

Martha's Vineyard Regional Transportation Plan 2020–2040

DRAFT FOR PUBLIC REVIEW June 23, 2019

Notes:

The section on public outreach will be completed following the public review.

The sections on financial constraints and proposed projects will be completed based on discussions with the Joint Transportation Committee.

Underlined sections indicate information that was unavailable as of this draft.

An earlier draft of this plan was approved by the Joint Transportation Committee on June 19, 2019.

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Participants and Endorsement

Martha's Vineyard Committee of Signatories

Alice Butler	Chairman, Vineyard Transit Authority
Jonathan Gulliver	Administrator, MassDOT Highway Division
Stephanie Pollack	Secretary and Chief Executive Officer, MassDOT
Douglas Sederholm	Chairman, Martha's Vineyard Commission

Martha's Vineyard Joint Transportation Committee

Voting Members

Leon Brathwaite	County of Dukes County
Richard Combra, Jr.	Town of Oak Bluffs
Keith Emin	Town of Chilmark
Angela Grant	Vineyard Transit Authority
Jennifer Rand	Town of West Tisbury
Ray Tattersall	Town of Tisbury
Adam Turner	Martha's Vineyard Commission
Durwood Vanderhoop	Wampanoag Tribe of Gay Head/Aquinnah
Vacant	Town of Aquinnah
Vacant	Town of Edgartown

Non-voting members

Pamela Haznar, P.E.	MassDOT District 5
Timothy Kochan	MassDOT District 5
Jeffrey McEwen	Federal Highway Administration
Mary Beth Mello	Federal Transit Administration
Bryan Pounds	MassDOT
Simon Shapiro	Oak Bluffs (Bicycle-Pedestrian Advisory Committee)
Derek Shooster	MassDOT
William Veno, AICP	Martha's Vineyard Commission
Vacant	Steamship Authority
Vacant	Martha's Vineyard Airport

Martha's Vineyard Commission Staff

Adam Turner	Executive Director
Sheri Caseau	Water Resources Planner
Dan Doyle	Special Projects Planner
Alex Elvin	General Planner
Christine Flynn	Economic Development and Affordable Housing Planner
Michael Mauro	Transportation Program Manager
Lucy Morrison	Executive Assistant
Curt Schroeder	Administrator and Chief Fiscal Officer
Chris Seidel	Cartographer and GIS Coordinator

Jo-Ann Taylor
William Veno, AICP

Coastal Planner and DCPC Coordinator
Senior Planner

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Endorsement [INSERT PDF WITH SIGNATURES]

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Executive Summary

This Regional Transportation Plan (RTP) for 2020–2040 comes at a time of transition for Martha’s Vineyard. As seasonal crowds continue to grow, and more and more vehicles strain the Island’s roadways and other infrastructure, transportation planning has focused more intently on alternatives to single-occupant automobile use. At the same time, state and global action in regard to climate change has helped generate Islandwide advocacy and planning efforts that aim in part to reduce fossil fuel use in the transportation sector.

Building upon the previous Martha’s Vineyard RTP, issued in 2015, this update provides both general and detailed analyses of the Island transportation network, including all regular modes of travel to and within Dukes County. It also draws from the MVC’s 2019 Martha’s Vineyard Statistical Profile, which collects a large amount of data related many aspects of Island life, including transportation. Beginning with section 6, the plan examines each mode of transportation in terms of trends and issues, and for each mode we offer a series of objectives and proposed actions that were developed in collaboration with transportation system administrators, MVC staff, members of the MVC’s Joint Transportation Committee and Bicycle-Pedestrian Advisory Committee, and the public at large. Section 5, on environmental issues; and section 15, on the concept of livability, also include objectives and proposed actions, since both topics should figure prominently in the transportation planning process.

Based on our analysis of trends and issues (and within the constraints of state and federal budget projections), this plan recommends X projects totaling \$X, for the years 2020–2040. Section 16 includes a table of estimated budgets and a general timeframe for each project, although funding at this point is not guaranteed. The proposed projects will be reviewed by the Massachusetts Department of Transportation (MassDOT), and those that are approved will be included in the Island’s Transportation Improvement Program (TIP), which is updated every year and details all funded transportation projects over a four-year period.

[GRAPH: BREAKDOWN OF SPENDING RECOMMENDATIONS]

The Vineyard’s isolation from the mainland, along with its tourism economy, scenic roads, and widely dispersed town centers, housing, and other destinations, create many opportunities for multimodal transportation. A summer visitor departing the ferry in Oak Bluffs, for example, may catch a taxi or ride-share at the terminal, rent a bicycle in town, take a shared-use-path to Edgartown for lunch, walk to the beach, and take a bus up-Island for the sunset. In light of the existing infrastructure and diverse modes of transportation already in use, this RTP encourages a comprehensive approach to transportation planning, focusing on intermodal travel options and creating a seamless travel experience for Island residents and visitors.

Global warming and rising sea levels present by far the greatest long-term challenge to the Island’s transportation network, and should serve as the primary context for all such planning. Massachusetts has made considerable progress toward the goals of its 2008 Global Warming Solutions Act (GWSA), which mandates greenhouse gas reductions of 25% below 1990 levels by 2020, and at least 80% below 1990 levels by 2050. Thanks largely to a series of state laws, regulations, and initiatives since 2008, greenhouse gas emissions in Massachusetts have fallen to about 20% of 1990 levels, and are on track to meet the goal for 2020. However, more work must be done to meet the goal for 2050.

In a major step forward for the Island, the Vineyard Transit Authority (VTA) has replaced more than a third of its 32-bus fleet with electric vehicles, and plans to replace the rest by around 2025. But it should be noted that statewide, transportation is the only sector not have seen a decline in greenhouse gas emissions since 2008 (see section 5).

Martha's Vineyard has many opportunities to reduce its contribution to global warming in the coming years, including through the stronger promotion of bicycle and pedestrian travel, infrastructural improvements, state-funded initiatives to reduce greenhouse gas emissions at the town level, and other steps outlined in this plan. However, because greenhouse gas emissions to date assure some level of continued climate disruption in the coming decades—especially in regard to sea-level rise—the Island must also focus on adapting to those changes, including as they relate to transportation. Section 5 of this plan includes a more complete discussion of climate change mitigation and adaptation, in terms of transportation planning.

Continued development and summertime congestion also present major challenges to the transportation network. Planning efforts underway at the Woods Hole, Martha's Vineyard and Nantucket Steamship Authority (SSA) and Martha's Vineyard Airport (MVY)—which account for nearly all travel to and from the Island—have generated vocal and sustained interest among the Island community in recent years. A series of ferry breakdowns and cancellations in 2018, for example, along with the construction of a new terminal in Woods Hole and concerns about traffic congestion on both sides of Vineyard Sound, have sparked discussions surrounding management, reliability, and Island capacity, and led to several institutional changes that are outlined in section 6. In addition, preliminary efforts by MVY to secure funding for a new terminal in West Tisbury caused a public backlash in 2018, including discussions surrounding Island character and capacity, as discussed in section 8. Looking ahead, both agencies face the challenge of serving a growing Island population that many believe has already reached its capacity in the summer.

At the town level, master-planning efforts since 2015 have set the stage for transportation changes aimed largely at reducing vehicle congestion and improving bicycle and pedestrian infrastructure in key areas. The new master plans for Oak Bluffs (2019), Menemsha (2017), and Aquinnah Circle (2017) are discussed in sections 9 and 12. All three plans include recommendations that will likely take years to accomplish.

The long-planned Beach Road improvement project, designed by MassDOT with extensive input from town residents and officials in Tisbury, is slated to begin in 2019. The project focuses on improving bike and pedestrian infrastructure along a well-traveled but dangerous stretch of Beach Road, and in light of rising sea levels, may serve as a learning experience for other Island towns seeking to enhance alternative modes of travel in the future.

Meanwhile, new modes of travel have entered the fold since 2015, most notably the ride-share companies Uber and Lyft (see section 11), which many see as undermining traditional taxi companies on the Island, although many have also embraced the new model, since it allows them to see their fares ahead of time and avoiding sharing a ride with other customers. Some Island towns (and the Airport) have taken steps to regulate the ride-share industry, as has the state, but its effect on Island transportation patterns, especially in the summer, remain largely unexamined. Recent discussions on the Island have also touched on the possibility of bike-share companies such as those in many cities, which raises some of the same concerns as Uber and Lyft, in terms of how it would affect local business.

This plan also highlights issues related to mopeds, which have long been a source of frustration on the Island, especially among year-round residents. A devastating accident in 2016 renewed public discussions about how to limit or ban mopeds in some Island towns, with a home-rule petition to allow such a ban in Oak Bluffs now pending in the state legislature. Section 13 includes a discussion of mopeds, and a comparison of mopeds to electric bikes, which appear to have grown in popularity.

An analysis of transportation trends and planning activities across the Island points to the importance of collaboration—among towns, Dukes County, the Wampanoag Tribe, transportation system administrators, the MVC, MassDOT and the public, in order to take better advantage of the many opportunities for transportation improvements. The MVC’s Joint Transportation Committee (JTC), which is responsible for updating this plan, represents key players in the transportation landscape; and meetings of the all-Island selectmen and planning boards present further opportunities for Islandwide discussion and policy making throughout the year. However, a growing Island population, changing technology, and rising sea levels all demand a more regular and sustained response, especially when it comes to the public at large, which may not always be aware of public meetings, or have time to attend. Along those lines, a list of planning and transportation-related organizations on the Island, along with their contact information, is included on the following page.

Transportation Planning (and Related) Organizations

Bicycle-Pedestrian Advisory Committee

Information related to BPAC meetings activities will be posted at mvcommission.org.
508-693-3453

Healthy Aging Martha's Vineyard

Various workgroups are open to new members. For information, send an email to healthagingmv@gmail.com.

508-693-7900 ext. 455

<https://www.hamv.org/workgroups>

Island Climate Action Network

Facebook: @islandclimateactionnetwork
islandclimateactionnetwork@gmail.com

Joint Transportation Committee

Information including the JTC Bylaws, is available at mvcommission.org.
508-693-3453

Martha's Vineyard Airport

Meeting schedules and agendas are posted at mvairport.com.
508-693-7022

Martha's Vineyard Climate Change Task Force [TO BE COMPLETED]

Town Selectmen, Planning Boards, Zoning Boards

Meeting agendas, contact information and other resources are available on the following town websites:

Aquinnah: aquinnah-ma.gov

Chilmark: chilmarkma.gov

Edgartown: edgartown-ma.us

Gosnold: dukescounty.org/pages/dukescountyma_gosnold/index

Oak Bluffs: oakbluffsma.gov

Tisbury: tisburyma.gov

West Tisbury: westtisbury-ma.gov

Vineyard Transit Authority

Financial information and annual reports are available at vineyardtransit.com.

508-693-9440

info@vineyardtransit.com

Woods Hole, Martha's Vineyard and Nantucket Steamship Authority

Meeting schedules and agendas, along with staff emails and SSA documents, are available at steamshipauthority.com.

508-548-5011

Section 1: Transportation Systems at a Glance [TO BE COMPLETED]

Steamship Authority

Martha's Vineyard Airport

Roads and Automobiles

Vineyard Transit Authority

Bicycle and Pedestrian Infrastructure

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Section 2: RTP Guidance and Process

Federal Legislation

The federal transportation legislation related to state and regional transportation planning began with the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), and includes additional federal legislation such as the Transportation Equity Act for the 21st Century (TEA-21), and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), along with interim surface transportation extension acts. The most recent legislation informing this plan are the Moving Ahead for Progress in the 21st Century Act (MAP-21), signed in 2012; and the FAST (Fixing America's Surface Transportation) Act, signed in 2015, both of which are outlined below.

MAP-21 and the FAST Act

MAP-21 continued basic programs, consolidated others (such as Transportation Enhancements and Safe Routes to School) into a new Transportation Alternatives Program, and established new performance goals for the Federal-Aid Highway program. Following from the national goals for transportation, MAP-21 features eight planning factors meant to instill a sustainable, efficient, and comprehensive process for transportation planning.

The FAST Act was signed into law by President Obama on December 4, 2015. As with MAP-21, it continued basic programs and consolidated others. It also established two additional planning factors to add to the eight factors featured in MAP-21. The 10 current planning factors, building on those in MAP-21, are as follows:

1. Support the economic vitality of the United States, individual states, and metropolitan and non-metropolitan areas, especially by enabling global competitiveness, productivity, and efficiency.
2. Increase the safety of the transportation system for motorized and non-motorized users.
3. Increase the security of the transportation system for motorized and non-motorized users.
4. Increase accessibility and mobility for people and freight.
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned-growth and economic development patterns.
6. Enhance the integration and connectivity of the transportation system across and between modes, and throughout the state, for people and freight.
7. Promote efficient system management and operation.
8. Emphasize the preservation of the existing transportation system.
9. Improve the resiliency and reliability of the transportation system, and reduce or mitigate the effects of stormwater on surface transportation.
10. Enhance travel and tourism.

Federal guidance for plan development encourages both short- and long-range options for an “integrated multimodal transportation system to facilitate the safe and efficient movement of people and goods in addressing current and future transportation demand.”

This RTP outlines the existing transportation system, existing usage and problem areas, and

proposes objectives and options to improve or further study the system. Much of the information is based on the work of the Joint Transportation Committee (JTC), which holds public meetings to discuss transportation planning on the Island. The JTC consists of appointed representatives of the six Island towns, the Wampanoag Tribe of Gay Head (Aquinnah), Dukes County Commissioners, the Vineyard Transit Authority (VTA), and MVC; along with three non-voting members representing the Martha's Vineyard Airport, the Steamship Authority, and the bicycle-pedestrian community; and members of the public. The JTC serves as the Martha's Vineyard Metropolitan Planning Organization (MPO), deciding upon transportation planning goals, projects, priorities, and funding at their public meetings. The committee votes on recommendations to the official MPO signatories listed below. MVC staff then reports on the recommendation at a televised MVC meeting. The official MPO signatories are:

Secretary and CEO, Massachusetts Department of Transportation (MassDOT)
Highway Administrator, MassDOT Highway Division
Chairman, Martha's Vineyard Commission
Chairman, Martha's Vineyard Transit Authority

Title VI and Environmental Justice

Under Title VI of the 1964 Civil Rights Act, "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Executive Order 12898, signed in 1994, takes Title VI further by requiring each Federal agency to identify and address "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States."

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

The Dukes County population, according to the 2010 Census, is 91% white, 3.6% Black or African American, 3.2% of residents indicate more than one race, 1.3% American Indian, 0.9% Asian, and 0.1% Native Hawaiian and Other Pacific Islander. In 2013 estimates, 2.9% were listed as Hispanic or Latino of any race. Two minority populations of note are the Wampanoag Tribe of Gay Head (Aquinnah), and the seasonal 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 only 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 as having more than one race were also concentrated in Oak Bluffs.

While the Vineyard serves many wealthy visitors and seasonal residents, the median household income of Island residents in 2016 (\$63,534) is lower than that for Massachusetts as a whole, though higher than the national median. The 2010 Census 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%). More families were below the poverty line in Tisbury (7.7%) and Oak Bluffs (6.2%) than elsewhere on the Island.

Based on these figures, the minority and low-income populations on Martha's Vineyard are somewhat concentrated in Oak Bluffs, Tisbury, and Aquinnah. One would expect those populations to follow the same travel patterns of the Island in general (i.e., jobs and commercial activity are centered down-Island while residences are more dispersed). People in Tisbury and Oak Bluffs who do not drive can make use of the VTA bus system easily (three routes serve centrally located Oak Bluffs, while six routes serve Tisbury). Those towns also feature the most developed road systems, but not the types of transportation facilities that would adversely affect the environment or public health. Tisbury and Oak Bluffs offer abundant cycling and pedestrian options, with further improvements now in the planning stages (see section 12).

More rural and remote, Aquinnah offers an abundance of natural beauty, but fewer transportation options in general, even when compared to neighboring Chilmark. A network of State roads connects Aquinnah to the rest of the Island, and the VTA serves Aquinnah with one route.

State Legislation and Guidance

Regional Planning

In the early 1970s, Massachusetts adopted the federal government's comprehensive, cooperative, and 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 formation of the Joint Transportation Committee, whose purpose and responsibilities are as follows:

- Guide regional transportation decision-making
- Serve as a forum for discussing all transportation issues
- Advise the Committee of Signatories, which includes MassDOT, The MVC, and the VTA.

weMove Massachusetts

In 2008 the Commonwealth adopted the weMove Massachusetts planning and public outreach initiative, which engaged the public in order to develop a high-level vision for transportation statewide. Based on public input, 10 core themes were developed to guide the planning, design,

and operation of the transportation system:

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

WeMove Massachusetts proceeded to review transportation system conditions and financial resources under various scenarios, and resulted in recommendations for transportation reform and performance management.

GreenDOT Policy Directive

In 2010, MassDOT issued the GreenDOT Policy Directive, which incorporates environmental concerns into transportation planning for the purpose of creating a more sustainable system. The GreenDOT Policy has three main goals:

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

In addition to those policies, various state actions related to climate change mitigation in the transportation sector are outlined below and discussed in section 5.

Greenhouse Gas Analysis

Metropolitan Planning Organizations and the Global Warming Solutions Act

The state's Global Warming Solutions Act (GWSA) of 2008 requires statewide reductions in greenhouse gas (GHG) emissions of 25% below 1990 levels by the year 2020, and at least 80% below 1990 levels by 2050. As part of the GWSA, the Executive Office of Energy and Environmental Affairs (EOEEA) developed the Massachusetts Clean Energy and Climate Plan (CECP), which outlines programs to attain the 25% reduction by 2020—including a 7.6% reduction attributed the transportation sector.

The state's 13 Metropolitan Planning Organizations are integrally involved in helping to achieve the greenhouse gas reductions mandated under the GWSA. The MPOs work closely with MassDOT and other agencies to develop common transportation goals, policies, and projects to help to reduce GHG emissions statewide. For example, one of the programs in the CECP is MassDOT's sustainability initiative known as GreenDOT (see above).

The Martha's Vineyard MPO shares in those goals and is working to meet the specific requirements of the GWSA Requirements for the Transportation Sector and the Massachusetts

Department of Transportation (310 CMR 60.05). The purpose of this regulation is to assist the Commonwealth in achieving their adopted GHG emission reduction goals by requiring that:

- MassDOT demonstrate its GHG reduction commitments and targets are being achieved.
- Each MPO evaluate and track the GHG emissions and impacts of its Regional Transportation Plan and Transportation Improvement Program (TIP).
- Each MPO, in consultation with MassDOT, develop and utilize procedures to prioritize and select projects in its RTP and TIP based on factors that include GHG emissions and impacts.

Meeting the requirements of 310 CMR 60.5 will be achieved through the transportation goals, policies, and projects contained in this Regional Transportation Plan, and through the mix of new transportation projects that are programmed and implemented through the Transportation Improvement Program.

GHG tracking and evaluation processes enable MPOs to identify the anticipated GHG impacts of both planned and programmed projects, and to use those impacts in deciding which projects to prioritize. All of the state's MPOs, along with MassDOT, are working toward reducing greenhouse gas emissions with plans, actions, and strategies that include (but are not limited to) the following:

- Reducing emissions from construction and operations
- Using more fuel-efficient fleets
- Implementing and expanding travel-demand management programs
- Encouraging eco-driving
- Providing mitigation for development projects
- Improving pedestrian, bicycle, and public transit infrastructure and operations (healthy transportation)
- Investing in higher-density, mixed-use, and transit-oriented developments (smart growth)

Regional GHG Tracking and Evaluation in RTPs

MassDOT coordinated with MPOs and regional planning agencies to implement GHG tracking and evaluation in the development of each MPO's 2016 RTP—all of which were adopted in 2015. This collaboration has continued for the MPOs' 2020–2040 RTPs, and 2020–24 TIPs. Working together, MassDOT and the MPOs have attained the following milestones:

- Long-range statewide projections for GHG emissions resulting from the transportation sector, for use before final RTP endorsement. Using the Boston MPO's regional travel demand model and the statewide travel demand model for the remainder of the state, GHG emissions (build and no-build conditions) were projected for 2020 and for 2040. The results of this modeling will be available prior to the endorsement of this RTP, and the MPO staff will present the results to the MPO membership prior to a vote on endorsement.
- All of the MPOs will include GHG emission reduction projections in their RTPs, along with a discussion of climate change and a statement of MPO support for reducing GHG emissions as a regional goal. MassDOT, using its statewide travel demand model, will provide the Martha's Vineyard MPO with statewide estimates of CO₂ emissions resulting from the collective list of recommended projects in all the Massachusetts RTPs,

supplemented by emission reduction results for smaller, “off-model” projects. Emissions will be estimated using the state MOVES model, and also incorporate the latest planning assumptions, including updated socio-economic projections for the state.

The project mix in this RTP (and all other RTPs) is expected to show a neutral shift toward meeting the statewide greenhouse gas emissions reduction goal of 25% below 1990 levels by the year 2020 and 80% below 1990 levels by 2050. The reason for the anticipated neutral shift is that early indicators have shown major infrastructure projects, both individually and collectively, would not trigger a significant change in GHG emission levels.

Working closely with MassDOT, the Martha’s Vineyard MPO continues to strive toward meeting the GHG-reduction targets and other requirements of the GWSA. As part of that effort, the MPO will provide further public information on the topic and will continue to advocate for steps needed to accomplish the MPO’s and Commonwealth’s goals for greenhouse gas reductions. For more information, see section 5.

Planning and Outreach

The public outreach effort described in this section involved the participation of many Island individuals and groups. The process also ensured consistency with other regional and local plans.

Joint Transportation Committee: Representatives of all Island towns, the Wampanoag Tribe, the VTA, and the MVC, were responsible for coordinating the update process and recommending the final plan. The JTC built upon the efforts of previous planning efforts outlined on the MVC website, including the 2016–2025 Martha’s Vineyard Transportation Plan.

Town and Public Participation: [TO BE COMPLETED]

MassDOT: MassDOT provided financial information, additional language related to state policies and procedures, and comments.

Bicycle-Pedestrian Advisory Committee (BPAC): The bicycle-pedestrian section of this plan reflects recent discussions of the Bicycle-Pedestrian Advisory Committee, which was established by the Joint Transportation Committee and reformed in 2019 after a period of dormancy. The BPAC continues to advocate for multi-modal options and provide input on transportation matters.

Formal review process: [TO BE COMPLETED]

The Martha’s Vineyard MPO Committee of Signatories: [TO BE COMPLETED]

It should be noted that while all project proposals are considered, the limited amount of estimated state and federal funding for Martha’s Vineyard may not satisfy every need. Our federal and state partners are in tight budgetary times, which underscores the importance of performance measures that indicate how project decisions will benefit the public.

Transportation Survey: [TO BE COMPLETED]

Performance Measures for Martha’s Vineyard

The performance measures for Martha's Vineyard were informed by initial staff review of existing project evaluation criteria, a consideration of potential data sources, and a review of federal and state guidelines and information. The draft performance measures were then discussed at open meetings that involved local towns and MassDOT staff, and were adopted by the JTC. These measures are consistent with the relevant Transportation Performance Measurement (TPM) and Transportation Asset Management (TPM) guidelines issued by the Federal Highway Administration in 2016. A full list of the Martha's Vineyard MPO's performance measures and goals is included in the Appendix.

Criteria for Project Prioritization

Many of the sections in this plan include a list of proposed actions. The JTC uses the following criteria to evaluate and prioritize proposed projects, and to select which ones should remain in the long-range plan and which should be added to the Transportation Improvement Program. (Brackets indicate the relative weighting assigned to each criterion.)

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

The JTC also considers the extent to which a proposed service will be used by the public, and whether it promotes or conforms to other goals of this plan, such as climate change mitigation and adaptation, and the enhancement of multi-modal options and livability.

Section 3: Martha's Vineyard Overview

Martha's Vineyard is a 117-square-mile island (including land and water) located three miles off the coast of Cape Cod in southeastern Massachusetts. Its unique topography results largely from its location on a terminal moraine, or the southern edge of the various glaciers that once covered much of North America. Home to the Wampanoag Tribe for thousands of years, it was settled by Europeans in the middle of the 17th century.

The Vineyard community consists of year-round residents, seasonal residents (many of whom own second homes on the Island), and hundreds of thousands of short-term visitors—attracted by the natural, ecological, historical, and cultural values that define the character of the Island.

Each Island town still reflects its origins: Edgartown the home of master seamen and the seat of county government; Tisbury the Island's gateway and market town, West Tisbury and Chilmark the agricultural region, Aquinnah the Wampanoag tribal settlement and fishing village, and Oak Bluffs the first summer resort. Three quarters of the Island's population is concentrated in the down-Island towns of Tisbury, Oak Bluffs, and Edgartown (so named for being farther down-latitude), each with a busy commercial center. Vineyard Haven in Tisbury serves as the Island's main port, followed by Oak Bluffs. The three up-Island towns of West Tisbury, Chilmark, and Aquinnah are more rural in character. The town of Gosnold, which includes the Elizabeth Island chain to the west, is the seventh town in Dukes County.

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.

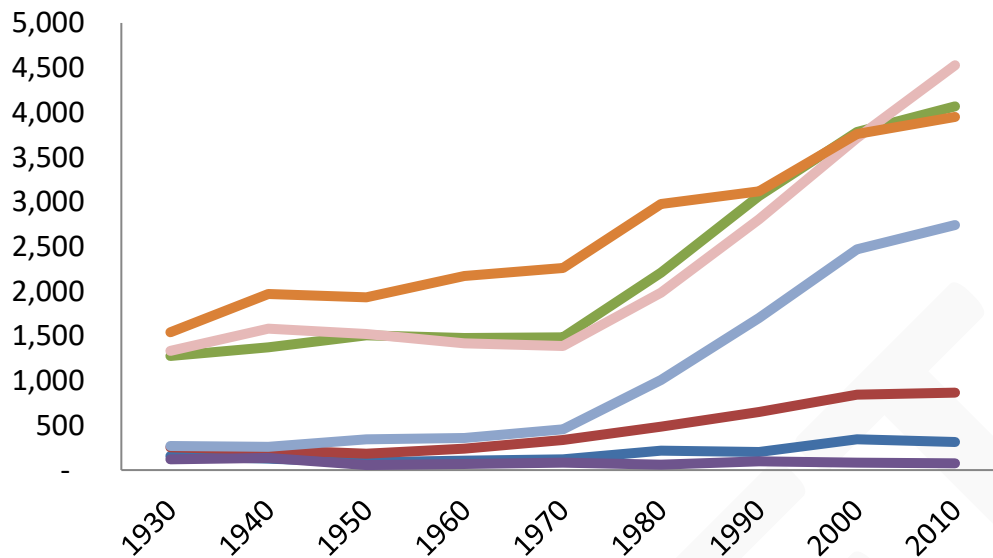
Demographics

Population

The Island's population grew slowly from 1900 to 1970, then increased sharply through the 1980s and '90s. The year-round population has grown significantly in recent decades, far outpacing most other regions, Massachusetts, and country as a whole. During each decade from 1970 to 2010, the year-round population grew about a third, but has slowed significantly since around 2005.

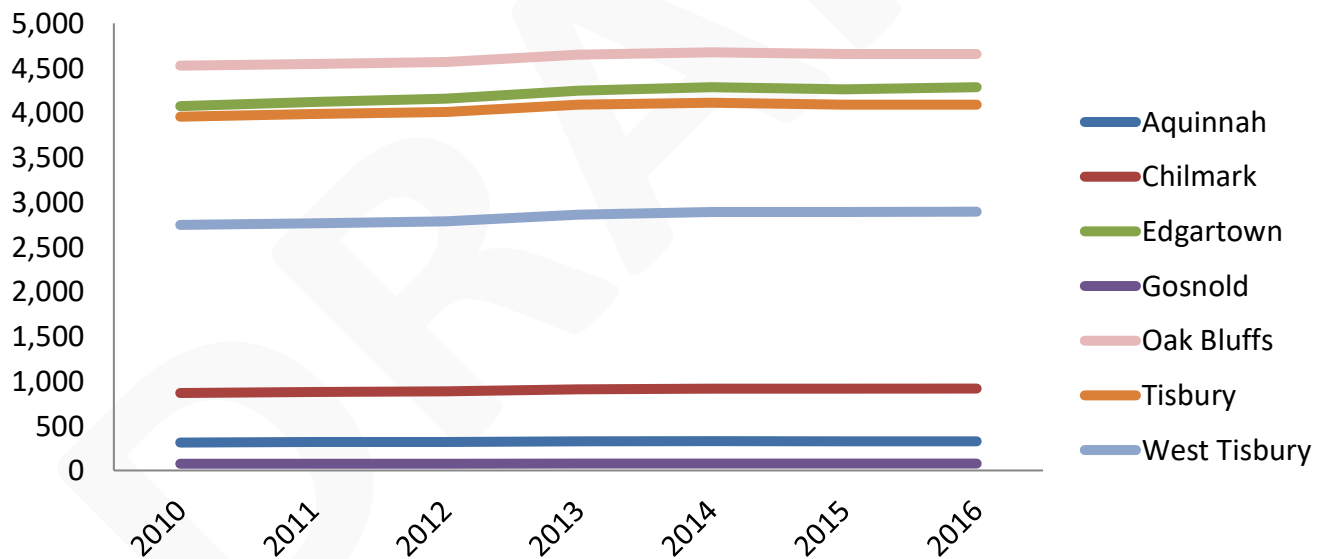
According to the American Community Survey (ACS), which provides short-term demographic estimates to supplement the 10-year U.S. Census, Dukes County had 17,137 residents in 2016, making it the second-smallest county in the state, after Nantucket. The population has increased at least 6.1% since 2010, with about three quarters of all residents living down-Island. Aquinnah's population has seen the sharpest increase (47.5%), followed by Chilmark, Edgartown, Oak Bluffs, and Tisbury. Only Gosnold's population has declined, from about 198 in 2010 to 53 in 2016, due partly to the high cost of living and the shortage of jobs on the Elizabeth Islands. West Tisbury's population has remained stable since 2010.

Decennial Population Counts



Source: US Census Bureau

Population Estimates 2010–2016



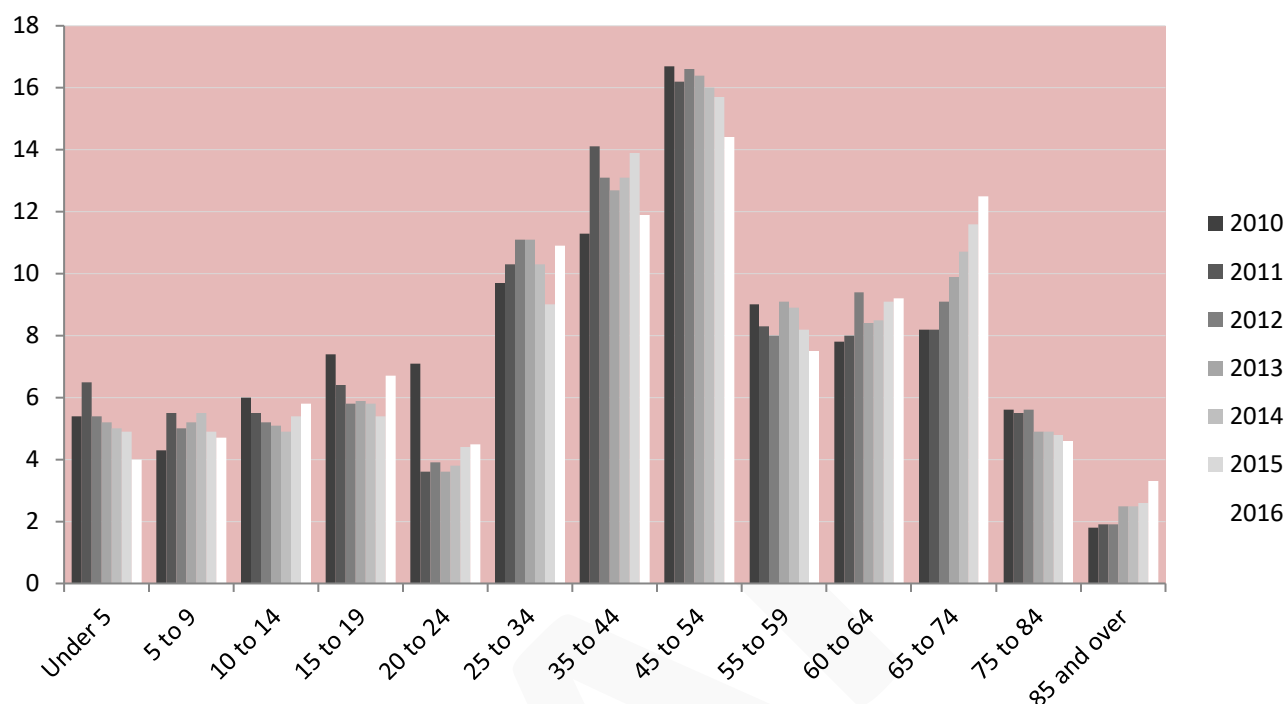
Source: American Community Survey

In terms of population density (year-round only), Oak Bluffs and Tisbury far surpass the other towns, with 632 and 623 residents per square mile, respectively. Edgartown has about 160 residents per square mile, West Tisbury 116, Aquinnah 61, Chilmark 48, and Gosnold 6. Those differences highlight the suitability of Steamship Authority ferry terminals, the VTA hub, and several bike rental companies being located in Oak Bluffs and Tisbury.

Age and Gender

In 2016, the median age in Dukes County (46.5) was seven years higher than in the state (39.4), according to the ACS. The difference reflects the county's larger elder population, but also its

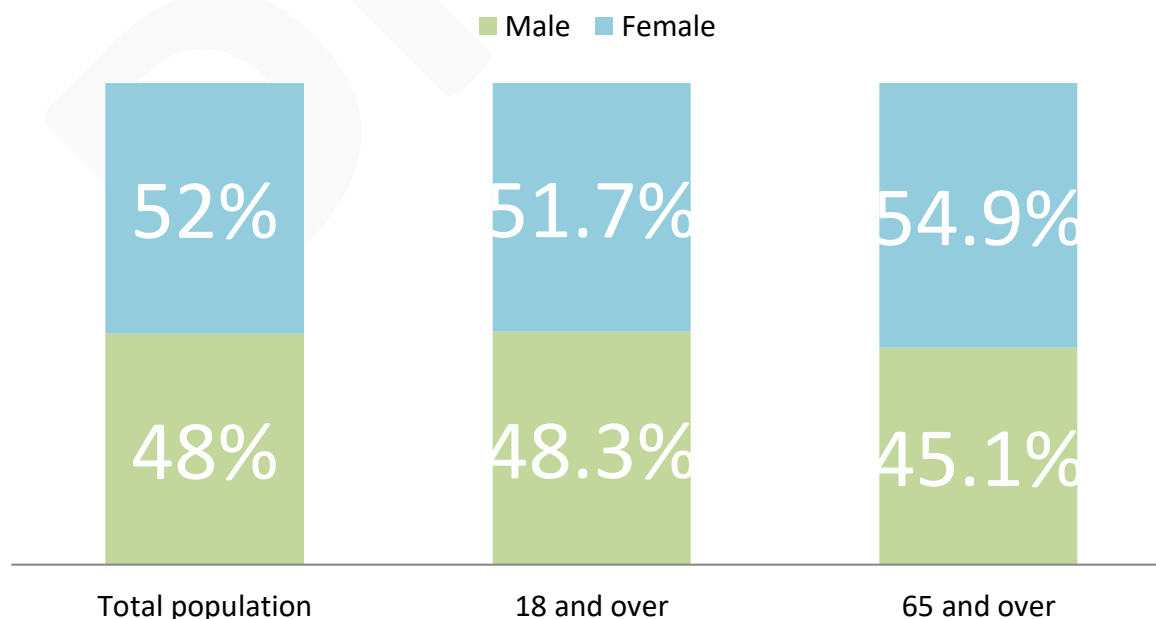
smaller number of residents ages 0–34, and especially ages 20–34. People ages 65–74 (including the upper third or so of the Baby Boomer generation) is the fastest growing age in group in both the state and the county.



Source: American Community Survey

Dukes County maintained about an even balance among males and females from 2010 to 2016, with a slight dip in the number of males in 2016, likely the result of a growing population over 65, which leans female as a result of higher female longevity.

Distribution by Gender, 2016

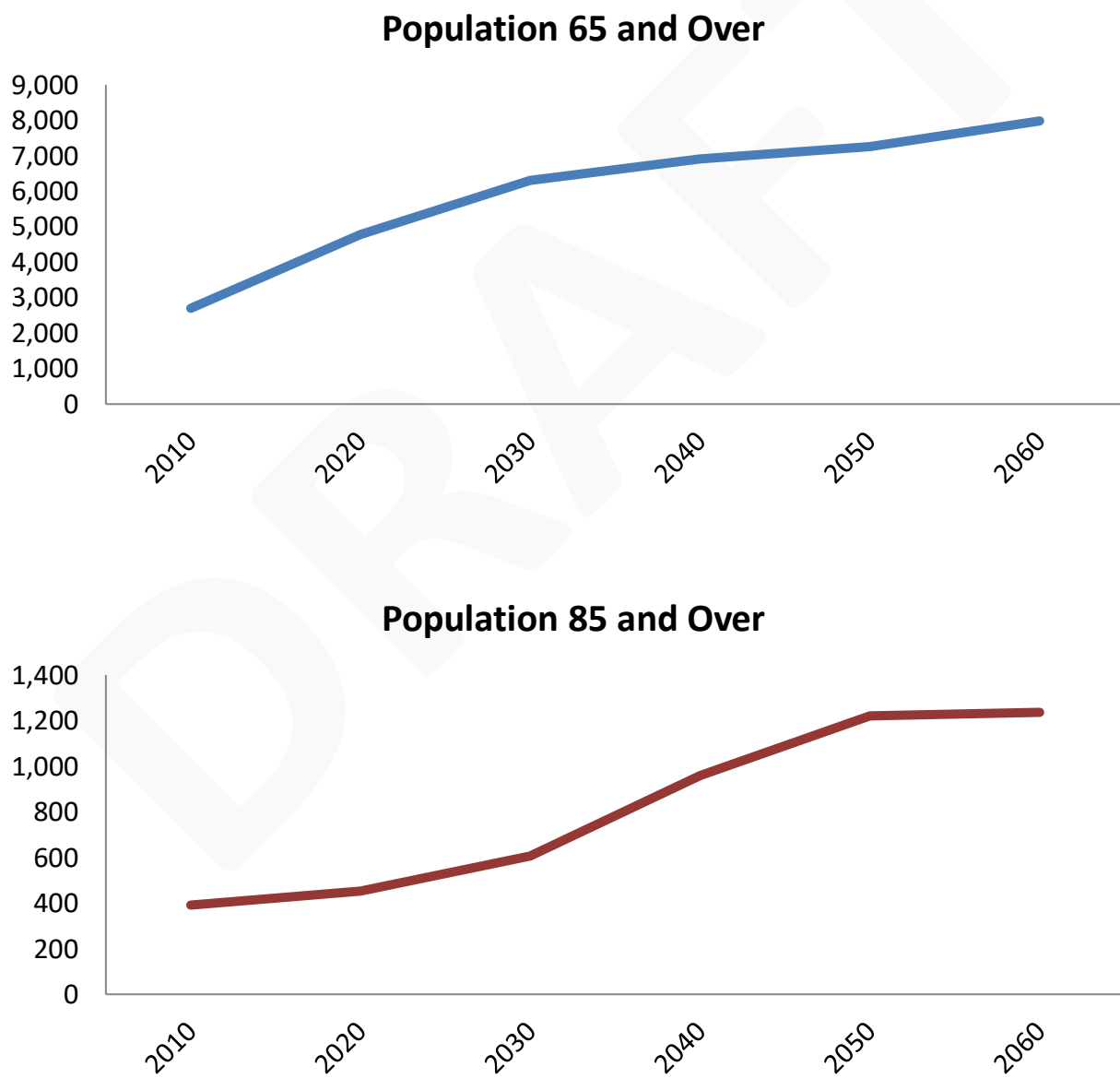


Source: American Community Survey

Population Projections

The UMass Donahue Institute in 2015 projected that the population in Dukes County would increase about 12%, to 18,453, by the year 2035. Oak Bluffs, Tisbury, and West Tisbury would see the greatest increase, while Edgartown remains stable and Chilmark and Aquinnah experience a decline.

All towns can expect an increase in their elder populations (ages 65 and up), especially between now and 2030, when that population will more than double to about 6,000 residents. Notably, despite its overall declining population, Aquinnah will see the largest increase in elders, from about 10–50% of its total population by 2030. The number of Dukes County residents over 85 is expected to triple, from about 400 in 2030 to 1,200 in 2050.



Source: UMass Donahue Institute

Economy

Economic Development Locations

The Island's primary economic activities, both seasonal and year-round, take place mostly within the town centers of Edgartown, Oak Bluffs, and Tisbury, each of which is built around a harbor and waterfront and fringed by dense commercial, mixed-use, and residential development. The waterfronts of Edgartown and Oak Bluffs, and to a lesser extent Tisbury, are composed primarily of visitor-oriented establishments that close in the off-season. Many year-round retail and office activities still occupy the down-Island towns, but have grown away from the historical commercial centers, most notably along 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, along with Beetbung Corner and the fishing village of Menemsha (both in Chilmark). The North Tisbury center is the newest and largest of those areas, and the closest to the down-Island towns.

Industrial activities in various town and rural locations are scattered across different parts of the Island, most notably at the Airport Business Park in Edgartown, where the Martha's Vineyard Airport Commission is now planning to open additional areas for commercial, non-aviation use. Although diminished from previous generations, the traditional Island industries of fishing and farming still contribute to the Vineyard's character and its appeal to visitors, as well as to the regional economy.

Martha's Vineyard has a considerable number of home businesses throughout the Island. Places of employment are also widely dispersed across the landscape, due partly to activities related to the construction, renovation, maintenance, and landscaping of properties.

Notes on the Seasonal Economy

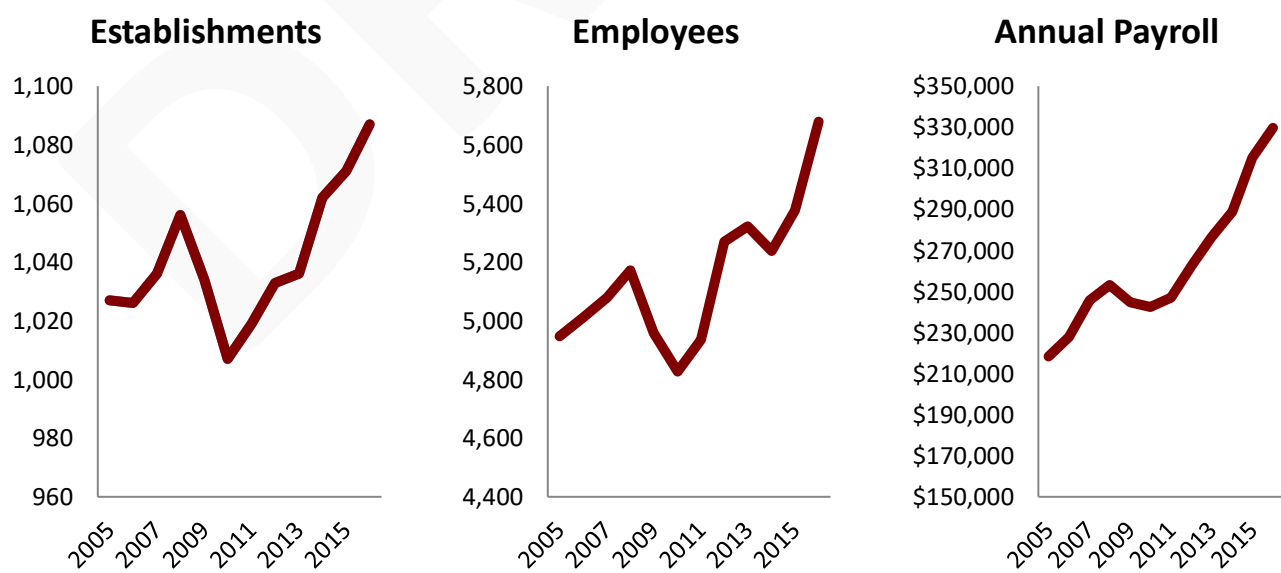
- Martha's Vineyard depends primarily on a summer tourism industry that increasingly spills over into the spring and fall, but the Island also harbors a stable and growing year-round economy.
- The driving force of the Island's economic base is the second-home owner, who purchases goods and services, often throughout the year.
- Second-home owners pay property taxes, but generally do not send their children to Island schools, which provides something of a windfall for the year-round population. The philanthropy of seasonal residents also contributes to many high-quality services on the Vineyard (for both government and private sectors), while enabling the towns to maintain relatively low tax rates.
- Consumer spending can vary widely among sub-groups, including year-rounders, seasonal residents, vacationers, transient visitors (staying for less than a week), and day-trippers.
- The MVC, in partnership with the Martha's Vineyard Chamber of Commerce and other Island nonprofits, has worked diligently to help expand the shoulder seasons (spring and fall) with new and existing tourism opportunities that help support the hospitality sectors, including restaurants, hotels, and retail industries. Efforts have also been made to help

diversify the Island's economic base, particularly within the creative economy sector, which includes arts and culture; and to support the Island's traditional industries of farming and fishing.

- Due to the tourist-based economy and seasonal nature of the Island, training and retaining a skilled workforce continues to pose serious challenges to Island employers.
- The extreme fluctuations in population from winter to summer severely strains town infrastructure, including water, sewer, and solid waste facilities, and especially the Island road network.
- 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 in all Island towns (about 65%) are occupied seasonally. The additional demand for summer housing brought on by thousands of seasonal workers further strains 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 in maintaining a stable workforce has a significant negative economic impact on the Island.

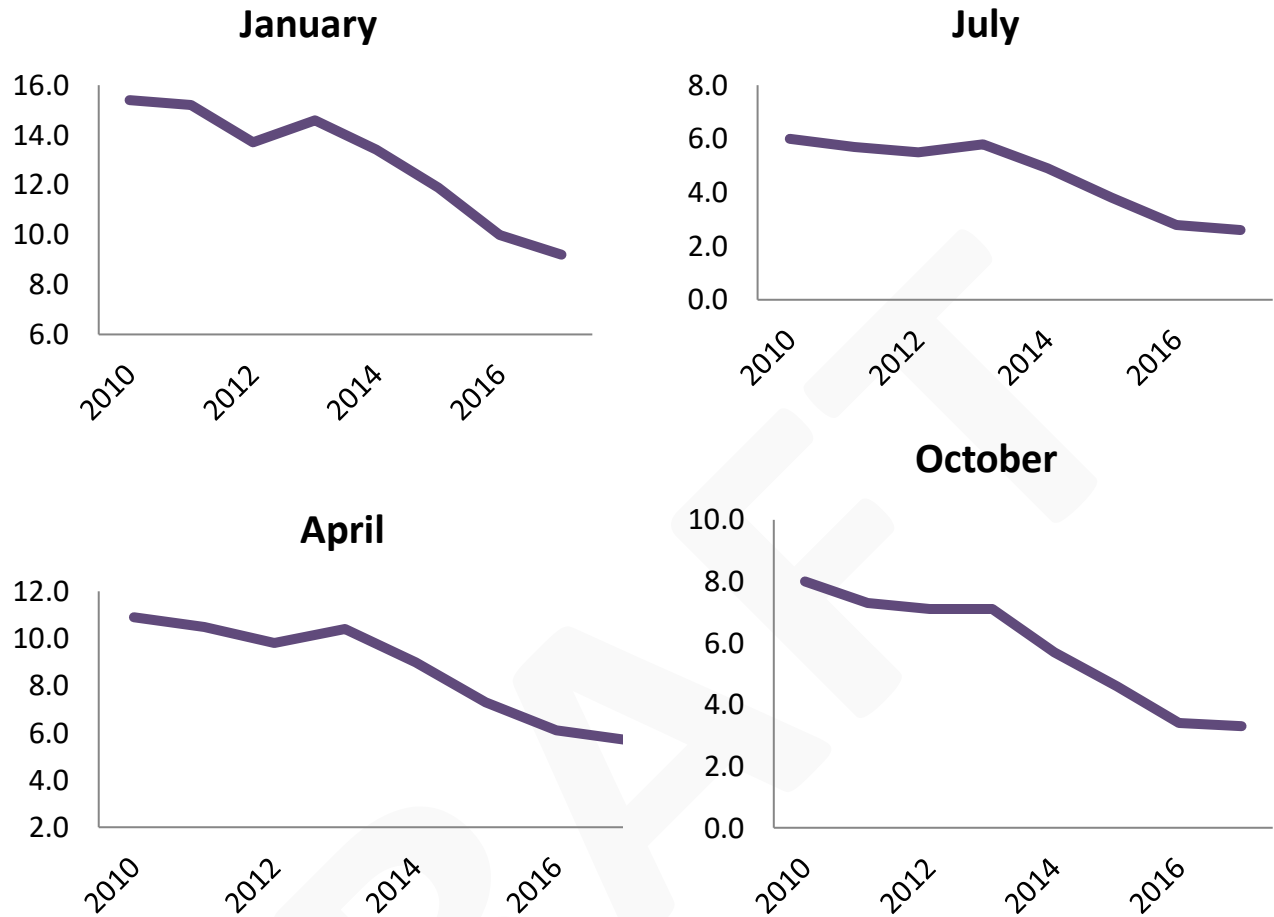
Establishments and Employees

According to the ACS, the 2008 Recession took a toll on industries, establishments, and payroll in Dukes County, but all three measures have grown considerably since 2010. Total employment appears to have suffered somewhat less, with data from the Bureau of Economic Analysis showing only a subtle decline after 2007, and a steady rise after 2010. Countywide, the unemployment rate between 2010 and 2016 declined in all seasons, but still tends to increase in the off-season. In 2016, Tisbury saw the biggest seasonal shift in unemployment (from about 4% to 12%), followed by Edgartown, Oak Bluffs, and West Tisbury. In line with other counties in the state, Dukes County's total unemployment rate nearly halved between 2011 and 2017 (from 9.4 to 4.9), and in 2018 it had the second lowest unemployment rate of any county in the state, after Hampden County.

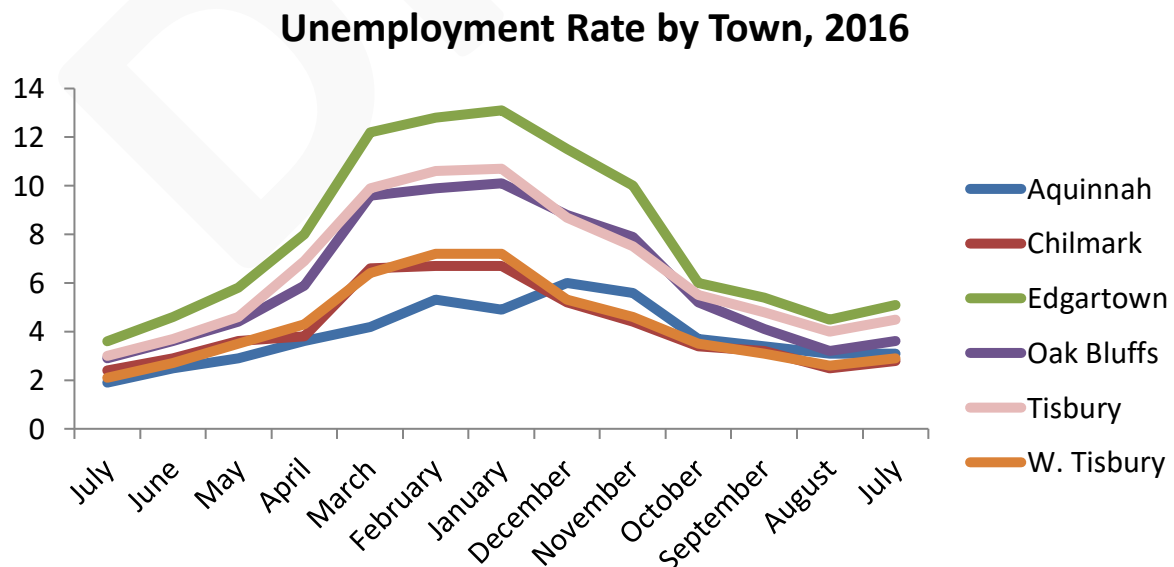


Source: American Community Survey

Dukes County Unemployment Rates, 2010–2016



Source: Bureau of Labor Statistics



Source: Massachusetts Department of Unemployment Assistance

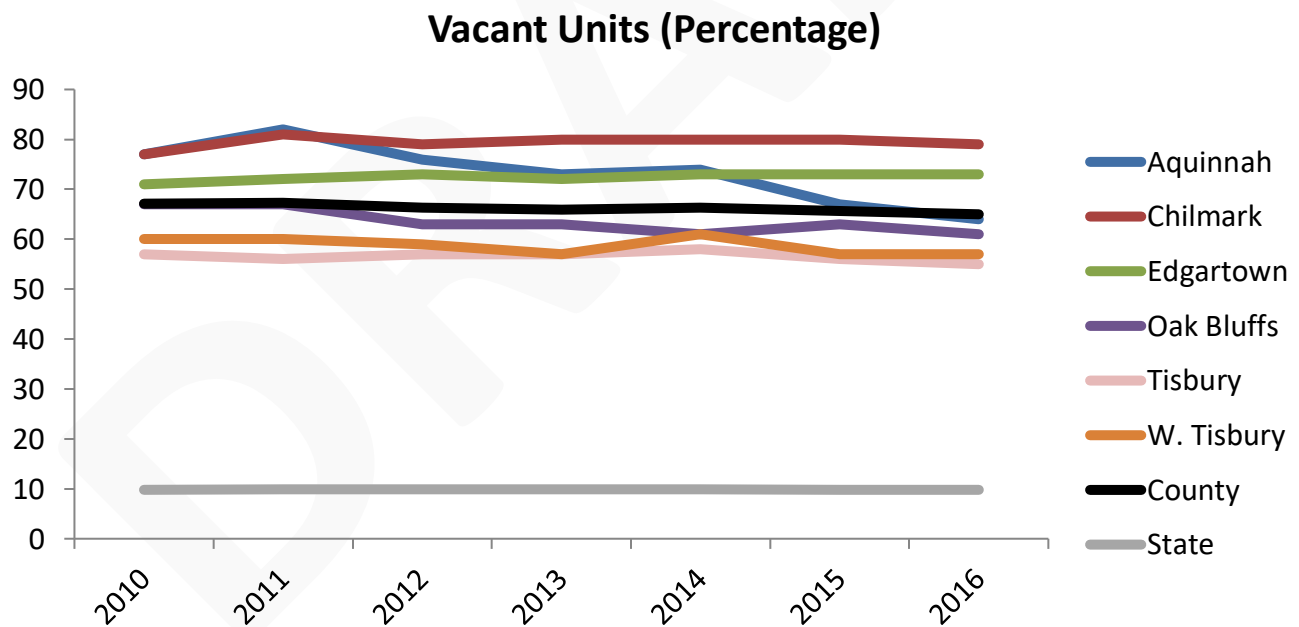
Income and Earnings

Median household income in 2016 ranged from \$38,750 in Gosnold to \$85,469 in West Tisbury, while income per capita ranged from 31,128 in Aquinnah to \$64,762 in Gosnold (\$40,073 for the county as a whole), according to the ACS. Median incomes in Dukes County have been somewhat lower than the state figure, although median family and per-capita income since 2015 have edged slightly ahead. However, it should be noted that the margins of error in the ACS data may account for some of the variation seen in median income over time.

Net resident earnings (wages and salary) in Dukes County spiked upward around 2001, which largely reflects the rapid population growth underway at the time. Earnings have continued to rise since then, exceeding \$700 million in 2016, compared to about \$550 million in 2010.

Housing

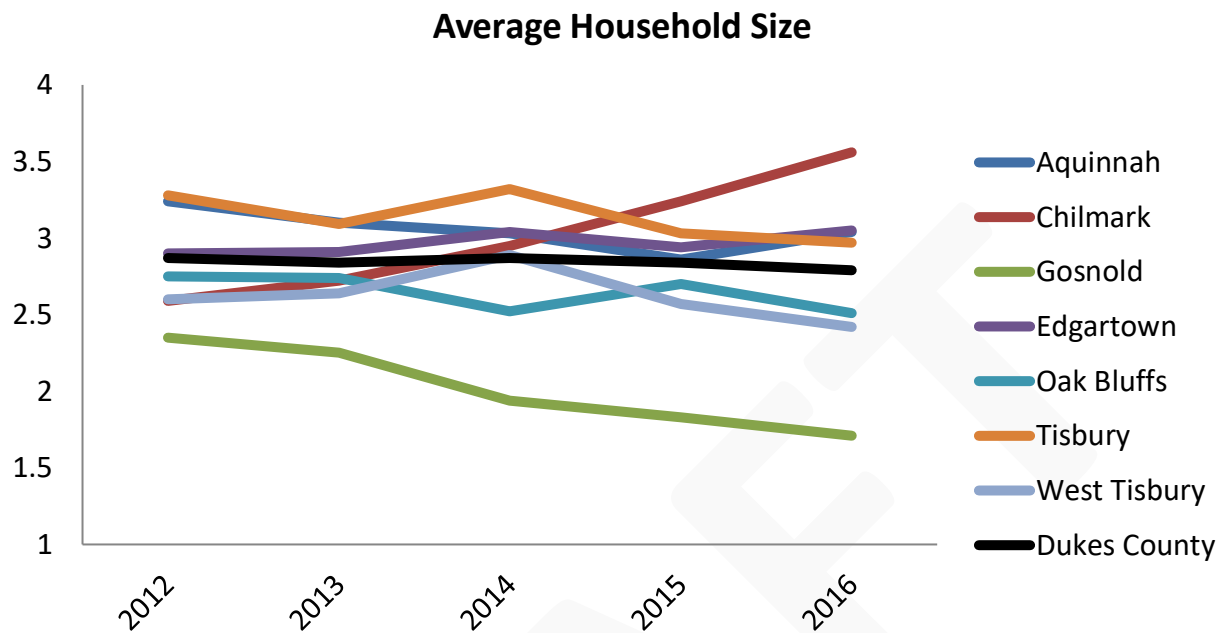
As of 2016, about three quarters of the Island's 6,134 housing units are located down-Island—in Oak Bluffs (1,849), Edgartown (1,394), and Tisbury (1,371). West Tisbury has 951 occupied units, Chilmark 342, and Aquinnah 196. A lower percentage of occupied units built since 2014 suggests that most new residential construction on the Island is for seasonal use. More single-family building permits are issued in Edgartown than any other Island town.



Source: American Community Survey

As of 2017, the Island had 411 affordable housing units included in the state's Subsidized Housing Inventory, and 431 affordable units that were restricted in other ways, for a total of 841 units. Most were down-Island and in West Tisbury, although due to its less abundant housing stock in general, Aquinnah had the largest relative share, with 53 units.

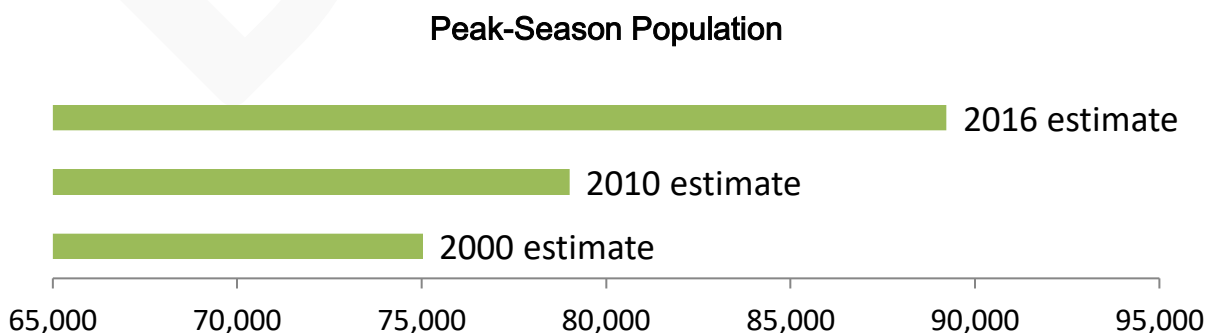
Household sizes in Dukes County ranged from 1.71 people per household in Gosnold to 3.56 people in Chilmark. Between 2012 and 2016, the average household size in the county declined in all towns except Chilmark and Edgartown, where it grew by 37 and 5%, respectively.



Source: American Community Survey

Seasonality

Planning efforts on the Island typically focus on the summer population, which increases more than five-fold compared to the winter, and includes many short-term visitors passing through for stays of less than a week. The MVC provided estimates of the Island's peak summer population in 2000 and 2010, and an informal update in 2016. According to the estimates, the summer population grew almost 19% between 2010 and 2016, from about 75,000 to 89,231. The next official estimate will follow the release of the 2020 U.S. Census figures. The MVC's methodology for estimating the summer population is included in the Appendix.



Source: Martha's Vineyard Commission

It can be assumed that most of the summer population increase occurs in Edgartown, Tisbury, and Oak Bluffs, which have more housing units in total (and more seasonal homes and hotels), although Chilmark and Edgartown both have proportionally more seasonal homes—about 79 and 73%, respectively), which implies that those towns see the most dramatic shift from season to season. However, the percentage of seasonal homes in every Island town (measured as the number of homes that are vacant in the winter) far exceeds the state average of 9.8%.

The fact that only 35% of the Island’s housing stock is occupied year-round is a testament to the tremendous demand for seasonal homes among vacationers and retirees. This strong demand equates to exceptionally high housing and living costs.

Land Use and Transportation

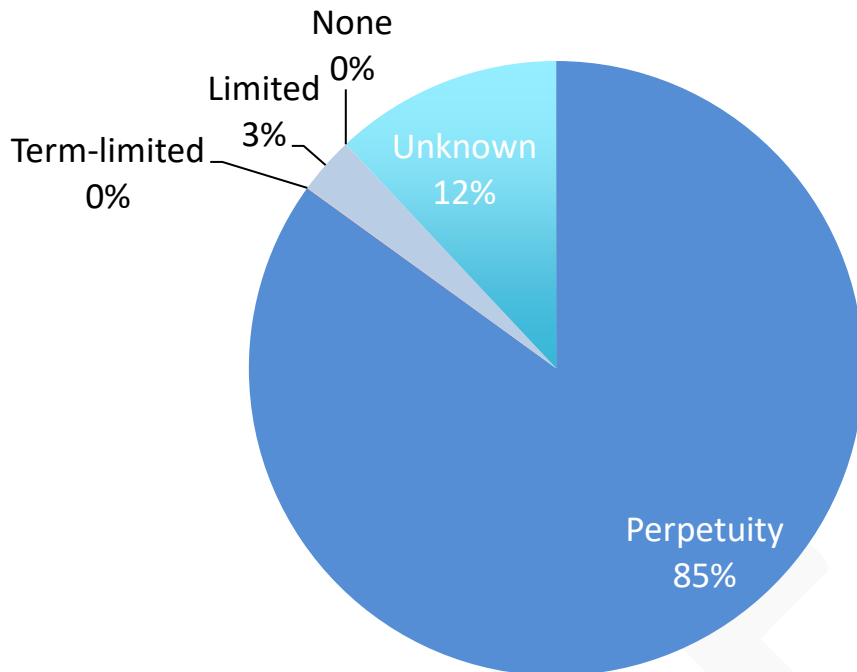
A rapidly increasing population and changing patterns of development have a large impact on the nature of transportation on the Island. A generation ago, most residents lived in the small village centers of the three down-Island towns. Their everyday destinations, from grocery store to post office, were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

In the past 30 years, much of the Vineyard’s enormous residential and commercial growth took place on the outskirts of the towns. Automobiles became the only way to reach an increasing number of homes, jobs, businesses, and services, many of which were relocated outside of 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 in a dispersed pattern. Such development has meant that people increasingly live in locations that are not accessible by public transit.

Thirty percent of Vineyard land is developed or unbuildable (e.g. wetlands), 40% is protected open space, and 30% is “available” either for development or protection. The map below depicts how current development patterns on the Vineyard could result in a landscape dominated by low-density residential uses, and diminish the forested and agricultural quality of the Island.

[MAP]

Types of Open-Space Protection



The 2009 Island Plan looked at the location and rate of different types of development that would result from different combinations of market forces and mechanisms to manage growth. The plan considers several possible development scenarios based on different possible growth rates and patterns. Those include the possibility of low, medium, and high growth rates.

Possible patterns of development are:

- Dispersed (continuation of present trends)
- Compact (concentration of future development in already built-up areas, mostly down-Island)
- Compact, Islandwide (concentrations down-Island and in other Island village locations)

These scenarios could be used to evaluate, for example, the relative merits of having certain year-round businesses dispersed at village locations around the Island for the rural population pockets, as compared to reinforcing existing downtown centers. As the rural population increasingly includes those over age 65 who want to age in place, this would allow walking to the store to acquire basic necessities.

Estimates of Future Growth

It is difficult to predict how the Island population will grow in the next 20 years, since the limited availability of land for development will play an increasingly important role in mitigating natural growth tendencies (births, deaths, and migration).

The Massachusetts Office of Transportation Planning (OTP) and the UMass Donahue Institute

have developed population and employment projections for the state as a whole and for each MPO region. These projections are used in land-use and transportation planning.

In addition, the MVC looks at additional information, such as population by age and household, and income information, along with annual building permits by town. Prior to the 2015 RTP, the MVC estimated the number of households for 2020, 2030, and 2040, by reviewing the ratio of households to population for each town in both 2000 and 2010. The projections for 2020, 2030, and 2040 were then revised slightly by MassDOT.

Most transportation data and planning on the Island is based on the summer peak, when transportation systems may reach or exceed their capacity. The summer population has been estimated for different categories of people, each of which has a different travel pattern. Off-season and shoulder-season figures are especially important for working out appropriate ferry, air, and transit services for those time periods.

Population during the shoulder season is growing as a result of the increasing number of year-round residents, and apparently the number of seasonal visitors (possibly second-home owners) arriving 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 demand 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.

Section 4: The Regional Transportation Network

The characteristics of the regional transportation network, along with 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 other modes for movement around the Island—on roads (private vehicles, public transit, tour and school buses, taxis, ride-share) and otherwise (bicycles, pedestrians). Each mode is discussed in the upcoming sections of this plan, as are issues of intermodality (transfers from one mode to another), travel information, and freight.

The only access to the Island 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 automobile, bus, bike, motorcycle, moped, and foot. The flow of traffic to and on the Island varies considerably throughout the year, from the uncongested winters with 17,000 year-round residents, to the often gridlocked summers with more than 70,000 additional seasonal residents and visitors. The shoulder seasons fall somewhere in between, and are increasingly active.

General Objectives

The overarching goal of this RTP is to establish and maintain a transportation system that is safe, reliable, convenient, accessible, economical, affordable, and consistent with the Vineyard's scenic, historic, and natural resources. Specific objectives for transportation planning on the Island in general are as follows:

- 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.
- 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 a car.
- Encourage residents and visitors to use public transportation, by continually improving bus and park-and-ride services.
- Improve safety and security for all transportation system users.
- Favor the seamless integration of various transportation systems (physical installations, scheduling, etc.) to increase the efficiency and convenience of alternate modes.
- 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.
- Minimize transportation-related pollution, promote energy conservation and sustainability, and support preservation of natural resources.
- Facilitate ongoing public discussions surrounding long-term transportation planning issues including sea-level rise and population growth.
- Address problems at the Island's most congested locations, emphasizing traffic management over major physical modifications—such as new or widened roads, or inappropriate traffic controls—that would degrade the character of the Island.
- Expand and enhance a safe and efficient network of shared-use paths (SUPs), walking trails, and in-town bicycle and pedestrian accommodations.
- Work with the VTA and others to enhance the transportation options of those with limited

- mobility (disabled, elderly, young people), and for other disadvantaged populations.
- Integrate infrastructure improvements (particularly harbors and the Airport) with economic development strategies.
- Promote cooperation among the Vineyard's various transportation agencies, the public, and private transportation providers.
- 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.

Transportation Demand Projections

Federal Rules (23 CFR 450.322[b][1]) require that the Regional 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 and visitors is expected to increase the demand for transportation, subject to certain limitations. Crucially, meeting the needs of the peak summer population affects the year-round population as well (not always in a desirable way), and a balance must be sought in order to maintain a high quality of life for the whole Vineyard community.

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 to and from the mainland. As detailed in section 6, the SSA and the various passenger-only ferry services experienced a dip in traffic beginning around 2000, but have risen steadily since around 2005. The SSA has sought to limit its vehicle spots in June, July, and August since 1997, but those figures have also crept upward. The SSA has not forecast traffic since 2000, and for budgeting purposes it 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 also grow, but primarily in the off-season. But population growth will likely exceed the increase in ferry traffic, especially for vehicles, since many residents park a vehicle off-Island instead of transporting it each way. Similarly, many workers commuting to the Island keep a vehicle here to save on ferry trips.

Freight Transportation

Freight transportation, however, is likely a more reliable measure of the Vineyard's growing economy and population. Discussions surrounding the possibility of establishing a trash and freight route between the Vineyard and New Bedford have emerged periodically as residents and town officials on both sides of Vineyard Sound explore ways to reduce vehicle traffic in Woods Hole, Vineyard Haven, and Oak Bluffs. Trash now accounts for about X% of freight runs from the Vineyard to Woods Hole, and will likely increase.

Air Transportation

The Martha's Vineyard Airport (MVY) forecast robust growth in 2000, but that growth has not materialized to date, for a variety of reasons. The rate of growth MVY now suggests is most

sustainable is in the 1.5% annual range for both commercial and general aviation.

Roads and Automobiles

As detailed in section 9, traffic on the Vineyard, while generally flat in recent years, has 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 trend reflects the increasingly year-round nature of the Island, and will likely continue. Since this RTP seeks in general to mitigate the impacts of peak summer traffic, the planned infrastructure should be sufficient to handle traffic at other times as well, but again, the effects on the year-round community must be weighed in any specific development proposals.

Massachusetts is among the nine states to have joined the State Zero-Emission Vehicle Programs memorandum of understanding, which aims to have 3.3 million zero-emission vehicles on the road by 2025. That would suggest a likely increase in electric vehicles on the Vineyard in the coming years (see section 5), although significant changes may take time, since conventional automobiles tend to stay on the road for 10–15 years.

Buses

The Martha's Vineyard Transit Authority (VTA) has seen robust growth in recent years. As detailed in section 10, VTA boardings grew from around 900,000 in 2007 to 1.4 million in 2017. This is due partly to increased use and service improvements in the off-season. Meanwhile, peak-season ridership on popular routes is already at or near current capacity. As the VTA service matures and the Vineyard continues to develop, passenger growth will likely exceed the growth in population.

Taxis and Ride-Share

Towns and taxi companies are discussing options for improved licensing and services. Currently, most Island taxis operate more like shuttles, taking multiple passengers to multiple locations. The ride-share services Uber and Lyft have also recently begun operating on Martha's Vineyard, creating competition for local taxis, but likely keeping more cars off the roads at peak times. More study on the effects of ride-share services is needed.

Bicycles and Pedestrians

Already cycling and walking are popular ways to experience the Island, but additional growth is expected as facilities and other incentives improve. Section 12 details the list of expected improvements. 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. Various planning efforts in recent years have focused largely on promoting bicycle and pedestrian travel as an alternative to automobile use.

Section 5: Environmental Issues

Overview

The Vineyard's physical isolation from the mainland, along with its sensitive ecological environments, present unique challenges, including as they relate to transportation. Fortunately, the ability of the Island community to confront environmental issues is strengthened with the existence of the Martha's Vineyard Commission. As the Island's Regional Planning Agency, the MVC works closely with the seven towns in Dukes County, along with the Wampanoag Tribe of Gay Head (Aquinnah), the Natural Heritage and Endangered Species Program (NHESP), the Massachusetts Historical Commission, local conservation commissions, and other agencies that can help fulfill the MVC's mission to protect the unique "natural, historical, ecological, scientific, [and] cultural" qualities of the Vineyard.

The policies, projected activities, and proposed projects in this Regional Transportation Plan (RTP) are consistent with protecting and enhancing the Island environment. They are a product of the MVC and Joint Transportation Committee (JTC) working to preserving the Island's environmental quality in general, and were developed in consultation with appropriate federal, tribal, and state wildlife, land-management, and regulatory agencies. This discussion of the relationship between transportation planning efforts and environmental concerns conforms to federal regulation 23 USC 143 [I][2][B].

The objectives listed throughout this plan include a primary focus on protecting the environment. The overall goal is to establish and sustain a transportation system that "is consistent with the Vineyard's scenic, historic, and natural resources." Several specific objectives throughout the plan also reinforce the MVC's 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, and pollution, and to preserve scenic roadside views and the character of rural roads.
- Minimize transportation-related pollution, promote energy conservation and sustainability, and support the preservation of natural resources.
- Coordinate regional land-use and transportation policies, favoring decisions that reinforce objectives such as the following:
 - 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 locally owned stores to reduce the need for routine trips.

The 2020–2040 RTP places a strong emphasis on improving mobility to and around the Island while maintaining and enhancing the area's unique resources. Since traffic congestion is a seasonal problem and the traditional tactics used to reduce congestion may run counter to the Island's character and economic well-being, alternative ways of dealing with transportation problems must be explored on a continual basis.

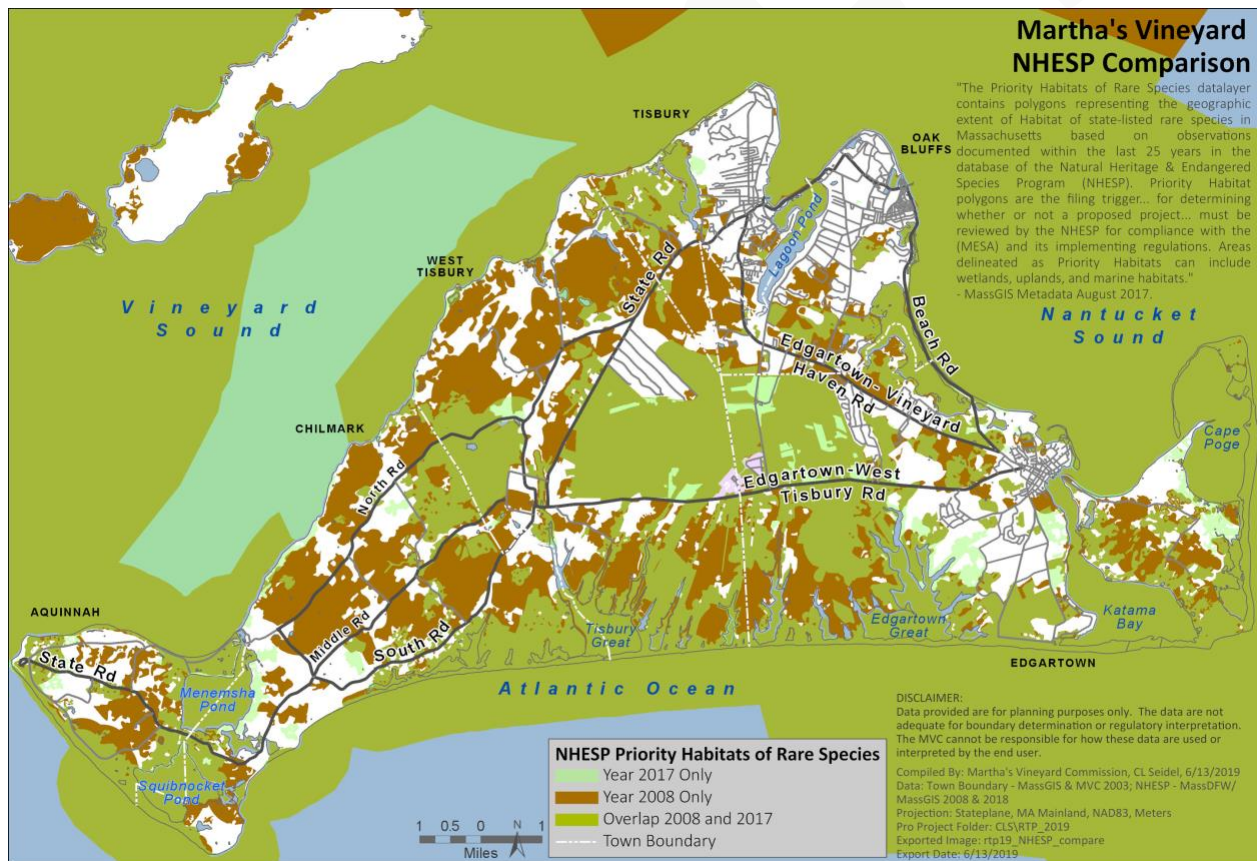
Environmental Mitigation (General)

The Massachusetts Natural Heritage and Endangered Species Program, part of the Massachusetts

Division of Fisheries and Wildlife, lists 427 native plant and animal species across the state as endangered, threatened, or of special concern. The distribution of rare species in Dukes County corresponds roughly to the amount of open space in each town, although Aquinnah has a proportionally higher number, which may reflect its higher quality and diversity of open space.

The list of proposed and possible Transportation Improvement Program (TIP) projects listed in section 16 consists mainly of projects that reduce traffic congestion and increase safety without physically expanding the road network. The list includes reconfigured (but not enlarged) intersections, multiple new shared-use paths (SUPs), improvements to existing SUPs, new walkways, sidewalk improvements, and new bus stops. The one exception is the proposal to build the long-planned Tisbury Connector Roads, which are intended to improve safety and traffic flow at a busy intersection and promote infill development in an area adjacent to a town center.

A map of state-protected rare wildlife and rare species areas on the Island (significantly reduced from 2008) is included below. Each proposed project will have additional environmental review as the concept and design are developed.



Climate Change

Overview

As a small Island in the Atlantic, 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 global warming will compound those effects. Even small changes in sea level can greatly amplify the destructive power of storms and flooding.

The Vineyard consumes a disproportionately high amount of energy because of the nature of its buildings and settlement pattern. It costs more to heat a single-family dwelling with four exposed walls and a roof, for instance, than an apartment that loses heat only through one or two exterior walls. And low-density housing spread across the Island means that the Vineyard has a much higher percentage of people who drive, compared to an inner-city neighborhood where people can more easily walk, bike, and take public transit.

The Massachusetts Climate Change Adaptation Report from 2011, though somewhat outdated, offers a forecast of climate change impacts in the state over the course of the 21st century. Given the rate at which scientists are updating their projections on a global scale, the projections here should be viewed as conservative:

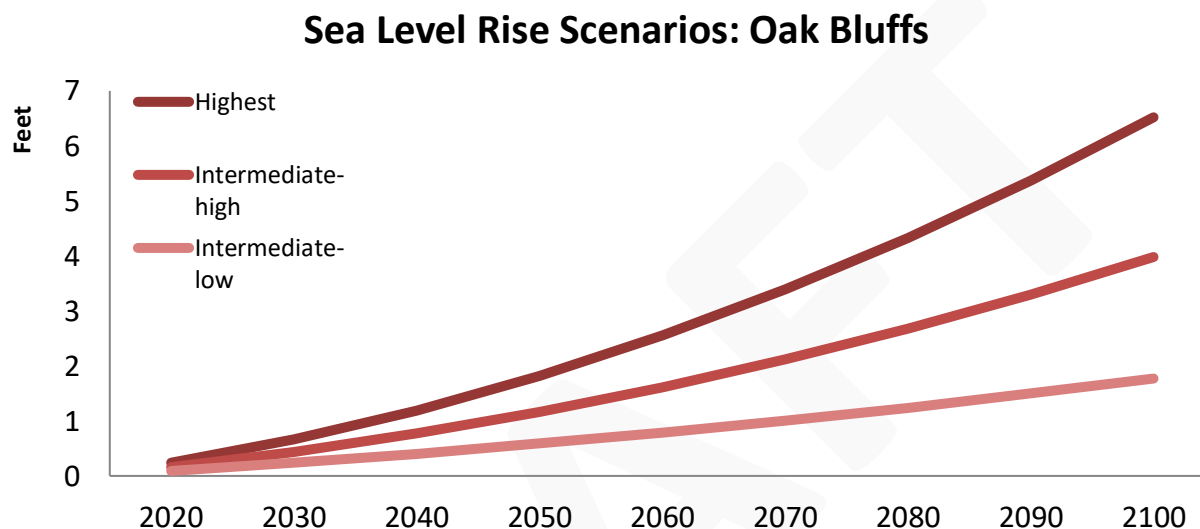
- The average ambient temperature will likely increase 5–10°F.
- Days with temperatures higher than 90°F will likely increase from the current 5–20 days annually to between 30 and 60 days annually. Days with temperatures higher than 100°F are expected to increase from two to 28 per year.
- “Higher temperatures, especially the higher incidence of extreme heat days, will have a negative impact on air quality and human health.”
- Sea surface temperatures are expected to increase by 8°F.
- Winter precipitation is expected to increase by 12–30%, and due to the warming climate, more will fall as rain.
- Taking into account local subsidence (the gradual sinking of land), the thermal expansion of the oceans, the melting of ice on land, and the possible collapse of the West Antarctic Ice Sheet, local sea levels could rise up to six feet by 2100, endangering much of the state's economy and natural resources.
- Flooding is expected to occur with greater intensity and frequency, resulting in “severe and cumulative” damage and “straining local and state resources and the ability of government agencies to adequately respond.”
- Much of the Vineyard's activities and economy are focused on the coastline and are therefore particularly vulnerable to storms and rising seas. The two impacts of climate change most likely to affect transportation on Martha's Vineyard are sea-level rise and the anticipated changes in rainfall.

Sea-Level Rise

Sea level has been rising in our area since the retreat of continental glaciation some 20,000 years ago, when the mile-thick ice mass that formed the hills and plains of the Vineyard melted. In the past century, the dramatic rise in air and water temperature due to greenhouse gasses in the atmosphere has greatly accelerated the process. Sea level at Woods Hole has increased about 2.86 mm per year since the 1930s, and about 3.63 mm per year at Nantucket since 1965. Worldwide,

the sea level has risen about 3.1 mm per year since 1993—nearly double the rate of 1.7 mm per year that was recorded during the 20th century.

The 2016 Climate Change Vulnerability Assessment and Adaptation Plan for Oak Bluffs presents the most recent sea-level projections for the town (high, intermediate-high, and intermediate-low scenarios), through 2100. According to those projections, which are based on the 2012 National Climate Assessment scenarios, sea level in Oak Bluffs may rise up to 1.19 feet (or as little as 0.4 feet) by 2040, and up to 6.52 feet (or as little as 1.77 feet) by 2100, depending on various factors. In every case, the projected increase exceeds the worldwide estimate.



Source: Oak Bluffs Climate Change Vulnerability Assessment and Adaptation Plan, 2016

Meanwhile, according to the Intergovernmental Panel on Climate Change (IPCC), the average global sea level is projected to rise between about 0.85 feet and 3.2 feet (depending on emissions scenarios) by 2100, although those are considered to be conservative estimates. To this global rise is added the relative impact of subsidence in those parts of the world, such as Martha's Vineyard, that are cooler and sinking deeper into the Earth's crust. Some scientists argue that even those estimates are low because they don't sufficiently account for the increase in water temperature and the resulting expansion of the ocean.

Worldwide sea-level rise is expected to accelerate because of the following:

- Expansion of ocean waters due to rising temperatures
- Melting of ice—especially glaciers and possibly the Western Antarctic and Greenland ice sheets
- Changes in ocean currents—including the Gulf Stream, which would affect the Northeast in particular

On Martha's Vineyard, the effects of sea-level rise are further exacerbated by the effects of coastline change. In some areas, the coastline has been eroding by as much as 10 feet per year, a rate that could increase when coupled with sea-level rise.

It is difficult to predict the speed at which sea level will rise and what the impacts will be in a given location, especially during storms. Current mapping generally uses a so-called bathtub model that gives a rough picture of potential impacts assuming a simple rise in sea level with all other factors remaining the same. It would be desirable in the future to use a more sophisticated multi-factor model that combines the impacts of sea-level rise with other factors that cause coastal erosion, as well as the shape and geology of the affected land areas. To adequately address vulnerability, the effects of coastal flooding (as from a nor'easter) and storm surge (from a hurricane) should also be modeled.

Rising sea levels are projected to affect many of the roads along the coast (and along coastal ponds). The Island's three major downtown areas are especially vulnerable due to their low elevation and proximity to the ocean. Some roads are critical due to the emergency access they provide during hurricanes and other storms. The MVC is in the process of mapping those Island roads that will be affected by sea-level rise over time. Adaptation strategies in terms of roadways include abandonment, elevation, or relocation, none of which promises to be an easy fix at any of the vulnerable locations. Planning for the Island's most vulnerable areas should begin immediately.

Mitigation and Adaptation

In general, climate change calls for a dual planning approach:

Mitigation: First, the Island should reduce its contribution to climate change. Martha's Vineyard can join other communities around the world to limit the acceleration of climate change by reducing its use of fossil fuels that produce greenhouse gases and trap heat within the earth's atmosphere. Global warming of more than 1.5°C (the threshold beyond which many of the worst effects would come to pass), now appears likely. However, further warming can still be averted. It is important to note that even significant greenhouse gas reductions today will not immediately affect the climate, but will set in after about 2050—still within the lifetimes of our children and grandchildren, if not our own.

Adaptation: Second, Martha's Vineyard should prepare to deal with the inevitable effects of climate change. Adaptation measures typically involve three options: hard armoring (seawalls, revetments, jetties), soft stabilization (beach nourishment or plantings), and managed shoreline retreat (rolling easements and temporary structures that allow the shoreline to naturally move). However, the cost of armoring and soft stabilization is often prohibitive. In addition, hard structures along an eroding coast may accelerate the rate of erosion on either side by stopping the flow of sand along the shore.

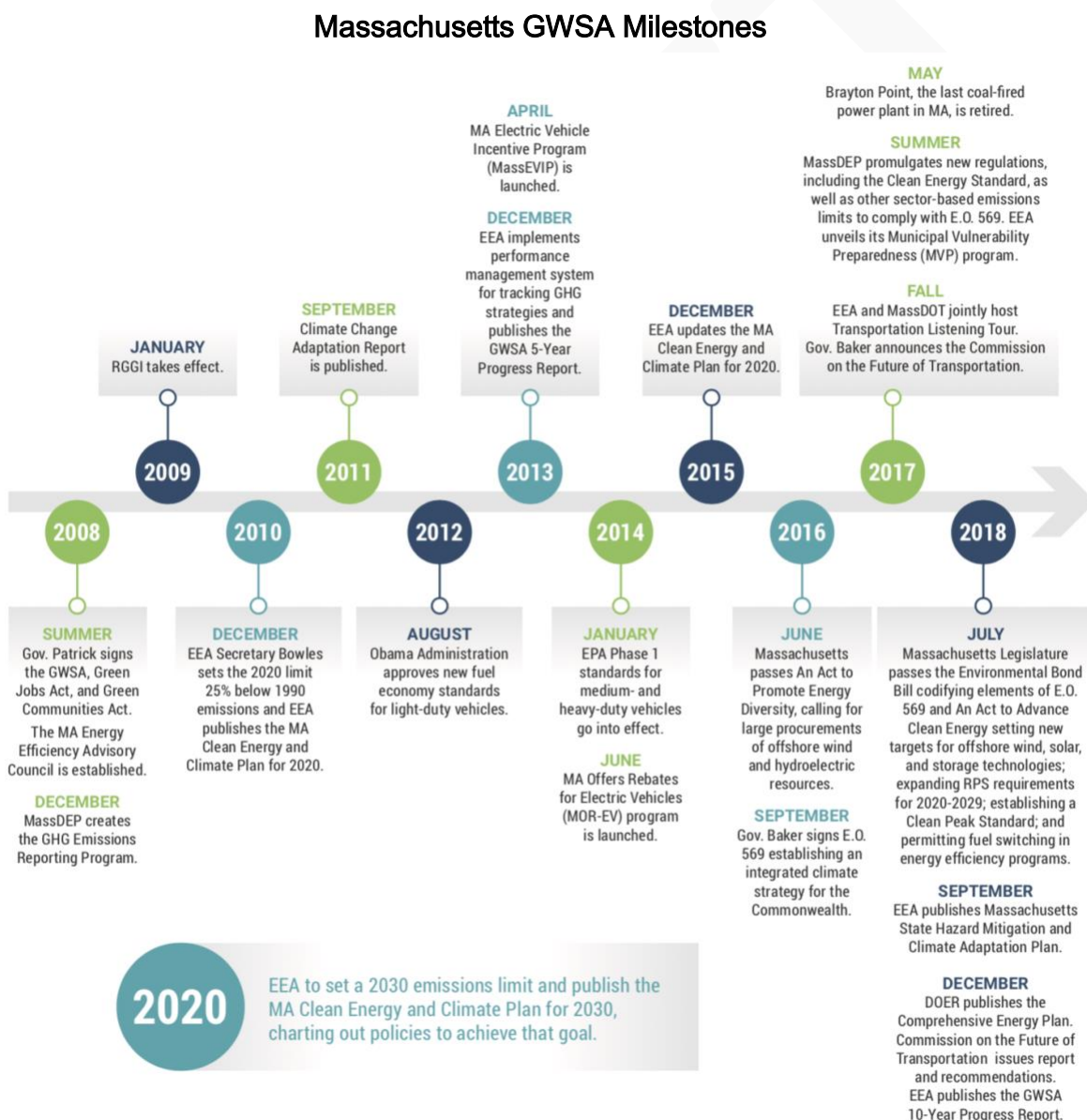
BOX: Managed Shoreline Retreat: Squibnocket Beach Restoration Project

Working with an Island neighborhood association and the Vineyard Open Land Foundation; and with funding from the state Office of Coastal Zone Management, the town of Chilmark in 2018 completed its first managed shoreline retreat project, which involved relocating a town parking lot, removing revetments, building a raised causeway to the homes at Squibnocket Farm, and extending a town beach. The process was highly controversial due to its affect on the landscape, and discussion consumed residents and town officials for years. But it was also a learning experience for an Island where shoreline change will increasingly affect residential, commercial, and town property. The causeway (and parking lot and other infrastructure) will likely need to be

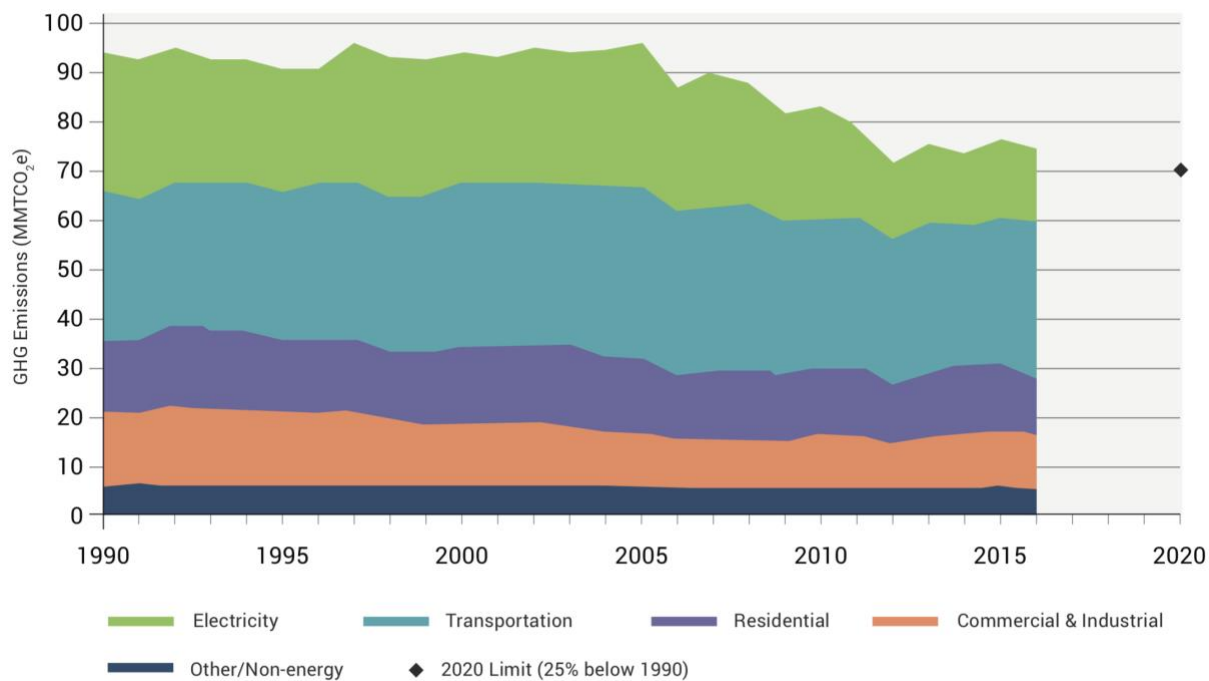
moved farther inland as the sea advances.

Climate Change Legislation

Massachusetts has helped lead the nation in legislative action to both mitigate and adapt to climate change. The state's Global Warming Solutions Act (GWSA) of 2008 was the most ambitious legislation of its kind, setting the stage for a new economy less dependent on fossil fuels. The GWSA mandated emissions reductions of 25% below 1990 levels by 2020, and at least 80% below 1990 levels by 2050. Guided by various laws, regulations, and executive orders that build on the GWSA, the state is now on-track to meet the 2020 goal, but much more is required to meet the goal for 2050. Notably, although transportation is the largest source of greenhouse gas emissions in the state, it is the only energy-related sector not to have significantly reduced emissions since 2008.



Massachusetts Greenhouse Gas Emissions 1990–2016



Source: Massachusetts Global Warming Solutions Act 10-Year Progress Report

The state's Clean Energy and Climate Plan (CECP), updated in 2015, focuses more on the transportation system, with policies aimed at vehicle emissions and efficiency, the carbon content of fuel, and vehicle miles traveled (VMT). Along those lines, Massachusetts has joined the State Zero-Emission Vehicle Programs memorandum of understanding, which aims to have 3.3 million zero-emission vehicles on the road by 2025. In addition, amendments to the GWSA (310 CMR 60.05) require MassDOT to reduce emissions from its own vehicles and facilities by a certain amount each year, and to use the same criteria to report on annual declining emissions targets for the state's surface multimodal transportation system.

In the bigger picture, the federal government is responsible for setting national fuel economy standards (National Highway Traffic Safety Administration) and greenhouse gas emission standards (Environmental Protection Agency). However, Massachusetts has a law requiring it to adopt the respective standards in California, if they exceed those at the federal level. (California has a waiver under the Clean Air Act that allows it to adopt more stringent standards than the federal government.) The Environmental Protection Agency took steps in 2018 to weaken both the national emissions standards and California's authority under the Clean Air Act, causing California to amend its rules to lock in its own standards through 2025. Massachusetts then filed emergency legislation to adopt those amendments.

Local Planning

On the Vineyard, a number of efforts at the town level are helping to achieve the state goals, and

provide access state grants aimed at further reducing GHG emissions. For example, Tisbury, West Tisbury, Chilmark, and Aquinnah are among the state's 210 designated Green Communities, which gives them access to funding through the Massachusetts Department of Energy Resources. To qualify, a town must adopt five energy-related criteria, including zoning bylaws that facilitate renewable energy projects, and plans to reduce municipal energy use by 20% over five years. Edgartown and Oak Bluffs are currently working toward the designation. Recent planning efforts have also helped Island towns begin to prepare for climate change by offering long-term projections, identifying vulnerable areas, and recommending strategies to adapt to the changing environment. The 2014 *Hazard Mitigation Plan for Seven Towns in Dukes County*, updated in 2015, identifies vulnerabilities throughout the county, including key roads and infrastructure that would be inundated by heavy storms. And the 2016 *Coastal Vulnerability Assessment and Adaptation Plan* focuses specifically on climate change impacts in Oak Bluffs, providing sea-level rise projections through 2100, and identifies key infrastructure at risk.

More recently, four of the seven towns in Dukes County have taken part in the Municipal Vulnerability Preparedness (MVP) program, which the Massachusetts Executive Office of Energy and Environmental Affairs launched in 2017. State funds allow participating communities to complete vulnerability assessments and resiliency plans based on a framework developed by The Nature Conservancy. MVP-certified communities may apply for MVP Action grants and receive other benefits related to community resilience. A series of MVP workshops in Tisbury, Oak Bluffs, Chilmark, and Gosnold have highlighted a number of vulnerable roads and structures that should receive special attention in the years ahead, including the Five Corners intersection and Lagoon Pond Road in Tisbury, the harbor and hospital areas in Oak Bluffs, and South Road and Hariph's Creek Bridge in Chilmark.

Joining a global movement to respond to climate change, two grass-roots organizations took shape on the Vineyard in 2019. The Island Climate Change Action Network (ICAN), made up of Island citizens and nonprofits, has been exploring mitigation strategies, with working groups focused on the areas of food and lawncare, transportation, buildings and energy use, media, and education. Among other things, the working group on transportation is investigating the possibility of electric ferries and school buses, and plans to work with the Steamship Authority to explore options for retrofitting the ferries with cleaner fuel technology. At the same time, the MVC Climate Change Task Force is aiming to produce master plans for both mitigating and adapting to climate change on the Island.

Other groups have focused more on renewable energy. Vineyard Power, a nonprofit energy cooperative founded in 2009, is working to produce electricity from local renewable sources—including commercial-scale solar installations, the Vineyard Wind offshore windfarm (now in development), and the use of smart-grid technology—while advocating for the Island community. In addition, each Island town has its own energy committee, whose chairpersons make up the Vineyard Sustainable Energy Committee (VSEC), which formed in 2016 to coordinate among various projects and initiatives at the town level. VSEC currently has two key objectives related to fossil fuel emissions and energy use:

- Achieving Green Community designation for all six Island towns.
- The drafting of an Islandwide town meeting warrant article asking voters whether their town should transition to 100% renewable energy by a certain date.

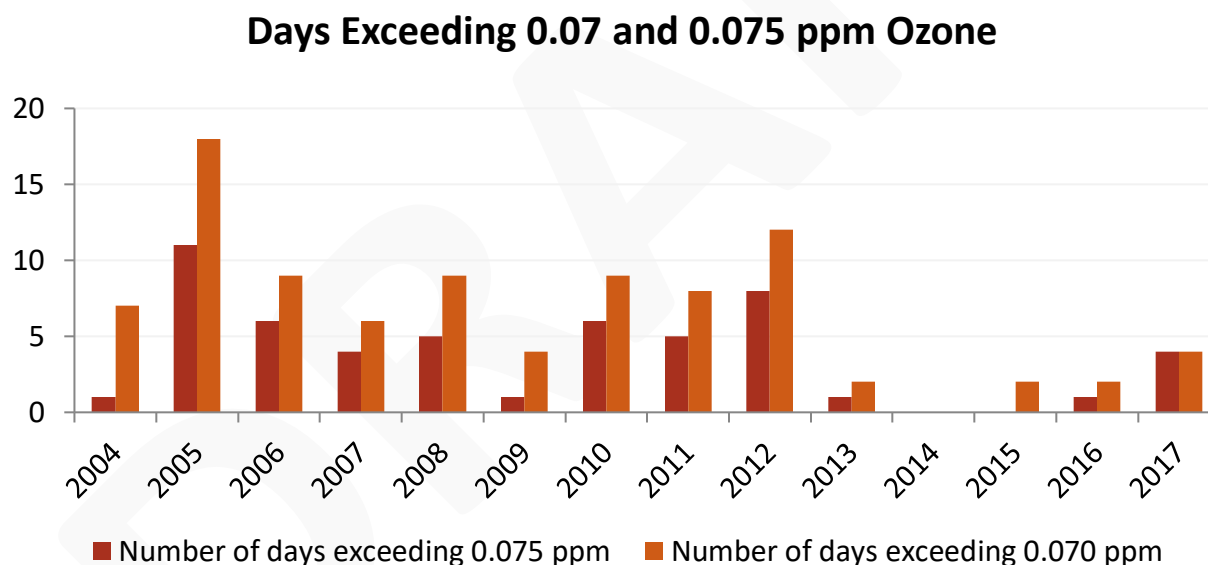
There have also been local efforts to address climate change with respect to land use and development. Current requirements for construction in low-lying areas, as identified in the latest

federal flood insurance maps, for example, require that the ground level of buildings be higher than in previous versions. And in its review of Developments of Regional Impact (DRIs), the MVC has sometimes asked applicants to address the potential impacts of climate change. For example, it asked the Martha's Vineyard Hospital to carry out a study of the possible impacts of rising seas, and the project's design was modified as a result. One purpose of the study was to ensure continued vehicle access to the hospital even if a storm surge made some of the access roads impassable. As one short-term action, the MVC should amend its DRI policy to include a section on climate change mitigation and adaptation.

Other Concerns Related to Greenhouse Gas Emissions

The effects of burning fossil fuels are not limited to long-term sea-level rise and increasingly frequent and severe storms. In fact, several shorter-term consequences are especially relevant to the Vineyard:

Air and water quality: 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, although in terms of ozone levels, air quality has improved since 2005.



Source: U.S. Environmental Protection Agency

Reliability of supply: Because of its strong dependence on imported energy, the Vineyard faces greater risks (and costs) associated with the interruption of supply. Fuel shipped by ferry or barge exposes the island to hazards and accidents. The depletion of fossil fuel sources worldwide increases the potential of supply shortages and price fluctuations beyond the Island's control. And transmitting electricity via underwater cables and overhead wires also exposes the Island to periodic interruptions. A proposed battery storage facility in Oak Bluffs would likely improve reliability in the electric supply, and encourage the further development of renewable energy resources on the Island.

Economic Impacts: Higher energy costs on the Vineyard contribute substantially to the higher

cost of living; Island gasoline prices are among the highest in the nation, and 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, since they do not get spent on local goods or expand business opportunities.

Electric Vehicles

The Vineyard holds considerable promise for alternative-powered vehicles. Common shortcomings associated with those vehicles—the duration of battery charges, slower acceleration, the reduced collision resistance of lighter vehicles—are perhaps less problematic here, since Island trip distances are relatively short and there are no speed limits over 45 mph. The Vineyard could be an ideal location for a prototype installation of innovative vehicles, in part because only a small number of fueling stations would be needed to service a fleet of experimental cars kept permanently on-Island.

Because hybrid cars go twice as far on a gallon of gas, if Martha's Vineyard switched entirely to hybrid vehicles, gasoline consumption in automobiles would decline by 50%. Switching to completely electric vehicles would of course mean an even greater decline.

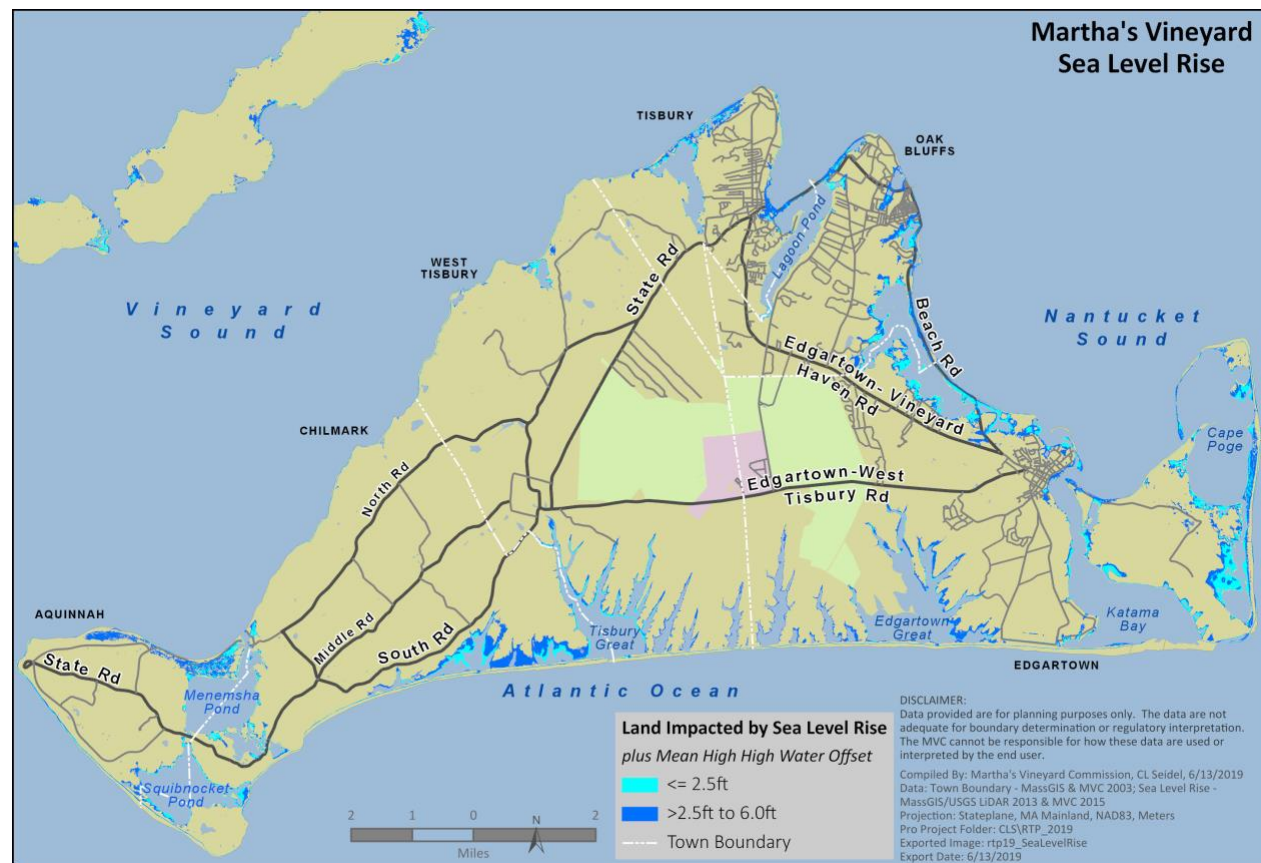
Massachusetts is among the nine states to have joined the State Zero-Emission Vehicle Programs memorandum of understanding, which aims to have 3.3 million zero-emission vehicles on the road by 2025. That would suggest a likely increase in electric vehicles on the Vineyard in the coming years. However, a significant increase in electric vehicles will require additional infrastructure for charging, and additional energy supply—perhaps in the form of an Island smart grid where solar and wind power provide the additional electricity. (Eversource Energy's planned 14.7-megawatt battery storage facility in Oak Bluffs may encourage the further development of solar power and other distributed energy resources on the Island.)

The Island energy cooperative Vineyard Power expects to invest at least \$20 million over 15 years to help improve energy resiliency across the Island, including the construction of solar canopies with battery storage to power a new fleet of electric busses at the Martha's Vineyard Regional High School; and as part of its transition to an electric bus fleet, the Vineyard Transit Authority plans to make its en-route charging stations available for private vehicles. Vineyard Power points out that the various commercial wind farms planned for the waters off the East Coast, along with other renewable-energy transitions in the region, will create an incentive for the conversion of vehicles to clean energy as well.

More immediate measures to encourage the use of electric vehicles may include grants for towns and other public agencies to purchase them for their own use, or requiring that taxis and a portion of car rentals be fuel-efficient. Islanders could also be encouraged to make their next car a hybrid or electric vehicle with incentives such as priority ferry reservations and better parking spaces.

Electric vehicles may eventually play a role in the Island's air and water transportation systems as well. Cape Air, which provides the only year-round commercial flight service to the Vineyard, has announced that it will transition a portion of its approximately 90-airplane fleet to electric planes, making air travel cleaner and likely cheaper; and other companies, including Uber Technologies Inc., are developing electric air taxis that may reach the market in the next few years. As mentioned above, ICAN has initiated talks with the SSA, Island schools, and the VTA to explore the possibility of electric ferries and school buses.

Transportation Improvement Projects and Climate Change



The above map indicates 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, which connects Edgartown, Oak Bluffs, and Tisbury town centers
- Five Corners and Water Street in Tisbury
- West Chop Drive in Oak Bluffs
- East Chop Drive in Oak Bluffs

Due to their proximity to the water, both Island ferry terminals will be affected by sea-level rise. Their design already accommodates normal sea level variation, but will be put to the test. 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 drawbridge, but a study was not done. It would appear that the impacts will be limited since the drawbridge is located in an area with relatively little coastline change. The main challenge may be that the clearance for boats passing under the bridge, which increased by a couple of feet with the new design, will revert back to the previous situation. It's also possible that Beach Road on either end of the bridge will need to be raised in the future.

The MVC has recommended to MassDOT and the Town of Tisbury that in the design of the

Beach Road improvement project (see sections 9 and 12), every effort should be made to deal with potential flooding as a result of sea-level rise, by:

- Raising the road level as much as possible, recognizing that changes are constrained by the proximity of adjacent uses.
- Oversizing the stormwater drainage system and installing one-way flow protectors.

Any significant proposed transportation improvement projects located in vulnerable areas should involve studying the potential impacts of climate change upon the project area before advancing very far in design and engineering, and should consider measures such as those proposed for Beach Road. (See also the objectives and proposed actions below.)

Objectives

1. Continue to preserve “for present and future generations the unique natural, historical, ecological, scientific and cultural values of Martha’s Vineyard,” in line with the MVC charter, Chapter 831 of the Commonwealth of Massachusetts 1977 Acts and Resolves as Amended.
2. Promote alternatives to single-occupant vehicle use for both the year-round and seasonal communities; promote the use of electric vehicles.
3. Incorporate climate change projections and studies into all relevant town and regional planning efforts on the Island.

Proposed Actions

- Develop methods to quantify and track the Island’s carbon footprint.
- Work with Island Climate Action Network, MVC Climate Change Task Force, Vineyard Sustainable Energy Committee, MassDOT and others to develop independent GHG reduction goals for Martha’s Vineyard, including a timeline for implementation.
- Incorporate the master plans for climate change mitigation and adaptation, as drafted by the MVC Climate Change Task Force, into all planning activities, and update as needed.
- Work with Eversource, Vineyard Power, Island towns, and others to explore infrastructure needs related to electrical vehicles on the Island.
- Provide continued administrative support to the MVC Climate Change Task Force and other organizations to help plan for climate change adaptation and mitigation, along with current and future energy needs.
- Continually explore funding opportunities related to GHG reduction in the transportation sector; support towns in Dukes County as they pursue MVP certification, Green Community designation, and related grants.
- Develop greenhouse gas emissions standards for all transportation-related projects that come before the MVC as Developments of Regional Impact.
- Develop guidance for shoreline retreat projects on the Vineyard, including funding sources, relevant town, state, and federal regulations, cost considerations, the public process, and a discussion of alternatives.

Section 6: Water Transportation

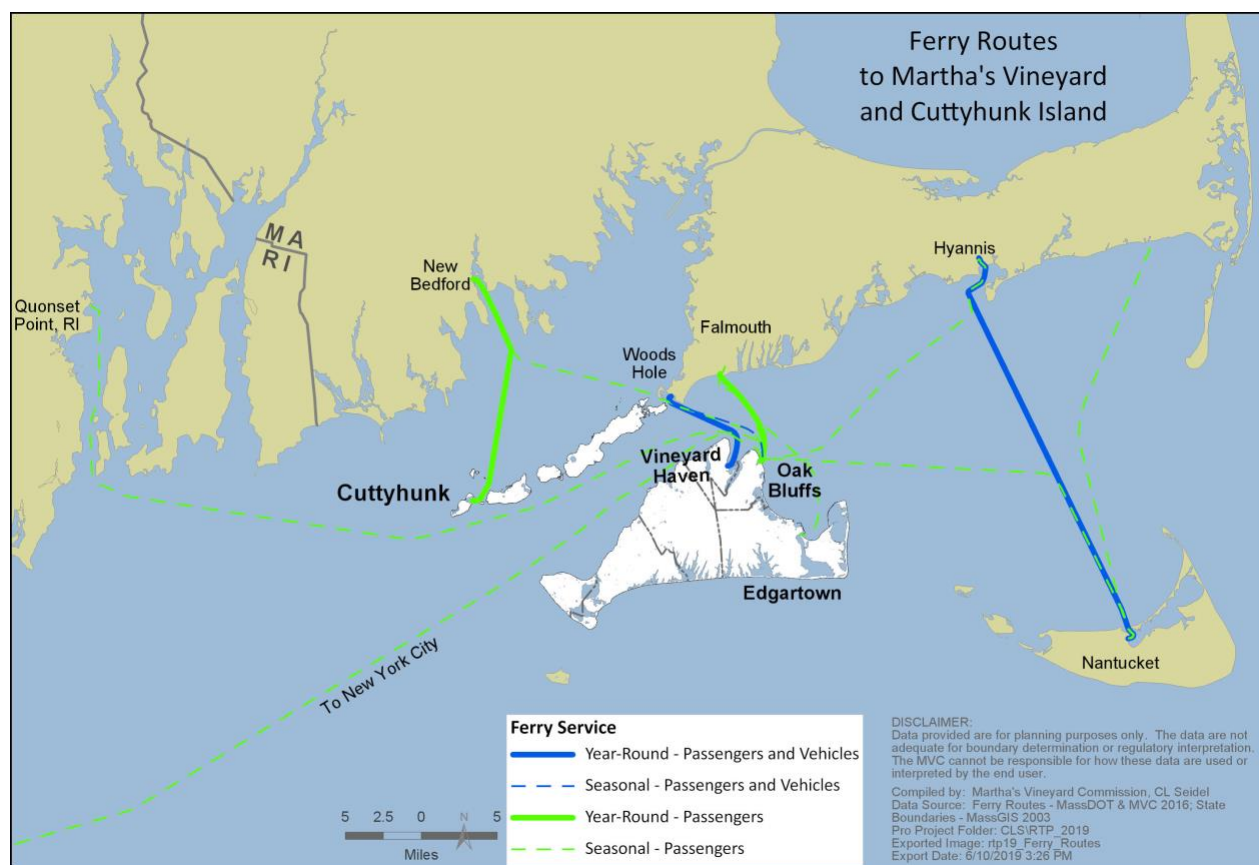
Overview

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 is based in Woods Hole and furnishes year-round service to the islands.

In addition to the SSA fleet, three passenger-only services (Hy-Line Cruises out of Hyannis, the Falmouth-Edgartown Ferry out of Falmouth, and the SeaStreak out of New Bedford and New York City) serve the Vineyard in season, while various tug boats and barges operate year-round. The Cuttyhunk Ferry Company out of New Bedford, and the privately owned Cuttyhunk Water Taxi, serve the island of Cuttyhunk in the Elizabeth Islands throughout the year.

Patriot Party Boats Inc., operating an approximately 40-passenger vessel between Falmouth and Oak Bluffs, carries passengers and small daily freight year-round. The ferries *On Time II* and *On Time III* shuttle residents, visitors, and vehicles to and from the tied-island of Chappaquiddick in Edgartown. The seasonal Menemsha Bike Ferry carries passengers and bicycles across Menemsha Creek between Chilmark and Aquinnah.

Private vessels and recreational boating also play an important role in the Vineyard's transportation system, as well as its culture and history. Harbor slips across the Island are in high demand during the summer, often with wait lists of several years. Major hurricanes have occasionally wreaked havoc on the Island harbors, causing millions of dollars in property damage. The last major storm to strike the Vineyard was Hurricane Bob in 1991, which means that another major hurricane may be expected in the coming years.



Harbors [BOX OR SIDEBAR]

Harbors in the three down-Island towns include anchorage or marina facilities for transient recreational boats, [BOX: Edgartown: 102; Oak Bluffs: 216; Tisbury: 150] in addition to hundreds of marina dockages, harbor moorings, and anchorages used by residents. The historic fishing village of Menemsha, in Chilmark, has a small harbor with facilities for both recreational and commercial fishing boats, and the federal government designates Menemsha Pond a harbor of refuge for boats during storms. (Vineyard Haven is also a harbor of refuge.) The Island's Coast Guard station is located overlooking Menemsha Harbor, with quick access to Vineyard Sound.

Vineyard Haven Harbor: Ferry, tug, and barge service from the mainland, with a breakwater, dockage, and anchorage.

Oak Bluffs Harbor: Ferry service from the mainland, pleasure-boat dockage and moorings, permanent jetties.

Edgartown Harbor: Ferry from Falmouth, pleasure and fishing boats, ferry to Chappaquiddick.

Menemsha Harbor and Pond (Chilmark and Aquinnah): Fishing and shellfishing, pleasure-boat anchorage, dockage, and mooring; permanent jetties and opening to Vineyard Sound.

Tashmoo Pond (Tisbury): Pleasure-boat anchorage, boat launch, small jettied opening without a real channel.

Lagoon Pond (Tisbury and Oak Bluffs): Pleasure-boat anchorage, fish hatchery, pond opening

with a breakwater jetty.

West Basin (Aquinnah): Fishing and pleasure-boat anchorage.

Other coastal ponds, including Nashaquitsa Pond, Tisbury Great Pond, Oyster Pond, Edgartown Great Pond, Sengekontacket Pond, and Pocha Pond: Recreational boating, fishing, shellfishing, and swimming.

Katama Bay (Edgartown): Small ferry, pleasure boating, boat ramp, shellfishing (primary site of Vineyard commercial oyster farms).

Cape Poge Bay (Chappaquiddick; Edgartown): Pleasure boating, swimming, fishing and shell fishing.

Harthaven Harbor (Oak Bluffs): Private harbor with dockage and anchorage.

Off-Island ferry harbors at Woods Hole, New Bedford, Falmouth, Hyannis, Lewis Bay, and Nantucket in Massachusetts; and Quonset Point in Rhode Island

Vessels Operating in Vineyard Waters [BOX OR SIDEBAR]

Steamship Authority ferries for vehicles and pedestrians

Other seasonal ferries for passengers

Various small ferries and water taxis

U.S. Coast Guard rescue vessels out of Woods Holes and Menemsha

Coastal cruise ships docking in Vineyard Haven

Small pleasure boats docking and mooring in all 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 pump-out boats in Island harbors

Small sailboats for recreational, competitive, and instructional sailing

Large sailing vessels (including the Shenandoah and Alabama, which anchor in Vineyard Haven)

Sport fishing boats chartered from Island ports

Commercial fishing boats operating from local ports

Shellfishing vessels primarily operating in 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

Trends and Issues

Woods Hole, Martha's Vineyard and Nantucket Steamship Authority

Operating with the motto "Lifeline to the Islands," the Steamship Authority provides year-round service between Woods Hole and Vineyard Haven and seasonal service between Woods Hole and Oak Bluffs. It is the only ferry that carries both passengers and vehicles between Martha's

Vineyard and the mainland. Each one-way trip takes about 45 minutes from dock to dock.

The SSA is a public entity created by the Massachusetts legislature to provide “adequate transportation” for Nantucket and Martha’s Vineyard. To help protect its economic viability as a non-seasonal, low-demand service, the state also grants the SSA the ability to regulate private freight operators and vessels certified by the U.S. Coast Guard to carry more than 40 passengers between the Massachusetts mainland and the islands.

SSA ferry terminals are located in Woods Hole and Hyannis on Cape Cod, in Vineyard Haven and Oak Bluffs on Martha’s Vineyard, and on Nantucket. In 2018, the SSA employed 750 people in the peak season (July and August), with an annual budget of \$95 million.

Passenger trips to the Vineyard (including the three seasonal services listed above) totaled 2.66 million in 2017, up from 2.3 million in 2007—an increase of 316,812 passengers, or 13.5%. The SSA consistently accounts for about 90% of all passenger travel to and from the Vineyard.

An SSA board of governors consists of five members: one Nantucket resident appointed by the Nantucket County Commission, a Martha’s Vineyard resident appointed by the Dukes County Commission, and one resident each from Falmouth, Barnstable, and New Bedford. Each island member (Martha’s Vineyard and Nantucket) has 35% of the members’ combined vote, while each mainland board member has 10%. A seven-member advisory board known as the Port Council consists of members appointed by the towns of Barnstable, Fairhaven, Falmouth, Nantucket, New Bedford, Oak Bluffs, and Tisbury.

Seven of the SSA’s 10 vessels regularly serve the Vineyard: *The M/V Governor*, *The M/V Island Home*, *The M/V Katama*, *The M/V Martha’s Vineyard*, *The M/V Nantucket*, *The M/V Sankaty*, and *The M/V Woods Hole*. The freight vessel *M/V Gay Head* normally works the Nantucket route, but occasionally fills in on the Vineyard routes when other vessels are being maintained. Vessel sizes and ages, along with carrying capacities, are shown in the table below. [TABLE TO BE COMPLETED]

Vessel	Passenger Capacity (includes crew)	Vehicle Capacity (car equivalents)	Length	Width	Year built or acquired by SSA
Martha's Vineyard	1,024	54	230'	60'	1993 built
Island Home	1,210	60	255'	64'	2007 acquired
Governor	256	42	242'	46'	1954 built
Sankaty	300	38	235'	50'	1981 built
Nantucket	768	50	230'	60'	1974 acquired
Katama	150	39	235'	52'	1981 built
Gay Head	147	39	235'	52'	1989 acquired

The newest SSA ferry, *The M/V Woods Hole*, joined the fleet in June 2016 after being constructed at the Conrad Shipyard in Louisiana. At \$40.4 million, the hybrid freight/passenger vessel is the most expensive SSA ferry to date, and SSA officials consider it the most versatile as well. The vessel can carry up to 385 passengers, along with 55 vehicles or 10 tractor trailer rigs (or some combination of both), and travel at speeds of up to 14.5 knots. It was originally meant to

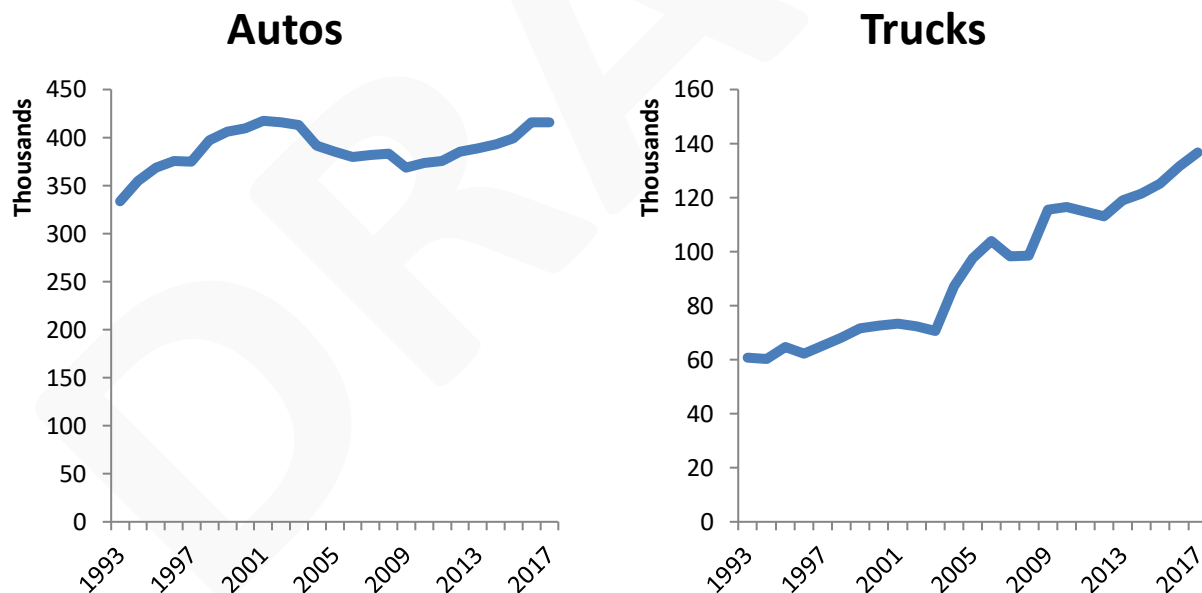
replace the 1954 *M/V Governor* (the oldest ferry in the fleet), but SSA officials later decided to repair and improve the *Governor* and keep it in service for backup.

Reconstruction of the seasonal Oak Bluffs ferry terminal was completed in 2010. The project involved rebuilding the SSA pier to accommodate some of the staging that had previously occurred on the street. The former staging area was reorganized to allow for more efficient pick-up and drop-off, and to ease traffic pressure near the terminal. Ferry trips into Oak Bluffs are sometimes diverted in high winds, when it becomes difficult for ferries to dock.

The Vineyard Haven terminal in Tisbury, built in 1995, is farther from the water and more sheltered from the weather. It is also the Island's only year-round connection for SSA ferries. As such, Tisbury has sometimes felt strained by the growth of year-round trips and related traffic near the terminal, including at the Five Corners intersection to the south and the intersection of State, Look and Edgartown-Vineyard Haven roads farther east.

Automobiles and Trucks

SSA ferry traffic has grown considerably since the 1990s, often causing frustration among Islanders (and many Falmouth residents) who experience the burden of heavy traffic in the summer. At the same time, the SSA fleet is likely nearing its capacity, with 10 ferries and limited dock space. A new ferry is budgeted for the coming years, but it is unclear whether that vessel will expand the fleet or replace an existing ferry.

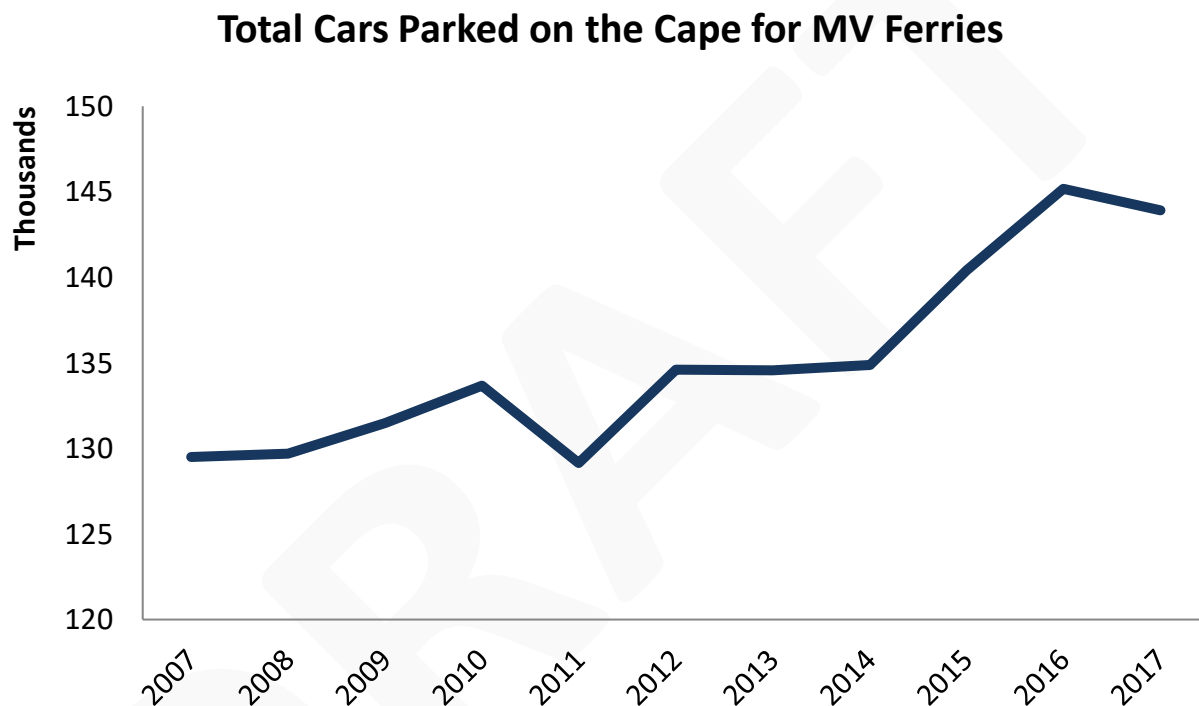


Source: Steamship Authority

Concerns about the growing number of vehicles carried by the ferries led to a nonbinding referendum in 1997, approved by voters in all Island towns, to limit summer automobile capacity to 1995 levels, when about 370,000 vehicles were carried to the Vineyard. Subsequently, the SSA Board of Governors constrained ferry slots to the Island from June to August.

But the limit on ferry capacity since 1997 may have partially backfired, with more people now appearing to keep one car on the Island and another on the mainland. The number of automobiles registered on the Island more than doubled between 1990 and 2010 (dipping slightly in 2015), though it is not clear exactly how many cars are on the Island at any one time. The number of cars parked annually at the Woods Hole, Falmouth, and Cataumet lots for Vineyard ferries grew 11% between 2007 and 2017 (mostly in July and August, but with notable growth in the shoulder seasons), peaking at about 145,000 in 2016. Short-term visitors account for only a small portion of summer vehicle traffic on the Vineyard.

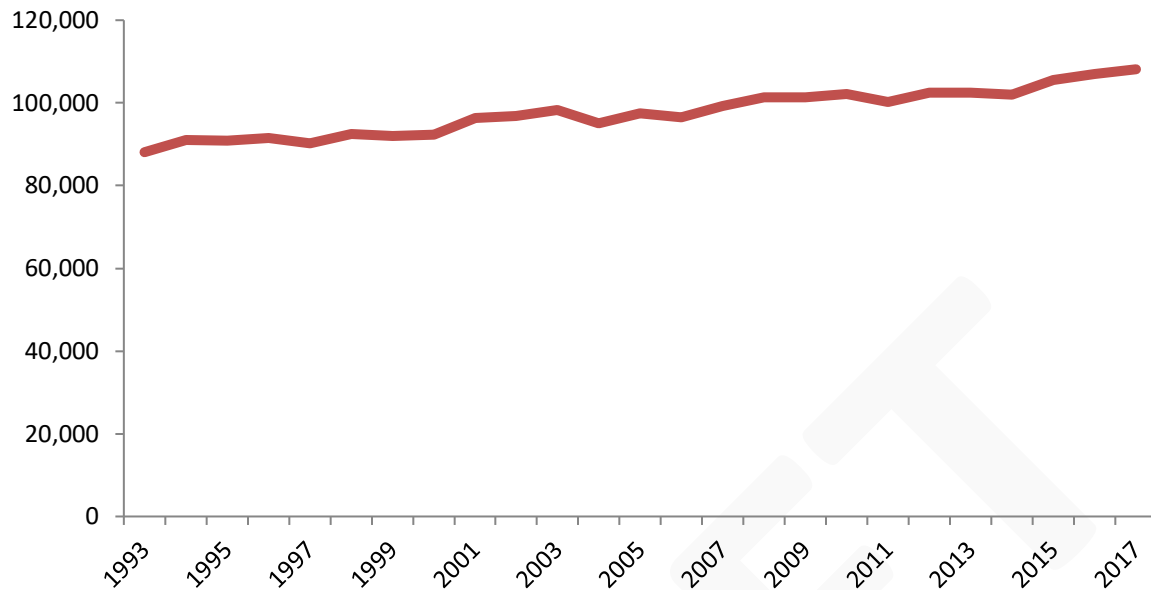
The SSA opened a new parking lot on Thomas B. Landers Road in East Falmouth, in 2015, providing 1,900 new parking spots for SSA passengers.



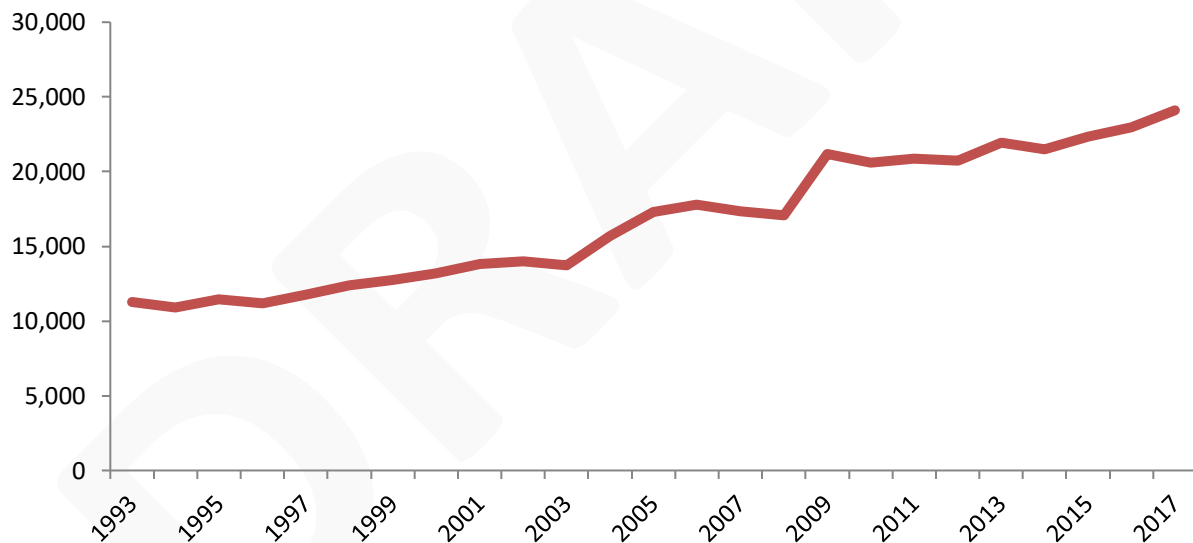
Source: Steamship Authority

According to the *Vineyard Gazette*, SSA discussions in 2003 surrounding the replacement of the *M/V Islander* revived discussions about a limit on summer vehicle capacity, leading then-SSA general manager Wayne Lamson to agree to remove other vessels from the Vineyard route. However, the boat line continued to add trips between 2010 and 2017 to meet the increasing demand, which it views as a primary obligation. Peak-season automobile traffic (July and August) increased about 23% from 1993 to 2017.

SSA Autos: July and August*



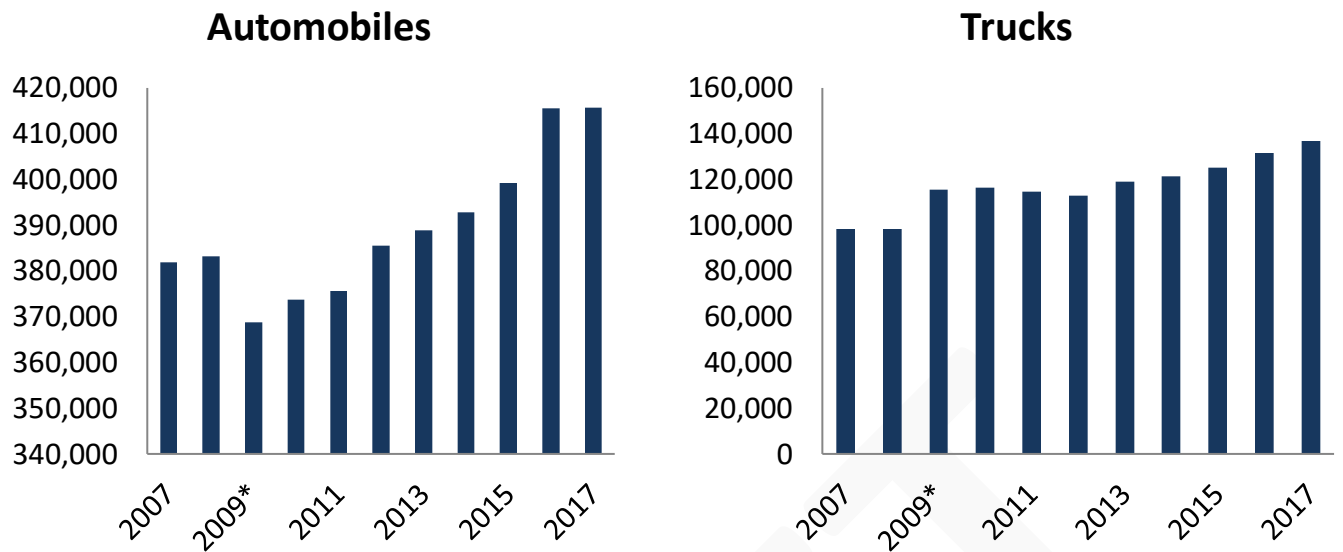
SSA Trucks: July and August*



Source: Steamship Authority

**In 2004, changes to the SSA's rate structure for vehicles less than 20 feet in length resulted in a reclassification of certain vehicles from automobiles to trucks. In 2009, the SSA no longer classified any non-commercial trucks of any length as automobiles.*

The SSA carried more than half a million vehicles to the Vineyard in 2017, up from 480,187 in 2007 (a 50% increase over 1995 levels). That included 415,753 automobiles (up from 381,930 in 2007), and 136,706 trucks (up from 98,257). In each of the last three years (2016, 2017, and 2018), the SSA has set a new record for vehicles carried to the Vineyard.

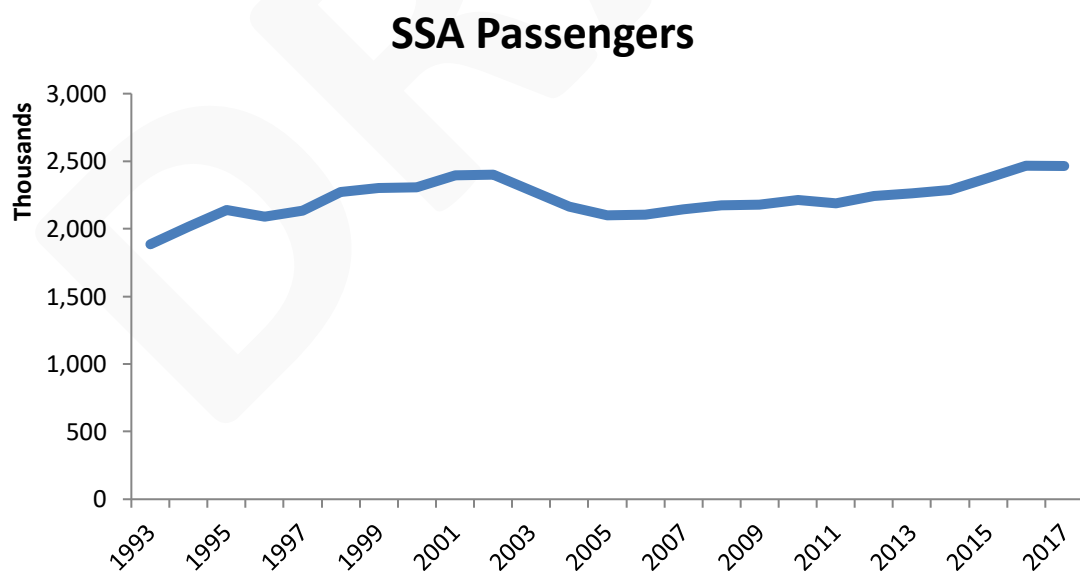


Source: Steamship Authority

*In 2009, the SSA no longer classified any non-commercial trucks of any length as automobiles.

Passengers

The number of passengers on SSA ferries is also on the rise. Passenger trips grew steadily in the 1990s, to a peak of about 2.4 million in 2002, then fell to about 2 million in 2005. Following another steady rise, the number of annual passengers in 2017 reached a record 2.47 million.



Source: Steamship Authority

Significantly, the congestion accompanying the arrival of passengers is of relatively short duration—usually less than 30 minutes for the larger SSA vessels, and less than 15 minutes for

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

BOX OR SIDEBAR:

Tisbury officials have discussed several ideas for relieving traffic congestion in the vicinity of the SSA terminal and Vineyard Transit Authority transit hub:

- Completing pedestrian ways and upgrading their width or condition
- Controlling pedestrian street crossings through a combination of improved or additional crosswalks, physical barriers to direct pedestrians to crosswalks, and education and enforcement efforts
- Improving way-finding signage at the terminals and the village centers
- Re-evaluating vehicle circulation patterns as they affect terminals

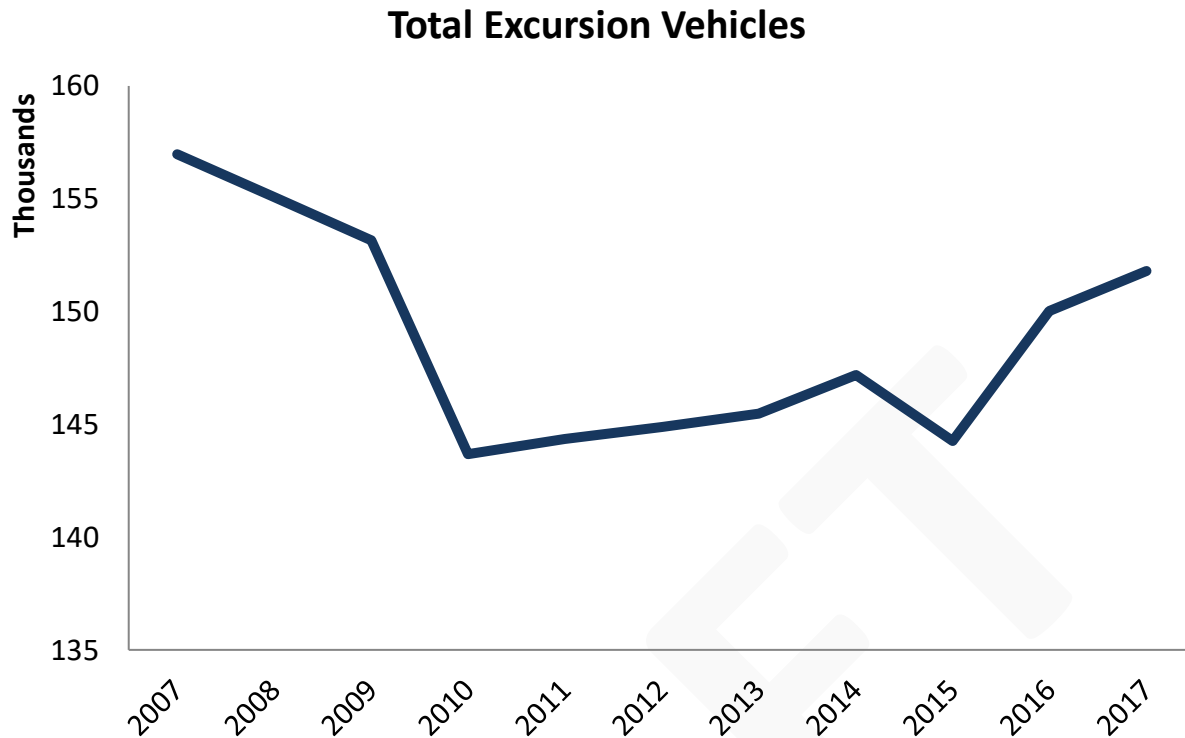
Better data regarding the characteristics of ferry passengers may lead to a better understanding of their movements on the Island. Some improvements have been made, notably to the area around the Oak Bluffs terminal and nearby streets (Lake Avenue project), and although congestion still occurs during loading and unloading, it seems fairly well dispersed.

In 2003, the Commonwealth enacted legislation allowing 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 the ferry 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 a police presence to direct traffic around the ferry terminal and at nearby intersections, and to defray the cost of the park-and-ride service in Oak Bluffs and Tisbury, which is provided by the Vineyard Transit Authority.

Increasing use of the Internet makes it easier for customers to make reservations, and reduces the need for separate trips to the ferry terminal to pick up tickets. The SSA introduced on-line reservations in 2003, and X% of all vehicle reservations to the Vineyard are now made online, although walk-on tickets must still be bought in person. In 2017, about 11,000 SSA passengers opted for a new electronic ticketing system using RFID (radio frequency identification) cards, instead of the regular ticket books, which are more expensive. The SSA expects to fully revamp its reservation system and website in the near future.

[WAITING FOR STATS FROM SSA]

Island residents may qualify for an SSA discount known as an excursion fare. Those rides must be round-trip and originate on the Island. The number of excursion fares declined slightly from 2007 to 2017. Excursion trips tend to drop in summer, perhaps because more residents are occupied with seasonal work. But even while excursion fares have declined, the number of excursion customers grew from about 9,000 in 2011 to 9,300 in 2018. That may indicate an increasing tendency for Islanders to stay at home, or conversely their increasing frustration with the SSA reservation system.



Source: Steamship Authority

SSA ferries allow many people to live on the Vineyard and work on the mainland, or vice versa. In one interesting trend, the number of workers commuting to the county for work surpassed the number commuting from the county, meaning that in terms of commuting, at least, the SSA in 2015 became more vital for people living on the mainland than for Islanders. According to data from OnTheMap, a service maintained by the U.S. Census Bureau, the number of Islanders commuting to the mainland in 2011 had surpassed those going the other way by about 1,900 commuters. In 2015, people commuting to the Island outnumbered those commuting from the Island by about 500.

Reliability

An unprecedented string of breakdowns and cancellations in the spring of 2018 created something of a public relations crisis for the SSA, which eventually bowed to public pressure and agreed to launch an independent review of its operations and management.

The malfunctions beginning in March included blackouts and IT failures, keeping the SSA's two main passenger ferries—the *Martha's Vineyard* and the *Woods Hole*—in and out of service for weeks. The Authority enlisted the freight boats *Sankaty* and *Katama*, and chartered the SeaStreak's fast ferry *Whaling City Express*, to fill the gaps. But the breakdowns and cancellations caused a public uproar that played out online and at public meetings. Partly as a result of the breakdowns (one of which left passengers stranded for five hours in Vineyard Sound), the SSA canceled more than 800 trips in the first quarter of 2018—more than in the previous four years combined.

On the heels of the crisis, the *Vineyard Gazette* launched a public opinion survey in May 2018, drawing responses from 2,000 people, about equally split among visitors and year-rounders. Many called for better communication from the Authority, and better reliability, and supported an independent audit. According to the *Gazette*, 65% of year-rounders were less satisfied with the SSA than they were a year before. But at the same time, only 6% of respondents said they had ever attended an SSA board meeting.

The SSA's public image took another hit in October 2018, when the board of governors voted to authorize a series of rate hikes without first hearing from the many residents who had gathered at the Island's Performing Arts Center for the board's monthly meeting. The 12.5% increase for vehicles and freight in the summer, along with a \$5 increase in summer weekend parking rates on the Cape, drew sharp criticism from the audience, with some saying they would prefer incremental increases, rather than larger ones every few years, as has typically been the case.

More than 200 people had attended an SSA meeting at the Performing Arts Center in May, at which many expressed their frustration and the board of governors agreed to commission the independent review. Released in December 2018, the independent review by HMS Consulting of Seattle, WA, praises the SSA for its longstanding fiscal independence, but also finds fault in an "overemphasis on cost reductions" that had led to understaffing at all levels of the organization, including upper management.

"SSA is over-reliant on a small number of individuals who hold inordinate amounts of knowledge and power, resulting in an executive team that is stuck in a perpetual mode of day-to-day firefighting," the report states. "The primary focus of these roles should be long-term sustainability and improvement of the organization, but almost no long-term planning is currently being performed."

The report makes 10 recommendations related to fleet maintenance, vessel operations, management structure, and IT systems. The recommendations include shifting from a reactive to a process-based culture that can address problems before they arise; establishing a clearer vision, including a mission statement and strategic plan; reorganizing the SSA's organizational structure to place less strain on senior executives; establishing a new approach to management recruitment (looking outside the organization); and performance evaluations that more effectively hold managers to account.

"The environment which the SSA operates in has changed drastically over the past twenty years, but the SSA has not adapted to that changing environment," the report concludes. "[T]he study team does not view what occurred in 2018 as an anomaly, but rather the new norm, which will repeat itself in various manifestations if changes are not made."

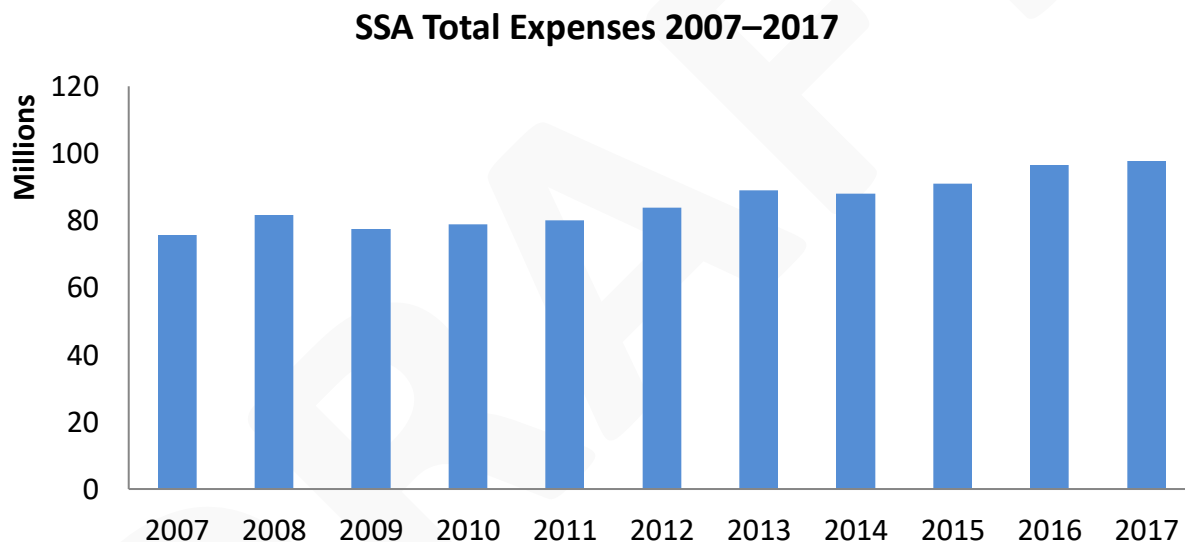
Implementing the recommendations will require an initial investment of about \$1 million, the report states, with additional investments of \$1 million per year, not including the cost of internal efforts: "However, this investment is inexpensive insurance against the type of incidents that plagued the SSA during 2018 and will result in a net cost reduction in the long-term."

The SSA board of governors has since agreed to adopt all of the recommendations outlined in the report, including the creation of new management positions, and to retain HMS Consulting to help in the process. The SSA has also indicated that it will increase fares to pay for the changes.

Woods Hole Terminal Project

Meanwhile, work on a new Woods Hole Terminal began in 2018 and will likely continue until at least 2023. (A temporary ticket office was constructed just north of the staging area.) The \$60-million project includes the utilization of a third ferry slip that had previously been used only for maintenance and overnight berthing. The controversial new slip went into service in May 2019, and could theoretically increase vehicle traffic to the Vineyard by 50%. The Vineyard Conservation Society, which advocates for preserving the Island environment, has publicly opposed the third slip, along with the SSA's \$1.3-million advertising budget for 2018, which the VCS views as overreach given the SSA's enabling act, which grants it the power to perform "essential government functions" on behalf of state residents.

The proposed terminal itself has been the subject of much debate, with concerns focused largely on preserving the view of Vineyard Sound from parts of Woods Hole, and minimizing the building's energy footprint. In response to public concerns, the SSA revealed new design concepts and held additional public sessions in the spring of 2019.



Source: Steamship Authority

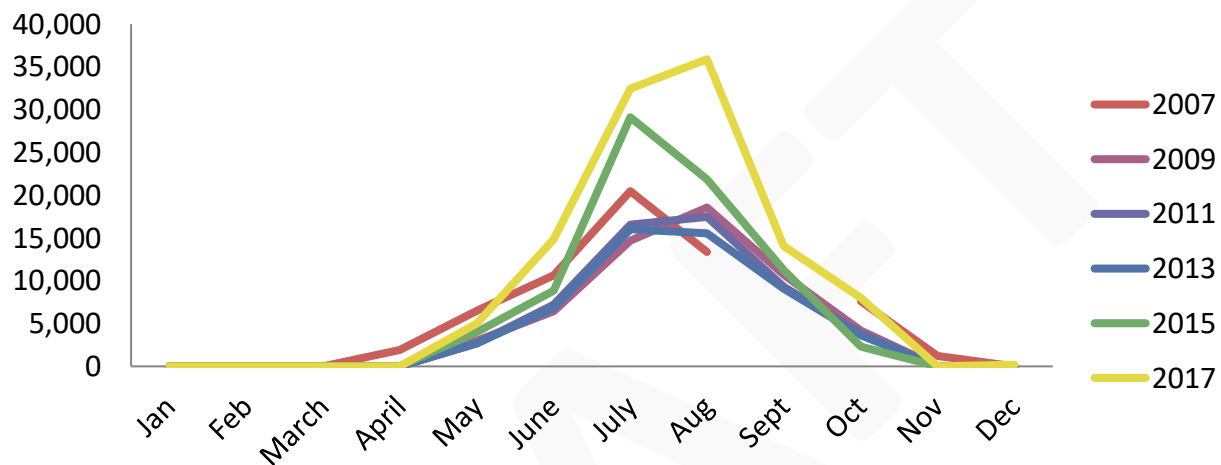
Seasonal Passenger Ferries

The Steamship Authority licenses three other ferry companies that serve the Vineyard: Hy-Line Cruises out of Hyannis, the Falmouth-Edgartown Ferry out of Falmouth, and the SeaStreak out of New Bedford and New York City. These services typically run from March to November, and do not carry vehicles. As with the SSA, passenger travel on the seasonal ferries peaks in July and August.

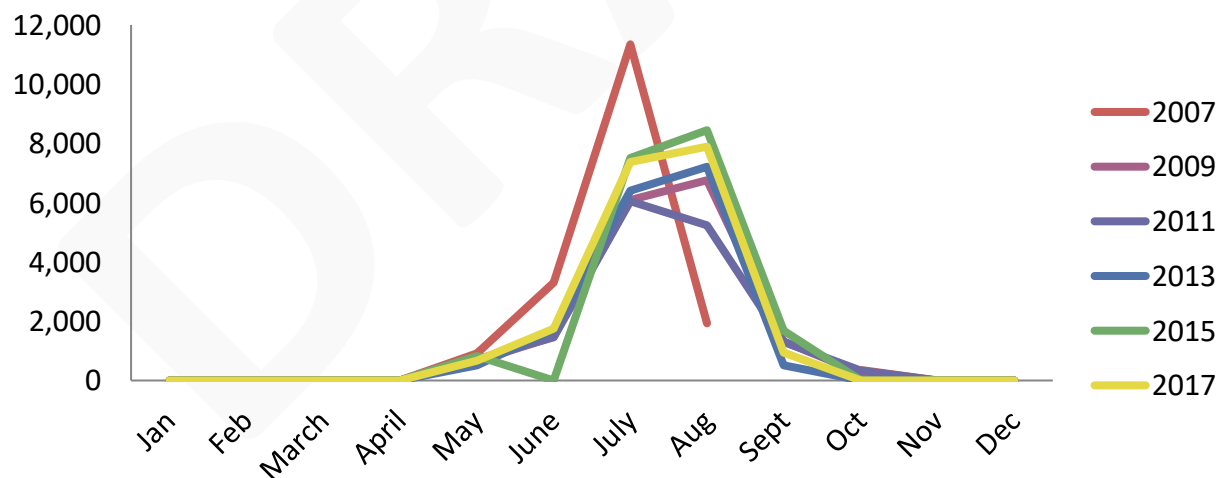
HyLine Cruises operated both regular and high-speed ferries until 2016, when it eliminated the regular-speed option and expanded its high-speed service. SeaStreak (formerly New England Fast Ferry) began offering trips out of New York City beginning in 2010, and out of New Bedford in 2012. Rhode Island Fast Ferry, which is not licensed by the SSA since it operates out of Rhode Island, has served the Vineyard since 2003.

Among the three SSA-licensed ferry services, HyLine Cruises has seen the most growth in ridership in recent years, with its high-speed service growing 79% between 2007 and 2017 (although its regular-speed service had declined prior to 2016). Falmouth Ferry Service saw a 4% increase in ridership over the same period, while ridership via SeaStreak dropped significantly: 35% on its New York ferry between 2011 and 2017, and 5% on its New Bedford ferry between 2013 and 2017. One benefit of the service from New York, New Bedford, and Rhode Island is that it offsets some of the seasonal traffic in Woods Hole.

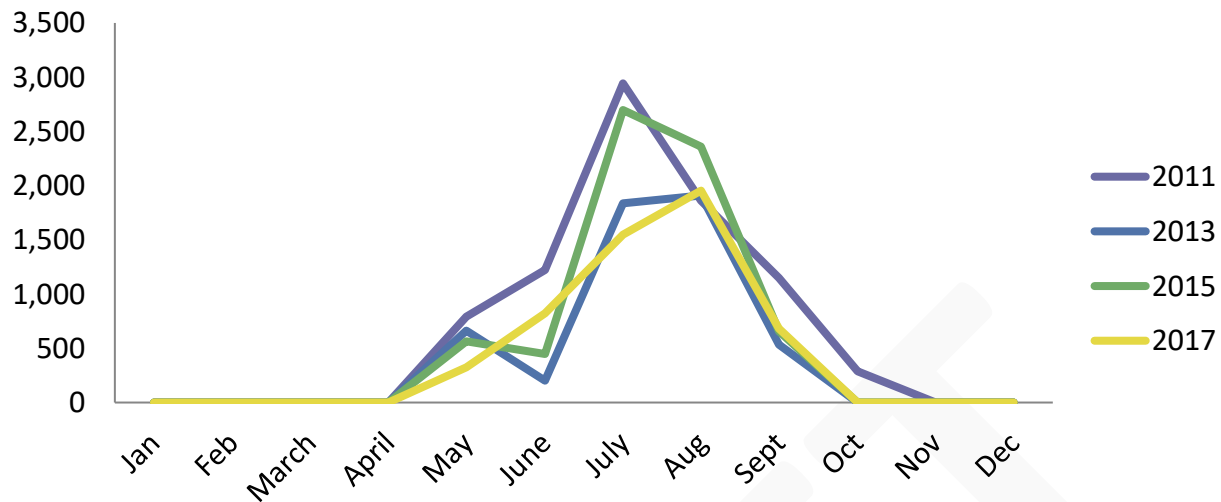
Hi-Line (High-Speed) Passengers



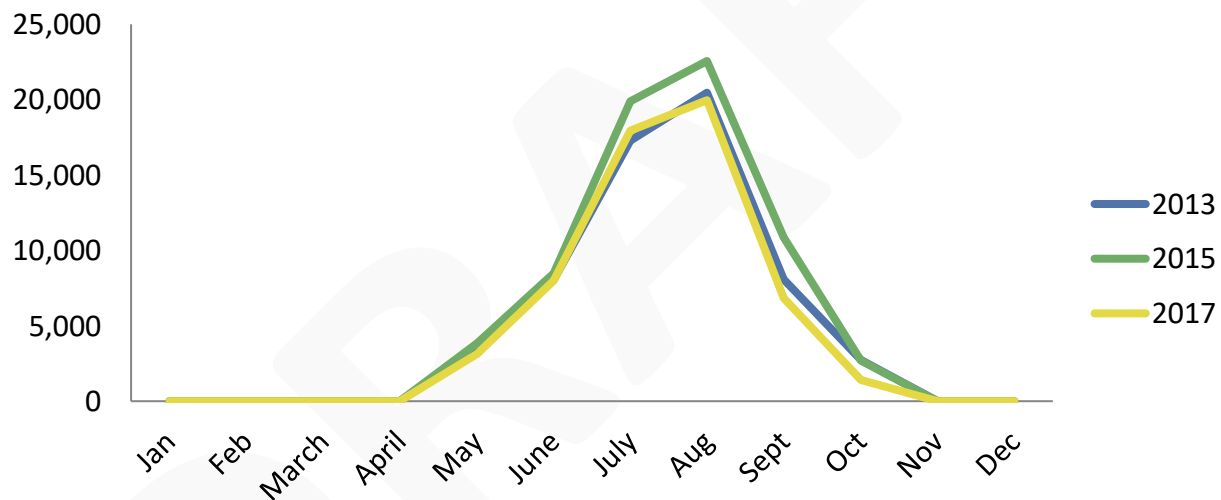
Falmouth Ferry Service Passengers



SeaStreak (NYC) Passengers



SeaStreak (New Bedford) Passengers



Source: Steamship Authority

The three SSA-licensed ferries accounted for 193,640 passenger trips to the Vineyard in 2017, about 7% of the total. The annual proportion of non-SSA passengers has remained stable since at least 2007.

Rhode Island Fast Ferry, out of North Kingstown, RI, offers seasonal, high-speed service between Quonset Point and Oak Bluffs; and the Island Commuter Corporation operates its *Island Queen* ferry between Falmouth and Oak Bluffs in the summer, with limited trips in May and October. Statistics for the *Island Queen* are not publicly available because the company was licensed before public reporting was required by the state; the only trips that SSA now licenses for the ferry are those that extend beyond the regular season.

The Chappy Ferry

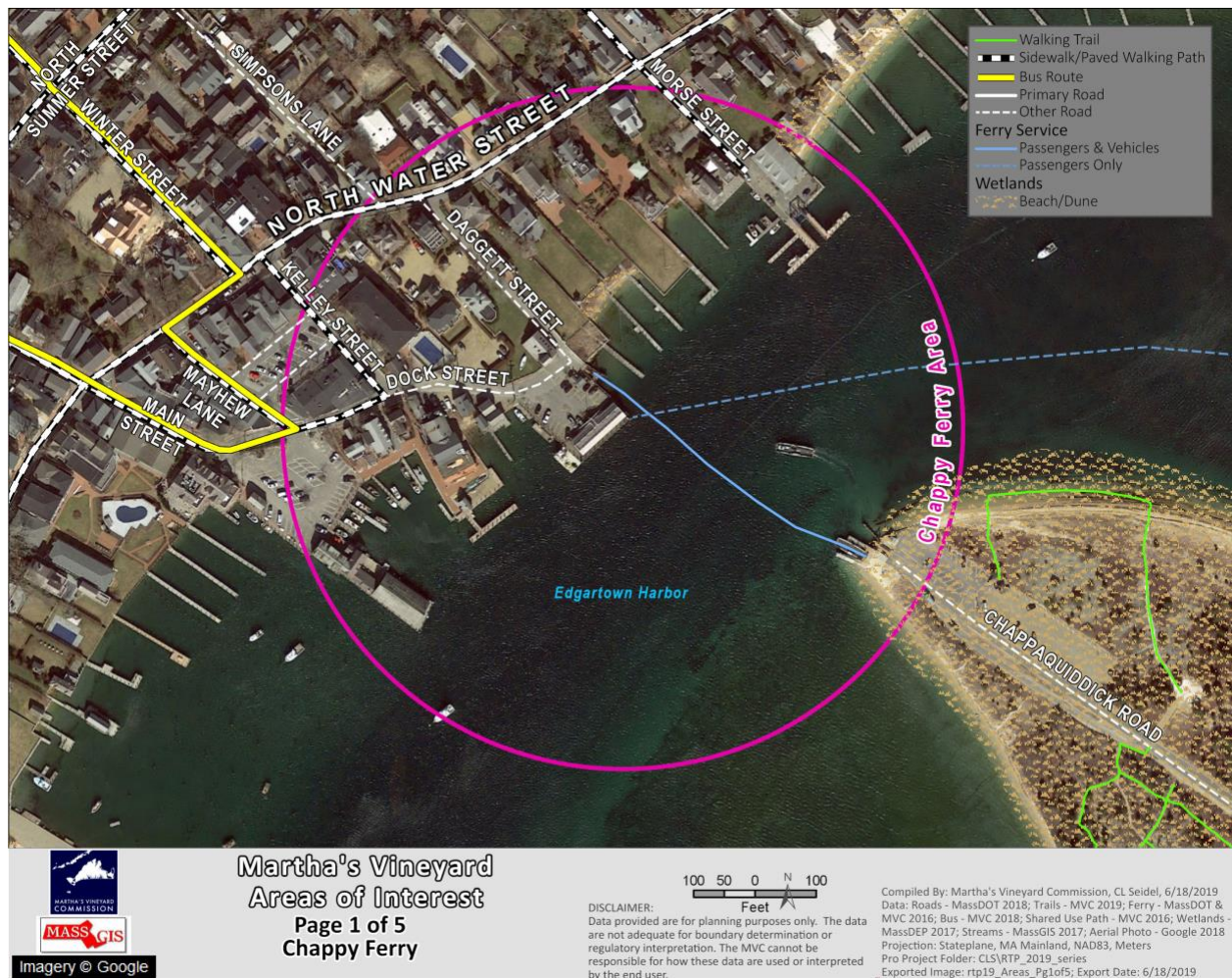
The Chappy Ferry transports cars, bikes, and people to and from Chappaquiddick in Edgartown.

Its long history (it was among the first businesses on the Vineyard), constant presence throughout the year, its local crew, and slightly do-it-yourself character make the ferry (actually three ferries—the *On Time I*, *On Time II*, and *On Time III*) a cherished part of Island culture. The ferry service is licensed by the Edgartown selectmen, who also approve the fares.

The south-facing barrier beach that connects Chappaquiddick to the rest of the Island occasionally breaches for prolonged periods, during which the Chappy Ferry is the only way to transport vehicles across the harbor. The last breach occurred during the Patriot's Day Storm of 2007 and persisted until the two sides of the beach naturally reconnected in 2015.

The ferry crossing is located in historic downtown Edgartown, where Edgartown Harbor narrows to about 530 feet. The ferry operates year-round from about 6:45 a.m. to 8 p.m., weather permitting, with another hour or two in the later evening. Each vessel can carry three vehicles at a time. One ferry runs in the off-season, but two run simultaneously in the summer to handle the increased demand among residents and visitors. Together the two vessels in summer can transport about 30 vehicles per hour in both directions. (Heavy trucks and trailers are advised to board only during high tide to prevent damage to the ferry and ramp.)

At one time, the ferry line ran roughly parallel to the harbor, along Dock Street, but was later relocated to Daggett Street as a result of traffic congestion in the area. While the current restricted capacity effectively controls the pace at which vehicles are released onto Chappaquiddick, and conversely back to Edgartown, the summer demand still often creates vehicle queuing for users on both sides of the harbor. Waits of more than an hour increasingly occur. Queuing on the narrow Edgartown streets can extend a few blocks at peak times, and coordination requires at least two traffic control officers, including in the shoulder seasons. The waiting cars often block resident driveways and other traffic in the downtown area. In August 2018, the Chappaquiddick Island Association sponsored a taxi stand on the Chappaquiddick side of the harbor as a pilot study so that residents going to and from the ferry could avoid the traffic.



The queuing varies from hour to hour and day to day, making it difficult to count the total hours of delay. According a summer 2002 MVC survey, ferry users were about evenly split among Chappaquiddick residents, service vehicles, and tourists or recreationists. A third of respondents said they would consider using bus transportation on Chappaquiddick if it were available. The Vineyard Transit Authority, with its well-used route from downtown Edgartown to South Beach, has demonstrated that beachgoers, at least, will forego personal vehicles and use buses to reach their destination.

In the spring of 2015, the Town of Edgartown resumed exploring ways to reduce ferry queuing and the resulting interruption of public roads and private driveways, and to better accommodate traffic to and from Chappaquiddick. Initial short-term goals included providing real-time information to drivers about the length of the queue and the likely wait. New cameras on Simpsons Lane (a residential area which handles the overflow traffic) show the queue in real time on the Chappy Ferry website. Officials have also discussed the possibility of relocating truck staging to North Water Street. In the longer term, the town plans to devote Community Preservation Act funds to a five-to-10-year waterfront project that among other things would reconfigure the ferry landing.

Further study is needed on other strategies, which may include a reservation system, remote staging, separate ferrying of cyclists and pedestrians, and new ferry service farther from the downtown area.

Cruise Ships

Major cruise lines such as Norwegian and Royal Caribbean may bring up to 30,000 visitors to the Island each summer. Those ships anchor off Oak Bluffs and passengers are tendered to the Oak Bluffs Harbor. Smaller cruise ships that berth in Vineyard Haven Harbor may bring about 1,000 additional passengers per year.

Recent Developments (Completed)

Oak Bluffs Ferry Terminal (2010)—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, and eased the staging of vehicles and traffic flow in the vicinity.

Vineyard Haven Harbor dredging (2014)—The town of Tisbury hired a company to dredge the west entrance to the harbor for the first time in 17 years, improving boat travel into and out of Vineyard Sound. (The opening to Lake Tashmoo is typically dredged every two years.)

Menemsha Coast Guard boathouse and dock (2015)—A fire in August 2010 destroyed a 1938 Coast Guard boathouse, along with a section a wooden pier owned by the Town of Chilmark. The pier was reconstructed, along with a larger, fire-resistant boathouse.

Oak Bluffs seawall (2016)—Oak Bluffs restored the eroding North Bluff coastal bank, including a 720-foot metal seawall and a pedestrian walkway between Oak Bluffs Harbor and the town fishing pier. The new seawall helps protect downtown infrastructure from sea-level rise, and the walkway forms part of a continual path between the harbor and the downtown area.

East Chop Beach Club bulkhead (2017)—The town of Oak Bluffs built new bulkheads in the vicinity of the beach club to improve the berthing of motor vessels, including a fire and rescue boat that was obtained through a federal emergency management grant.

Menemsha Channel dredging (2017)—The U.S. Army Corps of Engineers hired contractors to dredge the channel, improving the safety of boat travel into and out of Menemsha Pond and Harbor. (Menemsha Channel is a federal navigation project, and the pond serves as a harbor of refuge to boaters, hence the federal oversight.)

Menemsha jetties reconstruction (2015)—The U.S. Army Corps of Engineers reconstructed the two stone jetties leading into the harbor, using federal funds that became available after Hurricane Sandy in 2012.

Massachusetts Estuaries Project—This collaboration between the University of Massachusetts and the state Department of Environmental Protection began in 2001 and has studied most of the major estuaries on the Island, providing recommendations for improvements in water quality that among other things may increase their attractiveness for recreation.

Objectives

1. Maintain the peak-summer capacity of vehicle access to the Island at the 1995 levels, in

line with the 1997 Islandwide referendum on the subject.

2. Continue to encourage visitors to come to the Island without their cars.
3. Reduce the number of vehicles traveling to the ferry terminals in Vineyard Haven, Oak Bluffs, and Woods Hole to drop off passengers.
4. Reduce the total number of freight trips between the Island and Woods Hole.
5. Improve vehicle and passenger access to and from ferry terminals, including better remote parking, improved passenger drop-off, vehicle queuing, and distribution between the two Island terminals.
6. Reduce vessel delays or cancellations due to mechanical issues as much as possible to ensure reliability and confidence in the system.
7. Coordinate improved connections with transit at both ends of the ferry trip.
8. Support efforts to reduce congestion in downtown Edgartown that results from vehicles waiting for the Chappy Ferry.

Proposed Actions [NUMERALS REPRESENT THE CORRESPONDING GOALS; OTHER SECTIONS WILL HAVE THE SAME FORMAT]

- 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 at park-and-ride locations. 3, 7
- Continue to improve the SSA reservation system and queuing for passenger convenience and to reduce unnecessary traffic. 5, 7
- Review periodically the number of trips delayed or cancelled for mechanical issues to provide a reliability check on the ferry system. 3, 6
- Coordinate the capacities of the boat lines with the capacities of the region's roads and public surface transportation services. 1, 2, 5
- Utilize the websites of the SSA and other ferry companies to provide information about car-free travel on the Vineyard. 2, 3, 7
- Initiate public discussions surrounding the use of bike-share systems that allow people to rent bicycles for a small fee and then return them to a designated station. (These could perhaps be within walking distance of the terminals, but not at the terminals themselves.) 2, 7
- Continue working to establish a park-and-ride in Oak Bluffs with shuttle service to the terminal. 3, 5, 7
- Provide information on the SSA website and in SSA terminals about the free park-and-ride service in Vineyard Haven. 3, 5
- Work with the SSA to develop a smartphone app that indicates the level of traffic around each terminal in real time so people can decide when and where to pick up or drop off. 3, 5, 7
- Work with the SSA to continue investigating proposals to establish a freight dock in New Bedford. 4, 5
- Support the SSA in its efforts to implement the recommendations made in the 2019 report by HMS Consultants. 5, 6
- Renew discussions surrounding the 1997 referendum, possibly by way of a public forum hosted by the MVC. 1, 2, 3, 5, 7
- Help educate users of the Chappy Ferry about the best times to travel to or from Chappaquiddick (for example, avoiding Thursdays, when many landscapers take their trucks over). 8

Section 7: Freight Transportation

Overview

Freight traffic to, from, and on Martha's Vineyard represents a vital element of Island life and has a substantial impact on the transportation system. Freight in the form of mail, express packages, fuel, food, and building materials are the major items shipped to the Island. Solid waste and recyclables are shipped to various facilities off-Island. Most freight to the Vineyard arrives on trucks via Steamship Authority (SSA) vessels linking Woods Hole to Vineyard Haven and Oak Bluffs. In addition, some freight is delivered by barge to the RM Packer Company in Vineyard Haven. Air freight is used for smaller, time-sensitive shipments.

The only companies that focus on 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 carried over on large trailers with up to 80,000 pounds of loaded weight each, then transferred to smaller trucks for delivery to Island destinations. The smaller trucks are generally 30–35-foot straight trucks with two axles and 20,000–25,000 pounds of loaded weight; or 25-cubic-foot trucks with two axles and up to 10,000 pounds of loaded weight. In 2017 the Camp Meeting Association in Oak Bluffs voted to prohibit delivery trucks longer than 20 feet on all roads within the historic Camp Ground, which features many small houses and narrow roads.

Trends and Issues

Freight transportation is thought to closely mirror the growth of the Island population and economy. As one indicator of that growth, truck traffic on SSA ferries increased about 18% between 2010 and 2017 (compared to about 12% for automobiles). At the same time, the number of heavy trucks registered on the Vineyard held steady at around 1,060 between 2010 and 2015 (the latest data from the state), suggesting an increase in the movement of freight but not the number of trucks on the Island.

[GRAPH FOR TRAILER VS OTHER FREIGHT]

The transportation of hazardous material (hazmat) is a concern for the SSA as well as the towns through which those trucks must pass. Hazmat may only be shipped on open freight boats that do not carry private vehicles or passengers.

The SSA's pricing and reservation policies—charging for truck length rather than weight, and penalizing for unused reservations—appear to have compelled freight companies to ensure that trucks are fully loaded and that the smallest possible trucks are used for ferry trips. However, shippers have complained about difficulty in obtaining additional reservations when needed, especially for time-sensitive deliveries. The SSA operates a bulk reservation system that serves to schedule repetitive daily, weekly, and less frequent freight-truck trips to and from the Vineyard. The system divides the year into seasonal (May through October) and off-season (November through April) periods, and allows for trucks to be scheduled by lottery. The SSA has made efforts to schedule more freight trucks to the Island early in the day so that more deliveries will coincide with normal working hours.

Among the concerns surrounding freight, large trucks move slowly to navigate the typically narrow Island roads, and daytime deliveries may add to existing congestion. Few stores have off-street truck docks. It would make sense to encourage more off-peak delivery, but attempts by freight companies to deliver early are often stymied by the fact that smaller businesses may not be staffed until later in the day, forcing deliveries to come during the prime shopping and visitor hours. Shippers of perishables tend to deliver to larger establishments, many of which have better docking facilities, but local noise restrictions often prevent them from making early-morning deliveries.

In response to longstanding complaints from Woods Hole residents about early-morning truck traffic heading to the Vineyard ferries, the SSA voted in 2017 to eliminate the 5:30 a.m. freight boat from the winter and spring schedules. But it stopped short of eliminating the early morning run in the summer as well, pointing out that shifting those trips to later in the day could worsen traffic in both Woods Hole and on the Vineyard. For the same reasons, the SSA also voted to limit the size of trucks carrying freight on the 5:30 a.m. boats to 40 feet, but only in the summer. Perhaps in response to those changes, the SSA schedule for 2018 included three more trips per weekday for the freight vessel *Sankaty*.

Truck traffic in Woods Hole is limited to the hours of 6 a.m. to midnight, but that restriction does not apply to the Wood Hole Oceanographic Institute, National Oceanic and Atmospheric Administration, U.S. Coast Guard, US Department of Marine Fisheries, and other businesses in Falmouth and Woods Hole.

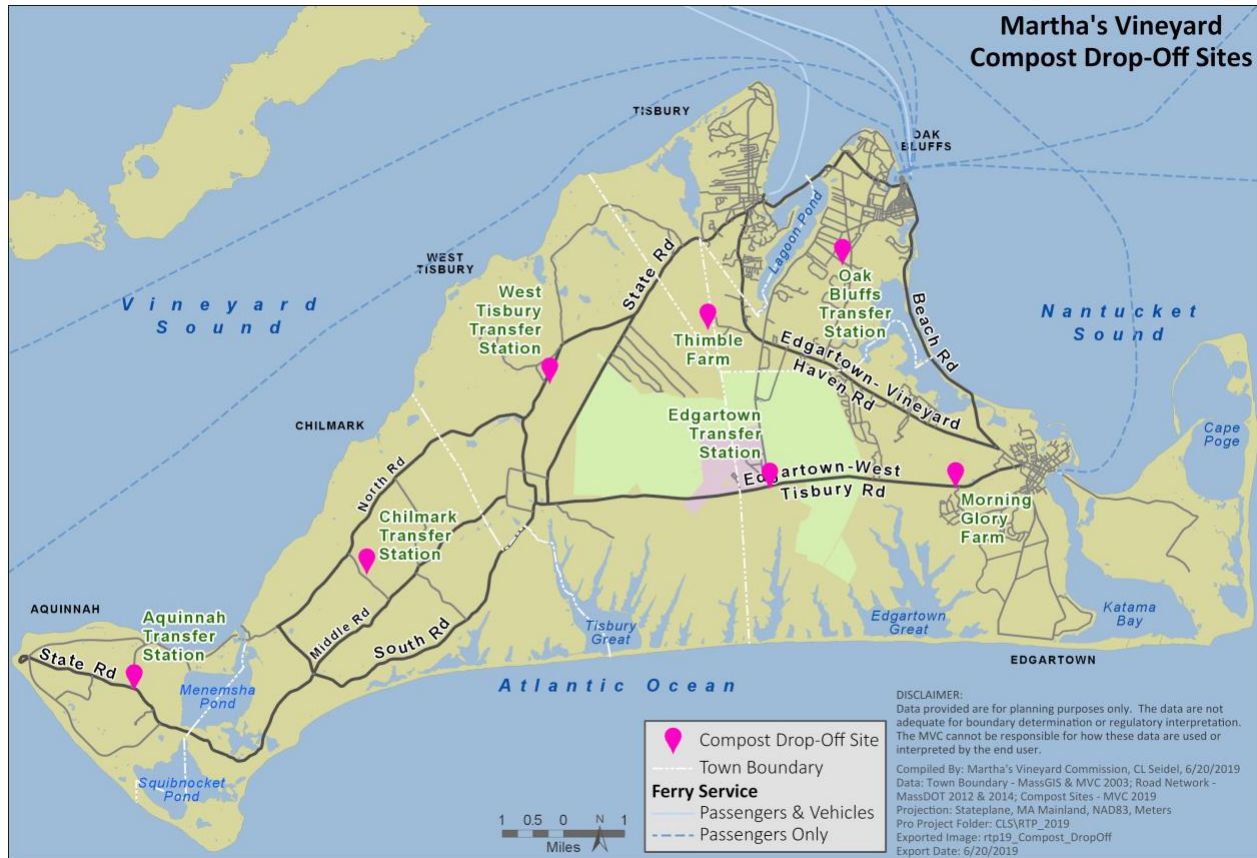
The complaints about traffic in Woods Hole have rekindled an effort by the SSA to explore the possibility of establishing freight runs between the Vineyard and New Bedford, which could offset truck traffic in Woods Hole. Earlier studies in 2002 and 2012 found that such a service would be unfeasible, although the latter study suggested that a combination of trash and freight could possibly work. Officials in Tisbury and Oak Bluffs have shown support for the idea of barging trash off-Island, rather than sending it off on the ferries, but the Martha's Vineyard Refuse Disposal and Resource Recovery District, which serves Edgartown, Chilmark, West Tisbury and Aquinnah, has yet to weigh in on the proposal.

A 2017 study commissioned by the SSA looked at the feasibility of a private contractor running freight trips from New Bedford. The study found that such a service would be feasible but that necessary upgrades to the state pier in New Bedford would cost between \$2 million and \$5 million, with some setting the figure much higher. The study also points out the uncertainty in whether state and local leaders would endorse the idea. SSA staff in 2017 formally recommended that the board of governors not spend money on repairing the state pier, although the SSA more recently issued a request for proposals (RFP) for the service. Several responses to the RFP have been submitted, but the state pier in New Bedford remains an obstacle.

The SSA has also hired a company to explore the idea of shipping municipal solid waste from the Island to New Bedford, possibly in collaboration with the RM Packer Company, which already runs barges and has waterfront facilities in both Tisbury and New Bedford.

State and local composting initiatives that began around 2014, including new community composting sites around the Island, could someday reduce the number of trash trips off-Island, possibly easing freight traffic throughout the year. The efforts resulted partly from a 2014 state regulation that businesses producing more than one ton of food waste per week must compost or

repurpose it. Enforcement of the regulation has been lax, but will likely increase once more composting facilities are available in the state. The ban may also eventually extend to private homes as well. A 2017 study funded by the Martha's Vineyard Vision Fellowship found that about 18 Island businesses exceed the state threshold, and that keeping all food waste on the Island could save \$286,000 in disposal costs each year.



Other developments that may affect freight travel are the Vineyard lawn fertilizer regulations adopted in 2014, which could reduce the transport of fertilizer from the mainland, and (on a longer timeline) the eventual closure of the Island's sand mining operation, which could increase barge traffic from off-Island.

Shipping is often blamed for the higher cost of goods on the Island, but that may not be the main cause. The incremental costs of trucking from a mainland port include the tariff, the time required of drivers and equipment (ferry schedules account for at least three hours of dead time that necessitate 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 only 3%. In the 1960s, the New England Motor Rate Bureau concluded that the additional transportation cost of shipping to the Vineyard was about 23%, a figure that is likely still valid today. So the average additional cost of a product costing \$100 is probably less than a dollar (a 23% increase of about a \$3 transportation cost). The relatively higher cost of some products is attributable more to personnel and operating costs associated with Island living, especially the higher real estate costs, and may also reflect the fact that retailers have a captive market on the Island.

Objectives

1. Ensure that freight is brought to the Island and distributed to its destinations in a timely and efficient way, with minimal negative effects on traffic, safety, and the environment.
2. Reduce vehicle traffic to the ferry in Island towns as well as in Woods Hole and the rest of the Cape—particularly trucks and hazardous materials.

Proposed Actions

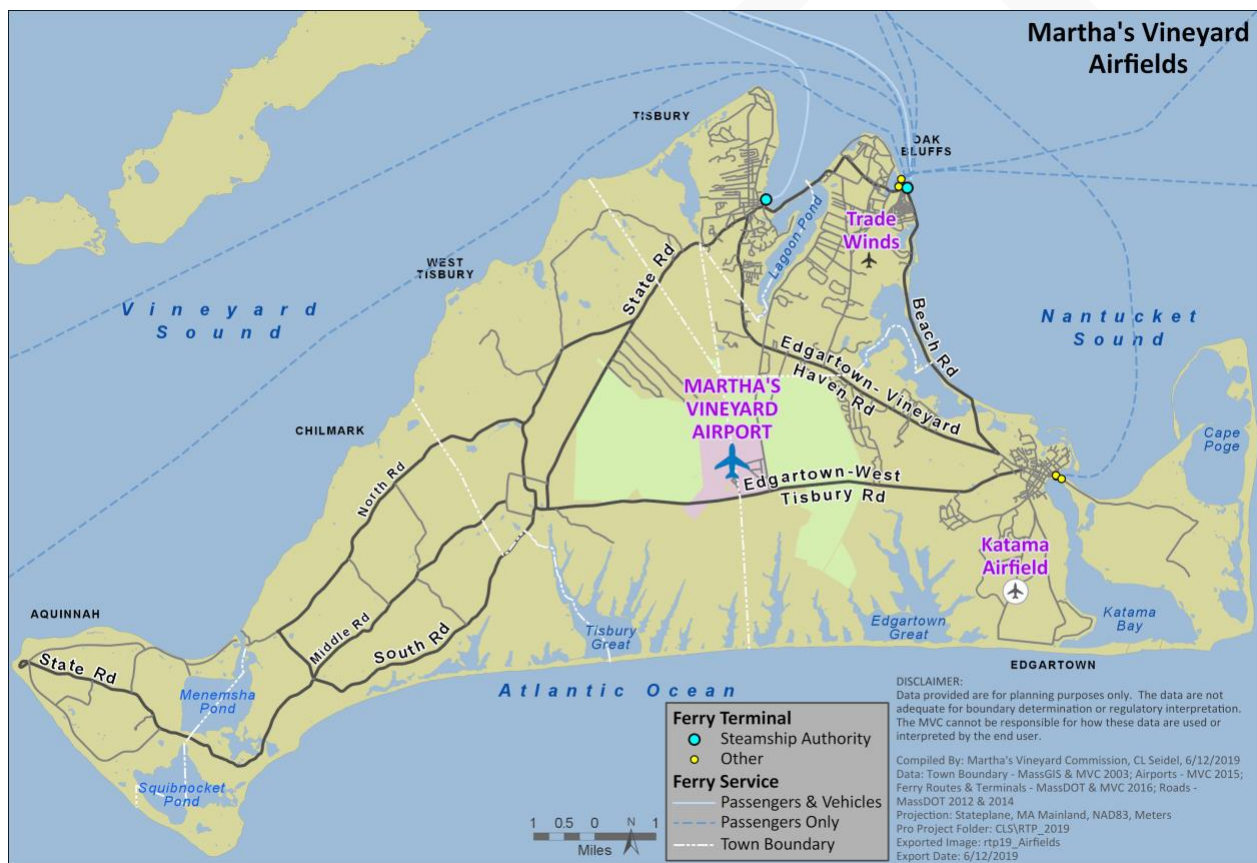
- Explore how a greater proportion of freight—and particularly low-value and less time-sensitive commodities (e.g. lumber) and hazardous materials (e.g. oil and propane)—could be brought to the Island by barge instead of ferry.
- Support efforts to establish freight and trash runs between Tisbury and New Bedford; explore the possibility of using containerization. 1, 2
- 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. 1, 2
- 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 giving priority to time-sensitive freight. 1, 2
- Consider the possibility of running more freight boats to facilitate truck access to the Island, particularly in the late afternoon, and reducing other trips. 1, 2
- Look at the possibility of further 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. 2
- Explore the possibility of delivering to people's homes so shoppers don't need to take their cars to go shopping. Explore the possibility of expanding mail delivery with door-to-door service in town centers, and by encouraging people in other areas to use rural delivery. Consider the possibility of satellite mail service at the Airport in summer. 1, 2
- Explore the possibility of reducing the need to transport waste by treating liquid waste on the Island; promote the use of new and additional community composting facilities. 1, 2
- Examine the possibility of limiting which vessels are used to transport garbage and septic waste, and the possibility of using only barges. 1, 2

Section 8: Air Transportation

Overview

Martha's Vineyard Airport (MVY)

MVY is a certified Federal Aviation Administration (FAA) Part 139 non-hub general aviation airport that also hosts air carrier and freight service to the Island. Spanning sections of both Edgartown and West Tisbury, the airport is near the Island's geographic center, surrounded on three sides by the State Forest. It has two intersecting 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 and plays a key role in the Island's year-round economy. In 2019, MassDOT estimated \$50.9 million in total payroll, and economic benefits of more than \$140 million per year attributed the airport.



Three major airlines (JetBlue, Delta and American Airlines) operate flights at MVY in the summer and shoulder seasons, with connections to Boston Logan, JFK International, and Reagan National airports, along with smaller airports in Barnstable, New Bedford, Nantucket, and Providence. Cape Air offers the only year-round commercial flight service to the Vineyard, and handles the majority of year-round trips. As a public-use airport that receives federal funding, MVY is required to accommodate any airline that wants to offer flights to the Vineyard.

The airport maintains about 2.65 million square feet of pavement, including runways, taxiways, and parking aprons. Runway 6-24 is 5,504 feet long, 100 feet wide, and equipped with a

precision-instrument approach. Its high-intensity runway lighting can be pilot-controlled. According to the Federal Aviation Administration the runways have an expected lifespan of 20 years; Runway 6-24 was reconstructed and grooved in 2019. The Airport Reference Code is C-III, which designates the aircraft size and speeds for which the area is designed.

Runway 15-33, also known as the cross-runway, is 3,297 feet long, 75 feet wide, and is a visual-flight-rules runway with medium-intensity lighting that can also be pilot-controlled. The runway was reconstructed in 1992, with a complete rehabilitation slated for the coming years. The Airport Reference Code for this runway is B-II.

MVY is owned by Dukes County, and the Dukes County Commission appoints the seven-member Martha's Vineyard Airport Commission (MVAC). The airport commission adopted a 20-year master plan in 2016 (its first since 2003), and updated it a year later. The 2017 update outlines a number of strategies for accommodating changes in air service, technology, and other factors over time. In 2018, the MVAC initiated an environmental review of nine projects that the plan indicates should begin in the near future. The review was expected to conclude by 2020.

Katama Airfield

This visual-flight-rules grass-strip airfield is sited in an environmentally sensitive sandplain grassland and open to recreational aircraft from May to October. Any expansion must conform to the Katama Plains Management Agreement, which is administered jointly by The Nature Conservancy and the Edgartown conservation and airfield commissions. Development must also conform to the regulations enacted by the MVC for the Katama Airport District of Critical Planning Concern.

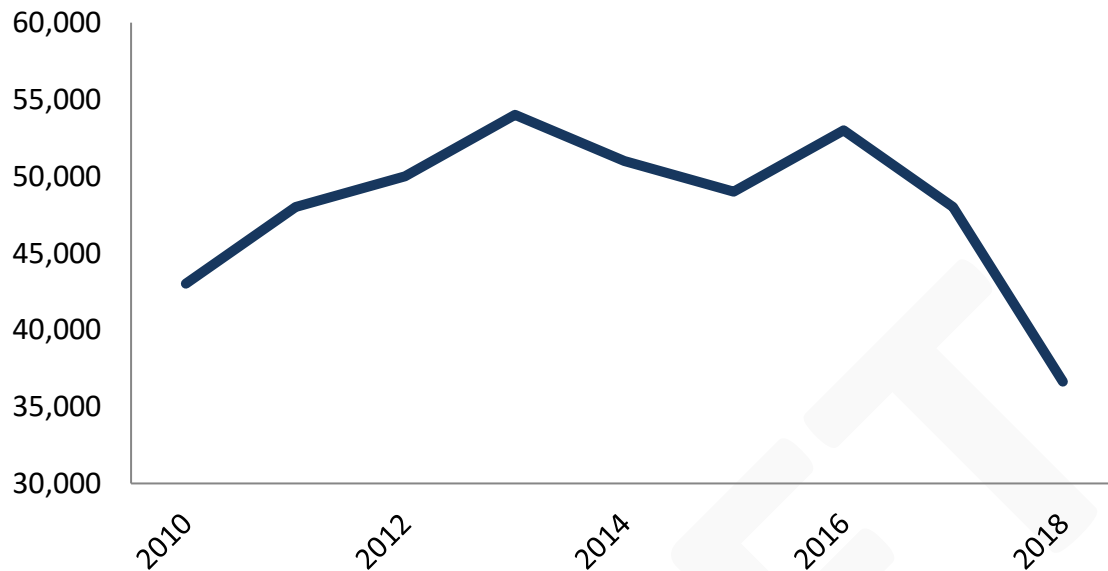
Trade Winds Airstrip

This grass airstrip, at Trade Wind Fields Preserve in Oak Bluffs, is owned and maintained by the Martha's Vineyard Land Bank Commission. There are few operations because pilots must receive advance permission. The airfield serves primarily as a dog park.

Trends and Issues

Air travel accounts for about five percent 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.

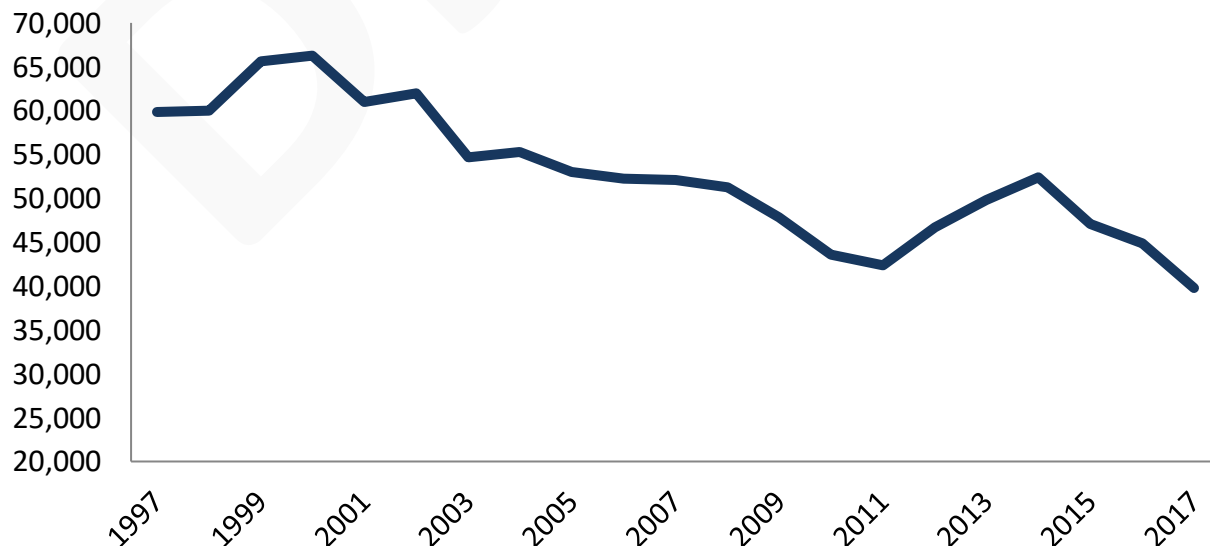
MVY Commercial Passenger Boardings, 2010-2016



Source: MVY Airport

The number of annual commercial enplanements (passengers departing on scheduled airline flights) fluctuated from about 60,000 in the mid-1980s, to less than 40,000 in the early 1990s, then peaked at about 74,000 in 1999. In recent years, annual enplanements have plateaued around 45,000, and the airport does not expect that figure to change much in the foreseeable future. The variation since the 1970s resulted from several factors, including changes in commercial service and the overall mix of air carriers, reduction of commercial service during the off-season, and revised flight schedules. Most commercial flights now arrive in the early afternoon hours, which creates a window of congestion in the terminal and on Airport Road during the summer.

MVY Commercial Take-Offs, 1997-2017



In response to summertime congestion, the MVAC began taking preliminary steps to secure funding to expand the airport terminal, which was built in 1999. Public concerns surrounding the expansion focused largely on maintaining a scale appropriate to the Vineyard. The airport has since shifted its focus from expansion to renovation and upgrading, but maintains that it must continue to grow within the safety and parameters of the FAA and Transportation Security Administration (TSA), and offer a seamless experience for travelers.

One near-term change to the airline industry is the phasing out of E-190 jets, which carry 100 passengers each, in favor of the new Airbus 220, which carries 140 passengers. That may or may not result in fewer flights to the Island; the transition will likely take five to 10 years. Cape Air is also planning to replace many of its aircraft, including some electric planes (see section 5), but that is not expected to affect flight schedules.

General aviation (GA), which refers to all aircraft except military and scheduled airlines, accounts for a large percentage of airport activity. The GA market is expected to slightly expand, while air carrier traffic is expected to remain stable. The use of smaller aircraft has declined over the years, as recreational aircraft become more expensive to buy and maintain, and as many recreational pilots get older. Private-corporate and mid-level flights have remained stable. The airport notes a steady and large demand for general aviation in general, although the private nature of those businesses makes it difficult to monitor trends over time.

With funding from MassDOT, the airport initiated a new automated parking system in 2017, where customers take a ticket upon entering one of three parking lots near the terminal, and pay on their way out. As with many changes on the Island, the new system saw its share of pushback, due partly to technical issues during the rollout, but also because many customers had not seen it coming. Previously, parking fees were based on an honor system that likely failed to capture the potential revenues for the airport. Among other things, the new system will provide reliable data to the airport for planning purposes; and LAZ Parking, which installed the system, will serve as the airport's ground-transportation manager, patrolling the front curb and parking lots during the summer and managing all of the airport's transportation contracts.

It should be noted that an increase in air passengers to the Island could decrease the number of vehicles on the road, but that benefit must be weighed against the potential increase in air traffic over Island neighborhoods and the relative greenhouse gas emissions.

Objectives

1. Improve the safety, efficiency, and reliability of the airport as a transportation resource for the year-round and seasonal communities.
2. Improve airport facilities in response to present and future needs, including those related to technology and airline demand, with a priority on increasing ramp areas and hangars for airplane parking, and ensuring adequate facilities to accommodate aviation activity.

Proposed Actions

Short-term Actions

- Continue working to acquire or relocate existing hangars to provide increased apron space adjacent to terminal complex.
- Initiate a series of public visioning workshops focusing on how best to meet the needs of seasonal and year-round MVY customers.
- Replace the sole hangar at the Katama Airfield.

Long-term Actions

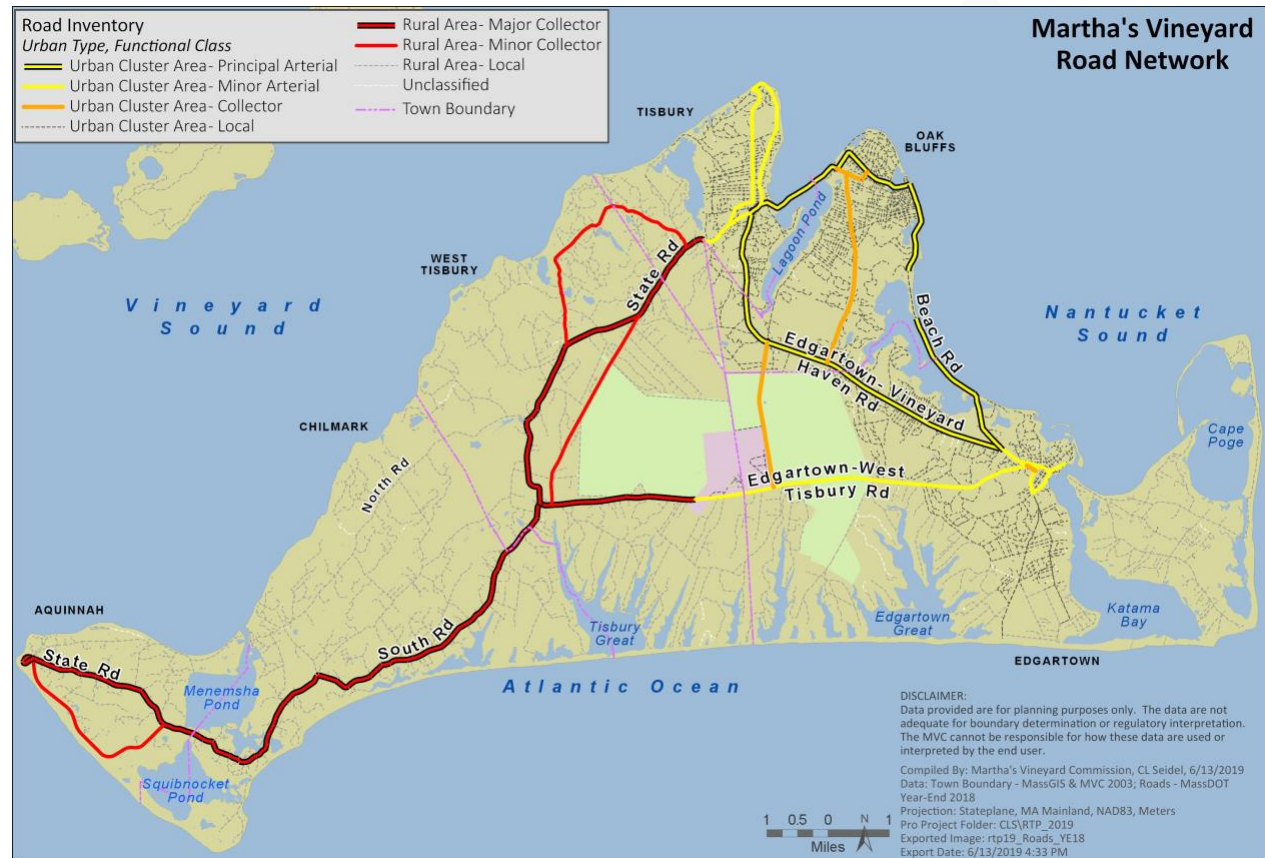
- Construct General Aviation terminal facilities, including vehicle parking areas and access roads; look into paving Lot C.
- Work with MVC to prioritize projects identified in the MVY Master Plan, with a focus on handling current and future airport capacity; develop plans and design options to have ready for the future.
- Construct airline and connector roads to reduce vehicle traffic at the intersection of Edgartown-West Tisbury and Barnes roads, 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 in regard to water supply and pressure for fire protection systems. Continue to study the feasibility of sourcing water from the Edgartown Water Department rather than the Oak Bluffs Water District, or of building a new municipal well on airport property.
- Re-construct or add taxiways as appropriate.
- Continue to make improvements to the airport sewage treatment plant.
- Renovate and upgrade (rather than expand) the existing airport terminal building.
- Enhance year-round air service to hub airports.
- Identify and update performance measures to improve the operation of air transportation facilities.
- Continue to monitor operating policies at hub airports that affect Island air carriers.
- Continue to monitor the operation of the airport terminal; collect data related to the amount of customer traffic throughout the year.

Section 9: Roads and Automobiles

See section 5 for a discussion of electric vehicles.

Overview

The Martha's Vineyard road network still resembles the roadways created when the Island population was less than 5,000, but now accommodates the travel demands of about 17,000 year-round residents, and about 89,000 people during the peak summer season.



Source: Martha's Vineyard Commission

There are about 177 miles of public, paved roads on the Island, classified into three basic categories with varying widths, lengths, and access features. Federal guidance for transportation systems generally reference a hierarchy of roadway function—from the “local” road network, to the “collector” or medium-style roadway, to the “arterial” or main-road network. Certain arterial roadways on the Island carry higher volumes of traffic at varying posted speed limits, from 20 to 45 miles per hour. In addition, the 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.

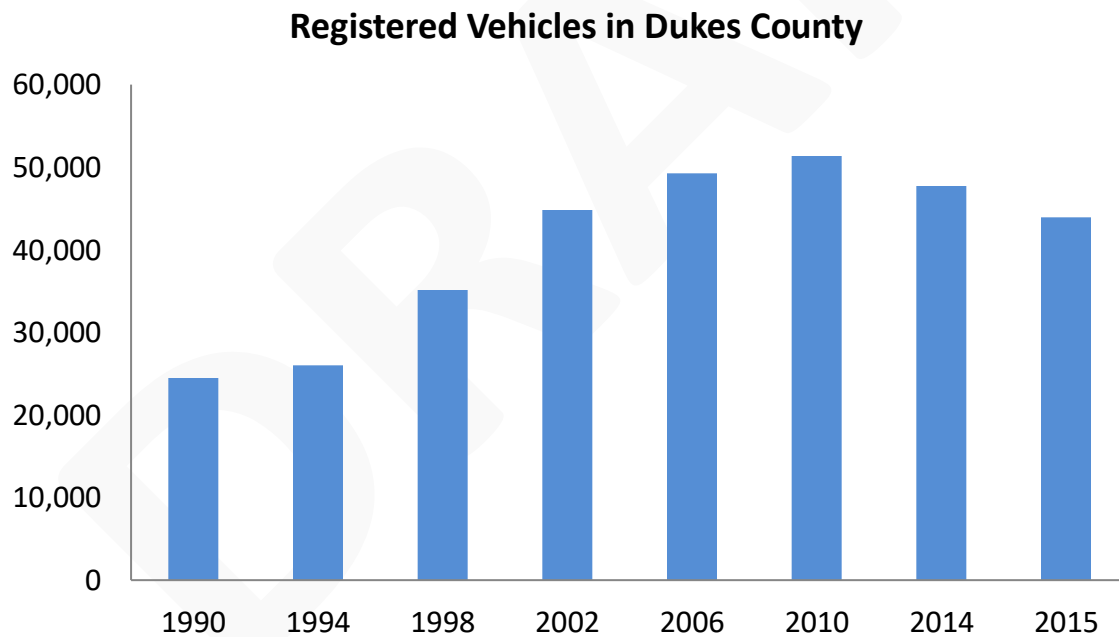
Major and minor collector (secondary) roads constitute routes between towns and to shops, schools, parks, and beaches, on which travel distances and speeds are shorter and slower, relative to arterials. The remaining roads, which provide access to homes and places of businesses, are

referred to as local roads. The paved local roads are never more than two lanes wide, limiting capacity to about 1,200 vehicles per hour in each direction.

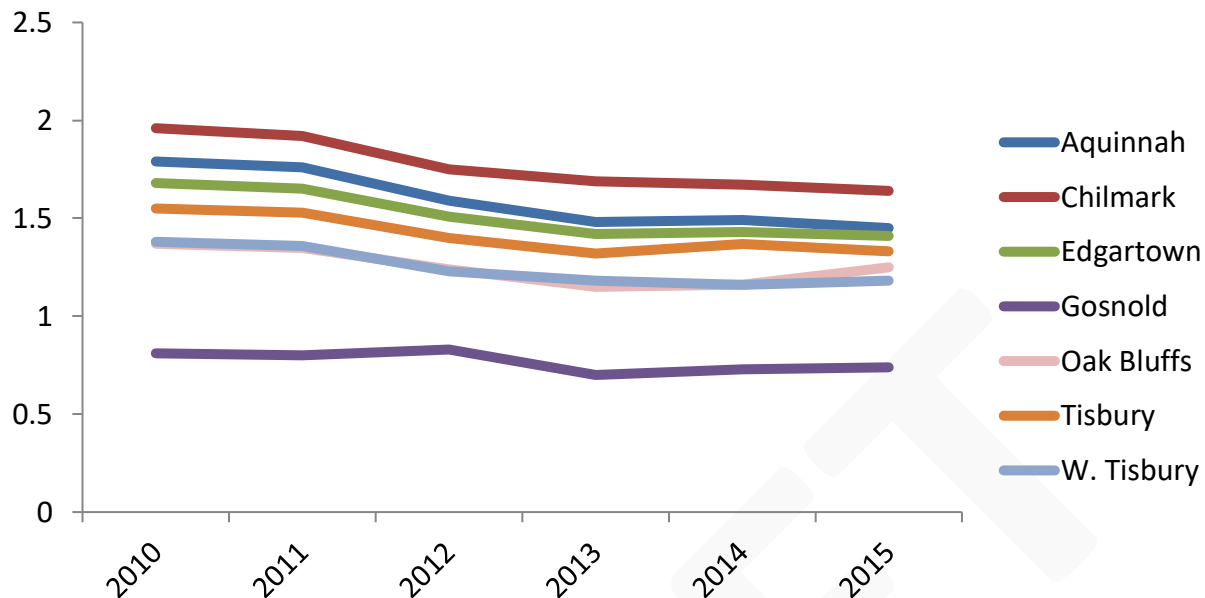
Trends and Issues

A steady increase in vehicle traffic on the Vineyard since the 1990s, combined with narrow or winding roads and a general desire to preserve the Vineyard's unique rural character, has led to increasing frustration among visitors and residents during the summer. Since at least the 1980s, residents have periodically called for a cap on the number of vehicles in the summer, a sentiment that led to a nonbinding referendum in 1997 to constrain vehicle traffic on Steamship Authority (SSA) ferries to 1995 levels (see section 6.)

The number of vehicles arriving by ferry has increased by about 6,580 per year since 1993, with about a quarter of those vehicles now arriving in the summer. The number of cars registered on the Island has also increased, and permanent residents, seasonal residents, and long-term visitors now account for most of the summer weekday traffic at busy downtown locations. Along those lines, hauling trash off the Island accounts for about 15% of all freight trips. The Steamship Authority has made an effort to distribute ferries among the two Island terminals, and to prevent freight and passenger ferries from arriving at the same time. But SSA officials have also pointed out that as the Island population continues to grow, so does the demand for ferry service.



Vehicles Per Capita in Dukes County



Source: Division of Local Services; American Community Survey

According to SSA data, peak-season traffic levels have increased relatively little since the late 1990s, compared to mid-winter traffic, which has grown steadily each year. The winter trend reflects both the increase in second homeowners traveling to the Island in the off-season, and an increase in the number of Island residents in general, including those who commute to work or school on the mainland. The relative leveling of mid-summer traffic is the result of deliberate ferry-capacity constraints approved by the residents of Martha's Vineyard and imposed by the Steamship Authority management.

While traffic volumes have trended upward since 1996 on most Island roads, up-Island volumes have generally outpaced the growth in Edgartown, Oak Bluffs, and Tisbury. As might be expected, traffic volumes peak in July and August, with variation depending heavily on weather conditions and time of day. Historically, summer traffic volumes have been nearly twice the shoulder-season volumes, although that trend is changing as the number of non-resident property owners increases.

Roads

The regional transportation network performs well for most of the year, although the MVC continues to study areas of heavy congestion. During July and August—and increasingly during the shoulder-season months of May and September—congested locations become more evident, and people tend to look for alternate times and routes to avoid delays. During the summer, several intersections and roads back up for sustained periods, resulting in delays of up to 20 minutes. Congestion remains a particular issue at the following four intersections and convergences down-Island:

- The Five Corners intersection (Tisbury)
- The intersection of State, Look and Edgartown-Vineyard Haven roads (Tisbury)

- Steamship Authority terminals (Vineyard Haven and Oak Bluffs)
- The Triangle and Upper Main Street (Edgartown)

Those locations have undergone extensive study, with various proposals over the years, but with the exception of the redesigned Oak Bluffs terminal and a MassDOT plan to improve bicycle and pedestrian traffic at the Five Corners (see section 12), no significant action has been taken.

The most influential traffic-mitigation project on the Vineyard in recent years the roundabout in Oak Bluffs, which replaced the four-way intersection of Barnes and Edgartown-Vineyard Haven roads. The project generated prolonged and often fierce public debate, but has since been generally accepted as improving traffic. Other recent projects include the realignment of North Road where it meets State Road in West Tisbury, and the addition of a turning lane on Barnes Road where it connects with Edgartown-West Tisbury Road in Edgartown. All of those projects were funded through the Transportation Improvement Program (TIP).

Permanent MVC traffic counters are positioned at key points around the Island to monitor traffic volume, crashes, and other trends. Previously the counters were rotated each year to provide broader coverage, which limited the MVC's ability to monitor volume from year to year. With 2018 TIP funding, however, permanent counters were installed at six locations—State Road in West Tisbury, Edgartown-West Tisbury Road west of the Airport, South Road on the Chilmark-West Tisbury line, Edgartown-West Tisbury Road west of Meshacket Road, Edgartown-Vineyard Haven Road at the Edgartown-Oak Bluffs line, and Beach Road near the big and little bridges—which will provide more consistent data for use in both short- and long-term transportation planning.

Another TIP project that deserves mention is the Lagoon Pond Drawbridge, which opened to traffic in November 2015, replacing the previous drawbridge from 1935, and a temporary structure that was completed in 2013. The \$43.7 million project aimed to improve safety for drivers, pedestrians, and cyclists, and was one of seven in the state to receive an Engineering Excellence Award from the American Council of Engineering Companies in 2017. However, many have expressed frustration with the long delays that result from the process required to raise and lower the bridge when boats pass underneath. In some cases, traffic on the Tisbury side may back up all the way to the Five Corners intersection. One option to mitigate the delays in summer would be to use a text-notification system to alert drivers when the bridge is about to open, so they can plan accordingly.

Elsewhere, an increase in traffic in already busy areas is sometimes enough to cause longer delays than are typically expected. A relatively small increase in traffic at an intersection that is nearing capacity could lead to a large increase in delays. As traffic volumes on main roads approach their design limits at peak hours, more and more traffic is being channeled onto local roads in order to avoid congested intersections. To avoid delays, many drivers would take other routes if they were available, or avoid driving during peak hours. Some visitors might stop coming to the Vineyard all together because of the unpleasant traffic.

Although some delays are merely an inconvenience, congestion can be especially problematic for unavoidable trips, such as off-Island hospital visits, where there is no real alternative to taking the ferry and unplanned delays can mean missing an appointment.

The fact that certain roads and intersections are congested for several months of the year does not

necessarily mean that physical changes are the best course of action. Previous opinion surveys indicate that people are generally against the expansion of infrastructure. The challenge is how to deal with increases in population and traffic, and a historic road network, while keeping 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. Planners and agencies must seek a balance between the unique experience and environment of Martha's Vineyard and the increasing travel demands.

Preserving the character of Island roads may necessitate an increased tolerance in travel delays, although certain alternatives to road expansion should also be pursued: more real-time information so that people can choose to avoid congested areas at peak times, a shift to transit or other alternate modes during the busiest times, and zoning changes that promote a viable yet comfortably walkable, bikeable, and transit-friendly environment.

Other alternatives to expansion that should be considered where roads are chronically at or over capacity include the following:

- Increase alternate modes of travel such as bus, taxi, bicycle, and foot.
- Limitations on use, such as restricting oversize vehicles or restricting vehicle traffic in certain areas.
- Making some roads one-way for improved circulation, where feasible.
- Land use and site design that facilitates walking, biking, and transit use.
- Traffic management techniques, such as providing information about congestion so that others may avoid getting into the same queue.

Parking

Since so much of the Vineyard is rural or semi-rural, many people choose to travel by car or truck for at least part of their trip. That highlights the importance of parking near destinations or an efficient transit system. Unsurprisingly, drivers have a harder time 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 centers, so the need to provide parking outside of town, with efficient shuttle service, will become increasingly important. The shortage of parking in town centers was an issue highlighted by the 2009 Island Plan transportation workgroup, and figures prominently in the more recent master plans for Oak Bluffs, Aquinnah Circle, and Menemsha.

There are three park-and-ride lots on the Vineyard, including, most recently, in Chilmark. The ones in Tisbury and Edgartown are intended primarily for employees, ferry passengers, and visitors—which frees up more parking spots in the town centers. The Vineyard Transit Authority (VTA) links those lots to the corresponding town centers. The Tisbury lot has a capacity of 420 vehicles, is free for 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 provides free, year-round shuttle service from the park-and-ride to the ferry terminal with at least two trips an hour to coincide with the SSA boat schedule. Use of the Tisbury lot has increased significantly since 2013 when the free shuttle and free short-term parking were instituted. The SSA had leased a property at the Airport for possible use in the future as an off-site parking and service center, but the Airport now plans to use that lot for additional Business Park activities.

The Edgartown lot has a capacity of 150 vehicles and is free of charge. Although only a short walk to downtown, it is serviced by shuttle bus five months a year. That lot uses less than half its capacity in the shoulder season, but is often near capacity in July and August.

The Chilmark park-and-ride shuttle, also known as the Menemsha Sunset Shuttle, runs from a parking lot on Tabor House Road to Menemsha village, where parking is notoriously limited in the summer. During the day it also stops at the Chilmark Community Center. The park-and-ride is intended to serve primarily summer visitors and runs from the end of June to the beginning of September. It has a capacity of 70 vehicles and has been operating since 2014. The shuttle carried 3,356 passengers in 2018.

Many residents and visitors are unaware of the park-and-rides, or how they operate. And 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-ride lots, 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, and Oak Bluffs has explored potential land for another trial (see section 10). The JTC also encourages seasonal parking at the Oak Bluffs and Edgartown schools.

Pavement

Most of the 177 miles of paved, public roads on Martha's Vineyard are municipally owned and maintained. Many of the main and most-traveled roads are classified as arterials, and many are owned, improved, and maintained by MassDOT. There are 102.8 lane-miles (51.4 road miles) of Vineyard roads that are eligible for federal aid.

A Pavement Management System aims to keep the roadway system in the best possible condition with the most efficient use of available funds. The goal is to manage pavement conditions through prevention or rehabilitation, rather than to wait until a road is in need of costly reconstruction. Unsurprisingly, the cost of maintaining excellent road condition across the Island, even for federal-aid-eligible roads, far exceeds the available resources.

Based on a visual review by the Martha's Vineyard Commission, the Island's federal-aid-eligible roads are in good to excellent condition overall. However, even a single storm may change the condition of a road, so updates are both necessary and ongoing. The main travelling-road surfaces show few signs of deterioration, and ride quality is good, though ongoing maintenance is needed to maintain that condition. Often more problematic are the edges of roadways or road shoulders, especially where vehicles pull off to park, where deterioration may endanger cyclists travelling on that part of the roadway.

Pavement Management Conditions as of 2015

	Current Condition s		Improvements						
		Miles (est.)		All Roads	Available Funds	Recommended Approach			
	% by condition		per mile			miles	total cost	resulting miles	resulting %
Excellent	4%	2.2						2.2	4%
Good	49%	25.3	\$40,000	\$1,012,000			\$0	33.3	65%
Fair	39%	20.2	\$400,000	\$8,080,000		5	\$1,500,000	14.9	29%
Poor	7%	3.7	\$1,000,000	\$3,700,000		3	\$3,000,000	1	2%
		51.4		\$12,792,000	\$5,000,000		\$5,000,000	51.4	

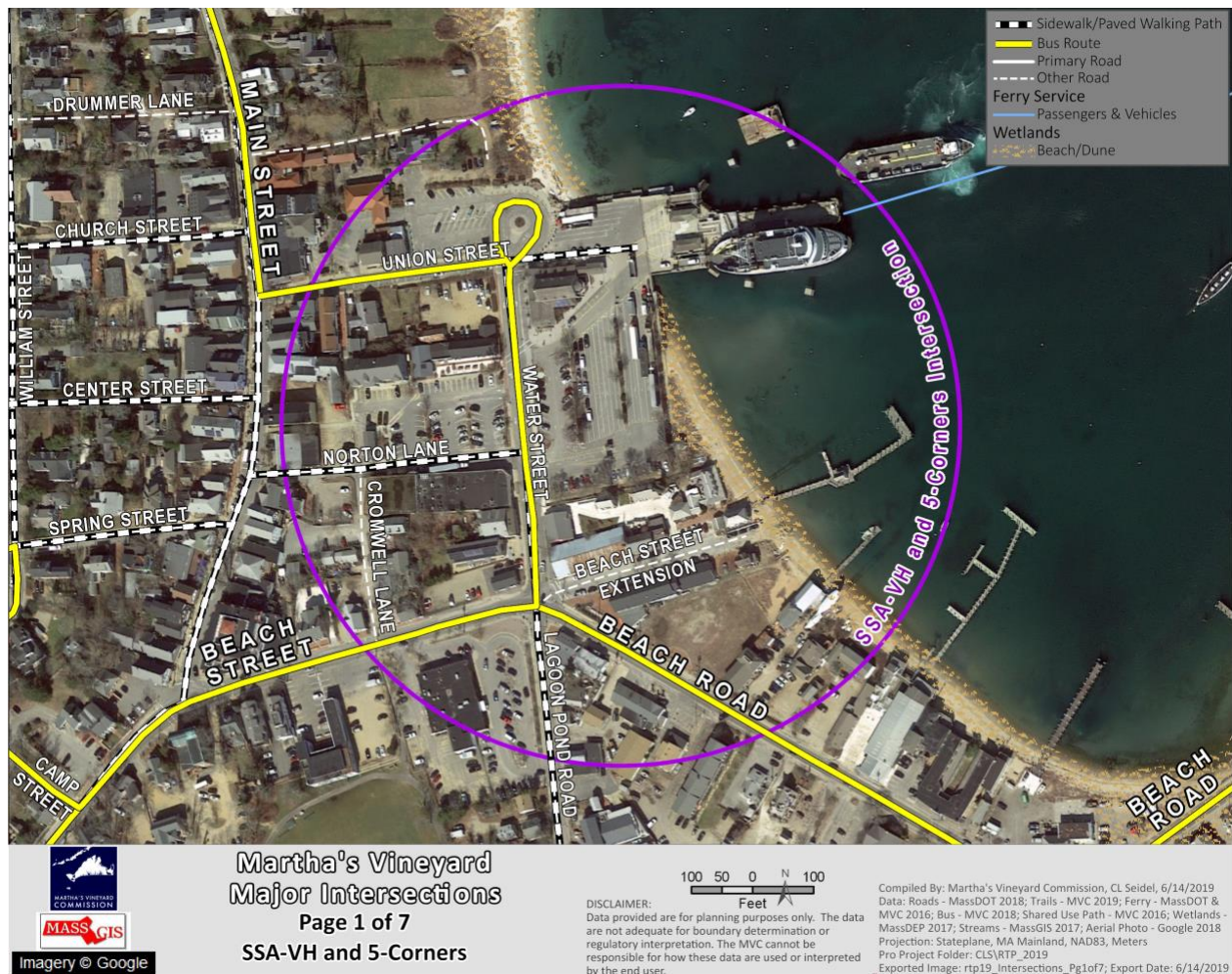
The MVC also made site visits and observed the shared use path (SUP) pavement conditions. Although the mileage is not included in the pavement management summary above, we proposed including the SUPs in future pavement management updates.

Based on previous Regional Transportation Plan (RTP) cost estimates provided by the Old Colony Planning Council, improving road quality from “good” 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 used rounded figures of \$40,000, \$400,000, and \$700,000, respectively, for the last RTP, and this update uses the same estimates, except the poor-to-excellent scenario, where we increased the cost estimate to \$1,000,000 per mile, based on project cost estimates.

Based on those figures, the total cost of bringing the pavement of all Island roads up to excellent condition would exceed \$12,792,000, which is more than the projected available funding of \$X,000,000 between 2020 and 2040. Despite the high cost, the first priority should be dealing with roads that are in fair or poor condition. The following table indicates the estimated costs based on the available funds for pavement improvements over the next 20 years.

Overall, the pavement management strategy for the region will be developed in a financially constrained way that takes into account the projected revenues available to the region. The pavement conditions on-Island will be updated in each long-range transportation plan based on data collection by the MVC and town departments of public works. The MVC will also discuss SUP conditions with the towns and JTC in order to maintain off-road multi-modal options.

Looking Ahead: Key Locations



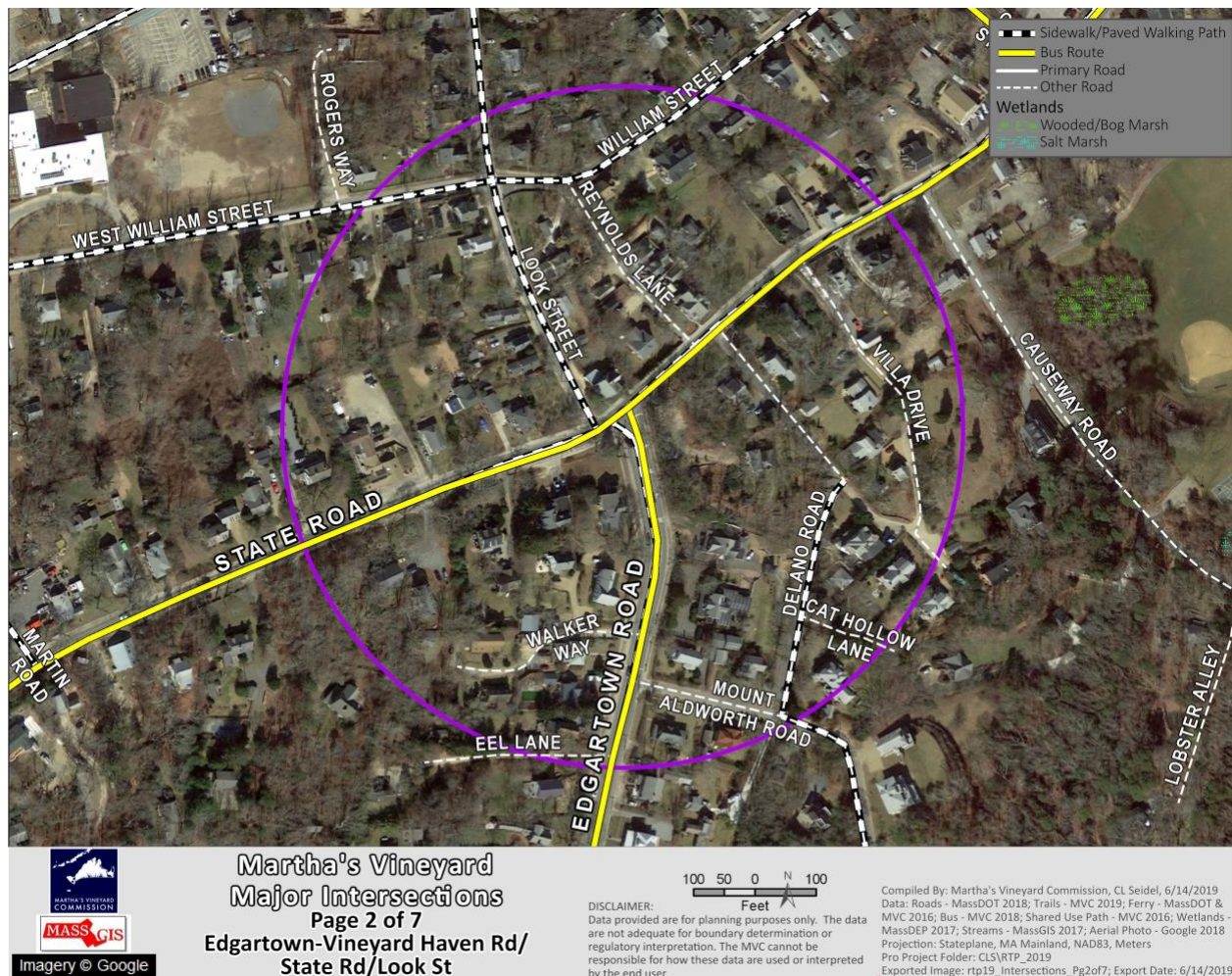
Five Corners

This intersection features three local roads (Water Street, Beach Street Extension, and Lagoon Pond Road) converging on an urban principal arterial road (Beach Street/State Road—Beach Road). The Steamship Authority terminal on Water Street generates traffic throughout the day and throughout the year. Much commercial, municipal, and pedestrian activity in the immediate area contributes to summertime delays of 10 minutes or more. In addition, the VTA bus hub is located at the end of Water Street near the Union Street parking lot for the convenience of downtown transit customers. The VTA buses try to keep on schedule while SSA and downtown traffic converges to exit via Water Street and the Five Corners intersection.

Various planning efforts over the years have explored options to improve the flow of vehicle and pedestrian traffic at the intersection, most recently in the context of the MassDOT Beach Road project, which involves improved pedestrian and bike infrastructure along Beach Road near the Lagoon Pond Drawbridge. Further planning is underway for how to direct foot and bike traffic around or through Vineyard Haven in a safe manner.

Separately, the town of Tisbury in 2015 decided to experiment with reversing the one-way direction of Union Street, which now provides vehicles leaving the terminal an alternate route up-

Island. This low-hanging fruit, so to speak, has presumably eased some of the traffic at the Five Corners, but more study is needed to quantify the effect. Discussions about whether to make Lagoon Pond Road one-way, or allowing only service vehicles on Beach Road Extension, have also come up in recent years, but no action has been taken.



State Road, Look Street and Edgartown-Vineyard Haven Road Intersection

An urban principal arterial (Edgartown-Vineyard Haven Road) ends at State Road, which continues east as an urban principal arterial to Five Corners, and west (toward Upper State Road) as an urban minor arterial. The connection to Edgartown-Vineyard Haven Road and Vineyard Haven make this a well-used arterial connection. The State Road corridor is equally important as a connection to the same Vineyard Haven downtown destinations, and carries traffic from the three up-Island towns. The convergence of these two well-used roadways unsurprisingly creates delays. As State Road is the primary route through the intersection, the other movements typically experience the most delay. The left-hand turn from Edgartown-Vineyard Haven Road is particularly problematic, and is an increasing safety concern.

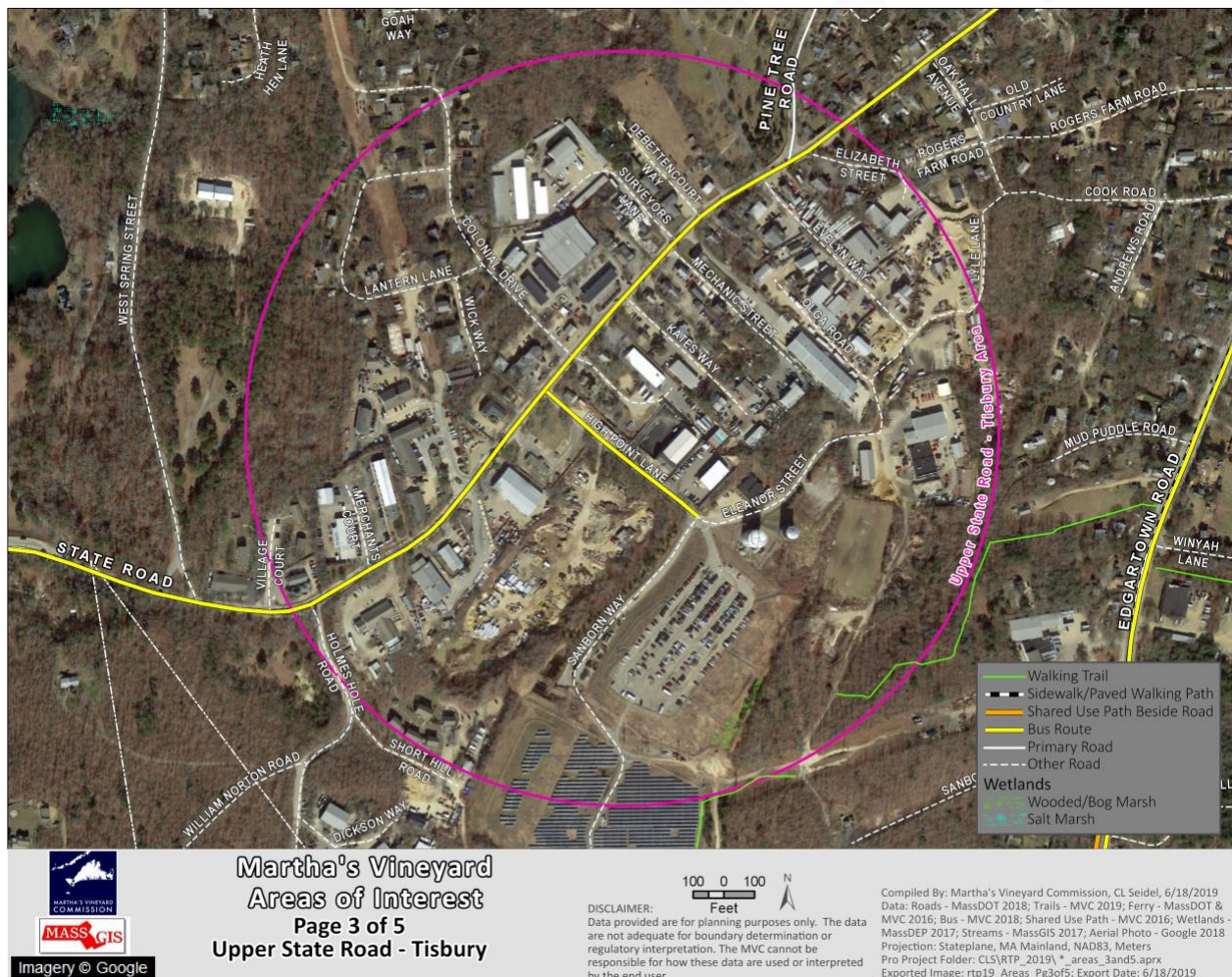
One proposed solution was the Tisbury Connector Roads, studied and brought to solid concepts of how the roadways would connect between Edgartown-Vineyard Haven Road and Upper State Road. Plans were completed and the town brought the project to town meeting in 2012. Though a majority of voters approved of the Tisbury connector road system, the article did not gain the

two-thirds margin required to pass.

A study carried out by the MVC indicated that, provided all three planned links to State Road were constructed, the project 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 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. A road safety audit (RSA) meeting, with the same participants as for a Five Corners RSA, was performed in December 2014 and a final report developed in March 2015. Potential simple and long-term improvements from the RSA report are still under discussion.

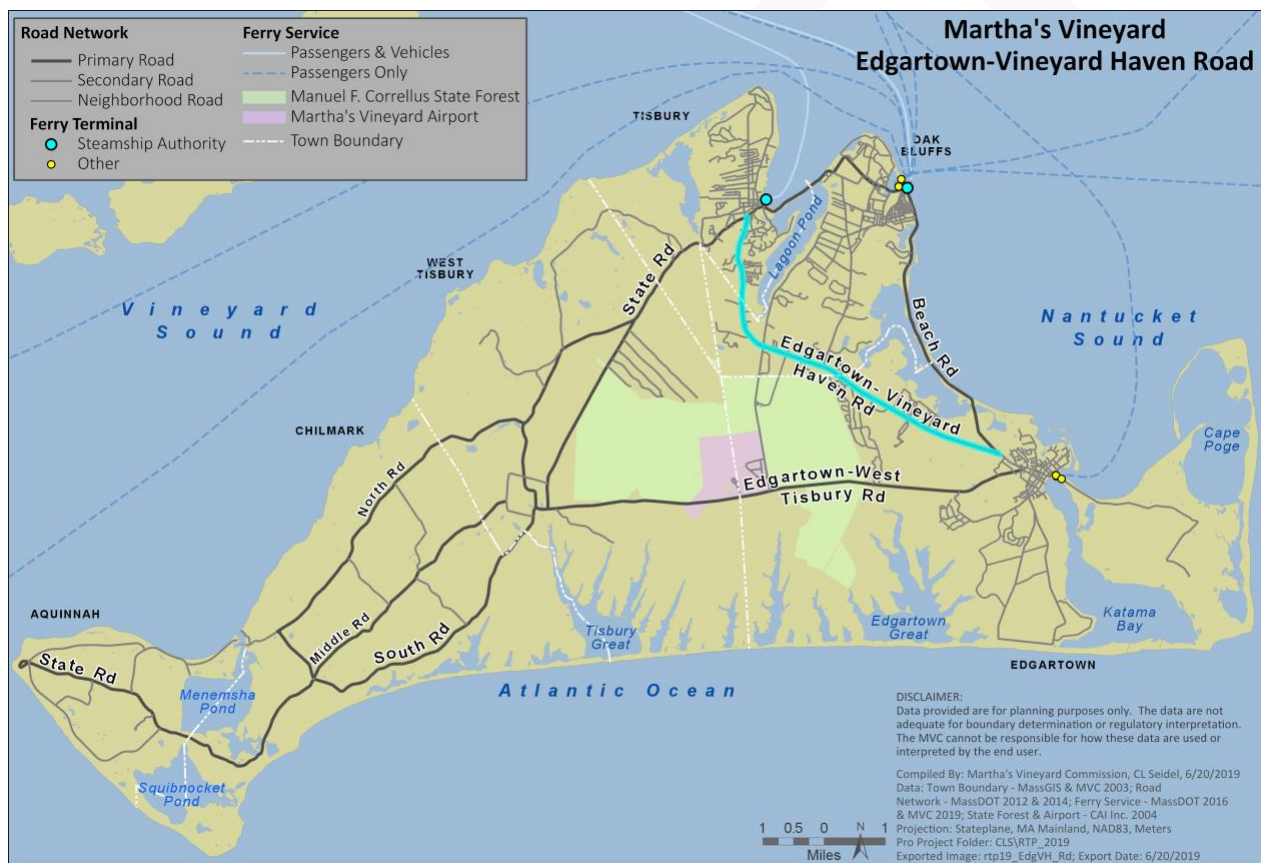


Upper State Road

A commercial corridor along an urban minor arterial/rural major collector, this area frequently

experiences congestion related to the many access points. In the 1990s, 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. In reviewing some Developments of Regional Impact in the area, the Martha's Vineyard Commission has required the inclusion of easements for the future construction of such roads.

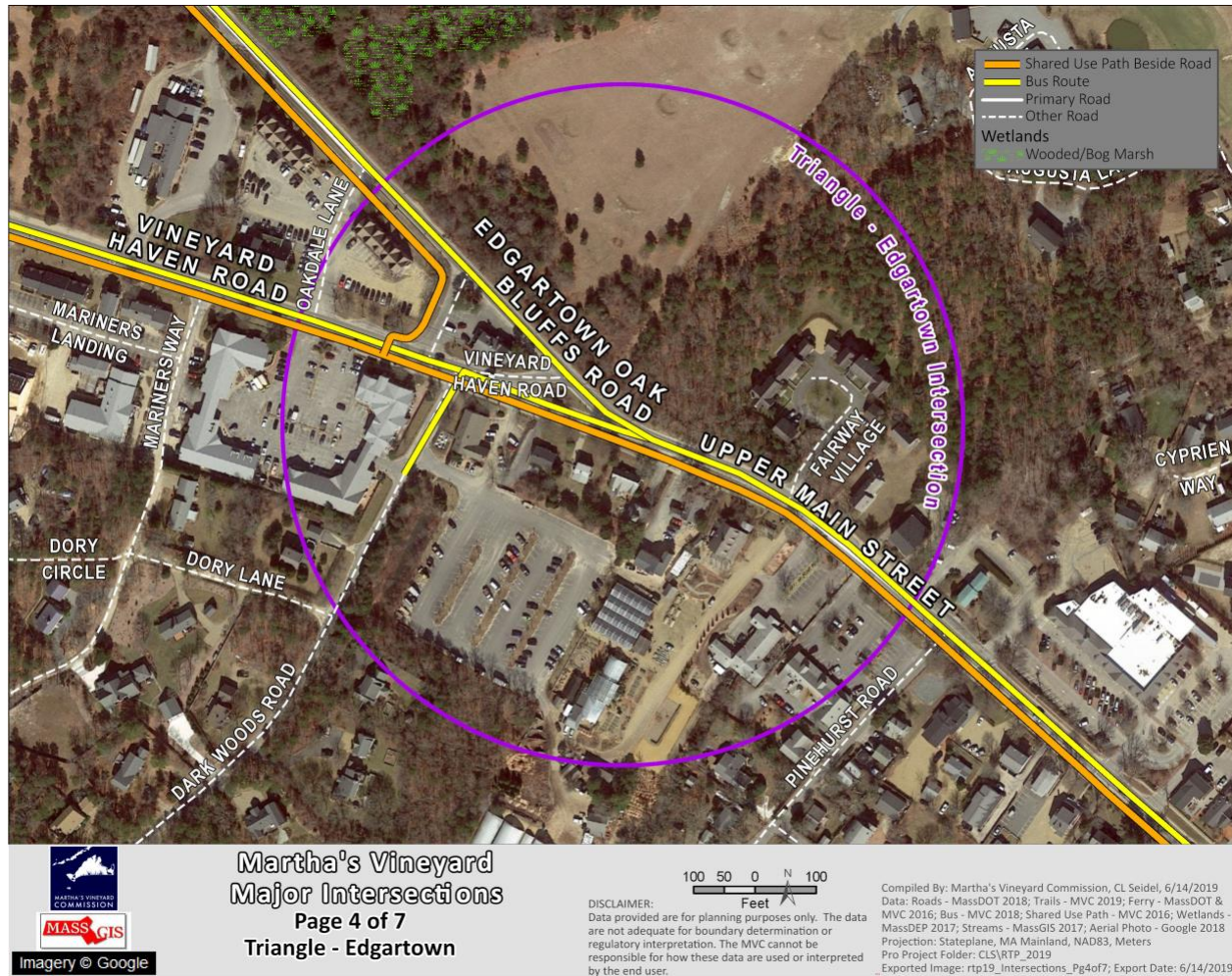
Another measure to limit congestion on State Road is to limit new traffic-generating uses in the area. The MVC has been doing this in recent years through the DRI process. Further study on improvement options for the corridor, including for pedestrians and bicycle accommodation, should be undertaken in the future. Meanwhile, voters in Tisbury approved funding in 2017 to design and engineer a new sewer district on State Road. The purpose was largely to improve the health of coastal ponds in the watershed, but it's unknown to what extent the new sewer lines will facilitate new development (and perhaps traffic) in the State Road commercial district.



Edgartown-Vineyard Haven Road

The south end of this well-traveled road makes up one leg of the Edgartown Triangle and provides access to many businesses and connector roads on the outskirts of Edgartown. It also connects to County Road in Oak Bluffs, where it changes in classification from a rural minor arterial to an urban primary arterial, then continues on through the Roundabout and north into Vineyard Haven. There it intersects with Look Street and State Road, another intersection of high concern down-Island.

The MVC is now planning a demonstration project for a 0.4-mile portion of Edgartown Vineyard-Haven Road, just west of the Triangle (between Mariner's Way and Clay Pit Road). TIP funding for an earlier project along the road expired several years ago when the town of Edgartown and the state could not settle on a design. The MVC hopes the demonstration project will open the door to federal funds for a more complete redesign of the roadway. Among other things, the demonstration project would move storm drains out of the roadway, widen the existing SUP, and redistribute the VTA bus stops.



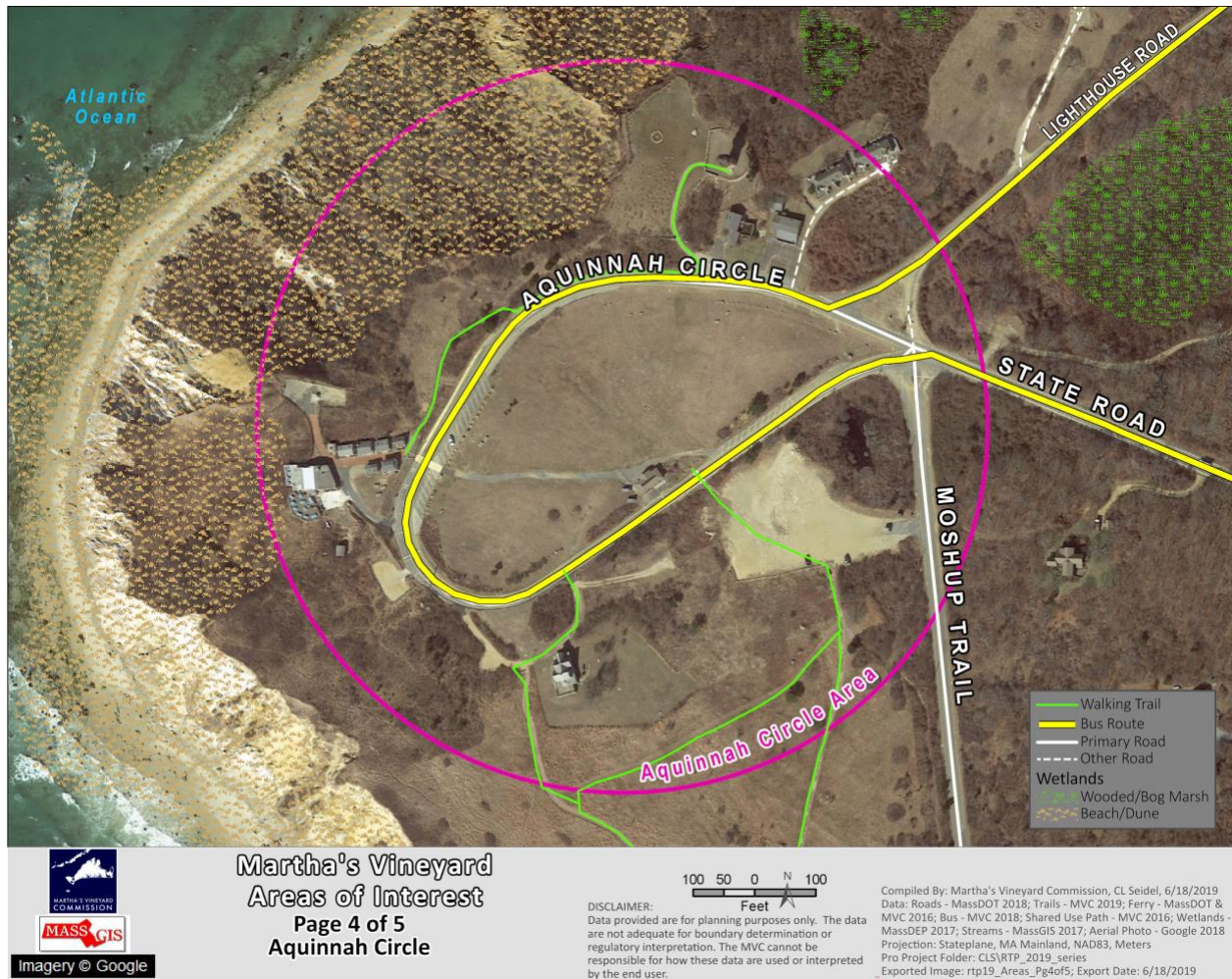
The Triangle

The convergence of Beach and Edgartown-Vineyard Haven roads results in delays of well over a few minutes at times, especially for vehicles entering and exiting Edgartown-Vineyard Haven Road. As with the Five Corners and other key intersections down-Island, many suggestions have come up over the years, including the addition of turning lanes and the redirection of traffic on some roads. A proposal by Stop and Shop to expand its store on Upper Main Street, just south of the Triangle, has drawn new attention to the area since 2016, including a renewed discussion of whether to make Upper Main Street a three-lane road. Still, no action on the Triangle has been taken, and any changes would depend heavily on community support, given the volume of traffic and the density of businesses and homes in the area.



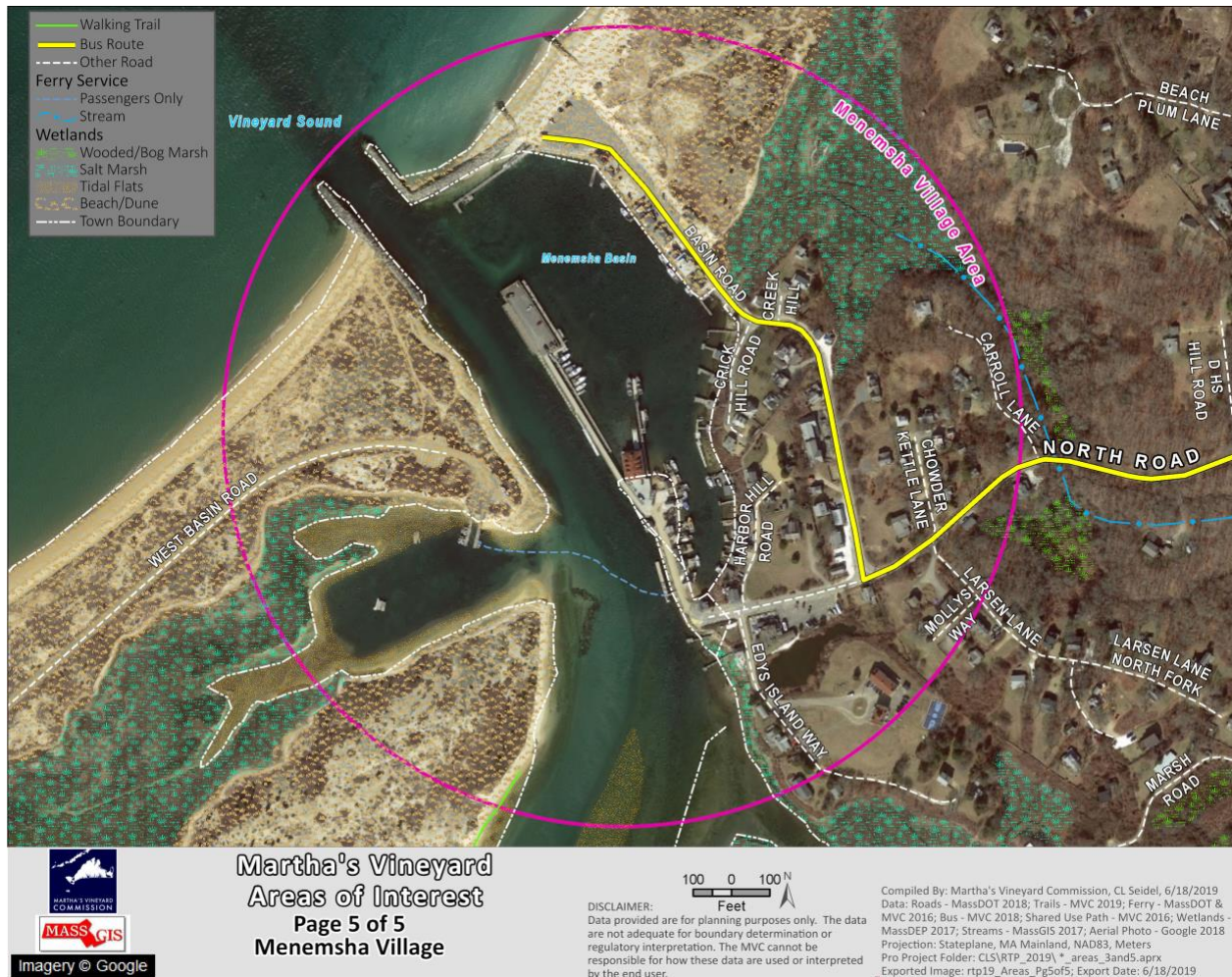
Oak Bluffs Downtown

The 2019 Oak Bluffs Master Plan envisions wide-ranging improvements to the town infrastructure, including the reconfiguration of Edgartown-Vineyard Haven Road at County, Barnes and Wing roads; County Road at Eastville Road (near the hospital); and Eastville Road at Temahigan Avenue. The plan aligns with this RTP in the sense that it prioritizes less reliance on automobiles in favor of walking, biking, transit, and other modes of travel; and seeks to prepare for the effects of sea-level rise on town infrastructure. The plan also focuses on parking in and near the downtown area, while maintaining the town's unique character, including the possibility of a park-and-ride. Perhaps most progressively, the plan proposes working with the Steamship Authority "to increase the car fee, including congestion pricing approaches," to reduce vehicle congestion in the summer.



Aquinnah Circle

As discussed in section 12, the 2017 Aquinnah Circle Landscape Master Plan takes a holistic look at various forms of travel that converge at Aquinnah Circle. The plan points out that vehicles tend to dominate the mix of travel modes at the Circle, with tourists and residents arriving by car, bus, van, bike, moped, and foot. Several proposed changes in the long-term include the redesign of parking areas, the widening of a portion of the road, a relocated bus stop and a number of changes aimed at bike and pedestrian traffic that could further reduce congestion.



Menemsha

Much of the Island, including the historic fishing village of Menemsha, was never intended to handle the volume of traffic seen today. The 2018 Menemsha Master Plan aims primarily to improve safety for pedestrians and bikers by making the most of the narrow roads and limited parking in the area. Proposed changes include new signage to alert drivers to the presence of pedestrians walking between North Road and Menemsha Harbor, engineering a new turnaround at the end of North Road big enough for most passenger vehicles. (North Road now turns 90 degrees at the Menemsha Channel—where it becomes Boathouse Road, which ends at the West Dock—and is often filled with customers eating at the Galley or Homeport restaurants.) Crosswalks, centerlines, movable walkways, parking limits, and other relatively simple fixes are also part of the plan.

Capstone project in West Tisbury

Students at Northeastern University designed a potential solution to dangerous traffic conditions at the intersection of North and State roads in West Tisbury. Their design features a roundabout for vehicles, along with a safer path for pedestrians in the vicinity of a narrow bridge that crosses Mill Brook. The next step would be for the town to submit a project notification form (PNF) to MassDOT, but much work remains in terms of further study and public review.

Context-Sensitive Design [BOX OR SPECIAL SECTION]

The Vineyard's unique character is perceived largely by traveling along its roads, the preservation of which benefits both the tourism economy and the overall quality of life for many Islanders. In the past 40 years, the MVC has worked with towns and MassDOT to preserve the distinct character of the Island's scenic roads and to promote more context-sensitive design. In 1975, the MVC designated the Island Road District, setting limits on the placement of buildings and number of curb cuts along the main roads. This has effectively prevented the type of roadside strip development so prevalent in other parts of the country.

In reviewing Developments of Regional Impact (DRIs), the MVC considers impacts on scenic roads, including curb cuts, siting of buildings and parking, and the placement of vegetation. In 2012, the MVC adopted a DRI policy on site design and landscape that details some of those considerations. The policy could also potentially be used by town boards in their review of roadside development. Several town master plans also call for the preservation of scenic roads and trails in order to maintain each town's rural character.

In 2014, the MVC set up the Scenic Roads Initiative, which was overseen by representatives of the Commission and each Island town. The committee outlined a work program for how to better analyze and protect the Island's scenic roads, recommending a holistic approach that defines Island roads from an experiential point of view, with a focus on three components:

- The corridor (viewshed and vistas as seen from the road)
- The roadside (areas along but outside the public right of way, including adjacent buildings, entrances, fences, stone walls, roadside vegetation, commercial signage, and non-roadway lighting)
- The roadway itself (areas within the public right of way, including the alignment and geometry of the road, travel lanes, shoulders, drainage, sidewalks, pathways, and roadway lighting and signage)

The committee highlighted the influence of summer traffic and increasing residential development on Island roads, and voiced concerns about the Vineyard meeting the same fate as the Hamptons and other areas, where overdevelopment has led to wider or straighter roads and diminished the scenic qualities that made those places unique. (At least one committee member has also argued that the standards associated with major or minor arterials, as defined by the state, are not always appropriate on the Vineyard, where narrow, winding roads form an integral part of the landscape.) The committee called for an official inventory of Island roads, along with a classification system based on characteristics and management objectives; and guidelines for preservation, maintenance, and improvements. That work would preferably result in a Martha's Vineyard road design manual, an idea the MVC unanimously endorsed around 2014. The Commission at the time selected the firms Lardner/Klein Landscape Architects of Alexandria, VA, and McCormick Taylor of Philadelphia to serve as consultants in the process, but a lack of federal funding has prevented the project from moving forward.

Transportation improvement projects must account for a variety of factors, including functional and safety requirements. They should also be designed to carefully maintain the character of places that residents and visitors recognize, appreciate, and support as having special value. Measures to help protect and enhance the Island's scenic roads include the following:

- Avoiding the addition of lanes to existing roads.
- In reconstruction projects, keeping the width of travel lanes and shoulders as narrow as possible, taking into account the various requirements related to traffic volumes and speeds. In some cases, it is possible to move the fog line within the overall pavement to narrow the travel lane and allow more room for bicyclists and pedestrians. Shoulders and overall pavement width can also be narrowed adjacent to shared-use paths.
- Preserving, enhancing, and restoring the historic tree canopies and vegetation along Island roads.
- Maintaining low speed limits and considering the possibility of lowering limits in some areas to allow for the preservation of existing road geometries and safer accommodation for bicyclists and pedestrians.
- Mitigating the impact of utility infrastructure on the visual and aesthetic character of the Island without compromising the dependability and security of vital services.
- Minimizing the number of signs on Island roads, and ensuring that all signs are useful, clear, well-designed, well-located, as small as possible, and in keeping with the Island character; using the distinctive Vineyard design for directional signs.
- Avoiding the use of traffic signals.
- Using roadside barriers compatible with the character of the Vineyard—generally wood barriers that are steel-backed (where needed), to meet crash-resistance requirements.
- Locating and designing new roadside development in rural areas to minimize its visibility from the road, and in village and other built-up areas to reinforce the distinct character of streetscapes and roadsides.

The following is a list of the Island's 15 most scenic roads, based on a survey carried out in conjunction with the previous Regional Transportation Plan.

Middle Road, Chilmark
 Lamberts Cove Road, West Tisbury
 Beach Road between Edgartown and Oak Bluffs
 Moshup Trail, Aquinnah
 State Road from Beetlebung Corner to Gay Head Cliffs, Chilmark, and Aquinnah
 South Road, Chilmark
 North Road, Chilmark
 Tashmoo Overlook, Tisbury
 West Tisbury Town Center
 Chappaquiddick Road, Edgartown
 Quitsa (Clam Cove) Overlook, Chilmark
 Katama Road, Edgartown
 Beach Road between the Hospital and Vineyard Haven
 State Road from Tashmoo Overlook to West Tisbury
 Edgartown-West Tisbury Road

Objectives

1. Improve road safety and congestion with improvements to the quality of infrastructure, traffic calming techniques, new or improved sidewalks and signage, and additional measures. Prioritize areas with safety issues.
2. 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, and traffic lights.

3. Put in place a process whereby a thoughtful commitment to rural road design reinforces the idea of roads as a resource in themselves, rather than being generally considered an adverse impact on the Island's scenic resources.
4. Explore opportunities to improve the conditions of shared-use paths, in order to further encourage alternatives to automobile use.
5. Consider additional park-and-ride programs, pedestrian zones, new loop roads and the rerouting of traffic as means to improve traffic flow.
6. Reduce vehicle traffic passing through Vineyard Haven, Oak Bluffs, and Falmouth by eliminating non-essential ferry trips, such as passenger drop-off. Offer alternate ferry departure points on the mainland.
7. Adopt traffic management strategies in regionally significant corridors.
8. Explore methods to limit summer auto traffic so as not to exceed the capacity of the Island's roads and parking.
9. Support programs that discourage car use by using multi-modal means of transportation and that encourage use of energy-efficiency cars and buses. This will help achieve air quality objectives and reduce traffic congestion.
10. Continue working to preserve the character of Island roads, and to involve such discussion in all transportation planning and the review of Developments of Regional Impact.

Proposed Actions

Traffic Mitigation

- When appropriate, require transportation management associations (TMAs) and trip-reduction reports to the MVC.
- Investigate the feasibility of auto-restricted zones, "road pricing" strategies and alternative work hours.
- Encourage employers to provide annual or seasonal transit passes for employees, and to monitor and report trip reduction.
- Investigate the feasibility of traffic-reduction ordinances.
- Coordinate traffic regulations across the Island.
- Work to provide improved information related to bottlenecks, to prevent a portion of additional vehicles entering the queue.
- Develop solutions for traffic calming along Edgartown Vineyard-Haven Road in the vicinity of the Martha's Vineyard Regional High School and YMCA, where a large number of vehicles enter and exit the roadway. (Speed limits there shift from 45 to 20 (when flashing) then to 15 miles per hour at the roundabout.)
- Investigate the possibility of limiting the total number of vehicles on the Island (refer to initiatives in Bermuda, Nantucket, and Catalina Island).
- Investigate the possibility of limiting the number of available rental cars and encouraging or requiring the use of alternative-fuel vehicles.
- Continue studying operations at the Triangle, including pedestrian and bicycle facilities.
- Use physical traffic-calming techniques to slow traffic and improve safety in neighborhoods. This was a primary objective identified in the 2009 Island Plan, and will likely require a traffic-calming workgroup to suggest project locations and proper techniques, which could include short-term efforts such as speed feedback signs and

delineators, and more permanent improvements such as speed tables, curb extensions, and the narrowing of roads (“road diets”).

- In reviewing Developments of Regional Impact (MVC) or other projects (towns), establish guidelines for the design of pedestrian and cyclist amenities.
- 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) or congestion-level monitoring program.
- Keep consistent data using the MVC’s six permanent traffic counters.

Roads and Bridges

- Put in place a pavement management system for state and local roads (in conjunction with the Massachusetts Highway Department and Island towns), that would include information on the history of construction and repair, the physical design and conditions, and priorities 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 unnecessary repetitive signage.
- Experiment with prototype road and bridge design features that reconcile safety concerns with preservation of the 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. paving, parking, bus pull-off zones, trees and other vegetation).
- 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.
- Require proper driveway location, spacing and frequency.
- Specify proper turn restrictions and access controls.
- Coordinate local land use permitting with MassDOT curb-cut applications.
- Conduct an RSA review of potential adjustments to the intersection of County and Edgartown-Vineyard Haven roads (a high-crash location) in order to develop recommendations and concepts for improvements.
- Complete a Martha’s Vineyard Scenic Roads Design Manual; present it to the public and provide copies at the MVC building and town halls.
- Carry out a series of demonstration projects that illustrate context-sensitive solutions to issues related to roadway design and pedestrian and bicycle facilities, including: guardrails, road shoulders, roadway edges, roadside bicycle and pedestrian paths, barriers or vegetation between paths and roadways, bridge design, and dirt roads.

Parking

- Create an Islandwide parking plan to assess strategies to improve parking.
- Increase promotion of park-and-ride lots and make them more user-friendly, including by increasing the frequency of shuttles between park-and-ride lots and town centers.
- Explore resident parking permits.

- Consider ways to ensure that in-town parking areas during the summer are used primarily for short-term parking (perhaps by establishing time limits and meters), and that park-and-ride lots remain an attractive and convenient alternative for longer visits.
- Explore the possibility of creating other park-and-ride lots for the peak season that are located farther from congested areas.
- Investigate the feasibility of other parking management programs in town centers, such as agreements for sharing private off-street lots during off-hours, and 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 and developments regulated by the towns.

Environmental Issues and Climate Change

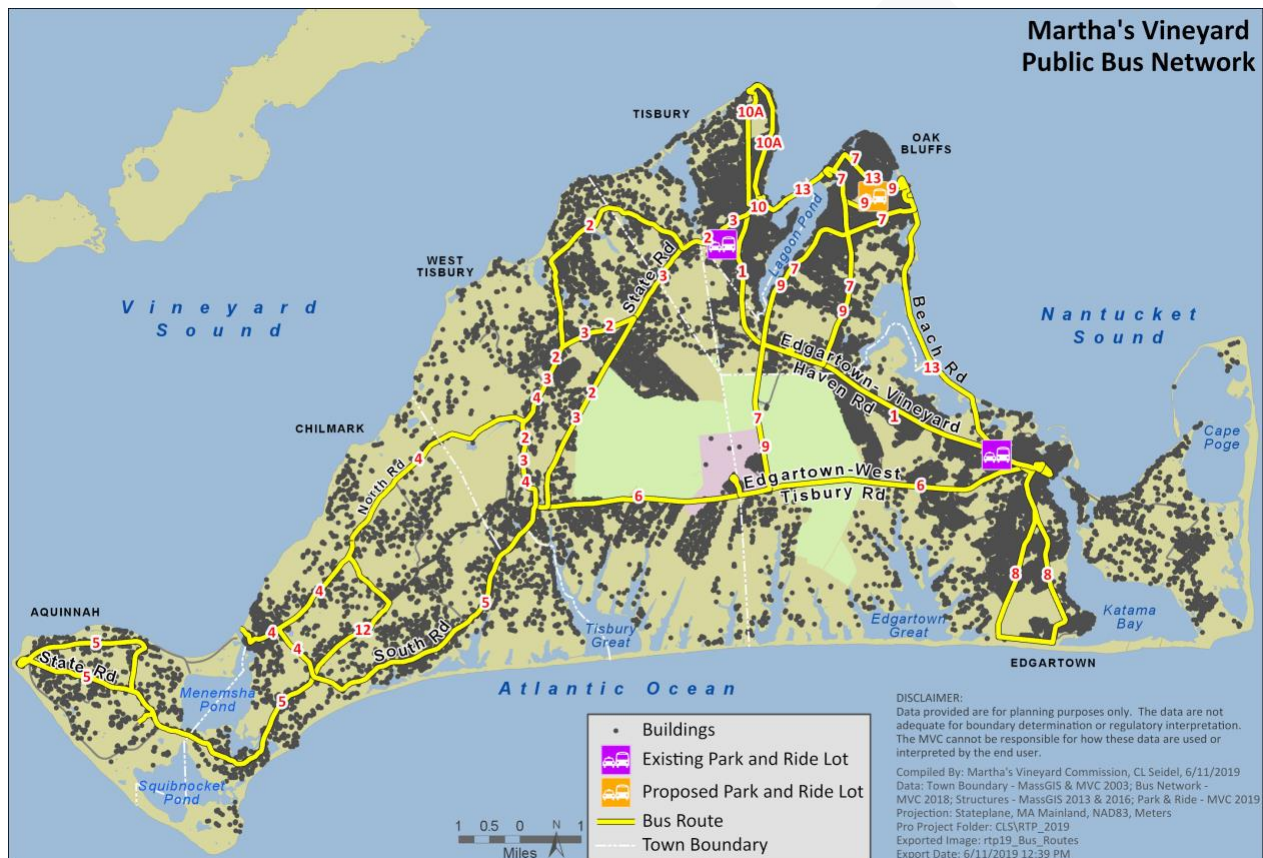
- Support the efforts of Island towns to pursue the state's Green Community designation.
- Support efforts by Island towns to receive create Municipal Vulnerability Plans.
- Explore appropriate funding opportunities for electric vehicle purchases and infrastructure, and to zone and regulate for smart growth.
- For proposed transportation projects, consider stormwater measures that will enhance the environment and better mitigate flooding in flood-prone areas.
- Establish uniform best management practices in order to minimize the effects of stormwater runoff in environmentally sensitive areas.

Section 10: Bus and Van Service

Overview

Martha's Vineyard Transit Authority (VTA)

The VTA operates a fleet of 32 fully accessible vehicles with seating capacities ranging from 18 to 37 passengers, and accounts for most of the bus and van service on the Island. Twelve fixed routes serve the Island year-round, with an additional two in the peak summer season. The VTA network is designed around central hubs, or key destinations, where each route generally corresponds to a spoke leading from one hub to another.



VTA routes cover 87 miles (not including overlapping routes), including nearly every major Island road, with access to downtown areas and public beaches, along with the park-and-ride lots in Vineyard Haven, Edgartown, and Chilmark. The VTA also partners with the four Councils on Aging (Edgartown, Tisbury, Oak Bluffs and Up-Island), and with schools and other groups to provide reduced-fare annual passes for youth, the elderly, and the disabled. A reduced fare is also available for veterans. Timed transfers at various locations allow passengers to plan longer trips more efficiently.

VTA Fares

Fixed Routes Fares:

Adult	\$1.25/zone	\$1.25/zone
Base		
Elderly		
Fare	\$0.75/zone	\$0.75
Disabled Fare	\$0.75/zone	\$0.75
Under 12	\$1.25/zone	\$1.25/zone
Under 6	Free	free
Student Pass	Reduced Fare	1/2 adult base pass
Incremental Zone Fare	\$1.25/zone	\$1.25/zone
Free Fare - describe	6 and under	6 and under

Source: VTA 2018 Annual Report

In accordance with the Americans with Disabilities Act, the VTA operates a paratransit van service that roughly traces the 14 regular routes. The VTA also provides contract transportation to the Martha's Vineyard Center for Living's Supportive Day Program and for senior lunch programs, and to Boston-area medical facilities. Collectively, these services are known as The Lift. (Windemere Nursing and Rehabilitation Center in Oak Bluffs operates its own van for Windemere residents.) The Lift and other van services are the most expensive options the VTA offers, and the population in need of these services is growing (see section 3).

The VTA is governed by an eight-member advisory board composed of one representative from each Island town, one member of the disabled commuter population, and one member of the general rider community. In 1998 the VTA also created a Consumer Advisory Group, which meets quarterly and consists of local social-service agency members, business community members, transit customers, VTA staff, and members of the public. The purpose of the group is to discuss transportation issues and provide input to help the VTA better plan its transportation system.

Fare-box revenues provide about one third of the required VTA funding, with federal, state, and local sources covering the rest. Annual financial planning for VTA operations and capital programs is complicated by the fact that guaranteed funds are often undetermined prior to the end of the fiscal year.

Several Island agencies benefit from the VTA's central fueling station at the MVY Airport in Edgartown. Those agencies include the Martha's Vineyard Regional High School, Martha's Vineyard Airport, Dukes County Sheriff's Department, several town public safety and highway departments, Island Elderly Housing, and the Martha's Vineyard Land Bank. The VTA estimates that the pooling of fuel purchases on the Island has saved those groups tens of thousands of dollars each year.

Other Bus Services

Tour Buses

Three Island companies, all owned by the same individuals and regulated by the state, provide tour bus service in the summer. The companies generally offer 2.5-hour trips originating at the Vineyard Haven and Oak Bluff ferry terminals, 3.5-hour charters, and transport for weddings and other large groups. As of 2015, the three companies were estimated to provide 2,000 tours, charters, and transfers per year, with an average of 30 passengers per trip.

In addition, charter tour companies from the mainland bring large coach buses onto the Island, especially in the spring and fall, with an estimated minimum of 25,000 passengers annually.

School Buses

The Martha's Vineyard Regional School District owns and operates 21 buses, distributed among six Island schools. The buses are maintained by the VTA, an arrangement that saves considerable time and money for the school district. The district also provides special-education transportation with two minibuses, and sends three additional buses off-Island for field trips and sports runs. Separately, the Edgartown Elementary School provides bus service with four buses and one minibus; and the Martha's Vineyard Public Charter School in West Tisbury operates buses for its approximately 100 students.

Other Transportation Services

Vineyard Village at Home, a nonprofit based in West Tisbury, has offered on-demand transportation and other services to elder or disabled residents since 2007. The organization provided 13,161 trips to about 50 members in 2018, relying entirely on its network of volunteer drivers, with costs covered by fares, brokerage, and third-party reimbursements, along with state, federal, and local funds.

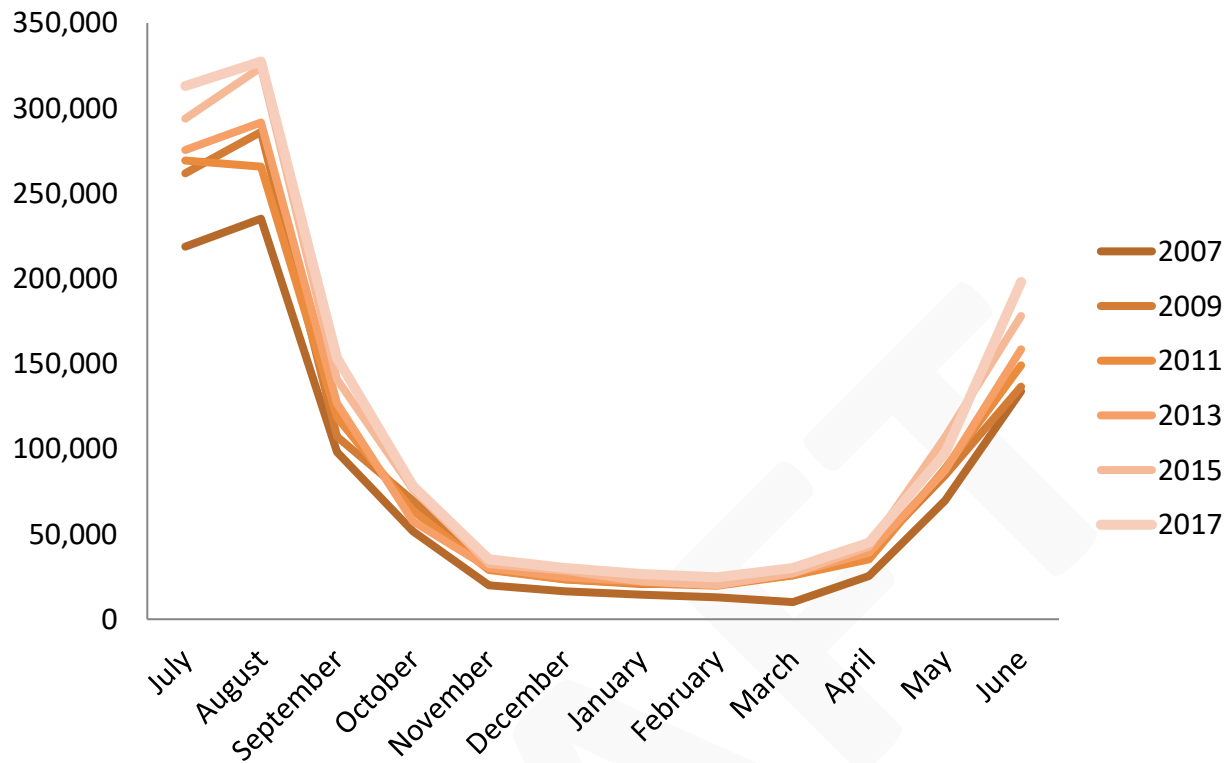
Other Island groups that provide transportation to elders include the Edgartown Ambulance Service, the Anchors (Edgartown Council on Aging), the Up-Island Council on Aging, Island Elderly Housing, Martha's Vineyard Cancer Support Group, and Martha's Vineyard Center for Living. In addition, Martha's Vineyard Community Services received a \$100,000 state grant in 2018 to fund its health-related transportation access program, which helps Islanders cover the cost of traveling to the mainland for medical treatment.

Trends and Issues

Vineyard Transit Authority

The VTA's annual fixed-route ridership has grown from 71,500 passenger trips in 1997 to about 1.4 million in 2017. Between 2007 and 2017, ridership increased about 55%, with growth in all seasons but especially July and August. The Lift saw a dip in ridership from 2010 to 2013 (at least partly as a result of better accessibility on the regular buses), but then increased about 7% in five years, logging 15,707 rides in 2017. With many seniors wishing to age in place at various locations around the Island, demand for The Lift and other paratransit services will likely continue to increase through at least 2040.

VTA Ridership (Monthly)



Source: VTA annual reports

The growth in transit use, and the consolidation of the year-round public transit service, has reduced the need for automobile trips and has improved the quality of life for residents and visitors. Transit users on the Island span all population groups, from older school-age children and teenagers, to the labor force, to a rapidly growing elder population. Islanders ride the bus for varying purposes, including to work, shop, and play. However, buses are often empty or nearly empty in the winter, so there is room for significant growth in ridership in the off-season.

Healthy Aging Martha's Vineyard, an elder-advocacy group founded in 2013, issued a survey to Island elders in 2016, drawing more than 2,000 responses. Among other things, the survey revealed a strong desire for additional off-Island medical transportation, with one in seven respondents saying they went off-Island for basic health care.

The VTA has bicycle racks on most of its fixed-route vehicles, although some vans that have begun running on lesser used routes do not have racks. In 2018 the VTA carried 18,187 bicycles on its buses (down from 21,252 in 2014), allowing that many cyclists to connect with public transit for part of their trips.

A substantial increase in Tisbury park-and-ride passengers in recent years is due partly to improved coordination with the Steamship Authority, which has made a commitment to wait for

the park-and-ride shuttle to arrive at the terminal before a boat departs; and partly to increased downtown parking enforcement by the Tisbury Police Department. The Tisbury park-and-ride—paid for by the town and the Steamship Authority—significantly reduces traffic congestion around the Vineyard Haven terminal and Five Corners area.

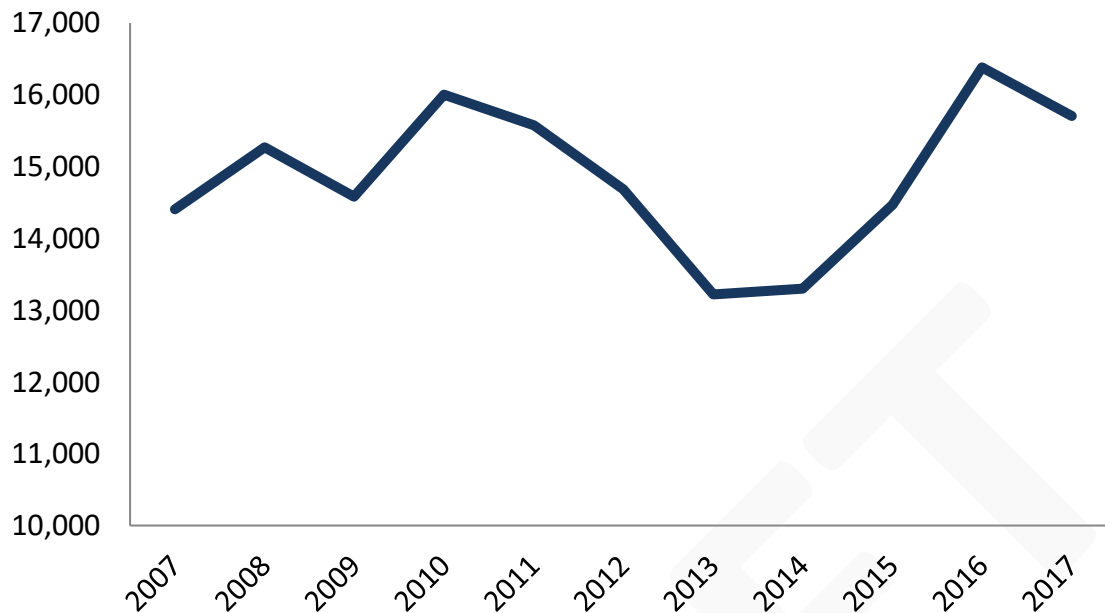
The town of Chilmark in 2014 launched its own seasonal park-and-ride lot on Tabor House Road, to help ease congestion in Menemsha, where limited parking and a lack of bicycle and pedestrian infrastructure creates numerous hazards in the summer. The new service took some time to catch on, but now carries about 3,000 passengers per summer between Tabor House Road and Menemsha.

Occasional efforts over the years to establish a park-and-ride in Oak Bluffs have failed to get off the ground. Most recently, the town selectmen agreed to move forward with a trial program in 2015, gaining support from the VTA, which agreed to provide the service, and from the SSA, which agreed to help fund it. The plan called for a shuttle that picks up passengers at a vacant lot behind the Catholic Parish Hall near the Oak Bluffs Town Hall, and drops them off at Ocean Park near the terminal. It was hoped that such a service would relieve congestion downtown, including in the neighborhood around Ocean Park, where ferry passengers and other visitors often park their cars. But the selectmen dropped the plan when people who live near the Parish Hall raised concerns about noise and other potential effects on the neighborhood. At the time, selectmen said they were looking into a permanent park-and-ride option utilizing the town's former landfill, as was done in Tisbury. The 2019 Oak Bluffs Master Plan targets several improvements to the transit system, including a park-and-ride shuttle.

Electrification of the VTA Fleet [BOX OR SPECIAL SECTION]

A major change is underway at the VTA, where six of its clean-diesel buses were replaced with electric battery-powered vehicles in 2018, using state and federal transportation funds, including settlement money received by state as part of the national Volkswagon emissions case. Another six are scheduled for replacement in 2019, with the entire 32-bus fleet expected to become electric by around 2024. Among other things, the transition will help reduce the VTA's

The Lift Ridership



Source: VTA annual reports

maintenance costs and greatly lower its carbon footprint. One key element is the installation of infrastructure at various locations around the Island so that the buses can partially recharge en route. The buses are plugged in overnight at the VTA maintenance center, and a software program determines the best times to charge, based on the cost of electricity. New photovoltaic panels are expected to be installed at the maintenance center for energy storage in 2019, further reducing emissions.

The VTA is the Island's largest consumer of fossil fuels, and the electrification of its fleet is the Island's most significant contribution yet toward the greenhouse gas reduction goals laid out in the 2008 Global Warming Solutions Act. Some portion of the charging infrastructure around the Island will also be available for private electric vehicles in the future.

Other Issues

To accommodate growing summer crowds and vehicle congestion, the VTA has increased service (including extra runs to limit wait times) and extended its daily hours of operation. To save costs, the VTA has also trimmed its summer season by three weeks in the spring and two weeks in late summer. The reduction in summer service in 2018, which will likely continue, led to a slight dip in ridership in the shoulder seasons.

The efforts of VTA employees to establish a union contract with the Amalgamated Transit Union may lead to further changes in scheduling, but as of June 2019, those talks were still ongoing. The employees voted to unionize in 2015 but have not yet reached an agreement with Transit Connection Inc., the company that hires and manages drivers for the VTA. Drivers authorized a strike in 2019, but later resumed talks with TCI. Depending on the time of year, such a strike would likely affect year-rounders more than visitors, since seasonal employees are not part of the

union. But the signing of a union contract may still lead to wage increases and other changes that affect year-round service.

Objectives

1. Improve system efficiency, coordination of service, and promotion of all means of collective transportation on the Island, as an alternative to the use of single-occupant automobiles.
3. Encourage greater use of public transit (and other alternatives to single-occupant automobile travel) among older children and teenagers.
4. Continue to optimize promotion and information related to public transit, including efforts to educate the public about the greenhouse gas emissions associated with different forms of travel.
5. Work with business associations and major employers to promote alternatives to single-occupant automobile use on the Island.
6. Enhance the degree to which smart-growth principles, including access and proximity to public transit, are considered in development projects at both the town (planning board) and regional (MVC) levels.

Proposed Actions

Short-Term Actions

- Work with towns, transportation administrators, the public, and others to develop an estimate for Island capacity, in terms of summer vehicles and visitors, as a planning benchmark distinct from demand.
- Increase operating assistance to the VTA from the Massachusetts Department of Transportation and rural federal funds.
- Continue programming capital funds for bus replacement.
- Continue coordinating funding efforts with VTA and MassDOT for system operations, capital expenditures, and infrastructure needs.
- Continue improving the locations and physical installation of bus stops, including, where appropriate, the construction of shelters, in harmony with the character of Island roads.
- Install automatic passenger counters (APCs) aboard all public transit vehicles to provide data for planning purposes.
- Commit to minimum fixed-route service levels on all routes year-round; explore micro-transit options for routes that are less traveled.
- Encourage employers to take advantage of tax incentives and buy transit passes for employees, requiring employees to leave cars at home or at park-and-ride lots and take the bus to work.
- Offer detailed trip planning, including the use of online and in-mobile applications; explore options for online ticketing.
- Further develop community outreach and education related to transit services to encourage new ridership.
- Support the exploration of transit improvements identified in the recent master plans for Oak Bluffs (2019), Menemsha (2017), and Aquinnah (2018), as well as other public planning initiatives on the Island.

Other Actions

- Work with MVC on assessing sidewalk and bus stop needs for the transit system.
- Work with Island 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 licensing boards should be educated about the benefits of transit, and require a mitigation fee for projects Islandwide.
- Focus on the non-peak travelers by continuing to improve service in the off-season.
- Publicize the availability of off-season public transportation services by continuing to improve signage, coordinate scheduling; and utilize printed material, web sites, and other marketing techniques.
- Work with surrounding regions, especially Cape Cod and Nantucket, to lobby for changes in how federal and state transit capital and operating funds are distributed, so that they more strongly consider seasonal demands.
- Explore the feasibility of a multi-town board to perform some administrative functions related to transit funding and the handling of complaints.
- Promote a complete network of non-automobile transportation facilities—buses, tour buses, taxis—as a viable option to using a car.
- Improve information about travel options so that arriving visitors can quickly understand the relative merits of bus, taxi, and tour bus—for example, flyers that accompany first-time ferry tickets, brochures available in tourist information booths, and signage at ferry terminals and the Airport.
- Work to improve pedestrian and bicycle facilities to complement bus service.

Section 11: Taxis and Ride-Share

Overview

The arrival of the ride-share service Uber in the spring of 2015 stirred widespread opposition among Island taxi companies, many of which feared that the largely unregulated industry would put them out of business. Concerns at the time also focused on how Uber would affect traffic, parking, and infrastructure on the Island. Meanwhile, the public seemed to welcome the new service, voicing their own concerns about Island taxi companies, which tend to carry multiple passengers to multiple locations in a single trip, and charge less predictable fares.

Four years after Uber made its Island debut, local taxi companies are still in business, although Uber and more recently its competitor Lyft have become well established parts of the Island transportation network.

About 15 taxi companies operate a total of about 70 vehicles on the Island, while Uber and Lyft employ an unknown number of private drivers. The ride-share services operate by way of a smartphone app that allows users to schedule a ride and see their fare ahead of time. Pricing is based on algorithms that take into account factors such as time of day, distance, and the presence of other ride-share vehicles in the area. Drivers set their own schedules, so the service is not guaranteed at certain times of year. Based on anecdotal information, the Island may have more than 30 ride-share drivers and vehicles on the road in the peak summer season.

Trends and Issues

Taxi companies may only pick up customers in the towns in which they are licensed, although taxis travel all over the Island. Some companies are licensed in multiple towns, and every company must also comply with the regulations in the towns where they drop passengers off. That puts them in a tricky situation of needing to comply with multiple, sometimes contradictory regulations.

In addition to the confusion surrounding fares and regulations, Island taxis often carry multiple passengers (staging until they are full), which makes them operate more like shuttles than conventional taxis. It is not surprising that customer confusion and complaints exist, even among Island residents.

Uniform licensing rules for the Island have been discussed periodically since the 1970s without much progress. Healthy Aging Martha's Vineyard highlighted the confusion surrounding Island taxi service in 2014, leading to renewed efforts among Island selectmen to improve taxi licensing in their towns. Discussions at the time looked at uniform licensing requirements and background checks for drivers, better identification of vehicles, and greater clarity and predictability in fares. But no new regulations resulted from the effort.

Theoretically, an Islandwide license would allow taxis to pick up passengers in multiple towns and could potentially improve efficiency by reducing deadheading (driving from one place to another without a passenger). The procedure could also increase the overall availability of taxis for customers. Reducing deadheading would benefit the larger community by reducing duplicate trips, which in turn would lower the number of vehicles on the road, along with the amount of fuel burned and the resulting greenhouse gas emissions.

In response to concerns surrounding Uber in 2015, the West Tisbury selectmen sought an opinion from town counsel, who clarified that the town regulations for taxis do not apply to ride-shares, but that the selectmen had the authority to create new laws that do. Later, the selectmen in Edgartown approved rules that treat ride-share companies like taxis, requiring background checks and vehicle inspections, along with the same licensing and insurance procedures that apply to regular taxi companies. And in 2016 Governor Charlie Baker signed legislation requiring background checks, vehicle inspections, insurance, special-needs accommodation, and other forms of compliance among ride-share companies and drivers statewide. Also in 2016, the Martha's Vineyard Airport, which provides staging areas outside its terminal, voted to apply its annual fee for taxis to ride-share vehicles as well.

Martha's Vineyard Taxi Company, which is licensed in Tisbury and Edgartown, has worked to change with the times, developing a taxi-metering software (Taximeter), which tracks mileage using GPS, and calculates fees based on a variety of optional factors, including the number of passengers, the time of day, and the amount of traffic. Company owners presented the idea to selectmen in Tisbury, Edgartown, and West Tisbury, as well as other taxi companies in 2018, as a solution to some of the disparity among taxi fares and service on the Island. Selectmen in Tisbury and Edgartown voted to allow the new software in taxis licensed in those towns, while West Tisbury voted not to require its one licensed taxi company to make the change. (The regulations in Edgartown and Tisbury do not require the use of the app, but taxi companies there must use either the app or the previous flat-rate system.)

Despite the significant influence ride-share companies have had on the Vineyard, data on usage, traffic patterns, numbers of cars, and other activity are mostly absent. An informal MVC survey in 2018 (using the Uber and Lyft apps) found that the availability of vehicles around noontime ranged from 0 to 12 per day between April 27 and June 4, with more Uber trips to begin with, but more Lyft trips in the end. However, one Lyft driver commented that the apps don't always show every car on the road. Similar data for the months from April to September would be more useful, since drivers (and fares) increase to meet demand. Data related to taxi companies is also hard to come by, since each town follows slightly different recordkeeping procedures, and the records themselves are not always complete. Given that ride-share service on the Vineyard will likely expand in the coming years, accurate data is essential to long-term transportation planning.

Objectives

1. Provide efficient, convenient, and appealing taxi service as a beneficial component of the Island's transportation system.
3. Encourage the posting of taxi fares at main stands (ferries and Airport), and more effective postings in taxi vehicles.
4. Improve data collection and monitoring of taxi and ride-share services.

Proposed Actions

- Adopt a uniform procedure among towns for licensing taxi drivers and taxi vehicles.
- Work with taxi companies to track the performance of vehicles using the Taximeter app (see above) in comparison to flat-rate pricing.
- Initiate a year-round study of ride-share traffic on the Island, collecting data on the numbers of drivers and vehicles on and off duty, the most heavily traveled roads and

routes, and other factors.

- Keep the public apprised of new and existing regulations that apply to taxi and ride-share services.
- In line with efforts related to public transit and Steamship Authority traffic, include information about taxi and ride-share options in public materials related to alternate modes of transportation on the Island.
- Work with taxi companies, the VTA, and others to explore the possibility of a central hub for taxis and micro-transit on the Island, in order to reduce congestion around ferry terminals and the Airport, and to improve intermodal connections.

Section 12: Bicycles and Pedestrians

Overview

Walking and bicycling play a vital role in the Vineyard's transportation network, and deliver many benefits not associated with motorized travel:

- Physical fitness.
- Cleaner air and lower carbon footprint.
- Means of experiencing the Vineyard's natural character—the principal asset the Island offers visitors and residents alike.
- Reduced demand on existing road infrastructure, which better enables retention of narrow roads and scenic qualities.
- Cost-effectiveness: Walking and cycling are generally cheaper than other modes of travel, in terms of public infrastructure, and also the cost to individual pedestrians and cyclists.

MassDOT made the promotion of walking and cycling (as well as public transit) one of the three primary goals of its 2010 GreenDOT Policy Directive (see section 2), and in 2014 further emphasized those travel modes through the Healthy Transportation Compact, which promotes planning concepts such as Complete Streets (see section 15).

Biking and walking make up a large number of trips on the Island. The majority of visitors come on foot rather than by motor vehicle, and many arrive with a bike. Both walking and biking are popular recreational activities. Group bicycle tours operate in the summer and shoulder seasons.

Most sidewalks and shared-use paths on the Vineyard lie in the down-Island towns of Tisbury, Oak Bluffs, and Edgartown, where relatively compact town centers are generally conducive to walking and cycling. However, gaps in the existing infrastructure, along with narrow rights-of-way and competition for vehicles traveling and parking, have impeded bike and pedestrian travel.

The more bucolic rural roads up-Island are less traveled by vehicles, but mostly absent of sidewalks or shared-use paths, which places a greater strain on the ability of those narrow roads to accommodate the full variety of uses.

As a seasonal resort community, the Vineyard must consider the perspectives of its visitors as well as residents. Many visitors may be 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 hazards such as sand on the road shoulders. A significant portion of residents and visitors are elderly, and may have difficulty with uneven or poorly illuminated sidewalks.

Description and Analysis of Existing Facilities

Four types of surface routes make up the network for both walking and biking on the Island: on-road, sidewalk, shared-use path (SUP), and trail. Walking and biking also have distinctions that must be taken into account if they are to be properly accommodated.

Roadways

The Island's narrow roadways are a key feature in both experiencing and defining the Vineyard character—from the intimate human scale of town centers to the winding, tree-canopied rural roads. Those attributes make them attractive for cyclists and pedestrians alike, despite the hazard posed by narrow roads and busy intersections. Pedestrians and cyclists are also often compelled to use the roadways, when additional rights of way for a path, sidewalk, or trail are inadequate.

Competition by various transportation modes for use of limited road space, combined with the high speed of motor vehicles, reduces the level of comfort and safety for all modes of travel. This is especially true for pedestrians and cyclists, who may be less visible, or less anticipated by motorists—and more physically vulnerable.

Cyclists may also prefer to use the roadway even when a shared-use path is available. This usually has to do with safety: Experienced road cyclists often travel at higher speeds (in excess of 15 miles per hour), which is sometimes too fast to safely mix with slower-moving cyclists, pedestrians, and in-line skaters on shared-use paths. Also, shared-use paths are less likely to be clear of surface debris that pose a particular hazard 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) sets the standard for desirable shoulder width at five feet—which is uncommon on the Vineyard for many reasons. Up-Island roads in particular often lack any usable shoulder, so bicyclists stay to the right of the pavement, which still 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.

As with mopeds, motorists waiting to pass slower-moving cyclists can increase congestion and motorist impatience, especially in summer. Motorists are not always aware that bicyclists have as much right to use the roadway as they do, even when a shared-use path is available. Cyclists on the road are responsible for conducting themselves as if they are in a motor vehicle, including by 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 motorized traffic or the presence of shoulders—can guide cyclists to use those safer routes.

Sidewalks

Town centers, particularly down-Island, see heavy pedestrian activity 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 prevent their use by cyclists, who are often relegated to the roadway, which can further congest motor vehicle traffic.

Many sidewalks are less than four feet wide, obstructed in many places with utility poles, signs, and mailbox posts; or have uneven surfaces. Such limitations are especially 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, 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 indicated only with lines painted on the asphalt, or not delineated at all. In many cases, the right-of-way is insufficient to dedicate a pedestrian area. The 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 oriented more towards automobiles, with large parking lots and frequent curb cuts undermining the principle that pedestrians have priority. Such layouts are not conducive to walking from business to business.

The much less developed up-Island towns have few sidewalks. West Tisbury's Paths by the Roadside Committee successfully worked with MassDOT and abutting landowners to create hybrid sidewalk paths alongside two busy roads. These four-foot-wide asphalt paths without curbs 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 pavement. While the paths are sometimes used by cyclists, they are not generally suitable for cycling due to their narrowness, which, like sidewalks, makes it difficult to pass other bikes or pedestrians.

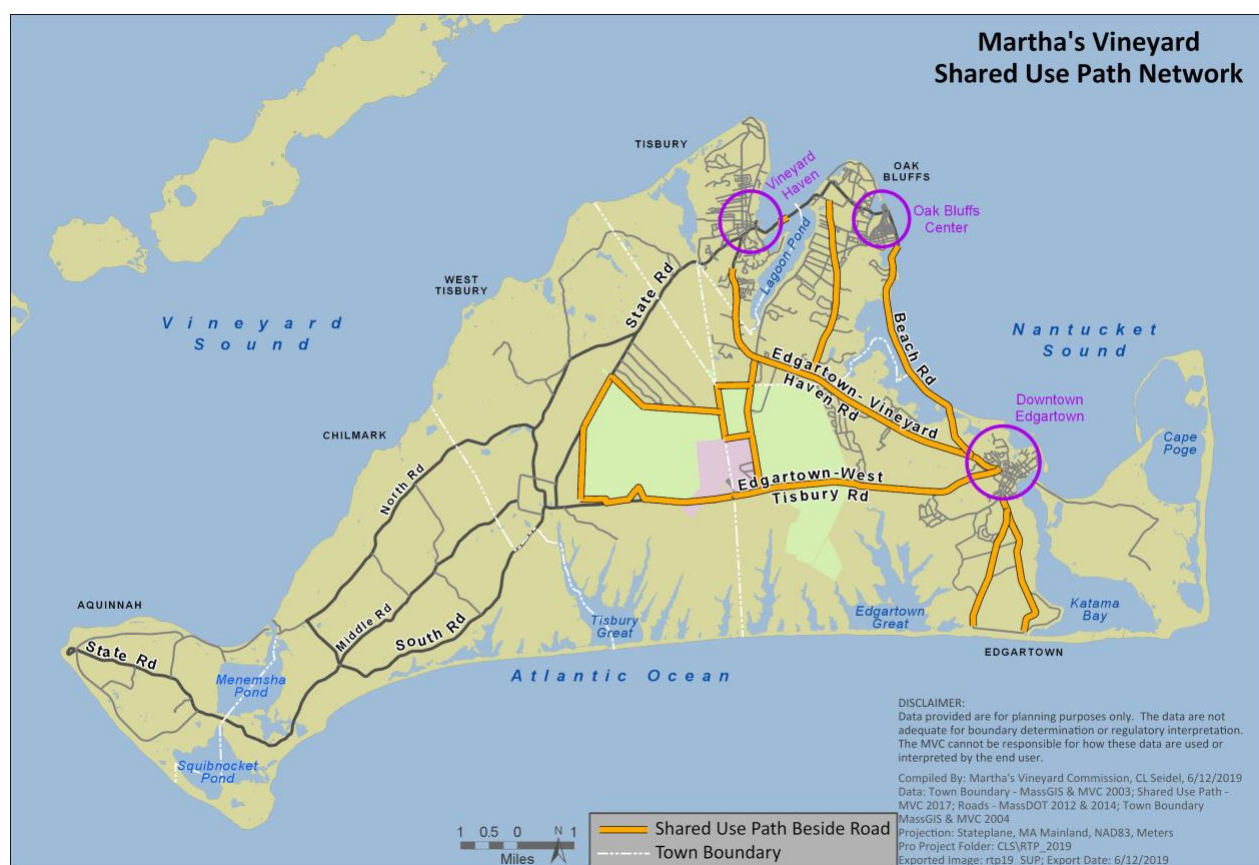
West Tisbury has added more traditional curbed sidewalks in segments of its town center, which is a growing hub for events, activities, and transit. Both Chilmark and Aquinnah are examining ways to create dedicated pedestrian infrastructure in order to improve safety at key locations.

Shared-Use Paths

Thirty-seven miles of shared-use paths down-Island and around the State Forest link the major population centers with many primary tourist destinations and West Tisbury. The paths are used by a mix of skilled and less-skilled bicyclists, pedestrians, joggers, in-line skaters, and horseback riders. Motorized vehicles—including mopeds—are prohibited, but Segways (lateral stand-up scooters), which cannot use the roadway like a bicycle, are increasingly common. Having been stitched together over more than 35 years, the Island SUPs vary in width, condition, and separation from motor traffic.

The first “bike paths” on the Island were constructed in the mid-1970s along Beach Road from Edgartown to Oak Bluffs, and around most of the perimeter of the State Forest. Those paths are generally eight feet wide. SUPs constructed in the 1980s and '90s spanned most of the miles between. Only the newest additions in Edgartown and Tisbury, circa 2000, have been 10 to 12 feet wide—AASHTO's minimum and standard width, respectively.

The SUP on Upper Main Street was counted with automatic traffic recording equipment in August 2014, and the average daily traffic (ADT) was 793 bicycles, with a peak-hour volume of 129 bicycles at 1 p.m. On Edgartown-Vineyard Haven Road, where traffic volumes have also been traditionally high, the ADF from August 2014 was 12,381 bikes.



With the exception of the State Forest paths, nearly all of the SUPs lie within the adjacent roadway rights-of-way, running parallel and usually three to five feet from the pavement. The 1970s-era Beach Road SUP, with about a four-foot separation, remains the only roadside path with a vertical physical barrier of more than 100 feet in length. The others have vegetation, including some with shrubs and mature trees, but mostly just grass. The absence of a physical barrier allows vehicles to pull off onto the SUPs, which may obstruct foot and bike traffic. Along roads with more development, the frequency of vehicles crossing the horizontal buffer results in wheel ruts and the absence of vegetation. Horizontal separations of less than two feet are often patched with asphalt.

Remaining gaps in the Island's SUP network were examined in a study commissioned by the MVC in 2009. The resulting *Pre-Feasibility Study of the Extension of the Martha's Vineyard Network of Shared-Use Paths* examined the most critical missing links in the existing system and evaluated several alternatives for each segment. The bike paths provide direct links between the down-Island towns, but stop at the perimeter of the downtown areas and, notably, do not connect to the ferries. Bicycles are thus reintegrated with motor vehicles at the very places where the roadways are most congested. Bicyclists face downtown access and parking issues similar to those faced by motorists.

Major gaps in the SUP network:

- 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
- Northeast quadrant of the State Forest perimeter

- Up-Island towns of West Tisbury, Chilmark, and Aquinnah

Public rights-of-way are often insufficient to accommodate a separate SUP. Even when the right-of-way width is adequate to fit both a roadway and SUP, the roadway typically meanders within the right-of-way, eliminating a continuous remaining right-of-way of uniform width for a path along one side.

Other constraints in creating new SUPs, particularly for the up-Island towns, are landscape features such as stone walls or major trees, which contribute to the character of rural roads. There is also concern that paths along some of the narrower or more heavily vegetated roads could widen the appearance of the roadway, which is known to promote faster vehicle speeds. Vegetation or railings between the road and the SUP can help mitigate such effects.

Even where SUPs exist, safety issues remain:

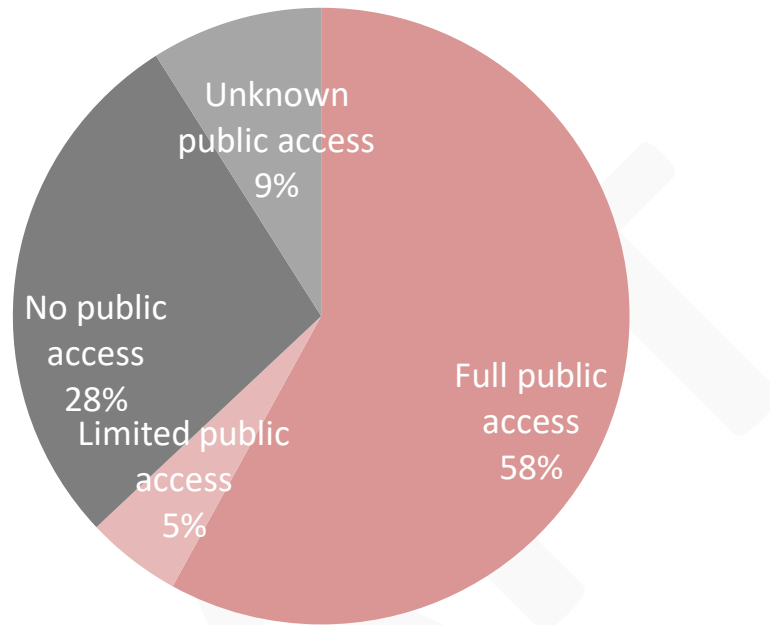
- Narrow width in relation to the volume and variety of users: The combination of pedestrians, in-line skaters, cyclists traveling at different speeds (or stopped altogether), dog walkers, strollers, and bike trailers is often confusing and treacherous. A center line for at least portions of SUP segments could address this problem.
- Inadequate buffer from roadways: 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 SUPs by vehicles for stopping, turning, and even for parking. 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, an SUP crosses all roads and driveways intersecting the roadway. Those crossings are especially dangerous for cyclists, as motorists tend to focus more on other vehicles and pedestrians, and less on cyclists, who may be farther away but traveling at a higher speed. The narrow separation of SUP and roadway often results in vehicles blocking the path as they wait to enter 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 cannot be legally enforced. They also 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.
- Insufficient maintenance: SUPs on the Island are plagued by cracks, potholes, debris, and overgrown vegetation, all of which reduces safety and deters use. In some places, sand from beaches, erosion, or motor-vehicle crossings pose a particular 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 covered in sand, in addition to being rutted and cracked, and effectively only four feet wide at several points. The Island's MassDOT superintendent has acquired a small sweeper specifically for the SUPs, but sand remains an obstacle along SUPs and road shoulders across the Island.

Trails

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

or providing shortcuts to nearby destinations.

Access to Open Space



The trails vary considerably in surface material, grade, and width—from narrow grass-covered footpaths to overgrown eight-foot-wide dirt roads—even along the length of a single trail. Such variability limits their utility for handicapped use, strollers, and bike trailers, and for road cyclists. The trails may also be used by equestrians and—illegally—by motorized dirt bikes and all-terrain vehicles.

More than a dozen trails contain some historical connection to the Vineyard’s past, with remnants of old cart paths pre-dating even European settlement of the Island. Many of those trails—commonly referred to by the loose designation “ancient ways”—are former Indian paths and settler roads that connect villages and provide access to coastal ponds and woodlots.

The Island community recognizes the importance of the trail network. One of the first Districts of Critical Planning Concern the MVC established at its inception in 1975 enabled towns to protect those paths as Special Ways. All but one town has at least one such Special Way. The designation is meant to prevent destruction and inappropriate use of the paths, and preserves their viability for future use. In addition, Island citizens created the Martha’s Vineyard Land Bank Commission in 1986 to protect important areas from increasing development. One of the Land Bank’s primary objectives is to protect and expand the existing network of trails and conservation properties across the Island. Several towns have trails and byways committees with the same purpose.

Trends and Issues

A number of planning initiatives in recent years (and at least two completed projects) aim to

improve bicycle and pedestrian travel on the Island, and highlight the extent to which those modes of travel intersect with automobile traffic, public transit, and the ferry system.

- In 2018, the Sheriff's Meadow Foundation launched a new cellphone app, TrailsMV, which catalogs every public trail on the Vineyard, with maps, photos, and other relevant information for trail users. The new resource will likely allow residents and visitors to utilize the Island's extensive trail system more effectively, and to learn about new trails to explore.
- Drawbridge Park: Dedicated in 2018, this public park extends around and underneath the new Lagoon Pond Drawbridge (see section 9), with amenities for walkers, bikers, picnickers, and fishermen. The park allows for safe bike and pedestrian travel across the channel between Vineyard Haven Harbor and Lagoon Pond (between the towns of Oak Bluffs and Tisbury), with views of both the pond and harbor. A series of informational signs highlight some of the town's long history. Perhaps unforeseen by planners, however, the drawbridge and park have become a popular gathering place for crows and seagulls, and a thick coating of bird droppings often renders the open space unusable.
- Beach Road improvements: A long-planned MassDOT project to improve this heavily traveled stretch of road in Tisbury could begin as soon as the fall of 2019. The MVC identified the area as a missing link in the Island's bike and pedestrian network in 2009, and talks with the state began around 2013. Among other things, a line of utility poles that currently protrude from the sidewalk will be relocated or removed and the sidewalks widened to accommodate walkers and cyclists; and car lanes will be narrowed with 4.5-foot shoulders on either side from the Five Corners intersection east toward the drawbridge, where an existing SUP continues into Oak Bluffs.

The Beach Road plan includes a new drainage system to mitigate flooding along Beach Road during storms, and beach renourishment in a key area east of the Shell gas station, but has been criticized for not adequately taking into account the effects of sea-level rise. Some town planners set the estimated lifespan of the project at 15–20 years, at which point a new design will be needed. In addition, property owners along the route have expressed concerns about their need to sell some of their land for the expanded shoulders. Citing those and other concerns, the Tisbury selectmen sent a letter to MassDOT in 2018 formally opposing the design as it stands.

The new SUP will end at the Five Corners intersection, which is less than ideal for bikers and pedestrians, given the heavy congestion there during much of the year, but it also advances a long-desired path between the town centers in Oak Bluffs and Vineyard Haven. An addition route through or around Vineyard Haven, with connection to Edgartown-Vineyard Haven Road, is still in the planning stages.

- Aquinnah Circle Landscape Master Plan: Delivered to the town of Aquinnah in 2017, this wide-ranging plan by students in the Conway School Graduate Program in Landscape Design was initiated following the relocation of the Gay Head Light in 2015 and involved extensive public input, including two visioning sessions in 2016. The plan focuses on the scenic Aquinnah Circle, where automobiles, buses, bikes, and pedestrians all converge in the summer months. Public concern centered on the location of restrooms, and an area at the top of the hill near the Aquinnah Shops where different modes of transportation often

interfere. A final short-term design recommends crosswalks to main destinations around the circle, universally accessible paths between parking areas and existing amenities such as bathrooms and trails to the beach, and a handicapped-accessible ramp to the shops. The plan also recommends a redesign of the Aquinnah Cultural Center, road and ramp redesigns, and longer-term alternatives for the area.

- **Cultural Districts:** Aquinnah and Vineyard Haven have both been named Cultural Districts by the Massachusetts Cultural Council, bringing added attention to their pedestrian infrastructure. In Aquinnah the designation was part of the town's efforts following the relocation of the Gay Head Light in 2015 to improve the town's main shopping and tourism area. In Vineyard Haven, the relocation of the Martha's Vineyard Museum to the former Marine Hospital overlooking the harbor has drawn further attention to the need for a walking paths in the downtown area.
- **Menemsha Master Plan:** Concerns about the safety of travelers in Chilmark's historic fishing village led to a new master plan that was completed in 2018. The plan focuses largely on the narrow Basin Road, which winds downhill, past a number of houses and businesses, and along Menemsha Harbor, terminating at a public beach and parking lot that is usually congested in the summer. Recommendations include signage at the intersection of Basin and North roads to help slow traffic, additional crosswalks, a new path along the length of Basin Road, and a storable, seasonal walkway along the harbor portion that ends at the beach. The next steps for the town include identifying priorities based on the plan.
- **Oak Bluffs Master Plan:** Released in 2019, the plan includes several recommendations for improved bike and pedestrian travel in the town center, where bikes from rental shops and the ferry are ubiquitous in the summer. The plan identifies key areas of concern, including the narrow sidewalks along Circuit Avenue, which often force walkers into the road, and the fact that bike paths typically start or end at the edge of downtown, forcing bicyclists into the busy roadways. It also outlines policies to encouraging bike use, including through the promotion of bike-share options on the Island, and recommends increased parking and signage downtown and adopting a Complete Streets policy for the town.
- In addition to the projects and documents completed since the previous Regional Transportation Plan in 2015, the MVC has recently revived its Bicycle-Pedestrian Advisory Committee, which had been mostly dormant for years. The committee has seven members, with monthly meetings at the MVC building. As of June 2019, the committee was still getting organized, but members have discussed focusing on one Island town to begin with, in order to propose concrete solutions and generate wider interest across the Island. One member who is active in bicycle infrastructure planning in Cambridge stressed that initial efforts on the Island should focus on increasing the public's acceptance of bicycles as a key part of the Island's tourism economy.

Bike-share companies such as Bluebikes and Ant Bicycle have seen growing popularity in Massachusetts, and may soon have a presence on the Vineyard, although Island towns have likely not discussed that issue in depth. As with ride-share networks such as Uber and Lyft, the arrival of bike-share companies on the Vineyard would likely disrupt conventional business models. (A small number of Island companies account for most bike rentals in the summer and shoulder seasons.) Competition among ride-share companies could also see the arrival of electric ride-

share scooters, which are also gaining traction on the mainland.

Electric bikes (ebikes) account for a growing share of bike rentals on the mainland, but a relatively small number are available to rent on the Vineyard. Some Islanders have argued that ebikes come with the same problems as mopeds (untrained riders, increased congestion, etc.), but others point out the differences: ebikes generally go slower than mopeds (up to about 20 mph), and are expected to travel on SUPs or designated bike routes, rather than sharing the road with other motorized vehicles. In any case, an organized discussion of ebike rentals on the Island (and of bike-shares), will likely generate considerable debate.

Objectives

1. Promote and facilitate walking and bicycling as an alternative to single-occupant automobile travel; as a way to promote healthy lifestyles, increase mobility, reduce traffic congestion, save energy, and improve air quality.
2. Encourage the increased use of walking and cycling by residents and visitors.
3. Enforce existing laws for motorists, bicyclists, and pedestrians.
4. 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.
5. Ensure a complete network of safe and unobstructed sidewalks in town centers and other areas of medium or high pedestrian activity.
6. Improve the infrastructure for bikes and pedestrians, especially on routes that connect to key destinations not served by SUPs.
7. Extend the network of trails to link all significant destinations across the Island.
8. Provide adequate directional and informational signage, as well as rest areas, seating, bicycle parking, and other amenities.
9. Improve SUP maintenance.
10. Continue to support activities of town Trails and Byways committees.
11. Expand the network of Special Ways designated by the towns.
12. Address bicycle safety and access in the planning, design, construction, operation, and maintenance of transit, airport, highway, and bridge projects.

Proposed Actions

Short-term actions

- Redo Edgartown sidewalks between Upper and Lower Main Street.
- Improve the SUP through the Martha's Vineyard Hospital site, and improve the existing segment along Eastville Avenue. (Oak Bluffs)
- Create an SUP along the eastern and northeastern perimeter of the Manuel Correllus State Forest in to complete the perimeter loop of the forest. (Edgartown)
- Create a short SUP segment connecting the northeast corner of the 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 pedestrian and bicycle access to adjacent neighborhoods and to public roads.
- Develop an educational campaign to inform people of the rules of the road and safety

measures.

- Selectively post “Share the Road” signs and 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.
- Evaluate road speed limits for appropriateness and propose measures for traffic calming.
- Plan for adequate snow removal.

Actions: Bicycles

- Inform visitors of the existence of SUPs and trails, as well as the natural, cultural, and historic attractions available to touring bicyclists.
- Provide information to individuals and organizations about bicycle commuting.
- Involve the private sector in promoting and providing for bicycle travel.
- Set up a bicycle working group (perhaps within the BPAC) 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 design of SUP intersections with roads and driveways, and opportunities for improving the barriers dividing the paths from roadways.
- Paint centerlines on SUPs.
- Ensure that appropriate bicycle accommodations (paths, 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 those locations.

Actions: Pedestrian Facilities

- Work with schools to identify “Safe Routes to School” and necessary improvements.
- Encourage walkers by increasing the appeal of the pedestrian environment, particularly in village and commercial areas, and by providing continuous and adequately-dimensioned sidewalks and well-marked crosswalks, and other services.
- Create and upgrade walking routes—including off-street, low-maintenance footpaths—that connect residences, parks, workplaces, tourist and shopping attractions, and public transit stops.
- Encourage supplemental activities such as business district improvements and fitness programs that help promote a suitable and effective environment for walking.

Section 13: Mopeds

Overview

Mopeds are given their own section in this Regional Transportation Plan, as they seem to occupy a class of their own—not a bicycle, but not a motorcycle—and have a particular influence on summer traffic. Recent events on the Island have also renewed public concern surrounding the hazards that mopeds present to operators and other travelers.

The Massachusetts Department of Transportation defines “moped” as “either a pedal bicycle with a helper motor or a non-pedal bicycle with a motor” that also has the following characteristics:

- A cylinder capacity of no more than 50 cubic centimeters
- An automatic transmission
- A maximum speed of up to 30 miles per hour
- Compliant with federal motor vehicle safety standards

Moped operators may use any public way in the state, except where signs indicate that bikes are prohibited. They may also use bike lanes, but not shared-use or other recreational paths. All moped operators must comply with regular traffic laws and regulations in the state, and signal with their hands for stopping and turning. In addition, several state restrictions and registration requirements apply to moped users and rental companies. Among other things, operators must be at least 16 years old with a valid driver’s license or permit and wear a helmet, and “should not drive at speeds greater than 25 miles per hour.”

On the Vineyard, mopeds are generally perceived as being non-pedal bicycles, and often associated with summertime congestion and accidents. Longstanding concerns focus on the fact that riders may not have proper training prior to getting on a moped; that mopeds usually travel slower than the speed limit, forcing other vehicles (including trucks and buses) to wait for a break in oncoming traffic before passing; and the sometimes fatal accidents that involve mopeds every summer. The problems with mopeds are seen mainly as relating to Island visitors, since the relatively few year-round residents who use mopeds tend to have more experience.

Trends and Issues

As of 2016, four businesses in Oak Bluffs and one in Vineyard Haven provide about 350 rental mopeds in the summer—a major decline from the 1980s, when about 1,000 rental mopeds were available from 11 Island companies; and from 2001, when about 630 moped rentals were available. The lower availability appears to have stemmed the number of annual moped accidents as well. (Oak Bluffs now has a cap of 308 rental mopeds per year.)

An accident on Barnes Road in 2016 renewed public efforts to ban or further restrict moped rentals on the Island. The accident involved two college students traveling on a single moped, who lost control and collided with oncoming truck. Both students survived, but one lost her leg in the crash. More than 1,500 people have signed a petition posted that summer asking state officials to require people who rent mopeds to have special licenses. A *Vineyard Gazette* survey the following year drew 2,390 responses, with 90% saying they would support eliminating mopeds altogether if that were legal. About 95% said they would support further regulations if an outright ban were not possible.

The accident also further energized the Mopeds Are Dangerous Action Committee (MADAC), which filed a series of complaints with the town of Oak Bluffs, alleging among other things that three moped rental companies had not complied with a 2004 moped bylaw, including a provision that rental companies provide a test track to help train moped users. A similar complaint was filed against the one rental company in Tisbury. In response, the Oak Bluffs selectmen passed a series of amendments to strengthen the moped bylaw (although a judge ruled that the test-track requirement was unfair to businesses), and a warrant article at the Oak Bluffs town meeting in 2018 asking whether to file a home-rule petition to ban moped rentals in town passed unanimously. The petition was delivered to the state that year, but died in committee. It was later refilled (H.B 1783) and is expected to have a fuller hearing in 2019.

One dealer in Oak Bluffs volunteered to exchange 40 of his moped rental licenses for automobile licenses in 2016, a decision welcomed by town officials.

Objectives

1. Promote the use of conventional bicycles and public transit as an alternative to both mopeds and single-occupant automobiles.
2. Be proactive about community discussions surrounding moped regulation, perhaps in the run-up to the summer season.
3. Improve moped safety and education.

Proposed Actions

- Enforce all traffic laws and other regulations related to moped operation and rentals on the Island.
- Provide one-page fact sheets or pamphlets to the public, outlining state and local regulations regarding mopeds, and safety procedures.
- Keep roadways and bike lanes clear of sand and other debris to lower the risk of accident.
- Facilitate proactive community discussions surrounding moped regulation and safety.

Section 14: Safety and Security

Martha's Vineyard has relatively few vehicle crashes compared to state and national statistics. However, instances of people losing control or not paying attention are common, and sudden unexpected movements can result in serious problems. As a result, the Joint Transportation Committee reviews local incidents and weighs safety as its first priority when rating transportation projects. Due partly to the Island's small size and population, transportation-related mishaps are rare. However, the Island's broad range of travel modes in a small space every summer creates congestion that may result in unsafe conditions.

Federal rules (23 CFR 450.306[h]) mandate that the Regional Transportation Plan (RTP) is 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 strategies to reduce the number of crashes. This RTP recognizes the potential for the SHSP to be applied in the Martha's Vineyard, where the number of annual crashes can be further reduced. 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, improvement to its transportation system and facilities should be pursued. Every effort will be made to continue to review, identify, and improve the safety of the system and the system's infrastructure.

Safety in Air and Water Transportation

The Steamship Authority, the Coast Guard, and the harbormasters of the various towns are responsible 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 an excellent safety record (six incidents have been listed in the National Transportation Safety Board database since 1995, four of which were fatal). The parties responsible for water and air continually strive to increase safety.

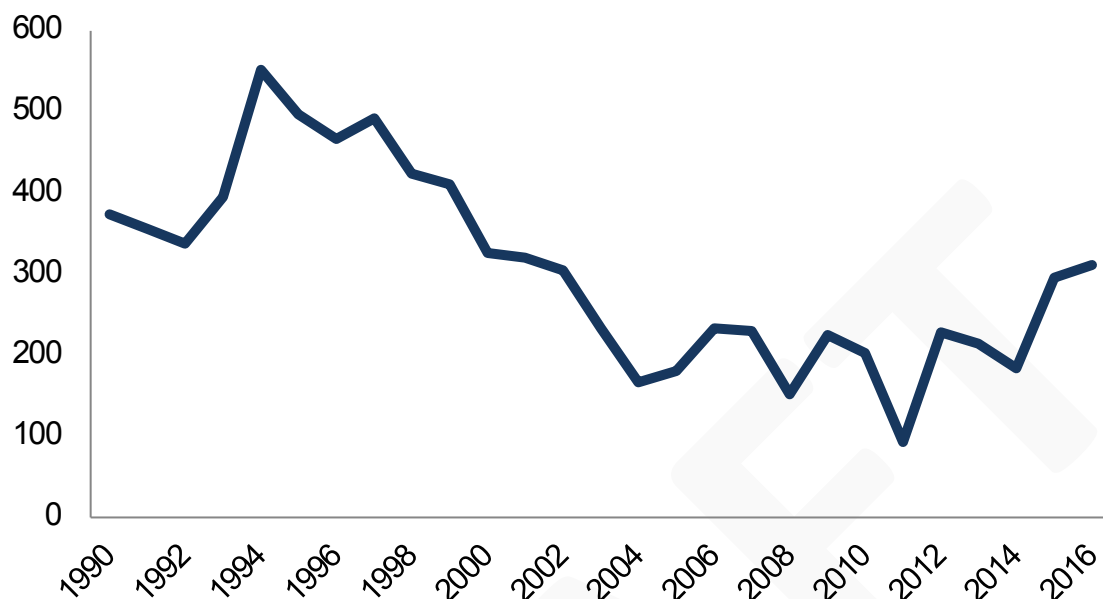
Vehicle Safety

According to the Registry of Motor Vehicles, from 1990 to 2016, a total of 8,207 crashes were reported in the Island towns, an average of about 316 per year. Crashes were about three times more common in 2016 than 2011, but have declined significantly from a high of 552 in 1994. Not surprisingly, most crashes occur down-Island, where are more vehicles, roads and busy intersections

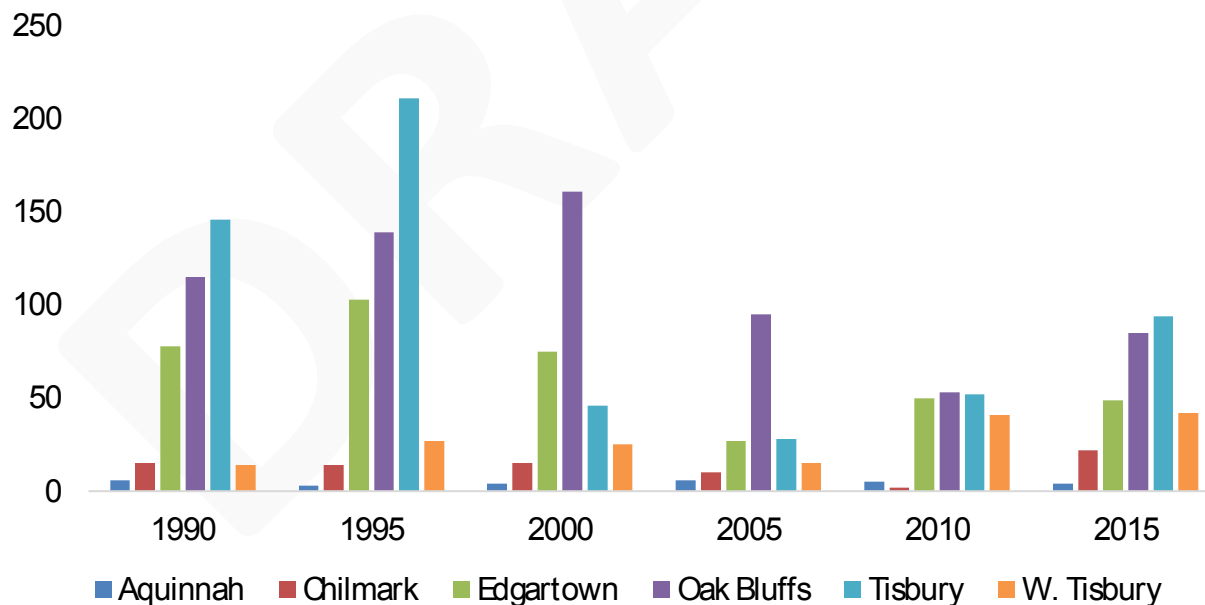
The state data includes crashes reported locally or by the State Police, and crashes, from which reports MassDOT was able to determine a specific geographic location. Not all crash locations

could be identified, due to the lack of crash reporting by local towns; or in some cases the reported crash information may not be sufficient to geo-code the location.

Vehicle Crashes, 1990–2016



Crashes by Town, 1990–2015



Source: Registry of Motor Vehicles

Locations with the most crashes are listed by town, based on their Equivalent Property Damage Only (EPDO) index. The EPDO is a system of ranking intersections based on the severity of 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 10 points for a crash in which a fatality occurred. The intent of the ranking system is to determine the locations where crashes have the most severe consequences: An intersection with fewer crashes can be ranked higher (more dangerous) than other intersections with more crashes that are less severe.

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. These modes mix in the summer, generally without serious mishap, although data from Martha's Vineyard Hospital indicates that more than 100 bicyclists seek medical attention at the hospital each year.

The JTC has identified a large number of projects that will increase the safety and convenience of travel modes by improving amenities for cyclists and pedestrians:

- Create an 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 the 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 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.
- Evaluate road speed limits for appropriateness and propose measures for traffic calming;
- Set up a bicycle-path working group with a 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, lines of sight, and the presence of vegetation and debris.
 - The presence of barriers (with low shrubs or wooden barriers) dividing paths from adjacent roadway to protect cyclists.
 - The presence of signs too close to the paths that narrow the effective width.
 - The identification of dangerous stretches of bicycle path (e.g., the Eastville Avenue path).
 - The painting of centerlines on SUPs.

- Appropriate bicycle accommodations (paths or easements, parking areas) are included in new projects through town or MVC review.
- Setting up a campaign in schools and for the general public promoting bike safety and the idea of drivers sharing the road.
- Addressing 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 section 12).
- Working with schools to identify “Safe Routes to School” and necessary improvements.
- Encourage walkers by increasing the appeal of the pedestrian environment, particularly in village and commercial areas, providing continuous and adequately-dimensioned sidewalks and well-marked crosswalks and other services.
- Create and upgrade walking routes,—including off-street, low-maintenance footpaths—connecting residences, parks, workplaces, tourist and shopping attractions, and public transit stops.

Security

The Department of Homeland Security requires the RTP to 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 people assemble. Those include aircraft, passenger vessels, and terminals.

The Vineyard transportation system contains few areas or structures where security is necessary or feasible, but throughout the system, efforts are continually made to identify and resolve any flaws in security. The Steamship Authority, the Vineyard Transit Authority, and Martha’s Vineyard Airport, which carry large number of people in the summer and increasingly in the fall and spring as well, must remain especially vigilant in regard to security.

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 for 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 aboard a vessel, passengers are 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 30 minutes prior to the scheduled departure.
- Only vehicles properly screened by terminal personnel will board a vessel.

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. Current efforts to renovate its 1999 terminal building focus largely on providing more adequate spaces for security screening.

Vineyard 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.

The VTA, Steamship Authority and MVY Airport 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 advances 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.

Section 15: Livability in Transportation

BOX:

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.
- A shared identity and sense of pride that results from the visual character and vitality of the community.

— American Institute of Architects

The concept of livability, has evolved since it was first articulated in the 1970s. Typically, a livable place has housing, employment, schools, retail, and services that are accessible without an automobile. In addition, the livable place will also have little or no crime, living wages, and affordable food and housing. Some organizations have developed online rankings of top livable places, using methodologies based partly on community size.

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

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

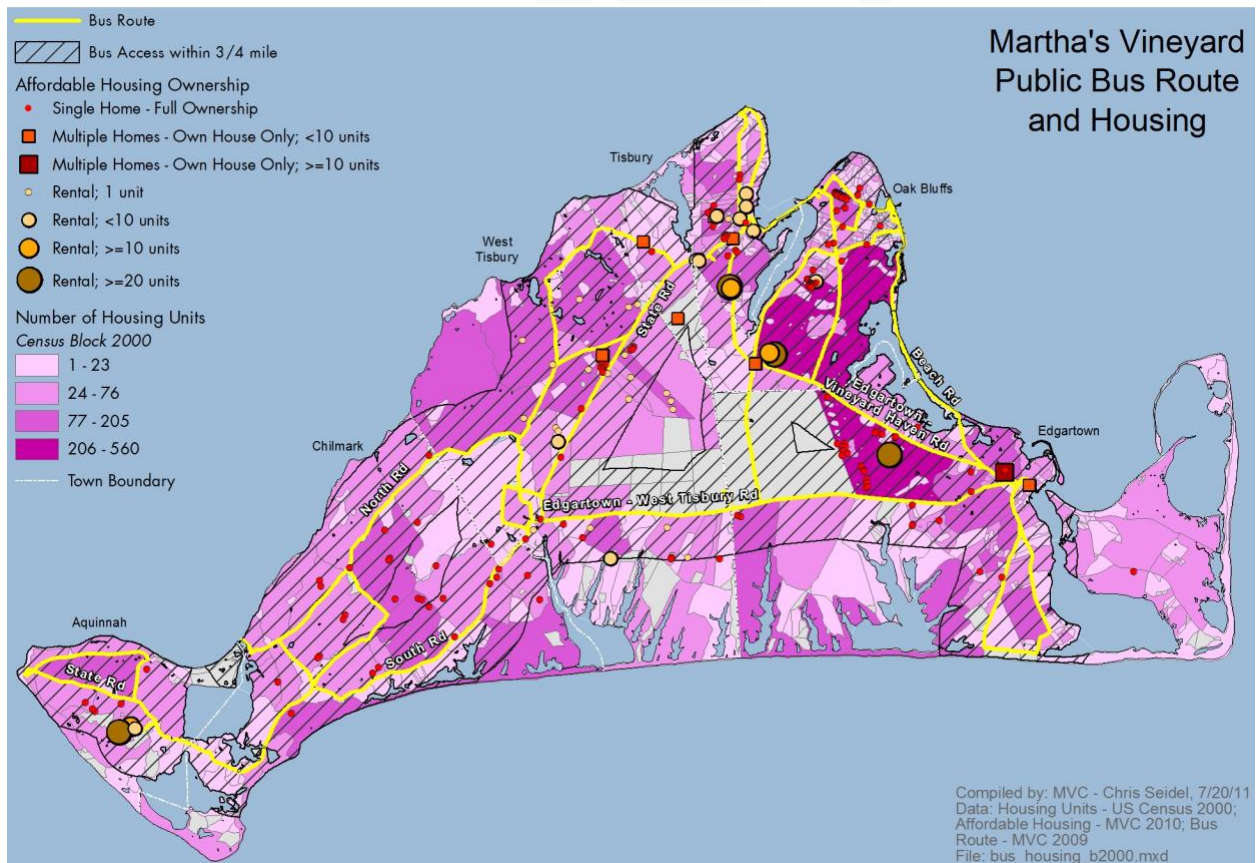
In addition, the U.S. DOT defines six approaches to livability that also apply to the transportation planning process:

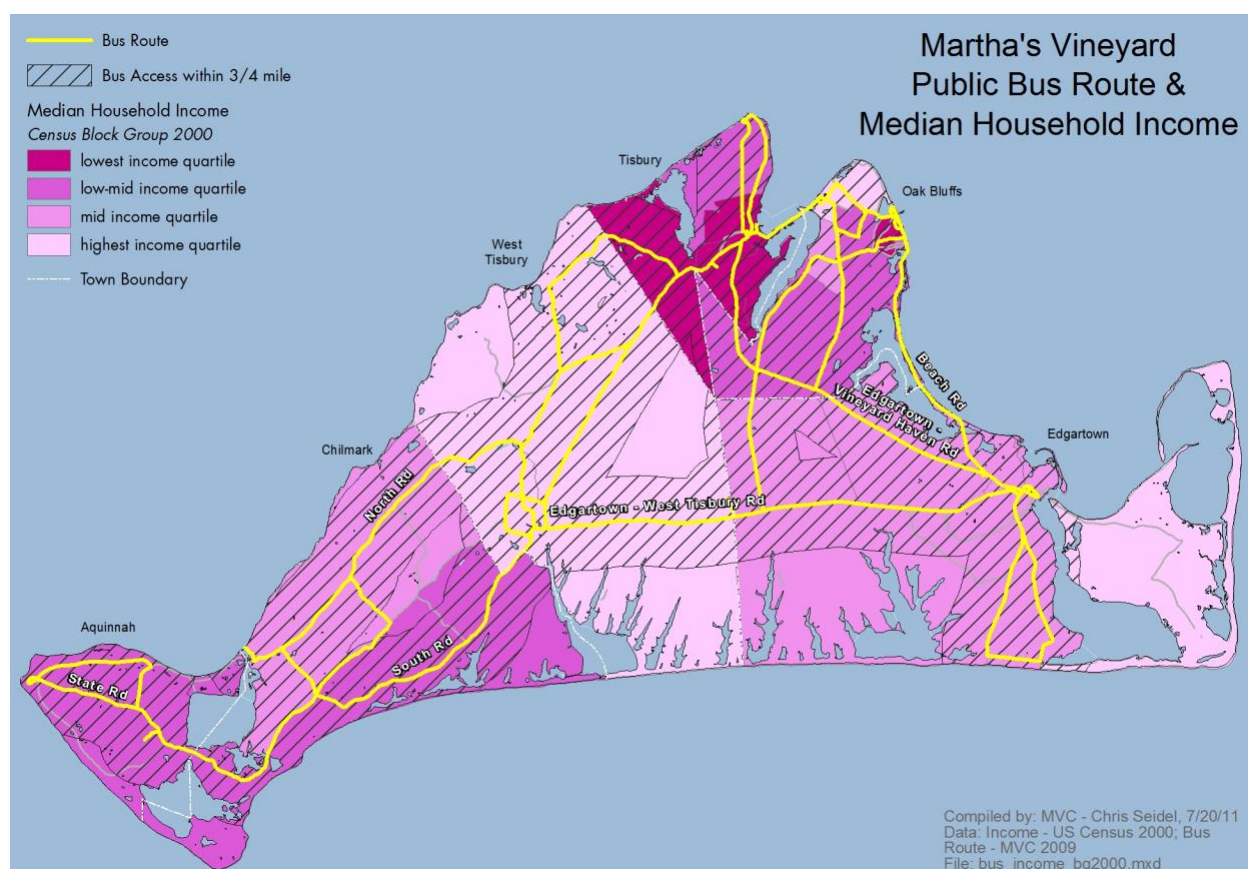
1. Visioning is a forward-thinking, unconstrained, comprehensive, flexible, inclusive, and action-oriented approach to develop a clear understanding of transportation choices and potential outcomes that incorporate non-transportation issues.
2. Planning is the more concrete process of engaging stakeholders to reach the goals of livability, with an emphasis on real community input and an accounting of the true costs

- of transportation decisions.
3. Policy recognizes that livability goals may require changes to existing policies and even laws through a political process, and within budgetary restraints.
 4. Partnership is an understanding that the public, private, institutional, and civic sectors are all fundamental in seeing transportation projects through to fruition.
 5. 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 are re-thought.
 6. Implementation and funding bring the process of planning for livability to completion, often in a climate of severe budgetary constraints.

Martha's Vineyard has many livable aspects as a community. Everyday destinations are often within walking distance, and the transit system is extensive compared to other similarly populated areas. Thanks largely to its small size and isolation from the mainland, the Vineyard has avoided much of the car-centric development that has occurred in other parts of the country, although cars now overwhelm much of the Island infrastructure in the summer.

The down-Island towns where most of the Island population lives still offer access to a wide variety of services without a car. And walking, cycling, and public transit are a large component of the Island transportation network. Due to the limited space for vehicles carried on the Steamship Authority vessels between the mainland and Island, many people arrive without a vehicle. The Vineyard vacation is an ideal opportunity to travel car-free.





But livability across the Island could still improve. Most recent development has taken place outside of the town centers, which places a heavy emphasis on cars for everyday travel. Many of those areas that were developed in the last 50 years are less than hospitable to alternative modes such as transit and bicycling. And while the Island has an excellent public transit system, it's generally only in the summer months, when traffic and parking are difficult and the weather is fine, that walking, cycling, and transit use see a significant uptick.

In many ways, Island agencies have always thought in terms of livability, even if the term was not used until recently. Because of the relatively limited development over the years, it will be easier for the Island to preserve, and in some cases rediscover, livability aspects, rather than engage in the much harder process of creating a livable environment from one that was designed for the convenience of the automobile.

Considerable effort has been made in recent decades to address the Island's chronic lack of affordable housing. Many affordable units are centrally located, including several major public developments, although the remote location of some new affordable housing can be seen as a step in the wrong direction. However, the extremely high property values in town centers, may leave little choice but to seek less expensive land outside of town. Opportunities may arise in the future to redevelop downtown properties in disrepair, but so far property owners are unwilling to sell at lower than market values.

An important element of livability is to ensure that transportation systems provides all sectors of the community access to jobs and services. The maps in section 10 illustrate the extent of the VTA bus network in relation to areas of high-density housing and concentrations of lower-income residents. Many lower-income residents live in newer subdivisions on the outskirts of the

down-Island towns. But if the Island is to retain its rural character and healthy environment, it would be preferable to focus housing development on already developed areas.

Livability in Development and TIP Projects on Martha's Vineyard

The planning process on Martha's Vineyard is a cooperative effort among the six towns and a number of regional, tribal, and non-profit entities. The MVC, as the Regional Planning Agency and the repository of planning expertise used by the towns, works to advance livability concepts in transportation planning. A good example is the process for reviewing Developments of Regional Impact (DRIs), during which the MVC often requires developers to consider multi-modal connections and options. That may include simply improving transit access from the roadway to the building, adding bicycle parking on site, rethinking the location of buildings and circulation, or adding walkways from the street to the building.

The MVC and towns also work to incorporate livability concepts in the design of Transportation Improvement Program (TIP) projects. For example, considerable community effort focused on the two Sengekontacket Pond inlet bridges and the Lagoon Pond Drawbridge, helping ensure that those designs incorporated shared-use paths and pedestrian accommodations, while harmonizing with the character of their surroundings. Another example is the role the MVC and towns played in the construction of the Roundabout in Oak Bluffs.

Funding and implementing transportation projects in a highly constrained budgetary environment require that a community identify and focus on priorities. The transportation priorities reflected in this Regional Transportation Plan, as well as in the 2020–2024 TIP and various town projects and initiatives, largely support the goals of livability, including better bus transit, improved cycling and walking facilities, and safer roads.

In some ways, the principles and approaches that define “livability” are second nature on Martha's Vineyard, where the harmonization of natural and built environments is critical to the economic and cultural wellbeing of the community. With robust planning expertise and a supportive population, the Vineyard is well-positioned to continue improving livability in Island towns, even in the face of development pressure.

Complete Streets

“Complete Streets” refers to a consideration of all transportation options, such as walking, bicycling, public transit, cars, and trucks, in the design and implementation of new road construction and roadway improvements. Completing such projects may be accomplished in various ways, and may include shared facilities for different user types.

The Massachusetts Highway Department Project Development and Design Guide reworked the previous state design guidance to encourage integration of all travel modes; more outreach during project development including visuals; and flexibility for context considerations, such as the environment, historic, land-use, and rural or urban character of an area.

The Bicycle-Pedestrian Advisory Committee (BPAC), a sub-committee of the Joint Transportation Committee, reestablished itself briefly in 2014 and drafted a Complete Streets Policy template for Island towns. The committee again reformed in 2019 after a period of dormancy, and will continue working, along with the MVC and JTC, to incorporate Complete

Streets principles in development projects and local planning discussions.

Multimodal Links

The various components of the Vineyard transportation network are described throughout this RTP. There are many points of interconnectivity among systems, the most notable being at the ferry terminals and airports. However, systems interface in more dispersed ways as well, such as wherever someone parks a car, rents a bike, or walks to a destination.

The connectivity among modes is often the weakest part of a transportation system. Trips to the Island are especially complex in that they usually involve more than one mode. The congestion around the Island ferry terminals (see section 6), illustrates the difficulty in making smooth transitions from one part of the system to another, although the bike racks and general ease of travel on VTA buses illustrates the opposite. The down-Island town centers generally serve as the hubs for different travel modes, but that is also where the constraints of the Island's historic character are most acute—especially in regard to parking.

While the town centers bear the brunt of the connections between modes, efforts have been made to reduce the impacts on those areas, primarily through park-and-ride lots outside the town centers, and through an emphasis on development at the Airport.

The success of the Island transportation network depends to a great extent on the public's awareness of what choices are available, including where and when, how much it will cost, and how it will benefit both themselves and the Island as a whole.

Objectives

1. Improve the coordination of operations and the promotion of various transportation modes, especially those that reduce the use of private automobiles.
2. Strive to create and promote a network of non-car transportation systems (bus, taxi, bike, pedestrian) so effective that residents will want to drive less and more visitors will want to leave their cars on the mainland.

Proposed Actions

Actions: Inter-modality

- Complete plans for intermodal transportation facilities in the Oak Bluffs harbor and ferry areas (North Bluff) dealing with the various ferry services (staging, pick up, drop off, waiting areas), along with 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 and the addition of amenities) have not, although plans are in place.
- Update plans for the Vineyard Haven terminal area, including adjacent streets and parking areas dealing with the SSA ferry dock (staging, pick-up, drop-off, waiting areas), the marina, bike and car rental facilities, public transit and tour buses, taxi, parking, etc.
- Increase the range of the bicycle network by facilitating the transport of bicycles on all VTA buses and vans. Consider developing and promoting a special shuttle from West Tisbury to the Gay Head Cliffs.

- Analyze the possibility of establishing a major parking and 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. Such a facility could substantially reduce the number of vehicles, especially from Edgartown or up-Island, traveling 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 the 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 routes, and rental and safety 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 as a different way of life, with an emphasis on the use of transit and courteous driving. Incorporate in Island advertising, tourist brochures, and flyers to be placed in first-time SSA ticket envelopes.
- Research the applicability of advisory signage and radio.
- Improve the flow of information to the news media.
- Improve the information provided to arriving visitors about their travel options so they can quickly understand the relative merits of bus, taxi, and tour bus—for example, flyers with ferry tickets, brochures available in tourist information booths, and signage at ferry terminals and the Airport.

Section 16: Financial Information and Projects

Financial Analysis and Constraints

This section estimates revenues from existing and available sources, along with proposed expenditures for highway projects, and the maintenance and capital improvements associated with transit operations.

We also include a forecast of federal and state spending through 2040, taking into account existing state and federal legislation; and demonstrate that the estimated funds required to construct, maintain, and operate all components of the Island transportation system—all existing and proposed highway and transit projects recommended in the 2020–2040 Regional Transportation Plan—are matched by estimated available funds.

The RTP funds are estimated for the years 2020–2040, for federal-aid-eligible roadways, multimodal projects, bicycle and pedestrian facilities, bridges, and a substantial portion of the maintenance, operation, and capital needs of the Vineyard Transit Authority.

Capital improvements and ongoing maintenance are funded and carried out in the following ways:

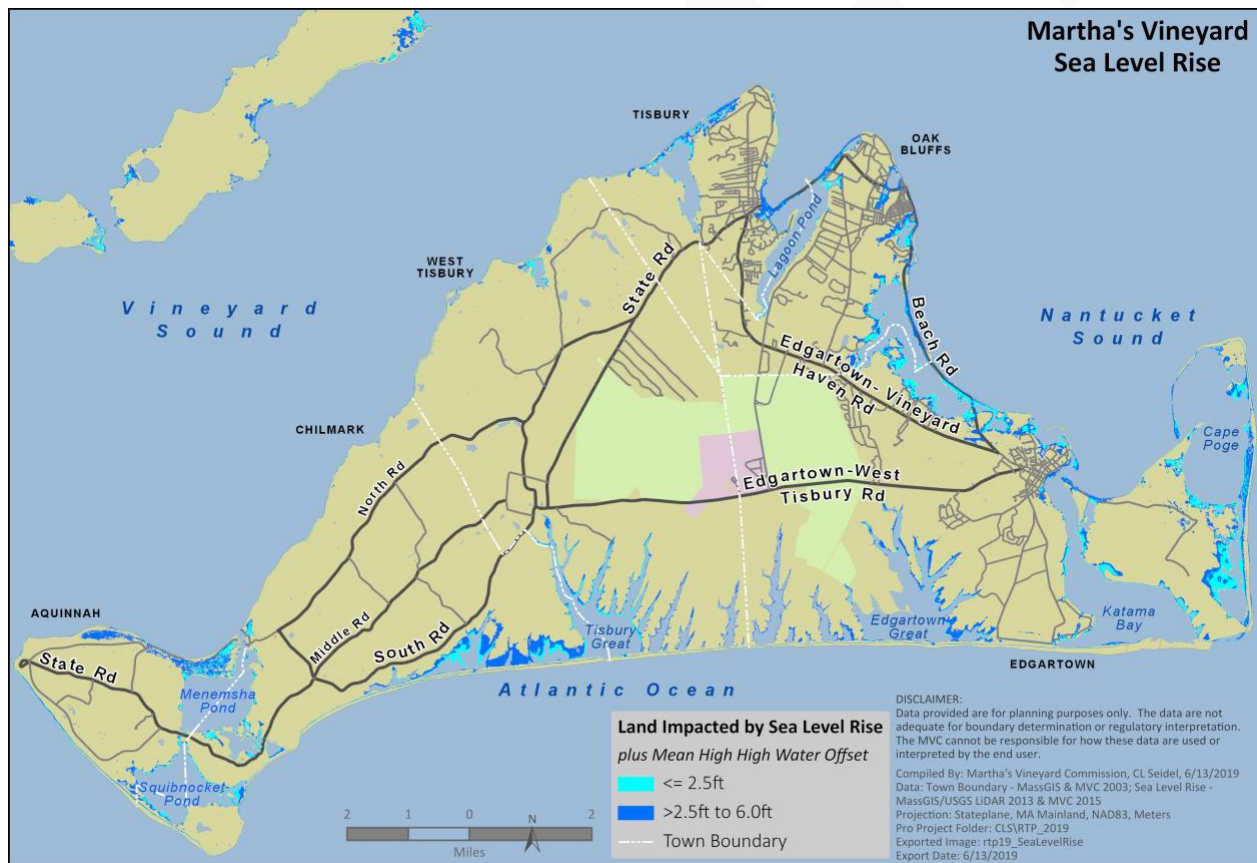
- State roads and bridges: Improvements to state road and bridge projects, including associated sidewalks and bicycle paths, are planned and implemented by MassDOT, which remains responsible for maintenance.
- Local federal-aid roads: Some other roads—namely those classified as arterials and collectors—are the responsibility of the towns, but the cost of improvements to these 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 those 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, while state Chapter 90 funding allows for some design and improvements. In addition to property taxes, other possible sources for local improvements and maintenance may include the SSA ferry surcharge, car rental surcharges, and development impact fees.
- Vineyard Transit Authority: The VTA receives state funding for operations, and applies for grants to fund the purchase of buses and other equipment or facilities. The VTA does not receive 5307 Urban Formula funds, relying instead on 5311 Rural Grant operating funds as the sole source of federal operational funding. The 5311 funds are distributed by the state. Regions have an expectation to receive a reasonable distribution of 5311 operating funds based on a rural-service-based formula. The VTA has reported continued growth in ridership, and a stable source of operational assistance with room for growth has improved the planning of services.
- Martha's Vineyard Airport: The Airport may also receive federal and state funding for improvements, but those sources and funding estimates are not included in this RTP.

- The Woods Hole, Martha’s Vineyard and Nantucket Steamship Authority (SSA) draws largely from revenues to fund projects related to its ferry system and other infrastructural needs. However, there are additional needs, and aging infrastructure that requires maintenance or replacement over time. As with all transportation systems on the Island, the maintenance and operation of SSA ferries and infrastructure are instrumental to providing a safe, reliable, and efficient service to the public.

The following tables outline the highway and transit funding estimated to be available for programming for the entire statewide transportation system and for Martha’s Vineyard, as provided by MassDOT for highway and transit-funded projects and programs.

It is difficult to predict the speed at which sea level will rise and what the impacts will be in a given location, especially during storms. Current mapping generally uses a so-called bathtub model that gives a rough picture of potential impacts assuming a simple rise in sea level with all other factors remaining the same. It would be desirable in the future to use a more sophisticated multi-factor model that combines the impacts of sea-level rise with other factors that cause coastal erosion, as well as the shape and geology of the affected land areas. To adequately address vulnerability, the effects of coastal flooding (as from a nor'easter) and storm surge (from a hurricane) should also be modeled.

Rising sea levels are projected to affect many of the roads along the coast (and along coastal ponds). The Island's three major downtown areas are especially vulnerable due to their low elevation and proximity to the ocean. Some roads are critical due to the emergency access they provide during hurricanes and other storms. The MVC is in the process of mapping those Island roads that will be affected by sea-level rise over time. Adaptation strategies in terms of roadways include abandonment, elevation, or relocation, none of which promises to be an easy fix at any of the vulnerable locations. Planning for the Island's most vulnerable areas should begin immediately.



Mitigation and Adaptation

In general, climate change calls for a dual planning approach:

Mitigation: First, the Island should reduce its contribution to climate change. Martha's Vineyard can join other communities around the world to limit the acceleration of climate change by reducing its use of fossil fuels that produce greenhouse gases and trap heat within the earth's

RTP Highway Financials - Non-Interstate DOT Pavement

Base OA in today's dollars w/2.2% increase starting in 2025										Statewide Programs		Funding available for MPOs		Funding less GANs repayments		Funding w/ non-federal match		Base OA + August Redistribution		GANs repayment		Funding less GANs repayments		Funding w/ non-federal match		Funding available for MPOs		Statewide Programs		Non-Interstate DOT Pavement		Lane Miles																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

RTP Highway Financials - NFA Bridge Preservation

NFA		Martha's Vineyard										Northern Middlesex		Old Colony	Pioneer Valley	Southeast Mass	
Bridge/Pavement Preservation		Berkshire	Boston	Cape Cod	Central Mass	Franklin	Vineyard		Merrimack Valley	Montachusett	Nantucket						
MARPA formula ▶		3.5596%	42.9671%	4.5851%	8.6907%	2.5397%	0.3100%		4.4296%	4.4596%	0.2200%	3.9096%		4.5595%	10.8099%	8.9601%	
2020	\$ 100,000,000	\$ 3,559,600	\$ 42,967,100	\$ 4,585,100	\$ 8,690,100	\$ 2,539,700	\$ 310,000	\$ 310,000	\$ 4,429,600	\$ 4,459,600	\$ 220,000	\$ 3,909,600	\$ 4,559,500	\$ 4,559,500	\$ 10,809,900	\$ 8,960,100	\$ 8,960,100
2021	\$ 100,000,000	\$ 3,559,600	\$ 42,967,100	\$ 4,585,100	\$ 8,690,100	\$ 2,539,700	\$ 310,000	\$ 310,000	\$ 4,429,600	\$ 4,459,600	\$ 220,000	\$ 3,909,600	\$ 4,559,500	\$ 4,559,500	\$ 10,809,900	\$ 8,960,100	\$ 8,960,100
2022	\$ 100,000,000	\$ 3,559,600	\$ 42,967,100	\$ 4,585,100	\$ 8,690,100	\$ 2,539,700	\$ 310,000	\$ 310,000	\$ 4,429,600	\$ 4,459,600	\$ 220,000	\$ 3,909,600	\$ 4,559,500	\$ 4,559,500	\$ 10,809,900	\$ 8,960,100	\$ 8,960,100
2023	\$ 100,000,000	\$ 3,559,600	\$ 42,967,100	\$ 4,585,100	\$ 8,690,100	\$ 2,539,700	\$ 310,000	\$ 310,000	\$ 4,429,600	\$ 4,459,600	\$ 220,000	\$ 3,909,600	\$ 4,559,500	\$ 4,559,500	\$ 10,809,900	\$ 8,960,100	\$ 8,960,100
2024	\$ 100,000,000	\$ 3,559,600	\$ 42,967,100	\$ 4,585,100	\$ 8,690,100	\$ 2,539,700	\$ 310,000	\$ 310,000	\$ 4,429,600	\$ 4,459,600	\$ 220,000	\$ 3,909,600	\$ 4,559,500	\$ 4,559,500	\$ 10,809,900	\$ 8,960,100	\$ 8,960,100
1st five years ▶		\$ 17,798,000	\$ 214,835,500	\$ 22,925,500	\$ 43,450,500	\$ 12,698,500	\$ 1,550,000	\$ 1,550,000	\$ 22,148,000	\$ 22,298,000	\$ 1,100,000	\$ 19,548,000	\$ 22,797,500	\$ 22,797,500	\$ 54,049,500	\$ 44,800,500	\$ 44,800,500
2025	\$ 102,200,000	\$ 3,637,911	\$ 43,912,376	\$ 4,685,972	\$ 8,881,282	\$ 2,595,573	\$ 316,820	\$ 316,820	\$ 4,527,051	\$ 4,557,711	\$ 224,840	\$ 3,995,611	\$ 4,659,809	\$ 4,659,809	\$ 11,047,718	\$ 9,157,222	\$ 9,157,222
2026	\$ 102,200,000	\$ 3,637,911	\$ 43,912,376	\$ 4,685,972	\$ 8,881,282	\$ 2,595,573	\$ 316,820	\$ 316,820	\$ 4,527,051	\$ 4,557,711	\$ 224,840	\$ 3,995,611	\$ 4,659,809	\$ 4,659,809	\$ 11,047,718	\$ 9,157,222	\$ 9,157,222
2027	\$ 102,200,000	\$ 3,637,911	\$ 43,912,376	\$ 4,685,972	\$ 8,881,282	\$ 2,595,573	\$ 316,820	\$ 316,820	\$ 4,527,051	\$ 4,557,711	\$ 224,840	\$ 3,995,611	\$ 4,659,809	\$ 4,659,809	\$ 11,047,718	\$ 9,157,222	\$ 9,157,222
2028	\$ 102,200,000	\$ 3,637,911	\$ 43,912,376	\$ 4,685,972	\$ 8,881,282	\$ 2,595,573	\$ 316,820	\$ 316,820	\$ 4,527,051	\$ 4,557,711	\$ 224,840	\$ 3,995,611	\$ 4,659,809	\$ 4,659,809	\$ 11,047,718	\$ 9,157,222	\$ 9,157,222
2029	\$ 102,200,000	\$ 3,637,911	\$ 43,912,376	\$ 4,685,972	\$ 8,881,282	\$ 2,595,573	\$ 316,820	\$ 316,820	\$ 4,527,051	\$ 4,557,711	\$ 224,840	\$ 3,995,611	\$ 4,659,809	\$ 4,659,809	\$ 11,047,718	\$ 9,157,222	\$ 9,157,222
2nd five years ▶		\$ 18,189,556	\$ 219,561,881	\$ 23,429,861	\$ 44,406,411	\$ 12,977,867	\$ 1,584,100	\$ 1,584,100	\$ 22,635,256	\$ 22,788,556	\$ 1,124,200	\$ 19,978,056	\$ 23,299,045	\$ 23,299,045	\$ 55,238,589	\$ 45,786,111	\$ 45,786,111
2030	\$ 104,448,400	\$ 3,717,945	\$ 44,878,448	\$ 4,789,064	\$ 9,076,670	\$ 2,652,676	\$ 323,790	\$ 323,790	\$ 4,626,646	\$ 4,657,981	\$ 229,786	\$ 4,083,515	\$ 4,762,325	\$ 4,762,325	\$ 11,290,768	\$ 9,358,681	\$ 9,358,681
2031	\$ 104,448,400	\$ 3,717,945	\$ 44,878,448	\$ 4,789,064	\$ 9,076,670	\$ 2,652,676	\$ 323,790	\$ 323,790	\$ 4,626,646	\$ 4,657,981	\$ 229,786	\$ 4,083,515	\$ 4,762,325	\$ 4,762,325	\$ 11,290,768	\$ 9,358,681	\$ 9,358,681
2032	\$ 104,448,400	\$ 3,717,945	\$ 44,878,448	\$ 4,789,064	\$ 9,076,670	\$ 2,652,676	\$ 323,790	\$ 323,790	\$ 4,626,646	\$ 4,657,981	\$ 229,786	\$ 4,083,515	\$ 4,762,325	\$ 4,762,325	\$ 11,290,768	\$ 9,358,681	\$ 9,358,681
2033	\$ 104,448,400	\$ 3,717,945	\$ 44,878,448	\$ 4,789,064	\$ 9,076,670	\$ 2,652,676	\$ 323,790	\$ 323,790	\$ 4,626,646	\$ 4,657,981	\$ 229,786	\$ 4,083,515	\$ 4,762,325	\$ 4,762,325	\$ 11,290,768	\$ 9,358,681	\$ 9,358,681
2034	\$ 104,448,400	\$ 3,717,945	\$ 44,878,448	\$ 4,789,064	\$ 9,076,670	\$ 2,652,676	\$ 323,790	\$ 323,790	\$ 4,626,646	\$ 4,657,981	\$ 229,786	\$ 4,083,515	\$ 4,762,325	\$ 4,762,325	\$ 11,290,768	\$ 9,358,681	\$ 9,358,681
3rd five years ▶		\$ 18,589,726	\$ 224,392,242	\$ 23,945,318	\$ 45,383,352	\$ 13,263,380	\$ 1,618,950	\$ 1,618,950	\$ 23,133,232	\$ 23,289,904	\$ 1,148,932	\$ 20,417,573	\$ 23,811,624	\$ 23,811,624	\$ 56,453,838	\$ 46,793,405	\$ 46,793,405
2035	\$ 106,746,265	\$ 3,799,740	\$ 45,865,774	\$ 4,894,423	\$ 9,276,357	\$ 2,711,035	\$ 330,913	\$ 330,913	\$ 4,728,433	\$ 4,760,456	\$ 234,842	\$ 4,173,352	\$ 4,867,096	\$ 4,867,096	\$ 11,539,164	\$ 9,564,572	\$ 9,564,572
2036	\$ 106,746,265	\$ 3,799,740	\$ 45,865,774	\$ 4,894,423	\$ 9,276,357	\$ 2,711,035	\$ 330,913	\$ 330,913	\$ 4,728,433	\$ 4,760,456	\$ 234,842	\$ 4,173,352	\$ 4,867,096	\$ 4,867,096	\$ 11,539,164	\$ 9,564,572	\$ 9,564,572
2037	\$ 106,746,265	\$ 3,799,740	\$ 45,865,774	\$ 4,894,423	\$ 9,276,357	\$ 2,711,035	\$ 330,913	\$ 330,913	\$ 4,728,433	\$ 4,760,456	\$ 234,842	\$ 4,173,352	\$ 4,867,096	\$ 4,867,096	\$ 11,539,164	\$ 9,564,572	\$ 9,564,572
2038	\$ 106,746,265	\$ 3,799,740	\$ 45,865,774	\$ 4,894,423	\$ 9,276,357	\$ 2,711,035	\$ 330,913	\$ 330,913	\$ 4,728,433	\$ 4,760,456	\$ 234,842	\$ 4,173,352	\$ 4,867,096	\$ 4,867,096	\$ 11,539,164	\$ 9,564,572	\$ 9,564,572
2039	\$ 106,746,265	\$ 3,799,740	\$ 45,865,774	\$ 4,894,423	\$ 9,276,357	\$ 2,711,035	\$ 330,913	\$ 330,913	\$ 4,728,433	\$ 4,760,456	\$ 234,842	\$ 4,173,352	\$ 4,867,096	\$ 4,867,096	\$ 11,539,164	\$ 9,564,572	\$ 9,564,572
4th five years ▶		\$ 18,998,700	\$ 229,328,872	\$ 24,472,115	\$ 46,381,786	\$ 13,555,174	\$ 1,654,567	\$ 1,654,567	\$ 23,642,163	\$ 23,802,282	\$ 1,174,209	\$ 20,866,760	\$ 24,335,480	\$ 24,335,480	\$ 57,695,822	\$ 47,822,860	\$ 47,822,860
2040	\$ 109,094,683	\$ 3,883,334	\$ 46,874,821	\$ 5,002,100	\$ 9,480,437	\$ 2,770,678	\$ 338,194	\$ 338,194	\$ 4,832,458	\$ 4,865,186	\$ 240,008	\$ 4,265,166	\$ 4,974,172	\$ 4,974,172	\$ 11,793,026	\$ 9,774,993	\$ 9,774,993
5th five years ▶		\$ 3,883,334	\$ 46,874,821	\$ 5,002,100	\$ 9,480,437	\$ 2,770,678	\$ 338,194	\$ 338,194	\$ 4,832,458	\$ 4,865,186	\$ 240,008	\$ 4,265,166	\$ 4,974,172	\$ 4,974,172	\$ 11,793,026	\$ 9,774,993	\$ 9,774,993
Total ▶		\$ 77,459,317	\$ 934,993,316	\$ 99,774,894	\$ 189,102,486	\$ 55,265,599	\$ 6,745,811	\$ 6,745,811	\$ 96,391,108	\$ 97,043,929	\$ 4,787,350	\$ 85,075,555	\$ 99,217,821	\$ 99,217,821	\$ 235,230,775	\$ 194,977,869	\$ 194,977,869



Long Range Transit Capital Forecast Master Tables

Inflation rates based on total FAST Act (2016–2020) funding levels

SECTION 5307 (inflation rate: 2.08%)

	Fast Act																							
	FFY 2018 Actual	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate	
Boston UZA																								
MBTA	\$ 143,471,970	\$ 146,456,187	\$ 149,502,476	\$ 152,612,127	\$ 155,786,459	\$ 159,026,818	\$ 162,334,576	\$ 165,711,135	\$ 169,157,926	\$ 172,676,411	\$ 176,268,081	\$ 179,934,457	\$ 183,677,093	\$ 187,497,577	\$ 191,397,526	\$ 195,378,595	\$ 199,442,470	\$ 203,590,873	\$ 207,825,563	\$ 212,148,335	\$ 216,561,020	\$ 221,065,490	\$ 225,663,652	
BAT	\$ 3,103,425	\$ 3,167,976	\$ 3,233,870	\$ 3,301,135	\$ 3,369,798	\$ 3,439,890	\$ 3,511,440	\$ 3,584,478	\$ 3,659,035	\$ 3,735,143	\$ 3,812,834	\$ 3,892,141	\$ 3,973,097	\$ 4,055,738	\$ 4,140,097	\$ 4,226,211	\$ 4,314,116	\$ 4,403,850	\$ 4,495,450	\$ 4,588,955	\$ 4,684,405	\$ 4,781,841	\$ 4,881,303	
MVRTA	\$ 5,801,299	\$ 5,921,966	\$ 6,045,143	\$ 6,170,882	\$ 6,299,236	\$ 6,430,260	\$ 6,564,010	\$ 6,700,541	\$ 6,839,912	\$ 6,982,183	\$ 7,127,412	\$ 7,275,662	\$ 7,426,996	\$ 7,581,477	\$ 7,739,172	\$ 7,900,147	\$ 8,064,470	\$ 8,232,211	\$ 8,403,441	\$ 8,578,233	\$ 8,756,660	\$ 8,938,798	\$ 9,124,725	
LRTA	\$ 3,841,462	\$ 3,921,364	\$ 4,002,929	\$ 4,086,190	\$ 4,171,182	\$ 4,257,943	\$ 4,346,508	\$ 4,436,916	\$ 4,529,203	\$ 4,623,411	\$ 4,719,578	\$ 4,817,745	\$ 4,917,954	\$ 5,020,248	\$ 5,124,669	\$ 5,231,262	\$ 5,340,072	\$ 5,451,146	\$ 5,564,529	\$ 5,680,272	\$ 5,798,421	\$ 5,919,028	\$ 6,042,144	
GATRA	\$ 793,076	\$ 809,572	\$ 826,411	\$ 843,600	\$ 861,147	\$ 879,059	\$ 897,344	\$ 916,008	\$ 935,061	\$ 954,511	\$ 974,364	\$ 994,631	\$ 1,015,320	\$ 1,036,438	\$ 1,057,996	\$ 1,080,002	\$ 1,102,466	\$ 1,125,398	\$ 1,148,806	\$ 1,172,701	\$ 1,197,093	\$ 1,221,993	\$ 1,247,410	
CATA	\$ 544,596	\$ 555,924	\$ 567,487	\$ 579,291	\$ 591,340	\$ 603,640	\$ 616,195	\$ 629,012	\$ 642,096	\$ 655,451	\$ 669,085	\$ 683,002	\$ 697,208	\$ 711,710	\$ 726,514	\$ 741,625	\$ 757,051	\$ 772,797	\$ 788,872	\$ 805,280	\$ 822,030	\$ 839,128	\$ 856,582	
MWRTA	\$ 2,311,164	\$ 2,359,236	\$ 2,408,308	\$ 2,458,401	\$ 2,509,536	\$ 2,561,734	\$ 2,615,018	\$ 2,669,411	\$ 2,724,934	\$ 2,781,613	\$ 2,839,471	\$ 2,898,532	\$ 2,958,821	\$ 3,020,365	\$ 3,083,188	\$ 3,147,318	\$ 3,212,783	\$ 3,279,609	\$ 3,347,824	\$ 3,417,459	\$ 3,488,542	\$ 3,561,104	\$ 3,635,175	
MART	\$ 131,573	\$ 134,310	\$ 137,103	\$ 139,955	\$ 142,866	\$ 145,838	\$ 148,871	\$ 151,968	\$ 155,129	\$ 158,355	\$ 161,649	\$ 165,011	\$ 168,444	\$ 171,947	\$ 175,524	\$ 179,175	\$ 182,902	\$ 186,706	\$ 190,589	\$ 194,554	\$ 198,600	\$ 202,731	\$ 206,948	
Barnstable UZA																								
CCRTA	\$ 9,058,562	\$ 9,246,980	\$ 9,439,317	\$ 9,635,655	\$ 9,836,077	\$ 10,040,667	\$ 10,249,513	\$ 10,462,703	\$ 10,680,327	\$ 10,902,478	\$ 11,129,249	\$ 11,360,738	\$ 11,597,041	\$ 11,838,260	\$ 12,084,495	\$ 12,335,853	\$ 12,592,439	\$ 12,854,361	\$ 13,121,732	\$ 13,394,664	\$ 13,673,273	\$ 13,957,677	\$ 14,247,997	
GATRA	\$ 629,354	\$ 642,445	\$ 655,807	\$ 669,448	\$ 683,373	\$ 697,587	\$ 712,097	\$ 726,908	\$ 742,028	\$ 757,462	\$ 773,217	\$ 789,300	\$ 805,718	\$ 822,477	\$ 839,584	\$ 857,048	\$ 874,874	\$ 893,072	\$ 911,647	\$ 930,610	\$ 949,966	\$ 969,726	\$ 989,896	
Springfield UZA																								
PVTA	\$ 12,552,862	\$ 12,813,962	\$ 13,080,492	\$ 13,352,566	\$ 13,630,300	\$ 13,913,810	\$ 14,203,217	\$ 14,498,644	\$ 14,800,216	\$ 15,108,060	\$ 15,422,308	\$ 15,743,092	\$ 16,070,548	\$ 16,404,816	\$ 16,746,036	\$ 17,094,353	\$ 17,449,916	\$ 17,812,874	\$ 18,183,382	\$ 18,561,596	\$ 18,947,677	\$ 19,341,789	\$ 19,744,098	
Worcester UZA																								
FFY 2018 Actual																								
FFY 2019 Estimate																								
FFY 2020 Estimate																								
FFY 2021 Estimate																								
FFY 2022 Estimate																								
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FFY 2037 Estimate																								
FFY 2038 Estimate																								
FFY 2039 Estimate																								
FFY 2040 Estimate																								
Massachusetts																								
MART	\$ 3,165,772	\$ 3,231,620	\$ 3,298,838	\$ 3,367,454	\$ 3,437,497	\$ 3,508,997	\$ 3,581,984	\$ 3,656,489	\$ 3,732,544	\$ 3,810,181	\$ 3,889,433	\$ 3,970,333	\$ 4,052,916	\$ 4,137,216	\$ 4,223,270	\$ 4,311,114	\$ 4,400,786	\$ 4,492,322	\$ 4,585,762	\$ 4,681,146	\$ 4,778,514	\$ 4,877,907	\$ 4,979,368	
SRTA	\$ 4,210,631	\$ 4,298,212	\$ 4,387,615	\$ 4,478,877	\$ 4,572,038	\$ 4,667,136	\$ 4,764,213	\$ 4,863,308	\$ 4,964,465	\$ 5,067,726	\$ 5,173,135	\$ 5,280,736	\$ 5,390,575	\$ 5,502,699	\$ 5,617,155	\$ 5,733,992	\$ 5,853,259	\$ 5,975,007	\$ 6,099,287	\$ 6,226,152	\$ 6,355,656	\$ 6,487,854	\$ 6,622,801	
BRTA	\$ 1,797,581	\$ 1,834,971	\$ 1,873,138	\$ 1,912,099	\$ 1,951,871	\$ 1,992,470	\$ 2,033,913	\$ 2,076,219	\$ 2,119,404	\$ 2,163,488	\$ 2,208,488	\$ 2,254,425	\$ 2,301,317	\$ 2,349,184	\$ 2,398,047	\$ 2,447,927	\$ 2,498,843	\$ 2,550,819	\$ 2,603,876	\$ 2,658,037	\$ 2,713,324	\$ 2,769,761	\$ 2,827,372	
Out-Of-State UZAs																								
FFY 2018 Actual																								
FFY 2019 Estimate																								
FFY 2020 Estimate																								
FFY 2021 Estimate																								
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FFY 2040 Estimate																								
GATRA (RI)	\$ 3,244,055	\$ 3,311,531	\$ 3,380,411	\$ 3,450,724	\$ 3,522,499	\$ 3,595,767	\$ 3,670,559	\$ 3,746,906	\$ 3,824,842	\$ 3,904,399	\$ 3,985,610	\$ 4,068,511	\$ 4,153,136	\$ 4,239,521	\$ 4,327,703	\$ 4,417,719	\$ 4,509,608	\$ 4,603,408	\$ 4,699,159	\$ 4,796,901	\$ 4,896,677	\$ 4,998,528	\$ 5,102,497	
SRTA (RI)	\$ 3,047,337	\$ 3,110,722	\$ 3,175,425	\$ 3,241,473	\$ 3,308,896	\$ 3,377,721	\$ 3,447,978	\$ 3,519,696	\$ 3,592,905	\$ 3,667,638	\$ 3,743,925	\$ 3,821,798	\$ 3,901,292	\$ 3,982,439	\$ 4,065,273	\$ 4,149,831	\$ 4,236,147	\$ 4,324,259	\$ 4,414,204	\$ 4,506,019	\$ 4,599,745	\$ 4,695,419	\$ 4,793,084	
LRTA (NH)	\$ 119,286	\$ 121,767	\$ 124,300	\$ 126,885	\$ 129,525	\$ 132,219	\$ 134,969	\$ 137,776	\$ 140,642	\$ 143,567	\$ 146,553	\$ 149,602	\$ 152,713	\$ 155,890</										

Proposed Projects [TO BE REVISED AND COMPLETED BY JTC]

Under federal laws and guidance, the RTP project recommendations must fit within the estimated available funds for the region. The MVC and Joint Transportation Committee prepared a comprehensive list of possible projects that were then evaluated and prioritized according to the criteria in this plan. The JTC selected a list of projects that could be financed on the basis of the annual budgets provided by MassDOT and the Federal Highway Administration, or from other assured sources.

Town	Recommended RTP Projects	Cost Estimate	Timeframe
Tisbury	Beach Road: Winds Up to Five Corners; SUP, sidewalks, and resurfacing	\$2,000,000	2019
Oak Bluffs	New SUP from Drawbridge (Beach Road) to Eastville Avenue to New York Avenue to beginning of Lake Avenue (Our Market)	\$1,300,000	2019
Tisbury	Main Street: Safety and pedestrian improvements	\$500,000	2021–2025
Tisbury	Five Corners: pedestrian improvements	\$150,000	2021–2025
Edgartown	Upper Main Street improvements	\$500,000	2021–2025
Multi-town	Bus stops: 10 (\$15,000 each)	\$150,000	2021–2025
Islandwide	Permanent traffic count locations	\$100,000	2021–2025
Edgartown	Edgartown-Vineyard Haven Road and Beach Road (Triangle) intersection improvements	\$1,000,000	2021–2025
Oak Bluffs	Intersection at Eastville, Temahigan and County roads	\$700,000	2021–2025
Tisbury	Beach Street and State Road: Sidewalk and pedestrian improvements	\$250,000	2026–2030
Tisbury	Water Street: Pedestrian improvements	\$300,000	2026–2030
Edgartown	Main Street: Intersection and sidewalk improvements	\$300,000	2026–2030
Oak Bluffs	Edgartown-Vineyard Haven Road in vicinity of High School and YMCA: Bicycle-pedestrian improvements, traffic calming	\$400,000	2026–2030
Tisbury	State Road: Tashmoo Overlook improvements	\$960,000	2026–2030
Edgartown, West Tisbury	Resurface a portion of the SUP in the State Forest	\$1,400,000	2031–2035
Tisbury	Tisbury Connector Road, including new SUPs	\$2,500,000	2031–2035
Oak Bluffs, Tisbury, Edgartown	Edgartown-Vineyard Haven Road: Better utilization of 66-foot ROW, including improved stormwater drainage, widened SUP, plantings within SUP buffer, and improved pull-offs for VTA stops	\$X,000,000	2036–2040
Tisbury	Beach Road: Winds Up to Five Corners; SUP, sidewalks, and resurfacing (restructuring due to sea-level rise)	\$2,000,000	2036–2040

Summary and Conclusion

The 2020–2040 Regional Transportation Plan has assessed federal highway, bridge, and transit funding, from both an operational and enhancement standpoint, and demonstrates that proposed investments are consistent with estimated revenue sources provided by MassDOT. In sum, the RTP complies with applicable federal regulations and shows the required financial constraint.

Moving forward, the MVC staff will continue to review with partners the key issues, safety information, reliability, problem areas, and opportunities for multi-modal improvements on the Island. In regard to its transportation planning and review processes, the MVC will also implement measures to mitigate and adapt to climate change, using the most up-to-date methods, data, and projections, and on a time frame that acknowledges the pace of sea-level rise and coastal erosion; and continue to encourage alternatives to single-occupancy vehicle use across the Island, in line with state legislation focused on greenhouse gas reduction.

Appendix

Contents

Abbreviations

Long-Term Transportation Survey Results

Public Comment

Performance Measures for Martha's Vineyard

Methods for Summer Population Estimate

Air Quality Conformity Determination

Links to Reports and Other Documents

Aquinnah Circle Landscape Master Plan

Dukes County Hazard Mitigation Plan

Global Warming Solutions Act 10-Year Progress Report

Gosnold Municipal Vulnerability Plan

HMS Report on the Steamship Authority

Housing Production Plans

Menemsha Master Plan

MVY Airport Master Plan

Oak Bluffs Climate Change Vulnerability Assessment and Adaptation Plan

Oak Bluffs Master Plan

Oak Bluffs Municipal Vulnerability Plan

Oak Bluffs Streetscape Master Plan

West Tisbury and Chilmark Municipal Vulnerability Plan

Abbreviations

AASHTO: American Association of State Highway and Transportation Officials
ACS: American Community Survey
ADA: Americans with Disabilities Act
ADT: Average Daily Traffic
APC: Automatic Passenger Counters
BPAC: Bicycle-Pedestrian Advisory Committee
CAAA: Clean Air Act Amendments
CECP: Clean Energy and Climate Plan
CFR: Code of Federal Regulations
CMR: Code of Massachusetts Regulations
COS: Committee of Signatories
DRI: Development of Regional Impact
EOEEA: Massachusetts Executive Office of Energy and Environmental Affairs
EPA: U.S. Environmental Protection Agency
FAA: Federal Aviation Administration
FAST Act: Fixing America's Surface Transportation Act (federal)
FFY: Federal Fiscal year
FHWA: Federal Highway Administration
FTA: Federal Transit Administration
FY: Fiscal Year
GA: General Aviation
GHG: Greenhouse Gasses
GPS: Global Positioning System
GWSA: Global Warming Solutions Act
ICAN: Island Climate Action Network
JTC: Joint Transportation Committee
LOS: Level of Service
LRTP: Long-Range Transportation Plan
MADAC: Mopeds Are Dangerous Action Committee
MAP-21: Moving Ahead for Progress in the 21st Century Act (federal)
MOU: Memorandum of Agreement
MOVES Model: Motor Vehicle Emission Simulator Model
MPO: Metropolitan Planning Organization
MVAC: Martha's Vineyard Airport Committee
MVC: Martha's Vineyard Commission
MVY: Martha's Vineyard Airport
NAAQS: National Ambient Air Quality Standards
NHESP: Natural Heritage and Endangered Species Program
OTP: Massachusetts Office of Transportation Planning
PNF: Project Notification Form
RFP: Request for Proposal
RSA: Road Safety Audit
RTP: Regional Transportation Plan
SHSP: Strategic Highway Safety Plan
SIP: State Implementation Plan
SSA: Woods Hole, Martha's Vineyard and Nantucket Steamship Authority
SUP: Shared-Use Path

TIP: Transportation Improvement Program
TMA: Transportation Management Association
USC: United States Code of Laws
VMT: Vehicle Miles Traveled
VOC: Volatile Organic Compounds
VTA: Vineyard Transit Authority

DRAFT

Long-Term Transportation Survey Results

DRAFT

Public Comment

DRAFT

Performance Measures for Martha's Vineyard

The performance measures for Martha's Vineyard were informed by initial staff review of existing project evaluation criteria, a consideration of potential data sources, and a review of federal and state guidelines and information. The draft performance measures were then discussed at open meetings that involved local towns and MassDOT staff, and were adopted by the JTC. These measures are consistent with the relevant Transportation Performance Measurement (TPM) and Transportation Asset Management (TPM) guidelines issued by the Federal Highway Administration in 2016. A full list of the Martha's Vineyard MPO's performance measures and goals is included in the Appendix.

Criteria for Project Prioritization

Many of the sections in this plan include a list of proposed actions. The JTC uses the following criteria to evaluate and prioritize proposed projects, and to select which ones should remain in the long-range plan and which should be added to the Transportation Improvement Program. (Brackets indicate the relative weighting assigned to each criterion.)

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

The JTC also considers the extent to which a proposed service will be used by the public, and whether it promotes or conforms to other goals of this plan, such as climate change mitigation and adaptation, and the enhancement of multi-modal options and livability.

Assumptions:

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Air Quality Conformity Determination

This section documents the latest air quality conformity determination for the 1997 ozone National Ambient Air Quality Standards (NAAQS) in the Martha's Vineyard Region. It covers the applicable conformity requirements according to the latest regulations, regional designation status, legal considerations, and federal guidance. Further details and background information are provided below:

Introduction

The 1990 Clean Air Act Amendments (CAAA) require metropolitan planning organizations within nonattainment and maintenance areas to perform air quality conformity determinations prior to the approval of Long-Range Transportation Plans (LRTPs) and Transportation Improvement Programs (TIPs), and at such other times as required by regulation. Clean Air Act (CAA) section 176(c) (42 U.S.C. 7506(c)) requires that federally funded or approved highway and transit activities are consistent with ("conform to") the purpose of the State Implementation Plan (SIP). Conformity to the purpose of the SIP means that means Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) funding and approvals are given to highway and transit activities that will not cause or contribute to new air quality violations, worsen existing violations, or delay timely attainment of the relevant NAAQS or any interim milestones (42 U.S.C. 7506(c)(1)). EPA's transportation conformity rules establish the criteria and procedures for determining whether metropolitan transportation plans, transportation improvement programs (TIPs), and federally supported highway and transit projects conform to the SIP (40 CFR Parts 51.390 and 93).

A nonattainment area is one that the U.S. Environmental Protection Agency (EPA) has designated as not meeting certain air quality standards. A maintenance area is a nonattainment area that now meets the standards and has been re-designated as maintaining the standard. A conformity determination is a demonstration that plans, programs, and projects are consistent with the State Implementation Plan (SIP) for attaining the air quality standards. The CAAA requirement to perform a conformity determination ensures that federal approval and funding go to transportation activities that are consistent with air quality goals.

Legislative and Regulatory Background

The entire Commonwealth of Massachusetts was previously classified as nonattainment for ozone, and was divided into two nonattainment areas. The Eastern Massachusetts ozone nonattainment area included Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Plymouth, Suffolk, and Worcester counties. Berkshire, Franklin, Hampden, and Hampshire counties comprised 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.

The 1970 Clean Air Act defined a one-hour national ambient air quality standard (NAAQS) for ground-level ozone. The 1990 CAAA further classified degrees of nonattainment of the one-hour standard based on the severity of the monitored levels of the pollutant. The entire commonwealth of Massachusetts was classified as being in serious nonattainment for the one-hour ozone

standard, with a required attainment date of 1999. The attainment date was later extended, first to 2003 and a second time to 2007.

In 1997, the EPA proposed a new, eight-hour ozone standard that replaced the one-hour standard, effective June 15, 2005. Scientific information had shown that ozone could affect human health at lower levels, and over longer exposure times than one hour. The new standard was challenged in court, and after a lengthy legal battle, the courts upheld it. It was finalized in June 2004. The eight-hour standard is 0.08 parts per million, averaged over eight hours and not to be exceeded more than once per year. Nonattainment areas were again further classified based on the severity of the eight-hour values. Massachusetts as a whole was classified as being in moderate nonattainment for the eight-hour standard, and was separated into two nonattainment areas—Eastern Massachusetts and Western Massachusetts.

In March 2008, EPA published revisions to the eight-hour ozone NAAQS establishing a level of 0.075 ppm, (March 27, 2008; 73 FR 16483). In 2009, EPA announced it would reconsider this standard because it fell outside of the range recommended by the Clean Air Scientific Advisory Committee. However, EPA did not take final action on the reconsideration so the standard would remain at 0.075 ppm.

After reviewing data from Massachusetts monitoring stations, EPA sent a letter on December 16, 2011 proposing that only Dukes County would be designated as nonattainment for the new proposed 0.075 ozone standard. Massachusetts concurred with these findings.

On May 21, 2012, (77 FR 30088), the final rule was published in the Federal Register, defining the 2008 NAAQS at 0.075 ppm, the standard that was promulgated in March 2008. A second rule published on May 21, 2012 (77 FR 30160), revoked the 1997 ozone NAAQS to occur one year after the July 20, 2012 effective date of the 2008 NAAQS.

Also on May 21, 2012, the air quality designations areas for the 2008 NAAQS were published in the Federal Register. In this Federal Register, the only area in Massachusetts that was designated as nonattainment is Dukes County. All other Massachusetts counties were designated as attainment/unclassified for the 2008 standard. On March 6, 2015, (80 FR 12264, effective April 6, 2015) EPA published the Final Rulemaking, “Implementation of the 2008 National Ambient Air Quality Standards (NAAQS) for Ozone: State Implementation Plan Requirements; Final Rule.” This rulemaking confirmed the removal of transportation conformity to the 1997 Ozone NAAQS.

However, on February 16, 2018, the United States Court of Appeals for the District of Columbia Circuit in *South Coast Air Quality Mgmt. District v. EPA* (“South Coast II,” 882 F.3d 1138) held that transportation conformity determinations must be made in areas that were either nonattainment or maintenance for the 1997 ozone NAAQS and attainment for the 2008 ozone NAAQS when the 1997 ozone NAAQS was revoked. These conformity determinations are required in these areas after February 16, 2019. On November 29, 2018, EPA issued *Transportation Conformity Guidance for the South Coast II Court Decision* (EPA-420-B-18-050, November 2018) that addresses how transportation conformity determinations can be made in areas. According to the guidance, both Eastern and Western Massachusetts, along with several other areas across the country, are now defined as “orphan nonattainment areas” – areas that were designated as nonattainment for the 1997 ozone NAAQS at the time of its revocation (80 FR

12264, March 6, 2015) and were designated attainment for the 2008 ozone NAAQS in EPA's original designations rule for this NAAQS (77 FR 30160, May 21, 2012).

Martha's Vineyard (Dukes County) was the only Massachusetts region which remained an ozone non-attainment area under the 2008 NAAQS, and it is also classified as an "isolated rural area" related to the Standards. As such, for transportation improvement programs composed entirely of exempt projects (40 CFR 93.126), an air quality conformity analysis and determination is also not required.

Martha's Vineyard / Dukes County has historically programmed – and continues to program – in its TIP only "Exempt" transportation projects as defined in 40 CFR 93.126, so both the current FFY 2020-24 Transportation Improvement Program and the 2020- 2040 Regional Transportation Plan do not require an air quality conformity analysis or determination for the 2008 NAAQS.

Current Conformity Determination

After 2/16/19, as a result of the court ruling and the subsequent federal guidance, transportation conformity for the 1997 NAAQS – intended as an "anti-backsliding" measure – now applies to both of Massachusetts' orphan areas. Therefore, this conformity determination is being made for the 1997 ozone NAAQS on the Martha's Vineyard FFY 2020-2024 Transportation Improvement Program and 2020-2040 Regional Transportation Plan.

The transportation conformity regulation at 40 CFR 93.109 sets forth the criteria and procedures for determining conformity. The conformity criteria for TIPs and RTPs include: latest planning assumptions (93.110), latest emissions model (93.111), consultation (93.112), transportation control measures (93.113(b) and (c), and emissions budget and/or interim emissions (93.118 and/or 93.119).

For the 1997 ozone NAAQS areas, transportation conformity for TIPs and RTPs for the 1997 ozone NAAQS can be demonstrated without a regional emissions analysis, per 40 CFR 93.109(c). This provision states that the regional emissions analysis requirement applies one year after the effective date of EPA's nonattainment designation for a NAAQS and until the effective date of revocation of such NAAQS for an area. The 1997 ozone NAAQS revocation was effective on April 6, 2015, and the South Coast II court upheld the revocation. As no regional emission analysis is required for this conformity determination, there is no requirement to use the latest emissions model, or budget or interim emissions tests.

Therefore, transportation conformity for the 1997 ozone NAAQS for the Martha's Vineyard FFY 2020-2024 Transportation Improvement Program and 2020-2040 Regional Transportation Plan can be demonstrated by showing that remaining requirements in Table 1 in 40 CFR 93.109 have been met. These requirements, which are laid out in Section 2.4 of EPA's guidance and addressed below, include:

- Latest planning assumptions (93.110)
- Consultation (93.112)
- Transportation Control Measures (93.113)
- Fiscal Constraint (93.108)

Latest Planning Assumptions:

The use of latest planning assumptions in 40 CFR 93.110 of the conformity rule generally apply to regional emissions analysis. In the 1997 ozone NAAQS areas, the use of latest planning assumptions requirement applies to assumptions about transportation control measures (TCMs) in an approved SIP (See following section on Timely Implementation of TCMs).

Consultation:

The consultation requirements in 40 CFR 93.112 were addressed both for interagency consultation and public consultation. Interagency consultation was conducted with FHWA, FTA, US EPA Region 1, MassDEP, and the other Massachusetts MPOs, with the most recent conformity consultation meeting held on March 6, 2019 (this most recent meeting focused on understanding the latest conformity-related court rulings and resulting federal guidance). This ongoing consultation is conducted in accordance with the following:

- Massachusetts' Air Pollution Control Regulations 310 CMR 60.03 "Conformity to the State Implementation Plan of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 USC or the Federal Transit Act"
- The Commonwealth of Massachusetts Memorandum of Understanding by and between Massachusetts Department of Environmental Protection, Massachusetts Executive Office of Transportation and Construction, Massachusetts Metropolitan Planning Organizations concerning the conduct of transportation-air quality planning in the development and implementation of the state implementation plan" (note: this MOU is currently being updated)

Public consultation was conducted consistent with planning rule requirements in 23 CFR 450.

Title 23 CFR Section 450.324 and 310 CMR 60.03(6)(h) requires that the development of the TIP, RTP, 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. The Martha's Vineyard MPO's Public Participation Plan was formally adopted in 2017. The Public Participation Plan ensures that the public will have access to the TIP/RTP and all supporting documentation, provides for public notification of the availability of the TIP/RTP and the public's right to review the document and comment thereon, and provides a 30-day public review and comment period prior to the adoption of the TIP/RTP and related certification documents.

The public comment period for this conformity determination commenced on May 17, 2019. During the 30-day public comment period, any comments received were incorporated into this plan. This allowed ample opportunity for public comment and MPO review of the draft document. The public comment period will close on May 17, 2019 and subsequently, the Martha's Vineyard MPO is expected to endorse this air quality conformity determination before December 31, 2019. These procedures comply with the associated federal requirements.

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. A list of those projects include:

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

Fiscal Constraint:

Transportation conformity requirements in 40 CFR 93.108 state that TIPs and transportation plans must be fiscally constrained consistent with DOT's metropolitan planning regulations at 23 CFR part 450. The Martha's Vineyard 2020-2024 Transportation Improvement Program and 2020-2040 Regional Transportation Plan are fiscally constrained, as demonstrated in page 4-5 of the TIP.

In summary and based upon the entire process described above, the Martha's Vineyard MPO has prepared this conformity determination for the 1997 Ozone NAAQS in accordance with EPA's and Massachusetts' latest conformity regulations and guidance. This conformity determination process demonstrates that the FFY 2020-2024 Transportation Improvement Program and the 2020-2040 Regional Transportation Plan meet the Clean Air Act and Transportation Conformity Rule requirements for the 1997 Ozone NAAQS, and have been prepared following all the guidelines and requirements of these rules during this time period.

Therefore, the implementation of the Martha's Vineyard MPO's FFY 2020-2024 Transportation Improvement Program and the 2020-2040 Regional Transportation Plan are consistent with the air quality goals of, and in conformity with, the Massachusetts State Implementation Plan.

Links to Reports

Aquinnah Circle Landscape Master Plan

https://issuu.com/conwaydesign/docs/aquinnah_spring_2017

Dukes County Hazard Mitigation Plan

<http://www.mvcommission.org/sites/default/files/Dukes%20County%20Multi-Jurisdictional%20Hazard%20Mitigation%20Plan%20Update%202015%20smaller%20file.pdf>

Global Warming Solutions Act 10-Year Progress Report

<https://www.mass.gov/files/documents/2019/04/02/GWSA-10-Year-Progress-Report.pdf>

Gosnold Municipal Vulnerability Plan

<https://www.mass.gov/files/documents/2018/10/19/2017-2018-mvp-planning-grant-report-gosnold.pdf>

HMS Report on the Steamship Authority

https://www.steamshipauthority.com/writable/files/HMS/hms_report_of_ssa_ops_web.pdf

Housing Production Plans

<http://www.mvcommission.org/housing-production-plan>

Menemsha Master Plan

http://www.chilmarkma.gov/Pages/ChilmarkMA_Planning/Menemsha%20Master%20Plan%20Brewster%20Analysis%20&%20Recommendations%202012.pdf

MVY Airport Master Plan

<http://mvyairport.com/wp-content/uploads/MVY-Master-Plan-Final.pdf>

Oak Bluffs Climate Change Vulnerability Assessment and Adaptation Plan

<https://www.oakbluffsma.gov/DocumentCenter/View/1294/Oak-Bluffs-Climate-Change-Vulnerability-Assessment-and-Adaptation-Plan--Final-Report-7-24-2016-PDF>

Oak Bluffs Master Plan

<https://www.oakbluffsma.gov/DocumentCenter/View/2979/OB-Master-Plan-DRAFT-1---123118>

Oak Bluffs Municipal Vulnerability Plan

<https://www.oakbluffsma.gov/DocumentCenter/View/3599/Oak-Bluffs---MA-Municipal-Vulnerability-Preparedness-Report>

Oak Bluffs Streetscape Master Plan

http://www.mvcommission.org/sites/default/files/docs/2015_July_OB_Streetscape_MasterPlan_Part_1.pdf

West Tisbury and Chilmark Municipal Vulnerability Plan

http://www.chilmarkma.gov/Pages/ChilmarkMA_EM/mvp/West%20Tisbury%20and%20Chilmark%20MVP%20Report%202018_0622.pdf