehicle travel lane.

The American Association of State Highway and Transportation Officials (AASHTO) standard for desirable shoulder width is five feet, uncommon on the Vineyard for many reasons. Up-Island roads in particular often lack any usable shoulder; bicyclists stay to the right of the pavement, which may be within the vehicle travel lane or to the right of the fog line (the white line on the outer edge of the travel lane), where the width of the paved shoulder, if any, varies considerably even along a single road. New research shows that fog lines can improve the safety for both motorists and cyclists, keeping cyclists from riding too close to the pavement edge, and preventing motorists from swerving unnecessarily into the opposing travel lane when passing a cyclist. Fog lines can also help visually reduce the width of the road, which has a traffic calming effect.

As with mopeds, motorists waiting to pass slower-moving cyclists can result in congestion and motorist impatience, especially in summer. Motorists need to recognize that bicyclists have as much right to use the roadway as motorists, which holds true even when a shared-use path parallels the roadway. Cyclists on the road are responsible for conducting themselves as if they are a motor vehicle, including riding with motorized traffic, in single file when cars are present, and as far to the right as safely possible. Motorists are legally required to give bikes a minimum three feet of clearance when passing and to do so at a reasonable speed.

In areas where it is impossible to provide off-road bicycle or shared-use paths, the designation of bike routes – roads best suited to handle bicycle traffic because of lighter traffic and/or the presence of shoulders – can guide cyclists to use these safer routes.

Sidewalks

Town centers, particularly Down-Island, see heavy pedestrian activity, especially in summer. The dense, historic layouts of the downtowns of Vineyard Haven, Oak Bluffs, and Edgartown make it difficult to accommodate large volumes of pedestrians, bicyclists, and motor vehicles despite the many existing and planned amenities for pedestrians and bicyclists. Narrow public rights-of-way often leave little room for sidewalks, let alone wider shared-use paths. The condition of the sidewalks and pedestrian congestion effectively prevents their use by cyclists, who are relegated to the roadway, which can further congest motor vehicle traffic.

Many sidewalks are less than four feet wide, are obstructed in many places with utility poles, signs and mailbox posts, or have uneven surfaces. These limitations are particularly problematic for the handicapped and elderly, people with strollers, and visitors with luggage. Even without obstructions, sidewalks can overflow with pedestrians near ferries in Vineyard Haven and Oak Bluffs, and shopping areas in all of the down-Island towns, and by queues for buses. Pedestrians often spill out onto the roadway which frequently conflicts with automobiles.

In certain downtown areas, pedestrian ways are sometimes merely indicated with lines painted on the asphalt, not delineated at all, or the right-of-way is insufficient to even dedicate a pedestrian area. This absence of a continuous pedestrian pathway network forces pedestrians to walk in the roadway, a safety concern that can also increase traffic congestion.

In other areas, such as Upper State Road in Tisbury and Upper Main Street in Edgartown, sidewalks exist but the layout of buildings is automobile-oriented, with large parking lots and frequent curb cuts undermining the principle that pedestrians have priority. Such layouts are not conducive to walking. One particularly problematic area in Oak Bluffs, between Circuit Avenue and the harbor, has recently been improved greatly using Transportation Improvement Program (TIP) funds.

The much less developed Up-Island towns have few sidewalks, West Tisbury's Paths by the Roadside Committee, with the County Engineer, has successfully worked with MassDOT and abutting landowners to create a hybrid sidewalk-path alongside two busy roads. These four-foot-wide asphalt paths without curbing complement the town's rural character, meandering around trees and undulating with the terrain, yet accommodate wheelchairs. They typically are within the

road right-of-way but separate from the road pavement. While these paths are sometimes used by cyclists, they are not generally suitable for cycling due to their narrowness which, like sidewalks, make it difficult to pass other bikes or pedestrians. One, in the West Tisbury business district abuts busy State Road in a commercial area with pedestrian activity, totals roughly one mile, and was completed between 2003 and 2006. The other segment, also roughly a mile long, largely links the shared-use path in the State Forest to the historic town center along the West Tisbury-Edgartown Road. The town is exploring how to create the final segment that would complete the connection to the town center, which would allow pedestrians to bypass a few hundred feet of State Road that has no shoulders and poor visibility.

Shared-Use Paths

Thirty-seven miles of shared-use paths (SUPs) Down-Island and around the State Forest link the major population centers with many primary tourism destinations, the Island's largest recreational property, and West Tisbury. The paths host a complex mixture of bicyclists, pedestrians, joggers, and in-line skaters, but motorized vehicles - including mopeds - are prohibited. Having been stitched together over more than 35 years, the paths vary in width, condition and separation from motor traffic.

The first "bike paths" were Beach Road from Edgartown to Oak Bluffs and the paths around most of the perimeter of the State Forest, constructed in the mid-1970s. These are generally eight feet wide and, except for some of the forest paths, parallel to but separated from the roadway. Subsequent paths spanning most of the miles between the Down-Island towns were eight to ten feet wide and running a few feet from a main roadway. Only some of the paths are physically separated from the roadways by a vegetated buffer zone or wooden railing. As the popularity of the paths have continued to increase, not just by bicyclists, additions in the past several years in Edgartown and Tisbury have been ten to twelve feet wide – the latter being the AASHTO standard width for shared-use paths.

Additions to the SUP network in the past decade have greatly enhanced the interconnections of the paths, but major gaps remain, which was a focus of the transportation group of the *Island Plan*. The issue was also examined in a study commissioned by the MVC in 2009. The *Pre-Feasibility Study of the Extension of the Martha's Vineyard Network of Shared-Use Paths* examined the most critical missing links in the SUP system, and offered an evaluation of several alternatives for each. The bike paths provide direct links between the Down-Island towns, but stop at the perimeter of the downtowns and, notably, do not connect to the ferries. Bicycles are thus reintegrated with motor vehicles at the very places where the roadways are the most congested. Bicyclists face downtown access and parking issues similar to those faced by motorists.

Major gaps in the SUP network (represented in arrows in Figure 34) are:

- Contiguous path from Oak Bluffs to Vineyard Haven;
- NE quadrant of State Forest perimeter;
- Contiguous path through or around Vineyard Haven and Oak Bluffs;
- Connections into the hearts of town centers, including West Tisbury, particularly to the ferry terminals; and
- Up-Island towns of West Tisbury, Chilmark, and Aquinnah.

Even where the SUPs exist, safety issues remain:

- Narrow width for volume and variety of users: The combination of pedestrians, in-line skaters, cyclists traveling at different paces (or stopped altogether), dog walkers, wide strollers, and bike trailers is often confusing and treacherous. A lack of a center line on most SUP segments exacerbates this problem.
- Inadequate buffer from roadway: Significant segments of SUPs have no physical barrier from the roadway - only a few feet of earth or grass. This provides a less-forgiving situation should either path user or motorist veer off course. This also enables the casual (and usually illegal) use of the SUP by vehicles for stopping, turning, and even for parking, blocking use of the SUP and presenting a danger to pedestrians and cyclists. Such use is evident in many locations on the Island where high motor traffic has worn away all vegetation in the buffer area, further blurring the separation of road and path.
- Frequent vehicle crossings: When parallel to a roadway, a SUP crosses all roads and driveways intersecting the roadway. These vehicular crossings are especially treacherous for cyclists, as motorists are focused more on other vehicular traffic and with pedestrians in the immediate area and less alert to cyclists on the path, who may be farther away but traveling at higher speed. The narrow separation of SUP and roadway often results in autos blocking the path as they await a clearing in the traffic. Some towns' practice of placing STOP signs for bikes at many of these crossings - often only a driveway - is counter-productive in that they are not legally enforceable, reduce cyclists' observance of other traffic signs, and falsely suggest to both motorists and cyclists that the motorist has the right-of-way at such crossings.
- Poor maintenance: All SUPs on the Island are plagued by potholes, cracks, debris, and overgrown vegetation, all of which reduces safety and deters use. The extensive SUPs in the State Forest suffer since the forest superintendent has insufficient resources to provide adequate maintenance. At other places, sand from beaches, erosion, or motor-vehicle crossings poses a threat to cyclists. The most heavily used SUP, along Beach Road between Oak Bluffs and Edgartown, runs the length of an exposed barrier beach and is regularly sand-covered, in addition to being rutted and cracked, as well as effectively only four feet wide at several points. The Island's MassDOT superintendent has acquired a small sweeper specifically for the SUPs, but sand is ever present along the SUPs and road shoulders across the Island.

Trails

The Vineyard has a large network of unpaved paths and trails for cyclists and pedestrians, many times more extensive than the shared-use paths. As with the SUP network, these trails provide walkers and cyclists an important alternative to the roadways. More importantly, the trails greatly expand the network available to non-motorized traffic, connecting neighborhoods to one another and to public lands, or providing "short cuts" to nearby destinations.

10.3 Objectives

General Objective

Promote and facilitate walking and bicycling as a way to promote healthy lifestyles, contribute to the visitor experience, increase mobility, reduce traffic congestion, save energy and improve air quality.

Specific Objectives

- Encourage the increased use of walking and cycling by residents and visitors.
- Inform the year-round and visitor population of the rules of the road and safety measures.
- Enforce existing laws for motorists, bicyclists, and pedestrians, in conjunction with an educational campaign.
- Provide a continuous network of safe, off-road, shared-use paths linking the Edgartown, Oak Bluffs, Tisbury, and West Tisbury town centers and the State Forest.
- Ensure that there is a complete network of safe and unobstructed sidewalks in town centers and other areas of medium or high pedestrian activity.
- Improve the treatment of road shoulders and edges for bicyclists and pedestrians, and designate bike routes to key destinations not served by SUPs.
- Complete the network of trails to link all significant destinations across the Island.
- Provide adequate directional and informational signage as well as rest areas, seating, bicycle parking, and other amenities.
- Improve SUP maintenance.

10.4 Proposed Projects and Actions

Short-Term Projects (2011-2016)

- Redo Edgartown sidewalks between Upper and Lower Main Street.
- Improve the SUP through the Hospital site and improve the existing segment along Eastville Avenue (MV Hospital, Oak Bluffs).
- Create a SUP along the eastern and northeastern perimeter of the Manuel Correllus State Forest (Edgartown) to complete the perimeter loop of the Forest.
- Create a short SUP segment connecting the northeast corner of State Forest to the Vineyard Haven-Edgartown Road shared-use path (Oak Bluffs).
- Create a continuous SUP from the drawbridge to Sunset Lake (Oak Bluffs).
- Realign additional portions of County Road to provide buffer space between the road and the existing shared-use path (Oak Bluffs).
- Ensure that town codes and MVC development review promote walking and bicycling access to adjacent neighborhoods and to public roads.
- Develop an educational campaign informing people of the rules of the road and safety measures.
- Post "Share the Road" signs, and possibly paint "sharrow" road markings, including where SUPs are adjacent to the road.

- Conduct an inventory of road, SUP, and sidewalk signs with the intent of minimizing clutter and providing clear information, focusing on the removal of counter-productive STOP signs on the SUPs.
- Evaluate road speed limits for appropriateness and propose measures for traffic calming.

Figure 36: Shared-Use Paths – Proposed and Possible Links

<i>Description</i>	<i>Length approximate, miles</i>
<i>Proposed Links – Identified Routes</i>	
<i>Tisbury - Beach Road (Town Landing to Drawbridge)*</i>	<i>0.13</i>
<i>Tisbury - Beach Road (Winds Up to near Five Corners)</i>	<i>0.46</i>
<i>Oak Bluffs - Beach Road (Drawbridge to Hospital entrance)*</i>	<i>0.20</i>
<i>Oak Bluffs – Beach Road (Hospital to Eastville Road)</i>	<i>0.15</i>
<i>State Forest - Northern edge</i>	<i>1.10</i>
<i>State Forest - Eastern edge</i>	<i>2.00</i>
<i>Northeast corner of State Forest to Edg-VH Road</i>	<i>0.01</i>
<i>*new bridge design includes SUP</i>	
<i>Possible Links – Routes Not Identified</i>	
<i>West Tisbury Village to State Forest</i>	<i>0.85</i>
<i>Tisbury/West Tisbury - Park-and-Ride to State Forest</i>	<i>6.00</i>
<i>Tisbury - Park-and-Ride to Five Corners Area</i>	<i>1.00</i>
<i>Oak Bluffs - Eastville Avenue to Downtown</i>	<i>0.83</i>
<i>Oak Bluffs - County Road to Seaview Road (south of town)</i>	<i>2.00</i>
<i>Edg-Vineyard Haven Road to Edg-West Tisbury Road</i>	<i>1.30</i>
<i>Edg-West Tisbury Road to Katama Road</i>	<i>2.00</i>
<i>Chappaquiddick – ferry to Wasque</i>	<i>4.50</i>

Actions - Bicycles

- Promote cycling by:
 - Informing visitors of the existence of SUPs and trails, as well as the many natural, cultural, and historic attractions available to touring bicyclists;
 - Providing information to individuals and organizations about bicycle commuting;
 - Involving the private sector in promoting and providing for bicycling.
- Set up a cycle-path working group with the mandate to analyze the network with respect to safety and convenience (especially for the Vineyard’s many novice riders), and prepare a program for path upgrades. Look particularly at the following:
 - The design of intersections with roads and driveways, including the presence of STOP or warning signs, the lines of sight, and the presence of vegetation and debris;
 - The presence of barriers (low shrubs or wooden barriers) dividing the paths from roadways to protect users by preventing motorized traffic from parking, passing, and turning, as well as to reduce the visual scale of the roadway;
 - The presence of signage too close to the paths that narrow the effective width;
 - The identification of dangerous stretches of bicycle path (e.g., it has been suggested that the Eastville Avenue path is problematic);

- Paint centerlines on SUPs.
- Ensure that appropriate bicycle accommodations (e.g. paths or easements, parking areas) are included in new projects through the town or MVC project review process.
- Set up a campaign in schools and for the general public promoting bike safety and the idea of drivers sharing the road.
- Improve bicycle access to transit, bus, air, ferry terminals, and park-and-ride lots, and provide bicycle-parking facilities at these locations.
- Address bicycle safety and access in the planning, design, construction, operation, and maintenance of transit, airport, highway and bridge projects.
- Expand the network of Special Ways designated by the towns.
- Continue to support activities of town Trails and Byways committees.

Actions - Pedestrian Facilities

- Work with schools to identify “Safe Routes to School” and improvements that may be necessary.
- Encourage walkers by increasing the appeal of the pedestrian environment, particularly in village and commercial areas, by providing continuous and adequately-dimensioned sidewalks and well-marked crosswalks, as well as services such as shelter and weather protection, comfortable places to sit, signage, information centers, water, restrooms, plantings, lighting, and trash receptacles.
- Create and upgrade walking routes – including off-street, low-maintenance footpaths – connecting residences, parks, workplaces, tourist, and shopping attractions and public transit stops.
- Encourage supplemental activities, such as business district improvements and fitness programs by the private sector that help promote a suitable and effective environment for walking.

11. Freight

11.1 Description

Freight traffic to, from, and on Martha's Vineyard represents a vital element of Island life, and has a substantial impact on its transportation system. Freight in the form of mail, express packages, fuel, food and building materials represent the major items shipped to the Island. Trash (both waste and recyclables) is shipped off-Island. Means of shipment include tug and barge, Steamship Authority ferries, licensed private ferries, and commercial aircraft including FedEx. Trucks up to 70' long can be accommodated on Steamship Authority ferries, which carry more than 44,000 freight trucks annually (see Figure 37).



Most freight is shipped to the Island by truck using SSA ferries and freight boats linking Woods Hole to Vineyard Haven or Oak Bluffs. In addition, some freight is brought in by barge to the Island's only barge docks (Packer) in Vineyard Haven. Air freight is used for smaller, time-sensitive shipments.

The main companies that handle primarily general freight on-Island are Cape Express, Carroll's and Sun Transportation, although other companies sometimes make deliveries to the Vineyard. The main companies concentrating on express deliveries are FedEx and UPS.

General freight is brought in large trailers (50-70' long, 18-wheel, 5 axles, 80,000 lbs loaded weight) and is transferred to smaller trucks for deliver to Island destinations (30-35' straight trucks, 2 axles, 20-25,000 loaded weight; or 25' cube trucks, 2 axles, 10,000 lb. loaded weight).

11.2 Trends and Analysis of Issues

- Traffic of large trucks has been generally steady over the last decade, reflecting the static pattern in passenger trips, and indicating stability in operations that does not warrant major action. (Note that oft-quoted statistics indicating growth in trucks on SSA ferries includes the reclassification of pick-ups from "cars" to "trucks".)
- Of the commodities carried, food represents the highest percentage (38%) of all truck trips, followed by construction material (17%) and general freight and express (14%). Trash and waste products also account for a substantial percentage of all trips (13%).

- Over half the trucks coming to the Island are tractor-trailer combinations, indicating a relatively efficient operation minimizing the total number of trucks. Some 60% of the seasonal freight delivered to the Island is by tractor-trailer to either a major retail location or a “break bulk” terminal.
- The transportation of hazardous materials (hazmats) is a concern to the SSA as well as to the towns through which the trucks must pass. Hazmats may only be shipped on open freight boats that do not carry private vehicles or passengers.
- In the early 1990s, the SSA changed its pricing and reservation policies, charging for truck length rather than weight and penalizing for unused reservations. In general, these policies seem to be working well and appear to have been effective in inducing freight companies to make every effort to ensure that trucks are fully loaded and that the smallest possible truck is used for a ferry trip. However, shippers complain that it is difficult to obtain additional reservations when needed, especially for time-sensitive deliveries such as perishables and express. The Steamship Authority operates a bulk reservation system serving to schedule repetitive daily, weekly and less-frequent freight truck trips to and from the Vineyard. The bulk reservation system divides the year into in-season (May thru October) and off-season (November thru April), providing for trucks to be scheduled by lottery. The nature of the Island’s time-sensitive traffic pattern is such that the Authority attempts to schedule trucks to the Island early in the day to maximize delivery and pick-up time during normal working hours.

Figure 37: Truck Traffic on Ferry
Annual return trips by trucks over 20'

2002	45,894
2003	44,150
2004	45,833
2005	45,703
2006	47,072
2007	47,856
2008	47,335
2009	44,246
2010	44,467
Source: SSA	

Figure 38: Types of Freight

Categories of freight in the Steamship Authority bulk reservation system.

Mail: *Delivered twice per day by straight truck from the mainland to Vineyard Haven post office and distributed by straight truck to Island post offices. The Postal Service continuously monitors mail traffic for efficiencies, working with the local towns on improvements. Receipt of mail via in-town box delivery is a major source of congestion related to freight, but caused by the general public.*

Food: *Food deliveries represent some 60 percent of weekend ferry trucking. Groceries are delivered by tractor trailer to Stop & Shop (Vineyard Haven and Edgartown); Cronig’s (Vineyard Haven and West Tisbury) and Reliable Market (Oak Bluffs) supermarkets and grocery stores, and Cumberland Farms convenience store. These deliveries represent 80 tractor-trailer loads a week, and are made directly from ferries to Island retail outlets with suitable unloading facilities. Island Food Products, Sun Transport and Coca-Cola further deliver 45 tractor-trailer loads of food and beverage products weekly to Island terminals for distribution by small trucks. The balance of the food and food-related deliveries (such as fish, liquor and restaurant food) represent approximately 75 truckloads per week, largely straight trucks that deliver directly to restaurants and retail outlets, including above-mentioned supermarkets. Hallsmith-SYSCO and Sid Wainer & Sons represent over a third of the deliveries to restaurants and retail outlets that largely lack off-street unloading. Food is also the largest on-Island delivery consideration, with some 80 restaurants and more than 30 other assorted food businesses that have deliveries on a regular basis. Some 10-20 of these businesses require straight trucks to park on public highways, specifically in downtown areas Down-Island. Food shopping is also a major source of Island traffic.*

Fuel: *Petroleum products (gasoline, kerosene, diesel fuel and heating fuel oil) are delivered to the Island by barge, with SSA ferries also carrying gasoline and propane in tank trucks. Gasoline is delivered to the Island both on Authority ferries, and barged to RM Packer’s Shell Oil terminal. Tractor-trailers carried by SSA ferries deliver directly to five service stations in Vineyard Haven, Edgartown and West Tisbury. RM Packer delivers gasoline in 3,000 and 5,000 tank trucks to four service stations in Vineyard Haven, Oak Bluffs and*

Chilmark. Twenty tractor-trailer loads a week of gasoline are also delivered to terminals at the airport for Island-wide distribution. There are over 15,000 dwellings on the Island, and 5,000 other business and government facilities requiring heating fuel delivery throughout the year, with most necessitating delivery during the season. Propane is delivered to facilities at the MV airport for storage and distribution by residential tank trucks, representing less than 10 tractor-trailer loads per week. Heating oil is delivered to an airport terminal by tractor-trailer off the Authority ferries, and also from RM Packer's Shell Oil terminal serviced by barge from the mainland. Some Island homes are heated by electricity delivered from the mainland by underwater cable. Standby gas turbines for emergency electric power are maintained with supplies of fuel at the NStar terminal. RM Packer delivers high-octane gasoline and kerosene to the MV Airport for piston-engine and jet aircraft, respectively. Marine fuel is delivered to docks in Vineyard Haven, Oak Bluffs, Edgartown and Menemsha. Industrial bottled gases are available at RM Packer Company, and are transported to the Island monthly.

Freight & Express: General freight represents some 60 tractor-trailer loads of goods shipped on SSA ferries to Island terminals for distribution by local firms Carroll's Trucking, Cape Cod Express and Sun Transport, and by national carrier UPS. Straight-truck deliveries represent another 15 truckloads, primarily FedEx Ground, though UPS operates up to 10 "brown trucks" during the season from its terminal in Vineyard Haven. Both UPS and FedEx Ground only offer second-day delivery due to the Island's remoteness. Air freight and FedEx represent smaller quantities of goods delivered to the Island, and use the MV Airport as a distribution center with pick-up stations placed strategically about the Island. A majority of freight terminals and waste transfer stations are located on an axis from the port in Vineyard Haven to the MV Airport. Oak Bluffs has recently approved a roundabout at strategic intersection along this route to ease in-season congestion. Barnes and Carroll also provide home moving services on-Island and throughout the country, and additional contract carriers operate on the Island to handle particular

Services: This category represents over 40 weekly straight truckloads of miscellaneous products (e.g., livestock) carried on SSA ferries that are not, for a variety of reasons, shipped by common carrier, and generally require truck and driver to proceed directly to an Island destination or, as with fresh fish, off-Island. This category of freight with driver, truck and cargo closely linked may warrant some special schedule treatment in Authority reservations. MV Hospital also has a 67' mobile MRI facility visit on-Island twice a month.

Construction: Building materials delivered to EC Cottle, Goodale's Pit, Georgia-Pacific, Hinckley Home Center, Hinckley Lumber, and White-Lynch represent more than 30 tractor-trailer loads delivered either to Island facilities or major construction sites weekly in season. In addition, over 50 straight truckloads of various building materials and products are delivered to Island warehouses and stores on a weekly basis. Construction materials are delivered primarily to warehouses and stores on Island for local delivery in smaller trucks, or pick up by local contractors, creating a significant number of trips. It should be noted that aggregate and modular homes are transported to the Island by barge, and that construction is scheduled more heavily off-season.

Trash: Trash collection, transport and shipment off-Island on ferries and barge represents one of the Island's major transportation issues. Municipal waste and recycling pick-up is provided in Tisbury and some portions of Oak Bluffs. Edgartown and Up-Island towns do not offer trash pick-up, but private residential and commercial pick-up is available across the Island, including dumpsters from construction sites. Changes in construction and demolition disposal regulations require that such waste be shipped off-Island directly from construction sites. Municipal trash and recyclables represent over 40 tractor-trailer loads weekly during the season on SSA ferries, with some backhaul of landscaping materials and firewood. The Island ships some 25 tractor-trailer loads weekly in season of municipal wastewater, scrap metal and junk cars, along with one straight truck of renderings and one of medical waste. Additionally, the Island is considering whether and how to take advantage of Nantucket experience with composting as a means of reducing the volume of municipal waste shipped off-Island. The Vineyard, like most coastal areas, requires a significant amount of plant nutrient be shipped to the Island, which could be replaced by compost from municipal organic waste.

Some material furnished by Art Flathers

Truck Trips by Commodities Carried (per week on SSA ferry - Summer)		
Mail	13	2.7%
Fuel	39	8.0%
Trash	71	14.5%
Food	157	32.1%
Freight & Express	76	15.5%
Construction	94	19.2%
Services	39	8.0%
Total	489	100%

2006 data compiled by Arthur Flathers

- The presence of oversized freight vehicles attempting to navigate narrow Island roads poses many problems.
- Daytime in-town delivery leads to congestion on village streets. Very few stores have off-street truck docks. It would be desirable to favor more off-peak delivery; however, attempts by freight companies to deliver early are often stymied by the fact that there is no one in smaller businesses early in the morning to receive shipments, forcing the companies to come during the prime shopping and visitor hours. Shippers of perishables tend to deliver to larger establishments, many with better docking facilities; however they are often limited from making early deliveries because of local noise restrictions.
- In-town loading zones are often unavailable for deliveries since they are used for long periods by commercial vehicles parked for other reasons (e.g. meetings, lunch).
- Though the higher cost of shipping to the Island is often blamed for the high cost of goods on the Island, there is some indication that this is not a major cause. The incremental costs involved in trucking from a mainland port include the tariff, the time of the driver and equipment (at least 3 hours of dead time accounting for ferry schedules that cause need for more equipment and drivers), and the administrative costs of scheduling and dispatching to handle ferry operations. However, the total cost of “logistics” (transportation, inventory and warehousing) is generally 10-15% of a final retail product’s cost, with transportation representing 3%. In the 1960’s, the New England Motor Rate Bureau concluded that the additional transportation cost of shipping to the Vineyard was about 23%, a figure that is probably still valid today. Thus, the average additional cost of a product costing \$100 as result of the extra cost of shipping to the Island is probably less than a dollar (23% increase of an approximately \$3 transportation cost). The relatively higher cost of some products is attributable to personnel and operating costs associated with Island living, particularly related to high real estate costs, and might also be attributable in part to the fact that retailers have a captive market on the Island.
- There are limits on trucking between midnight and 6 a.m. in Falmouth, as a result of concerns about the impact on the local community (which do not apply to facilities such as the Wood Hole Oceanographic Institute, National Oceanic and Atmospheric Administration, US Coast Guard, US Dept. of Marine Fisheries, and other commercial businesses in Falmouth and Woods Hole).

11.3 Objectives

- Ensure that freight is brought to the Island and distributed to its destinations in a timely and efficient way, with minimal negative impact on traffic, on safety and on the environment.
- Reduce vehicular traffic to the ferry passing through Island towns as well as through Falmouth, on Cape Cod Canal bridges and on the Cape, particularly trucks and especially hazardous materials (see also section 6).

1 1.4 Proposed Projects and Actions

- Explore how a greater proportion of freight, and particularly low-value and less time-sensitive commodities (e.g. lumber) and hazardous materials (e.g. oil, propane), could be brought to the Island by barge instead of by ferry. Explore the possibility of using containerization.
- Look at the possibility of establishing truck routes in order to limit the presence of trucks on roads that pose particular traffic or public safety problems.
- Review the SSA freight policy with respect to its impact on the amount and cost of goods brought to the Island by ferry. Consider the possibility of offering discounts for off-peak travel and for giving priority to time-sensitive freight. Consider the possibility of running more freight boats to facilitate truck access to the Island, particularly early in the morning (e.g. there could be two shifts, early morning and late afternoon) and reducing other trips.
- Look at the possibility of limiting the maximum size of trucks and buses on the roads, or at least discouraging very large vehicles either all the time or at certain hours.
- Explore the possibility of delivery to people's homes so shoppers don't need to take their cars when going shopping. Explore the possibility of expanding mail delivery with increased door-to-door mail delivery in town centers and by encouraging eligible people in other areas to use rural delivery; consider the possibility of satellite mail service at the airport in summer.
- Explore the possibility of reducing the need for transporting waste by treating liquid waste on the Island, and by reducing the volume of solid waste through community composting. Examine the possibility of limiting which vessels are used to transport garbage and septic, and the possibility of using only barges. The *Island Plan* found that the Island ships 33,500 tons of trash off-Island each year, 15% of the SSA's freight traffic. The *Island Plan* calls for an integrated, Island-wide plan to reduce the amount of waste generated and the treatment of such, and recommends 11 specific strategies to convert wastes into resources.

12. Intermodality and Information

12.1 Description

The various individual components of the Vineyard's transportation network were described in previous Sections. There are many points of interconnectivity between systems, the most notable being at formal transfer points such as ferry terminals and airports, although systems interface in more dispersed ways, such as wherever someone parks a car and takes out a bike, or simply walks to a destination.



The connectivity between modes is often the weakest part of a transportation system. Trips to the Island are especially complex in that they invariably involve more than one mode of transportation. The congestion at and around the Island's ferry terminals (see section 8.4), testifies to the difficulty of a smooth transition between one part of the Vineyard's transportation system and another. The Down-Island town centers generally serve as the Vineyard's hubs between modes, and it is here where the constraints of the Island's historic character are most acute, especially in regards to parking, a necessary component for intermodal transport.

While the town centers bear the brunt of the connections between modes, efforts have been made to reduce the impacts on these areas, primarily through Park-and-Ride lots outside the town centers, and through an emphasis on development at the airport.

The success of a transportation network can also depend to a great extent on the awareness of users of available choices, both in a general way and at specific moments in time.

12.2 Objectives

- Improve coordination of operations and promotion of various transportation modes and especially alternatives to the use of private automobiles.
- Make the network of non-car transportation systems (bus, taxi, bike) so effective and well-promoted that residents will drive less, and more visitors will be willing to make their visit to the Vineyard without a car.
- Investigate the possibility, in conjunction with other federal, state and local agencies, of establishing an intermodal transportation hub at the airport including a bus hub, a major reserve area for car rentals, and a Park-and-Ride area for town centers and for ferry passengers (possibly including ferry ticket purchase and check-in facilities).

12.3 Proposed Projects and Actions

Actions - Intermodality

- Complete plans for intermodal transportation facilities in the Oak Bluffs harbor/ferry area (North Bluff) dealing with the various ferry services (staging, pick up, drop off, waiting areas), cruise ships, marina, bike and car rental facilities, public transit and tour buses, taxi, parking, etc. While some improvements have been made (new ferry terminal, better staging for other ferries) other improvements in the area (repaving, other amenities) remain to be completed, though plans are in place.
- Update plans for the Vineyard Haven ferry dock area including adjacent streets and parking areas dealing with the SSA ferry dock (staging, pick up, drop off, waiting areas), marina, bike and car rental facilities, public transit and tour buses, taxi, parking, etc.
- Increase the range of the bicycle by facilitating the transport of bicycles on public transportation vehicles. Consider developing and promoting a special shuttle from West Tisbury to the Gay Head Cliffs.
- Analyze the possibility of establishing a major parking/service center at the airport that would include long-term park-and-ride for the ferry, ticket sales, baggage services, parking of rental car fleets, bus connections to key locations and other services offering a seamless experience for visitors. Such a facility could substantially reduce the number of vehicles, especially from Edgartown or Up-Island, which would go to the ferry terminals to pick up or drop off passengers.
- Investigate the feasibility of “joint” ticketing and inter-service marketing programs.
- Participate actively in the *Cape and Islands Passenger Transportation Coordinating Council* to establish roles and responsibilities pertaining to development, marketing and financing of enhanced and coordinated public transportation services between Martha’s Vineyard and Cape Cod.
- Develop ADA compatible design guidelines to integrate pedestrian areas, bikeways and public transportation routes and facilities.

Actions - Transportation Information

- Make complete, timely and coordinated regional transportation information available on Internet websites including ferry and bus routes and schedules, the availability of taxis, bicycle route and rental information.
- Cooperate with local business associations or other private organizations to distribute transportation information at strategically located visitor centers.
- Review and improve Martha's Vineyard publicity material to ensure it clearly explains the Island’s transportation environment and prepares residents and visitors to make good transportation choices.
- Promote the idea of “Martha's Vineyard – a different way of life” with emphasis on use of transit, courteous driving. Use in advertising, tourist brochures, and flyer in SSA ticket envelopes.
- Research the applicability of advisory signage and radio.
- Improve the flow of information to the news media.

13. Safety

The transportation system on Martha's Vineyard is deemed safe. Partially as a function of the Island's small size and population, transportation-related mishaps are rare. That said, the Island's summertime mix of many modes in a small space creates congestion that can result in unsafe conditions. As a result, the Joint Transportation Committee weighs safety as its first priority when rating transportation projects (see section 2.8).

Federal rules (23 CFR 450.306[h]) mandate that the RTP should be consistent with the Strategic Highway Safety Plan (SHSP), as discussed in 23 U.S.C. 148. The Massachusetts SHSP presents safety-related data, identifies safety problems, and develops of strategies to reduce accidents. This RTP recognizes the potential for the SHSP use in the Martha's Vineyard Region, with the goal of reducing accidents on the island. The SHSP focuses on six main "emphasis areas":

- Data Systems (using information to identify problem areas and drivers),
- Infrastructure (increasing the safety of problem areas through design),
- At-Risk Behavior (combating speeding, impaired driving, etc.),
- Higher-Risk Transportation System Users (working with young drivers, older drivers, pedestrians, cyclist, and motorcyclists),
- Public Education and Media (increasing public awareness of problems),
- Safety Program Management (developing effective processes for safety).

While the Island remains generally safe for travelers of all types, there are areas in the transportation system and facilities where improvements can be made to enhance safety. And every effort will be made to identify and improve the safety of the system and the system's infrastructure.

Safety on Water and in the Air

The Steamship Authority, the Coast Guard, and the harbor masters of the various towns have responsibility for boating safety on the Vineyard. While recreational boating mishaps do occur, the safety record of the Steamship Authority is exemplary. The Martha's Vineyard Airport (MVY) also boasts a clean safety record (6 incidents are listed in the National Transportation Safety Board database since 1995, four of which were fatal). The parties responsible for water and air constantly strive to increase safety.

Vehicular Safety

According to MassDOT records, from 2006 to 2008, the Island experienced a total of 339 accidents, roughly 113 per year. As a whole, there were 88 non-fatal injury accidents, 250 non-injury accidents that involved property damage only, or where the crash severity was unknown or just not reported, and one fatality from vehicle crashes. Importantly, the state's data only includes local accident records from which it was able to determine a specific geographic location. Not all accident locations could be identified due to the lack of accident reporting to the state or the reported information may not be sufficient to geo-code the accident location.

From the local information that the state geo-coded, there are several Island roads and intersections that appear to have more severe accidents than others. Figure 39 identifies the seven most dangerous intersections on Martha’s Vineyard. Intersections are listed based on their Equivalent Property Damage Only (EPDO) index. The EPDO is a system of ranking intersections based on the severity of the crashes. It gives greater significance to crashes where injuries and fatalities occurred. Points are applied to each crash in the following manner: one point, for a crash involving property damage only; five points for a crash involving an injury; and ten points for a crash in which a fatality occurred. The intent of this ranking system is to determine the locations where crashes have the most severe consequences. Thus, an intersection with a fewer numbers of accidents can be ranked higher (more dangerous) than other intersections with more but less severe accidents.

**Figure 39: Most Dangerous Intersections: 2006-2008
Equivalent Property Damage Only Index**

<i>(EPDO)</i>	<i>Intersection</i>	<i>Crashes</i>
(29)	State Rd/Edgartown-VH Rd, Tisbury	9
(27)	Beach Rd/Water St – ‘Five Corners’, Tisbury	15
(19)	County Rd/Edgartown-VH Rd, Oak Bluffs	6
(18)	County Rd/Barnes Rd/Wing Rd., Oak Bluffs	6
(17)	County Rd/Eastville Ave, Oak Bluffs	5
(17)	Barnes Rd/Edgartown-VH Rd, Oak Bluffs	9
(16)	Skiff Ave/Edgartown-VH Rd, Tisbury	4

*Source: MassDOT**

** Crash data reported by towns for accidents involving personal injury or property damage over \$1,000. There are varying degrees of accuracy in town crash reports.*

Contributing to accidents and safety, Oak Bluffs in particular has identified a serious safety problem with unlicensed and uninsured drivers; and is making efforts to educate the public about this serious issue.

It appears that many speed limit signs on the Island do not conform to the official MassDOT methodology for determining speed limits.

Mopeds pose a considerable safety risk since moped renters may be inexperienced with riding the vehicles and unfamiliar with the terrain, narrow roads and traffic congestion on Martha’s Vineyard.

The following are among the planned actions to increase vehicular safety.

- Ensuring that Island accident information is compiled and readily available in order to monitor problem areas. Analyze areas with clusters of accidents to see whether there are problems related to road design (e.g. presence of utility poles, lack of reflective roadside markings).
- Establishing a “road-sharing” awareness program for pedestrians, bicyclists, and motor vehicle operators.
- Expanding efforts to make people considering renting mopeds aware of the dangers and alternatives.
- Ensuring that there is adequate trimming of vegetation, especially at obscured vision intersections, and that white lines at the side of the road are well maintained. Also, ensure that there is regular sweeping of sand from shoulders to minimize the potential for bicycle and moped accidents, and installing asphalt berms in area where sand has a propensity to accumulate.
- Examining the possibility of creating occasional pull-off areas along narrow roads, where bikes, mopeds, and VTA buses can pull over and let cars pass.
- Establishing a regional hazardous goods movement policy.

- Establishing “mobility and safety” guidelines for DRIs.
- Physical improvements such as (see section 17 for details):
 - installing a roundabout at the intersection of Edgartown-Vineyard Haven and Barnes Roads in Oak Bluffs,
 - reconfiguring the intersection of Eastville and Temahigan Roads in Oak Bluffs, and
 - reconfiguring the intersection of Old County and State Roads in West Tisbury.

Transit Safety

The Martha’s Vineyard Transit Authority has an exemplary safety record, averaging less than one incident (e.g., quick stop, collision) requiring medical attention per year. Drivers undergo rigorous training to prevent such occurrences.

Pedestrian and Bicycle Safety

Owing to the Island’s small size and recreational nature, walking and biking are popular and effective modes of transportation. In the busy summer season, the Vineyard sees these modes mixing, generally without serious mishap, though hospital data indicate that over 100 cyclists seek medical attention at the Martha’s Vineyard Hospital each year. The Joint Transportation Committee has identified a large number of projects that will increase the safety and convenience of these modes, by improving amenities for cyclists and pedestrians (see section 17 for details):

- Complete Herring Creek Road SUP (completed 2009);
- Resurface State Road between Oak Bluffs and drawbridge, narrowing travel lane width and increasing shoulder width on both sides. (completed 2007);
- Improve pedestrian and cyclist circulation along Lake Street and Oak Bluffs Avenue (completed 2010);
- Improve circulation patterns and provide pedestrian amenities in the North Bluff area (completed 2009);
- Reorient the Vineyard Haven Stop & Shop parking lot and create dedicated pedestrian ways (completed 2007);
- Improve the SUP through the Hospital site and improve the existing segment along Eastville Avenue (MV Hospital portion completed 2010);
- Create a SUP along the eastern and northeastern perimeter of the Manuel Correllus State Forest (Edgartown) to complete the perimeter loop of the Forest;
- Create a short SUP segment connecting the northeast corner of State Forest to the Edgartown-Vineyard Haven Road SUP (Oak Bluffs);
- Create a continuous SUP from the drawbridge to Sunset Lake (Oak Bluffs);
- Realign portions of County Road to provide buffer space between the road and the existing shared-use path (Oak Bluffs);
- Redo sidewalks between Upper and Lower Main Street (Edgartown);
- Ensure that town codes and MVC development review promote walking and bicycling access to adjacent neighborhoods and to public roads;
- Develop an educational campaign informing people of the rules of the road and safety measures;
- Post “Share the Road” signs including in areas where there are SUPs adjacent to the road;

- Conduct an inventory of road, SUP, and sidewalk signs with the intent of minimizing clutter and providing clear information;
- Evaluate road speed limits for appropriateness and propose measures for traffic calming;
- Set up a bicycle-path working group with the mandate to analyze the present network of cycle paths with respect to safety and convenience (especially for the novice riders), and prepare a program for upgrading them. Look particularly at the following:
 - The design of intersections with roads and driveways including the presence of stop or warning signs, the lines of sight, and the presence of vegetation and debris;
 - The presence of barriers (with low shrubs or with low wooden barriers) dividing the paths from adjacent roadways to protect cyclists by preventing use of paths for parking of cars and heavy equipment or use as an unofficial passing lane or turning lane, as well as to reduce the visual scale of the roadway;
 - The presence of signage too close to the paths that narrow the effective width;
 - The identification of dangerous stretches of bicycle path (e.g., the Eastville Avenue path is problematic);
 - Paint centerlines on SUPs.
- Ensure that appropriate bicycle accommodations (e.g., paths or easements, parking areas) are included in new projects through the town or MVC project review process;
- Set up a campaign in schools and for the general public promoting bike safety and the idea of drivers sharing the road;
- Address bicycle safety and access in the planning, design, construction, operation and maintenance of transit, airport, highway and bridge projects;
- Developing other new SUP links (see in section 17);
- Work with schools to identify “Safe Routes to School” and improvements that may be necessary;
- Encourage walkers by increasing the appeal of the pedestrian environment, particularly in village and commercial areas, by providing continuous and adequately-dimensioned sidewalks and well-marked crosswalks as well as services such as shelter and weather protection, comfortable places to sit, signage, information centers, water, restrooms, plantings, lighting and trash receptacles;
- Create and upgrade walking routes – including off-street, low-maintenance footpaths – connecting residences, parks, workplaces, tourist and shopping attractions and public transit stops.

14. Security

The Department of Homeland Security requires that the RTP be consistent with the Regional Transit Security Strategy. Beyond that, there is a recognized need for heightened awareness and security measures for all venues in which large numbers of persons assemble. These include transportation modes, such as aircraft, passenger vessels, and terminals.

Martha's Vineyard's transportation system contains few areas or structures where security is necessary or feasible, but throughout the system, efforts will be made to identify and rectify flaws in security. In particular, the Steamship Authority, the Martha's Vineyard Regional Transit Authority, and Martha's Vineyard Airport are three entities that must particularly be aware of security issues.

Steamship Authority

The Steamship Authority has made the following changes to its operations in compliance with the Maritime Transportation Security Act of 2002:

- Only baggage accompanied by a ticketed passenger will be permitted on the luggage carts.
- Access of personnel other than ticketed passengers will be limited to those possessing official Steamship Authority identification.
- Walk-on passengers will be closely monitored by Steamship Authority personnel and, when appropriate, law enforcement authorities.
- Random confirmation of passenger identification will be employed and random screening of passengers and their belongings may also be conducted.
- Once boarded, passengers will not be permitted to disembark until the vessel has reached its destination.
- Because of the time requirements associated with security measures, vehicles must arrive at least thirty minutes prior to scheduled departure.
- Only vehicles properly screened by terminal personnel will board.

Martha's Vineyard Airport

Martha's Vineyard airport does not make its security plan public, but has implemented procedures in cooperation with the Department of Homeland Security's Transportation Security Administration and the Federal Aviation Administration.

Martha's Vineyard Regional Transit Authority

The VTA requires all of its drivers to complete the National Transit Institute's security training course, System Security and Awareness for Transit Employees. According to NTI materials, the "course covers skill sets for observing, determining, and reporting activities, packages and substances that are suspicious or out-of-place. It encourages employees to use common sense when faced with various circumstances so operations can run safely, smoothly, and efficiently. A focus is also placed upon an employee's initial priorities at the scene of a threat or incident."

The VTA also participates in the Massachusetts State Transit Security Awareness Program, known as Transit Watch, which encourages passengers to be alert, prepared, and informed about threats to public safety aboard transit.

Both the VTA and the Steamship Authority would provide major assistance in the event of a natural disaster, critical incident, or terrorist attack. In addition to enhancing mobility in a time of crisis, the knowledge of these organizations targets the following goals:

- Enhance regional ability to assess risk and prevent future terrorist attacks or critical incidents;
- Improve regional ability to collect, analyze, disseminate and manage key information;
- Improve the region's preparedness by enhancing coordination among all public safety officials;
- Improve the ability of first responders to communicate at the scene of a terrorist attack or critical incident in the region;
- Improve the region's ability to recover from a terrorist attack or other critical incident.

15. Environmental Considerations

As a relatively small island, Martha's Vineyard faces unique environmental issues. Fortunately, the ability of the six Island towns to confront these issues on a local level is strengthened with the existence of the Martha's Vineyard Commission (MVC). As the Island's Regional Planning Agency, the MVC, works closely with the six Vineyard towns, the Wampanoag Tribe of Gay Head (Aquinnah), the Natural Heritage & Endangered Species Program (NHESP, part of the Massachusetts Division of Fisheries and Wildlife), the Massachusetts Historical Commission, local Conservation Commissions, and all other agencies that can help fulfill its mission to protect the unique "natural, historical, ecological, scientific, [and] cultural" qualities of the Vineyard.

MassDOT issued the GreenDOT Policy Directive in 2010, with the mutually reinforcing three-fold goals of reducing greenhouse gas emissions, promoting alternative modes of transportation, and supporting smart growth. The Vineyard's Joint Transportation Committee, comprised of representatives from the towns and the Wampanoag Tribe, have focused on strategies that align with these statewide goals, particularly ways to mitigate environmental damage and preserve the unique Island character, as opposed to increasing transportation infrastructure to meet a perceived demand.

The objectives of the RTP, as laid out in section 5.2 of this report, clearly focus on protecting the environment. The overall goal is for a transportation system that *"is consistent with the Vineyard's scenic, historic, and natural resources."* The specific objectives also reinforce the commitment to environmental quality:

- *Reduce dependence on private automobiles by promoting alternate modes of travel;*
- *Ensure that the road network is designed and managed to minimize congestion, pollution... and to preserve scenic roadside views and the character of rural roads;*
- *Minimize transportation-related pollution, promote energy conservation and sustainability, and support preservation of natural resources;*
- *Coordinate regional land-use and transportation policies, favoring land-use decisions that reinforce the other objectives such as: Consolidation of mixed-use, pedestrian-friendly village areas within the limits of already developed areas, where daily needs can be met without a car; Outside village areas, development within walking distance of bus stops, and encouragement of convenience stores to reduce the need for routine trips.*

Clearly this RTP emphasizes protecting the environment in the context of a holistic approach to ensuring mobility while maintaining the Vineyard's unique resources. This is discussed further in section 4, but in a general sense, since traffic congestion is a seasonal problem and the traditional tactics to reduce congestion are antithetical to the Island's character and therefore its economic well-being, alternative ways of dealing with the problem must be explored. The strategies in use to achieve the goal of mobility in the context of preservation can be seen in Figure 43, the list of Transportation Improvement Plan projects. With the exception of the Tisbury connector roads, intended both to relieve a safety and congestion concern at a busy intersection and to promote infill development in an area adjacent to a town center, the TIP projects all reduce

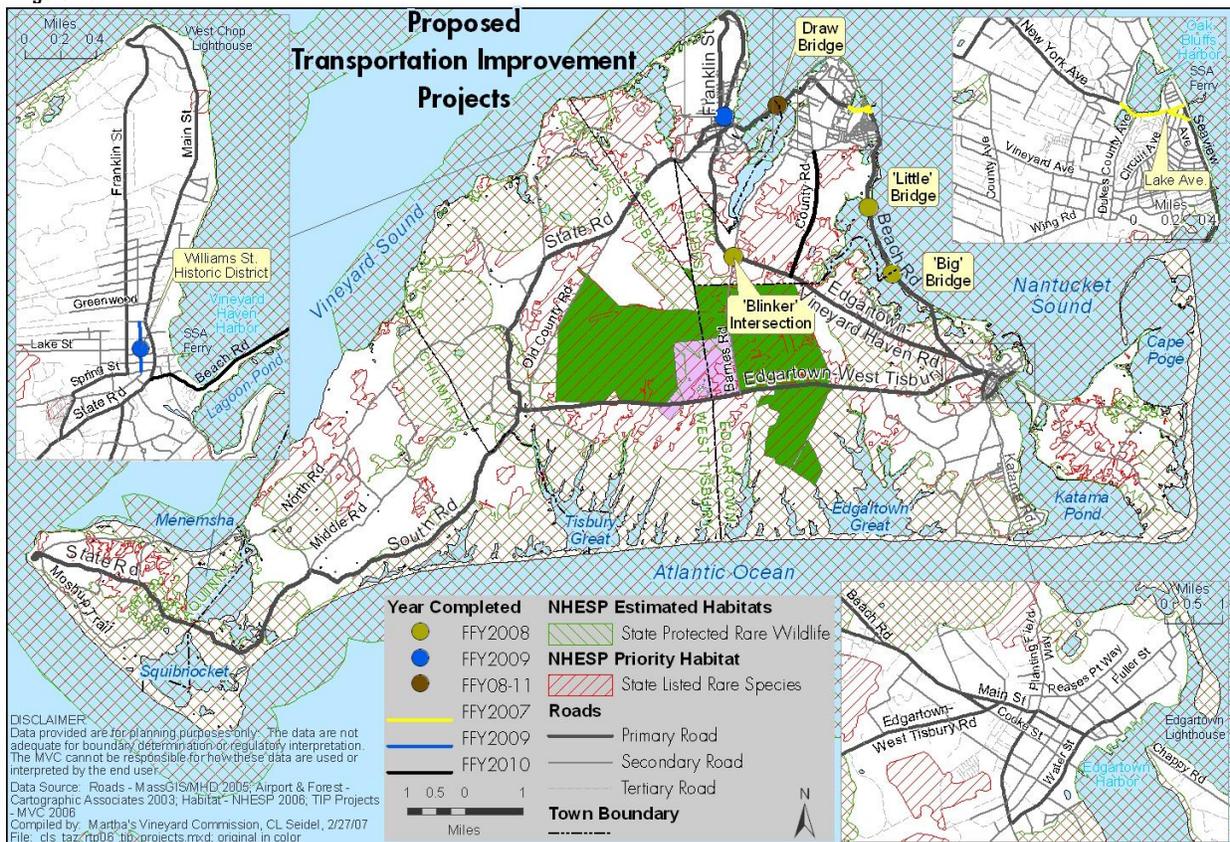
traffic and increase safety without physically increasing the road network. The projects include reconfigured (but not enlarged) intersections, multiple new SUPs, improvements to existing SUPs, new walkways, sidewalk improvements, and new bus stops.

Environmental Mitigation

Federal regulations (23 USC 143 [1][2][B]) require that the RTP include a discussion of environmental activities at the plan level, in consultation with federal, tribal, and state wildlife, land-management, and regulatory agencies. The discussion of environmental mitigation activities is above, and states that the policies and projected activities are consistent with protecting and enhancing the environment. This approach, while a product of the dedication to environmental quality of the Island in general, was not developed in a vacuum. The plan was developed in consultation with appropriate authorities, as were specific projects in the plan.

The Massachusetts Natural Heritage & Endangered Species Program (NHESP), part of the Massachusetts Division of Fisheries and Wildlife, is responsible for the conservation and protection of hundreds of species, including approximately 178 species of vertebrate and invertebrate animals and 264 species of native plants that are officially listed as Endangered, Threatened, or of Special Concern in Massachusetts. In consultation with NHESP, the JTC developed Figure 30 to demonstrate the interconnection of the Vineyard’s transportation system needs and rare wildlife and habitat, and allow for the careful planning of TIP projects.

Figure 40



Additional consultation on environmental mitigation for the RTP, and aspects therein, were conducted with the US Army Corps of Engineers, Massachusetts Department of Environmental Protection, National Marine Fisheries Service, the US Environmental Protection Agency, and the Massachusetts Office of Coastal Zone Management. Again, as very few aspects of the RTP have adverse environmental impacts, these consultations generally reaffirmed the commitment of the JTC to protect the natural environment.

Consultation with Stakeholder Groups

While the Joint Transportation Committee feels as a matter of course that it is their responsibility to protect the environment from threats due to transportation, it is important when producing a document such as the Regional Transportation Plan to include the perspectives of the environmental community as a whole. To ensure that as many organizations as possible could be involved in the RTP process, the JTC held an open house on December 1, 2010 to bring together environmental advocates and decision-makers to discuss the RTP, and to gather their perspectives for inclusion in the RTP. The JTC invited the Conservation Commissions from the six towns, the Natural Resource Department of the Wampanoag Tribe of Gay Head (Aquinnah), the Vineyard Conservation Society, the Martha's Vineyard Land Bank Commission, the Conservation Partnership of Martha's Vineyard (an umbrella group for Island conservation groups), the Trustees of Reservations, the Massachusetts Audubon Society, and the Sheriff's Meadow Foundation.

Environmental Justice

Title VI of the 1964 Civil Rights Act says that "...each Federal agency is required to ensure that no person is excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving Federal financial assistance on the basis of race, color, national origin, age, sex, disability, or religion..." Executive Order 12898 takes Title VI further by saying that "... each Federal agency shall, to the greatest extent allowed by law, administer and implement its programs, policies, and activities that affect human health or the environment so as to identify and avoid 'disproportionately high and adverse' effects on minority and low-income populations." Applying the principles of environmental justice, regional planning opportunities include:

- Identifying residential, employment and transportation patterns of minority and low-income individuals and households.
- Improving public participation processes in order to involve minority and low-income populations in transportation decision-making.
- Providing essential transportation services to minority and low-income populations who do not have transportation to work, shops, childcare centers, recreation areas and other destinations.
- Ensuring that transit facilities and services deliver equitable levels of service and benefits to minority and low-income populations.

While Martha's Vineyard has a long history of racial, ethnic, and religious tolerance, the 2000 Census indicates that Martha's Vineyard is 91% white, with 3% of residents indicating more than one race, 2.5% Black or African American, 2% American Indian, and 1.5% Asian or "Some Other Race". Only 1% identified themselves as Latino of any race, though there has been a perceptible, if transitory, increase in the Island's Brazilian community since the 2000 Census.

Two minority populations of note are the Wampanoag Tribe of Gay Head (Aquinnah), and the Black and African American community in Oak Bluffs. The Wampanoag Tribe of Gay Head was, until 2007, the only federally recognized tribe in Massachusetts, and owns substantial property in Aquinnah. Oak Bluffs has been a popular resort for African Americans for over 100 years, but just 4.3% of year round Oak Bluffs residents identified themselves as Black or African American, the highest figure for any Vineyard town. Those who identified themselves as of more than one race were similarly concentrated in Oak Bluffs.

While Martha's Vineyard serves many wealthy visitors and seasonal residents, as noted in section 3, the median household income of Vineyard residents (\$45,559) is actually lower than that for Massachusetts as a whole, though slightly higher than the national median. The 2000 Census also indicates that the percentage of families (5%) and individuals (7.3%) living below the poverty line is lower than the national figures (9.2% and 12.4%). Families below the poverty line are higher in Tisbury (7.7%) and Oak Bluffs (6.2%) than elsewhere on the Island.

Thus, the minority and low-income populations on Martha's Vineyard are somewhat concentrated in Oak Bluffs, Tisbury, and Aquinnah. One would expect that these populations would have the same travel characteristics of the Island in general; i.e., jobs and commercial activity are centered Down-Island while residences are more dispersed. Individuals in Tisbury and Oak Bluffs who do not drive for whatever reason can avail themselves of the VTA bus system easily (three routes serve centrally-located Oak Bluffs, while six routes serve Tisbury). These towns also feature the most-developed road systems, yet do not feature the types of transportation facilities that would adversely affect the environment or public health. Tisbury and Oak Bluffs also offer abundant cycling and pedestrian options (though these are a focus of improvement plans; see sections 10 and 17).

Aquinnah, much more rural and somewhat remote, offers an abundance of natural beauty, but fewer transportation options. The state road network connects Aquinnah to the rest of the Island, and the VTA serves Aquinnah with one route.

Members of the public, including minorities and low-income individuals, have been encouraged extensively to become involved in transportation issues on the Vineyard. The Joint Transportation Committee and the VTA Advisory Board include representatives from the Tribe, minorities, and women. More information on the public participation process for the RTP is in appendix 2.

In sum, the Regional Transportation Plan helps provide for the transportation needs of all the Island's citizens.

Context-Sensitive Design

While specific programs, projects, and consultations minimize environmental degradation, transportation on Martha's Vineyard is also influenced by context-sensitive design, which seeks to improve the visual environment as well as the natural.

In addition to facilitating the movement of people and goods between places, roads have cultural, historic, economic and aesthetic values. This is especially true on Martha's Vineyard where the Island's distinct character and unique sense of place are perceived largely by traveling along Island roads. The preservation of the traditional quality of rural and village roads is critical to residents' and visitors' perception of the Vineyard. It is an important basis of the Island's

character, to its environment, and to its visitor-based economy. The 2010 report by the MVC, *Scenic Roads on Martha's Vineyard*, takes a close look at the Vineyard's visual roadway environment, enumerates qualities that make roads scenic, and looks at measures that can be used to protect existing scenic roads and improve the aesthetics of other roads.

The *Scenic Roads* report builds on the 1973 study by renowned urban designer Kevin Lynch, *Looking at the Vineyard*, paints an image of the Island as "a set of interconnecting journeys" through diverse landscapes. Roads fitting the land were "built for rural purposes, and for the most part not drastically modified since then, it is their very narrowness, their shifting alignment and rural detail that constantly remind us that we are in an unusual locality. The passing views of ocean or pond, marsh, moor or pasture delight us."

In the past generation, there have been great efforts to preserve the scenic values of Island roads. Several of the Martha's Vineyard Commission's first Districts of Critical Planning Concern from 1975 – including the Island Roads District – are corridors along visually significant main roads. Several towns' master plans call for the preservation of scenic roads and trails in order to maintain the rural character of the individual towns. There has been a resistance to road widening and other road "improvements" associated with road design on the mainland although standard features, such as corrugated metal guardrails, have made inroads into the Vineyard landscape. Some citizens have expressed the desire for greater ongoing informal exchange about upcoming road and bridge projects with town highway departments and MassDOT, in addition to the formal hearing processes in place.

The Commonwealth's Fix-It-First/Communities First policy prioritizes the preservation of existing infrastructure rather than new transportation initiatives and should help the Vineyard achieve its goal of ensuring that roadway improvements integrate into the Island's special character and environment. MassDOT's Project Planning and Design Guidebook allows for greater flexibility in roadway design as well as increased community involvement and input, particularly in the early planning stages. One aspect of this policy is the Footprint Roads Program that favors road and bridge preservation and reconstruction without changing their dimensions or design, provided the road or bridge does not have a higher accident rate than the average of others of similar design in the Commonwealth.

The Cape and Islands Rural Roads Initiative is an effort initiated by the Cape Cod, Martha's Vineyard and Nantucket Regional planning commissions as well as the National Park Service (National Seashore Park) to favor the preservation of the historic, cultural, natural and environmental values of the Island road system in roadway design. It originally aimed to prepare a special highway design manual for the Cape and Islands that would allow for more context-sensitive design better suited to the special character of the areas. This concept was subsequently incorporated into the revision of the MassDOT Project Guidebook. The three regional planning agencies are now preparing a new proposal for the use of the earmarked funds.

The Vineyard is a particularly appropriate location to utilize innovative prototypical transportation design solutions in that it does not have major highways or the traffic levels found on the mainland. Also, the Vineyard's unique character justifies special solutions that may or may not be transferable to the rest of the Commonwealth.

For example the Joint Transportation Committee, County, towns and Friends of Sengekontacket worked closely with MassDOT to revise the initial design for two replacement bridges on Beach Road between Oak Bluffs and Edgartown (Sengekontacket Pond Inlets) to be more context-sensitive design solutions, incorporating a bicycle path, wood guardrails, a fishing platform, and fax-stone abutments.

Example of Environmental Considerations: Lagoon Pond Drawbridge

An example of how transportation projects on Martha's Vineyard must consider a multiplicity of environmental considerations is the plan to replace the old, wooden piered Lagoon Pond Drawbridge with a new bridge (see section 8.4). The Lagoon Pond Drawbridge also represents one of the largest transportation infrastructure projects that the Vineyard will undertake in the foreseeable future.



This has been a particularly complex project that has involved the design, permitting and construction of two replacement bridges: a temporary bridge opened in 2010 to address the immediate threat of the old bridge failing while a permanent structure courses through the multiyear permitting process. Throughout the planning, MassDOT and the Lagoon Pond Drawbridge Committee have communicated with all the relevant environmental agencies and groups, not just to ensure a minimum of environmental impact, but to improve water

circulation through the inlet to improve the water quality and aquatic habitat of Lagoon Pond.

The community's input into the project has been channeled through the Lagoon Pond Drawbridge Committee, comprising representatives from the Martha's Vineyard Commission, the Towns of Tisbury and Oak Bluffs (including DPW, harbormaster, shellfish warden), Dukes County, Tisbury Harbor Management Committee, and Tisbury Waterways Incorporated (a non-profit organization that advocates on water-quality issues). The Committee has consulted with members of the public, town Conservation Committees, and business interests. The Committee is in regular contact with MassDOT.

MassDOT and/or the Drawbridge Committee has also held formal consultations and/or worked with:

- US Coast Guard,
- US Army Corps of Engineers,
- Massachusetts Department of Environmental Protection,
- Massachusetts Division of Fish and Wildlife,

- National Marine Fisheries Service,
- US Environmental Protection Agency,
- Massachusetts Office of Coastal Zone Management.

A series of public forums were held from late 2003 to early 2008 which provided input on topics ranging from construction disruption to the width of bicycle and pedestrian facilities to the proper height of guardrails to allow for unimpeded vistas from automobile windows, and many other issues related to the visual and environmental impact the project. As of now the 25% design has been completed and presented to the public. The 75% design should be available in 2011.

In short, the bridge project shows the extent of the Martha's Vineyard MPO's commitment to consult fully with all stakeholders and agencies, not merely to satisfy regulations, but to make the best decisions on environmental issues, broadly defined.

16. Climate Change

16.1 The Impact of Climate Change on Martha's Vineyard

According to the Federal Highway Administration:

There is general scientific consensus that the earth is experiencing a long-term warming trend and that human-induced increases in atmospheric greenhouse gases (GHGs) are the predominant cause. The combustion of fossil fuels is by far the biggest source of GHG emissions. In the United States, transportation is the largest source of GHG emissions, after electricity generation. Within the transportation sector, cars and trucks account for a majority of emissions.

“Opportunities to reduce GHG emissions from transportation include switching to alternative fuels, using more fuel efficient vehicles, and reducing the total number of miles driven. Each of these options requires a mixture of public and private sector involvement. Transportation planning activities, which influence how transportation systems are built and operated, can contribute to these strategies.

“In addition to contributing to climate change, transportation will likely also be affected by climate change. Transportation infrastructure is vulnerable to predicted changes in sea levels and increases in severe weather and extreme high temperatures. Long-term transportation planning will need to respond to these threats.



As an island in the Atlantic Ocean, Martha’s Vineyard is on the front lines of climate change. Sea-level rise as well as more frequent and severe weather events already have a tremendous impact on our community and anticipated climate change will compound these impacts.

Annual carbon dioxide emissions attributable to the Vineyard were 329,000 tons in 2003 and will rise to 457,000 tons by 2050 if we take no new action. The Vineyard consumes a disproportionately high amount of energy because of the nature of our buildings and settlement pattern. It costs a lot more to heat a single-family dwelling with four exposed walls and a roof, than an apartment that loses heat only through one exterior wall. And our low-density housing, spread across the Island, means that we have a much higher proportion of people who drive compared to an inner-city neighborhood where people can more easily walk, bike, and take transit.

Sea-Level Rise: 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 even more 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.

Dealing with Climate Change: The challenge of climate change must be dealt with in two ways.

- **Mitigation:** First, we should do our share in reducing the extent to which the Vineyard contributes to causing climate change.
- **Adaptation:** Secondly, we should prepare to deal with the inevitable impacts of climate change.

16.2 Mitigating the Contribution of Transportation to Climate Change

Climate mitigation is any action taken to permanently eliminate or reduce the long-term risk and hazards of climate change to human life, property. The International Panel on Climate Change (IPCC) defines mitigation as: "An anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases."

Commonwealth Efforts: On a statewide level, Massachusetts has recognized the importance of climate change generally, and to the transportation sector in particular. In 2008 the Commonwealth passed the *Global Warming Solutions Act*, which requires the state economy to reduce 1990 levels of GHG emissions by 10% to 25% by 2020, and by 80% by 2050.

To guide this process, the state has developed a draft *Climate Implementation Plan: A Framework for Meeting the 2020 and 2050 Goals of the Global Warming Solutions Act*. The Plan notes that cost-saving measures exist that will both reduce GHG emissions and costs (such as increasing fuel economy in cars), and that other measures have a low net cost. The Plan also identifies Transportation as one of three "major areas of opportunity."

Statewide policies that can capture cost-effective measures include implementing California's GHG emission standards for new vehicles, and "prioritizing transportation projects that preserve the existing transportation system, support denser 'smart growth' development, and promote increased public transit ridership, walking and bicycling."

Vineyard Efforts: A key way that Martha's Vineyard can lessen its contribution to global warming is by reducing its use of fossil fuels. It is especially important that Martha's Vineyard have an affordable, environmentally sound, reliable, and safe supply of renewable energy.

- Environmental Consequences: There are other environmental impacts affecting the Vineyard besides sea level rise and increasing severity of storms. Burning fossil fuels results in air and water pollution that is changing the natural environment and endangering public health. The Cape and Islands already experience among the poorest summer air quality in Massachusetts.
- Reliability of Supply: Because the Vineyard depends almost entirely on imported energy, we face increased risks, higher costs and concerns about interruption of supply. Fuel shipped by ferry or barge exposes the island to hazards and accidents. The depletion of fossil fuel sources worldwide increase the potential of supply shortages and price fluctuations beyond our control. Transmitting electricity by underwater cables and overhead wires exposes us to periodic interruptions.
- Economic Impacts: Energy costs on the Vineyard are very high and contribute substantially to our higher cost of living. Island gasoline prices are among the highest in the nation. Both the Vineyard's year-round community and visitor-based economy are particularly sensitive to high energy costs. Most of the energy dollars spent on-Island do not benefit our local economy: they do not get spent on local goods nor expand business opportunities.

The *Island Plan* addresses many aspects of climate change and the efforts already underway or needed in the future to deal with this challenge. These include general efforts to better plan development and to reduce usage of fossil fuels with energy efficiency and renewable energy generation, as well as specific strategies related to transportation, namely promoting alternate modes and the use of low-fossil-fuel vehicles.

- Smart Growth: The *Island Plan* proposes to a number of strategies to reduce the rate of development and to favor growth patterns that are more sustainable than suburban sprawl. As a primarily rural community, opportunities for dense "smart growth" development on Martha's Vineyard are limited, though some infill development is possible. The *Island Plan* section on Development and Growth lists strategies such as "Limit significant new development in outlying areas," and "Restore and improve areas that were developed in problematic ways in the past," as part of the overall objective to "Preserve and reinforce the traditional settlement pattern of the Island."
- Energy Efficiency and Renewable Energy Generation: The *Island Plan* includes a section on energy that outlines how the Island could become energy self-sufficient through a combination of aggressive conservation and efficiency measures together with a number of ways of generating renewable energy, largely by taking advantage of the areas considerable wind energy resources.
- Alternative Modes of Transportation: Given the constraints of our relatively small community, an important effort the Vineyard can make to reduce GHG emissions is to promote alternative transportation modes in order to reduce the amount of fossil fuels used in motorized transportation. Sections 8 (Buses and Taxis) and 9 (Pedestrian and Bicycle) of the Regional Transportation Plan detail the extensive efforts that the Vineyard

community is taking to increase use of transit, walking, and cycling. These efforts are important to the Island, not simply in recognition of the threats of climate change, but to reduce congestion (also important to reducing GHGs), and to eliminate the need for “inappropriate” transportation infrastructure on an Island that values highly its small-town character.

- Use of Energy-Efficient Vehicles: It is important to reduce the use of fossil fuels in the motorized transportation that does take place. We have choices in the size of our vehicles and, increasingly, the fuels to power them. Choosing fuel-efficient vehicles could significantly reduce the amount of petroleum-based fuels we consume and the related damages to the air quality and public health. With fuel efficiencies double or more than today’s average vehicle, hybrids and other efficient vehicles – such as soon to be available plug-in hybrids and all-electric vehicles – offer the easiest solutions to reducing our fossil fuels used in transportation.

The Vineyard holds particular promise for alternative-powered automobiles. Some concerns about these vehicles – such as the duration of battery charges between charging stations, the inability to accelerate rapidly, and the reduced collision resistance of lighter vehicles – are less problematic here, since Island trip distances are relatively short and there are no speed limits over 45 mph. The Vineyard could be the ideal location for a prototype installation of innovative vehicles, for the reasons mentioned above, and because only a small number of prototype fueling stations would be needed to service a fleet of experimental cars kept permanently on-Island.

In the long term, replacing the use of combustion engines with other available technologies such as electric motors, hydrogen-powered fuel cells or vehicles designed to store power for the Island, in combination with locally generated energy from renewable sources, will allow us to work towards the goal of zero emissions for the Island’s transportation sector.

Hybrid cars go twice as far on a gallon of gas as the typical car on the road, so if we all switched to hybrid vehicles, we’d reduce gasoline consumption in automobiles by 50%. If, in a decade from now, we all drive the plug-in hybrids that will then be available, we’d reduce gas consumption by 75%. Measures to encourage use of fuel-efficient vehicles include having towns and other public agencies buy them, and/or requiring that taxis and a proportion of car rentals be fuel-efficient.

Individuals could be encouraged to make their next car a hybrid or other fuel-efficient vehicle with an information campaign, and with incentives such as priority ferry reservations and better parking spaces.

16.3 Adapting to Climate Change

Climate Adaptation refers to the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damage, to take advantage of opportunities, or to cope with the consequences.

Notwithstanding the efforts that the Vineyard might make to reduce its contribution to climate change, it is now clear that climate change will continue for the foreseeable future. The specters of rising sea levels and increase severe weather make planning for climate change critical on Martha's Vineyard. With several roads, public facilities, and downtown areas in low-lying areas, a modest sea-level rise could effectively cripple the Island's transportation systems, economy, and community as a whole.

On Martha's Vineyard, the effects of sea-level rise are exacerbated by the effects of coastline change. In some areas, the coastline has been eroding by as much as ten feet per year; this rate could increase when coupled with sea-level rise.

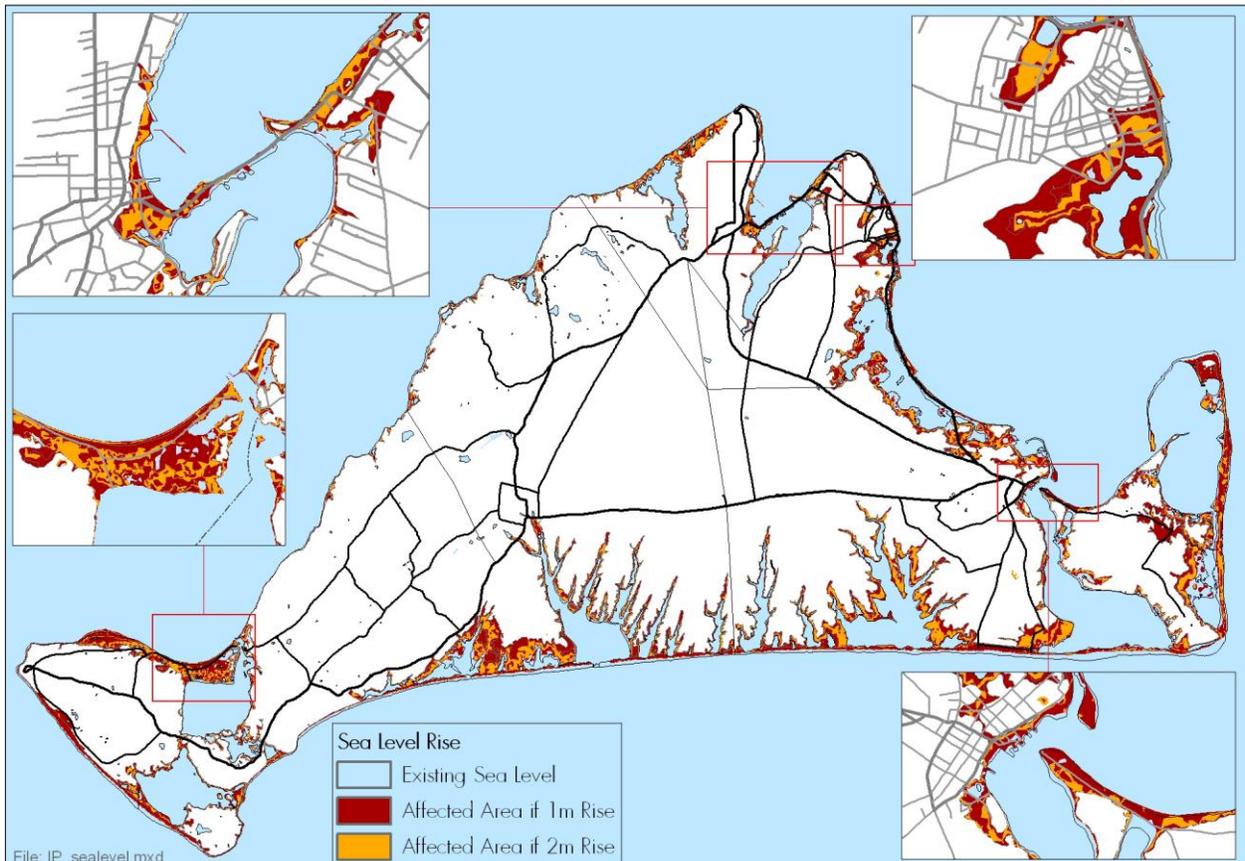


Figure 41 shows the effects of a sea-level rise of one and two meters on the Island, and especially on transportation infrastructure. Though greater than the IPCC projections, they represent conservative planning estimates of what we might be facing.

The Vineyard is starting to deal with this challenge, but still has a long way to go.

Pre-Disaster Mitigation Plan: The Martha's Vineyard Commission carried out a Pre-Disaster Mitigation Plan for the Island that identified critical facilities susceptible to natural disasters, most of which are likely to worsen as a result of climate change. The Island-wide and individual town plans are scheduled for updating by FY13.

Land Use: There have been some efforts to address climate change with respect to land use and development. Current requirements for construction in low-lying areas require that the ground level be higher than they were; however, this is still based on current threats and has not accounted for climate change.

The Martha's Vineyard Commission asked the Martha's Vineyard Hospital to carry out a study of the possible impacts of climate change, and the project's design was modified as a result. Part of this study was to ensure that there would continue to be vehicular access to the Hospital even if a storm surge made some of the access roads impassable.

Transportation: Figure 41 shows some of the potential impacts of climate change on the Island's transportation infrastructure. Martha's Vineyard will have to take steps to address the possible future effects of rising sea-levels, coastline change, and greater storm surges.

Several of the Island's main roads are located where they could be subject to the impacts of sea-level rise, coastline change, and more severe storms, notably:

- Beach Road connecting Edgartown, Oak Bluffs, and Tisbury town centers,
- Five Corners and Water Street in Tisbury,
- West Chop Drive in Oak Bluffs.

Obviously, the ferry terminals are located on the coast and will be impacted by sea-level rise. Their design already accommodates normal variation in sea level, but will be put to the test with sea-level rise. However, the impact on the access roads will be especially problematic.

The Lagoon Pond Drawbridge Committee had strongly encouraged MassDOT to carry out a climate change study related to the design of the permanent Lagoon Pond drawbridge, but this was not done. It would appear that the impacts will be limited in that it is located in an area where there is relatively little coastline change. It seems likely that the main impact will be that the clearance for boats passing under the bridge, which is being increased by a couple of feet with the new design, will revert back to the previous situation. However, the access roads might have to be raised.

Any significant proposed transportation projects located in areas at risk should study the potential impacts of climate change upon the project area before advancing very far on design and engineering.

17. Projects and Implementation

17.1 Financial Analysis and Constraints

This section estimates revenues from existing and available sources as well as the cost for constructing and maintaining the existing and planned transportation system. This includes a forecast of federal and state spending through 2030, taking state and federal legislations into account, and demonstrates that the estimated cost of constructing, maintaining, and operating all components of the Martha's Vineyard transportation system - all existing and proposed highway and transit projects identified in the Regional Transportation Plan - are matched by estimated available funds.

As federal and state investments in highway and transit operations/maintenance and improvements are provided by the Federal Highway Administration and Federal Transit Administration, the RTP is required to be financially constrained under Title 23 CFR Section 450.322 and 310 CMR 60.03(9).

The Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) has been extended through the end of 2010, and has provided over \$300 billion in funding for federal surface transportation programs, and represents the largest surface transportation investment in U.S. history. In addition, funding from the American Recovery and Reinvestment Act (ARRA) has provided over \$50 billion in additional funding for transportation projects. The next re-authorization of the transportation bill will occur during a period of austerity for government at all levels. Though the needs of our transportation system are enormous, it is important to compare estimated revenue to projected needs.

There are two basic types of costs accounted in this financial analysis. The first, operation and maintenance costs, are to keep the existing road and transit system functioning at current levels; adequate funding for operation and maintenance is clearly essential. (See section 8.2 for a specific discussion of pavement management.) The second, costs of new projects and services, are necessary to alleviate current problems and account for growth.

Federal Highway and Bridge Revenue: Improvements to and Maintenance of Bridges, Roads, and Bicycle/Pedestrian Facilities

Capital improvements and ongoing maintenance are funded and carried out principally in three ways:

- State roads and bridges: Improvements to State road and bridge projects, including associated sidewalks and bicycle paths, are planned and implemented by MassDOT, which remains responsible for maintenance.
- Local Federal-Aid Roads: Some other roads – namely Island roads classified as arterials and collectors – are the responsibility of the towns but the cost of improvements of these “federal-aid roads” are eligible for federal and state funding under the Transportation Improvement Program, which is updated every year by the Committee of Signatories (MPO), based on the recommendations of the Joint Transportation Committee. Certain

other “enhancement” projects such as bicycle paths and inter-modal facilities may also receive federal funding through a special approval process. The towns remain responsible for ongoing maintenance of these facilities.

- **Other Local Roads:** The responsibility for implementing and financing improvements and maintenance to local roads, sidewalks, bicycle paths, and other facilities lies with the towns. In addition to property taxes, other possible sources for local improvements and maintenance include might include the ferry surcharge, car rental surcharges, and development impact fees.

Figure 42 details the funding available for programming in the 2011 RTP, as provided by the Massachusetts Department of Transportation – Highway Division, for both roads/bridges and transit:

Figure 42: Estimated Available RTP Funding - Martha's Vineyard						
	<i>FY2011-2015</i>	<i>FY2016-2020</i>	<i>FY2021-2025</i>	<i>FY2026-2030</i>	<i>FY2031-2035</i>	<i>TOTAL</i>
<i>Major Infrastructure Projects</i>	\$505,000	\$678,000	\$1,024,000	\$1,252,000	\$1,451,000	\$4,910,000
<i>Federal Aid Bridge Projects</i>	\$6,213,000	\$6,845,000	\$10,243,000	\$12,495,000	\$14,485,000	\$50,280,000
<i>Statewide Maintenance</i>	\$3,346,000	\$3,413,000	\$4,153,000	\$4,888,000	\$5,667,000	\$21,467,000
<i>Regional Discretionary Funding</i>	\$2,205,000	\$4,581,000	\$4,860,000	\$6,096,000	\$7,067,000	\$23,660,000
TOTAL Roads & Bridges	\$12,269,000	\$14,368,000	\$20,281,000	\$24,731,000	\$28,570,000	\$100,317,000
<i>Elderly & Disabled (5310)</i>	\$142,857	\$167,858	\$194,594	\$225,588	\$261,518	\$992,416
<i>Non-Urbanized Area Formula (5311 & 5340)</i>	\$1,284,000	\$2,140,000	\$2,140,000	\$2,140,000	\$2,140,000	\$9,844,000
<i>State Capital Investment</i>	\$6,775,748	\$4,335,146	\$3,139,983	\$3,640,101	\$4,219,874	\$22,111,582
<i>State Contract Assistance for Operations</i>	\$5,478,486	\$7,681,805	\$8,691,258	\$9,833,360	\$11,125,544	\$42,810,454
TOTAL Transit	\$13,680,822	\$14,325,810	\$14,165,834	\$15,839,049	\$17,746,937	\$75,758,742
<i>Source: MassDOT, April 20, 2011</i>						

The recommendations for major infrastructure, bridge projects, and operations and maintenance are, according to MassDOT, “...provided as a starting point for MPO discussions, but can be adjusted by MPO within the overall financial constraint provided in the table, on an as-needed basis.”

The Martha’s Vineyard Transit Authority does not receive 5307 Urban Formula funds and therefore relies on 5311 Rural Grant operating funds as the sole source of federal operating funding. The 5311 funds are distributed based on a 1998 state management plan established by the Commonwealth. In consultation with the state regional transit authorities, the Commonwealth is reviewing rural service provided in the different regions and revising the distribution formula based on available 5311 funds and actual rural service provided. The regions have an expectation of receiving a reasonable distribution of 5311 operating funding based on this rural-service-based formula. The VTA received \$829,134 in 5311 funding for FY2010.

17.2 Proposed Transportation Projects

The Federal Highway Administration’s guidelines for the preparation of a Regional Transportation Plan require a listing of transportation projects through 2035, as presented in Figure 43.

In order to prepare this list, the Joint Transportation Committee first prepared a comprehensive list of possible projects, based mainly on the projects identified in various sections of this plan. Each of these projects was then evaluated according to the criteria listed in section 2.8 of this plan in order to prioritize the projects and allow selection of a list of projects that could be financed on the basis of the annual budget provided by MassDOT and the Federal Highway Administration, or from other assured sources. Projected costs in Figure 43 were developed by the members of the JTC familiar with costs of construction on the Island (principally the heads of the local highway departments), and were inflated at the 4% annual rate required by MassDOT.

The total inflated cost of these projects (\$45.5M) is about double the currently available funds (\$23.7). Therefore, it will not be able to move ahead with all the possible projects. The actual projects to be implemented for each time period will be selected based on the Criteria for Project Prioritization (section 2.8) and will be financially constrained to the available funds. Note that expansion of transit facilities and fleets are also included in the use of these funds, as allowed, and are included here to provide a direct comparison to the figures supplied by MassDOT presented in Figure 42.

Figure 43: Possible TIP Projects and Available Funding

Period	Project	Town	Cost (2011 \$)	Available funds (2011 \$)	Cost (inflated)	Available Funds (inflated)
Current TIP Projects						
FY '12	Blinker Intersection Improvement – Edg-VH & Barnes Rd.	OB	\$1,103,462	\$399,647		
FY '13	Blinker Intersection Improvement– Edg-VH & Barnes Rd.	OB	-	\$398,608		
FY '14	Blinker Intersection Improvement – Edg-VH & Barnes Rd.	OB	-	\$389,224		
FY '15	New SUP – Winds Up to Tisbury Marketplace	TI	\$329,679	\$329,679		
Sub-Total Current Projects			\$1,837,559	1,879,519		

Future TIP Projects
The following listings indicate potential TIP projects in approximate order of priority While this Table represents the best information currently available, the cost estimates and timing of projects after 2015 are preliminary and likely to change.

FY2016 to FY2020

	New SUP: Beach Road - Town Landing to Drawbridge	TI	\$700,000		\$818,901	
	New SUP: Beach Road - Drawbridge to Eastville Avenue	OB	\$550,000		\$643,422	
	Improve SUP @ Hospital and Along Eastville Ave.	OB	\$350,000		\$425,829	
	Eastville intersections at Temahigan and County	OB	\$350,000		\$425,829	
	Reconfigure intersection of Old County and State Roads	WT	\$350,000		\$425,829	
	Tisbury Connector Roads: Evelyn Way – south of State Rd.	TI	\$450,000		\$569,394	
	Tisbury Connector: High Point Lane– south of State Rd	TI	\$600,000		\$759,191	
	Tisbury Connector: Holmes Hole Road– south of State Rd	TI	\$1,000,000		\$1,315,932	
	Vineyard Transit Authority - TBD	all	\$1,500,000		\$2,052,854	
Sub-Total FY2016 to FY2020			\$5,850,000		\$7,437,179	

FY2021 to FY2025				
	<i>Tisbury Connector: Park-&-Ride to Edgartown Road</i>	TI	\$900,000	\$1,280,981
	<i>Tisbury Connector: SUPs</i>	TI	\$800,000	\$1,138,649
	<i>New SUP: Park-&-Ride to Five Corners area</i>	TI	\$500,000	\$740,122
	<i>Main Street Intersection improvements</i>	ED	\$700,000	\$1,036,171
	<i>Tisbury Connector: intermodal facility</i>	TI	\$550,000	\$846,700
	<i>New SUP: Skiff Ave.</i>	TI	\$400,000	\$615,782
	<i>State Road - Left turn lane from Ed-VH Road</i>	TI	\$350,000	\$538,809
	<i>New SUP: State Forest to Park-and-Ride</i>	WT	\$1,400,000	\$2,241,445
	<i>Vineyard Transit Authority - TBD</i>	all	\$1,500,000	\$2,497,610
Sub-Total 2021 to 2025			\$7,100,000	\$10,936,269

FY2026 to FY2030				
	<i>New SUP: Eastville Avenue to downtown</i>	OB	\$700,000	\$1,212,174
	<i>New SUP: Park-and-Ride to Ed-WT Rd</i>	ED	\$350,000	\$606,087
	<i>New SUP: Ed-WT Rd. to Katama Rd.</i>	ED	\$650,000	\$1,125,590
	<i>New SUP: Northeast corner of State Forest to Ed-VH Road</i>	OB	\$150,000	\$270,142
	<i>New SUP: State Forest - Northern edge</i>	ED	\$450,000	\$842,842
	<i>New SUP: State Forest - Eastern Edge</i>	ED	\$750,000	\$1,404,736
	<i>Main Street safety improvements</i>	TI	\$500,000	\$936,491
	<i>New SUP: County Road to Beach Road (south of town)</i>	OB	\$800,000	\$1,558,320
	<i>EdgVH and Beach Rds. (Triangle) improvements - phase 1</i>	ED	\$800,000	\$1,558,320
	<i>Vineyard Transit Authority - TBD</i>	all	\$1,500,000	\$3,038,725
Sub-Total 2026 to 2030			\$6,650,000	\$12,553,425

FY 2031 to FY2035				
	<i>Five Corners and Water Street pedestrian improvements</i>	TI	\$500,000	\$1,053,425
	<i>Redo Sidewalks b/w Upper & Lower Main St.</i>	ED	\$400,000	\$842,740
	<i>EdgVH and Beach Rds. (Triangle) improvements - phase 2</i>	ED	\$1,000,000	\$2,191,123
	<i>Re-engineer Beach Rd. SUP</i>	ED	\$500,000	\$1,095,562
	<i>Re-engineer Beach Rd./Sea View SUP</i>	OB	\$500,000	\$1,139,384
	<i>bus stops (30 @ \$15,000 per)</i>	all	\$450,000	\$1,066,463
	<i>New SUP: Chappy ferry to Wasque</i>	ED	\$1,250,000	\$2,962,398
	<i>Lamberts Cove Road safety improvements</i>	WT	\$450,000	\$1,109,122
	<i>Vineyard Transit Authority - TBD</i>	all	\$1,250,000	\$3,080,894
Sub-Total FY2031 to FY2035			\$6,300,000	\$14,541,111

TOTAL 2016-2035			\$25,900,000	\$45,467,984
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Transit

As is the case with bridge and operations/maintenance revenue, MassDOT requires that estimated transit costs do not exceed forecast revenues through 2030. Estimated RTP funding for transit in that period is shown in Figure 42. Figure 44 is a summary of recent VTA capital and operating revenues, while Figure 44 lists the VTA's anticipated capital spending needs over the next few years. Note that in accordance with federal requirements, Section 5310 funds ("Elderly Individuals and Individuals with Disabilities") are programmed by the VTA through a coordinated

public transit-human services transportation plan, which maximizes coverage and avoids duplication of services, and is developed through a process independent of the RTP that includes transportation service providers and the public.

Figure 44: Martha's Vineyard Regional Transit Authority - Operating and Capital Revenues

Operating Revenue	Actual		Projected FY2011	Budgeted FY2012	Two-Year Outlook	
	FY2009	FY2010			FY2013	FY2014
<i>Farebox</i>	\$1,163,153	\$1,174,705	\$1,100,000	\$1,170,000	\$1,205,100	\$1,241,253
<i>Section 5307</i>	\$0	\$0	\$0	\$0	\$0	\$0
<i>Section 5311</i>	\$550,000	\$738,717	\$682,066	\$800,000	\$824,000	\$848,720
<i>CMAQ/TDM</i>	\$0	\$0	\$0	\$0	\$0	\$0
<i>Fully Funded</i>	\$46,412	\$40,024	\$44,275	\$45,600	\$46,968	\$48,377
<i>Jobs Access & Reverse Commute</i>	\$0	\$0	\$0	\$0	\$0	\$0
<i>Advertising</i>	\$0	\$5,800	\$0	\$0	\$0	\$0
<i>Interest Income</i>	\$7,805	\$4,139	\$5,000	\$4,000	\$4,000	\$5,000
<i>Rental Income</i>	\$20,200	\$23,950	\$20,000	\$27,000	\$27,810	\$28,644
<i>State Contract Assistance</i>	\$1,140,434	\$1,125,375	\$1,398,490	\$1,159,136	\$1,193,910	\$1,229,727
<i>Local Assessment</i>	\$741,002	\$759,527	\$759,527	\$797,978	\$821,917	\$846,575
<i>Other: Fixed Route Contract Rev.</i>	\$143,657	\$136,453	\$125,000	\$135,000	\$139,050	\$143,222
<i>Totals</i>	\$3,812,663	\$4,008,690	\$4,134,358	\$4,138,714	\$4,262,755	\$4,391,518
Capital Revenue						
Capital Revenue	Actual		Projected FY2011	Budgeted FY2012	Two-Year Outlook	
	FY2009	FY2010			FY2013	FY2014
<i>Section 5309</i>	\$0	\$0	\$0	\$0	\$0	\$0
<i>Section 5317</i>	\$0	\$147,068	\$200,000	\$240,000	\$247,200	\$254,616
<i>Section 5310/MAP</i>	\$0	\$0	\$60,000	\$60,000	\$0	\$60,000
<i>ITC</i>	\$0	\$0	\$0	\$0	\$0	\$0
<i>RTA CAP</i>	\$420,000	\$539,000	\$1,487,000	\$750,000	\$850,000	\$850,000
<i>Jobs Access and Reverse Commute</i>	\$0	\$0	\$0	\$0	\$0	\$0
<i>CMAQ</i>	\$0	\$0	\$0	\$0	\$0	\$0
<i>ARRA/Other Federal</i>		\$1,470,032	\$532,214	\$0	\$0	\$0
<i>Other RTACAP</i>						
<i>Totals</i>	\$420,000	\$2,156,100	\$2,279,214	\$800,000	\$897,200	\$1,114,616

Figure 42 shows that operations costs and revenues are roughly \$4.1 million and growing as VTA ridership expands. This figure is divided approximately in half, with half of revenue being local sources (e.g., farebox and local assessments), and half state/federal (e.g., 5311 and State Contract Assistance). Assuming a 3% growth in operating costs, the total operating costs over the period 2009 to 2030 is roughly \$130 million, and growth in the demand for transit over that time is expected to be even greater. Federal/state operating funds over that time are estimated at \$54 million. The difference will come from local sources of revenue, or adjustments in service.

Figure 44: Martha's Vineyard Regional Transit Authority – Capital Project Needs						
<i>Capital Projects</i>	<i>Program</i>	<i>FY2012</i>	<i>FY2013</i>	<i>FY2014</i>	<i>FY2015</i>	<i>FY2016</i>
<i>Minibus</i>	<i>Section 5310</i>	<i>\$54,000</i>				
<i>Replace (1) 29' and (1) 35' bus</i>	<i>RTACAP</i>	<i>\$422,000</i>				
<i>Replace non-revenue cars (4)</i>	<i>RTACAP</i>		<i>\$130,000</i>			
<i>Replace 35' bus with 40' bus (2)</i>	<i>RTACAP</i>		<i>\$500,000</i>			
<i>Replace shop truck</i>	<i>RTACAP</i>			<i>\$75,000</i>		
<i>Replace (4) 29' and (1) 35' bus</i>	<i>RTACAP</i>			<i>\$1,050,000</i>		
<i>Replace (1) 29' and (1) 35' bus</i>	<i>RTACAP</i>				<i>\$450,000</i>	
<i>Intermodal terminal @ Airport</i>	<i>Section 5309</i>					<i>\$1,250,000</i>
<i>Replace (2) 29' and (1) 35' bus</i>	<i>RTACAP</i>					<i>\$650,000</i>
<i>Misc. capital needs</i>	<i>RTACAP</i>	<i>\$280,000</i>	<i>\$350,000</i>	<i>\$350,000</i>	<i>\$350,000</i>	<i>\$350,000</i>
TOTAL		<i>\$756,000</i>	<i>\$850,000</i>	<i>\$1,475,000</i>	<i>\$800,000</i>	<i>\$2,250,000</i>

Figure 44 shows VTA's estimated capital needs for 2012-2016 as roughly \$6.13 million, with anticipated revenues of \$6.78. With capital needs running approximately \$1.2 million annually (excluding major capital projects), the total capital costs over the period 2012-2035 are roughly \$32 million. State funding directly to transit over that period is \$23 million (Table 25), with the JTC anticipating an additional \$9 million to fund capital projects from TIP funds (Table 25). Any shortfalls will be covered by delaying/canceling capital enhancement projects or from local sources.

17.3 Summary

The Regional Transportation Plan has assessed both federal highway/bridge funding and transit funding from an operational and enhancement standpoint, and demonstrates that proposed investments are consistent with estimated revenue sources provided by MassDOT. Cost and revenue projections reflect the current situation and historical trends, and address specific programs required to reach air quality compliance.

In sum, the RTP complies with applicable federal regulations and shows the required financial constraint.

18. Conclusion

This Regional Transportation Plan update summarizes the current consensus about transportation issues on the Vineyard and outlines how to deal with them. In many cases, the Plan does not propose specific solutions, but identifies additional studies.

In summary, the following are the main recommendations:

- Continue to improve the 'livability' of Martha's Vineyard by focusing on facilities and services that offer alternatives to the private automobile for both residents and visitors, including public and tour buses, taxis, bikes and walking. Make sure that visitors have a viable and complete alternative to bringing their cars to the Island, particularly for trips to and from the ferry or airport, places of lodging, beaches and other tourist destinations, restaurants, and shopping areas.
- Continue the success in dealing with specific areas of traffic congestion and safety problems by installing a roundabout at the Blinker intersection, by building the Tisbury connector roads, by exploring improvements to the Five Corners/Water Street area and Edgartown Triangle and Main Street.
- Improve coordination of transportation planning, delivery of services and promotion among the various Island entities including the towns, the county, the Steamship Authority, the Vineyard Transit Authority and the Martha's Vineyard Commission, in order to overcome previous difficulties related to fragmented decision-making that increased the difficulty of implementing improvements or even developing common goals and objectives.

Transportation planning on Martha's Vineyard, as elsewhere, is done in a context where everyone knows that all problems cannot be solved. It is also clear that if the Island community wants to protect the attributes that make the Vineyard such a special place, we cannot cover the Island with wide highways and other inappropriate infrastructure just to smooth the flow of traffic. Even a generation from now, people will likely still wonder how to deal with the traffic at Five Corners when the ferry arrives.

Ultimately, transportation issues are just one manifestation of the growth the Island experienced in the last quarter of the 20th century. It is essential that transportation be looked at as part of a greater community reflection on the amount, rate, and type of development that Vineyarders want for their Island. In this context, the *Island Plan* provides a framework for those decisions, and this update, and future updates, of the Regional Transportation Plan will reflect the results of the community's discussions.

APPENDIX A1

Air Quality Conformity Determination

Introduction

The 1990 Clean Air Act Amendments (CAAA) require Metropolitan Planning Organizations within ozone nonattainment areas to perform air quality conformity determinations prior to the approval of Regional Transportation Plans (RTPs) and Transportation Improvement Programs (TIPs). Conformity is a way to ensure that federal funding and approval goes to those transportation activities that are consistent with air quality goals. This section presents information and analyses for the air quality conformity determination for the 2012 Regional Transportation Plan of the Martha's Vineyard MPO, as required by Federal Regulations 40 CFR Parts 51 and 93, and the Massachusetts Conformity Regulations (310 CMR 60.03). This information and analyses include: regulatory framework, conformity requirements, planning assumptions, emissions budgets, and conformity consultation procedures.

Background

The Commonwealth of Massachusetts is classified as serious nonattainment for ozone, and is divided into two nonattainment areas. The Eastern Massachusetts ozone nonattainment area includes Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Suffolk, and Worcester counties. Berkshire, Franklin, Hampden, and Hampshire counties comprise the Western Massachusetts ozone nonattainment area. With these classifications, the 1990 Clean Air Act Amendments (CAAA) required the Commonwealth to reduce its emissions of volatile organic compounds (VOCs) and nitrogen oxides (NO_x), the two major precursors to ozone formation to achieve attainment of the ozone standard.

In April 2002, the cities of Lowell, Waltham, Worcester and Springfield were re-designated to attainment for carbon monoxide with EPA-approved limited maintenance plans. In April 1996, the communities of Boston, Cambridge, Chelsea, Everett, Malden, Medford, Quincy, Revere, and Somerville were classified as attainment for carbon monoxide (CO). Air quality conformity analysis must still be completed in these communities, as they have a carbon monoxide maintenance plan approved into the state implementation plan (SIP). The year 2010 carbon monoxide motor vehicle emission budget established for the Boston CO attainment area with a maintenance plan is 228.33 tons of carbon monoxide per winter day.

A prior conformity determination for all RTPs occurred in 2007, when the Federal Highway Administration (FHWA) – in consultation with the Environmental Protection Agency (EPA New England) and the Massachusetts Department of Environmental Protection (DEP) – confirmed that all 13 of the RTPs for the year 2007 in Massachusetts were in conformity with the Massachusetts State Implementation Plan (SIP). A summary of major conformity milestones in recent years is as follows:

Between 2003 and 2006, several new conformity determinations were made that were triggered by various events, including: The 2003 regional transportation plans, a change in designation from the one-hour ozone standard to an eight-hour ozone standard, and various changes to regional TIPs that involved reprogramming transportation projects across analysis years.

In 2007, air quality analyses were conducted on behalf of all the 2007 Regional Transportation Plans (RTPs), the purposes of which were to evaluate the RTPs' air quality impacts on the SIP. Conformity

determinations were performed to ensure that all regionally significant projects were included in the RTPs. The Massachusetts Department of Transportation found the emission levels from the 2007 Regional Transportation Plans to be in conformance with the SIP.

On April 2, 2008, EPA found that the 2008 and 2009 motor vehicle emissions budgets (MVEBs) in the January 31, 2008 Massachusetts 8-hour ozone State Implementation Plan revision were adequate for transportation conformity purposes. The submittal included 2008 and 2009 MVEBs for the Boston-Lawrence-Worcester (Eastern Massachusetts) and Springfield (Western Massachusetts) 8-hour ozone nonattainment areas. Massachusetts submitted these budgets as part of the 8-hour ozone attainment demonstration and reasonable further progress plan for both nonattainment areas, and as a result of EPA's adequacy finding, these budgets were required to be used for conformity determinations. EPA later determined (in 2010) that only the most recent MVEBs - 2009 - be used for future conformity determinations.

In 2010, air quality analyses were conducted on behalf of all the 2011-2014 Regional Transportation Improvement Programs (TIPs), the purposes of which were to evaluate the TIPs' air quality impacts on the SIP. Conformity determinations were performed to ensure that all regionally significant projects were included in the TIPs. The Massachusetts Department of Transportation found the emission levels from the 2011-2014 TIPs to be in conformance with the SIP. On November 15, 2010, EPA confirmed that both the Eastern and Western Massachusetts Non-Attainment areas collectively demonstrated transportation conformity, with concurrence from Massachusetts DEP on 11/23/10. On December 22, 2010, FHWA and FTA determined that the TIPs were in conformity with the Clean Air Act and the EPA conformity regulations (40 CFR Part 51).

Conformity Regulations

The CAAA revised the requirements for designated MPOs to perform conformity determinations by ozone non-attainment area for their RTPs and TIPs. Section 176 of the CAAA defines conformity to a State Implementation Plan to mean conformity to the plan's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) and achieving expeditious attainment of the standards. The Martha's Vineyard MPO must certify that all activities outlined in the 2012 Martha's Vineyard Regional Transportation Plan:

- *will not cause or contribute to any new violation of any standard in any area*
- *will not increase the frequency or severity of any existing violation of any standard in any area*
- *will not delay the timely attainment of any standard or any required interim emission reductions or other milestones in any area*

The federal conformity regulations from EPA set forth requirements for determining conformity of Transportation Plans, Transportation Improvement Programs, and individual projects. The requirements of the conformity analysis are summarized below and will be explained in detail in this conformity determination:

- **Conformity Criteria**
 - *Horizon Years*
 - *Latest planning assumptions*
 - *Latest emission model used*
 - *Timely implementation of transportation control measures (TCMs)*
 - *Conformity in accordance with the consultation procedures and SIP revisions*
 - *Public Participation Procedures*
 - *Financially Constrained Document*

- Procedures for Determining Regional Transportation Emissions
- The Conformity Test
 - *Consistent with emission budgets set forth in SIP*
 - *Contribute to reductions in CO nonattainment areas*

In addition, the regulations set specific requirements for different time periods depending on the timeframe of the Commonwealth's SIP submittals to EPA. These periods are defined as follows:

- **Control Strategy Period:** Once a control strategy SIP has been submitted to EPA, EPA has to make a positive adequacy determination of the mobile source emission budget before such budget can be used for conformity purposes. The conformity test in this period is consistency with the mobile source emission budget.
- **Maintenance Period** is the period of time beginning when the Commonwealth submits and EPA approves a request for redesignation to an attainment area, and lasting for 20 years. The conformity test in this period is consistency with the mobile source emission budget.

Horizon Year Requirements

Horizon years for regional and state model analyses have been established following 40 CFR 93.106(a) of the Federal Conformity Regulations. The years for which the regional and state transportation models were run for ozone precursor emission estimates are shown below:

- 2010: Milestone Year – This year is now being used by the statewide travel demand model as the new base year for calculation of emission reductions of VOCs and NOx.
- 2016: Milestone Year and Analysis Year: This year is used to show conformity with the existing emission budgets for ozone precursors in Western Massachusetts.
- 2020: Analysis Year
- 2025: Analysis Year
- 2035: Horizon Year – last forecast year of the regional transportation plan

Latest Planning Assumptions

Section 93.110 of the Federal Conformity Regulations outlines the requirements for the most recent planning assumptions that must be in place at the time of the conformity determination. Assumptions must be derived from the estimates of current and future population, households, employment, travel, and congestion most recently developed by the MPO. For the 2012 Martha's Vineyard Regional Transportation Plan and other regional plans, the MassDOT developed a series of forecasts – in cooperation with all the MPOs – that represent the most recent planning assumptions for all of Massachusetts.

Transit Operating Policy Assumptions

For the (Region) MPO, the operating policies and assumed transit ridership have not changed since the conformity determination prepared for the 2007 Transportation Plan.

Latest Emissions Model

Emission factors used for calculating emission changes were determined using MOBILE 6, the model used by DEP in determining motor vehicle emission budgets. Emission factors for motor vehicles are specific to each model year, pollutant type, temperature, and travel speed. MOBILE 6 requires a wide range of input parameters including inspection and maintenance program information and other data such as anti-tampering rates, hot/cold start mix, emission failure rates, vehicle fleet mix, fleet age distribution, etc. The input variables used in this conformity determination were received from DEP and approved by EPA.

Timely Implementation of Transportation Control Measures

Transportation Control Measures (TCMs) have been required in the SIP in revisions submitted to EPA in 1979 and 1982. All SIP TCMs have been accomplished through construction or through implementation of ongoing programs. All of the projects have been included in the Region's Transportation Plan (present or past) as recommended projects or projects requiring further study.

DEP submitted to EPA its strategy of programs to show Reasonable Further Progress of a 15% reduction of VOCs in 1996 and the further 9% reduction of NO_x toward attainment of the National Ambient Air Quality Standards (NAAQS) for ozone in 1999. Within that strategy there are no specific TCM projects. The strategy does call for traffic flow improvements to reduce congestion and, therefore, improve air quality. Other transportation-related projects that have been included in the SIP control strategy are listed below:

- *Enhanced Inspection and Maintenance Program*
- *California Low Emission Vehicle Program*
- *Reformulated Gasoline for On- and Off-Road Vehicles*
- *Stage II Vapor Recovery at Gasoline Refueling Stations*
- *Tier I Federal Vehicle Standards*

Consultation Procedures

The final conformity regulations require that the MPO make a conformity determination according to consultation procedures set out in the federal and state regulations, and the MPO must also follow public involvement procedures established under federal metropolitan transportation planning regulations. The consultation requirements of both the state and federal regulations require that the (Region) MPO (and all other MPOs), MassDOT, Mass. DEP, US EPA - Region 1 and FHWA – Massachusetts Division, consult on the following issues:

- *Selection of regional emissions analysis models including model development and assessment of project design factors for modeling*
- *Selection of inputs to the most recent EPA-approved emissions factor model*
- *Selection of CO hotspot modeling procedures, as necessary*
- *Identification of regionally significant projects to be included in the regional emissions analysis*
- *Identification of projects which have changed in design and scope*
- *Identification of exempt projects*
- *Identification of exempt projects that should be treated as non-exempt because of adverse air quality impacts*
- *Identification of the latest planning assumptions and determination of consistency with SIP assumptions*

These issues have all been addressed through consultation among the agencies listed above.

Public Participation Procedures

Title 23 CFR Section 450.322 and 310 CMR 60.03(6)(h) require that the development of the Regional Transportation Plan, TIP, and related certification documents provide an adequate opportunity for public review and comment. Section 450.316(b) also establishes the outline for MPO public participation programs.

While the *Public Participation Plan* details policies on how citizens may become involved in transportation planning on Martha's Vineyard, it is worth emphasizing that the JTC (the core group responsible for managing the 3-C process) always welcomes public input, be it through comment on public documents, participation in public forums, participation in JTC workgroups or the JTC itself, or simply contacting the JTC or a JTC member. The JTC also notes that if a member of the public has a concern regarding transportation on the Island, the first point of contact should be the voting representative to the JTC from that Town. Of course, the JTC or its Coordinator will be happy to assist any member of the public with a concern or issue, but an official town representative to the JTC is often also a town official with the capacity to deal directly with certain concerns. The JTC would also like to note that the VTA has a Consumer Advisory Group that deals directly with issues involving public transit. In short, while the JTC makes every effort to solicit and respond to public input in its decision-making, members of the public should always feel free to contact the JTC with issues or concerns, and the JTC will make every effort to respond appropriately.

Financial Consistency

Title 23 CFR Section 450.322 and 40 CFR 93.108 require the 2012 Martha's Vineyard Regional Transportation Plan to "be financially constrained by year and include a financial plan that demonstrates which projects can be implemented using current revenue sources and which projects are to be implemented using proposed revenue sources."

The 2012 Plan is financially constrained to projections of federal and state resources reasonably expected to be available during the appropriate time frame. Projections of federal resources are based upon the estimated apportionment of the most recent federal authorizations, as allocated to the region by the state or as allocated among the various MPOs according to federal formulae or MPO agreement. Projections of state resources are based upon the allocations contained in the current Transportation Bond Bill and historic trends. Therefore, the 2012 Plan substantially complies with the federal requirements relating to financial planning.

Model Specific Information

40 CFR Part 93.111 of the federal regulations outlines requirements to be used in the network-based transportation demand models. These requirements include modeling methods and functional relationships to be used in accordance with acceptable professional practice and reasonable for purposes of emission estimation. MassDOT, on behalf of the Martha's Vineyard MPO, has used the methods described in the conformity regulations in the analysis of this 2012 Regional Transportation Plan.

Highway Performance Monitoring System Adjustments

As stated in EPA guidance, all areas of serious ozone and carbon monoxide nonattainment must use FHWA's Performance Monitoring System (HPMS) to track daily vehicle-miles of travel (VMT) prior to attainment to ensure that the state is in line with commitments made in reaching attainment of the ambient air quality standards by the required attainment dates. MassDOT provided HPMS information to DEP. DEP used this information in setting mobile-source budgets for VOC, NO_x, and CO in all SIP revisions prior to 1997. DEP has since revised its VOC and NO_x budgets using transportation-demand model runs. However, the models must still be compared to HPMS data since HPMS remains the accepted tracking procedure as outlined in the regulations.

The conformity regulations require that all model-based VMT be compared with the HPMS VMT to ensure that the region is in line with VMT and emission projections made by DEP. An adjustment factor that compares the 2010 HPMS VMT to the 2010 transportation model VMT has been developed. This adjustment factor is

then applied to all modeled VOC and NO_x emissions for the years 2016 through 2035 to ensure consistency with EPA-accepted procedures.

$$\frac{2010 \text{ HPMS VMT}}{2010 \text{ Modeled VMT}} = \text{Adjustment factor} = 1.183 \text{ for Martha's Vineyard for VOC and NO}_x$$

HPMS adjustment factors, calculated on a regional basis, are applied to the model output of future scenarios, and they change as base-year models are updated or improved, or as HPMS data is revised or updated. The latest factors for Eastern Massachusetts are as follows:

REGION	2010 HPMS VMT (miles)	Travel Demand Model VMT (miles)	HPMS/Model Conversion Factor
Cape Cod	6,869,000	4,456,118	1.541
Central Massachusetts	14,564,000	11,924,422	1.221
Martha's Vineyard	266,000	224,944	1.183
Merrimack Valley	9,353,000	9,143,834	1.023
Boston	60,751,000	71,225,035	0.853
Montachusett	5,015,000	4,392,193	1.142
Nantucket	153,000	71,899	2.128
Northern Middlesex	6,523,000	6,735,326	0.968
Old Colony	6,883,000	6,549,927	1.051
Southeastern Massachusetts	14,710,000	13,745,040	1.070

Eastern MA	125,087,000	128,468,738	0.974
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State Total	148,937,000	142,159,733	1.048
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Changes in Project Design since the Last Conformity Determination Analysis

The Commonwealth requires that any change in project design from the previous conformity determination for the region is identified. Changes that have occurred since the last conformity determination in 2010 are as follows:

- The modeled base year has changed from 2007 to 2010.
- A new analysis year has been included in the conformity determination. An air quality analysis has been completed for 2016. This complies with EPA's Transportation Conformity Rule Restructuring Amendments (40 CFR Part 93.118, expected to become effective August 2011) which states that "if the attainment date has not yet been established, the first analysis year must be no more than five years beyond the year in which the conformity determination is being made." (2011 base to 2016 analysis year).

- Emission factors have been developed for 2010, 2016, 2020, 2025, and 2035 using Mobile 6.2 with inputs approved by MassDEP and US EPA.
- New HPMS adjustment factors have been developed for the new 2010 base year.

Procedures for Determining Regional Transportation Emissions

The federal conformity regulations set specific requirements for determining transportation emissions, which are estimated from a combination of emission rates, HPMS volume data, and travel demand model projections. Travel demand models use estimates of population, households, and employment to project future travel volumes and patterns. Chapter 3 of the Plan presents these estimates as part of the existing and future regional transportation system.

Only “regionally significant” projects are required to be included in the travel demand modeling efforts. The final federal conformity regulations define regionally significant as follows:

Regionally significant: *a transportation project (other than an exempt project) that is on a facility which serves regional transportation needs (such as access to and from the area outside of the region, major activity centers in the region, major planned developments such as new retail malls, sport complexes, etc., or transportation terminals as well as most terminals themselves) and would be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.*

In addition, specific classes of projects have been exempted from regional modeling emissions analysis. The categories of exempt projects include:

- *Intersection channelization projects*
- *Intersection signalization projects at individual intersections*
- *Interchange reconfiguration projects*
- *Changes in vertical and horizontal alignment*
- *Truck size and weight inspection stations*
- *Bus terminals and transfer points*

Previous conformity amendments now allow traffic signal synchronization projects to be exempt from conformity determinations prior to their funding, approval or implementation. However, once they are implemented, they must be included in conformity determinations for future plans and TIPs

The milestone and analysis year transportation model networks are composed of projects proposed in this RTP. Projects in these networks consist of all in-place regionally significant projects that can reasonably be expected to be completed by a given analysis/horizon year with consideration of available funding commitments. This project group would include, but not be limited to, regionally significant projects where at least one of the following steps has occurred within the past three years:

- Comes from the first year of a previously conforming TIP,
- Completed the NEPA process, or
- Currently under construction or are undergoing right-of-way acquisition

Based on these definitions, there are no regionally significant projects included in the 2012 Martha's Vineyard Regional Transportation Plan, and there have been no changes in project design since the last conformity determination.

A complete listing of future regionally significant projects for the entire Eastern Massachusetts Ozone Non-Attainment Area is provided below:

Regionally Significant Projects Included in the Regional Transportation Models for the Eastern Massachusetts Ozone Non-Attainment Area

Analysis Year	Community	Description of Projects Under Construction – Boston Region
2016	Bedford, Burlington	Middlesex Turnpike Improvements Phases 1 and 2
2016	Bellingham	Pulaski Boulevard
2016	Boston	Fairmount Line Improvements, including new stations
2016	Boston	East Boston Haul Road/Chelsea Truck Route (new grade separated roadway)
2016	Concord, Lincoln	Route 2/Crosby's Corner (grade separation)
2016	Danvers	Route 128/Route 35 and Route 62
2016	Hudson	Route 85 (capacity improvements from Marlborough TL to Rt 62)
2016	Marshfield	Route 139 Widening (to 4 lanes between School St. and Furnace St.)
2016	Quincy	Quincy Center Concourse, Phase 2 (new roadway: Parking Way to Hancock St.)
2016	Randolph to Wellesley	Route 128 Additional Lanes
2016	Somerville	Assembly Square Orange Line Station
2016	Somerville	Assembly Square Roadways (new and reconfigured)
2016	Weymouth, Hingham, Rockland	South Weymouth Naval Air Station Access Improvements
2016	Regionwide	1000 Additional Park and Ride Spaces
Analysis Year	Community	Description of Recommended Plan Projects– Boston Region
2016	Beverly	Beverly Station Commuter Rail Parking Garage
2016	Boston	Conley Haul Road
2016	Salem	Salem Station Commuter Rail Parking Garage Expansion
2016	Somerville, Cambridge, Medford	Green Line Extension to Medford Hillside/Union Square
2016	Weymouth	Route 18 Capacity Improvements
2020	Bedford, Burlington, Billerica	Middlesex Turnpike Improvements Phase 3 – widening Plank St. to Manning Rd.
2020	Boston	Sullivan Square/Rutherford Avenue Improvements
2020	Hanover	Route 53 Final Phase (widening to 4 lanes between Rt 3 and Rt 123)
2020	Salem	Bridge Street (widening to 4 lanes between Flint and Washington St.)
2020	Somerville, Medford	Green Line Extension to Mystic Valley Parkway (Route 16)
2025	Canton	I-95 (NB)/Dedham Street Ramp/Dedham Street Corridor (new ramp with widening on Dedham St. from I-95 to University Ave.)
2025	Canton	I-95/I-93 Interchange (new direct connect ramps)
2025	Newton, Needham	Needham Street/Highland Avenue (includes widening Charles River Bridge)
2025	Woburn	Montvale Avenue (widening between Central St. to east of Washington St.)
2025	Woburn	New Boston Street Bridge (reestablish connection over MBTA Lowell line)
2035	Braintree	Braintree Split - I-93/Route 3 Interchange
2035	Framingham	Route 126/135 Grade Separation
2035	Reading, Woburn, Stoneham	I-93/I-95 Interchange (new direct connect ramps)
2035	Revere, Malden, Saugus	Route 1 (widening from 4 to 6 lanes between Copeland Circle and Rt. 99)
2035	Wilmington	Tri-Town Interchange (new “Lowell Junction” interchange on I-93 between Route 125 and Dascomb Rd.)
Analysis Year	Community	Project Description - Cape Cod Region
2020	Barnstable	Yarmouth Rd. /Rt 28 (widening to 4 lanes) with Hyannis Access Improvements
2025	Bourne	Route 6 Exit 1 WB on-ramp changes and interchange improvements
2035	Bourne	Route 25 Access Ramp widening / Belmont Circle two-way travel
2035	Capewide	Daily Passenger Rail Service: Hyannis to Buzzard’s Bay, Middleborough
2035	Mashpee	Mashpee Rotary Ring Roads (connectors, Great Neck Rd, Routes 28 and 151)
Analysis Year	Community	Project Description - Central Massachusetts Region

2016	Northborough	Rt 20 Church to South, signal coordination in corridor
2016	Shrewsbury/Worcester	Rt 9 Bridge over Lake Quinsigamond: widening, additional lane each direction
2016	Auburn	Rt 12/20 to Auburn TL capacity improvements and raised median
2016	Worcester	Lincoln/Highland/Pleasant Streets intersection corridor improvements, minor widening, select signal coordination
2016	Worcester	Route 20 Widening to a consistent 4 lanes
2020	Charlton, Oxford	Route 20 Widening to a consistent 4 lanes
2025	Westborough, Hopkinton	I-90/I-495 and I-495/Rt 9 Interchange Improvements (CD or frontage roads)
2035	Worcester	Route 122/122A Madison St/Chandler St. Kelley Square to Pleasant St: various improvements and signal coordination
2035	Worcester	I-290 Hope Ave. (to full interchange and roundabout at Webster and Hope)
2035	Millbury, Sutton	Route 146 Improvements: Route 122A to Central Turnpike
Analysis Year	Community	Project Description – Martha’s Vineyard Region
n/a	n/a	none
Analysis Year	Community	Project Description – Merrimack Valley Region
2016	Amesbury	Route 110 from I-495 to I-95 (widen from 2 lanes to 4)
2020	Newburyport, Amesbury	I-95 over Merrimack River (Whittier Bridge widening from 6 to 8 lanes)
2020	Methuen	Route 110/113 (Methuen Rotary – new interchange ramps at I-93)
2025	Lawrence, North Andover	Route 114 (widening from I-495 to Waverly Road)
2035	Andover	Tri-Town Interchange (new “Lowell Junction” interchange on I-93 between Route 125 and Dascomb Rd.) and I-93 widening to 4 lanes in each direction from new interchange/current “lane drop” area to I-495.
Analysis Year	Community	Project Description – Montachusett Region
2016	Fitchburg/Westminster	New Wachusett Commuter Rail Station
2016	Ayer to South Acton	Fitchburg Line Commuter Rail Improvements (double track)
2020	Leominster	Route 13 Hawes St. to Prospect St. (some widening, new signals, etc)
2025	Athol	New Interchange on Route 2 at South Athol Road
Analysis Year	Community	Project Description – Nantucket Region
n/a	n/a	none
Analysis Year	Community	Project Description – Northern Middlesex Region
2016	Westford	Route 110 Minor’s Corner to Nixon widen to 4 lanes
2020	Billerica	Middlesex Turnpike Improvements Phase 3 – widening Plank St. to Manning Rd.
2035	Tewksbury	Tri-Town Interchange (new “Lowell Junction” interchange on I-93 between Route 125 and Dascomb Rd.) and I-93 widening to 4 lanes in each direction from new interchange/current “lane drop” area to I-495.
2035	Westford	I-495 at Boston Road (Exit 32) widening of on and off ramps
2035	Lowell, Tewksbury, Chelmsford, and Westford	I-495 Additional travel lane each direction between Exits 32 and 35 and between Exits 37 and 40
2035	Lowell	Wood Street, Rourke Bridge: new bridge, widening and corridor improvements
Analysis Year	Community	Project Description – Old Colony Region
2016	Abington	Route 18 - Widening to 4 Lanes from Route 139 to Highland Rd.
2020	Brockton	Route 123 - Widen from Route 24 to Angus Beaton Drive
2020	Bridgewater	Route 24 - Add Northbound Slip Ramp from Route 104 WB to Route 24 NB
2020	Plymouth	Route 3 - Add Northbound on-Ramp at Long Pond Road (Exit 5)
2020	Plymouth	Long Pond Road Bridge widening (Exit 5)

2025	Brockton	Main Street, Warren Avenue, Spring Street, West Elm Street, Belmont Street - Reestablish Two-Way Circulation
2025	West Bridgewater	Route 106 - Widening from 2 to 4 Lanes between Route 24 and Route 28
2035	Plymouth	Route 3 – Add NB Off-ramp to Plimouth Plantation Hwy (Exit 4)
2035	Plymouth	Route 25 - Add New Interchange Before Exit 1 and connect to Bourne Road
2035	West Bridgewater	Route 28, Route 106, Central Square Signal and intersection coordination
Analysis		
Year	Community	Project Description – Southeastern Massachusetts Region
2016	Fall River, Somerset	New Brightman Street Bridge - capacity improvements to 4 lane divided facility
2016	Fall River	Route 79/Davol Street (interchange improvements and new traffic circulation)
2016	Freetown	Route 24 - New Interchange (Exit 8 ½)
2016	Mansfield	Route 140 / I-495 New Southbound On-Ramp
2020	Dartmouth	Route 6 (Fauce Corner Rd) / I-195 Interchange - Bridge Widening to 5 Lanes
2035	Taunton	Route 24 / 140 - Interchange Reconstruction

Air Quality Conformity Analysis

The emissions from the following MPOs have been combined to show conformity with the SIP for the Eastern Massachusetts Ozone Nonattainment Area:

- Cape Cod MPO
- Central Massachusetts MPO
- Merrimack Valley MPO
- Boston MPO
- Montachusett Region MPO
- Northern Middlesex MPO
- Old Colony MPO
- Southeastern Region MPO
- Martha's Vineyard Commission*
- Nantucket Planning and Economic Development Commission*

* These regions do not contain any official urbanized areas, but are considered to be MPOs for planning purposes.

Using the latest planning assumptions, the Massachusetts Department of Transportation, Office of Transportation Planning, in coordination with MPO staff, estimated the emissions for VOC and NO_x for all MPOs in Eastern Massachusetts through a combination of the statewide and Boston Region travel demand models. The VOC mobile source emission budget for 2009 and beyond for the Eastern Massachusetts Nonattainment Area has been set at 63.50 tons per summer day and the 2009 (and beyond) mobile source budget for NO_x is 174.96 tons per summer day. As shown in Tables 1 and 2, the results of the air quality analysis demonstrate that the VOC and NO_x emissions from all Action scenarios are less than the VOC and NO_x emissions budgets for the Eastern Massachusetts Nonattainment Area:

TABLE 1
VOC Emissions Estimates for the Eastern Massachusetts Ozone Nonattainment Area
(all emissions in tons per summer day)

Year	Martha's Vineyard Action Emissions	Eastern MA Action Emissions	Budget	Difference (Action - Budget)
2010	n/a	64.974	n/a	n/a
2016	0.0544	36.232	63.50	-27.268
2020	0.0502	32.386	63.50	-31.114
2025	0.0476	30.988	63.50	-32.512
2035	0.0503	31.063	63.50	-32.437

TABLE 2
NOx Emissions Estimates for the Eastern Massachusetts Ozone Nonattainment Area
(all emissions in tons per summer day)

Year	Martha's Vineyard Action Emissions	Eastern MA Action Emissions	Budget	Difference (Action - Budget)
2010	n/a	178.925	n/a	n/a
2016	0.0849	66.219	174.96	-108.741
2020	0.0581	45.188	174.96	-129.772
2025	0.0450	36.521	174.96	-138.439
2035	0.0404	29.038	174.96	-145.922

The Martha's Vineyard MPO has conducted an air quality analysis of the 2012 Martha's Vineyard Regional Transportation Plan and its latest conformity determination. The purpose of the analysis is to evaluate the air quality impacts of the Plan on the SIP. The analysis evaluates the change in ozone precursor emissions (VOCs, and NOx) due to the implementation of the 2012 Martha's Vineyard Regional Transportation Plan. The modeling procedures and assumptions used in this air quality analysis follow guidance from EPA and the Commonwealth and are consistent with all present and past procedures used by the Massachusetts DEP to develop and amend the SIP.

MassDOT has found the emission levels from all MPOs in Eastern Massachusetts – including from the 2012 Martha's Vineyard Regional Transportation Plan – to be in conformance with the SIP according to conformity criteria. Specifically, the following conditions are met:

- The VOC emissions for the Action (build) scenarios are less than the 2009 VOC motor vehicle emission budget for analysis years 2016 through 2035.
- The NOx emissions for the Action (build) scenario are less than the 2009 NOx motor vehicle emission budget for analysis years 2016 through 2035.

In accordance with Section 176(c)(4) of the Clean Air Act as amended in 1990, the MPO for the Martha’s Vineyard Region has completed its review and hereby certifies that the 2012 Martha’s Vineyard Regional Transportation Plan and its latest conformity determination satisfies the conformity criteria where applicable, and therefore conditionally conforms with 40 CFR Parts 51 and 93, and 310 CMR 60.03, and is consistent with the air quality goals in the Massachusetts State Implementation Plan.

Documenting GHG-Emissions Reduction for GreenDOT Implementation

MassDOT, using its statewide travel demand model, has provided the Martha’s Vineyard MPO with statewide estimates of CO₂ emissions resulting from the collective list of all recommended projects in all the Massachusetts RTPs combined. Emissions are estimated in the same way as the criteria pollutants (volatile organic compounds, nitrogen oxides, and carbon monoxide) whose emissions are required for the air quality conformity determination. However, the CO₂ emissions shown here are part of an effort separate from the conformity analysis and are not part of those federal standards and reporting requirements.

The Global Warming Solutions Act (GWSA) legislation requires reductions by 2020 and further reductions by 2050, relative to the 1990 baseline. The project mix from this RTP (and all other RTPs) was modeled for both 2020 and 2035 using an Action (Build) vs. Baseline (No-Build) analysis to determine the CO₂ emissions attributed to the all MPO’s mix of projects and smart-growth land use assumptions. The estimates of the modeled CO₂ emissions are provided below:

TABLE 3
Massachusetts Statewide CO₂ Emissions Estimates
 (all emissions in tons per summer day)

Year	CO₂ Action Emissions	CO₂ Base Emissions	Difference (Action - Base)
2010	101,514.4	101,514.4	n/a
2020	105,747.5	105,856.4	-108.9
2035	115,034.1	115,028.0	6.1

As shown above, collectively, all the projects in the RTPs in the 2020 Action scenario provide a statewide reduction of nearly 109 tons of CO₂ per day compared to the base case. However, the 2035 Action scenario estimates an increase of about 6 tons of CO₂ emissions compared to the base case. It should be noted that this current analysis measures only projects that are included in the travel demand model. Many other types of projects that cannot be accounted for in the model (such as bicycle and pedestrian facilities, shuttle services, intersection improvements, etc.) will be further analyzed for CO₂ reductions in the next

Transportation Improvement Program development cycle. This information will be updated and reported at that time.

Working closely with MassDOT, the Martha's Vineyard MPO will continue to report on its actions to comply with the GWSA and to help meet the GHG reductions targets. As part of this activity, the MPO will provide further public information on the topic and will advocate for steps needed to accomplish the MPO's and state's goals for greenhouse gas reductions.

APPENDIX A2

Participants and Meetings

Joint Transportation Committee

Members

- Russell Smith (County of Dukes County) - chairman
- Theodore Leslie (Town of Aquinnah)
- Dan Greenbaum (Town of Chilmark)
- Stuart Fuller (Town of Edgartown)
- Richard Combra Jr. (Town of Oak Bluffs)
- Fred LaPiana (Town of Tisbury) – vice-chair
- Janet Bank (Town of West Tisbury)

Ex-Officio Members

- Sean Flynn (Martha's Vineyard Airport)
- Karen Pearson (The Massachusetts Department of Transportation)
- Angela Grant (Vineyard Transit Authority)
- Paul F. Maloney (Federal Highway Administration)
- William Gordon (Federal Highway Administration)
- Mark London (Martha's Vineyard Commission)
- Bridget Tobin (Steamship Authority)
- Woody Vanderhoop (Wampanoag Tribe of Gay Head/Aquinnah)
- David Whitmon (Bicycle and Pedestrian Committee)
- Pam Haznar (MassDOT District 5)
- Tim Kochan (MassDOT District 5)

RTP 2003 and 2007 Updates

This update draws heavily upon the 2003 and 2007 updates. The following people contributed to those efforts.

- The 2003 update was written primarily by Mark London, Executive Director of the Martha's Vineyard Commission in collaboration with David Wessling (AICP), with Bill Veno, and Christine Flynn. The willing and active assistance of Arthur Flathers and Daniel Greenbaum was gratefully acknowledged in that report.
- RTP 2003 Update Advisory Committee: Robert E. Clermont (Thrifty Car Rental), John Clese, E. B. Collins, Marc R. Cutler, Arthur Flathers, Daniel Greenbaum, Larry Mercier, Al Scott (Cape Cod Express), Doug Siple (Marlene's Taxi), Christopher Smith, and Craig Whittaker

- Taxi Working Group: Doug Siple (Marlene's Taxi), Adam Wilson (Adam Cab), Diane Haberkost (Your Taxi)
- Freight Working Group: Art Flathers, Leigh Carroll (Carroll's Trucking), Al Scott (Cape Cod Express), Jack Law, Brian Flanders (Sysco), John Roberts (IFP)
- Ad-Hoc RTP Brainstorming Group: John Abrams, Renee Balter, Marie Laursen, Ralph Packer, Susan Wasserman
- MVC Planning Economic Development Committee: Richard Toole (Chair), Megan Ottens-Sargent (Co-Chair), James A. Athearn, John Best, Christina Brown, Linda DeWitt, Tristan Israel, Katherine Newman, Douglas Sederholm, Linda Sibley, Andrew Woodruff
- The 2007 update was worked on by MVC staff members Jim Miller, Oceana Rames, and Mark London, with William Veno (AICP) working on the Bicycle/Pedestrian section. Daniel Greenbaum provided substantial comments and guidance, and Arthur Flathers provided important input on several sections.
- The Bicycle/Pedestrian Advisory Subcommittee of the JTC was involved in formulating proposals for the section on that topic in the 2007 update. Its members included: John Caldwell, Margaret Curtin, Mimi Davisson, Cornelia Decker, Kathy Donegan, Bob Enos, Chris Fried, Stuart Fuller, Dan Greenbaum, Craig Hockmeyer, Michael Hall, Ashley Hunter, Rob Kagen, Trina Kingsbury, Susan Schaefer, Nelson Smith, Richard Toole, Nancy Weaver, and David Whitmon.

RTP 2011 Update

This update was prepared by the staff of the Martha's Vineyard Commission working under the direction of the Martha's Vineyard Joint Transportation Committee.

Jim Miller assisted in the revision of the update. Angela Grant and the staff of the VTA, Wayne Lamson of the Steamship Authority, Sean Flynn of the Martha's Vineyard Airport, and the Bicycle/Pedestrian Advisory Subcommittee of the JTC provided comments and data on the relevant sections.

Public meetings and participation in the RTP: The public was involved in many ways during the development of this plan.

- There was a public forum on December 1, 2010 to introduce drafts of the plan and accept comment.
- The public was invited to comment on the plan during the 30-day public comment period (July 29, to August 29, 2011).
- A public meeting on the draft RTP was held on August 29, 2011 in the offices of the Martha's Vineyard Commission.

Additionally, the work of the *Island Plan* Transportation Work Group provided much input for this update; its members included Jeff Parker (Chair), Dean Bragonier, Christina Brown, Sean Flynn, Chris Fried, Dan Greenbaum, Tristan Israel, Raye King, Chris Murphy, Kathy Newman, Robert Potts, Linda Sibley, John Stevenson, Richard Toole.

In addition to the many comments received in the form of mark-ups from individuals who read various drafts (particularly helpful comments from MassDOT), written comments were received

from Paul Maloney (FHWA) and David Mohler (MassDOT). All written comments are available at the Martha's Vineyard Commission website (www.mvcommission.org), in the Resource Documents file "RTP Comments 2011".

The following is a summary of the comments received during the 30-day public comment period and how they were dealt with in the RTP.

- The FHWA sent comments on August 27, 2011. It called for addition of a section on pavement management, a better explanation of the public participation process, and a clearer demonstration that the plan was financially constrained. These changes were made.
- David Mohler of MassDOT sent comments on August 19, 2011, updating data and narrative information, asking for inclusion of air quality information and other technical requirements. These changes were made.
- Dan Greenbaum gave oral comments at the August 29, 2011 public meeting clarifying the analysis of Steamship Authority statistics. These clarifications were added to the plan.

Legal Notice

The following is the advertisement for the 30-day public consultation period.

Martha's Vineyard Joint Transportation Committee

You are invited to review and comment on a transportation planning document which will influence long term policies, the funding of short term transportation projects and the scope of planning studies and activities.

2012-2015 Regional Transportation Plan

The documents are available at the Old Stone Building, 33 New York Avenue, Oak Bluffs, MA or at www.mvcommission.org. Call 508-693-3453 for more information.

Please send your written comments during the thirty day public comment period beginning on July 29, 2011 by August 29, 2011 to:

Joint Transportation Committee
Box 1447 Oak Bluffs, MA, 02557

APPENDIX A3

Transportation Glossary

Accessibility: *The ability to reach a location; a way or means of approach*

Average Daily Traffic (ADT): *The mean daily number of vehicles on a particular road, typically measured by automated traffic counters*

Capacity: *The volume of vehicles the road was designed to carry in a unit of time, such as an hour; can also be applied to transit or bicycle/pedestrian paths*

Congestion Mitigation and Air Quality Improvement Program (CMAQ): *A program, jointly administered by the FHWA and FTA, to fund projects that reduce air pollutants from transportation-related sources.*

Corridor Access Management: *A range of ways to preserve the safe, efficient traffic operations and character of roads through application of land use control measures, design approaches, and coordination of transportation and land use planning.*

Environmental Justice: *The fair treatment and meaningful involvement of all people regardless of race, color, national origin, culture, education, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. In transportation, this requires review of whether the benefits and burdens of transportation investments appear to be distributed evenly across the regional demographic profile and, if necessary, mitigation of such effects.*

Federal Highway Administration (FHWA): *An agency of the U.S. Department of Transportation (DOT) charged with ensuring*

that America's roads and highways are safe and technologically up-to-date. FHWA provides financial and technical support to State, local, and tribal governments for constructing, improving, and preserving America's highway system.

Intermodal: *The integration of various modes in a whole transportation system or facility*

Intelligent Transportation Systems (ITS): *Intelligent Transportation Systems encompass a broad range of wireless and wire-line communications-based information, control and electronics technologies that, when integrated into the transportation system infrastructure and vehicles themselves, help monitor and manage traffic flow, reduce congestion, provide alternate routes to travelers, enhance productivity, and increase safety.*

Joint Transportation Committee: *The Joint Transportation Committee (JTC) advises the Committee of Signatories – the EOT, MassDOT, and the VTA – which is responsible for transportation planning on the Vineyard. The JTC's members widely represent Island interests to ensure a balanced consideration of transportation issues.*

Level of Service (LOS): *A rating of A through F (similar to report card grades) that summarizes transportation operating conditions. It is usually used to describe a section of road or an intersection as experienced by drivers, but can also be applied for users of other modes of transportation.*

Livability: In a transportation context, a concept that emphasizes modes of transportation other than the personal automobile, and recognizes that the infrastructure required to serve the personal automobile can be detrimental to the health, environment, and economy of communities.

Martha's Vineyard Regional Transit Authority (VTA): The VTA provides year-round public transit service to the six towns of Martha's Vineyard. The VTA's transportation services consist of both fixed route bus and paratransit services (known as the "Lift").

Massachusetts Association of Regional Planning Agencies (MARPA): MARPA is a statewide organization composed of the Commonwealth's 13 regional planning agencies (RPAs). MARPA coordinates the activities of the RPAs on a statewide basis by providing information and technical assistance to its members and other groups and organizations, while also maintaining an active dialogue and liaison with the federal and state levels on important planning policies, programs, legislation, topical issues, and special projects and initiatives working on behalf of its member agencies and, by extension, the RPAs' member cities and towns across Massachusetts.

Metropolitan Planning Organization (MPO): The Martha's Vineyard MPO consists of the following:

- Massachusetts Department of Transportation (MassDOT) Secretary
- Martha's Vineyard Regional Transportation Authority (VTA) Chair
- Martha's Vineyard Commission (MVC) Chair

Mobility: The ability to move or be moved easily.

Mode: A way people or goods get from one place to another, such as using cars and

trucks, freight and passenger trains, walking, bicycling, and riding buses.

Paratransit: Use of small buses or vans on flexible routes, usually serving people who cannot easily get around

Regional Transportation Plan (RTP): The guiding document for all federally funded transportation planning efforts, with a twenty year horizon and updated every three years.

State Implementation Plan (SIP): The statement of how the transportation, environmental, and health communities expect to meet federal air quality safety standards.

STP: FHWA program that provides flexible funding that can be used by States and localities for projects on any Federal-aid highway, including the NHS, bridge projects on any public road, transit capital projects, and intracity and intercity bus terminals and facilities. A portion of funds reserved for rural areas may be spent on rural minor collectors.

Transportation Enhancements (TE): FHWA funding program for projects including one of 12 eligible activities and relate to surface transportation. For example, projects can include creation of bicycle and pedestrian facilities, streetscape improvements, refurbishment of historic transportation facilities, and other investments that enhance communities and access.

Transportation Improvement Program (TIP): The multi-year capital program of transportation projects updated each year

Traffic Calming: Measures to reduce the negative effects of vehicles, and improve conditions for walking or bicycling. A familiar example is the orange barrels with the warning to stop for pedestrians.

Traffic Model: A traffic model is a tool for representing and analyzing the major ways

people get around. Usually this tool is a software package which incorporates a road network, land use data, and a mathematical formula to distribute and route trips. The model is calibrated to existing traffic counts. Then it can be used to forecast traffic and test the effect of changes in the road network.

Travel Demand Management (TDM):

TDM is a combination of strategies or actions whose goal is to encourage travelers to use alternatives to driving alone. TDM strategies may be developed for a single work site, specific corridor, or area.

Travel System Management (TSM):

TSM is a combination of low-cost strategies that use a total approach to transportation system management. The goal is to shift emphasis from expanding capacity to making better use of existing transportation systems.

Travel Time: The time it takes to travel door-to-door.

Unified Work Program (UWP): The statement of transportation planning tasks to be completed for the year & the budget for them

Vehicle Miles of Travel (VMT): The sum of all the miles traveled by vehicles (not people) in a specified amount of time

Volume: The number of vehicles that actually pass through a given mile of road in a unit of time such as a day; can also be applied to transit or bicycle/pedestrian paths.

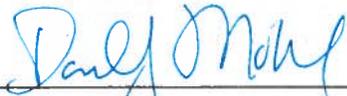
Sources:

1. Talking the Talk: A Guide to the Language of Transportation Planning (St. Louis, MO: East-West Gateway Coordinating Council, 2000).
<ftp://ftp.ewgateway.org/library/trans/talkingthetalk.pdf>
2. Glossary of Transportation Terms and Acronyms (Texas Department of Transportation, 2002).
www.dot.state.tx.us/insdotdot/geodist/ans/mis/i35mis/i35gloss.htm

APPENDIX A4

Endorsement

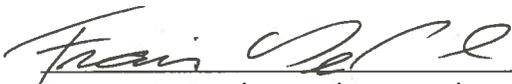
We, the undersigned members of the Committee of Signatories for the Martha's Vineyard Region, do hereby endorse the 2011 Regional Transportation Plan.



Richard A. Davey, Secretary of Transportation
Massachusetts Department of Transportation

09/23/11

Date



Francis DePaola, Highway Administrator
Massachusetts Department of Transportation

9/23/11

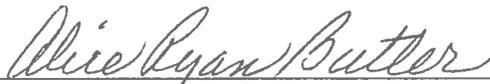
Date



Christopher Murphy, Chairman
Martha's Vineyard Commission

9/16/11

Date



Alice Butler, Chairman
Martha's Vineyard Transit Authority

9/14/11

Date

APPENDIX A5

Supporting Documents

4/20/11 DRAFT

FFY 2011 - 2035 Regional Transportation Plan Funding (thousands)

	2011 - 2015	2016 - 2020	2021 - 2025	2026 - 2030	2031 - 2035	TOTAL
ESTIMATED FEDERAL FUNDING						
Core Program Federal Funds Available	\$2,800,000	\$3,082,310	\$3,560,056	\$4,115,488	\$4,770,978	\$19,288,832
Assumed Redistribution	\$160,000	\$218,736	\$253,575	\$293,833	\$340,784	\$1,267,069
Total Federal Funds Available	\$2,960,000	\$3,281,046	\$3,803,631	\$4,409,321	\$5,111,763	\$19,555,891
Less GANS Payments	\$835,675	\$750,000	\$206,000	\$0	\$0	\$1,791,675
Federal Funds Available for SWRB	\$2,124,325	\$2,531,046	\$3,597,631	\$4,409,321	\$5,111,763	\$17,774,216
Total Funds Available Including State Match	\$2,575,337	\$3,082,235	\$4,392,039	\$5,390,043	\$6,249,537	\$21,686,190
Less Major Infrastructure Project	\$162,750	\$218,736	\$330,469	\$403,776	\$469,087	\$1,584,807
Less Major Infrastructure Project Needs - HPP	\$0	\$0	\$0	\$0	\$0	\$0
Less NHS/Interstate Maintenance Program	\$404,056	\$432,978	\$649,914	\$793,237	\$919,579	\$3,189,743
Less Federal Aid Bridge Needs	\$633,977	\$696,499	\$1,045,163	\$1,274,963	\$1,478,032	\$5,130,632
Less Statewide Items:						
Planning	\$115,000	\$125,773	\$145,000	\$169,029	\$195,951	\$751,559
Extra Work Orders	\$218,650	\$246,078	\$285,272	\$330,709	\$385,382	\$1,465,392
Infrastructure Maintenance	\$329,315	\$280,730	\$388,924	\$474,434	\$590,000	\$2,023,403
Total Statewide Items	\$663,165	\$652,582	\$820,002	\$974,172	\$1,129,333	\$4,239,254
BALANCE AVAILABLE FOR SWRB	\$711,409	\$1,109,883	\$1,567,763	\$1,986,511	\$2,279,728	\$7,665,511
Estimated HPP Funding including State Match	\$0	\$0	\$0	\$0	\$0	\$0
ESTIMATED NON-FEDERAL FUNDING						
TOTAL ESTIMATED NFA FUNDS AVAILABLE	\$750,000	\$820,261	\$950,909	\$1,102,360	\$1,277,941	\$4,901,473
Roads	\$437,473	\$507,151	\$587,927	\$661,569	\$750,125	\$3,004,243
Bridges	\$312,527	\$313,111	\$362,981	\$440,791	\$527,816	\$1,897,229
TOTAL AVAILABLE FOR ALLOCATING IN THE RTP	\$2,891,487	\$3,559,095	\$4,933,130	\$6,015,285	\$6,973,364	\$24,471,380
Total Available for Programming in Martha's Vineyard RTP						
Major Infrastructure Projects	\$606	\$676	\$1,024	\$1,252	\$1,451	\$4,910
Federal Aid Bridge Projects	\$6,213	\$6,645	\$10,243	\$12,495	\$14,485	\$50,280
NHS/IM Projects	\$0	\$0	\$0	\$0	\$0	\$0
Statewide Maintenance	\$3,346	\$3,415	\$4,153	\$4,898	\$5,667	\$21,467
Regional Discretionary Funding	\$2,205	\$3,431	\$4,860	\$5,096	\$7,067	\$23,660
TOTAL	\$12,289	\$14,565	\$20,281	\$24,731	\$28,670	\$100,317

Office of Transportation Planning

Martha's V



PREPARED BY THE MARTHA'S VINEYARD COMMISSION
BOX 1447, 33 NEW YORK AVENUE, OAK BLUFFS, MA 02557
508-693-3453 INFO@ISLANDPLAN.ORG