Martha's Vineyard Airport Capital Improvement Plan Notice of Project Change / Draft Environmental Impact / Environmental Assessment

APPENDIX A

MEPA Certificate and Comments on the Environmental Notification Form This Page Intentionally Blank



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February 22, 2019

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS ON THE ENVIRONMENTAL NOTIFICATION FORM

PROJECT NAME	: Martha's Vineyard Airport Proposed Capital
	Improvement Plan Projects
PROJECT MUNICIPALITY	: Edgartown and West Tisbury
PROJECT WATERSHED	: Islands
EEA NUMBER	: 15964
PROJECT PROPONENT	: Martha's Vineyard Airport Commission
DATE NOTICED IN MONITOR	: December 26, 2018

Pursuant to the Massachusetts Environmental Policy Act (M.G.L. c. 30, ss. 61-62I) and Section 11.03 of the MEPA Regulations (301 CMR 11.00), I hereby determine that this project **requires** the preparation of a mandatory Draft Environmental Impact Report (DEIR).

As described in the Environmental Notification Form (ENF), the Proponent has identified nine capital improvement projects for implementation at the Martha's Vineyard Airport (Airport). These projects include:

- 1. Regrade ground surface adjacent to Runway 6/24 by up to approximately 616 feet (ft) to meet Federal Aviation Administration (FAA) guidelines;
- 2. Rehabilitate Runway 15/33, remove the existing 37.5-ft paved shoulders along the runway and regrade ground surface adjacent to the runway to meet FAA guidelines;
- 3. Construct an approximately 140-ft by 120-ft concrete fuel pad at the Fuel Farm to contain potential fuel leaks;
- 4. Renovate and expand the Terminal Building by approximately 13,300 square feet (sf), construct 549 parking spaces and add a right turn lane for exiting vehicles;
- 5. Remove Taxiway E and reconstruct it in a different configuration;

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- 6. Pave the transient turf tie-down area to provide parking spaces for airplanes;
- 7. Expand the Southeast Ramp and adjust the location of Taxiway B;
- 8. Expand the Southwest Ramp by removing four hangars and paving turf areas; and,
- 9. Construct four new hangars.

According to the ENF, the projects were identified in the Capital Improvement Plan included in the airport's 2016 Master Plan Update.¹ The projects will be constructed in three phases, with the rehabilitation of the runways and fuel pad construction to begin in 2020, the terminal building expansion and renovation in 2022, realignment of Taxiway E in 2023 and the remainder of the project components in 2024. The runway, ramp and terminal projects are proposed to meet FAA's safety guidelines, replace airplane parking space lost to runway safety requirements and improve the passenger and luggage security screening process. The Proponent has indicated that other projects, such as the construction of new hangars and additional parking spaces, may be dependent on future demand. The Proponent will be required to clarify the phasing of the projects in the DEIR.

Project Site

The project site covers an area of 688 acres in West Tisbury and Edgartown. It includes the Airport with associated runways, buildings, structures, and parking lots, and a business park on the eastern side of the site. The project site is generally bounded by Edgartown-West Tisbury Road to the south, and Airport Road to the east. Undeveloped wooded land, including the Department of Conservation and Recreation's (DCR) Manuel F. Correllus State Forest, borders the site to the west and north. The area south of Edgartown-West Tisbury Road is comprised primarily of residential uses.

The Airport provides general aviation (GA) and passenger airline services. It averaged 51,151 flights per year between 2000 and 2013, with 47 percent of all flights occurring during the peak summer season (June-August). The Airport includes two paved runways. The primary runway, Runway 6-24, is aligned northeast-southwest and is 5,504 ft long by 150 ft wide. It has been designed in accordance with Airport Reference Code (ARF) C-III to accommodate approach speeds of 121-140 knots and airplanes with wingspans of 79-117 feet. This runway is equipped with a precision Instrument Landing System (ILS). Runway 15-33 is oriented northwest-southeast and is 3,328 ft long and 75 ft wide. It has been designed to accommodate approach speeds of 91-120 knots and airplanes with wingspans of 49-78 feet (ARF B-II). Six paved taxiways (designated A, A1, B, C, D and E) provide access between the runways and airplane parking areas, which are known as aprons or ramps. Taxiway A is located south of, and runs parallel to, Runway 6-24 and is connected to the runway by Taxiways A1, B, C and D. Taxiway E runs diagonally between Runway 15-33 and Runway 6-24. The fuel pad, ramps and aprons, hangars and terminal are located south-southeast of Taxiway A.

With the exception of the developed areas around the terminal and business park, the site is located within Priority Habitat and Estimated Habitat of rare species as mapped in the 14th Edition of the *Natural Heritage Atlas*. According to the Natural Heritage and Endangered Species Program (NHESP) the site contains habitats that support 29 state-listed rare species,

¹ "Martha's Vineyard Airport Master Plan Update, September 2016, prepared by Jacobs," downloaded from <u>https://mvyairport.com/airport-master-plan/</u> on February 11, 2019.

including 21 species of invertebrates, five plant species and three bird species. According to the Massachusetts Historical Commission (MHC), the airport is included in the Inventory of Historic and Archaeological Assets of the Commonwealth (MHC #WTI.HA.21) because of its former use as a military airfield. Previous archaeological investigations of the site have indicated that the site has a low archaeological sensitivity due to development activities.

Environmental Impacts and Mitigation

Potential environmental impacts of the projects include alteration of 118.1 acres of land, creation of 17.4 acres of impervious area, alteration of approximately 117 acres of rare species habitat, construction of 549 parking spaces (918 total parking spaces), increased water use from 13,369 gallons per day (gpd) to 15,119 gpd and increased wastewater generation from 10,695 gpd to 12,095 gpd. Greenhouse Gas (GHG) emissions and other air pollutants are associated with the burning of fossil fuels for airplanes, on-site energy use and automobile travel by residents and visitors to the site.

The projects will minimize and mitigate impacts associated with transportation through implementation of Transportation Demand Management (TDM) measures such as encouraging use of public transit and other alternate modes of travel. It will increase pervious area by 0.28 acres, including a 5,000-sf (0.1 acres) public park and a 10,000-sf (0.23 acres) landscaped buffer. The project design includes a stormwater management system with Best Management Practices (BMPs) to improve water quality, reduce flow rates and infiltrate stormwater. The project will employ measures to conserve water and contribute to Infiltration/Inflow (I/I) reduction to preserve sewer capacity. The project will mitigate GHG emissions by incorporating energy efficiency and resiliency measures into the building and site design.

Permitting and Jurisdiction

The group of projects is undergoing MEPA review and is subject to preparation of a mandatory EIR pursuant to 301 CMR 11.03(1)(a)(1) and 11.03(1)(a)(2) because it requires State Agency Actions and will result in direct alteration of 50 or more acres of land and creation of 10 or more acres of impervious area. It also exceeds ENF thresholds at 11.03(2)(b)(2) (greater than two acres of disturbance of designated priority habitat) and 11.03(6)(b)(15) (construction of 300 or more new parking spaces). The project requires a Vehicular Access Permit from the Massachusetts Department of Transportation (MassDOT), a Conservation and Management Permit (CMP) from NHESP and Federal Consistency review by the Massachusetts Office of Coastal Zone Management (CZM). It is subject to the MEPA GHG Emissions Policy and Protocol.

The project requires Development of Regional Impact Review by the Martha's Vineyard Commission (MVC). It will require the preparation and review of an Environmental Assessment under the National Environmental Policy Act (NEPA) and a National Pollutant Discharge Elimination System (NPDES) Stormwater General Permit from the United States Environmental Protection Agency (EPA).

The Proponent has received Financial Assistance from the Commonwealth through MassDOT and may seek additional funding. Therefore, MEPA jurisdiction is broad and extends

to all aspects of the project that are likely, directly or indirectly, to cause Damage to the Environment, as defined in the MEPA regulations.

Public Comments

I received comments from State and local agencies and organizations that identified analyses and information that should be provided in the DEIR. I also received comment letters from many residents expressing their concerns that the projects will exacerbate congestion on the island in the summer, impact habitat, air quality and water resources and affect residential properties through increased noise and light. In the DEIR, the Proponent must provide responses to all comments received on the ENF. The Scope for the DEIR requires the Proponent to resolve inconsistencies in the ENF, describe the purpose of each component of the project, and provide greater detail with respect to potential environmental impacts and proposed mitigation measures. The DEIR should clarify the extent to which the project is intended to support current and anticipated levels of passenger volumes and aircraft activity or promote increased airport operations.

SCOPE

General

The DEIR should follow Section 11.07 of the MEPA regulations for outline and content, as modified by this Scope. The DEIR should clearly demonstrate that the Proponent has sought to avoid, minimize and mitigate Damage to the Environment to the maximum extent feasible.

Project Description and Permitting

The ENF included a basic description of existing and proposed site conditions and provided conceptual-level project descriptions and plans. For each project, the ENF reviewed Build and No Build alternatives and, in some cases, alternative configurations. It quantified impacts of each project on land alteration, impervious area and rare species habitat. The ENF acknowledged the need to mitigate environmental impacts but generally did not identify specific mitigation measures.

The DEIR should include plans and a detailed description of existing conditions. It should describe the projects and identify any changes since the filing of the ENF. The DEIR should include updated site plans for existing and post-development conditions at a legible scale. Conceptual plans should be provided at a legible scale and clearly identify buildings, uses within buildings, public areas, impervious areas, and stormwater and utility infrastructure. The DEIR should identify and describe State, federal and local permitting and review requirements associated with the projects and provide an update on the status of each of these pending actions. It should include a description and analysis of applicable statutory and regulatory standards and requirements, and a discussion of the projects' consistency with those standards.

To provide context for the projects, the DEIR should provide an overview of the airport's functions and activities related to GA and commercial services, with a focus on the role each of the project components plays in the operation of the airport. It should provide a general

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description of airport operations, including hours of operation, conditions under which each runway is used, airplane taxiing and parking, use of hangars and Transportation Security Administration (TSA) procedures. The DEIR should address noise and lighting associated with operation of the airport, review past and future monitoring and identify measures undertaken by the airport to minimize these impacts. It should include data on past, current and projected levels of passenger volumes and aircraft operations on both an annual basis and for peak summer months. The DEIR should clarify whether the proposed projects will increase the capacity of the airport to accommodate additional passengers and/or aircraft. I note that the ENF was not entirely clear on whether the project components are necessary to support existing operations, including but not limited to achieving FAA design standards, or are proposed to meet projected demand and/or to promote increased passenger and aircraft activity. For example, the ENF proposed to increase parking spaces but did not identify the purpose of the increase or explain how that is consistent with data indicating there would be no increase in vehicle trips. The DEIR should clarify this issue for the various project components.

Alternatives Analysis

The objective of the MEPA review process is to avoid or minimize and mitigate Damage to the Environment to the greatest extent feasible. Consistent with that goal, an alternatives analysis is required to consider what effect changing the parameters and/or siting of a project, or components thereof, will have on the environment. The alternatives analysis should identify the project purpose and criteria for selecting the preferred alternative. A "No-Build" alternative must be evaluated for the purpose of establishing a future baseline in relation to which the project and its alternatives can be described and analyzed. The alternatives analysis should clearly describe and, to the extent possible, quantify the environmental impacts associated with each alternative support the selection of the Preferred Alternative and ensure that the project avoids, minimizes, and mitigates environmental impacts to the maximum extent feasible.

The ENF included a minimal Alternatives Analysis for each project that in most cases compared Build and No Build alternatives with respect to meeting project goals. For the Taxiway E, Transient Tie-down and Southeast Ramp Expansion projects, the ENF identified alternative configurations but did not comprehensively compare the environmental impacts of each alternative.

The DEIR should clearly identify the purpose of each project. According to the ENF, the runway rehabilitation and regrading projects have been designed consistent with FAA safety guidelines. The DEIR should describe the relevant guidelines and how the proposed design will achieve safety goals. For each of the runway projects, the DEIR should identify an alternative that minimizes impervious area and an alternative that minimizes direct impacts to rare species habitat, and evaluate these alternatives with respect to the FAA safety guidelines. For the Concrete Fuel Pad project, the DEIR should identify any alternative configurations or locations for the fuel pad that would avoid or minimize impacts to rare species habitat. For the Taxiway E, Transient Tie-down and Southeast Ramp Expansion projects, the DEIR should quantify the impacts of each alternative configuration shown in the ENF and identify and evaluate alternative in which either the Southwest Ramp or Southeast Ramp would be expanded, but not both.

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ENF Certificate

The DEIR should provide alternative designs of the airport terminal expansion including an alternative that minimizes impervious area and an alternative that limits expansion to the space necessary to meet TSA and other administrative and operational needs. It should review alternatives for adding parking spaces, including scenarios with no new parking spaces and fewer spaces than proposed, and at least one alternative that significantly reduces new impervious area. The DEIR should review alternative locations for new hangars that minimize new land alteration and impervious area.

The DEIR should provide a detailed comparison of the alternatives, including more detailed descriptions and conceptual plans of each alternative. The DEIR should compare the environmental impacts of each alternative, quantitatively to the extent practicable, with respect to trip generation, parking supply, rare species habitat, water use, wastewater generation, impervious area and GHG emissions. The comparison should be provided in the narrative and in a tabular format.

Project Phasing

The ENF included a schedule for the construction of the nine projects in three phases. However, the Proponent has indicated that implementation of some of the projects will be determined based on demand. For the hangars, terminal expansion, vehicular parking, and airplane parking projects, the DEIR should identify thresholds, such as passenger and/or aircraft operation levels, that would prompt the implementation of those projects. With respect to the proposed expansion of the parking lots, the DEIR should describe a phased approach for incrementally constructing additional spaces as necessary.

Rare Species

Most of the project site is located within mapped rare species habitat and the airport currently operates under a CMP originally issued by NHESP in 2005 that includes requirements for management of rare species habitat at the airport. The projects will alter approximately 117 acres of rare species habitat. According to NHESP, together the projects will likely result in a Take of rare species pursuant to the Massachusetts Endangered Species Act (MESA) regulations at 321 CMR 10.00. In order to qualify for a CMP, the Proponent must demonstrate that the projects will avoid, minimize and mitigate impacts to rare species. The analysis must include: (1) an assessment of alternatives to temporary and permanent impacts to the species; (2) a demonstration that an insignificant portion of the local population will be impacted; and, (3) the development and implementation of a conservation and management plan that provides a long-term net benefit to the conservation of the local population of the impacted species. According to NHESP, it is anticipated that the projects will meet the MESA CMP performance standards by providing a long-term net benefit to the impacted species through protection of high-quality habitat and management of habitat.

The DEIR should provide an updated estimate of the area of rare species habitat altered by each project component. It should identify habitat areas that could be protected or managed to mitigate project impacts. The DEIR should review the existing CMP and describe previous or on-going habitat mitigation measures provided by the airport. C-10

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Traffic and Transportation

The project includes a significant expansion of vehicle parking lots that would increase the number of spaces from 549 to 918 spaces. The ENF did not identify any existing or proposed uses that would require an increase in the parking supply or a basis for the proposed increase in the parking supply. The DEIR should describe the existing layout and number of parking spaces. It should provide an analysis of the airport's year-round parking needs and identify any circumstances under which capacity may be exceeded by demand. The DEIR should explain how the proposed number of vehicle parking spaces was selected and compare the proposed number of spaces to parking supply rates published in the Institute of Transportation Engineers' (ITE) Parking Generation and as required by local zoning codes. As noted above, the DEIR should identify potential phasing and land banking of parking spaces so that new spaces are not constructed unless they are needed. According to the ENF, the project will not increase the number of vehicle trips to the airport. The DEIR should explain why an increase in vehicle trips is not anticipated, particularly if additional parking spaces are provided. If, based on further analysis, the Proponent determines that the project may generate a significant number of new vehicle trips, then the DEIR should provide a transportation analysis consistent with the EEA/MassDOT Transportation Impact Assessment (TIA) Guidelines issued in March 2014.

The DEIR should provide a comprehensive review of transit service to the airport provided by the Vineyard Transit Authority or other entities. It should identify any opportunities to expand transit service to the site or other measures that could minimize trips to the airport by single-occupancy vehicles.

The Proponent has indicated that under some conditions, vehicle queues may extend toward the terminal parking areas due to delays in making left turns onto Edgartown-West Tisbury Road from Airport Road. The project includes the addition of a right-turn lane at the airport exit to facilitate right-turns and reduce the length of the queue. The DEIR should provide a more detailed description of the design of the turning lane and additional information on the volume of vehicles exiting, the number of vehicles making left or right turns and the speed and traffic conditions on Edgartown-West Tisbury Road, including travel speed and interval between vehicles. The DEIR should evaluate the alternative airport access drives proposed by the Martha's Vineyard Commission, including a connection between the terminal area and the business park and a roundabout at the intersection of Airport Road at Edgartown-West Tisbury Road.

Climate Change

Governor Baker's Executive Order 569: Establishing an Integrated Climate Change Strategy for the Commonwealth (EO 569; the Order) was issued on September 16, 2016. The Order recognizes the serious threat presented by climate change and directs agencies within the administration to develop and implement an integrated strategy that leverages state resources to combat climate change and prepare for its impacts. The Order seeks to ensure that Massachusetts will meet greenhouse gas (GHG) emissions reduction limits established under the Global Warming Solution Act of 2008 (GWSA) and will work to prepare state government and cities and towns for the impacts of climate change. Review of these issues through the GHG Policy and requirements to analyze the effects of climate change through EIR review is an important part of this statewide strategy. These analyses inform State Agencies and proponents' C-14

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understanding of a project's GHG emissions and a project's vulnerability to the effects of climate change.

Adaptation and Resiliency

Pursuant to the GWSA, MEPA review of projects subject to an EIR must consider the reasonably foreseeable climate change impacts and GHG emissions of projects subject to MEPA review (and effects such as predicted sea level rise); and (2) ensure that projects subject to MEPA take all feasible measures to avoid, minimize, or mitigate "Damage to the Environment" (as defined in the MEPA statute), including GHG emissions.

The region's climate is expected to experience higher temperatures and more frequent and intense storms. The Northeast Climate Science Center at the University of Massachusetts at Amherst has developed projections of changes in temperature, precipitation and sea level rise for Massachusetts. This data is available through the Climate Change Clearinghouse for the Commonwealth at <u>www.resilientMA.org</u>. By the end of the century, the average annual temperature on Martha's Vineyard is projected to rise by 3.0 to 9.1 degrees Fahrenheit (F), including an increase in the number of days with temperatures over 90 F from 4 to 31 days compared to the 1971-2000 baseline period. During the same time span, the average annual precipitation is projected to change by -0.7 to +4.9 inches.

The DEIR should discuss potential effects of climate change to the project site. Consistent with the requirements of the GWSA, the DEIR should review features of the designs of the projects that will increase the resiliency of the site to likely climate change impacts. I encourage the Proponent to consult the data available on the resilientMA.org website to develop climate change scenarios for the site and identify potential adaptation measures. EEA's *Climate Change Adaptation Report*² (September 2011) and the MVC's *Dukes County Multi-Jurisdiction Hazard Mitigation Plan Update*³ (October 2015) provide additional resources to assist in this analysis.

The DEIR should identify site elements that will be designed to minimize impacts associated with more frequent and intense storms and with extreme heat waves including, but not limited to:

- Ecosystem-based adaptation measures to reduce heat island effect and mitigate stormwater runoff, such as integration of tree canopy cover, rain gardens, and low impact development (LID) stormwater management techniques;
- Use of on-site renewable energy systems may provide added resiliency during periods of power loss during storms;
- Protection of emergency generator fuel supplies from effects of extreme weather and flood proofing; and

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² Available online at <u>http://www.mass.gov/eea/docs/eea/energy/cca/eea-climate-adaptation-report.pdf</u>

³ Available online at <u>http://www.mvcommission.org/sites/default/files/Dukes%20County%20Multi-Jurisdictional%20Hazard%20Mitigation%20Plan%20Update%202015%20smaller%20file.pdf</u>

• Expansion of the size of emergency generators to allow for select common areas and other emergency and life safety systems to remain operational for a period of time beyond code requirements, specifically in residential buildings.

Greenhouse Gas Emissions

As stated previously, the project is subject to review under the GHG Policy. The DEIR should include an analysis of GHG emissions and mitigation measures in accordance with the standard requirements of the Policy, which requires projects to quantify carbon dioxide (CO_2) emissions and identify measures to avoid, minimize or mitigate these emissions. The analysis should quantify the direct and indirect CO_2 emissions for the project's energy use by buildings with conditioned spaces (stationary sources) and transportation-related emissions of vehicles travelling to and from the airport (mobile sources). Direct emissions include on-site stationary sources, which typically emit GHGs by burning fossil fuel for heat, hot water, steam and other processes. Indirect emissions result from the consumption of energy, such as electricity, that is generated off-site by burning of fossil fuels, and from emissions associated with vehicle use by employees, vendors, customers and others. The DEIR should identify and commit to mitigation measures to reduce GHG emissions.

Stationary sources

The DEIR should include an analysis that calculates and compares GHG emissions associated with: 1) a Base Case that conforms to the 9th Edition of the Massachusetts Building Code, which incorporates the standards of the International Energy Conservation Code (IECC 2015) and American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE 90.1 2013, plus amendments) and 2) a Mitigation Alternative that achieves greater reductions in GHG emissions. As requested by the Department of Energy Resources (DOER), the analysis should demonstrate that the project is taking all feasible measures to mitigate GHG impacts.

The GHG analysis should clearly demonstrate consistency with the objectives of MEPA review, one of which is to document the means by which Damage to the Environment can be avoided, minimized and mitigated to the maximum extent feasible. The DEIR should identify the model used to analyze GHG emissions, clearly state modeling assumptions, explicitly note which GHG reduction measures have been modeled, and identify whether certain building design or operational GHG reduction measures will be mandated by the Proponent to future occupants or merely encouraged for adoption and implementation. The DEIR should include the modeling printouts for each alternative and emission tables that compare base case emissions in tons per year (tpy) with the Preferred Alternative showing the anticipated reduction in tpy and percentage by emissions source (direct, indirect and transportation). Other tables and graphs, such as the table of mitigation measures recommended by DOER, may also be included to convey the GHG emissions and potential reductions associated with various mitigation measures as necessary. The DEIR should provide data and analysis in the format requested in DOER's letter.

The DEIR should present an evaluation of mitigation measures identified in DOER's comment letter. In particular, the feasibility of each of the mitigation measures outlined below should be assessed, and if feasible, GHG emissions reduction potential associated with major mitigation elements should be evaluated to assess the relative benefits of each measure. The

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DEIR should explain, in reasonable detail, why certain measures that could provide significant GHG reductions were not selected - either because it is not applicable to the project or is deemed technically or financially infeasible. At a minimum, the DEIR should consider the following GHG mitigation measures:

- High-performing building envelope;
- Electric heat pump or variable refrigerant flow (VRF) space and service water heating systems;
- Passivehouse building design; and,
- Rooftop and/or ground-mounted solar photovoltaic (PV) systems including, at a minimum, solar-ready rooftops on the terminal and hangar buildings.

As noted by DOER, incorporating these measures into the building designs could reduce GHG emissions by 90 percent. The DEIR should include an analysis of utility company incentives, Alternative Energy Credits (AEC), and other incentives for energy-efficient building design and on-site renewable energy generation, and evaluate the applicability of the incentive programs to the project. I encourage the Proponent to consult with DOER prior to completing the GHG analysis.

The DEIR should note whether the project will seek certification by the Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system, and if so, to what level. If applicable, the DEIR should identify specific measures that will be incorporated into the project design to achieve the LEED certification.

Mobile sources

If a Transportation Impact Assessment is prepared for the DEIR, the GHG analysis should also include an evaluation of potential GHG emissions associated with mobile emissions sources. The DEIR should follow the guidance provided in the GHG Policy for Indirect Emissions from Transportation to determine mobile emissions for Existing Conditions, Build Conditions, and Build Conditions with Mitigation. The Proponent should thoroughly explore means to reduce overall single occupancy vehicle trips. The DEIR should also review measures to promote the use of low-emissions vehicles, including installing electric vehicle charging stations and providing designated parking spaces for these vehicles. I encourage the Proponent to consider participating in MassEVolves, the Commonwealth's program for supporting the use of zero emissions vehicles; more information on this program is available at www.MassEVolves.org. The Build with Mitigation model should incorporate TDM measures C-30 and any roadway improvements implemented by the project, and document the reductions in GHG emissions associated with the mitigation.

Land Alteration

The projects will alter approximately 118 acres of land. In accordance with the GHG Policy, projects that alter over 50 acres of land are required to analyze the carbon loss associated with removal of trees and soil disturbance during the construction period and loss of carbon sequestration. The purpose of this analysis is to develop an *estimate*, not an exact accounting of GHG emissions associated with land. The DEIR should describe the methodology and data used

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to develop the analysis, identify associated impacts on GHG emissions, and identify measures to avoid, minimize and mitigate impacts.

I encourage the Proponent to consult with EEA and MEPA on the development of this analysis. The Proponent may develop its own analysis or may consider a draft protocol developed by EEA land policy staff and the MEPA Office. The draft protocol includes: assumptions regarding current and proposed land uses, forest types, and soil types; assumptions regarding carbon sequestration of soils and trees; and the ability to consider a one-time loss of sequestration (e.g. tree clearing) as well as loss of potential sequestration over a certain time period. The draft protocol was used most recently to estimate GHG emissions associated with land alteration for the Norton Business Park (EEA # 15750) and Campanelli Business Park (EEA# 15830) projects.

Mitigation

The DEIR should include a commitment to provide a self-certification to the MEPA Office at the completion of the project. It should be signed by an appropriate professional (e.g. engineer, architect, transportation planner, general contractor) indicating that all of the GHG mitigation measures, or equivalent measures that are designed to collectively achieve identified reductions in stationary source GHG emission and transportation-related measures, have been incorporated into the project.

Hazardous Waste

The site is regulated under the M.G.L. c.21E and the Massachusetts Contingency Plan (MCP) regulations at 310 CMR 40.00 because releases of hazardous materials have occurred at the site. Release Tracking Numbers (RTN) 4-0012087 and 4-0016797 were assigned to releases of tetrachloroethylene (also known as perchloroethylene or PCE) associated with a former dry cleaning facility; according to the ENF, remediation of these releases have been completed. The presence of per- and poly-fluorinated alkyl substances (PFAS) has been documented at significant concentrations in 26 private drinking wells downgradient of the site (RTN 4-0027571). According to MassDEP, the source of the PFAS is believed to be the use of aqueous film-forming foam (AFFF) used for fire training purposes at the airport. Assessment of the full extent of this release and potential remediation measures is in its early stages and additional areas may be impacted by PFAS. The DEIR should provide an overview of the status of the assessment of the PFAS release and any planned or completed remedial actions undertaken **C-33** pursuant to the MCP.

The projects include significant soil excavation associated with the terminal expansion, runway rehabilitation, side safety area, primary surface obstruction and fuel pad projects. MassDEP has recommended that the Proponent characterize the chemical properties of soil to be excavated. The DEIR should provide an estimate the volume of material to be excavated and identify the presence of soil and/or groundwater contaminants in the areas where excavation is proposed. It should estimate the volume of contaminated material, review testing, treatment and disposal options and identify construction-period mitigation measures to minimize impacts to public health and the environment associated with the excavation and handling of contaminated soil.

Stormwater

According to the ENF, the projects will increase impervious area by approximately 17 acres. The ENF included a commitment to provide a stormwater management system to treat and convey runoff from impervious surfaces. The DEIR should identify all measures that will be employed to protect the water quality of the sole source aquifer, provide a description of the proposed stormwater management system and identify Best Management Practices (BMP) that will be incorporated into its design. I encourage the Proponent to include Low Impact Design (LID) techniques such as rain gardens in the site design. The DEIR should identify any infiltration systems that may require registration under MassDEP's Underground Injection Control (UIC) program. It should review any applicable NPDES performance standards related to discharges of pollutants from airplane deicing operations.

Water and Wastewater

The projects will result in an increase in water use of 1,750 gpd and an additional 1,400 gpd of wastewater. The DEIR should describe the existing and proposed drinking water and wastewater facilities and review any capacity constraints. According to MassDEP, the Oak Bluffs Water District, which supplies drinking water to the site, has in recent years withdrawn close to or more than its authorized volume of 0.93 million gpd and will likely require a new Water Management Act permit from MassDEP to address its projected future demand. The DEIR should identify opportunities for water conservation at the airport, including water conserving plumbing and reuse of rainwater and greywater for irrigation.

Cultural Resources

The airport is included in the Inventory of Historic and Archaeological Assets of the Commonwealth and MHC has requested that an archaeological reconnaissance survey be conducted to identify any additional investigations or mitigation measures that may be necessary to avoid or minimize impacts to significant historical or archaeological resources. The DEIR should provide a summary of the results of any cultural resource surveys and report on its consultation with MHC.

Construction

The DEIR should identify construction-period impacts and mitigation relative to rare species, noise, air quality, water quality, and traffic. It should describe truck routes and other mitigation measures that may be implemented to minimize impacts to residential areas by trucks travelling to the site during the construction period. Construction equipment should use engines meeting Tier 4 federal emissions standards, or if unavailable, confirm that the project will require its construction contractors to use Ultra Low Sulfur Diesel fuel, and discuss the use of after-engine emissions controls, such as oxidation catalysts or diesel particulate filters. More information regarding construction-period diesel emission mitigation may be found on MassDEP's web site at https://www.mass.gov/guides/reducing-air-emissions-from-diesel-construction-engines.

The DEIR should provide detailed information regarding the project's generation, handling, recycling, and disposal of construction and demolition debris (C&D) and identify

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measures to reduce solid waste generated by the project. I strongly encourage the Proponent to incorporate C&D recycling activities as a sustainable measure for the project. The DEIR should note whether asbestos-containing material is present in any buildings to be demolished and identify appropriate reporting, handling and disposal procedures. I refer the Proponent to the comprehensive review of construction-period regulatory requirements in MassDEP's letter. The DEIR should describe how the project will comply with all applicable requirements.

Mitigation and Draft Section 61 Findings

The DEIR should include a separate chapter summarizing proposed mitigation measures. This chapter should also include draft Section 61 Findings for each permit to be issued by State Agencies. The DEIR should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and a schedule for implementation. The DEIR should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing, either tying mitigation commitments to overall project square footage/phase or environmental impact thresholds, to ensure that adequate measures are in place to mitigate impacts associated with each development phase.

Responses to Comments

The DEIR should contain a copy of this Certificate and a copy of each comment letter received. In order to ensure that the issues raised by commenters are addressed, the DEIR should include direct responses to comments to the extent that they are within MEPA jurisdiction. This directive is not intended to, and shall not be construed to, enlarge the Scope of the DEIR beyond what has been expressly identified in this certificate.

Circulation

The Proponent should circulate the DEIR to those parties who commented on the ENF, to any State Agencies from which the Proponent will seek permits or approvals, and to any parties specified in section 11.16 of the MEPA regulations. Per 301 CMR 11.16(5), the Proponent may circulate copies of the EIR to commenters in CD-ROM format or by directing commenters to a project website address. However, the Proponent must make a reasonable number of hard copies available to accommodate those without convenient access to a computer and distribute these upon request on a first-come, first-served basis. The Proponent should send correspondence accompanying the CD-ROM or website address indicating that hard copies are available upon request, noting relevant comment deadlines, and appropriate addresses for submission of comments. The DEIR submitted to the MEPA office should include a digital copy of the complete document. A copy of the DEIR should be made available for review at the Edgartown and West Tisbury public libraries.

February 22, 2019 Date

Maithen & Brton

Matthew A. Beaton

C-42

C-43

C-44

C-45

C-46

C-47

C-48 C-49

Comments received:

01/11/2019	Tony Horwitz
01/11/2019	Holly Hodder Eger
01/11/2019	John Freedman
01/11/2019	Miranda Edison
01/11/2019	Geraldine Brooks
01/12/2019	Robert Richheimer
01/12/2019	Marilyn Feinberg
01/12/2019	Jeffrey Agnoli
01/12/2019	Zeev Pearl
01/12/2019	Angela Andersen
01/12/2019	K. Gardner
01/13/2019	Klaus D. Vogt
01/13/2019	May Baldwin
01/13/2019	Jason Balaban
01/13/2019	Barbara Kassel
01/14/2019	Paul Bailey
01/14/2019	Dana Parkhill-Day
01/14/2019	Matthew Sudarsky
01/14/2019	Robert Heubscher
01/15/2019	Skip Richheimer
01/15/2019	Salem Mekuria
01/16/2019	Petra Lent McCarron
01/16/2019	Cindy Kane
01/17/2019	Oliver Becker
01/18/2019	Wesley Brown
01/18/2019	Elisabeth Carnie, Odin Robinson and Runar Finn Robinson
01/20/2019	Edward A. Gargan
01/24/2019	Nicole Galland
01/26/2019	Thomas Hodgson
01/26/2019	Valerie and John Becker
01/30/2019	Benjamin Lambert Hall, Jr.
01/31/2019	Vineyard Conservation Society
02/02/2019	Nathaniel Brooks Horwitz
02/05/2019	Beatrice Nessen
02/07/2019	Susan B. Murphy
02/07/2019	Massachusetts Historical Commission (MHC)
02/11/2019	Linda DeWitt
02/11/2019	Robert M. Green
02/12/2019	Massachusetts Department of Environmental Protection (MassDEP)/Southeast Regional Office (SERO)
02/12/2019	Natural Heritage and Endangered Species Program (NHESP)
02/12/2019	Martha's Vineyard Commission (MVC)
02/12/2019	Massachusetts Department of Transportation (MassDOT)
02/12/2019	West Tisbury Conservation Commission
02/12/2019	MassAudubon

- 02/12/2019 BiodiversityWorks
- 02/12/2019 Hunter Moorman
- 02/15/2019 Massachusetts Department of Energy Resources (DOER)

MAB/AJS/ajs

From:	Jeffrey Agnoli
То:	<u>Strysky, Alexander (EEA)</u>
Subject:	Airport Project 15964 Martha"s Vineyard)
Date:	Saturday, January 12, 2019 4:05:15 PM

To: Secretary of Energy and Environmental Affairs

I am a 30 year resident of Martha's Vineyard, and I am writing to voice my opposition to the proposed expansion of the Martha's Vineyard Airport. The proposal, as described in the Vineyard Gazette on January 11, 2019, is unneeded, unwanted, and would be result in significant damage to the island's environment and character.

The Gazette article mentions numerous points that argue against the proposal. Each one of these is sufficient to stop the proposal. There are two dozen rare, threatened, or endangered plant, animal, and insect species in the airport area. How would their situation not be worsened by an expansion? The Gazette has also reported the contamination of wells by the carcinogenic PFAS, clearly linked to the airport's operational practices. How would this contamination not be worsened by the expansion?

It appears the "need" behind this expansion is being driven by private aircraft 1-3 concerns. You must realize the vast majority of citizens do not share these concerns. Instead, they are concerned by the already high levels of noise these aircraft produce, especially during the warmer months. Many of these citizens are also 1-4 concerned by the larger environmental impacts of jet-fuel burning by aircraft, especially since far less negative impacts are created by using the available modes of 1-5 transportation. It is unconscionable to alter 117 acres around the airport, and pave more than 17 acres, so that a privileged few can have it a little easier when they decide to fly here.

A final point is the use of taxpayer funds, which are behind the money that would go to pay for this ludicrous proposal. That money is needed for far more important infrastructure projects. The island needs road improvements and protections against the effects of climate change. This airport expansion proposal harms the environment, wastes essential funds, and serves no important purpose. It should be completely rejected.

Jeffrey Agnoli Edgartown, MA Re: airport project 15964

Dear Sir,

I have been living on Martha's Vineyard for 30 plus years. The plan to expand our airport put into action would be a tragedy for this island with its fragile ecosystem. The last thing we need is bigger planes bringing more people or tripling the parking spaces. (I never had a problem finding a parking spot by the way or felt, even in August, that the lines at security were too long or slow moving.)
 2-1

I could go on and on why the expansion is unwise. Please just note my resounding "NO" to such a development.

Sincerely, Angela Andersen

115 Merry Farm Road West Tisbury, MA 02575

Good morning,

With regard to the planned airport expansion, why? Data supports declining passenger traffic. In addition, as a resident of Chilmark, there was more than enough commercial airline traffic last summer---in fact too much.

The airport commission has failed to demonstrate what benefit the expansion will **3-2** bring to **MV residents** other than air craft noise and motor vehicle traffic when passengers disembark from the aircraft.

More importantly, airport commission should more timely address the ongoing water **3-3** table contamination that has been traced back to airport operations.

Please, the state of MA taxpayers and any other matching federal funding is better served for more important projects.

In summary, I don't support this application. It's not mission critical, AT ALL.

Respectively,

Paul Bailey Chilmkark.

Paul Bailey email: <u>bailsp0617@gmail.com</u> tel: (617) 645 - 3093 Dear Alexander,

Please read comments online if you want to know how islanders feel about this expansion. We already have to adjust to the noise and pollution of way too many private jets who I imagine this expansion is really for.

And yes, repair and upkeep is obviously necessary.

Please prevent this from happening to our lovely island. Too many beautiful things are too easily destroyed.

We are at a crossroads, please vote to maintain what is so special that so many of us love.

Thank you,

May Baldwin 35 year resident

Dear Mr. Strysky

I'm writing to implore you to not support the proposed enormous expansion of the Martha's Vineyard Edgartown airport.

My family has been coming to Martha's Vineyard since the 1930's and we've been seasonal residents since 1967.

Managing growth and traffic has become the pre-eminent issue for the island's economy and environment. Finite space and resources dictate smart management and there's plenty of evidence we're nearing a tipping point. The more we accommodate growth, the more growth will occur but let's not forget what's made Martha's Vineyard such a popular destination in the first place - it's a small, sequestered, natural respite. An overwhelming majority of islanders, seasonal residents and visitors see the island this way and enjoy what it offers. Let's not increase noise pollution, air pollution, and the economy to satisfy the very few - that make litt sense and has no justification. The island is certainly plenty accessible to all with it current transportation options. Any needs for TSA I'm sure can be satisfied with a sensible, direct solution.

Thank you,

Jason Balaban

Chilmark & Englewood, NJ

Jason Balaban

Jason Balaban

Home Loan Consultant Valley National Bank Fair Lawn, NJ, 07410

Cell: 201-294-9707

NMLS#: 896795

JasonBGM@gmail.com --

Jason Balaban

Home Loan Consultant

Valley National Bank 3100 Broadway Fair Lawn, NJ 07410

Cell: 201-294-9707

JasonBGM@gmail.com NMLS# 896795 To Alexander Strysky,

We are writing with strong objection to any expansion of the airport to handle increased traffic flow. For the past ten years we have watched the steadily increasing number of flights coming in and out, bringing noise, pollution, traffic congestion, and a general degradation to the guiet, peaceful, rural character that appeals to so many of us. During summer peak commuting hours we have to keep the windows closed in order to make a phone call due to the jet noise. Additionally in the past few years we have encountered many summer residents and summer visitors who have expressed dismay and disappointment with the islands growing congestion and hectic pace. Many of these people are tired waiting in lines and getting stuck in traffic and have said they are either selling their houses or spending their vacation dollars elsewhere. The goose that lays the golden egg here on Martha's Vineyard is its idyllic rural pace. Why kill it by accommodating more to an already growing problem.

Valerie and John Becker PO Box 213 West Tisbury, MA 02575 6-1

BENJAMIN LAMBERT HALL, JR., ESQ. ATTORNEY-AT-LAW 45 MAIN STREET PO BOX 5155 EDGARTOWN, MASSACHUSETTS 02539-5155 (508) 627-3702 FACSIMILE INO SERVICE ACCEPTEDI BUZZIHMV@COMCAST.NET INO SERVICE ACCEPTEDI

January 30, 2019

Secretary of Energy and Environmental Affairs MEPA Office 100 Cambridge St Suite 900 Boston MA 02114

Re: Martha's Vineyard Airport Project #15964

Dear Sir/Madam:

I write to comment in respect to the environmental impacts of the Martha's Vineyard Airport Project #15964 master plan. The future extension south of the alternate runway 33 and the installation of instrument landing on that runway (as well as the installation of the latest radar technology at MVY like that Nantucket had received many years back) are critical to the safety of future aviation on the island. Any proposed alternative use of land south of that runway (such as that for a proposed expansion of the business park) would undermine the absolute primary focus of the Airport as being (safe) aviation above all else. Prior airport policies all dictated that that land south of the runway approach should be reserved for future aviation use. That only recently changed since the airport has been operating in a deficit burning cash. The business park generates millions in its present form which should be more than ample to cover airport cash needs. Of course, large construction projects do require airport contribution and that can, occasionally, provide for cash squeezes, requiring temporary borrowing (or for better budgeting, longer term bonding). But once paid, the operational budget is amply covered by the business park revenues as they increase annually. Giving aviation dedicated land away at this point is short-sighted and undermines the mission of the airport. Kindly make sure that the master plan and any interim requests to release that land south of the alternate runway be reformed to firmly stand behind the long term aviation needs of the island and the flying public.

Best,

Per Hell, Jr. / ad. Benjamin L. Hall, Jr., Esq. EC: Alexander Stevsky

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BENJAMIN LAMBERT HALL, JR., ESQ. ATTORNEY-AT-LAW 45 MAIN STREET PO BOX 5155 EDGARTOWN, MASSACHUSETTS 02539-5155 (508) 627-5900 (508) 627-3702 FACSIMILE INO SERVICE ACCEPTEDI BUZZHIMV@COMCAST.NET INO SERVICE ACCEPTEDI

January 30, 2019

Mr. Jorge Panteli Federal Aviation Administration New England Region 1200 District Avenue Burlington MA 01803-5299

Re: Opposition to request for release from aeronautical use for a portion of Martha's Vineyard Airport (MVY) in Vineyard Haven, Massachusetts

Dear Mr. Panteli:

As a lifelong citizen of Martha's Vineyard, a member of the flying public, a former Martha's Vineyard Airport Commissioner, and one who continues to enjoy training for a private pilot's license, I write in vehement opposition to the drastic proposal to remove land area south of the alternate SE - NW runway at the Martha's Vineyard Airport (MVY). The future extension to the south of that alternate runway 33 and the installation of instrument landing on that runway (as well as the installation of the latest radar technology at MVY like that Nantucket had received many years back) are critical to the safety of future aviation on the island. Any proposed alternative use of land south of that runway (such as that for a proposed expansion of the business park) would undermine the absolute primary focus of the Airport on providing (safe) aviation above all else. Prior airport policies all dictated that that land south of that runway approach should be reserved for future aviation use, or interim uses of that land that would be transitory and would not impact the long term reservation of that land for runway extension. That only recently changed since the MV Airport has been operating in a deficit, burning cash. The current configuration of the business park generates millions in its present form which should be more than ample to cover airport cash needs. There is no public long term need to forego the primary future aviation use of that area now proposed for business park expansion. Of course, large aviation related construction projects do require a small airport contribution (to that of MassDOT and FAA) and that can, occasionally, provide for cash squeezes, requiring temporary borrowing (or for better budgeting, longer term bonding). But once those small contributions to these large projects are paid, the operational budget is amply covered by the aviation revenues combined with business park revenues as they increase annually, leaving, what had been until very recently, an increasing reserve fund at MVY, Giving this critical aviation dedicated land away at this point to simply garner more business park revenues is short-sighted and undermines the primary mission of the airport. Kindly make sure that the master plan be reformed accordingly and any interim requests to release that land south of the alternate runway be denied so that your very important oversight will continue to firmly stand behind the long term aviation needs of the island and the flying public.

Best,

Bentall, In. ad

Benjamin L. Hall, Jr., Esq.

CC: SECRETARNOF ENERGY + EVICONMENTAL AFFAIRS JEFFEFT DEBARIO, APRONANTICS ADMINISTRATUR MASSOCI 18-1



455 State Rd., PMB#179, Vineyard Haven, MA 02568 (mailing) 18 Helen Ave. Vineyard Haven, MA 02568 (physical) Phone/Fax: 800-690-0993 www.biodiversityworksMV.org

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February 12, 2019

Alexander Strysky Executive Office of Energy and Environmental Affairs MEPA Office 100 Cambridge Street, Suite 900 Boston, MA 02114 alexander.strysky@mass.gov RE: EEA #15964 (MV Airport Capital Improvement Plan Projects)

Dear Mr. Strysky,

BiodiversityWorks is a Martha's Vineyard non-profit that promotes biodiversity conservation through wildlife research and monitoring and outreach to our community. We map and monitor wildlife populations on private as well as public land, and we are familiar with the priority habitat and numerous state-listed species in Manuel Corellus State Forest that surrounds the airport.

I attended the site visit for this project and have read the associated plan documents. After careful consideration, we respectfully submit these comments for MEPA reviewers and would like to see the applicant prepare a Supplemental ENF to address concerns or additional information requests brought forth in this public comment process.

Listed Species Impacts

The applicant should provide more detail on the listed species that were found during surveys in the proposed project area and the specific areas where they were detected.

Regarding the Conservation Management Permit (004-039 DFW), developed in 2004, that outlines habitat maintenance and monitoring, has the applicant maintained the habitats as agreed, or is there room for mprovement? If there is room for improvement in the applicant's habitat management, we ask that the MEPA reviewers instruct them to increase their effort to manage for priority species habitat and designate the funding required to do so.

If the proposed project is permitted, we ask the MEPA reviewers to require off-site mitigation in the adjacent Manuel Corellus State Forest, which the airport habitat was a part of until it was taken and fenced for airport use. This area of the island is a 'hot spot' for rare species adapted to the scrub oak, pitch pine, and barrens of the state forest. Thus, any take of priority habitat should be offset by mitigation that provides a net gain for rare species in the area.

Regional Impacts

The applicant should provide a detailed assessment of the negative and positive potential impacts of this expansion and improvement plan on the entire island verses only the two towns that surround the airport. As this is a regional airport, it impacts the entire island. There will certainly be increased air traffic and vehicle traffic with these proposed changes and expansion. How will these increases affect traffic congestion, air, noise, and light pollution? How much will they contribute to greenhouse gas emissions?

Water

In light of the recent well contamination near the airport, the applicant should provide detail on how they plan to prevent any water contamination and mitigate if any water quality impacts associated with the project. BW-5

Regrade Side Safety Areas of Runway 15/33 and Construct New Taxiway E -

Instead of removing both side safety areas runway 15/33 and constructing the new Taxiway connected to the center of runway 15/33, we propose an alternative. Could runway 15/33 be shifted east to cover over the eastern side safety area and a portion of the old central 15/33 runway, then, the new runway be added? There BW-6 is less priority habitat between the runway and the fence on the west side, so it would impact less priority habitat to optimize use of already paved areas. Instead of removing pavement on either side of runway 15/33, the project would re pave/re- surface the east side and remove pavement from the west side of 15/33 only. The new Taxiway E would then be slightly east of where it is planned now and have more space between it and the fence.

Pave Transient Turf Tie Down Area

We object to the proposed paving of 4.1 acres of grass when ample area exists in a nearby area that is already paved. That area is where there are dilapidated old hangers that could be removed. It seems excessive to pave 4.1 acres of priority habitat to meet only a transient demand.

Hangars

The applicant should provide more detail on the proposed tenant of the 80' x 80' hanger. Would this be a long- BW-8 term need or a short-term need? What time of year is the 80' x 80' hanger space needed?

Paving Fuel Area

We would like the applicant to provide detail on design of this paved area under fuel tanks. Will it have a system to recover spilled fuel from tanks should there be a rupture or failed connection between a tank and transport vehicle? The current gravel substrate did not appear to have any spilled fuel recovery features, so this upgrade would provide an opportunity to install this safety feature.

Additional Parking

On the site visit, the manager noted that about 20 staff cannot fit their cars into the staff parking area during peak season. The current staff parking lot seems to have some wasted space. Could it be reconfigured to provide additional spaces for employee parking that would accommodate another 20 vehicles? It would be **BW-10** better to lose some fragments of landscaping at the current employee lot than to create new paved parking. Also, as peak season tends to be during July and August, why would additional parking need to be paved? Couldn't it just be grass that is parked on during those months and unused the rest of the year? The applicant should provide more detail on why additional parking is needed elsewhere. The gravel lot seems sufficient for the rental cars as it is.

Thank you for the opportunity to comment. Respectfully yours,

Luanne Johnson Director/Wildlife Biologist BiodiversityWorks

From:	<u>Alaina Darr</u>
To:	Strysky, Alexander (EEA)
Cc:	Ben Email
Subject:	Martha"s Vineyard Airport MEPA Filing Project #15964
Date:	Wednesday, January 30, 2019 4:37:35 PM

(Identical to Comment 18-1)

Dear Mr. Strysky:

I write to comment in respect to the environmental impacts of the Martha's Vineyard Airport Project #15964 MEPA filing connected with the airport's master plan. The future extension south of the alternate runway 33 and the installation of instrument landing on that runway (as well as the installation of the latest radar technology at MVY like that Nantucket had received many years back) are critical to the safety of future aviation on the island. Any proposed alternative use of land south of that runway (such as that for a proposed expansion of the business park) would undermine the absolute primary focus of the Airport as being (safe) aviation above all else. Prior airport policies all dictated that that land south of the runway approach should be reserved for future aviation use. That only recently changed since the airport has been operating in a deficit burning cash. The business park generates millions in its present form which should be more than ample to cover airport cash needs. Of course, large construction projects do require airport contribution and that can, occasionally, provide for cash squeezes, requiring temporary borrowing (or for better budgeting, longer term bonding). But once paid, the operational budget is amply covered by the business park revenues as they increase annually. Giving aviation dedicated land away at this point is short-sighted and undermines the mission of the airport. Kindly make sure that the master plan and any interim requests to release that land south of the alternate runway be reformed to firmly stand behind the long term aviation needs of the island and the flying public.

Best, Ben

Benjamin L. Hall, Jr., Esq. writing from the desk of my assistant, Alaina Darr - please reply to the email address from which this email was sent AND TO buzziiimv@comcast.net as well. Thanks.

Benjamin Lambert Hall, Jr., Esq. Attorney-At-Law PO Box 5155 - 45 Main Street Edgartown, MA 02539-5155 508-627-5900

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In compliance with the Standards for the Protection of Personal Information for Residents of the Commonwealth (a/k/a Data Security Regulations) found at 201 C.M.R. 17.00 et. seq., it is the policy of this office to encrypt certain electronic mail if we first make the determination that it contains protected information. We will encrypt these emails. We do not, however, encrypt routine emails and cannot guarantee the security of email communications. Any questions regarding this policy should be addressed to Benjamin L. Hall, Jr. in accordance with the written information security plan maintained by this office.

Kindly note that this message, on its own, does not create an attorney-client relationship. The statements made herein are not to be construed as representations or warranties of any kind. No attorney/client relationship is created unless and until a signed retainer agreement along with the retainer fee is received by my office. Therefore, at this time, unless the relationship has been formed by way of a signed retainer agreement and retainer fee, I cannot accept professional responsibility on this matter. If you are seeking professional advice on this matter, it is recommended you hire an attorney who can give professional advice on the matter.

DISCLAIMER REGARDING ELECTRONIC TRANSACTIONS: If this communication relates to the negotiation of a contract or agreement, any so-called electronic transaction or electronic signature statutes shall not be deemed to apply to this communication; contract formation in this matter shall occur only upon the mutual delivery or exchange of manually-affixed original signatures on original documents. Emails sent or received shall neither constitute acceptance of conducting transactions via electronic means nor shall create a binding agreement nor shall they be construed to be an offer or an acceptance of an offer in the absence of a writing physically subscribed by handwritten signature by the duly authorized signatory of the principal. Communications made herein shall be construed only be for the purposes of negotiating a resolution of a dispute and thus shall be inadmissible. The author is merely acting as a conduit for communicating and has no authority to bind the principal absent express language. Any agreement regarding a modification of a written agreement or resolution of a dispute must be in writing and physically subscribed by hand written signature by the duly authorized signatory of the principal. Nothing shall be otherwise inferred from any course of conduct or communications between the parties.

WARNING: FRAUD ALERT – IF YOU RECEIVE AN E-MAIL FROM THIS OFFICE REQUESTING THAT YOU WIRE, OR OTHERWISE TRANSFER FUNDS, OR SEND FINANCIAL INFORMATION, YOU MUST CONFIRM THE REQUEST AND ANY CORRESPONDING INSTRUCTIONS VIA TELEPHONE BEFORE YOU INITIATE ANY TRANSFER. HACKERS ARE TARGETING E-MAILS OF ATTORNEYS, REAL ESTATE AGENTS AND OTHER BUSINESSES IN AN ATTEMPT TO INITIATE FRAUDULENT WIRE REQUESTS. DO NOT SEND ANY FUNDS WITHOUT FIRST CONFIRMING WITH OUR OFFICE BY TELEPHONE.

From:	robert green
To:	Strysky, Alexander (EEA)
Subject:	MV Airport
Date:	Monday, February 11, 2019 12:27:27 PM

Attended M.V. Airport public meeting Jan. 30th.

Thanks for your communication during the meeting.

My concerns regarding the plans put forth, first in the Vineyard Gazette and then at the meeting; the energy and environmental impact of proposed project. I live about 1 mile S.E. as the crow flies from the runway. Last flew out to Boston 8 years ago. Living as close, have endured small planes flying too low, sightseeing, frightening livestock, Bi Plane. the Takemmy Laundry Incident, too large planes taking off and landing, jet fuel incidents at least 2 where the air was temporarily polluted, sensation as pins and needles in face, had to remain indoors. Traffic backups getting on to Edg./W. Tisbury rd. up to 15 min. and on and on. Enough said, we put up with it because it is necessary and are thankful to the FAA for looking after us.

I hope they will focus on security, safety, user friendly considerations for flyers and respect of land and it's surrounding neighbors.

Will the airport continue to use the Cancer connected foam in their drills? About 10 years ago, I came to the personal belief that the Island had reached it's capacity for supporting human life and all its support machines and technology. Water and air quality, natural habitat must be safe guarded.

17-2I found the disconnect between airport officials on the energy and environmental issues deeply concerning. i.e. Lack of planning for any renewables, the development and utilization of land lacking little consideration of impacts.

I have trust in the M.V. Commission as a permitting agency and plan to follow through with this matter wherever it goes.

Thank you for your consideration Linda DeWitt 77 Watcha Path Edgartown.

17-1

Dear Mr Strysky,

As a year round resident of Martha's Vineyard, it's hard to contain my outrage at the proposed ill conceived plan to more than double the size of the airport terminal, almost triple the amount of parking and provide more hangars for private jets. None of this benefits those of us who call the island home, including the non-human species, some of them already endangered.

We live in a rural community with a sensitive environment. Yes, it is a summer resort. **7-2** But what people come here for--why it is a valued place--is because it is quiet and rural, with a wonderful undegraded ecosystem. It's not like every other over-crowded place on the eastern seaboard.

The island is already struggling to accommodate a massive summer influx. Why expand the airport to bring even more people here in the crazy aneurysm of July and August? And sacrifice habitat of endangered species to do it? I'm sorry, but it's nuts. I suspect there will be huge push-back against this. I will see you at the meeting. I think you'll need a bigger room. Geraldine Brooks

Dear MEPA,

We are writing to discourage the Martha's Vineyard Airport Expansion (project ID # 15964). This extension is unnecessary and would would be harmful to the local ecosystem.
9-1
It's clear that what is gained is not worth the environmental cost. According to the Vineyard 9-2
Gazette article there are many endangered species and habitats at risk in this proposal. Please hear the local community's clear objections to this project and protect our fragile environment.

Sincerely,

Elisabeth Carnie, Odin Robinson and Runar Finn Robinson



Department of Environmental Protection

Southeast Regional Office • 20 Riverside Drive, Lakeville MA 02347 • 508-946-2700

Charles D. Baker Governor

Karyn E. Polito Lieutenant Governor Matthew A. Beaton Secretary

> Martin Suuberg Commissioner

February 12, 2019

RE: ENF Review EOEEA #15964 WEST TISBURY -EDGARTOWN Martha's Vineyard Airport Capital Improvement Plan Project at 71 Airport Road

Dear Secretary Beaton,

Secretary of Environment and Energy

Executive Office of Energy &

100 Cambridge Street, Suite 900

Mathew A. Beaton.

Environmental Affairs

ATTN: MEPA Office

Boston, MA 02114

The Southeast Regional Office of the Department of Environmental Protection (MassDEP) has reviewed the Environmental Notification Form (ENF) for the Martha's Vineyard Airport Capital Improvement Plan Project at 71 Airport Road, West Tisbury -Edgartown, Massachusetts (EOEEA # 15964). The Project Proponent provides the following information for the Project:

Martha's Vineyard Airport is proposing several airport improvements, addressed in the 2016 Capital Improvement Plan. The project consists of the following ten components:

- 1. Runway 6/24 Side Safety Areas and Primary Surface Obstruction.
- 2. Rehabilitate Runway 15/33 and Regrade Side Safety Areas
- 3. Construct Concrete Fuel Pad at Fuel Farm
- 4. Expand and Renovate Existing Terminal Building
- 5. Remove Existing Taxiway E and Construct New Taxiway E
- 6. Pave Transient Turf Tie Down Area
- 7. Southeast Ramp Expansion
- 8. Southwest Ramp Expansion
- 9. Construct New Airport Hangers

The current projected schedule for the Capital Improvement Plan projects is as follows: 2020

- Project 1: Regrade Runway 6/24 side safety areas and address primary surface obstructions
- Project 2: Rehabilitate Runway 15/33, remove shoulder pavement, and regrade side safety areas
- Project 3: Construct concrete fuel pad at fuel farm

2022

 Project 4: Expand and renovate existing terminal building

2023

• Project 5: Remove old Taxiway E and construct new Taxiway E

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751. TTY# MassRelay Service 1-800-439-2370 MassDEP Website: www.mass.gov/dep
DEP-1

DEP-5

- Project 7: Expand Southeast Ramp
- Project 8: Expand Southwest Ramp
- Project 9: Construct new aircraft hangar
- Project 6: Pave transient turf tiedown area

Bureau of Water Resources Comments

<u>Wetlands</u> <u>Comments</u>: The ENF states that there are no wetlands on the airport property and therefore the Project is not subject to the Wetlands Protection Act

Water Management Act Comments: According to the ENF, it is anticipated that the water use for the Martha's Vineyard Airport Capital Improvement Plan Project will increase from 0.013 million gallons per day (MGD) to 0.015 MGD. The Proponent should be aware that the Oak Bluffs Water District has been withdrawing close to or over its authorized water withdrawal volumes (0.93 MGD) in recent years. Furthermore, the Department of Conservation and Recreation (DCR) approved Water Needs Forecasts (WNF) for the Oak Bluffs in 2015 identified a demand of 1.08 MGD with an additional 10% available for a projected demand of 1.19 MGD by the year 2031. In light of these circumstances, the Oak Bluffs Water District must address its system-wide water demand increases by applying for and obtaining a new Water Management Act (WMA) permit from MassDEP. MassDEP encourages the Project Proponent to work with the Oak Bluffs Water District to mitigate the additional demand proposed by the Project.

Wastewater Management Comments: The proposed changes will increase the wastewater generated by the facility to 12,095 gallons per day. The facility is served by a wastewater treatment facility with a groundwater discharge permit number 171-4, issued May 15, 2017 for 37,000 gallons per day. Therefore, there is enough capacity to accommodate the proposed increase in wastewater flow. Furthermore, the Department has approved improvements to the wastewater treatment facilities, which are currently under way.

<u>Stormwater Management</u>: The Project construction activities will disturb 26.5 acres of land and DEP-4 therefore will require a NPDES Stormwater Permit for Construction Activities. The Proponent can access information regarding the NPDES Stormwater requirements and an application for the Construction General Permit at the EPA website: <u>https://www.epa.gov/npdes/2017-construction-general-permit-cgp</u>.

The Proponent should also determine if any of the following U.S. EPA NPDES permits are necessary prior to commencing Project construction:

Dewatering General Permit - <u>https://www.epa.gov/npdes-permits/dewatering-general-permit-dgp-massachusetts-new-hampshire</u>.

Remediation General Permit - <u>https://www.epa.gov/npdes-permits/remediation-general-permit-rgp-massachusetts-new-hampshire</u>.

Additional information regarding these permits may be found at: http://www.epa.gov/region1/npdes/stormwater/assets/pdfs/CGP-DGP-RGP-Flow-Chart.pdf

Sector S – Air Transportation Facilities

Under the 2015 Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP), EPA updated the requirements for Sector S to incorporate the Airport deicing

2024

effluent limitation guidelines and new source performance standards. Airlines and airports conduct deicing operations on aircraft and airfield pavement to ensure the safety of passenger and cargo flights. In the absence of controls, deicing chemicals are widely dispersed causing pollutants to enter nearby rivers, lakes, streams, and bays. On May 16, 2012, EPA published the Airport Deicing ELG in the Federal Register to control the discharge of pollutants from airport deicing operations to surface waters. See 40 CFR Parts 9 and 449. The requirements largely apply to wastewater associated with the deicing of airfield pavement at primary airports. The rule also established NSPSs for wastewater discharges associated with aircraft deicing for a subset of new airports. These guidelines are implemented in discharge permits issued by states and EPA Regional Offices under the NPDES program. Therefore, the 2015 MSGP is incorporating the requirements from the Airport ELG that are appropriate to the kinds of discharges the permit authorizes. These requirements are found in Part 8.S.8 of the permit. Additional information regarding this permit may be found at: https://www3.epa.gov/npdes/pubs/sector_s_airtransmaint.pdf

Underground Injection Control (UIC) Comments: The Proponent details the uses of a comprehensive stormwater management system to collect, convey, treat and control stormwater discharges associated with the Project. The Proponent should be aware that the conveyances of stormwater through underground stormwater infiltration structures are subject to the jurisdiction of the MassDEP Underground Injection Control (UIC) program. These structures must be registered with MassDEP UIC program through the submittal of a *BRP WS-06* UIC Registration application through MassDEP's electronic filing system, eDEP.

The ENF *did not provide sufficient detail* to determine whether or not UIC stormwater wells will be installed: (1) on page 14 of the PDF named "MVineyardApt-ENF..." "Permanent stormwater management measures such as catch basins and infiltration practices will be implemented to provide treatment of runoff from new impervious surfaces;" (2) on page 15 of the same document: "The proposed permanent and temporary stormwater management measures have not yet been designed for each component but will be designed to comply with stormwater regulations where applicable."

The statewide UIC program contact is Joe Cerutti, who can be reached at (617) 292-5859 or at joseph.cerutti@state.ma.us . All information regarding on-line (eDEP) UIC registration applications may be obtained at the following web page under the category "Applications & Forms": <u>http://www.mass.gov/eea/agencies/massdep/water/drinking/underground-injection-control.html</u>

Bureau of Waste Site Cleanup Comments

SERO-BWSC has reviewed the MEPA filing for the Martha's Vineyard Airport Commission's (MVAC) Capital Improvement Project and provides the following comments:

MassDEP BWSC Background

On November 20, 2018, MVAC notified MassDEP of the presence of per- and poly-fluorinated alkyl substances (PFAS) in private drinking water supply wells downgradient of the airport at concentrations exceeding the MassDEP Office of Research and Standards – Guidance (ORSG) concentration. Additional private drinking water supply wells were sampled as a result, and to date, six residential properties were found to contain PFAS compounds at concentrations that could pose an Imminent Hazard. To date, drinking water from 100 private wells has been analyzed and 26 private water supply wells have been impacted with {FAS at concentrations greater than 20 nanograms per liter (ng/L). Bottled water has been provided to residences whose

private wells contain greater than 20 ng/L of PFAS and ultimately, point-of-entry treatment (POET) systems will be installed at those residences. MassDEP has assigned Release Tracking Number (RTN) 4-0027571 to this release.

Under the MCP, an evaluation of the extent of contamination is required. In the case of MVAC, this evaluation is on-going while the private drinking water sampling continues. The source, nature and extent of contamination will be delineated as part of the Phase II Comprehensive Site Assessment, which is not due until November 20, 2022. At this time, one source of the PFAS is believed to be the fire training area within the MVAC property because fire training utilized aqueous film-forming foam (AFFF) which is known to contain PFAS. Eight additional source areas are being evaluated; including the effluent from the airport's waste water treatment plant and two areas where AFFF were used on a boat fire and a gear-up landing. The evaluation is still in its preliminary stages, and therefore, additional source areas may be identified, and the extent of PFAS-contaminated soil has not been determined.

MEPA ENF FILING:

Item numbers 1, 2, 5, 6, 7, 8, and 9 from the MEPA filing:

- 1. Runway 6/24 Side Safety Areas and Primary Surface Obstruction
- 2. Rehabilitate Runway 15/33 and Regrade Side Safety Areas
- 5. Remove Existing Taxiway E and Construct New Taxiway E
- 6. Pave Transient Turf Tie Down Area
- 7. Southeast Ramp Expansion
- 8. Southwest Ramp Expansion
- 9. Construct New Aircraft Hangars

For these activities, soil regrading is proposed.

MassDEP BWSC Comment:

- Under the section discussing the Runway 6/24 Side Safety areas, etc. the text of the MEPA filing states that 82.3 acres of re-graded grass will result. However, the table in Proposed Project Area figure states that 62.3 acres will be regraded. This discrepancy should be explained or corrected.
- 2. There is no description regarding how the regrading will be completed, including the volume of soil that is expected to be excavated, if any. Thus far, several potential areas where AFFF was used, released, or deployed have been identified. Any soil excavation completed at MVAC must include soil stockpiling, PFAS analysis and proper disposal as described below. Due to the potential of encountering PFAS-impacted soil as part of this Project, MassDEP recommends that the soil proposed to be excavated be characterized for PFAS prior to initiating the Project.

As such, MassDEP requests that the airport co-ordinate the capital improvement plan with the Licensed Site Professional (LSP) overseeing the PFAS assessment to ensure the proper management of potential PFAS-contaminated soil. In addition, if any soil is determined to be impacted with PFAS, the soil must be excavated and stockpiled on, and covered with, polyethylene sheeting until the soil can be properly disposed of. If the soil is not pre-characterized, it must be stockpiled in this manner until it can be characterized for disposal. All potential disposal and reuse options must be discussed with MassDEP. Furthermore,

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under the MCP, a Release Abatement Measure (RAM) Plan will be required prior to initiating soil excavation if it is determined that the soil is impacted or if the soil is not precharacterized.

Item number 3 from MEPA filing: Construct Concrete Fuel Pad at Fuel Farm Two 20,000-gallon Jet A fuel tanks and one 20,000-gallon 100LL AVGAS tank are present in the concrete fuel pad/fuel farm area. Work in this area will include paving the existing footprint of the fuel pad and adding an access road that would result in the conversion of approximately 0.6 acres of grass to impervious surface.

MassDEP BWSC Comment:

Soil excavated in the vicinity of the tanks should be evaluated (including PFAS analysis) to determine how to properly manage that soil. The contractor should work cooperatively with MVAC's LSP to ensure proper MCP compliance. If a release condition occurs or is discovered, appropriate notification to MassDEP must be made per 310 CMR 40.0000. In addition, if contaminated concrete/debris is encountered, MassDEP's Bureau of Waste Prevention should be consulted for proper disposal options. If a MassDEP MCP reporting requirement is observed during the work, MVAC must notify MassDEP within the required time frames as specified in 310 CMR 40.0000.

Item number 4 from MEPA filing: Expand and Renovate Existing Terminal building. The existing terminal building and parking areas will be expanded.

MassDEP BWSC Comment:

A reportable release of tetrachloroethylene (also known as perchloroethylene or PCE) was discovered in this area in 1995. MassDEP assigned RTN 4-0012087 to this release. Additional RTNs were assigned to residences whose private wells were impacted by PCE. These RTNs were closed out and/or linked to RTN 4-0012087. The PCE release resulted in impacts to soil, groundwater, and downgradient drinking water supply wells. A Permanent Solution with No Conditions was submitted on July 25, 2017. If the soil within the delineated site boundaries is going to be excavated as part of this Project, refer to 310 CMR 40.1067 to determine if additional requirements of the MCP apply.

Bureau of Air and Waste Comments:

<u>Air Quality</u>. Construction and operation activities shall not cause or contribute to a condition of air pollution due to dust, odor or noise. To determine the appropriate requirements please refer to: **DEP-11**

- 310 CMR 7.09 Dust, Odor, Construction, and Demolition
- 310 CMR 7.10 Noise
- •

Construction-Related Measures. MassDEP requests that all non-road diesel equipment rated 50 horsepower or greater meet EPA's Tier 4 emission limits, which are the most stringent emission standards currently available for off-road engines. If a piece of equipment is not available in the Tier 4 configuration, then the Proponent should use construction equipment that has been retrofitted with appropriate emissions reduction equipment. Emission reduction equipment includes EPA-verified, CARB-verified, or MassDEP-approved diesel oxidation catalysts (DOCs) or Diesel Particulate Filters (DPFs). The Proponent should maintain a list of the engines, their emission tiers, and, if applicable, the best available control technology installed on each piece of

equipment on file for Departmental review.

Massachusetts Idling Regulation. MassDEP reminds the Proponent that unnecessary idling (i.e., in excess of five minutes), with limited exception, is not permitted during the construction and operations phase of the Project (310 CMR 7.11). With regard to construction period activity, typical methods of reducing idling include driver training, periodic inspections by site DEP-13 supervisors, and posting signage. In addition, to ensure compliance with this regulation once the Project is occupied, MassDEP requests that the Proponent install permanent signs limiting idling to five minutes or less on-site.

<u>Spills Prevention.</u> A spills contingency plan addressing prevention and management of potential releases of oil and/or hazardous materials from pre- and post-construction activities should be presented to workers at the site and enforced. The plan should include, but not limited to, refueling of machinery, storage of fuels, and potential on-site activity releases. Information related to spills prevention best practices may be obtained at the following web page: https://www.mass.gov/files/spill_prevention.pdf.

Solid Waste Comments: As a result of its review of the Environmental Notification Form ("ENF") for the Martha's Vineyard Airport Capital Improvement Plan Project- West Tisbury/Edgartown ENF No. 15964 ("Project" or "Site"), the Massachusetts Department of Environmental Protection Solid Waste Management Section provides the following comments regarding the management of solid waste/ recyclable and asbestos materials generated from the Project pursuant to Massachusetts Solid Waste Regulations 310 CMR 16.00: Site Assignment Regulations For Solid Waste Facilities, 310 CMR 19.000: Solid Waste Management and 310 CMR 7.15: Asbestos Regulations

The ENF states that: "The quantities of construction and demolition material or debris have not yet been determined. Disposal of construction debris will be accomplished in accordance with applicable laws and regulations" and "The proposed Project includes renovating approximately 17,500 square feet of the existing terminal building and redeveloping the southwest apron, including removal of four existing hangars. These projects will require pre-demolition hazardous waste surveys."

In response, the Solid Waste Section offers the following comments:

1. Waste materials that are determined to be solid waste (e.g., construction and demolition waste) and/or recyclable material (e.g., metal, asphalt, brick, and concrete) shall be disposed, recycled, and/or otherwise handled in accordance with the Solid Waste Regulations including 310 CMR 19.017: *Waste Bans*.

Asphalt, brick and concrete (ABC) rubble, such as the rubble generated by the demolition of buildings or other structures must be handled in accordance with the Solid Waste regulations. These regulations allow, and MassDEP encourages, the recycling/reuse of ABC rubble. The Proponent should refer to MassDEP's Information Sheet, entitled <u>"Using or Processing Asphalt Pavement, Brick and Concrete Rubble, Updated February 27, 2017</u>", that answers commonly asked questions about ABC rubble and identifies the provisions of the solid waste regulations that pertain to recycling/reusing ABC rubble. This policy can be found on-line at the MassDEP website: <u>https://www.mass.gov/files/documents/2018/03/19/abc-rubble.pdf</u>

2. Demolition and Asbestos Containing Waste Material: The proposed Project includes the demolition of structures which may contain asbestos. The Project Proponent is advised that demolition activity must comply with both Solid Waste and Air Quality Control regulations. Please note that MassDEP promulgated revised Asbestos Regulations (310 CMR 7.15) that became effective on June 20, 2014. The new regulations contain requirements to conduct a predemolition/renovation asbestos survey by a licensed asbestos inspector and post abatement visual inspections by a licensed asbestos project monitor. The Massachusetts Department of Labor and Work Force Development, Division of Labor Standards (DLS) is the agency responsible for licensing and regulating all asbestos abatement contractors, designers, project monitors, inspectors and analytical laboratories in the state of Massachusetts.

In accordance with the revised Asbestos Regulations at 310 CMR 7.15(4), any owner or operator of a facility or facility component that contains suspect asbestos containing material (ACM) shall, prior to conducting any demolition or renovation, employ a DLS licensed asbestos inspector to thoroughly inspect the facility or facility component, to identify the presence, location and quantity of any ACM or suspect ACM and to prepare a written asbestos survey report. As part of the asbestos survey, samples must be taken of all suspect asbestos containing building materials and sent to a DLS certified laboratory for analysis, using USEPA approved analytical methods.

If ACM is identified in the asbestos survey, the Proponent must hire a DLS licensed asbestos abatement contractor to remove and dispose of any asbestos containing material(s) from the facility or facility component in accordance with 310 CMR 7.15, prior to conducting any demolition or renovation activities. The removal and handling of asbestos from the facility or facility components must adhere to the Specific Asbestos Abatement Work Practice Standards required at 310 CMR 7.15(7). The Proponent and asbestos contractor will be responsible for submitting an *Asbestos Notification Form ANF-001* to MassDEP at least ten (10) working days prior to beginning any removal of the asbestos containing materials as specified at 310 CMR 7.15(6).

The Proponent shall ensure that all asbestos containing waste material from any asbestos abatement activity is properly stored and disposed of at a landfill approved to accept such material in accordance with 310 CMR 7.15 (17). The Solid Waste Regulations at 310 CMR 19.061(3) list the requirements for any solid waste facility handling or disposing of asbestos waste. Pursuant to 310 CMR 19.061(3) (b) 1, no asbestos containing material; including VAT, asphaltic-asbestos felts or shingles; may be disposed at a solid waste combustion facility.

In accordance with the Air Quality Regulations at 310 CMR 7.09(2), the Proponent must submit a *BWP AQ 06 Notification Prior to Construction or Demolition* form to MassDEP for any construction or demolition of an industrial, commercial or institutional building or residential building with 20 or more dwelling units at least ten (10) working days prior to initiation of said construction or demolition project. The Proponent should propose measures to prevent or alleviate dust, noise, and odor nuisance conditions, which may occur during the demolition.

If you have any questions regarding the Solid Waste Management Program comments above, please contact Mark Dakers at (508) 946-2847 or Cynthia Baran at (508) 946-2887.

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Proposed s.61 Findings

The "Certificate of the Secretary of Energy and Environmental Affairs on the Environmental Notification Form" may indicate that this Project requires further MEPA review and the preparation of an Environmental Impact Report. Pursuant to MEPA Regulations 301 CMR 11.12(5)(d), the Proponent will prepare Proposed Section 61 Findings to be included in the EIR in a separate chapter updating and summarizing proposed mitigation measures. In accordance with 301 CMR 11.07(6)(k), this chapter should also include separate updated draft Section 61 Findings for each State agency that will issue permits for the Project. The draft Section 61 Findings should contain clear commitments to implement mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation.

General Comment

It should be noted that on page 5 of the document the Proponent sates:" The Project consists of the following ten components"; however only 9 items are listed.

The MassDEP Southeast Regional Office appreciates the opportunity to comment on this proposed Project. If you have any questions regarding these comments, please contact George Zoto at (508) 946-2820.

Very truly yours,

Jonathan E. Hobill, Regional Engineer, Bureau of Water Resources

JH/GZ

Cc: DEP/SERO

ATTN: Millie Garcia-Serrano, Regional Director and Acting BAW Regional Director David Johnston, Deputy Regional Director, BWR
Gerard Martin, Deputy Regional Director, BWSC
Jennifer Viveiros, Deputy Regional Director, ADMIN
Jim Mahala, Chief, Wetlands and Waterways, BWR
John Handrahan, Chief, Compliance & Enforcement/Brownfields, BWSC
Angela Gallagher, Compliance & Enforcement/Brownfields, BWSC
Joseph Cerutti, Underground Injection Control Program, BWR/Boston Joseph C
Mark Dakers, Chief, Solid Waste, BAW
Douglas Coppi, Solid Waste, BAW



Charles D. Baker Governor

Karyn E. Polito Lt. Governor COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS **DEPARTMENT OF ENERGY RESOURCES** 100 CAMBRIDGE ST., SUITE 1020 BOSTON, MA 02114 Telephone: 617-626-7300 Facsimile: 617-727-0030

> Matthew A. Beaton Secretary

Judith F. Judson Commissioner

15 February 2019

Matthew Beaton, Secretary Executive Office of Energy & Environmental Affairs 100 Cambridge Street Boston, Massachusetts 02114 Attn: MEPA Unit

- RE: Martha's Vineyard Airport, West Tisbury/Edgartown, Massachusetts, EEA #15964
- Cc: Maggie McCarey, Director of Energy Efficiency, Department of Energy Resources Judith Judson, Commissioner, Department of Energy Resources

Dear Secretary Beaton:

We've reviewed the Environmental Notification Form (ENF) for the above project. The proposed project includes a 13,000-sf airport terminal expansion. For this project, key GHG mitigation strategies include:

• High-performing envelope construction;

- Electric heat pump (or vrf) space and service water heating;
- Passivehouse;
- Maximizing rooftop solar PV readiness.

If all of the above strategies are implemented, we estimate that emissions can be reduced by over 90% compared to Code construction.



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Pathway to >90% Emissions Reduction

Using prototype building data¹, we estimate that emissions reduction of 90% is possible using the following strategies (referencing the illustration below):

- Standard measures (improved lighting, ventilation, equipment) can reduce emissions 20% from reference².
- Incorporation of heat pump (or VRF) for space heating and heat pumps for water heating would improve reduction to 25% below reference.
- Building the terminal to Passivehouse standards would improve emissions reduction to 57% below reference. Passivehouse requires high-performing envelope, heat recovery, and other measures.



• Adding 60 kW of PV on the roof would improve reduction to 95% below reference.

High-Performance Envelope

Underpinning all strategies for emissions reduction is a high-performance envelope. Key strategies for ensuring high-performance envelope include:

- Limiting or eliminating use of glass "curtain wall" and spandrel assemblies;
- Maximizing framed, insulated walls sections;

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¹ <u>https://www.energycodes.gov/development/commercial/prototype_models</u>

² Reference is: ASHRAE 90.1-2013 plus Massachusetts Amendments

Martha's Vineyard Airport, EEA #15964 West Tisbury/Edgartown, Massachusetts

- Minimizing window areas;
- Using continuous insulation;
- Using thermal breaks;
- Reducing air-leakage.

The thermal performance of even the highest-performing windows, curtain walls, and spandrel assemblies available is about **70 to 80% less** than the thermal performance of the framed, insulated wall assemblies. Accordingly, buildings which use extensive curtain wall, spandrel, and windows have compromised envelope performance which increases energy consumption and emissions and should be avoided.

HVAC Flexibility

A building with a high-performance envelope has much more flexibility when choosing HVAC equipment than a building with a Code envelope.

For example, with a Code envelope, extensive perimeter heating and cooling of exterior walls is typically required. This can make it challenging to use air source heat pumps for space heating, a key measure to lower emissions. High performance envelopes, in contrast, can allow deletion of perimeter heating and cooling.

Passivehouse has demonstrated the efficacy of this approach. Passivehouse projects (which include multifamily, office, retail, and other projects) have shown that:

- building air leakage can be reduced to less than 0.05 cfm50 per square foot of envelope. This is about 10x less air-leakage than Code envelope currently delivers; and
- building peak heating load can be less than 4.3 Btu/sf-hr and building peak cooling load can be less than 3.6 Btu/sf-hr (for projects on Martha's Vineyard³). These peaks are about 60 to 70% lower than typical code-built buildings.

Passivehouse projects typically have no perimeter heating and cooling and use air source heat pump or VRF equipment for space heating. This is made possible due to vastly reduced air leakage at the exterior walls and significantly reduced internal heating and cooling demands.

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³ <u>http://www.phius.org/phius-2015-new-passive-building-standard-summary</u>

Electric Space and Service Water Heating

Space Heating

Cold-climate rated electric air source heat pump (or VRF) space heating is recommended. Electric space heating may also qualify for Alternative Energy Certificates and MassSave[®] incentives. (More below.)

Service Water Heating

Electric air source water heating is recommended for the building.

Space Heating with Heat Pumps and Alternative Energy Credits

Space heating with eligible heat pumps could qualify for Alternative Energy Credits (AECs). The value of these credits could be approximately \$700 per year⁴ if the project is built to Passivehouse standards. Alternatively, if the project is built to Passivehouse standards and can qualify as a "small" system, the project may qualify for a one-time lump sum of credits (worth about \$19,000); or, may qualify for credits issued each quarter for ten years (each quarter worth about \$490). See the Alternative Energy Credit guidelines for more detail.⁵

Potential First Cost Savings

Utilization of heat pumps introduces potential cost savings for the project:

- <u>Less equipment</u>: Heat pumps provide both space heating and space cooling with the same equipment. Only system is required for space needs in a heat pump scenario. In contrast, traditional gas space heating systems provides only heating and a separate system is required for cooling. Accordingly, when heat pumps are used, only one system is required, not two, resulting in less equipment and potentially less cost.
- <u>Gas infrastructure saving</u>: If the project uses heat pumps for both space heating and water heating, gas infrastructure may be able to be reduced and/or eliminated.

We recommend investigating potential savings associated with reduced/eliminated equipment and gas infrastructure.

Passivehouse

Evaluations of Passivehouse (either PHI or PHIUS method) as a greenhouse gas mitigation measure are recommended. Passivehouse uses an approach which minimizes heating and cooling demand (and thus energy use) by focusing on envelope, reducing air leakage, and optimizing heat recovery. Passivehouse buildings use about 70 to 85% less energy than Code buildings.

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⁴ All values for Alternative Energy Credits herein are based on \$15/AEC.

⁵ <u>https://www.mass.gov/service-details/statutes-regulations-and-guidelines</u>

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The Commonwealth of Massachusetts now allows two compliance pathways to accommodate design methods when seeking building energy code compliance Passive (see https://www.mass.gov/service-details/ninth-edition-of-the-ma-state-building-code.) In 2015, the United States Department of Energy (USDOE) and The National Renewable Energy Laboratory (NREL) released Building Standards the Climate-Specific Passive available here: https://www.nrel.gov/docs/fy15osti/64278.pdf. This climate-based approach (as opposed to "one size fits all" passive design criteria used in the past) has resulted in a significant increase in adoption of passivehouse in the US.

Code-recognized Passivehouse design methods are available here: <u>http://www.phius.org/home-page</u> and <u>http://www.passivehouse.com.</u>

When evaluating Passivehouse cost feasibility additional envelope costs (which typically increase) are netted against reduced HVAC costs (which typically decrease). In addition, any cost premium should be further netted against Alternative Energy Credits and MassSave[®] incentives, discussed further below.

Passivehouse and Resilience

In addition to greenhouse gas mitigation, Passivehouse would also help advance project resiliency. Passivehouse buildings require near-negligible active heating and cooling, and thus perform well during power outages and extreme weather.

MassSave®

The project is likely eligible for MassSave[®] incentives. MassSave[®] incentives are generally performance-based: larger incentives are available for higher performing buildings. MassSave[®] also has incentives to reduce soft costs and specific incentives for Passivehouse. We recommend that the proponent meet the MassSave[®] utility in-person in order to obtain incentive estimates for the following scenarios (plus any other scenario MassSave[®] may recommend):

- All electric building, using heat pumps for both space and water heating
- As above, but built to Passivehouse standards

Emissions 2020 to 2050

The DOER also analyzed the effect of mitigation measures considering the effect of decreasing emissions rates for electricity for the period between 2020 through 2050. Our analysis focused on the implications of electrifying space and water heating.

Emissions rates of Massachusetts' grid electricity are expected to decline significantly due to the Commonwealth's commitments and policies⁶. Emission rates are expected to be about: 600

⁶ <u>https://www.ecfr.gov/cgi-</u>

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bin/retrieveECFR?gp=&SID=fadee14ffc925769d112205e9322aee2&mc=true&r=PART&n=pt40.8.60#ap40.8.60_15580.2; and https://www.mass.gov/files/documents/2019/01/02/310cmr07.pdf

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lbs/MWhr in 2030; 400 lbs/MWhr in 2040; and 200 lbs/MWhr in 2050. Current emissions are about 700 lbs/MWhr. Emissions for individual years in between are linearly interpolated.

The illustration below presents the emissions associated with using gas for space and water heating (in red) versus using electricity for space and water heating (in blue). The figure illustrates the influence of fixed emission rates (gas) versus decreasing emission rates (electricity). With an electric heat pump approach, emission reduction goes from 45% in 2020 to 84% in 2050.



Rooftop Solar PV

We note the proponent is considering ground-mounted PV. Rooftops can also be an asset for renewable generation with solar PV either for the host buildings themselves, for a third party, for community solar programs, or some other future use to be determined.

Building Code now requires rooftop solar readiness for all buildings 3 stories or less. In general, the Code requires that 50% of flat and south facing roofs be made solar-ready. Some exceptions exist to accommodate shading. Only solar-readiness that is beyond what is required by Code is considered mitigation.

Accordingly, as a mitigation measure, we recommend that the project commit to setting aside most of the roof area for solar readiness. Proponent should demonstrate that solar readiness has been thoroughly examined and that the project is pre-planning rooftop real estate in order to preserve space for potential future PV. We recommend solar set-aside on the roof even in the event of going forward with ground-mounted PV in order to preserve the rooftop as an asset for solar in the future.

Of potential interest to the proponent is a new pathway for investing in PV contained in the SMART plan (<u>http://www.mass.gov/eea/docs/doer/rps-aps/final-program-design-1-31-17.pdf</u>). Under this plan, new options exist for owners of tenanted and "core and shell" buildings that allow the building owner to capture the value of PV independent of a building's tenants. Specifically, the Qualified Generator pathway allows the owner sell the PV output directly to a utility with no tenant off-takers. This pathway helps solve the "split incentive" that otherwise can exist.

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Recommendations

Recommendations are as follows:

- Future submissions should demonstrate that the project is taking all feasible measures to avoid, minimize and mitigate GHG emissions. The GHG Policy and supporting DERdocumentation is available at <u>https://www.mass.gov/files/documents/2016/08/tb/ghg-policy-final.pdf</u> 2
- 2. Above-code envelope should be used throughout. In summary:
 - a. Priority should be given to increasing continuous insulation. Distinguish between R value of batt and R value of continuous insulation. Indicate planned wall assembly U value and wall construction type (mass, wood, metal stud, etc). Confirm that the relationship between R-value and assembly U-factor conform to Appendix A of the Code.
 - b. Window to wall ratios should be maintained at or below the values shown in Table G3.1.1-1 of ASHRAE 90.1-2013 for all buildings.
 - c. Glass curtain wall/spandrel systems should be avoided for all buildings.

	Reference Building		Proposed Building	
Vertical Envelope	Percent of Vertical Area	U value	Percent of Vertical Area	U value
Framed, insulated Wall	%	value	%	value
Opaque glass, curtain wall, shadowbox, spandrel	%	value	%	value
Vision glass	%	value	%	value
	100%	Aggregate U	100%	Aggregate U
		Aggregate R		Aggregate R

d. Report the following for each building:

Aggregate U is calculated as: $(U_1\%_1 + U_2\%_2 + U_3\%_3)$ where U is the respective thermal transmittance values and $\%_1$ is the percent area of framed insulated wall; $\%_2$ is the percent area of opaque glass, curtain, or shadowbox; and $\%_3$ is the percent area of vision glass. Only areas adjacent to conditioned space are counted, areas adjacent to unconditioned spaces (e.g. parking garages, mechanical penthouses) are not counted. Aggregate R is the inverse of aggregate U.

DER-3

- e. For all buildings, the proposed aggregate R calculated above should be larger than the reference building; otherwise envelope performance is being traded-off for other improvements, reversing mitigation gains. Tradeoffs should be avoided.
- f. Report the following for each building:

Building Performance Metric	Reference Building	Proposed Building
Air infiltration (cfm50 per square foot of envelope)		
Heating demand (btu/sf-hr)		
Cooling demand (btu/sf-hr)		

- DER-4 3. Project should use electric heat pump (or VRF) space heating for all buildings and electric heat pump water heating.
- 4. An evaluation of Passivehouse is recommended as a possible option.
- 5. Estimate AECs and MassSave[®] incentives, as described above. MassSave[®] estimates DER-6 should be based on in-person meeting. Obtain MassSave[®] estimates for the scenarios described above.
- 6. All roofs should be solar ready. A detailed evaluation of setbacks, shading, and rooftop. appurtenances should be undertaken to assess extent of solar readiness. Scale plans should DER-7 be prepared showing extent of Code-required solar readiness and above-code solar readiness.
- 7. Submit project modeling files to the DOER on a flash drive.
- 8. Compare model results total and individual end uses with representative, prototype buildings developed by Pacific Northwest National Labs/Department of Energy found at DFR-9 the link below. Provide a summary explaining potential differences.
 - https://www.energvcodes.gov/sites/default/files/documents/BECP 901 2013 Progress Indicator 0 0.pdf
 - http://www.energycodes.gov/sites/default/files/documents/2013EndUseTables.zip
 - https://www.energycodes.gov/commercial-energy-cost-savings-analysis

DER-5

DER-8

DER-

3

Martha's Vineyard Airport, EEA #15964 West Tisbury/Edgartown, Massachusetts

9. Include a table similar to the example below. For "code value" ensure that the value incorporates any improved efficiency per requirements of Section C406.1 of the Massachusetts' amendments.

DER-10

Measure/Area	Base Code	Proposed	% Change	Comment
AC Efficiency (EER)	<u>.</u>	·		
Bldg 1	code value	design value	%	
Bldg 2	code value	design value	%	
ERV Effectiveness (%)				
Bldg 1	code value	design value	%	
Bldg 2	code value	design value	%	
Boiler (% efficiency)				
Bldg 1	code value	design value	%	
Bldg 2	code value	design value	%	
LPD (Watts/sq ft)				
Bldg 1	code value	design value	%	
Bldg 2	code value	design value	%	
(continue to include service water, equipment, etc)				

Sincerely,

Paul F. Ormond, P.E. Efficiency Engineer Massachusetts Department of Energy Resources



Charles D. Baker, Governor Karyn E. Polito, Lieutenant Governor Stephanie Pollack, MassDOT Secretary & CEO



February 12, 2019

Matthew Beaton, Secretary Executive Office of Energy and Environmental Affairs 100 Cambridge Street, Suite 900 Boston, MA 02114-2150

RE: West Tisbury: Martha's Vineyard Airport Capital Improvement Plan Projects – ENF (EEA #15964)

ATTN: MEPA Unit Alex Strysky

Dear Secretary Beaton:

On behalf of the Massachusetts Department of Transportation, I am submitting comments regarding the proposed Martha's Vineyard Airport Capital Improvement Plan Projects in West Tisbury and Edgartown, as prepared by the Office of Transportation Planning. If you have any questions regarding these comments, please contact J. Lionel Lucien, P.E., Manager of the Public/Private Development Unit, at (857) 368-8862.

Sincerely,

David J. Mohler Executive Director Office of Transportation Planning

DJM/jll

cc: Jonathan Gulliver, Administrator, Highway Division Patricia Leavenworth, P.E., Chief Engineer, Highway Division Mary-Joe Perry, District 5 Highway Director Neil Boudreau, Assistant Administrator of Traffic and Safety Engineering Planning Board, Town of West Tisbury Planning Board, Town of Edgartown Vineyard Transit Authority Martha's Vineyard Commission PPDU Files



Charles D. Baker, Governor Karyn E. Polito, Lieutenant Governor Stephanie Pollack, MassDOT Secretary & CEO



MEMORANDUM

TO: David Mohler, Executive Director Office of Transportation Planning

FROM: J. Lionel Lucien, P.E, Manager Public/Private Development Unit

DATE: February 12, 2019

RE:

West Tisbury: Martha's Vineyard Airport Capital Improvement Plan Projects – ENF (EEA #15964)

The Public/Private Development Unit (PPDU) has reviewed the Environmental Notification Form (ENF) for the Martha's Vineyard Airport Capital Improvement Plan Projects in the towns of West Tisbury and Edgartown. The project involves several improvements as defined in the airport's 2016 Capital Improvement Plan, including the expansion and renovation of the existing terminal building. The project proposes to create an additional 549 parking spaces and install a right-turn lane exiting Airport Road.

The project exceeds the Massachusetts Environmental Policy Act (MEPA) threshold for parking (300 spaces) and will require a Vehicular Access Permit for modifications to the Airport **DOT-1** Road approach as it intersects Edgartown-West Tisbury Road, a state-owned roadway. An Environmental Impact Report (EIR) will be required due to anticipated land alteration impacts.

The ENF filing includes scant information regarding potential traffic impacts as a result of the renovation and expansion project. Notably, the construction of 549 parking spaces will more than double the existing parking capacity, creating a total of 918 parking spaces. In consulting with the project Proponent, it is possible this figure is erroneous; much of the existing parking supply may be removed as part of the project. No new vehicle trips were anticipated to result from the project, nor were figures for existing vehicle trips reported in the ENF.

The Draft Environmental Impact Report (DEIR) should provide justification regarding why the expansion would not result in new vehicle trips. Even if the project were to generate additional vehicle trips, it is highly unlikely based on the information provided that it would trigger EIR thresholds for transportation and/or result in MassDOT recommending that the Proponent submit a Transportation Impact Assessment (TIA). Nevertheless, the Proponent should provide as part of the DEIR submission any transportation analysis that it intends to complete as a result of the improvement project for our review.

> Ten Park Plaza, Suite 4150, Boston, MA 02116 Tel: 857-368-4636, TTY: 857-368-0655 www.mass.gov/massdot

DOT-2

DOT-3

In addition, the DEIR should also address:

- The identification and documentation of nearby transit services provided by the Vineyard Transit Authority (VTA) and/or by private shuttle operators. As appropriate, DOT-4 the Proponent should conduct outreach to the VTA regarding improving transit services to the project site.
- Derivation of the proposed parking supply for the project. The number of proposed spaces should be compared to the amount required based on information contained in DOT-5 ITE's *Parking Generation* (4th edition) as well as the requirements of local zoning codes. The Proponent should investigate reducing parking or land banking of parking spaces until and unless needed, based on monitoring conducted at a future date.

The Proponent should continue consultation with appropriate MassDOT units, including PPDU and the District 5 Office, to discuss preparation of the DEIR. If you have any questions regarding these comments, please contact me at (857) 368-8862 or Michael Clark at (857) 368-8867.

Sent from my iPhone

Begin forwarded message:

> Dear Mr.Strysky;

>

10-1 I am writing in response to the proposal to increase the runway area on Martha's Vineyard. One > of the main reasons anyone comes to the island is not for more runway, but less. I am 3rd generation Vineyarder, and love hearing the tales from my mother about what dirt roads were like EVerywhere on the island. Right next to the airport is a prime public lowbush blueberry patch that makes hundreds of pies. People walk their dogs and bike in there: we don't wanna hear more planes, bringing more people into the island and overwhelming nature. These things are a balance, and I have no desire to tell my grand kids about the day you couldn't walk down a dirt road barefoot and pick berries in the quiet. > More, in this case, is less.

10-2

- > > Sincerely,
- >
- Miranda Edison >
- 11 Pitch Pine Lane >
- Menemsha, MA >
- > 02552
- >
- >
- >
- > Sent from my iPhone

From:	<u>k g</u>
То:	Strysky, Alexander (EEA)
Subject:	Concern Regarding Martha"s Vineyard Airport Expansion Plan - Project # 15964.
Date:	Saturday, January 12, 2019 9:10:49 PM

Dear Mr. Strysky,

I write regarding the expansion plans for the Martha's Vineyard Airport as reported in the Martha's Vineyard Gazette, and I understand you are an environmental analyst involved in this review.

As a Vineyard landowner of more than 24 years, who values the unique culture and fragile ecosystem of the Island, its great ponds, and wildlife, I am deeply concerned about the impact of such an airport expansion on the Island and its future.

While having a safe functioning airport on the Island is important, accommodating private jets and increasing the airport capacity to hold three times as many parking spaces (and the implied exponential growth in air traffic) will have an irreversible impact on the island, changing it forever.

As my neighbors effectively argued at Chilmark a town meeting in the early 1990s that South Road should not be widened as that would only encourage unsafe speeding, building an oversized airport will result in expanded air traffic that the Island is not (and should not become) prepared to accommodate.

I hope you will take this review very seriously, note my concern, and recommend against airport expansion.

Sincerely,

K. Gardner

15-1

Dear Mr. Strysky,

I am writing to express my deep opposition to any expansion of the Martha's Vineyard airport. The island cannot handle more traffic. The area around the airport is sacred forest and bicycle trails. Please, please do not contribute to the destruction of our beautiful island. We are barely able to preserve it as it is. More airplane traffic is absolutely the last thing we need. Thank you-Holly Hodder Eger Novelist, *Split Rock: A Martha's Vineyard Novel*

--

Holly Hodder Eger 135 Cherokee Way Portola Valley, CA 94028 cell (914) 400-3107 www.hollyeger.com

For information about SPLIT ROCK, please click here.

Marilyn Feinberg
<u>Strysky, Alexander (EEA)</u>
Airport expansion
Saturday, January 12, 2019 9:21:20 AM

I am vehemently against an airport expansion . The current airport is sufficient For an island the size of the Vineyard... there are the occasional line at the peak of the Season and those are quite orderly . Marilyn Feinberg

Sent from my iPhone

12-1 12-2

From:	John Freedman
То:	Strysky, Alexander (EEA)
Subject:	MVY airport proposed expansion
Date:	Friday, January 11, 2019 2:55:49 PM
Attachments:	image002.png
	image003.png
	image004.png

Sir:

The proposed projects at Martha's Vineyard Airport (MVY) will have many impacts on the immediate environment as well as important ones on the entire island: increased traffic and congestion of a small island ecosystem, with all the accompanying human effects of requiring more food and goods 13-1 to be brought on island, and more garbage to be hauled off.

Please carefully scrutinize the proposal. You must consider the impact upon the Manuel Correllus13-2State Forest, within which MVY sits and from which it has already carved out a substantial portion.The proposal would take another significant piece of the forest away, apparently endangering a
variety of native species. As a result, permeable surface will be reduced (potentially impairing the
island's aquifer, its only water supply), while noise and air pollution will increase.13-2

Martha's Vineyard is an island of unusual historic, geologic and natural significance. Please consider the great value that could be lost should these harms occur.

Thank you for your consideration. John Freedman



John Freedman MD MBA President & CEO 29 Crafts St, Suite 470 Newton, MA 02458 617-396-3600 x200 www.freedmanhealthcare.com



From:	Nicole Galland
To:	<u>Strysky, Alexander (EEA)</u>
Cc:	boneill@vineyardconservation.org
Subject:	Airport Expansion
Date:	Thursday, January 24, 2019 6:16:03 PM

I join my voice with the many others who strenuously oppose the proposed airport expansion. It is objectionable both environmentally and culturally, and is absolutely indefensible to anyone who has any understanding of and interest in the integrity of the Vineyard community (not to mention our ecosystem). We have already reached road saturation without adding more airport traffic.

Expansion for expansion's sake is always irresponsible on an island - but given there 14-3 is no FBO at the MVY airport, it is even more irresponsible and reckless. It's a terrible business model for an airport to try to function as its own FBO once things scale up beyond "small local airport," which clearly this expansion would do.

Nicole Galland

Nicole Galland <u>nicolegalland@gmail.com</u> <u>nicolegalland.com</u>

From:	edward a. gargan
То:	Strysky, Alexander (EEA)
Subject:	martha"s vineyard airport expansion
Date:	Sunday, January 20, 2019 8:05:24 AM

dear mr. strysky: i write to oppose the proposal by the martha's vineyard airport commission to sharply increase the airport's footprint by significantly enlarging the two principal ramp areas, to construct a new taxiway, and to renovate the two existing runways so that larger planes can land and with greater frequency. the commission seeks to build new hangers to accommodate more private jet parking. finally, the commission intends to expand the existing terminal building.

it is manifestly apparent that all of the proposals will have dramatic environmental consequences for the vineyard in a number of areas. by making it easier to land larger commercial jets sound pollution on all four quarters of the airport – now to be facilitated by the renovation of both runways – will be not only measurably greater from larger individual aircraft but from an enhanced number of flights. the history of expansions of small airports is sadly repetitive; "noble" aims by civic leaders to ease access for wealthy visitors to nationally significant small or island communities have too often resulted in the loss of the "magic" that defined those communities. It needs to be remembered forcefully that airports detract rather than enchance the ambience of any environment, and that of a small island even more severely.

and it is an absolute corollary that increasing flights, both private and commercial, will bring with them a leap in auto traffic and this on a two-lane road already heaving with summertime congestion. our goal should be a reduction in automobile use not an expansion of it.

it is my hope that, through a thorough investigation and deliberative discussion, you can persuade the commissioners to rethink their ambitions for our airfield. i appreciate your time.

sincerely, edward a. gargan part-time edgartown resident since 1983

> Seasons Park Tower 13 Apt. 103 No. B36 Dongzhimenwai 100027 Beijing China edgargan@hotmail.com m +86.1380.101.9575 m +1.857.919.0519

中國 100027北京 東直門外街乙36號 海晟名苑13.103 16-2

16-1

From:	robert green
То:	Strysky, Alexander (EEA)
Subject:	Martha"s Vineyard Airport expansion
Date:	Monday, February 11, 2019 11:42:59 AM

Hello, I am responding to the proposed expansion project at the Martha's Vineyard Airport. I attended the meeting in which you outlined Mepa's concerns and areas they would be looking at in reviewing the project.

I think the letter you received from the Vineyard Conservation Society really addresses all the issues in a concise, informative manner and clearly states my concerns as well. The only additions are from my personal experience as someone who lives on Watcha Path about a mile directly South/Southeast of the airport, where I have resided for the past 40 years.

As one who bought land and built a home in the late 70's, knowing the airport was nearby, I was never bothered by the activity there and actually enjoyed the few planes that arrived and departed. Since then, the noise and air pollution has gradually increased to the point where now in the summer months, it has become an environmental disturbance. There have been times, usually when planes are stacked up on the runway for departure, with a Northwest wind that I have experienced a curtain of jet fuel when walking outside of my home. In the past, I have called the airport management about this issue. The fumes and effluent created are truly detrimental to the air quality that I have always enjoyed. Water quality , which has always been good but after the latest results over pollution from the fire retardant chemicals, is another concern and I am having my water tested this week.

Traffic has increased over the island and is noted here in both the air and on the roads leading from the airport. I feel that we are at capacity in the summer months and cannot handle any additional increases.

I would like to point out that a recent development near me was stopped because of a moth habitat recognized by the National Heritage Foundation and that this area supports a wide variety of wildlife and pond culture important to the ecosystem of the entire Island.

Thank you for your participation in the this matter. I feel that you will adequately consider the environmental impact of this project and it's impact on our community. With the advent of climate change, it is important to preserve all ecosystems. Sincerely, Robert M. Green 77 Watcha Path, Edgartown Ma.

From:	<u>tohorwitz</u>
To:	Strysky, Alexander (EEA)
Subject:	airport project 15964, Martha"s Vineyard
Date:	Friday, January 11, 2019 1:11:59 PM

Dear Mr. Strysky: I suspect you're inundated with public comment on M.V. airport expansion, so I'll stick to just two reasons this plan will be harmful to the island.

As a year-round resident, I've watched the summer crowds steadily increase to the point where we struggle to get out our driveway on weekends because of the backed-up traffic. Visits to the post-office or hospital or supermarket have become an ordeal, and we're forced to avoid favorite destinations like Menemsha because of the crowds and lack of parking. Airport expansion will greatly exacerbate this. **2**

A second, dismaying trend: there have always been elites here, but over the past decade they've really flooded in, from NY, California, and Europe: tearing down cottages to build mega-mansions, putting property prices beyond the reach of working families, and contributing to the replacement of much-needed year-round businesses with pricey restaurants and boutiques. Many bring their own staffs and chefs, limiting the benefit to local workers.

It's evident from the reporting in the M.V. Times that much of the proposed expansion is to accommodate private planes and "large corporate aircraft." In short, another bonus for the 1% that will **21-2** increase their ranks on the island, to the detriment of long-time and less well-heeled residents and visitors.

I know that most of my neighbors share these concerns. Best regards, Tony Horwitz, West Tisbury

21-1

Mr. Strysky,

I live very close to the MVY airport and I would like to ask a few questions related to this project.

Can you please tell me how much a private jet pays to land and take off at MVY? What about a private propeller plan? A commercial plane?

22-1

Does this money go to the airport commission to maintain the airport?

Thanks,

Bob

Robert Huebscher 52 Solomon Pierce Rd Lexington, MA 02420 781 863 8159 (h) 617 953 9257 (c) 781 376 0050 (w) rhuebscher@mba1982.hbs.edu Dear Mr. Strysky,

I have been a resident of Martha's Vineyard for over thirty years. I am extremely concerned about the proposed expansion of the airport. On a personal note, I ride my bike around the State Forest and the airport every day when the weather allows.

The projects will cumulatively alter 118.1 acres of land, add 17.4 acres of impervious area, add 549 parking spaces and alter 21.4 acres of rare species habitat.

The project requires MEPA review through a Mandatory EIR pursuant to 301 CMR 11.03(1)(a)(1), direct alteration of 50 or more acres of land and 301 CMR 11.03(1)(a)(2), creation of ten or more acres of impervious area. The project requires a Conservation and Management Permit from the Natural Heritage and Endangered Species Program and may require an indirect Access Permit from MassDOT. The project is receiving funding from MassDOT for environmental studies. I will be at the public consultation session on Thursday, January 31st.

Please listen to what people have to say very carefully and critically. Just because we can do this, doesn't mean that we should. I fear that this is an example of chasing tourist dollars to the point of destroying the special character of the place, which is the very reason that tourists want to come here.

Sincerely, Petra Lent McCarron

P.O. Box 4281 Vineyard Haven, MA 02568 774/310-0112 cell 508/693-4903 home 508/693-0752 offc

From:	<u>cindy kane</u>
To:	<u>Richart, Ann (MVY Airport)</u>
Cc:	Strysky, Alexander (EEA)
Subject:	expansion
Date:	Wednesday, January 16, 2019 10:58:42 AM

As a long time year round resident of Vineyard Haven, I was appalled to read about the airport expansion plan 15964.

We have already been reading about the poisoned wells, and the quality of life that is impacted by the 23-1 many abutters to the airport.

In our neighborhood, we have been impacted by the increased air traffic every summer. When is enough enough?

The airport expansion plan does not reflect the values of our small rural island. That includes private 23-2 airplane hangars for the few.

I strongly oppose this ridiculously oversized project and I don't know a single island resident who supports it.

We support maintenance only - for our perfectly sized existing airport.

Sincerely, Cindy Kane 31 Sylvan avenue, Tisbury, MA To: Alexander Strysky Secretary of Energy and Environmental Affairs

Dear Sir,

I have been a resident of Martha's Vineyard for over 3 decades and I have been disheartened by the overcrowding and lack of planned growth in certain areas. I remember the time when the airport was a collection of dilapidated quonset huts. I certainly do not want to go back to that! I like the airport as it is, but I understand that improvements need to be made to address the structure itself, the added TSA requirements and the repairs of the runways. That will probably mean some expansion of the building itself to have a waiting area after passing the security check point. I support that. I have been to the airport many times during the season and out of season. It is workable. If one compares it to big airports like JFK, it is a breeze. I do not think that it should be expanded as planned to a very large structure, added hangers, more parking spaces, and more concrete! This is a small island. I am sick of all the corporate jets coming in with the uber wealthy. I am sorry to say this, but it is true. The whole tenor of the island has been changing to accommodate the super rich and their huge homes, private planes, private beaches, private everything. We don't need more corporate jets flying on and off the island and hangers for them. We don't need more parking spaces. We need a functioning small airport that serves the needs of the people who come to the island, and moreover, those that call it their home.

Sincerely,

Barbara Kassel West Tisbury resident 24-1

24-2



208 South Great Road, Lincoln, MA 01773 781.259. 2172 <u>hricci@massaudubon.org</u>

February 12, 2019

Secretary Matthew Beaton Executive Office of Energy and Environmental Affairs Attention: MEPA Office 100 Cambridge Street Suite 900 Boston, MA 02114

Via Email: <u>alexander.strysky@mass.gov</u>

Re: <u>EOEEA # 15964 Martha's Vineyard Airport Capital Improvement Plan Projects,</u> <u>West Tisbury and Edgartown</u>

Dear Secretary Beaton:

On behalf of Mass Audubon, I submit the following comments on the Environmental Notification Form (ENF) for this project. This project exceeds several thresholds under the Massachusetts Environmental Policy Act (MEPA) regulations, triggering the requirement for a mandatory EIR.

The Scope for the EIR should be comprehensive and should include:

- 1. Alternatives analysis for each of the nine projects components. The EIR should evaluate each item in relation to whether it is required to meet essential airport operational and safety needs.
- 2. For essential project components that will be advanced, an analysis of design options to MA-2 avoid, minimize and mitigate environmental impacts.
- 3. Existing and proposed habitat conditions and management plans, taking into account the site's context surrounded by (formerly part of) the Manuel Correllus State Forest, and the MA-3 presence on and around the airport of diverse habitats including grassland, scrub-shrub, and forested lands supporting more than twenty state-listed rare species including birds, invertebrates, and plants as well as many other uncommon or declining species.
- 4. A comprehensive water management plan for the site that is fully protective of the island's Sole Source Aquifer.

Rare Species and Habitat Management

The project includes work in Priority Habitat and will require a Conservation and Management Permit (CMP) from the Massachusetts Natural Heritage and Endangered Species Program (NHESP) under the Massachusetts Endangered Species Act (MESA). Previous projects at the airport were issued a CMP in 2005, amended in 2009 and 2014 to allow additional projects. The current review should evaluate the effectiveness of previously approved habitat management plans and opportunities to further enhance habitat for rare and declining species. MA-5 A carefully designed and implemented grassland management plan (including mowing schedules) for the site could potentially enable the property to support species including Grasshopper Sparrow, Eastern Meadowlark, and Savannah Sparrow. The Pitch Pine/Scrub Oak habitat around the airfield, both on the property and in the adjacent state forest, is important to several species including the Eastern Towhee, Prairie Warbler, and Eastern Whip-poor-will. Whip-poor-wills are listed as being of Special Concern in Massachusetts (https://www.mass.gov/files/documents/2016/08/tm/antrostomus-vociferus-2015.pdf), and the Manuel Correllus State Forest and vicinity is listed as one of "only six sites in Massachusetts that support 20 or more pairs of Whip-poor-wills."

Given that this is a project of significance to the entire island, mitigation should be designed broadly. It should include consultation with the Department of Conservation and Recreation (DCR) and a commitment to support DCR in cooperative ecological monitoring and management in the forest surrounding the airport. In particular, we suggest the pursuit of a multi-year research plan focused on monitoring Eastern Whip-poor-wills in the state forest. Northern Bobwhite, American Woodcock, and Chuck-will's-widow also have been documented in the area surrounding the airport. Other species of interest that utilize the area include Snowy Owls in winters, and in surrounding woodlands Long-Eared Owl, Saw-whet Owl, Eastern Screech-Owl, and Great Horned Owls. The Pitch Pine/Scrub Oak habitat on and around the airport also supports several rare species of moths.

MA-8

MA-9

Water Management Plan

The airport is situated in the center of the island, directly on top of the Sole Source Aquifer. The EIR should summarize historic and existing water contamination on the property, and should include a comprehensive plan for protecting the aquifer during all ongoing operations. The ENF proposes to alter 118 acres of land and to increase impervious surfaces by 17.4 acres. Alternatives for avoiding a net increase in imperviousness should be considered. In particular, the need for the proposed addition of 549 new parking spaces should be given close scrutiny and options to avoid or minimize those impacts should be considered.

Thank you for considering these comments.

Sincerely,

2. Hinda Rico

E. Heidi Ricci Assistant Director of Advocacy

Cc: Ann Richart, Airport Manager NHESP DCR Martha's Vineyard Commission Edgartown Selectmen West Tisbury Selectmen Susan B. Murphy

P.O. Box 61

Chilmark, Massachusetts 02535

February 7, 2019

Secretary of Energy and Environment

Environmental Affairs

MEPA Office

100 Cambridge Street Suite 900

Boston, Ma. 02114

Airport Project15964

Dear Secretary:

I have lived on Martha's Vineyard continuously since 1972, the year I finished college. I have seen many changes in the last 47 years as the economy of the Vineyard accelerated its dependence on tourism.

No single event has outraged me more, or caused me to write a letter to a state official protesting its advancement than this plan to expand and overhaul the Martha's Vineyard Airport.

I cannot speak to the environmental impact this project will have on the flora of the immediate vicinity, but if the people who live here year round can be considered "fauna," the impact will be profound.

The notion that the congestion of the summer should dictate this project is 28-1 clearly an example of thinking that does NOT reflect the needs or desires of the people who live here, however dependent we may be on summer visitors.

The island roads are at capacity in July and August. Gridlock occurs now in 28-2 West Tisbury, not just Oak Bluffs, Edgartown, and Vineyard Haven. Just getting groceries has to be timed between Steamship Authority ferry arrivals. Expanding the airport's capacity to receive even MORE people in the summer is NOT what we need.
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10 200 N. P.

California Science A standard (Science)

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MERA-OFFICE

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I have fixed on Morthers Mineyard continuously since (M22, the year Ethermodel + college. I have seen muck charges in the last 4.1 years as the aconomy of the Mineyard received us dependence or tourism.

No single event has obtained no more, or coursid risk to write a letter to a store orficial processing its advancement than this plac to expand and overhaul the Murtha's Viney and Airpon

Campor speak to use an incremental ansact this project will have on the flow of the immediate vicinity, but it the people who have bare year round can reconsidered "flomo." the minet will be profound.

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The island-route are at experity in July and Jugast Citillack occurs now in West Tishney, not just that Burtown, and Varyana daven. Just geaing groderies has to be timed between Steamship Authority Barivals. In particular the airbott's capacity to route a sea MORE people of the normer is NOE what we need.

The terminal built during World War II served the Vineyard until about 20 years ago, when the current building was built. For ten months of the year it is an empty, cavernous space.

True, much has changed in the movement of people through an airport after 28 - 3September 11, 2001 which was not anticipated in the terminal's design. I understand the need to expand space or re-configure existing space for TSA needs. But to replace the terminal and to expand parking and upgrade runways for more jet traffic? Build hangars for private jets?

What seems to be driving this is the availability of federal money for airport upgrades. Perhaps the thinking is, "Ask for the moon and see what we come up with." I assure you, NO ONE, not a single person I know, has anything positive to say about this project. This is the single most outrageous project ever proposed in the 47 years I have lived here.

Unless you have discovered a way to make more area on Martha's Vineyard, I cannot imagine where we could possibly accommodate more people in the summer. Martha's Vineyard is at capacity. Do not make it any easier for people to get here. One of Massachusetts' gems, the island of Martha's Vineyard itself, is in danger of being destroyed with this airport expansion proposal.

Respectfully,

Susan B. Murphy

28-4

The terminational dense of bard Ward served the Viney ad with about 79 years ago, when the correct he diffing year built. For terminantic of the year to ream comply, covernous space.

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From:	<u>salemm@gmail.com</u>
To:	<u>Strysky, Alexander (EEA)</u>
Cc:	<u>Richart, Ann (MVY Airport)</u>
Subject:	MV Airport expansion
Date:	Tuesday, January 15, 2019 11:07:53 PM

I am a full time resident of Martha's Vineyard. I am here because I value the natural beauty and serenity of this island. I cannot believe that this fragile eco system that is the natural habitat of of so many precious animals, which is the reason why people come to admire and enjoy, is being threatened 26-1 by the officials who should be in charge of defending and preserving it. I am appalled by the plan to expand the airport and destroy its surrounding by covering it with concrete, and with noise and other pollutants. I am outraged and so disappointed by such hubris, and for what !? For the convenience of those members of the 1% who fly into this airport!!!??? I hope that some sense of responsible thinking will halt this madness and direct our efforts to protecting it rather than destroying our wonderful and vulnerable home.

Thank you for your considerate and compassionate attention.

Salem Mekuria

Sent from my iPhone

26-2



February 7, 2019

The Commonwealth of Massachusetts

Secretary Matthew A. Braton am Francis Galvin, Secretary of the Commonwealth Executive Office of Energy & Environmental Affairs Attn: Alex Strysky, MEPA Unit 100 Cambridge Street, Suite 900 Boston, MA 02114

RE: Martha's Vineyard Airport, Capital Improvement Plan Projects, West Tisbury and Edgartown, MA. MHC #RC.48090. EEA #15964.

Dear Secretary Beaton:

Staff of the Massachusetts Historical Commission (MHC) have reviewed the Environmental Notification Form (ENF) submitted for the project referenced above. The project includes nine separate projects associated with runway safety, taxiways and structure improvements. The MHC has also received a Project Notification Form (PNF) submitted by McFarland-Johnson on behalf of the Airport for the demolition of a decommissioned well house at the intersection of South Line Road and Barnes Road (MHC #RC.2664).

The airport is included in the MHC's Inventory of Historic and Archaeological Assets of the Commonwealth (MHC #WTI.HA.21) because of its former use as a military airfield. Multiple archaeological investigations have been conducted at the airport during previous projects. Previous archaeological investigations suggest that the majority of the airport exhibits low archaeological sensitivity, due to previous disturbances associated with past military construction activities. However, the currently proposed project impact areas do not appear to have been evaluated for archaeological sensitivity as part of previous projects.

The MHC requests that an archaeological reconnaissance survey (950 CMR 70) be conducted for the project, including the proposed well house demolition. The purpose of the survey is primarily to develop an archaeologically sensitivity assessment for the project impact area. The results of the survey will provide information, and recommendations for further intensive (locational) archaeological survey, if any, to assist in consultation to consider alternatives to avoid, minimize, or mitigate any adverse effects to significant historic and archaeological resources.

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), and/or Massachusetts General Laws, Chapter 9, Sections 26-27C (950 CMR 70-71) and MEPA (301 CMR 11). If you have any questions concerning this review, please contact Jonathan K. Patton, Archaeologist/Preservation Planner at this office.

Sincerely,

Bron

Brona Simon State Historic Preservation Officer Executive Director State Archaeologist Massachusetts Historical Commission

XC: Ann B. Richart, Director, Martha's Vineyard Airport Richard Doucette, FAA Bettina Washington, Wampanoag Tribe of Gay Head (Aquinnah) David Weeden, Mashpee Wampanoag Tribe Massachusetts Aeronautics Commission West Tisbury Historical Commission Edgartown Historical Commission Jed Merrow, McFarland-Johnson

> 220 Morrissey Boulevard, Boston, Massachusetts 02125 (617) 727-8470 • Fax: (617) 727-5128 www.sec.state.ma.us/mhc

DIVISION OF

1 Rabbit Hill Road, Westborough, MA 01581 p: (508) 389-6300 | f: (508) 389-7890 M A S S . G O V / M A S S W I L D L I F E



February 12, 2019

Matthew A. Beaton, Secretary Executive Office of Energy and Environmental Affairs Attention: MEPA Office Alex Strysky, EEA No. 15964 100 Cambridge St. Boston, Massachusetts 02114

Project Name:	Martha's Vineyard Airport Proposed Capital Improvement Plan Projects
Proponent:	Martha's Vineyard Airport Commission
Location:	West Tisbury & Edgartown
Project Description:	Capital Improvement Plan Projects - 10 Facilities and Safety Projects
Document Reviewed:	Environmental Notification Form
EEA File Number:	15964
NHESP Tracking No.:	17-36753 (12-30706)

Dear Secretary Beaton:

The Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife (the Division) has reviewed the *Environmental Notification Form* (ENF) for the Proposed Capital Improvements Plan Projects for Martha's Vineyard Airport located in West Tisbury & Edgartown and would like to offer the following comments.

Martha's Vineyard Airport is mapped as *Priority and Estimated Habitat* for state-listed species as indicated in the *Massachusetts Natural Heritage Atlas* (14th Edition). Martha's Vineyard Airport contains a variety of habitats including, sandplain grassland, scrub-oak shrubland and pitch pine-oak woodland. These habitats support a variety of species, including 21 state-listed invertebrate species, 5 state-listed plants, and 3 state-listed bird species. These species and their habitats are protected pursuant to the Massachusetts Endangered Species Act (M.G.L c. 131A) and its implementing regulations (MESA, 321 CMR 10.00). Portions of Martha's Vineyard Airport are currently managed to maintain habitat for state-listed species in accordance with the provisions of the MESA Conservation and Management Permit (004-039.DFW).

All projects that will occur within *Priority and Estimated Habitat* for state-listed species, which are not otherwise exempt from MESA review pursuant to 321 CMR 10.14, require a direct filing with the Division for compliance with the Massachusetts Endangered Species Act (MESA 321 CMR 10.00). The Proponent has initiated consultation with the Division concerning the proposed Capital Improvements Projects. As project plans are developed, the Proponent should continue to consult with the Division to minimize impacts to state-listed species and their habitats. Although a formal MESA filing has not yet been submitted, the Division anticipates – based on previously submitted information and ongoing consultations with the Proponent – that the Capital Improvement Plan (CIP) Projects, as proposed, will likely result in a Take (321 CMR 10.18 (2)(b)) of state-listed species.

DFW -1

MASSWILDLIFE

Projects resulting in a Take of state-listed species may only be permitted if the performance standards for a Conservation and Management Permit (CMP; 321 CMR 10.23) are met. For a project to qualify for a CMP, the applicant must demonstrate that the project has avoided, minimized and mitigated impacts to state-listed species consistent with the following performance standards: (a) adequately assess alternatives to both temporary and permanent impacts to the state-listed species, (b) demonstrate that an insignificant portion of the local population will be impacted, and (c) develop and agree to carry out a conservation and management plan that provides a long-term net benefit to the conservation of the state-listed species.

The Proponent has consulted with the Division on a pre-filing basis. It is our understanding that the Proponent intends to meet the performance standards of a CMP. The Proponent should continue proactive consultations with the Division to determine a suitable long-term net benefit for state-listed species. At this time, as the full scope of these projects and their impacts to state-listed species and their -3habitats have not been determined, thus details of the long-term net benefit required under a CMP have not been finalized. However, the Division anticipates that a suitable long-term net benefit could be DFWachieved through the protection of suitable, high quality habitat, management of habitat, and/or an evaluation of the long term net-benefit that may be available as a component of CMP 004-039.DFW; therefore the Division anticipates that the CIP Projects should be able to meet the performance standards of a CMP.

Division will not render a final decision until the MEPA review process and associated public and agency comment period is completed, and until all required MESA filing materials are submitted by the proponent to the Division. As our MESA review is not complete, no alteration to the soil, surface, or vegetation and no work associated with the proposed project shall occur on the property until the Division has made a final determination.

If you have any questions about this letter, please contact Amy Hoenig, Endangered Species Review Biologist, at (508) 389-6364 or Amy. Hoenig@state.ma.us. We appreciate the opportunity to comment on this project.

Sincerely,

Thomas W. French, Ph.D. Assistant Director

cc: Jed S. Merrow, McFarland Johnson Edgartown Board of Selectmen Edgartown Conservation Commission Edgartown Planning Department West Tisbury Board of Selectmen West Tisbury Conservation Commission West Tisbury Planning Department **DEP Southeast Regional Office, MEPA**

DFW -2

DFW -4

DFW -5

Re: Martha's Vineyard Airport Capital Improvement Plan Projects--EEA#15964

Dear Mr. Strysky,

I am submitting comments concerning the Martha's Vineyard Airport Capital Improvement Plan Projects--EEA#15964. I am incorporating the comments in the body of this email and also attaching them as a separate document.

I am a year-round resident of West Tisbury on Martha's Vineyard. I am also a member of the Massachusetts chapter of Elders Climate Action (ECA). ECA is a national organization of "elders"—grandparents, and also anyone who has a concern for the future we leave our next generations—committed to reducing the negative impacts of human activity, including air traffic and building construction, on the environment and on climate change.

My overarching message is three-fold:

 The Vineyard is a special place to live and to visit. It is special because of its beautiful natural setting and environment, and because of its intimate, caring, and cohesive community. Both our natural environment and our community will 27-1 be adversely impacted by airport "improvements".

A false premise underlies the airport improvement plan--that current overcrowding is unavoidable and must be accommodated. This is not true. The airport cannot control some aspects of its operations, but it does have other tools to use to limit current overcrowding as well as future growth and their adverse impacts on Martha's Vineyard. The airport should use these tools instead of the proposed "improvements".

3. Air travel is harmful to the environment and to the climate. This is not the 27-3 time to expand. It is the time to practice intelligent management of growth.

More specific comments:

• The section of the airport's improvement plan impact statement addressing feasible alternatives considered and not selected—especially numbers 5.6.7 and 9—is unresponsive verging on trivial. No reasonable, credible assessment of the 27-4 recommended alternative can be made from this report.

Air traffic peaked in 1999, declined until 2011, then increased slightly, and dropped this past year from the year before. The FAA's TAF for January 2018 projects growth in emplanements of 11.6% and in total itinerant and local operations to be 4.2%. This is not an airport that needs to double the size of its terminal.

• Air traffic produces a range of environmental degradation, including not only 27-6 harm to rare species habitat and water contamination, but also particulate, noise, and light pollution. The majority of the airport usage is from seasonal visitors, but the environmental impacts fall most heavily on the Vineyard's year-round

p. 2-- EEA#15964--Moorman

residents. Instead of causing further harm, air traffic could be better managed to reduce adverse impacts and avoid unnecessary facility expansion.

• Air travel is a major source of adverse climate impact through its carbon emissions. Each air passenger produces a carbon impact far greater than passengers in other modes of transportation. We should do all in our power to limit the flow of airplanes and passengers through this airport.

Beyond safety concerns, the airport officials have explained that a chief purpose of the master plan and proposed expansion projects is to relieve overcrowding. Officials report that current usage so overwhelms the airport facility that passengers become uncomfortable and frustrated, miss flights, and complain to the airlines, thus giving the airlines high dissatisfaction rates. The airlines then put pressure on the airport to expanded its facilities. Closer examination reveals that the overcrowding, in the terminal, at TSA security, and on the access road, occur almost exclusively during the months of June-August between the hours of 11:00 a.m. and 3:00 p.m. The congestion is caused because airlines schedule their major flights from Washington DC and New York to land and depart in this narrow window of time. In other words, the airlines are complaining about congestion, and seeking terminal expansion to relieve congestion, that the airlines themselves have caused! The community has overwhelmingly expressed its opposition to such expansion. It is a burden on the year-round community and an offense to taxpayers to spend FAA funds on unnecessary terminal and hangar expansion. This community calls upon the airlines to remove the source of the congestion they have caused by reworking their schedules to spread the traffic and demand out across a longer day.

• The airport insists that it cannot control the airlines' schedules, and so must expand to deal with the peak congestion. At the same time, the airport says, "MVY cannot commit to airlines requesting route development at MVY due to limited infrastructure. This project will allow multiple domestic flights to operate simultaneously and increase route development opportunities." That sounds to me as though the airport *can* control simultaneous operation and route development. Again, the reasonable and cost-effective solution is for airlines to adopt schedules that permit them to provide their customers with comfortable, reliable, well-scheduled routes.

• The airport does have in its control how it sets prices on landing, tie-down, and storage fees, and to some extent fuel prices. The standard economic means of controlling unwanted growth/excess demand is to raise prices. Before the airport doubles the size of the terminal to accommodate excess traffic, it should make use of those tools to reduce airline traffic demand.

No one on Martha's Vineyard will argue that the airport does not provide jobs and economic benefit. Nor that safety is paramount. I wholeheartedly approve of improvements made to runways and adjacent areas for the sake of safety. What I argue for is not to get rid of the airport or make it non-functioning. I argue against expansion, whose cost and impact on the Vineyard is greater than its need or

27-7

27-8

p. 3-- EEA#15964--Moorman

benefit. Let's remember that the federal legislation SAFETEA-LU calls for airports to "protect and enhance the environment, promote energy conservation, [and] improve the quality of life." Let's give it a try by curtailing unneeded expenditures and building "improvements" that degrade the environment and, instead, call upon the airlines to reduce and schedule their flights in a reasonable and respectful manner.

Thank you very much for your careful consideration of these comments.

Sincerely,

Hunter N. Moorman --Hunter Moorman PO Box 1449, 106 Panhandle Rd. West Tisbury, MA 02575 508-693-6522 (H) 202-309-4896 (C)



Matthew A. Beaton, Secretary EEA Attn: Alex Strysky, MEPA Office 100 Cambridge Street Boston, MA 02114

RE: 15964 MV Airport Capital Improvement Plan Projects, Towns of West Tisbury and Edgartown

February 12, 2019

Dear Secretary Beaton,

Thank you for the opportunity to submit MVC staff comments on 15964 MV Airport Capital Improvement Plan Projects, in the Towns of West Tisbury and Edgartown. It is likely that the developments will be heard for approval as one or more DRI (Development of Regional Impact) or DRIs. At this time, staff comments only are presented. Adam Turner, Mike Mauro, Bill Veno, Dan Doyle, Sheri Caseau, and Paul Foley and contributed to staff review.

Overall Evaluation of ENF

The ENF includes helpful drawings and descriptions of the proposals, and adequately presents the FAA safety requirements driving the proposed runway modifications. However, the ENF does not appear to clearly articulate the need or alternatives regarding expansion items, particularly for parking of planes and cars. The MVC ENF should clearly quantify desired growth from the projects (as opposed to simple maintenance); both the need for growth and the impacts of growth. The ENF includes confusing inconsistencies regarding growth. For 1 example, parking for cars is proposed to increase by 549, to be added to the present 369 spaces. Trip generation, however, is projected to remain flat at 1,300+.

The Projects

The ENF presents 10 projects which are included in the comprehensive 2016 *Martha's Vineyard Airport Capital Improvement Plan.* The projects include runway and taxiway rehabilitation; construction of a concrete pad at the fuel farm; expansion and renovation of the terminal building, including creation of 549 new parking spaces and a right turn lane at the street exit; and plane parking expansion including pavement of grass parking areas, construction of up to 4 new and removal of 4 old hangars (net gain in hangar space).

<u>Runway and Taxiway Rehabilitation</u> – The description of the need and the work appears to be adequate, for the most part. The DEIR should expand on the stormwater proposals, beyond the ENF statement "Permanent stormwater management measures such as catch basins and infiltration MVC practices will be implemented to provide treatment of runoff from new impervious surfaces." -2

<u>Fuel Farm</u> – The ENF appears to adequately describe the need for and details of the proposed fuel farm remediation. The DEIR should expand on the need to protect the sole source aquifer and south shore ponds from contamination via groundwater movement.

Expansion and Renovation of Terminal Building

- <u>Building</u> The DEIR should quantify the demand for building expansion, and differentiate between need to upgrade the facility for workplace safety and to adequately meet TSA standards, separate from the need for growth to meet demand. Commercial passenger traffic was reported to have declined since a peak in the 1980's, and is expected to be flat in the near future (although General Aviation passenger volume grows; GA is served by a separate MVC-4 building). A well-founded estimate for growth in commercial passenger volume should be included in the DEIR, along with assessment of impacts of that growth. The DEIR should include any proposed "green" construction for the building expansion. Are solar facilities allowed by the FAA? Will the roof produce solar power?
- <u>Creation of 549 new parking spaces</u>
 - The DEIR should clearly explain the need to increase vehicle spaces by 549, to be added to the present 369 spaces; particularly since trip generation is projected to remain flat at 1,300+. The DEIR should quantify the need, including at the very least: parking counts at the airport separated by time of day, week and month, length of stay, etc.; counts from comparable facilities such as the Tisbury Park'n'Ride, indicating capacity of other MVC-5 facilities to absorb the estimated growth at the airport. Review of alternatives should include upgrades to taxi and bus service facility, and use of existing large parking facilities such as the Tisbury Park'n'Ride.
- Right turn lane at entrance
 - <u>Data needed</u> Additional turning lanes are typically mitigation measures applied when addressing capacity issues. The extent by which a right turn lane may reduce some of the stacking that periodically occurs at the exit is a function of a) the volume of vehicles exiting, b) the number of exiting vehicles turning left vs. right, c) the length of the MVC-6 turning lane, and d) the speed and interval of vehicles on Edgartown-West Tisbury Rd. The DEIR should include data quantifying these variables.
 - <u>Review of alternatives</u> The DEIR should thoroughly explore alternatives to the right turn lane.
 - An additional proposal that could significantly reduce the volume of vehicles exiting left from the entrance is to open a roadway between the terminal area and the business park road network. While such a road would pass through the southern approach zone for Runway 33, which is contrary to FAA regulations, the potential positive impact on traffic circulation and reduced emissions warrant MVC examination in the DEIR. Runway 33 only accommodates smaller aircraft and is _7 less frequently used that the main Runway 6. Even if the road connection were restricted to transit buses and service of rental vehicles (the latter for fueling and washing), there would be a reduction of turning vehicles at the airport entrance and at the intersection of Barnes Road and Edgartown-West Tisbury Road. This alternative should be thoroughly investigated in the DEIR.
 - Consideration should be given to the option of planning for a roundabout at the exit's intersection with Edgartown-West Tisbury Road, to reduce speed generally (from 35 mph to 20 mph) and to minimize any stacking and idling of vehicles; as MVC a future option for left-turning vehicles exiting the Airport, as traffic volume -8 grows on the receptor Edgartown-West Tisbury Road.

Plane Parking Expansion

- The DEIR should quantify the demand for new hangar construction, beyond the request of one potential lessee. Are the present hangars climate controlled? Are the proposed hangars to be MVC climate controlled? If so, the DEIR should quantify the proposed energy needs and sources. -9
- The DEIR should quantify the need for expansion of paved outdoor plane parking. Any proposed expansion of paved plane parking (i.e. not grass) should clearly quantify the impacts of adding MVC-impervious surfaces, and clearly explain the need. The DEIR should clearly explain the need for 10 these surfaces to be paved, rather than grass; particularly since both the Southwest and the Southeast Ramp expansions lie within Priority Habitat.

Consistency with Regional Island Plan

- Economic Development The ENF states consistency with economic and development components of the *Island Plan*. The *Island Plan*, however, proposes economic development in the already-established town centers, rather than sprawl into more rural parts. The *Island Plan* recognizes the importance of visitor services to the economic well-being, but also cautions against over-development or MVC-11 inappropriate development that could detract from the natural and cultural resources that are the foundation of the appeal to visitors. The DEIR should address the following economic objectives of the *Island Plan*:
 - a. Look to the creative stewardship of the Island's rich natural resource base to generate interesting, meaningful living-wage jobs.
 - b. Strengthen ad gradually realign our core, visitor-based economic activities...If we overbuild the Island, however, our natural and cultural resources can become endangered, therefore undermining the economy.
 - c. Locate commercial activities appropriately...Keep retail activities and visitor services concentrated in vibrant, walkable, town centers...and avoid retail development in other areas....
 - d. Protect community character by ensuring that buildings fit their context especially as seen from public places such as roads and public waters...
 - e. Encourage use of environmentally sound "green building" techniques and minimize the negative environmental impacts of building and human habitation.
- 2. <u>Adequacy of Infrastructure</u> The ENF states consistency with infrastructure components of the *Island Plan*, stating: "Improving facilities at the airport will better accommodate existing and projected airport traffic; providing an alternative to vehicular traffic". The statement does not differentiate between: existing and proposed air traffic; existing and proposed vehicular traffic. Throughout the ENF, there is a lack of differentiation between intentions for the proposals to address existing air or vehicular traffic, or to address proposed growth in air or vehicular traffic. The DEIR should quantify existing and MVC-12 proposed traffic need, as well as review of alternatives for such measures as those addressing vehicular traffic and parking. The DEIR should clearly explain why parking for cars is proposed to increase by 549, to be added to the present 369 spaces; trip generation, however, is projected to remain flat at 1,300+. On page 25 the ENF states the "The airport will continue to serve as a Bus Hub", but there is nothing in the plan to ensure that this in fact will continue to be the case. The DEIR should include proposals for safer drop-off, pick-up areas for the buses. The DEIR should address, at a minimum:
 - a. Use physical traffic calming techniques to slow traffic and improve safety in neighborhoods...The general aim is to minimize congestion and improve safety at critical roads and intersections by emphasizing traffic management over major physical modifications (more roads, wider roads, traffic lights) that would degrade the character of the Island.
 - b. Improve the efficiency and promotion of the Island's buses, taxis and ferries.

- <u>Open Space Impacts</u> Overall, the project proposes to convert 21.4 acres of Priority Habitat grassland to impervious surface, while returning 11.4 impervious acres to grass. The DEIR should address, at a minimum, the following:
 - a. Preserve and reinforce the traditional settlement pattern of the Island...Limit significant new 13 development in outlying areas.
 - b. Restore and improve areas that were developed in problematic ways in the past...Destroyed or fragmented habitat in rural areas can be restored, as can the character of country roads with overly visible new development.

14

<u>Consistency with MV Transportation Plan and TIP</u> - Although the ENF is consistent with the RTP and TIP from a verbiage standpoint, the proposal itself is far too vague to evaluate at this time without more information. MVC-

Thank you for the opportunity to submit staff comments at this time.

Sincerely,

J. Cum Taylor

MEPA Review Coordinator

Hi Alex,

I'm writing in fervent opposition to the potential expansion of the Martha's Vineyard airport. Thank you for soliciting local perspectives as you consider whether or not to move forward with a version of the current proposal.

MV is a unique place for both year-round residents and summer visitors because it has always maintained a rural, small-town culture and atmosphere, while so many other once-wonderful communities have been degraded by over-development and excessive tourism.

After visiting MV during summers throughout my childhood, I then lived on the island year-round for more than 10 years. I have worked my way through multiple Cape Air commuter ticket-books, primarily during recent summer seasons, primarily on busy weekends (to and from work in Boston, when the highway to Cape Cod is particularly crowded).

Therefore, I speak from extensive personal experience with regards to the unnecessary nature of the proposed expansion. The waits are not bad compared to any other form of transportation and parking is rarely an issue. The airport is reliable and pleasant the vast majority of the time — it's in fact the best American airport I've encountered in terms of wait times, cleanliness, functionality, etc. 20-1

Expanding the airport's car and plane capacity will not effectively accommodate the existing traveler population as intended: it will just encourage more flights, more visitors, more cars — and therefore more crowding, more congestion, and more pollution. The answer is to cap or reduce the number of flights, not to enable an increase — which is almost certainly what will happen if capacity is expanded.

Furthermore, to grow the airport at the expense of the local state forest, which is environmentally important and a great island feature for both residents and tourists, would be shameful.

20-4

Lastly, any and all proposals related to assisting corporate and/or personal jets should be nixed immediately. I have flown privately via the MV airport, and to use federal (or local) taxpayer dollars to help our richest community members with private travel is an absurd use of resources.

Therefore, I respectfully ask that you withdraw or dramatically reduce the current proposal. Additional parking specifically for airport employees sounds fine.

Regards, Nathaniel

--—NBH I oppose the proposed expansion plan for the airport terminal and parking facilitates. 1) The airport 29-1 terminal is empty 10 months of the year. Why expand the terminal and parking lots for two months of the year. This seems senseless to. 2) the airport is located adjacent to the state forest and close to the TTOR Long Point Sanctuary. The noise and loss of open space will have adverse effects on the wildlife and bird life resulting from both construction and long term by increased air traffic, both from private plans and increasingly larger commercial flights.

Thanks you for considering my comments. Beatrice Nessen 715 Old County Rd. West Tisbury

PLEASE MAKE NOTE OF MY NEW EMAIL ADDRESS: bnessen@2nessen.com

Beatrice Wolfner Nessen <u>bnessen@2nessen.com</u> The Garden of Peace is a memorial to Massachusetts victims of homicide. To learn more visit: <u>http://www.gardenofpeacememorial.org</u> NO! Not a cent! 32-1

On 14 Jan 2019, at 10:00 AM, Strysky, Alexander (ENV) <<u>alexander.strysky@state.ma.us</u>> wrote:

The Consultation Session for this project has been rescheduled. It will take place on Thursday January 31, 2019 at 5:30 PM at the Airport Terminal. There will be a site walk before the consultation session. The site walk will start at 3:30 and the public is welcome to attend.

The Proponent has requested another extension of the comment period. On behalf of the EEA Secretary, the request is granted. The comment period will end on February 12, 2019.

If you have submitted comments already, it is not necessary to submit them

NOTICE OF MEPA CONSULTATION SESSION and \COMMENT PERIOD EXTENSION

EEA No. 15964 Martha's Vineyard Airport Capital Improvement Plan Projects, West Tisbury and Edgartown

Project Description: An Environmental Notification Form (ENF) has been filed with the Executive Office of Energy and Environmental Affairs by the Martha's Vineyard Airport Commission to implement the projects identified in the 2016 Capital Improvement Plan listed below:

- 1. Runway 6/24 Side Safety Areas and Primary Surface Obstruction
- 2. Rehabilitate Runway 15/33 and Regrade Side Safety Areas
- 3. Construct Concrete Fuel Pad at Fuel Farm

- 4. Expand and Renovate Existing Terminal Building
- 5. Remove Existing Taxiway E and Construct New Taxiway E
- 6. Pave Transient Turf Tie Down Area
- 7. Southeast Ramp Expansion
- 8. Southwest Ramp Expansion
- 9. Construct New Aircraft Hangars

The projects will cumulatively alter 118.1 acres of land, add 17.4 acres of impervious area, add 549 parking spaces and alter 21.4 acres of rare species habitat.

The project requires MEPA review through a Mandatory EIR pursuant to 301 CMR 11.03(1)(a)(1), direct alteration of 50 or more acres of land and 301 CMR 11.03(1)(a)(2), creation of ten or more acres of impervious area. The project requires a Conservation and Management Permit from the Natural Heritage and Endangered Species Program and may require an indirect Access Permit from MassDOT. The project is receiving funding from MassDOT for environmental studies.

A public consultation session will be held to receive advice and comments from agencies, officials, and citizens regarding which environmental issues, if any, are significant for this project. Opinions as to the extent and significance of possible environmental impact will be welcome.

The Proponent has requested an extension of the comment period. On behalf of the Secretary, the request is granted. The deadlines below reflect the extended comment period.

Public consultation session scheduled for: Wednesday, January 16, 2019 at 11:00 AM Thursday January 31, 2019 at 5:30 PM. We will meet in the Airport Terminal, 71 Airport Road, West Tisbury. There will be a site walk at 3:30 PM. The public is welcome to attend. We will meet at the terminal building.

MEPA comments due on or before: January 29, 2019 February 12, 2019

Certificate due: February 8, 2019 February 22, 2019

Contact for project information: Ann Richart, (508)693-7022, <u>arichart@mvyairport.com</u>

MEPA contact: Alex Strysky, (617) 626-1025, <u>alexander.strysky@mass.gov</u>

Alex Strysky

MEPA Office

100 Cambridge Street, 9th Floor

Boston, MA 02114

ph: (617) 626-1025

fx: (617) 626-1181

From: Ollie Becker <<u>becker.ollie@gmail.com</u>>
Sent: Thursday, January 17, 2019 11:35 AM
To: Strysky, Alexander (EEA)
Subject: Martha's Vineyard Airport Project 15964

Dear Alexander,

My name is Oliver Becker, and I am writing in opposition to the proposed expansion of the Martha's Vineyard airport. I am a year round resident here, and am extremely concerned about the impact this expansion will have on the surrounding wildlife, and the community at large. With recent reports of contamination to the water table, increasing the scale of the airport becomes even more concerning. I am sure you are aware of the many endangered species that reside in the woodlands abutting the airport, and this expansion will clearly compromise that habitat.

Furthermore, the air traffic patterns are directed over coastal salt ponds, which are home to rare bird species like Ospreys. The noise from the current amount of jet traffic is already disruptive, and aiming to increase this doesn't make any sense. This expansion is not based out of need either, the statistics of how the airport is currently used simply don't support this level of development, and the residents here (both summer and year round) already feel there is too much disruption from jet traffic as is. Please consider limiting the expansion of the airport or blocking it completely, thank you for your time.

All the best,

-Oliver

35-1

airport project 15964

Good morning,

The airport is a **dead zone** in the winter, it's only busy in the summer and I can tell you that to lose more acreage of natural wildlife and plant life on this small island is not worth an expansion.

I know that many people agree with me but whether or not they will voice their opinion, I don't know.

Please don't expand, we don't need it, it's a waste of money for the few folks it would benefit in the summer season (the big jets, the private jets).

Thank you, Dana Parkhill-Day Edgartown, MA Dear Mr. Strysky:

I am writing to comment on the potential environmental impacts of the MVY Expansion Project (Project number 15964).

As a resident of Martha's Vineyard (Edgartown) I believe that the environmental impact on the fragile eco-system of the Vineyard should be thoroughly considered prior to any approval of any expansion of MVY, let alone the contemplated major 31-1 MVY Expansion Project.

In particular, fueling in MVY requires both transportation of fuel to the Island and risks fragile areas south of the airport. It is not surprising that risky levels of PFAS were found in 13 out of 96 wells south of MVY according to recent reports in local newspapers. In addition, more than doubling the number of parking spaces and creating more impervious areas therefor, may adversely affect the state forest around the airport, a crucial resource in keeping the Vineyard green.

If an MVY expansion is require it should be minimal, after all 9 months a year MVY is spacious for its users. If an investment in a regional airport is required, a major investment in the New Bedford Regional Airport (EWB) makes more sense environmentally (also economically). A shuttle service (by Cape Air or a different airline) from that airport can help with any overflow at MVY.

Thank you for considering my input

Zeev Pearl Edgartown, MA



Zeev Pearl | Managing Partner Pearl Cohen Zedek Latzer Baratz IL, US and UK <u>ZPearl@PearlCohen.com</u> | Tel. +972-3-303-9203 | +1-646-878-0803 www.pearlcohen.com

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To whom it may concern:

Allow me to offer this comment:

There must be more places in the country in need of funds than this small island airport, 34-1 where just a certain elite vacations for weeks during just July to September.

It seems a misappropriation of funds to me, to allocate money to this facility (#15964) on anything other than infrastructure maintenance and traffic control.

The airport's capacity for its 16.000 residents is sufficiently adequate.

34-2

With no increase in residents for the next 20 years foreseeable, and an increase in summer vacationers highly unlikely, given the distribution of land, beaches, roads and transportation, maintenance, not expansion needs funding.

Summer visitors from June to September are sufficiently well served, with just a few hours of acceptable departure crowding, when all air craft depart close in time on weekends.

Private aircraft with their own "white glove" car to aircraft individual luggage service, using a separate private terminal are well served and most certainly do not need public funding thru your offices.

Sincerely, K D Vogt, West Tisbury (Martha`s Vineyard), MA

Von meinem iPad gesendet

Von meinem iPad gesendet

Our airport is perfect. Only an idiot or greedy contractor would want it larger. 32-2 Did donald trump come up with this idea? Robert Richherimer 34 Plum Cove Vineyard Haven

From:	Sudarsky, Matthew
То:	Strysky, Alexander (EEA)
Subject:	Airport Project 15964
Date:	Monday, January 14, 2019 1:42:36 PM

To whom it may concern. I am opposed to the expansion of The Martha's Vineyard Airport. We do not need or want. Larger or more jets. Either private or commercial. The money should be put to cleaning up the polluted ground water. Sincerely Matthew Sudarsky



P.O. Box 2189, Vineyard Haven, MA 02568 Phone (508) 693-9588 | Fax (508) 693-0683 www.vineyardconservation.org info@vineyardconservation.org

Alexander Strysky Executive Office of Energy and Environmental Affairs MEPA Office 100 Cambridge Street, Suite 900 Boston MA 02114

January 31, 2019

Re: Public comment on EEA # 15964 (Martha's Vineyard Airport Capital Improvement Plan Projects)

Dear Mr. Strysky,

The Vineyard Conservation Society (VCS) is a non-profit membership organization dedicated to preserving the environment, character, and quality of life of Martha's Vineyard through advocacy, education, and the protection of the Island's land and waters.

That mission includes raising public awareness of issues critical to the residents of MV, encouraging public participation in decision-making, and advocating for managed growth. The MV Airport is a prominent part of transportation to and from the island. Rapid growth at the airport has the potential to impose profound effects on the human and natural communities of this island.

In that context, VCS asks MEPA reviewers to direct preparation of a Supplemental ENF (sENF) addressing the following areas of concern:

Ex-situ mitigation

The current ENF cites yet-to-be-determined mitigation measures for impacts on 20 acres of rare species habitat. As more thoroughly described below, VCS respectfully recommends consideration of off-site mitigation at the adjacent Correllus State Forest, of which the airport was once the heart.

A dedicated fund for management at the State Forest would help address chronic underfunding problems at the Forest. It would also be a way to honor the airport's origin in this important public open space resource.

VCS offers the following additional comments per the MEPA regulations 301 CMR 11:

11.03(3,4,6)(a) - Triggers

The sENF should cite an additional trigger for ENF and mandatory EIR review: transportation impacts, VCS-2 specifically the proposed construction of a new runway or terminal at an existing airport, expansion of an existing runway at an airport, and construction of a new taxiway at an airport.

11.07(h) – Regional impacts

The applicant should be directed to include a detailed description of the negative and positive potential VCS-3 environmental impacts of the Project, not just on the immediate two-town surroundings of the airport property, as described in the ENF, but also the "Region", which in this case is the rest of the Island of Martha's Vineyard.

11.05 4(a) – Big picture

The Project Description cannot be limited on account of any jurisdictional limitation, or assessment of its potential environmental impacts. The ENF Project Description correctly cites the fact that the airport is located in two towns on Martha's Vineyard Island, Edgartown and West Tisbury, and correctly cites population data for those towns. The ENF fails to adequately present the context for this centrally-located Project, including data describing all of Martha's Vineyard, an island of some 57,000 acres, VCS-4 encompassing six towns. **11.05(2)** requires consideration of cumulative environmental impacts, in this case being air pollution, water quality, greenhouse gas emissions, and noise and light pollution on a six-town island.

11.03(8) - Air Emissions

Applicant should be directed to address growth impacts on the island and strategies to avoid Damage to the Environment from aircraft emissions, including Hazardous Air Pollutants (HAP) and greenhouse gases that contribute to global climate change.

Because air quality is a listed Concern, applicant should determine cumulative emissions from project operations of all CMR-listed pollutants (including PM, CO, lead, SO, VOC, NO, any HAP), test those findings against Federal Potential Emissions criteria, and detail control strategies if significant impacts are described.

Climate Change

301 CMR 11 is broadly concerned with Damage to the Environment – any destruction or impairment, actual or probable, to any of the natural resources of the Commonwealth including, but not limited to: air pollution, Greenhouse Gas (GHG) emissions, water pollution, excessive noise, impairment of water quality, and destruction of open spaces. MEPA review thresholds at (8)(a,b) also empower the Secretary to direct Other MEPA Review. This project will encourage more frequent air travel, which has a greater VCS-7 carbon footprint as compared to the alternatives – ferry and car travel. Applicant should set that out in the submission.

With respect to GHG emissions (including carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride), the applicant should address calculation, change, and mitigation of the Carbon Dioxide Equivalent of the Project (the amount of CO_2 by weight that would produce the same amount of global warming impact as a given weight of another greenhouse gas) based on the best available science.

Water

The ENF Project Description correctly cites location of the Project on a Sole Source Aquifer. Applicant VCS-9 should provide additional information on the purpose and history of this designation, its definition under the federal regulations, and its implications for the Project, as subject to MEPA review.

Additionally, consistent with addressing cumulative environmental impacts on the Region, and in light of the recent release of toxic chemicals at the airport which have contaminated down-gradient private wells, the applicant should quantify and outline proposed mitigation measures with respect to water quality impacts due to the Project.

Fragmentation

The ENF Project Description correctly cites the fact that portions of the Project are within Priority Habitat as designated by NHESP. Applicant should be assess whether the Project's central location on VCSthe island, in particular its being surrounded by State Forest land, may amplify Environmental Impacts in the form of habitat fragmentation.

Historical context

The ENF should cite the fact that the 688-acre Project area was once the heart of the Island's dedicated VCSconservation land, the Manuel Correllus State Forest. The land on which the airport sits was taken by the U.S. government in 1941 to create a naval air station to be used during wartime; in 1959 the facility 12was conveyed to the County.

Terminal expansion

It is our understanding from reading press accounts that the terminal expansion component of the Projects currently under MEPA review is speculative. There may not actually be funding for this component. We ask that it be excised from the submission as part of the sENF filing. If the terminal VCScomponent remains a part of the filing, we ask that the applicant provide expanded data in support of 13 the claim of "insufficient capacity to meet current demands".

Tie down paving

We ask that the applicant provide clearer and more persuasive evidence of a safety rationale for converting 4.1 acres of grass to pavement.

Runway 15/33

VCS-The ENF leaves open the question of how the traverse grade criteria involving the non-conformity will be addressed. We ask that the applicant provide an answer and assess the associated environmental 15 impacts.

Hangars

We ask that the applicant provide more detail on the identity of the proposed tenant of the 80' x 80' hangar, as well as any proposed legal arrangements.

Transparency

We found no link from the applicant's website to the FAA application for the \$6 million seed money requested for terminal expansion projects. Mapping and other attachments associated with the current MEPA ENF submission were also not available on the website. In a sENF, applicant should make clear VCSwhich elements of the several projects under MEPA review are funded, in what amounts, and through which funding sources. We were able to locate the missing attachments to the ENF showing the Priority 17 Habitat areas, as well as the maps of what is actually being proposed at the website of our regional planning agency, the MV Commission. Applicant should remedy this deficiency.

Master Plan inconsistency

Several of the project requests under MEPA review appear to be inconsistent with the airport's own 2016 MV Airport updated master plan:

1.4.2.2 – Aircraft Storage Hangars – the Master Plan states that a building assessment conducted in 2013 concluded that 30% of the hangars are not currently occupied, concluding that "...the airport has adequate aircraft hangar storage." Still, one of the 10 projects under MEPA review is for a net increase in hangar space. Similarly, with respect to parking, the 2016 updated plan states that "...the existing parking capacity of 226 spaces will be sufficient to meet near term and long term parking demand."

Thank you for the opportunity to comment.

Brendan O'Neill **Executive Director** VCS-18

VCS-14

VCS-

16

Good Morning,

This email is in reference to airport project, 15964. Airport expansion in any form is a really, really BAD idea for Martha's Vineyard. There are so many planes flying in and out now that it has a serious impact on the quality of life for residents. There have been times when I couldn't even hear the tv because of the planes flying over my house which by the way is miles from the airport but in the landing approach path. 8-3 The environment will be seriously impacted with more noise, making more ground impervious, affecting wildlife in the surrounding area which borders the State Forest, and further bringing down the quality of life on the Vineyard. What is the purpose? This is a small, fragile place, which is slowly being destroyed by the sheer numbers of visitors in the long tourist season. There should be limits on the number of planes, not more, and limited hours when they are allowed to land. Already there are issues of polluted wells in homes near the airport. Our aquifer is the source of all of our water and needs scrupulous protection. Please, please don't let this expansion happen. Let's take care of what we have and nothing more.

Wesley Brown, Oak Bluffs



TOWN OF WEST TISBURY CONSERVATION COMMISSION P.O. BOX 278 WEST TISBURY, MA 02575 PH 508-696-6404 FAX 508-696-0103 concomm@westtisbury-ma.gov

February 12, 2019

Via e-mail US Mail

Attn: MEPA Office

The Honorable Matthew Beaton, Secretary Executive Office of Energy and Environment al Affairs 100 Cambridge Street, Suite 900 Boston, MA 02114

RE: EEA # 15964 Martha's Vineyard Airport Projects, Edgartown and West Tisbury

Dear Secretary Beaton,

The West Tisbury Conservation Commission (WT ConComm) would like to go on record as being concerned with the following aspects of the current airport expansion proposal as set forth in the December 2018 document entitled "Proposed Capital Improvement Plan Projects Environmental Notification Form (ENF).

WT ConComm has oversight and management of the adjacent 365 acre Margaret K. Littlefield Greenlands property ("Greenlands", Assessor's Map 18 Lot 1), bought in 1982 with state Self Help funds to protect future drinking water supplies. We are concerned with how present and future airport expansion plans will affect this important water source for West Tisbury and Oak Bluffs. The island has a sole source aquifer upon which Greenlands and the airport are squarely located.

This board fully supports all the points outlined in the 1/31/19 letter your office received from the Vineyard Conservation Society, and offer the following additional comments on this ENF.

Pollution and public/private water supply: Given the current PFAS (from firefighting foam) plume emanating from the airport now impacting private wells south and east of the airport, for which remediation remains uncertain, how will these proposed projects, and future airport expansion, affect public and private water supplies? In 1996, a plume of tetrachloroethylene was discovered to originate from a dry cleaning business at the airport. This reached nearly a mile south of the airport, indicating the chemical had been mishandled for years. This plume was overlooked for years despite at least periodic testing ("The Water Below", Alex Elvin, MV Magazine, December, 2018). Additionally, the ENF suggests that water use will increase by

CC-1

CC-2

The Honorable Matthew Beaton, Secretary February 12, 2019 Page 2 of 3

approximately five and a half million gallons per year and wastewater generation will increase to roughly four and a half million gallons per year. Past history of airport activity, and resulting negative impacts, to surrounding groundwater are a source of continuing concern to the WT ConComm.

Exterior lighting: There does not appear to be any information in the ENF about how much additional lighting will be required with this expansion, particularly for the new parking areas. We are concerned about how this will affect known populations of protected invertebrates and birds, on both Priority Habitat at the airport and in the adjacent Greenlands and Manuel F. Correllus State Forest (Goldstein, P.Z., M.W. Nelson, T. Simmons, and L. Raleigh. 2018. Historical and ecological insights from a relictual sandplain: reexamining the insular moth fauna (Lepidoptera) of Martha's Vineyard, Dukes County, Massachusetts, USA. Proceedings of the Entomological Society of Washington 120(1): 76-133 and Goldstein, P.Z., Ascher J.S. 2016 Taxonomic and Behavioral Composition of an Island Fauna: A Survey of Bees (Hymenoptera: Apoidea: Anthophila) on Martha's Vineyard, Massachusetts Proceedings of the Entomological Society of Washington 120(1): 37-92.

Proposed Paving: Not all project components in ENF are mandated by FAA; for instance, paving the four and a half acre turf tie down area. The guiding mantra of Natural Heritage and Endangered Species Program review is to 'avoid and minimize' impacts to rare species. All projects combined, a total of nearly eighteen acres is proposed to be converted to impervious asphalt. This ENF does not identify protected rare species, or plans for mitigating impacts to same.

Inconsistencies with airport's own Master Plan: Components of the ENF do not match existing goals/plans as stated in the airport's own Master Plan. In the 2013 Master Plan, thirty percent of hangars were determined to be not currently occupied, concluding that the airport has adequate hangar storage, yet now they propose a net increase in hangar space. The 2016 Master Plan update determined the existing two hundred twenty-six parking spaces to be sufficient to meet near term and long term parking demand, yet now they propose 549 additional spaces.

Private jets, climate change and vehicle traffic: In the ENF, the airport states "The airport does not have facilities to store large corporate aircraft. The airport has current demand from a new tenant interested in leasing an eighty by eighty foot (15,900 square feet) hangar and basing their aircraft here". This is a troubling new development, and will no doubt lead to further development of such private facilities at the airport, with additional alteration/elimination of Priority Habitat, now and in the future. We are concerned with how this will ratchet up jet fuel storage and pollution from same, both via spills and from emissions during landings and takeoffs. Review of this ENF should include impacts to climate change, as well as predicted traffic impacts to the island as a whole, aka the "Region". It is disingenuous for the Airport Commission to suggest that people flying in, commercially or on private jets, are not bringing

CC-5

CC-4

CC-7

CC-6

The Honorable Matthew Beaton, Secretary February 12, 2019 Page 3 of 3

cars to the island and impacting existing traffic issues. People coming off planes rent cars and people coming off private jets have at least one car already on the island.

Opportunities for public comment: Thank you for the opportunity to comment on the ENF. Prior to the ENF meeting on 1/31, there had not been a single public hearing by the Airport Commission dedicated to providing information on their ENF, nor soliciting public input on same.

On behalf of the Commission,

Whiting - Well's Imme and

Tara Whiting-Wells, Chair

Copies furnished as follows:

West Tisbury Board of Selectmen West Tisbury Board of Health Marthas Vineyard Airport Commission Martha's Vineyard Commission Dukes County Commission Natural Heritage and Endangered Species Program (NHESP No. 17-36753) Richard Doucette, FAA Michelle Ricci, FAA Nate Rawding, MassDOT Martha's Vineyard Airport

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APPENDIX B

Distribution List

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Martha's Vineyard Airport

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APPENDIX C

List of Preparers

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LIST OF PREPARERS

The principal parties preparing this Draft Environmental Impact Report / Draft Environmental Assessment are listed below.

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Richard Doucette, Environmental Program	General consultation, reviewer
Manager	
Michelle Ricci, Environmental Projection Specialist	General consultation
John Merck, Civil Engineer / Project Manager	General consultation, airport engineering
MA Department of Transportation	
Thomas Mahoney, Director of Airport Engineering	General consultation
Owen Silbaugh, Senior Project Manager	General consultation, airport engineering,
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Nathan Rawding, Project Manager / Senior	General consultation, reviewer
Environmental Analyst	
Michael Garrity, Environmental Analyst	General consultation, reviewer
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Matthew O'Brien, PE, Project Engineer	Engineering tasks
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Dhruv Patel, Project Engineer	Contributor in design
Sydney Seney, Junior Engineer	Contributor for alternatives figures and impact
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Holly Herbster, Senior Archaeologist	Archaeological studies
CLEAResult Consulting Inc	
Graham Smith, CEM, Project Engineer	Energy and greenhouse gas modeling
James Domanski, Technical Energy Manager	Energy and greenhouse gas modeling

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Martha's Vineyard Airport

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APPENDIX D

Energy Model Documentation

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Martha's Vineyard Terminal Expansion and Additional Hangars



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Executive Summary

This study explored the expansion of the Martha's Vineyard Airport which includes the addition of space to the existing terminal building as well as the addition of two hangars to the site. The investigation created baseline models and potential energy conservation measures that were feasible for the project to employ to mitigate the increased load associated with the new spaces.

A brief summary of the evaluated measures is provided below. A more detailed description of the measure can be found in the **Energy Conservation Measures** section of this report starting on page 11.

Terminal Energy Conservation Measures (ECMs)

ECM #1 – Heat Pump System

This measure is a 10% improvement of the heating and cooling efficiency of the baseline heat pump system installed in the airport terminal that is existing and the expansion.

ECM#2a – VRF System

This measure is for the HVAC system being replaced with a variable refrigerant flow heat pump system that is equal to a basic Daikin system installed in the existing terminal and the expansion.

ECM#2b - VRF System with ERV

This measure is for the HVAC system being replaced with a variable refrigerant flow heat pump system that is equal to a basic Daikin system installed with an energy recovery ventilator installed in the existing terminal and the expansion.

ECM#2c - CEE VRF System with ERV

This measure is for the installation of a basic CEE Tier 1 variable refirgarant flow system installed in the existing terminal and the expansion.

ECM#3 – Energy Recovery Units – (ERV) Heat Pump Heat

Adding an ERV (energy recovery ventilator) to the baseline heat pump system in the airport terminal and the expansion. Energy recovery ventilators are used to capture otherwise wasted energy that was used to cool or heat the conditioned air inside the building.

ECM#4 – Lighting

Improving lighting so that the lighting power density (LPD) measured as watts per square foot n all spaces existing and in the expansion are a 20% improvement from the ASHRAE 90.1-2013 maximum watts per square foot allowed in the space by space method.

ECM#5 – Daylighting Controls

This measure is for the installation of daylighting controls in the perimeter existing spaces of the existing building and the expansion.

ECM#6a – Improved Curtainwall

This measure is for the improved performance of the curtainwall to be an advanced double pane lowe system with thermal breaks on the aluminum frame.

ECM#6b – Improved Curtainwall Version 2

This measure is for the installation of a curtainwall that is a triple pane glazed curtain wall system.

ECM#7a - Decreased Size of the Curtainwall

This measure is for the change in size of the curtainwall from the proposed design wall to one that is 1104 sf to 624 for a 43% reduction in the overall window area.

ECM#7b - Decreased Size of the Curtain Wall + Improved Glazing

This measure is for the change in size of the curtainwall from the proposed design wall to one that is 1104 sf to 624 for a 43% reduction in the overall window area and the improvement of the curtainwall .

ECM#8 – Improved Envelope (Walls and Roof)

The improvement of the building envelope can provided comfort and energy improvements by installing a higher R-value roof and walls.

ECM#9 – Improved Envelope (Walls, Roof and Curtain Wall)

This ECM is a combination of several shell or envelope measures to assess the overall impact of improving the walls, roof and curtainwall.

ECM#10 – Proposed Design (Walls, Roof, Curtain Wall, VRF w/ERV, Lighting, Lighting Controls)

The final ECM is a combination of several of the ECMs that are typically employed together. This ECM combines envelope measures with improved HVAC and lighting. The whole building approach of combining the ECMs typically yealds the greatest synergies and highest savings.

The hangars also incorporated the same ECMs for the energy models that were run, however one additional simulation was done outside of what was presented for the terminal expansion and that was an option for a Passive House level design of one of the hangars.

Hangar Energy Conservation Measures (ECMs)

Hangar 1&2 - ECM#1 - Heat Pump System

The installation of heat pump systems in the hangars provides improved heating performance over traditional electric resistance heating elements for those spaces.

Hangar 1&2 - ECM#2 - Lighting

Improving lighting so that the lighting power density (LPD) measured as watts per square foot in all newly constructed hangar spaces is a 20% improvement from the ASHRAE 90.1-2013 maximum watts per square foot allowed in the space by space method.

Hangar 1- ECM#3 - Passive House

This measure addresses the requirements of improving the building performace to meet the requirements of passive house.

Hangar 2 - ECM#3 - VRF System

With the installation of a VRF system in the office area of Hangar 2, the buildings overall performance could see large improvements over the baseline heating and cooling.

The overall impact of the various ECMs varied widely from as little as 1% to 16% for the combined proposed design of the airport terminal. The building comparisons are done using a common metric for benchmarking buildings against one another. This metric is EUI otherwise known as Energy Use Intensity (EUI). EUI uses kbtu divided by the building or building zone square feet. The reason that these units are used is because both electric and gas can be converted into this uniform unit of measurement and show the total energy needed to meet all the loads that a building has. In this study all units of energy consumed by the buildings are shown as kWh and kbtu/sf or EUI for electricity. The use of gas was eliminated for the presented data in the study.



Figure 1: Combined Terminal and Hangars EUI and EUI Savings (kbtu/sf) All ECMs and Baseline

In Figure 1: Combined Terminal and Hangars EUI and EUI Savings (kbtu/sf) All ECMs and Baseline the results of the modeling can be seen where the Terminal Building and the two separate hangars EUIs were combined. The baseline combined EUI of 131 kbtu/sf at the bottom of the graph indicates the starting point from which all improvements could be made going forward. With the combined ECMS at

the top of the graph, *Combined Proposed (Terminal - Walls, Roof, Curtain Wall, VRF w/ERV, Lighting, Daylighting, Hangar 1- Lighting, Hangar 2 - VRF),* the savings of about 33 kbtu/sf shows that some significant improvements in energy consumption can be made mitigating the expansion and new buildings at the site. Additionally, in Figure 2: GHG lbs/ CO₂e produced and saved for combined simulations of the Terminal and Hangar 1 and Hangar 2, the same relative GHG reductions can be seen in lbs/ CO₂e by incorporating the same ECMs shown in the previous figure. The total kWh savings from these measures is approximately 213,390 annually resulting in operational savings as well.



Figure 2: GHG lbs/ CO₂e produced and saved for combined simulations of the Terminal and Hangar 1 and Hangar 2

In Figure 3. EUI and EUI Savings (kbtu/sf) All ECMs and Baseline the terminal expansion energy impacts are highlighted by depicting the overall savings that can be achieved at the top of the graph. With a 16% EUI savings and a total reduction of kbtu/sf of 11.31 the ECM 10 combination shows how a number of the individual ECMs might add up to a proposed final design. The combined improvement of the building envelope, the installation of a VRF (Variable Refrigerant Flow) system improved lighting and daylighting sensors offers one of the lowest energy consumption impacts for expanding the terminal.

This theme is also exhibited in Figure 4. GHG (lbs/ CO₂e) Produced and Saved by Baseline and ECMs and Figure 5. Electric Consumption and Savings by ECM and Baseline. The direct correlation between the reduction of electricity consumed and the EUI and GHG production can be seen in all three graphs.



Figure 3. EUI and EUI Savings (kbtu/sf) All ECMs and Baseline

In the process of evaluating the expansion of the terminal building and the new hangars, a greenhouse gas (GHG) analysis was done to show the impacts the building expansion and new hangars would have on produced GHGs from the Massachusetts fuel mix for electricity generation. GHG elec. that is shown throughout the study is the greenhouse gas emission value associated with the consumption of electricity. The value includes the GHG or CO_2 equivalent for on-site consumption and distribution and generation of electricity associated with the building loads. This value includes line losses associated with the distribution of electricity. The CO_2 e is associated with the specific fuel mix that is used to generate electricity in a location. This location being Massachusetts in particular.



Figure 4. GHG (lbs/ CO2e) Produced and Saved by Baseline and ECMs

The reduction from the implementation of the combined ECMs described as ECM 10 shows the potential in reducing the overall terminal building GHG emissions by 16% or 56,260 lbs/ CO₂e. Alone the VRF system installation reduces the GHGs by 7% and combined with an ERV 9%. The improvement of the HVAC equipment for the existing terminal building to the VRF system when the expansion takes place appears to be critical to achieving a low EUI and reducing the GHGs produced.



Figure 5. Electric Consumption and Savings by ECM and Baseline

In the hangar analysis the results for the simulations for Hangar 1 shown in Figure 50 Hangar 1 EUI Impacts of ECMs, demonstrates that the Passive House construction of the hangar would yield the greatest energy savings potential. While the results suggest that constructing the hangar to passive house standards, the most economical strategy might be the use of heat pumps and improved lighting. The same conclusion seems to be true for Hangar 2, where the final design might incorporate VRF or ductless mini-split heat pumps for the office area. The savings and consumption with Hangar 2 appear to be primarily associated with the office conditioning. With a 7.5 EUI reduction for the VRF being incorporated, and a 7.19 EUI reduction for the lighting ECM a proposed design would show the lowest GHG potential and lowest energy consumption.

Facility Description

The facility that is being evaluated is primarily the airport terminal at Martha's Vineyard, however there are two new hangars that are planned to be erected on the same site. The overall impacts of the expanding the airport terminal from its existing 13,000 square feet to being around 22,000 square feet and adding the new hangars which will have around 20,000 combined square feet are to be evaluated for the energy and greenhouse gas (GHG) impacts.

Analysis Methodology and Baseline Design Description

To analyze future energy consumption patterns, greenhouse gas generation and the efficiency of the energy conservation measures considered for Martha's Vineyard Airport, computer models of the facilities were developed and building consumption simulations were performed using the eQuest building analysis program. eQuest uses the latest DOE-2.2 building energy analysis software as its calculating engine. This program permits modeling of a variety of building types and components including complex building geometry, lighting systems, HVAC systems, central plant equipment, and utility rate structure.

The eQuest models were generated utilizing the existing documentation from the airport design and construction combined with the drawing files for the planned expansion of the airport and additional hangars. These two sources provided the needed information to develop the geometry and building shell for both the existing portion of the project and the planned expansion. The baseline model utilized ASHRAE 90.1-2013 Appendix G guidance to determine the inputs for the new building and where assumptions were required for the existing building. The analysis used local weather associated with Martha's Vineyard in TMY2 format. TMY weather data is known as typical meteorological year (TMY) data, which is an average of the weather data from 1969 to 1990. The Martha's Vineyard TMY 2 file is in .bin format that is prepared for eQuest doe2 models from doe2.com. DOE2 is the energy modeling simulation engine that does the calculations for eQuest. The TMY2 weather data type is used because it is often a good proxy for how a building will perform under the historical weather conditions. Some studies use TMY3 or even predictive weather data sets to attempt to better predict how a building will perform in the future, however this study did not have access to predictive data models for the site specific location and therefore relied on the TMY2 data.

Terminal Expansion

Baseline Case – Electric Heat

The baseline model was built using the existing conditions of the current Martha's Vineyard Airport Terminal based off the drawings from the initial construction of the building. The new expansion of the building aligns with ASHRAE 90.1 and IECC 2015. Various assumptions were made in the development of the model to complete the HVAC equipment and lighting power densities.



Figure 6. Baseline Electric End-Use Consumption - kWh x 1000

As seen in Figure 6. Baseline Electric End-Use Consumption - kWh x 1000 the largest portions of the building's consumption are associated with heating (116,200 kWh), lighting (107,250 kWh), equipment (97,930 kWh) ventilation (66,340 kWh), cooling (48,630 kWh), supplemental heat (12850 kWh) and hot water (12,850 kWh) in that order.



Figure 7. Greenhouse Gas Emissions by End Use Baseline Terminal Expansion

The greenhouse gas emissions associated with the baseline building and all the modeled end-uses can be seen in Figure 7. Greenhouse Gas Emissions by End Use Baseline Terminal Expansion. Figure 7. Greenhouse Gas Emissions by End Use Baseline Terminal Expansion, one can see that space heating lighting and equipment are the major energy consumers and greenhouse gas contributors.

Energy Conservation Measures

ECM #1 – Heat Pump System

Summary – Measure Description

Switching out a Packaged single zone air-cooled heat pump system for one that has a 10% improvement in EER (Energy Efficiency Ratio) and COP (Coefficient of Performance) can have a positive impact on the overall EUI of a building, reducing the electric consumption of the building in turn helping reduce

operating costs and GHG emissions associated with its operation. This energy conservation measure was simulated using the baseline model and updating the EIR (Electric Input Ratio) inputs to reflect the 10% improvement in the heating and cooling of the system. EIR is calculated using the EER and COP of the equipment and converting it based upon the required EIR for either heating or cooling for the eQuest model inputs. The formulas used in eQuest are below:

EER to Cooling EIR = (1/(EER) - 0.012167)/((1/3.413) + 0.012167)

Or for heating

COP to Heating EIR = (1/(COP3.413) - 0.012167)/(1/3.413 + 0.012167)

Energy Use, Savings and GHG Impacts

By improving the efficiency of the heat pump system in the baseline building by 10% the building showed an overall 4% improvement. The total kWh savings from this measure was 17370 kWh annually and the GHG reduction was 12967 lbs of CO₂e. In Figure 8. End use energy consumption for terminal building with 10% improvement in heat pump efficiency, shows the heating electric consumption as 94,360 kWh and the cooling as 43,270 kWh which provided the ECM with savings of 21,840 kWh and 5,360 kWh respectively. The net savings was lower than the combined savings of the two due to an increase in supplemental heat pump heating energy.



Figure 8. End use energy consumption for terminal building with 10% improvement in heat pump efficiency

The greenhouse gas reductions of ECM 1 can be seen in Figure 9. GHG lbs/CO₂e/kWh emissions and savings from ECM 1. The graph shows a reduction in lbs of CO₂e of 12,967.64. This is consistent with the 4% reduction in kWh for the ECM overall and could be considered as a lower cost option to ECMs 2a, 2b, or 2c.

In Figure 10. kWh x 1000 consumption and savings for ECM1 one can see the incremental improvement in the kWh consumed by implementing the use of a more efficient heat pump throughout the existing and expansion of the airport terminal.



Figure 9. GHG lbs/CO $_2$ e/kWh emissions and savings from ECM 1



Figure 10. kWh x 1000 consumption and savings for ECM1

Baseline Condition

The baseline condition for this measure is the terminal building with a standard ASHRAE 90.1 minimum efficiency heat pump. All other conditions for the building are the same as the baseline building.

Calculation Methodology

The heat pump measure savings are determined by comparing an ASHRA90.1-2013 compliant air-source heat pump to one that shows a 10% improvement in EER (energy efficiency ratio) for cooling efficiency and COP (coefficient of performance) for heating efficiency. Each value, EER and COP are converted into EIR (energy input ratio) for the eQuest simulation.

ECM#2a - VRF System

Summary – Measure Description

Install a Variable Refrigerant Flow (VRF) system to heat and cool the existing terminal and the expansion for the new terminal section. The VRF system is assumed to be a Daikin system for the eQuest model. The curves associated with the Daikin systems were used in the model.

Energy Use, Savings and GHG Impacts

By improving the heat pump system from a standard air-source heat pump in the baseline model to a VRF system in the ECM, the performance in the simulation for ECM 2a showed an overall 7% improvement. The total kWh savings from this measure was 31,940 kWh annually and the GHG reduction was 23,844.93 lbs of CO₂e. In Figure 11. Electric End-Use Consumption - kWh x 1000 ECM 2a it shows the heating electric consumption as 101,560 kWh and the cooling as 22,060 kWh which provided the ECM with savings of 14,640 kWh and 26,570 kWh respectively. While the overall savings for the heating and cooling is significant, the net savings for ECM2a reflects an energy penalty (-14,970 kWh) for the increased fan energy associated with the VRF system. Fan power associated with a VRF system is often greater than that of a packaged single zone heat pump system due to the typical distribution and circulation of the conditioned air. With a VRF system the fans are located at each indoor head or at each cassette which may be far greater in number than a system that has only maybe only one per system. Each unique zone in the model has fan power associated to the indoor cassette or head which leads to an increase in fan energy.



Figure 11. Electric End-Use Consumption - kWh x 1000 ECM 2a

The greenhouse gas reductions of ECM 2a can be seen in Figure 12. GHG lbs/ CO_2e emissions and savings from ECM 2a. The graph shows a reduction in lbs of CO_2e of 23844.93. This is consistent with the 7% reduction in kWh for the ECM overall.

In Figure 13. kWh consumption and savings for ECM2a one can see the incremental improvement in the kWh consumed by implementing an inverter driven compressor variable refrigerant flow air-source heat pump throughout the existing and expansion portion of the airport terminal.



Figure 12. GHG lbs/ CO₂e emissions and savings from ECM 2a



Figure 13. kWh consumption and savings for ECM2a

Baseline Condition

The baseline condition is the expanded terminal with packaged single zone air cooled and gas heated systems assigned to building zones. The standard efficiency system for the air-cooled system meets the ASHRAE 90.1-2013 Table 6.8.1-1 requirements for EER for cooling efficiency. The heating system efficiencies for the system are derived from the air source heat pump minimum efficiencies outlined in ASHRAE 90.1. The baseline system does not have any heat recovery or energy recovery.

Calculation Methodology

The VRF heat pump measure savings are determined by comparing an ASHRA90.1-2013 compliant airsource heat pump to one that has variable refrigerant flow and invertible variable speed compressors. The systems also have higher EER and COP than the standard heat pumps.

ECM#2b - VRF System with ERV

Summary – Measure Description

Installing Variable refrigerant flow system to heat and cool the existing terminal and the expansion for the new terminal section along with a basic 75% effective sensible and 70% latent energy recovery ventilator. The VRF system is assumed to be a Daikin system for the eQuest model just as the previous VRF ECM. The curves associated with the Daikin systems were used in the model.

Energy Use, Savings and GHG Impacts

By improving the heat pump system from a standard air-source heat pump to a VRF system and adding an energy recovery ventilator the simulation showed an overall 9% improvement. The total kWh savings from this measure was 44,530 kWh annually and the GHG reduction was 33,244.05 lbs of CO₂e. In Figure 14. Electric End-Use Consumption - kWh x 1000 ECM 2b it shows the heating electric consumption as 30,710 kWh and the cooling as 33,620 kWh which provided the ECM with savings of 85,490 kWh and 15,010 kWh respectively. While the overall savings for the heating and cooling is significant, the net savings for ECM2b reflects an energy penalty (-68,970 kWh) for the increased fan energy associated with the VRF and ERV systems. For a more detailed explanation of why more fan energy is attributed to a VRF system please read the section on ECM2a.



Figure 14. Electric End-Use Consumption - kWh x 1000 ECM 2b

The greenhouse gas reductions of ECM 2b can be seen in Figure 15. GHG lbs/ CO_2e /kWh emissions and savings from ECM 2b. The graph shows a reduction in lbs of CO_2e of 33244.05. This is consistent with the 9% reduction in kWh for the ECM overall.

In Figure 16. ECM2b VRF system with ERV electric consumption and savings compare to baseline one can see the incremental improvement in the kWh consumed by implementing the use of an inverter driven compressor variable refrigerant flow air-source heat pump throughout the existing and expansion of the airport terminal along with an energy recovery ventilation system.



Figure 15. GHG lbs/ CO2e /kWh emissions and savings from ECM 2b



Figure 16. ECM2b VRF system with ERV electric consumption and savings compare to baseline

Baseline Condition

The baseline condition is the expanded terminal with packaged single zone air cooled and gas heated systems assigned to building zones. The standard efficiency system for the air-cooled system meets the ASHRAE 90.1-2013 Table 6.8.1-1 requirements for EER for cooling efficiency. The heating system

efficiencies for the system are derived from the air source heat pump minimum efficiencies outlined in ASHRAE 90.1. The baseline system does not have any heat recovery or energy recovery.

Calculation Methodology

This measure looks to improve on the Daikin VRF system over the baseline by adding energy recovery to the ventilation system. The comparison is between the baseline heat pump system and a VRF system that has 75% sensible energy recovery and 70% latent energy recovery.

ECM#2c – CEE (Consortium for Energy Efficiency) VRF System with ERV

Summary – Measure Description

Installing a CEE Tier 1 compliant variable refrigerant flow system to heat and cool the existing terminal and the expansion for the new terminal section along with a basic 75% effective sensible and 70% latent energy recovery ventilator. The VRF system is assumed to be a Daikin system for the eQuest model just as the previous VRF ECM. The curves associated with the Daikin systems were used in the model.

Energy Use, Savings and GHG Impacts

ECM2c is almost identical to ECM2b with a slight change in the system efficiencies in EER and COP to reflect the CEE (Consortium for Energy Efficiency) Variable Refrigerant Flow system and adding an energy recovery ventilator. Just like ECM2b, the simulation of ECM2c showed an overall 9% improvement. The total kWh savings from this measure was 44,540 kWh annually and the GHG reduction was 33,251.52 lbs of CO₂e. In Figure 17. Electric End-Use Consumption - kWh x 1000 ECM 2c it shows the heating electric consumption as 30,690 kWh and the cooling as 33,640 kWh which provided the ECM with savings of 85,510 kWh and 14,990 kWh respectively. While the overall savings for the heating and cooling is significant, the net savings for ECM2c reflects an energy penalty (-68,970 kWh) for the increased fan energy associated with the VRF and ERV systems. The difference in the increase in overall savings for this measure came from the reduction of supplemental heat needed for the VRF system.



Figure 17. Electric End-Use Consumption - kWh x 1000 ECM 2c

The greenhouse gas reductions of ECM 2c can be seen in Figure 18. GHG lbs/ CO_2e emissions and savings from ECM 2c. The graph shows a reduction in lbs of CO_2e of 33,251.52. This is consistent with the 9% reduction in kWh for the ECM overall.

In Figure 19. ECM 2c CEE TIER I VRF w/ERV electric consumption, savings and baseline kWh x 1000 one can see the incremental improvement in the kWh consumed by implementing the use of an inverter driven compressor variable refrigerant flow air-source heat pump throughout the existing and expansion of the airport terminal along with an energy recovery ventilation system.



Figure 18. GHG lbs/ CO $_2$ e emissions and savings from ECM 2c



Figure 19. ECM 2c CEE TIER I VRF w/ERV electric consumption, savings and baseline kWh x 1000

Baseline Condition

The baseline condition is the expanded terminal with packaged single zone air cooled and gas heated systems assigned to building zones. The standard efficiency system for the air-cooled system meets the ASHRAE 90.1-2013 Table 6.8.1-1 requirements for EER for cooling efficiency. The heating system efficiencies for the system are derived from the air source heat pump minimum efficiencies outlined in ASHRAE 90.1. The baseline system does not have any heat recovery or energy recovery.

Calculation Methodology

This measure looks to improve on the CEE Tier I VRF system over the baseline by adding energy recovery to the ventilation system. The comparison is between the baseline heat pump system and a VRF system that has 75% sensible energy recovery and 70% latent energy recovery

ECM#3 – Energy Recovery Ventilator Units – (ERV) Heat Pump Heat

Summary – Measure Description

An energy recovery ventilator helps provide a balanced supply of outside air while exhausting indoor conditioned air outdoors. The energy recovery ventilators allow some of the energy that was used in heating and cooling the indoor air to be recovered by transferring it to the incoming air from outside. The energy recovery ventilators also provide some latent energy recovery along with sensible energy recovery. Latent energy recovery provides energy recovery from the moisture present in the exhausted air stream, while the sensible heat recovery is the heat energy in associated with the exhausted air temperature. The assumed installed ERV systems would have a sensible energy recovery effectiveness of 75% and a latent energy recovery effectiveness of 70%.

Energy Use, Savings and GHG Impacts

ECM3 is a measure that enhances the baseline ventilation by adding an energy recovery ventilator. This measure showed an overall 3% improvement over the baseline model. The total kWh savings from this measure was 15650 kWh annually and the GHG reduction was 11,683.75 lbs of CO_2e . In Figure 20. Electric End-Use Consumption - kWh x 1000 ECM 3 it shows the heating electric consumption as 57,740 kWh and the cooling as 56,730 kWh and ventilation energy at 111,350 kWh. While the overall savings



for the heating is 58,460 kWh, the net savings for ECM2c reflects an energy penalty (-8,100 and 45,010 kWh) for increased energy associated with the cooling and the fans of the ERV systems.

Figure 20. Electric End-Use Consumption - kWh x 1000 ECM 3

The greenhouse gas reductions of ECM 3 can be seen in Figure 21. GHG lbs/ CO_2e emissions and savings from ECM 3. The graph shows a reduction in lbs of CO_2e of 11,683.57. This is consistent with the 3% reduction in kWh for the ECM overall.

In Figure 22. ECM3 Baseline heat pump with ERV installed electric consumption, savings, and baseline kWh one can see the incremental improvement in the kWh consumed by implementing the use of an energy recovery ventilation system.



Figure 21. GHG lbs/ CO₂e emissions and savings from ECM 3



Figure 22. ECM3 Baseline heat pump with ERV installed electric consumption, savings, and baseline kWh

Baseline Condition

The baseline condition is the expanded terminal with packaged single zone air cooled and gas heated systems assigned to building zones. The standard efficiency system for the air-cooled system meets the ASHRAE 90.1-2013 Table 6.8.1-1 requirements for EER for cooling efficiency. The heating system efficiencies for the system are derived from the air source heat pump minimum efficiencies outlined in ASHRAE 90.1. The baseline system does not have any heat recovery or energy recovery.

Calculation Methodology

The energy and GHG savings for this measure is determined by using the baseline HVAC system without energy recovery and comparing that to the same building and HVAC system with an ERV installed recovering some of the heating energy and cooling energy that would have been ventilated out of the building otherwise.
ECM#4 – Lighting

Summary – Measure Description

Improved lighting efficiency in a building provides the benefit of lower electric consumption for that specific end use as well as non-energy benefits of reduced costs associated with maintenance and replacement lamps. The EEM is developed as a 20% reduction in LPD, which is lighting power density measured as watts per square feet of illuminated space from the ASHRAE 90.1-2013 baseline.

Energy Use, Savings and GHG Impacts

ECM4 is a measure that improves the baseline lighting LPD by 20%. This measure showed an overall 4% improvement over the baseline model. The total kWh savings from this measure was 20,090 kWh annually and the GHG reduction was 14,998.27 lbs of CO₂e. In Figure 23. Electric End-Use Consumption - kWh x 1000 ECM 4 it shows the ECM4 lighting consumption as 85,780 kWh which is a 21,470 kWh improvement by end use. The interactive improvement of the cooling load is 3,280 kwh, while the heating penalties are -5,940 kWh.



Figure 23. Electric End-Use Consumption - kWh x 1000 ECM 4

The greenhouse gas reductions of ECM 4 can be seen in Figure 24.GHG lbs/ CO_2e emissions and savings from ECM 4. The graph shows a reduction in lbs of CO_2e of 14,998.27. This is consistent with the 4% reduction in kWh for the ECM overall.

In Figure 25. ECM4 electric consumption, savings and baseline kWh one can see the incremental improvement in the kWh consumed by decreasing the LPD of the building by 20%.



Figure 24.GHG lbs/ CO₂e emissions and savings from ECM 4



Figure 25. ECM4 electric consumption, savings and baseline kWh

ASHRAE 90.1-2013 installed watts per square feet of lighting throughout the existing and new space. Since lighting plans were not provided for the existing conditions, the assumption was made that the existing lighting was in line with the ASHRAE 90.1-2013 LPD requirements.

Calculation Methodology

The savings are calculated per ASHRAE-90.1 Appendix G standards. ASHRAE90.1 Appendix G does not dictate the savings percentage for the LPD reduction, however it determined the baseline and a 20% reduction from that LPD was determined to be an achievable reduction in watts per square feet through reduced lamping and fixtures required and higher efficacy lighting fixtures.

ECM#5 – Daylighting Controls

Summary – Measure Description

Adding daylight controls to either the ASHRAE LPD baseline efficiency lighting or improved lighting density spaces can improve on the overall savings of the project. Adding daylight sensors to ensure dimming of the lights in the areas that have windows and access to natural light will help save energy by using less power at each fixture. These sensors will need to properly calibrated and ensured they are programmed correctly. The simulations were limited in this analysis to the daylighting controls. Additional controls could be added for occupancy or vacancy; however, the scope of this ECM was limited to only one type of control. Daylighting 30% minimum power and light fraction dimming.

Energy Use, Savings and GHG Impacts

ECM5 is for the installation of daylight sensors in the large perimeter areas of the terminal including the existing and the expansion. This measure showed an overall 6% improvement over the baseline model. The total kWh savings from this measure was 26,430 kWh annually and the GHG reduction was 19,731.42 lbs of CO₂e. In Figure 26. Electric End-Use Consumption - kWh x 1000 ECM 5 it shows the ECM5 lighting consumption as 78,510 kWh which is a 28,740 kWh improvement by end use. The interactive improvement of the cooling load is 4,480 kwh, while the heating penalties are -8,970 kWh.



Figure 26. Electric End-Use Consumption - kWh x 1000 ECM 5

The greenhouse gas reductions of ECM 5 can be seen in Figure 27. GHG lbs/ CO_2e emissions and savings from ECM 5. The graph shows a reduction in lbs of CO_2e of 19,731.42. This is consistent with the 6% reduction in kWh for the ECM overall.

In Figure 28. ECM5 kWh consumption and savings for daylighting controls one can see the incremental improvement in the kWh consumed by implementing the use of daylighting controls.



Figure 27. GHG lbs/ CO₂e emissions and savings from ECM 5



Figure 28. ECM5 kWh consumption and savings for daylighting controls

Baseline Condition

No lighting controls installed in the baseline conditions and the LPDs were set to the ASHRAE 90.1 - 2013 minimums.

Calculation Methodology

Savings are calculated using ASHRAE-90.1 Appendix G standards as a baseline without dimming controls and the measure applies a built in scheduled dimming that is part of eQuest. ASHRAE90.1 Appendix G allows for a 10% lighting power density reduction, and the eQuest simulation used daylight sensors in it to model the impacts.

ECM#6a – Improved Curtainwall

Summary – Measure Description

Improving the performance of windows and curtainwalls can vastly improve the overall performance of a building. In this measure the eQuest simulations improve upon the baseline conditions for the curtainwall in the expansion section of the terminal in the large hold room. The improvements to the curtainwall include a lower U-value for the glass, a greater solar heat gain coefficient (SHGC) and a thermally broken aluminum frame. The glazing used in the model is from the library and is specifically; 2667 - Center of Glass U-0.29 / SHGC – 0.29 with an NFRC (National Fenestration Rating Council) U value – Glass + Frame equal to U- 0.4.

Energy Use, Savings and GHG Impacts

The energy use impacts of ECM6a are seen in the heating, cooling and ventilation of the airport terminal building. This measure showed an overall 3% improvement over the baseline model. The total kWh savings from this measure was 14,200 kWh annually and the GHG reduction was 10,601.07 lbs of CO_2e . In Figure 29. Electric End-Use Consumption - kWh x 1000 ECM 6a it shows the heating as 113,900 kWh, cooling as 43,480 kwh and ventilation as 58,940 kWh. The interactive improvement of the heating 2,300 kWh, cooling load is 5,150 kwh and 7,400 for ventilation.



Figure 29. Electric End-Use Consumption - kWh x 1000 ECM 6a

The greenhouse gas reductions of ECM 6a can be seen in Figure 30. GHG lbs/ CO_2e emissions and savings from ECM 6a. The graph shows a reduction in lbs of CO_2e of 10,601.07. This is consistent with the 3% reduction in kWh for the ECM overall.

In Figure 31. ECM6a electric consumption, savings and baseline kWh one can see the incremental improvement in the kWh consumed by implementing an advanced glazed curtainwall.



Figure 30. GHG lbs/ CO_2e emissions and savings from ECM 6a



Figure 31. ECM6a electric consumption, savings and baseline kWh

The baseline condition for this ECM is the baseline model with a curtainwall with an NFRC-U-Value of 0.42 and an SHGC of 0.40.

Calculation Methodology

The energy and GHG savings were calculated by comparing the baseline building with the curtainwall as the ASHRAE minimum fenestration requirements with the improved U-values and SHGC of the ECM.

ECM#6b – Improved Curtainwall Version 2

Summary – Measure Description

Improving the performance of windows and curtainwalls can vastly improve the overall performance of a building and this measure goes above the basic improvements made in ECM6a. In this measure the

eQuest simulations improve upon the baseline conditions and ECM6a for the curtainwall in the expansion section of the terminal in the large hold room. The improvements to the curtainwall include a lower U-value for the glass, a greater solar heat gain coefficient (SHGC) and a thermally broken aluminum frame. The glazing used in the model is from the library and is specifically, Glazing 3674 - Center of Glass U-0.22 / SHGC – 0.22 / NFRC U value – Glass + Frame U- 0.38

Energy Use, Savings and GHG Impacts

The energy use impacts of ECM6b are seen in the heating, cooling, and ventilation of the airport terminal building. This measure showed an overall 4% improvement over the baseline model. The total kWh savings from this measure was 16,870 kWh annually and the GHG reduction was 12,594.37 lbs of CO₂e. In Figure 32. Electric End-Use Consumption - kWh x 1000 ECM 6b it shows the heating as 113,320 kWh, cooling as 42,820 kwh and ventilation as 57,520 kWh. The interactive improvement of the heating 2,880 kWh, cooling consumption is 5,810 kwh and 8,820 for ventilation.



Figure 32. Electric End-Use Consumption - kWh x 1000 ECM 6b

The greenhouse gas reductions of ECM 6b can be seen in Figure 33. GHG lbs/CO2e emissions and savings from ECM 6b. The graph shows a reduction in lbs of CO₂e of 12,594.37. This is consistent with the 4% reduction in kWh for the ECM overall.

In Figure 34. ECM6b electric consumption and savings compared to baseline kWh one can see the incremental improvement in the kWh consumed by implementing an advanced glazed curtainwall.



Figure 33. GHG lbs/CO2e emissions and savings from ECM 6b



Figure 34. ECM6b electric consumption and savings compared to baseline kWh

The baseline condition for this ECM is the baseline model with a curtainwall with an NFRC-U-Value of 0.42 and an SHGC of 0.40.

Calculation Methodology

The energy and GHG savings were calculated by comparing the baseline building with the curtainwall as the ASHRAE minimum fenestration requirements with the improved U-values and SHGC of the ECM.

ECM#7a - Decreased Size of the Curtainwall

Summary – Measure Description

This measure is evaluating the energy and GHG impacts of decreasing the overall size of the curtainwall in the expansion section of the airport terminal. The decreased size of the curtainwall allows for a wall to have a higher U-value than a glazed fenestration. The overall wall opening is decreased by 43% for this ECM.

Energy Use, Savings and GHG Impacts

ECM7a energy use impacts are seen in the heating, cooling, and ventilation of the airport terminal building. This measure showed an overall 2% improvement over the baseline model. The total kWh savings from this measure was 11,230 kWh annually and the GHG reduction was 8,383.80 lbs of CO₂e. In Figure 35. Electric End-Use Consumption - kWh x 1000 ECM 7a it shows the heating as 113,790 kWh, cooling as 44,480 kwh and ventilation as 61,110 kWh. The interactive improvement of reducing the size of the opening associated with the curtain wall results in the electric consumption of heating 2,410 kWh, cooling consumption is 4,150 kwh and 5,230 for ventilation.



Figure 35. Electric End-Use Consumption - kWh x 1000 ECM 7a

The greenhouse gas reductions of ECM 7a can be seen in Figure 36. GHG lbs/ CO_2e emissions and savings from ECM 7a. The graph shows a reduction in lbs of CO_2e of 8,383.80 and a total amount produced as 342,518.98 lbs of CO_2e . This is consistent with the 2% reduction in kWh for the ECM overall.

In Figure 37. ECM7a electric consumption, savings and baseline kWh one can see the incremental improvement in the kWh consumed by reducing the size of the curtainwall.



Figure 36. GHG lbs/ CO₂e emissions and savings from ECM 7a



Figure 37. ECM7a electric consumption, savings and baseline kWh

The baseline condition is the proposed opening size for the curtainwall in the airport expansion hold room. The curtainwall is 1,104 square feet in the baseline.

Calculation Methodology

The savings associated with this ECM are determined by comparing the baseline square footage of the curtainwall to one that is decreased by 43% to an opening of 624 square feet.

ECM#7b - Decreased Size of the Curtainwall + Improved Glazing

Summary – Measure Description

This measure is evaluating the energy and GHG impacts of decreasing the overall size of the curtainwall in the expansion section of the airport terminal while improving the curtainwall assembly to the same values as ECM6a. The decreased size of the curtainwall provides a smaller opening in the insulated wall and improved performance of the glass and curtain wall assembly providing a higher U-value than the baseline and ECM7a. The overall wall opening is decreased by 43% for this ECM and the U-value was improved to U-0.4.

Energy Use, Savings and GHG Impacts

ECM7b energy use impacts are seen in the heating, cooling, and ventilation of the airport terminal building. This measure showed an overall 4% improvement over the baseline model. The total kWh savings from this measure was 18,550 kWh annually and the GHG reduction was 13848.58 lbs of CO₂e. In Figure 38. Electric End-Use Consumption - kWh x 1000 ECM 7b it shows the heating as 112,890 kWh, cooling as 42,410 kwh and ventilation as 56,680 kWh. The interactive improvement of the heating 2,410 kWh, cooling consumption is 4,150 kwh and 5,230 for ventilation.



Figure 38. Electric End-Use Consumption - kWh x 1000 ECM 7b

The greenhouse gas reductions of ECM 7b can be seen in Figure 39. GHG lbs/ CO₂e emissions and savings from ECM 7b. The graph shows a reduction in lbs of CO₂e of 13,848.58 and a total amount produced as 337,054.20 lbs of CO₂e. This is consistent with the 4% reduction in kWh for the ECM overall.

In Figure 40. ECM7b electric consumption, savings and baseline kWh one can see the incremental improvement in the kWh consumed by reducing the size of the curtainwall and increasing its insulative and solar heat gain performance.



Figure 39. GHG lbs/ CO₂e emissions and savings from ECM 7b



Figure 40. ECM7b electric consumption, savings and baseline kWh

The baseline condition is the proposed opening size for the curtainwall in the airport expansion hold room. The curtainwall is 1,104 square feet in the baseline.

Calculation Methodology

The savings associated with this ECM are determined by comparing the baseline square footage of the curtainwall to one that is decreased 43% to an opening of 624 square feet. Additionally, the curtainwall was adjusted to have greater U-values and SHGC than the baseline.

ECM#8 - Improved Envelope (Walls and Roof)

Summary – Measure Description

The improved envelope upgrades from the baseline condition provide a better insulated shell to decrease heating and cooling loads. The insulation values associated with the exterior wall assembly of an improved shell were modeled as an ASHRAE TableA3.3 Assembly for Steel-Frame Walls. The overall U-Factor for the improved wall in the model is 0.04. This represents a advanced framed 24" O.C. steel frame wall that is a 6 inch cavity depth insulated to R-21 and has exterior continuous insulation of R-14.

The roof insulation would be upgraded from the above deck insulation of R-30 with a U-factor of 0.032 to be a U-factor of 0.022 or R-45 equivalent.

Energy Use, Savings and GHG Impacts

ECM8 is for improving the insulation of the walls and roof of the airport terminal building expansion section. The energy related impacts of this would be visible in heating, cooling and ventilation. This measure showed an overall 1% improvement over the baseline model, which was the lowest impact of all measures on its own. The total kWh savings from this measure was 3,830 kWh annually and the GHG reduction was 2,859.30 lbs of CO₂e. In Figure 41. Electric End-Use Consumption - kWh x 1000 ECM 8 it shows the heating as 114,290 kWh, cooling as 47,040 kwh and ventilation as 66,230. The interactive improvement of the heating 2,130 kWh combined with supplemental, cooling consumption is 1,590 kwh and 110 kWh for ventilation.



Figure 41. Electric End-Use Consumption - kWh x 1000 ECM 8

The greenhouse gas reductions of ECM 8 can be seen in Figure 42. GHG lbs/ CO_2e emissions and savings from ECM 8. The graph shows a reduction in lbs of CO_2e of 2,859.30 and a total amount produced as 348,043.47 lbs of CO_2e . This is consistent with the 1% reduction in kWh for the ECM overall.

In Figure 43. ECM8 electric consumption, savings and baseline kWh one can see the incremental improvement in the kWh improving the insulation of the expansion walls and roof.



Figure 42. GHG lbs/ CO₂e emissions and savings from ECM 8



Figure 43. ECM8 electric consumption, savings and baseline kWh

The baseline condition for this measure is the terminal building with a standard ASHRAE 90.1 envelope and heat pump. All other conditions for the building are the same as the baseline building.

Calculation Methodology

The savings associated with this ECM are determined by comparing the baseline building insulation impacts with those of improved roof and wall insulation.

ECM#9 – Improved Envelope (Walls, Roof and Curtainwall)

Summary – Measure Description

The improved envelope and curtainwall upgrades from the baseline condition provide a better insulated shell to decrease heating and cooling loads. The insulation values associated with the exterior wall assembly of an improved shell were modeled as an ASHRAE TableA3.3 Assembly for Steel-Frame Walls. The overall U-Factor for the improved wall in the model is 0.04. This represents an advanced framed 24" O.C. steel frame wall that is a 6 inch cavity depth insulated to R-21 and has exterior continuous insulation of R-14. The roof insulation would be upgraded from the above deck insulation of R-30 with a

U-factor of 0.032 to be a U-factor of 0.022 or R-45 equivalent. The improvements to the curtainwall include a lower U-value for the glass, a greater solar heat gain coefficient (SHGC) and a thermally broken aluminum frame. The glazing used in the model is from the library and is specifically; 2667 - Center of Glass U-0.29 / SHGC – 0.29 with an NFRC U value – Glass + Frame equal to U- 0.4.

Energy Use, Savings and GHG Impacts

ECM9 is for improving the insulation of the walls, roof and curtain wall of the airport terminal building expansion section. The energy related impacts of this would be visible in heating, cooling and ventilation much like ECM8. This measure showed an overall 4% improvement over the baseline model. The total kWh savings from this measure was 17,700 kWh annually and the GHG reduction was 13,214.01 lbs of CO₂e. In Figure 44. Electric End-Use Consumption - kWh x 1000 ECM 9 it shows the heating as 112,150 kWh, cooling as 42,930 kwh and ventilation as 57,960 kWh. The interactive improvement of the heating 4,050 kWh combined with supplemental, cooling consumption is 5,700 kwh and 8,380 kWh for ventilation.



Figure 44. Electric End-Use Consumption - kWh x 1000 ECM 9

The greenhouse gas reductions of ECM 9 can be seen in Figure 45. GHG lbs/ CO_2e emissions and savings from ECM 9. The graph shows a reduction in lbs of CO_2e of 13,214.01 and a total amount produced as 337,688.77 lbs of CO_2e . This is consistent with the 4% reduction in kWh for the ECM overall.

In Figure 46. ECM9 electric consumption, savings and baseline kWh Figure 43. ECM8 electric consumption, savings and baseline kWh one can see the incremental improvement in the kWh improving the insulation of the expansion walls and roof and the improvement of the glazing of the curtainwall.



Figure 45. GHG lbs/ CO₂e emissions and savings from ECM 9



Figure 46. ECM9 electric consumption, savings and baseline kWh

The baseline condition for this measure is the terminal building with a standard ASHRAE 90.1 envelope and heat pump. All other conditions for the building are the same as the baseline building.

Calculation Methodology

The savings associated with this ECM are determined by comparing the baseline building insulation impacts with those of improved roof and wall insulation. Additionally, the curtainwall was adjusted to have greater U-values and SHGC than the baseline.

ECM#10 – Proposed Design (Walls, Roof, Curtain Wall, VRF w/ERV, Lighting, Lighting Controls)

Summary – Measure Description

This measure is a combination of the most impactful or the most likely ECMs implemented to simulate the interactive effects of how they will impact the building performance. The measures included in this

bundle are improved walls, roof, curtainwall, HVAC and lighting. Each of the measures that are applied in this combination were modeled independently as prior ECMs for this study.

Energy Use, Savings and GHG Impacts

The energy savings associated with the ECM10 simulation was 16% energy savings over the baseline model. With the combined measures the total kwh savings is 75,360 kWh, and the GHG reductions are 56,260.31 lbs of CO₂e. The end use consumption is visible in Figure 47. Electric End-Use Consumption - kWh x 1000 ECM 10 for heating the building used 31,230 kWh, cooling was 29,890 kWh and ventilation was 122.49 kWh, which was a significant increase over the baseline ventilation kWh. The lighting reduction was 14,890 kWh going from 107,250 kWh to 92,360 kWh as seen in Figure 47.



Figure 47. Electric End-Use Consumption - kWh x 1000 ECM 10

The total GHG produced from this ECM was 294,642.47 lbs of CO_2e and the building as designed here saved 56,260 lbs of CO_2e as seen in Figure 48. GHG lbs/ CO_2e emissions and savings from ECM 10.

In Figure 49. EMC 10 electric consumption, savings and baseline kWh x 1000 one can see the incremental improvement in the kWh from the combined measures.



Figure 48. GHG lbs/ CO $_2$ e emissions and savings from ECM 10



Figure 49. EMC 10 electric consumption, savings and baseline kWh x 1000

The baseline condition for this measure is the terminal building with a standard ASHRAE 90.1 envelope and heat pump. All other conditions for the building are the same as the baseline building.

Calculation Methodology

The savings associated with this ECM are determined by comparing the baseline unadjusted with the combined ECMS from the previous models referenced throughout the study.

ECM#11 Passive House – Terminal Expansion as Passive House Conditions

Summary – Measure Description Energy Use, Savings and GHG Impacts

Baseline Condition

The baseline condition is the expanded terminal with packaged single zone air cooled and electrically heated systems assigned to building zones. The standard efficiency system for the air-cooled system

meets the ASHRAE 90.1-2013 Table 6.8.1-1 requirements for EER for cooling efficiency. The heating system efficiencies for the system are derived from the ASHRAE 90.1-2013 as well. The baseline system does not have any heat or energy recovery.

Calculation Methodology

Passive House is an air change rate reduction, window upgrade, roof insulation improvement, hanger door insulation and wall insulation improvement. The requirements for the ECM are listed below in the Passive House website as well as reducing the ACH to 0.08.

Hangars

Two new construction hangers were modeled compared to ASHRAE90.1 Appendix G. Hanger 2 does not have drawings at this time, so assumptions were made for the layout of the office area and window placement.



Hanger 1

Hanger 1: Hanger 1 is 15,234 sq.ft with three small utility rooms. Hanger 1 is 43.7 feet tall with a pitched roof and a hanger door 30x116 feet. The building has windows at 30 feet and access doors on the side. At each entry way the building has exterior lighting and an assumed indoor lighting. The hanger will have heating but no cooling and the building will use natural ventilation instead of mechanical equipment.



Hanger 2

Hanger 2: Hanger 2 is 9,200 sq.ft with a 6,000 sq.ft. hanger and a 3,200 sq.ft office area at the back end. The hanger has a 40x80 foot hanger door with access doors on the side. The office spaces consist of corner offices, open offices, a vestibule entry and a corridor with access to the hanger.

ltem	Baseline- ASHRAE90.1	Proposed
Location – Weather	Martha's Vineyard – Nantucket or	Martha's Vineyard – Nantucket or
File	MA_Marthas_Vineyard.bin	MA_Marthas_Vineyard.bin
Number of Floors	1	1
Window Locations	Custom	Custom
Thermal Zoning	Custom	Custom
Floor to Ceiling Height	Varies by zones	Varies by zones
	Original Building -	
Building Envelope Const	ruction	
Walls	1	
Walls – U-Factor	0.055	0.03
Windows		
Windows – U-factor	U-0.42	U-0.3
Windows – SHGC	0.40	0.24
Roof		
Roof – U-Factor	U-0.043	U-0.02
Foundation		
Foundation Type	Slab on grade	Slab on grade
Roof – U-Factor	U-0.567	U-0.567
Doors		
Hanger Doors	0.37	0.15
U-Value		
Infiltration		
ACH	0.5	0.08 (Passive House requirement)
Heating		
System in Hanger	Electric Resistant Heating	Heat Pump
System in Office	Heat Pump (System 2)	VRF System
Cooling	1	
System in Hanger	None	None
System in Office	Heat Pump (System 2)	VRF System
DHW	1	
System	Electric	Electric
Ventilation		
Hanger	No Ventilation	No Ventilation
Thermostat Control		
Heating Setpoint	64F – 72F	64F – 72F
Cooling Setpoint	72-80F (When Applicable)	72-80F (When Applicable)
Lighting		
Hanger	0.9 W / sq.ft	0.55 W / sq.ft
Office Area	1.1 W/sq.ft	0.7 W/ sq.ft
Appliances / Plug Load		
Plug loads Hanger	0.25 W/sq.ft	0.25 W / sq.ft
Plug Load Offices	0.75 W/ sq.ft	0.75 W/ sq.ft
Plug Load Corridor	0.10 W/sq.ft	0.10 W/sq.ft

Energy Conservation Measures

ECM #1 – Heat Pump System

Summary – Measure Description

Switching out an electric heater in the hanger with a heat pump system in both Hanger 1 & 2. The heat pump will be with code efficiency EIR and sized to meet the load in the hanger. The improved efficiency compared to electric resistance heat.

Hangar 1	EUI	kWh	GHG Elec lbs/CO2e	Savings - EUI(kbtu/sf/yr	Savings - kWh	Savings GHG Elec lbs/ CO2e	Savings by %
Baseline	41.68	277820	207,407.63	0.00	0.00	0.00	0%
ECM1 Heat	34.62	230730	172,252.40	7.07	47090.00	35155.23	17%
Pump							
Hangar 2	EUI	kWh	GHG Elec	Savings -	Savings -	Savings GHG Elec	Savings
			lbs/CO2e	EUI(kbtu/sf/yr	kWh	lbs/CO2e	by %
Baseline	18.82	125420	93,632.80	0.00	0.00	0.00	0%
ECM1 Heat	12.94	86230	64,375.35	5.88	39190.00	29257.45	31%
Pump							

Energy Use, Savings and GHG Impacts

Baseline Condition

The baseline condition is the expanded terminal with packaged single zone air cooled and electrically heated systems assigned to building zones. The standard efficiency system for the air-cooled system meets the ASHRAE 90.1-2013 Table 6.8.1-1 requirements for EER for cooling efficiency. The heating system efficiencies for the system are derived from the ASHRAE 90.1-2013 as well. The baseline system does not have any heat or energy recovery.

Calculation Methodology

The hangers in both Hanger 1 and 2 are both modeled as heating only spaces. This measure compares a code efficient unit heater with an above average efficient heat pump.

ECM #2 – Lighting Upgrades

Summary – Measure Description

The lighting in Hanger 1 and 2 are modeled to code W/sq.ft. At this time, there no detailed design drawings for either Hanger 1 or 2. Hanger 1 shows outdoor lighting so savings were accounted for but Hanger 2 is only a concept so only code lighting above the hanger door was modeled.

Hangar 1	EUI	kWh	GHG Elec lbs/CO2e	Savings - EUI(kbtu/sf/yr	Savings - kWh	Savings GHG Elec lbs/ CO2e	Savings by %
Baseline	41.68	277820	207,407.63	0.00	0.00	0.00	0%
ECM2 Lighting	28.47	189750	141,658.62	13.21	88070.00	65749.01	32%
Hangar 2	EUI	kWh	GHG Elec lbs/CO2e	Savings - EUI(kbtu/sf/yr	Savings - kWh	Savings GHG Elec lbs/CO2e	Savings by %
Baseline	18.82	125420	93,632.80	0.00	0.00	0.00	0%
ECM2 Lighting	11.63	77510	57,865.40	7.19	47910.00	35767.40	38%

Energy Use, Savings and GHG Impacts

Baseline Condition

The building is considered a conditioned warehouse in ASHRAE90.1 Appendix G with a lighting power density of 0.9 W/sqft. The office section of the warehouse is modeled as an office building with an LPD of 1.1 W/sq.ft. The outdoor lighting for the hanger is modeled as 20 W/linearfoot of entry way. The total lighting for the exterior lighting is 3.48kW for Hanger 2 and 4.2kW for Hanger 1.

Calculation Methodology

Without detailed drawings, assumptions were made for the proposed case. The proposed Hanger lighting power density is 0.35 W/sq.ft for the hanger and 0.7 W/sq.ft for the office area. The exterior lighting savings are calculated at 2.5kW for Hanger 2 and 2.5kW and 0.3kW for Hanger 1.

ECM #3 – Passive House Requirements – Hangar 1 Only

Summary – Measure Description

Passive House is an air change rate reduction, window upgrade, roof insulation improvement, hanger door insulation and wall insulation improvement. The requirements for the ECM are listed below in the Passive House website as well as reducing the ACH to 0.08.







Hangar 1	EUI	kWh	GHG Elec lbs/CO2e	Savings - EUI(kbtu/sf/yr	Savings - kWh	Savings GHG Elec Ibs/CO2e
Baseline	41.68	277820	207,407.63	0.00	0.00	0.00
ECM 3 Passive	14.79	98570	73,587.83	26.89	179250.00	133819.80
House						

Energy Use, Savings and GHG Impacts

Baseline Condition

The baseline case for both hangers are ASHRAE90.1 Appendix G requirements and industry standards. The air change rates for the building is 0.5 ACH. Both Hangers are steal frame structures with a wall U-value of 0.55 and 0.38 roof U-value. The windows are 0.45 U value with a SHGC of 0.4. The baseline conditions are to simulate a code efficient enclosure, there are no target values for the baseline.

Calculation Methodology

To meet the requirements for Passive House. In order to achieve this goal, the roof, walls, windows, hanger door, heat pump system, and infiltration all improved to meet the standard. In Hanger 2 a VRF system is installed in the office area.

ECM #3 – Office area VRF System – Hangar 2 Only

Summary – Measure Description

Measure Description Installing Variable refrigerant flow system to heat and cool the office area of Hanger 2. The VRF system is assumed to be a Daikin system for the eQuest model. The curves associated with the Daikin systems were used in the model.

		1.1.4.4		
Energy Use	, Saving	s and GF	IG Impacts	

Hangar 2	EUI	kWh	GHG Elec lbs/CO2e	Savings - EUI(kbtu/sf/yr	Savings - kWh	Savings GHG Elec lbs/CO2e
Baseline	18.82	125420	93,632.80	0.00	0.00	0.00
ECM 3 VRF	11.32	75460	56,334.96	7.50	49960.00	37297.84

Baseline Condition

The building is considered a conditioned warehouse in ASHRAE90.1 Appendix G with a lighting power density of 0.9 W/sqft. The office section of the warehouse is modeled as an office building with the a LPD of 1.1 W/sq.ft. The outdoor lighting for the hanger is modeled as 20 W/linear foot of entry way. The total lighting for the exterior lighting is 3.48kW for Hanger 2 and 4.2kW for Hanger 1.

Calculation Methodology

The office space was modeled as a VRF system with Daikin provided performance curves. The fan power density, EIRs, and capacities were modeled in accordance with Daikin guidelines. However, the floor layouts and capacities were not yet designed so assumptions were made on the capacities and design requirements of the system.



Figure 50 Hangar 1 EUI Impacts of ECMs



Figure 51 Hangar 2 EUI impacts from ECMs

Modeling Inputs for Baseline

The baseline model inputs were derived from ASHRAE 90.1-2013 Appendix G. Inputs were modified from the original ASHRAE 90.1 defined values in some instances to be the required inputs that are used in eQuest.

<u>ltem</u>	Baseline- Existing Building	Baseline- Expansion
Location – Weather	Martha's Vineyard – Nantucket or	Martha's Vineyard – Nantucket or
File	MA_Marthas_Vineyard.bin	MA_Marthas_Vineyard.bin
Number of Floors	1	1
Window Locations	Custom	Custom
Thermal Zoning	Custom	Custom
Floor to Ceiling	Varies by zones	Varies by zones
Height	Original Building -	
Building Envelope Con	struction	
Walls		
Walls – Construction	Steel frame with R-19- assembly	Steel frame with R-19+ 10 equivalents
Walls – U-Factor	U-0.08	0.055
Windows		
Windows – U-factor	U-0.42	U-0.42
Windows – SHGC	0.40	0.40

Roof						
Roof – Construction	shingle and insulation on exterior	Insulation above deck				
Roof – U-Factor	U-0.041	U-0.032				
Foundation						
Foundation Type	Slab on grade	Slab on grade				
Roof – U-Factor	U-0.567	U-0.567				
Doors						
Infiltration						
ACH	0.5	0.08 (Passive House requirement)				
Heating						
System Type / Eff	Heat pump system 2 / EIR 0.33587	Heat pump system 2 / EIR 0.33587				
Cooling						
System Type / Eff	PSZ Air Cooled EER – 9.3 EIR –	PSZ Air Cooled EER – 9.3 EIR – 0.35387				
	0.35387					
DHW						
Fuel / Eff	Electric 98%	Electric 98%				
Ventilation						
Thermostat Control						
Heating Setpoint	64F – 72F	64F – 72F				
Cooling Setpoint	72-80F (When Applicable)	72-80F (When Applicable)				
Lighting						
LPD Space Types	Varied by space type	Varied by space type				
Appliances / Plug Load	is / MELs					
See Appendix B						

Table 1: Terminal Model Input Data

Appendix A:

Appendix A shows the charts that were populated with the results from the simulations that were run for all of the energy models that were all electric buildings. The Terminal, Hangar 1 and Hangar 2 were all simulated separately and combined in several instances to demonstrate the overall EUI of the expansion of the airport.

Table 2: Simulations Results in Table format

Energy	Terminal	EUI	kWh	GHG Elec lbs/CO ₂ e	Savings -	Savings -	Savings GHG	Savinge
Measures						KVVII		bv %
(ECM) or								-,
Energy								
Efficiency								
Measures (FFM)								
Baseline	Baseline	70.52	470030	350,902.78	0	0	0	
EEM 1	ECM1 Heat Pump	67.92	452660	337,935.13	2.61	17370.00	12967.64	4%
EEM 2a	ECM2a VRF	65.73	438090	327,057.84	4.79	31940.00	23844.93	7%
EEM 2b	ECM2b VRF w/ERV	63.84	425500	317,658.73	6.68	44530.00	33244.05	9%
EEM 2c	ECM2c VRF(CEE) w/ERV	63.84	425490	317,651.26	6.68	44540.00	33251.52	9%
EEM 3	ECM3 ERV w/heat pump	68.17	454380	339,219.21	2.35	15650.00	11683.57	3%
EEM 4	ECM4 Lighting	67.51	449940	335,904.51	3.01	20090.00	14998.27	4%
EEM 5	ECM5 Lighting Controls Daylighting	66.56	443600	331,171.35	3.97	26430.00	19731.42	6%
EEM 6a	ECM6a Curtainwall Glazing Improvement	68.39	455830	340,301.71	2.13	14200.00	10601.07	3%
EEM 6b	ECM6b Curtainwall Glazing Improvement V2	67.99	453160	338,308.41	2.53	16870.00	12594.37	4%
EEM 7a	ECM7a Curtainwall Reduced	68.84	458800	342,518.98	1.68	11230.00	8383.80	2%
EEM 7b	ECM7b Curtainwall Reduced + Improved Glazing	67.74	451480	337,054.20	2.78	18550.00	13848.58	4%
EEM 8	ECM8 Improved Building Envelope 1	69.95	466200	348,043.47	0.57	3830.00	2859.30	1%
EEM 9	ECM9 Improved Envelope 2 (Walls, Roof and Curtain Wall)	67.87	452330	337,688.77	2.66	17700.00	13214.01	4%
EEM 10	ECM10 - Combined Proposed (Walls, Roof, Curtain Wall, VRF w/ERV, Lighting, Daylighting)	59.22	394670	294,642.47	11.31	75360.00	56260.31	16%
	Hangar 1							
Baseline	Baseline	41.68	277820	207,407.63	0.00	0.00	0.00	0%
EEM 1	ECM1 Heat Pump	34.62	230730	172,252.40	7.07	47090.00	35155.23	17%
EEM 2	ECM2 Lighting	28.47	189750	141,658.62	13.21	88070.00	65749.01	32%
EEM 3	ECM 3 Passive House	14.79	98570	73,587.83	26.89	179250.00	133819.80	65%
	Hangar 2							
Baseline	Baseline	18.82	125420	93,632.80	0.00	0.00	0.00	0%
EEM 1	ECM1 Heat Pump	12.94	86230	64,375.35	5.88	39190.00	29257.45	31%
EEM 2	ECM2 Lighting	11.63	77510	57,865.40	7.19	47910.00	35767.40	38%
EEM 3	ECM 3 VRF	11.32	75460	56,334.96	7.50	49960.00	37297.84	40%
	Combined	EUI	kWh	GHG Elec lbs/CO ₂ e	Savings - EUI(kbtu/sf/yr	Savings - kWh	Savings GHG Elec lbs/CO ₂ e	Savings bv %
Baseline	Combined Baselines (Terminal, Hangar 1 and Hangar 2)	131.02	873270.00	651943.21	0.00	0.00	0.00	0%

EEM1HP	Combined Improved Heat Pump (Terminal, Hangar 1	115.47	769620.00	574562.89	15.55	103650.00	77380.32	12%
	and Hangar 2)							
EEM2LT	Combined Improved Lighting (Terminal, Hangar 1 and	107.61	717200.00	535428.53	23.42	156070.00	116514.68	18%
	Hangar 2)							
EEM P	Combined Proposed (Terminal - Walls, Roof, Curtain	99.01	659880.00	492636.05	32.02	213390.00	159307.16	24%
	Wall, VRF w/ERV, Lighting, Daylighting, Hangar 1-							
	Lighting, Hangar 2 - VRF)							

Appendix B:

The national Academies of Sciences Engineering and Medicine produced the ATB-EUI (Airport Terminal Building Energy Use Intensity) data set. This data set was used to determine the loads associate with various locations in an airport terminal and informed the model accordingly.

The research paper is located at - <u>http://www.trb.org/ACRP/Blurbs/173795.aspx</u>

The data and tool that informed the paper and tools are located at - <u>http://www.trb.org/acrp/pages/airport_building_eui_charts_907.aspx</u>

Plug Load Study Areas

terminal_i d	climat e	hu b	terminal_i d	concession_fo od	concession_ret ail	offic e	transient_spac e	ticketin g	departure s	claim_baggag e	handle_bagga ge	service_are a	Total sf	border
37	w	N	37	534	0	378 0	17565	1817	2701	337	3374	1687	32187	392

Plug Loads by Space Types

terminal_id	climate	hub	concession_food	office	transient	ticketing	departures	border	baggage_handling	baggage_claim	service	baggage	elevato
37	w	N	137932200	351162000	1649353500	170616300	253623900	45393600	316818600	31644300	277342800	2416037.2	330175
		w/sf/yr	4285.338801	10910.0569	51242.84649	5300.782925	7879.699879	1410.30851	9843.060863	983.1391556	8616.60919	75.06251592	1025.8
		kWh/sf/yr	4.285338801	10.9100569	51.24284649	5.300782925	7.879699879	1.41030851	9.843060863	0.983139156	8.61660919	0.075062516	1.0258
		w/sf/hr	0.489193927	1.24544028	5.84964001	0.605112206	0.899509119	0.160994122	1.123637085	0.112230497	0.983631186	0.00856878	0.1171

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Martha's Vineyard Airport

Capital Improvement Plan

Notice of Project Change / Draft Environmental Impact Statement / Environmental Assessment

<u>APPENDIX E</u>

Exhibit A – Airport Property Map

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Martha's Vineyard Airport

Capital Improvement Plan

Notice of Project Change / Draft Environmental Impact Statement / Environmental Assessment

APPENDIX F

Agency Correspondence

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RARE SPECIES MEETING MINUTES

DATE: June 13, 2017, 10:00AM

MJ Project No.: 18226.04 and 18226.07

LOCATION: MA Natural Heritage and Endangered Species Program, Westborough, MA

PROJECT: Martha's Vineyard Airport Land Development Planning and 5-year CIP EA/EIR

ATTENDEES:

Eve Schluter, MA Natural Heritage and Endangered Species Program Jed Merrow, Environmental Project Manager, McFarland Johnson (MJ) Matthew O'Brien, Project Engineer, MJ Ann Crook, Airport Manager, Martha's Vineyard Airport (telephone) Geoff Freeman, Assistant Airport Manager (telephone) Erin Haugh, Biologist, GZA (telephone)

The meeting was held to discuss rare species issues associated with an ongoing land development study at Martha's Vineyard Airport and to introduce the upcoming Capital Improvement Plan (CIP) project environmental process.

Overall Approach to Permitting

The original 2005 Conservation and Management Permit and 2009, 2014, and 2017 amendments were reviewed. MJ prepared the attached a summary of permitted projects and mitigation. Not all of the projects with impacts were constructed, but all of the mitigation projects were constructed. Overall, 21.8 acres of rare species habitat impacts were permitted, 11.8 acres of impacts were incurred, and 46.5 acres of mitigation were constructed.

Eve noted that the past impact and mitigation accounting was useful and some of the mitigation could potentially be considered in future permitting, but regulations and protected species have changed, and she would like to avoid additional amendments and would like to commence a new permit process. The permit process would unfold simultaneous with the EA/EIR process, with impacts, avoidance, minimization, mitigation, and construction measures determined during that process. The permit application could be submitted around the time the EA/EIR is finalized. The rare species analysis would take a holistic approach, considering the current regulations, updated species listings, kinds and quality of habitats impacted, acreage affected, current mitigation ratios, species takings, animal vs. plant impacts, schedule of construction, and other factors.

Permitting Land Development Projects

The land development projects are not on the CIP and are locally rather than federally funded. They include a variety of possible projects that have not yet been fully defined but may need to be advanced sooner than the CIP project approval process. Possibilities range from commercial structures on two-acre parcels within the existing business park to a possible large solar farm. Areas that might be appropriate for development (based on many considerations) have been identified, but site-specific projects and impacts have not yet been defined.

Since there are anti-segmentation requirements for both the Massachusetts Endangered Species Act (MESA) and the Massachusetts Environmental Policy Act (MEPA) processes, the MESA permit and the MEPA environmental document should probably address the entire range of potential projects, including land development and CIP projects. However, if land development projects need to be permitted prior to completion of the overall permit process, Natural Heritage could consider issuing an amendment to the prior permit. MEPA would need to be contacted to determine how these early projects could be progressed in the context of their permit thresholds and anti-segmentation requirements.

Westfield-Barnes Airport was mentioned as an example of this kind of holistic approach, though the species and habitat impacts were less complicated. They addressed impacts and mitigation for a broad range of project types in a single permit, although Natural Heritage issued amendments to an older permit as needed for fast-track projects until the overall permit could be issued.

Because the exact nature and locations of land development projects are not yet known, impacts and mitigation cannot be determined with certainty. There are a couple of ways this could be handled with respect to the Conservation and Management Permit. The airport could identify possible areas to develop, make assumptions about the level of impacts expected, obtain consensus on the level of mitigation required, and get those impacts and mitigation permitted. The mitigation proposal would be fine-tuned when projects are proposed for construction and impacts are better defined, and mitigation would be implemented prior to construction. Alternatively, after approximate impacts and mitigation are determined, mitigation could be implemented collectively in advance for the range of potential development projects. This could ultimately be more cost-effective. For MEPA, changes to proposed projects could perhaps be handled with Notices of Project Change.

Regarding the solar farm, Eve recommended considering placing panels on existing structures or disturbed areas rather than undisturbed habitat with rare species potential. The state Department of Energy Resources' incentives may be tied to consideration of such alternatives.

Plant Survey Areas and Protocols

The rare plant survey study area was discussed, referring to the attached color-coded map prepared by GZA. All potential impact areas could be surveyed this season, or the survey could be phased as projects are proposed for construction. The following conclusions were drawn:

PROJECT MEETING MINUTES – Page 3

- No rare species survey is needed in existing woodland or scrub-shrub areas, but these areas should be ground-truthed to confirm habitat type and condition. No survey will be required for whip-poor-wills.
- There is a specific newer rare plant location that Eve will provide to Erin to check (if it is within the survey areas).
- Green areas, and other grassland areas not previously surveyed, should be surveyed for rare plants this season.
- Yellow areas, and any other areas surveyed in recent years (2012 or sooner perhaps), do
 not necessarily need to be re-surveyed now. We have a general idea of what rare plants
 are found where in these areas, and can make conservative assumptions about impacts
 for the time being. Sometime prior to construction, they would need to be formally
 field-surveyed and mitigation would need to be fine-tuned accordingly. If construction
 is expected relatively soon, they should be re-surveyed soon. Most construction projects
 will be carried out in September, so advance notice will be necessary in order to
 schedule surveys during the proper seasons (for example, the September prior to
 construction, which would be a full year in advance).
- Orange areas, if they have not been looked at since the 2005 time frame, will need to be surveyed.
- The turf tie-down area (blue and adjacent green) will need to be looked at to see if there is suitable habitat for rare species. If so, these areas should be surveyed; if not, just document conditions.
- Land development areas will need to be looked at soon to see what kind of habitat is present. They appear to be woodland and shrub habitats. These habitats should be identified but no rare species surveys are required at this time. Rare species surveys could be required prior to construction, or sooner, depending on habitats present and species listings at the time.
- Any area proposed for construction would need a rare plant survey within one or two growing seasons prior to the start of construction.

Eve previously approved GZA's proposed plant survey protocols. She would like to receive survey data as soon as it becomes available, i.e., not just once at the end of the year. It may be useful to evaluate past mitigation areas while we are out. Eve will look over the last annual monitoring report to see what it says about habitat quality in past mitigation areas.

Mitigation

Mitigation would be determined in consideration of the entire collection of proposed airport projects and impacts. Types of mitigation would depend on types of species and habitats impacted. Eve would consult with Natural Heritage specialists to evaluate proposed options. There is flexibility in this regard, and some mitigation could conceivably be off-airport or even off-island. Some general comments on mitigation:

- Mitigation for one habitat type can require tradeoffs with other habitat impacts.
- Habitat enhancement and management measures can be a form of mitigation. Eve recommended reviewing potential mitigation areas on airport property, such as frost pockets/bottoms, that could be enhanced.

- Tree thinning can be a form of mitigation, and the amount of protected woodland surrounding the airport may provide justification for having less woodland on airport.
- Rare wildlife species permitting may have more flexibility than rare plant species, which involve direct takings of protected organisms.
- Translocation is likely to be required for plant impacts.

Project Coordination with Natural Heritage

Eve recommended holding project meetings to discuss ongoing rare species issues. These could be at regular intervals or tied to project milestones, and could be by phone or in person.



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MEPA MEETING MINUTES

DATE: August 7, 2017, 1:00PM

MJ Project No.: 18226.04 and 18226.07

- **LOCATION:** MA Executive Office of Energy and Environmental Affairs MEPA Office 100 Cambridge St. 9th Floor, MEPA Conference Room, Boston MA
- **PROJECT:** Martha's Vineyard Airport 5-year Capital Improvement Plan and Land Development Planning

ATTENDEES:

Dierdre Buckley, Director, MEPA Office Ann Richart, Airport Manager, Martha's Vineyard Airport Geoff Freeman, Assistant Airport Manager (telephone) Jed Merrow, Environmental Project Manager, McFarland Johnson (MJ) Matthew O'Brien, Project Engineer, MJ Richard Doucette, Environmental Manager, FAA (telephone) Tom Mahoney, Director of Airport Engineering, MassDOT Aeronautics Division (telephone) Mike Garrity, Planning and Environmental Analyst, MassDOT Aeronautics (telephone) Steve Rawding, Aviation Planner, MassDOT Aeronautics (telephone)

The meeting was held to discuss the upcoming Capital Improvement Plan (CIP) projects and other potential land development projects at Martha's Vineyard Airport, in particular regarding the Massachusetts Environmental Policy Act (MEPA) process. National Environmental Policy Act (NEPA) implications were also discussed.

Capital Improvement Plan Projects

The 12 FAA-funded CIP projects were described and their MEPA involvement discussed:

- Project 1: Remove Runway 15/33 Shoulder Pavement: This will be completed this fall, resulting in a reduction in impervious surface. This reduction would be considered in the cumulative impact analysis and offset future pavement additions.
- Project 2: Paint Apron Islands: It is uncertain whether this will simply be a painting project or may involve more substantial changes such as moving a stub taxiway. This will be included in the MEPA/NEPA analysis as alternatives are studied. If it remains a painting project it could be removed from detailed environmental study and processed as a Categorical Exclusion under NEPA.
- Project 3: Replace Firetrucks: Remove from MEPA analysis (assuming no other infrastructure is needed) and process as NEPA Categorical Exclusion.

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- Projects 4 and 5 (mill and overlay both runways): The extent of grading outside existing pavement is uncertain but could be substantial. These projects will be studied in the MEPA/NEPA analysis as alternatives are developed and evaluated.
- Project 6: Concrete Pad at Fuel Farm: In addition to new impervious surface, there could be stormwater management work. This project will be included in at least the MEPA Environmental Notification Form and could probably be addressed in a separate NEPA Categorical Exclusion.
- Projects 7, 8, 10, and 12 (expand ramps and construct a taxiway): All involve substantial new impervious surface or footprints and will be included in the MEPA/NEPA study.
- Project 9 (expand terminal): There is insufficient passenger space in the existing terminal building and temporary structures such as a tent are used. The availability of FAA funding is uncertain. This project could result in a substantial building expansion and reconfiguration of roads and parking, and will be included in the MEPA/NEPA study. The airport will begin looking at terminal expansion concepts soon. MassDOT can participate in monetary support if there is FAA support.
- Project 11 (remove Taxiway E): This will involve grading within Priority Habitat areas and will be included in the MEPA/NEPA study.

Land Development Projects

The airport is zoned LI (Light Industrial), B-III (Business) and B-IV (Trades). There is little developable land left on the island, and the airport could be an appropriate place for a wide variety of commercial land uses that would benefit the public but may be less appropriate in other areas. It would also provide additional revenue for the airport. The wastewater treatment facility is sufficient for current uses and has some capacity for more inputs.

Edgartown-West Tisbury Road is a state highway. Ms. Buckley asked if there are MassDOT access issues.

The ability to proceed with individual developments in advance of the MEPA process was discussed. There are a number of considerations that determine segmentation: if there is a common development plan or a connection between developments, if project proponents are the same, the timing of the various activities, how they would be permitted by other agencies, etc. If projects are considered together, then consider them cumulatively in determining whether they meet MEPA thresholds. Consider net new impervious surface or net new land alteration (in undisturbed ground).

Overall Process

Ms. Buckley recommended reviewing the various CIP and land development projects in light of MEPA thresholds. If footprints are not known, assumptions could be made, preferably conservatively so that impacts are not underestimated and there is more flexibility later on. Projects individually impacting less than 10,000 square feet would not be looked at individually.

PROJECT MEETING MINUTES – Page 3

A Phase 1 waiver could be granted allowing some projects to move forward. Non-aviation projects could possibly be processed separately from "airside" projects. There can also be special procedures developed to allow flexibility for certain large and complex fast-track projects. If a project cannot be defined now or comes up later, a Notice of Project Change could be sought.

The appropriate NEPA document for the CIP projects is an environmental assessment, consistent with other airport CIP projects around New England.

An Environmental Notification Form will be required. It will need to include a greenhouse gas analysis. Rare species, noise, and possibly water quality (sole source aquifer) are likely to be the key issues. Mr. Merrow noted that the airport has begun coordinating with the MA Natural Heritage and Endangered Species Program and will be working closely with them throughout the process. Mr. Doucette expects many public comments pertaining to induced aviation traffic growth and noise, but noted that more pavement does not necessarily mean capacity or growth. Projects with very limited impacts should be identified in the Environmental Notification Form so they can be processed separately (perhaps with Phase 1 waivers) and move forward.

One "blended" Environmental Assessment and Environmental Impact Report document will be prepared to satisfy both NEPA and MEPA requirements. Filings and public hearings will be jointly done.

Mr. Doucette prefers land development (non-aviation) projects be processed separately under NEPA. They may need to be considered in the Environmental Assessment for cumulative impacts. The cost of studying these developments should be separate from aviation projects. Tenants are typically required to obtain their own environmental permits.

Ms. Buckley asked for information regarding MEPA thresholds and time frames for improvements. She recommended working with the Martha's Vineyard Commission's Joann Taylor, who has extensive MEPA experience.



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MEPA MEETING MINUTES

DATE: February 9, 2018, 10:30 AM

MJ Project No.: 18226.04/07/11

- **LOCATION:** MA Executive Office of Energy and Environmental Affairs MEPA Office 100 Cambridge St. 9th Floor, MEPA Conference Room, Boston MA
- **PROJECT:** Martha's Vineyard Airport Land Development Planning, Runway 6-24, and 5-year Capital Improvement Plan

ATTENDEES:

Dierdre Buckley, Director, MEPA Office Eve Schluter, Assistant Director, MEPA Office Ann Richart, Airport Manager, Martha's Vineyard Airport (telephone) Jed Merrow, Environmental Project Manager, McFarland Johnson (MJ) Matthew O'Brien, Project Engineer, MJ Brian Smith, Aviation Manager, MJ Owen Silbaugh, Aviation Engineer, MassDOT Aeronautics (telephone) Nate Rawding, Environmental Analyst III, MassDOT Aeronautics (telephone) Mike Garrity, Planning and Environmental Analyst, MassDOT Aeronautics (telephone)

The meeting was held to discuss permitting issues surrounding land development projects, Runway 6-24 reconstruction, and the upcoming Capital Improvement Plan (CIP) projects at Martha's Vineyard Airport, in particular regarding the Massachusetts Environmental Policy Act (MEPA) process.

Land Development Parcels

The airport has identified portions of airport property that will not be needed for aviation use and are suitable for private development. Considering environmental constraints (Priority Habitat in particular), the airport has prioritized parcels that are adjacent to existing development and outside of Priority Habitat. The focus for the near term will be on the blue and cyan areas within the heavy dashed lines on the attached figure. This will include most of the yellow well radius, once the well is decommissioned. The Natural Heritage and Endangered Species Program has stated they do not have jurisdiction over work in non-Priority Habitat areas, unless it somehow leads to future disturbance in Priority Habitat.

The airport would like to proceed with the land release and development as soon as possible. FAA needs to formally release the land from deed restrictions for aeronautical use; a

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PROJECT MEETING MINUTES – Page 2

Categorical Exclusion would be needed to satisfy NEPA requirements; the land is being reviewed for possible historic or archaeological resources; and U.S. Fish and Wildlife Service is being contacted regarding rare bat species.

The size of the parcels was discussed. There are approximately 7 acres of blue/cyan land along Barnes Road and 14 acres along Airport Road. The size of individual parcels won't be determined until a Request for Proposals for specific locations is prepared. For MEPA purposes (if there is MEPA jurisdiction), the potential buildout area of at least the first phase of the development areas should be estimated. Future phases are not currently planned and the timing and nature of the developments are uncertain.

MEPA could have jurisdiction if there is state funding or the project requires a state action, such as a permit. A new access on the state highway or certain increases in vehicle trips could require state approval. The number of vehicle trips on state roads will be looked into. (MassDOT later determined that developing the 7 acres along Barnes Road would not require an indirect access permit provided the number of additional parking spaces and trips per day are below the MEPA thresholds.)

If there is a state agency action and MEPA jurisdiction for any of the first phase development, MEPA thresholds would be considered.

Segmentation was discussed. If MEPA has jurisdiction and the development is all on one site, the proponent is the same, and it is within a five-year time frame, it is likely considered one project for MEPA purposes. To move the business park development projects forward prior to the CIP ENF/EA/EIR process, one option is a Phase I waiver, which requires demonstrating hardship and other considerations. If, however, the work was already approved by MEPA as part of the larger business park, the work may proceed.

The business park was constructed around 1999-2000. In reviewing past MEPA documents, we have not been able to find explicit approval of the park, but it was present and represented on plans during the last major permit round in 2004-2005. We are assuming for the time being that undeveloped portions of the business park do not have prior MEPA approval.

Runway 6-24 Reconstruction

The plan is to start in October 2018 and finish in the spring and fall of 2019. Some grass areas would be converted to pavement, and some pavement converted to grass, with a net decrease in pavement and increase in grass of 0.2 acres. Rare plants occur along the edges of the pavement, and any moving or transplanting would be an impact and require a permit from Natural Heritage. This agency action also confers MEPA jurisdiction, though it may not meet the MEPA thresholds for ENF or EIR filings. In calculating the MEPA threshold for land alteration, consider net new alteration, and not previously altered land. If the land was altered many years ago and has become natural habitat, it may need to be included in land alteration totals.

Existing pavement does not need to be included. If there is a rare species take or the project meets the MEPA thresholds, there will be MEPA jurisdiction.

If the project stays within the existing pavement footprint, it could move forward without MEPA approvals. (Project proponents later decided to stay within existing pavement.)

Capital Improvement Plan Projects

For the CIP projects, MEPA jurisdiction would be determined once project-specific information is available.

Ms. Schluter asked about the possibility of a rare species master plan. Mr. Merrow noted that FAA may have concerns about such a plan. Regardless of nomenclature, the rare species strategy would be developed over the course of the ENF/EA/EIR process, culminating in a Conservation and Management Permit application. Ms. Schluter suggested the Westfield-Barnes rare species plan could be a useful model.



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RARE SPECIES MEETING MINUTES

DATE: August 14, 2018, 1:00 PM

MJ Project No.: 18226.07

LOCATION: MA Natural Heritage and Endangered Species Program, Westborough, MA

PROJECT: Martha's Vineyard Airport 5-year CIP EA/EIR and Business Park Lots 34 and 38

ATTENDEES:

Amy Hoenig, MA Natural Heritage and Endangered Species Program Jed Merrow, Environmental Project Manager, McFarland Johnson (MJ) Dave Nelson, Project Engineer, MJ Nate Rawding, MassDOT Matthew O'Brien, Project Engineer, MJ (telephone) Ann Richart, Airport Manager, Martha's Vineyard Airport (telephone) Richard Doucette, Environmental Program Manager, FAA (telephone)

The meeting was held to discuss rare species issues associated with the upcoming Capital Improvement Plan (CIP) projects and the Business Park lots 34 and 38 at Martha's Vineyard.

CIP Projects

NEPA and MEPA documents are being prepared for the CIP projects. The first step is a MEPA Environmental Notification Form, which is currently in preparation. The CIP projects were individually described as follows.

- 1. Runway 6/24 side safety areas and primary surface obstruction: The existing ground along the primary Runway 6/24 does not conform to FAA safety guidelines. Most of the work would be lowering the ground elevation. The proposed limits of disturbance have not yet been determined.
- 2. Rehabilitate Runway 15/33 and regrade side safety areas: The runway has more pavement width than needed, and extra pavement (approximately 75 feet of width for roughly 2,000 feet) will be removed. Portions of the adjacent safety areas, object free areas and primary surface obstructions will be graded to meet FAA safety guidelines.
- 3. Construct concrete fuel pad at existing fuel farm: The existing crushed asphalt (millings) material sticks to tires and gets onto aircraft pavement, which is a safety concern. The existing asphalt millings would be paved with no increase in footprint, except for possible minor stormwater management. The asphalt millings extend the entire width within the existing fenced fueling area.

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- 4. Expand and renovate existing terminal building: The terminal is undersized for the demand during summer, which is their peak time of the year. The building would be expanded. The adjacent curb-side area would be relocated and reconfigured to address the vehicle congestion, and the parking area may be modified to improve traffic flow. Some turf areas will be affected, but this is outside Priority Habitat.
- 5. Remove Taxiway E and construct new Taxiway E: FAA prefers taxiways extend to the runway ends, so planes do not have to taxi on runways. FAA also prefers that taxiways meet runways at a perpendicular angle for better visibility in both directions. This project is within Priority Habitat and would probably result in a net increase in pavement area.
- 6. Pave transient turf tie down area: This is an existing turf tie-down area and a portion of it is underlain by an infiltration basin. It is currently used for aircraft parking during peak season. This project would result in additional paved surface to accommodate aircraft parking within what is now a relatively disturbed turf habitat.
- 7. Southeast ramp expansion: FAA requires a reconfiguration of taxiway access to the apron, which will disrupt the current layout and functionality of the facility. Future hangars (see number 10) and access route alternatives are being considered. Likely an increase in paved surface.
- 8. Southwest ramp expansion: The area encompasses existing hangars and parking area adjacent to the southwest ramp. The proposal is to remove the existing structures and reconfigure the area to provide efficient apron and hangar space. Most of this area is impervious surfaces but some turf in this area would be paved.
- 9. Replace Aircraft Rescue and Fire Fighting Trucks: This project would not impact natural resources.
- 10. Construct new aircraft hangars: The existing T-hangars are fully occupied, and the airport lacks space for larger corporate jet aircraft. One hangar is proposed short-term adjacent to the southeast ramp. The master plan provides space for a total of four hangars as a long-term need. The exact locations and dimensions have not been determined.

For coordination with NHESP, all impacts should be defined and shown on plans. Past mitigation measures should also be shown on plans. Excess mitigation could be part of the discussion. None of these airport projects are likely to be advanced for permitting and construction prior to the NEPA/MEPA EA/EIR process being completed.

Business Park Lots 34 and 38

Lots 34 and 38 are within Priority Habitat and were developed within the last several years. The consultants have not been able to find MESA approvals for these lots. The airport is not proposing any other Business Park development in Priority Habitat at this time.

Ways to permit the work were discussed. The lots are relatively small (approximately 1.2 acres combined) and rare plants are not an issue, so it may be possible to avoid a finding of a taking. However, some mitigation would likely be needed, possibly tied to the other proposed airport projects. The suitability of using past "excess" mitigation was discussed, but Mr. Doucette

noted that FAA-funded mitigation for aviation purposes might not be appropriate for nonaviation development. Ms. Richart noted the importance of the development for the viability of the airport and asked that this be advanced as quickly as possible.

Action Items

MJ will continue to develop plans with footprints for the CIP projects.

MJ will determine whether there is past "surplus" mitigation and will discuss with FAA and the airport whether it is appropriate to use it for mitigating the lot 34/38 impacts.

Ms. Hoenig will investigate the most appropriate and expedient permitting approach for lots 34 and 38. (After the meeting, Ms. Hoenig looked into past precedent for this kind of situation and recommended that the project be advanced with a request to amend the existing Conservation and Management Permit.)



Brona Simon State Archaeologist Massachusetts Historical Commission 220 Morrissey Boulevard Boston, Massachusetts 02125

Attn: Jonathan Patton

Re: Martha's Vineyard Airport Capital Improvement Plan Project West Tisbury and Edgartown, Massachusetts Archaeological Sensitivity Assessment and Intensive (locational) Archaeological Survey MHC #RC.48090, PAL #3602

Dear Ms. Simon:

Enclosed please find a technical memorandum entitled *Archaeological Sensitivity Assessment, Martha's Vineyard Airport Capital Improvement Plan, West Tisbury and Edgartown, Massachusetts* for your review and comment. PAL is assisting the Martha's Vineyard Airport Commission with this project and has recommended that limited portions of two of the proposed project impact areas are archaeologically sensitive. Enclosed also please find an application for a permit to conduct an Intensive (locational) Archaeological Survey as part of the Project. The project area is located on the Edgartown and Vineyard Haven, Massachusetts topographic quadrangles. We would like to begin investigations as soon as possible. Thank you in advance for your time and attention to this matter.

If you have any questions or need further information, please do not hesitate to contact Holly Herbster, Principal Investigator, at your convenience.

Sincerely,

mahl

Deborah C. Cox, RPA President

Enclosure

cc: Jed Merrow, McFarland Johnson (w/encl. - via email)

950 CMR: DEPARTMENT OF THE STATE SECRETARY

APPENDIX B COMMONWEALTH OF MASSACHUSETTS

SECRETARY OF STATE: MASSACHUSETTS HISTORICAL COMMISSION PERMIT APPLICATION: ARCHAEOLOGICAL FIELD INVESTIGATION

A. General Information

Pursuant to Section 27C of Chapter 9 of the General Laws and according to the regulations outlined in 950 CMR 70.00, a permit to conduct a field investigation is hereby requested.

1.	Name(s):	Holly Herbster		
2.	Institution:	The Public Archaeology Laboratory, Inc.		
	Address:	26 Main Street		
		Pawtucket, Rhode Island 02860		
3.	Project Location:	Martha's Vineyard Airport Capital Improvements Project see attached proposal		
4.	Town(s):	West Tisbury and Edgartown		
5.	Attach a copy of a USGS quadrangle with the project area clearly marked.			

see attached

- 6. Property Owner(s): Martha's Vineyard Airport Commission
- 7. The applicant affirms that the owner has been notified and has agreed that the applicant may perform the proposed field investigation.
- 8. The proposed field investigation is for a(n):
 - a. Reconnaissance Survey
 - b. Intensive Survey
 - c. Site Examination
 - d. Data Recovery

B. Professional Qualifications

5

- 1. Attach a personnel chart and project schedule as described in 950 CMR 70.11 (b).
 - a. Personnel

Principal Investigator(s):	Holly Herbster
Project Archaeologist:	Jess Horn
Field Crew:	Colin Stevenson

b. Schedule

Fieldwork:	March 2019			
Laboratory:	April 2019			
Report:	May 2019			

2. Include copies of curriculum vitae of key personnel (unless already on file with the State Archaeologist).

C. Research Design

- Attach a narrative description of the proposed Research Design according to the requirements 1. of 950 CMR 70.11.
- 2. The Applicant agrees to perform the field investigations according to the standards outlined in 950 CMR 70.13.
- 3. The Applicant agrees to submit a Summary Report, prepared according to the standards outlined in 950 CMR 70.14 by: September 31, 2019
- 4. The specimens recovered during performance of the proposed field investigation will be curated at:

The Public Archaeology Laboratory, Inc. 26 Main Street Pawtucket, Rhode Island 02860

SIGNATURE APPLICANT (S)

DATE <u>3-1-19</u>



Figure 1. Location of the Martha's Vineyard Airport Capital Improvements project area on the Edgartown and Vineyard Haven USGS topographic quadrangles, 7.5 minute series.



Technical Proposal Martha's Vineyard Airport Capital Improvement Plan West Tisbury and Edgartown,

Massachusetts

Intensive (locational) Archaeological Survey

March 2019

Submitted to:

McFarland Johnson 53 Regional Drive Concord, New Hampshire 03301

In response to a request from McFarland Johnson behalf of the Martha's Vineyard Airport Commission (MVAC), The Public Archaeology Laboratory, Inc. (PAL) is pleased to submit the following proposal for cultural resources services as part of the 5-year Capital Improvement Plan/Master Plan Project at the Martha's Vineyard Airport (Figure 1). The proposed project involves improvements to existing facilities and infrastructure as well as new construction within the airport property in West Tisbury and Edgartown, Massachusetts. The Federal Aviation Administration (FAA) is the lead federal agency overseeing the project, which will require compliance with federal and state regulations including the National Environmental Policy Act (NEPA), Section 106 of the National Historic Preservation Act (NHPA), and the Massachusetts Environmental Policy Act (MEPA). The current project covers nine proposed improvement projects.

In 2003 PAL completed archaeological investigations including an archaeological sensitivity assessment and intensive (locational) survey at 13 project locations as part of the Martha's Vineyard Airport Improvement Program (Macpherson and Herbster 2003). In 2007, PAL completed an archaeological sensitivity assessment and intensive survey testing as part of the Runway 6-24 improvement project (Herbster 2008), and in 2012 PAL completed an archaeological sensitivity assessment as part of the Runways 33 and 35 improvement project (PAL 2012). In 2018, PAL completed an archaeological assessment of three Airport parcels proposed for Land Release (PAL 2018). To date, no potentially significant archaeological resources have been identified on the Airport property.

PAL has completed an archeological sensitivity assessment (PAL 2019) of the nine projects proposed as part of the Capital Improvement Plan and recommended that an intensive (locational) archaeological survey be completed for the moderate sensitivity portions of two of the nine Martha's Vineyard Airport Capital improvement project areas: a portion of the proposed parking expansion limit-of-disturbance and a portion of the Taxiway E relocation limit-of-disturbance (Figure 2). The goal of the intensive survey testing will be to locate and identify potentially significant cultural



resources within areas of archaeological sensitivity and to make recommendations regarding the need for and scope of additional archaeological investigations within project impact areas.

This technical proposal describes the tasks that will be undertaken as part of the intensive survey within the Martha's Vineyard Airport project area and contains a brief overview of the cultural context for the project area along with a proposed survey methodology. A schedule for completion of the archaeological survey tasks is also provided. All work will need to be conducted under an archaeological permit, issued by the State Archaeologist's office at the Massachusetts Historical Commission (MHC).

Research Framework

Environmental Context

The Vineyard's Pleistocene history is tied to the island's location as part of the terminal moraine of successive glacial advances. This has resulted in a geology characterized by a complex stratigraphy comprising layers formed during at least six different "drifts," or glacial advances (Kaye 1964). As the glacier receded, it deposited unsorted tills and sands that form much of Cape Cod and the islands (MHC 1987). Through a combination of sea-level rise and isostatic rebound, Vineyard Sound was filled and the islands of Martha's Vineyard and Nantucket were created in their present form.

Martha's Vineyard is situated within the southern portion of the Coastal Plain physiographic zone, which includes Cape Cod and Nantucket, Block, Long and the Elizabeth islands (Fenneman 1938). The western part of the island is comprised of the uneven knob-and-kettle topography that resulted from terminal moraine deposits, known as the Martha's Vineyard Moraine, and consists of coarse or medium sand and boulders of varying size (Latimer 1925).

The general soil category for the airport property is known as the Riverhead-Carver-Haven complex, consisting of nearly level, well-drained loam and sand soils formed in outwash plains (USDA 1986). The specific soil type within the project parcels is Carver loamy sand, which is very deep, gently sloping, and excessively drained. This soil unit is characteristic of many of the small knolls in the western part of the Vineyard.

Cultural Context

The Native American presence on Martha's Vineyard has been well-documented by the number and variety of archaeological sites that have been located and recorded over the past century. Archaeologists contributed to the extant database as early as 1912, and while many of the earliest professional investigations focused primarily around the large up-island ponds, cultural resource management surveys have added information on much of the rest of the island. In addition, the collections of avocational archaeologists provide evidence of Native American land use in a variety of environmental settings. The completion of a community-wide archaeological reconnaissance survey of Edgartown in 2000 gathered information on known and expected cultural resources throughout the entire town (Herbster and Cherau 2000).

No in situ deposits associated with PaleoIndian (12,500 to 10,000 years before present [B.P.]) or Early Archaic Period (10,000 to 7500 B.P.) occupation have been documented to date in the Edgartown section of Martha's Vineyard. Diagnostic Early Archaic Period (10,000 to 7500 B.P.)



Technical Proposal Martha's Vineyard Capital Improvement Intensive (locational) Archaeological Survey page 3 of 10

bifurcate-based projectile points have been recovered through cultural resource management surveys in Aquinnah, indicating the overall likelihood that such sites are present on the island (Herbster 2004, Herbster and Cherau 2001). Early Archaic components have also been identified at the Major's Cove (19-DK-81) and Felix Neck 4 (19-DK-98) sites near the Edgartown/Oak Bluffs town line and at the Tiasquam River Site (19-DK-6) in West Tisbury (MHC site files). The low density of identified early pre-contact period occupations could reflect collector and archaeological survey biases toward more visible, coastal shell-midden features. These types of archaeological features are more readily identifiable eroding out of the embankments of Edgartown's coastal ponds and along the shoreline.

Middle Archaic Period (7500 to 5000 B.P.) occupations have been identified at several sites in Edgartown through collections analyses. The increase in site frequency during this period is exhibited throughout most of southern New England. The Felix Neck 4 (19-DK-98) and Major's Cove (19-DK-81) sites in Edgartown contain diagnostic artifacts dating to the Middle Archaic Period (MHC site files). Both of these sites were also utilized during later periods by Native Americans. Eight sites in West Tisbury contain Middle Archaic components, including the Tiasquam River, Witch Brook, Mill Brook, Rainbow Farm, and Arrowhead Farm sites (Mulholland et al 1999).

Sites dating to the Late Archaic Period are much more numerous than those of preceding periods. This is reflected in the records of professionally excavated sites and in the inventories of artifact collections. Land use patterns during the Late Archaic apparently reflect a population increase and a continued trend toward generalized exploitation of resources. A wide variety of ecological niches were utilized by the people of the Late Archaic. This varied pattern is manifest on the Vineyard, where Late Archaic sites have been recorded in proximity to swamps, marshes, tidal flats, and streams in both coastal and interior zones.

By the Late Archaic Period (5000 to 3000 B.P.), Martha's Vineyard was completely cut off from the mainland by rising ocean levels and had assumed its present shape. The identified Late Archaic Period deposits in Edgartown represent a wide variety of types and locations. There are five previously documented Late Archaic sites in Edgartown, located in a variety of environmental settings. Four of the identified sites (19-DK-24, -25, -98, -117) also contained cultural deposits from other temporal periods. The Green Hollows Site (19-DK-25) near downtown Edgartown contained a wide variety of Late and Transitional tool types including Small Stemmed and Squibnocket Triangle points, Susquehanna points, and an Orient Fishtail point. The Felix Neck 4 Site (19-DK-98) included fragments of steatite (soapstone) likely used for bowls or other containers along with other Archaic and Woodland deposits. The eight sites in West Tisbury with Early Archaic deposits also have recorded Late Archaic components (Mulholland et al 1999).

Woodland Period (3000-450 B.P.) sites are the most prevalent cultural components represented in the Vineyard's archaeological record. This is particularly true for the shoreline and coastal ponds sections of the island, where previous excavation and collection concentrated on exposed shell midden sites. More recent cultural resource management surveys have also identified Woodland components at near-interior and inland sites. Many Woodland sites on the Vineyard contain components associated with all three cultural periods (Early, Middle and Late), indicating that sites were re-utilized over time (MHC 1987).

In Edgartown, Woodland Period sites include Green Hollows (19-DK-25), Felix Neck 4, Felix Neck 5 (19-DK-97), and South Water Street (19-DK-117) and sites 19-DK-24, -28, and -38 (Herbster and Cherau 2000). Woodland sites in West Tisbury include many of those described above, including



the Tiasquam River, Witch Brook, Mill Brook, Pond View Farm, Flat Point Farm, Rainbow Farm, and Arrowhead Farm sites (Mulholland et al 1999).

At the time of European settlement in 1641, the island of Martha's Vineyard was divided into four sachemships of the Wampanoag tribe. These consisted of, from east to west, Chappaquiddick, Nunpaug, Takemmy, and Aquinnah (Banks 1911). The group of Native Americans occupying present-day Edgartown (excluding Chappaquiddick) was under the leadership of Tewanquatick, Sagamore of Nunne-pog or Nunpaug which means "fresh pond or water place" (Banks 1911). Edgartown Great Pond, or Winnetukqet was the particular water body that gave its character to the sachemship of Nunnepog, on the shore of which was the Mashakemmuck, or Great House of the sachems of this territory (Aquinnah Wampanoag Tribe 1999; Banks 1911).

The first English settlement on Martha's Vineyard occurred at "Great Harbor" later called Edgartown. Thomas Mayhew, who had purchased the island in 1641, sent his son Thomas Jr. and a few families to settle his new purchase. The early settlers divided the land in a series of transactions, the first of which were the original "home lots" in 1646 and then the "town lands" from 1646 to 1652. The allotted portions were from ten to forty acres each and were situated in the extreme southerly portion of the town, bordering on the Great Pond and Katama Bay. The division of the "Common Land" or "Planting Field" occurred in 1653 among twenty proprietors and was located in the northern part of the town. English population figures for the whole town indicate that there were about 75 individuals in 1653, 100 by 1660, and 125 by 1676 (Banks 1911; MHC 1984a). Euro-American settlement in West Tisbury began around 1670 when four proprietors settled lands around the Mill River (later known as Middletown) (MHC 1984b).

In 1649, Sachem Josias of Takemmy set off a square mile tract of land to four Native residents for the creation of a "praying town". This area, located in the northern section of West Tisbury, became known as Christiantown, a designation still in use today (MHC 1984b).

Edgartown and present-day West Tisbury (part of Tisbury) were incorporated in 1671 under the political authority of New York. The European settlement in the Great Harbor area as well as coastal southern portions of the town continued to expand during this period. Maritime trades including the whaling industry grew in economic importance, especially in Edgartown. Numerous wind and water mills were also present in both towns by the mid-eighteenth century. Farming and animal husbandry were the most important economic activities in Edgartown and West Tisbury during this early settlement period.

Edgartown began to function as the county seat for the island after the Revolutionary War. Commercial, institutional, and civic buildings including the county courthouse, a jail and keeper's house, and customhouse along with residential developments were concentrated along North and South Water Street, Main Street and Cooke Street. In 1787, Tisbury divided into eastern and western parishes. A meetinghouse and burying ground for the West Parish were located near the Four Corners area and mill activity remained centered around the Mill Brook.

By the early 1800s, Edgartown's agricultural production of raising sheep and other products had been surpassed by the whale and other fisheries. Largely in response to the growing maritime industries, the first lighthouse in Edgartown was built at Cape Pogue in 1802. West Tisbury continued to develop as a primarily agricultural community with dispersed settlement away from main road intersections. The Agricultural Society of Martha's Vineyard was formed in West Tisbury in 1858, and Dr. Daniel



Fisher extensively developed the Mill Brook area for the processing of wheat and other grains. Edgartown's economy became almost exclusively focused on whaling and support industries by midcentury (MHC 1984a, 1984b).

The late nineteenth century was characterized by the demise of the whaling industry and its effect on local population growth and economic pursuits. Edgartown's population began a steady decline and by 1870 had dropped back to the 1,500 residents listed in 1830. It further declined until 1895, when the separation of Cottage City (later Oak Bluffs) took away more local residents, leaving only 1,125 people living in Edgartown. The mill complexes of West Tisbury were mostly defunct by the end of the nineteenth century, and agriculture and dairying supported the majority of the town's residents. In 1892, the parishes of Tisbury were finally separated and West Tisbury was incorporated as a separate town (MHC 1984a, 1984b).

Twentieth century development in Edgartown began with the rise in the tourism industry and led to the construction of residential developments later in the century. West Tisbury's population declined as many of the nineteenth century farms ceased operation and slowly climbed with limited residential construction.

Predictive Statements for Cultural Resources

The review of the MHC Inventory files conducted as part of the January 2019 assessment indicates that there are no recorded archaeological sites or historic properties within the project areas or the Airport property. Several Native American sites have been identified in nearby sections of Edgartown and West Tisbury outside of the Airport property. The town wide archaeological survey of Edgartown documented the area around Little Pond, just northeast of the Airport, as a pre-contact artifact collection area, and several artifact finds (sites 19-DK-186 and -233) have been reported in the Manuel F. Correllus State Forest to the north of the Airport property (Herbster and Cherau 2000).

The Airport property's historic period use is associated with the construction of the Martha's Vineyard Naval Auxiliary Air Station (NAAS) in 1941. Between 1942 and 1943, the Navy built approximately 38 structures, including magazines, barracks, administration buildings, runways and hangars, the majority of which were located within the current active Airport area. In 1947 the Navy leased the facilities to Dukes County for use as a public airport. The NAAS is recorded as an aboveground historic resource in the MHC inventory (WTI.21). The inventory also lists the circa 1943 passenger terminal building (EDG.501), which was determined ineligible for listing in the National Register of Historic Places and was demolished prior to the redevelopment of the Airport property (including the business park) and new airport terminal in the 1990s. A 1997 construction plan for the terminal shows the existing conditions at that time, including a number of remnant Navy buildings and infrastructure that were removed as part of that project.

Based on the January 2019 walkover/driveover survey and existing conditions assessment, a portion of the proposed expanded parking area (Project 4) and Taxiway E relocation area (Project 5) are located in wooded areas that do not appear to have been subjected to previous aviation-related disturbance and have been assigned a moderate archaeological sensitivity (see Figures 4 and 4). These areas have the potential to contain undisturbed soils that may contain pre- or post-contact period archaeological deposits.



The project area could contain low-density scatters of lithic cultural materials similar to those noted elsewhere in the vicinity. Archaeological evidence of a more intensive exploitation of the area by prehistoric period Native American groups could include, but not be limited to, subsistence-related features (hearths, food storage/disposal pits, living areas including post molds), lithic workshops, and diagnostic chipped and ground stone tool assemblages.

The assessment did not identify any documented eighteenth, nineteenth or early twentieth century historic period structures within the project parcel. The post-contact archaeological sensitivity of the project area is low based on the degree of disturbance associated with the construction of the airport as a military facility in the 1940s, and the lack of any known post 1940s resources in the project areas.

Intensive (Locational) Archaeological Survey

The goal of the intensive (locational) archaeological survey is to locate and identify any archaeological resources that may be impacted by the proposed project, and to provide a preliminary assessment of the potential significance of any resources identified. PAL's intensive (locational) archaeological survey methodology has been formulated according to the standards and guidelines set forth in *Public Planning and Environmental Review: Archaeology and Historic Preservation*, Massachusetts Historical Commission (MHC 1985).

Consultation and Coordination

Lead project personnel will prepare an archaeological permit application for review by the proponent and the MHC. The permit application will describe the survey methodology, list expected archaeological resources, and provide a schedule for completion of all project activities.

A copy of the technical proposal will be forwarded to the Wampanoag Tribe of Gay Head Aquinnah Tribal Historic Preservation Office (WTGH/A THPO) to assist the FAA with Section 106 consultation. Lead PAL staff will consult with the Proponent and airport manager to coordinate access to the project area for the intensive survey fieldwork. PAL will also coordinate the fieldwork schedule with the WTGH/A THPO.

Archival Research

Prior to the start of fieldwork, PAL staff will review the results of the January 2019 Archaeological Assessment (PAL 2019). The research review will also include the collection of available information about the previous use of the specific areas included in the intensive survey work areas and environmental data regarding existing conditions. Prior to the start of fieldwork, PAL will review the results of the sensitivity assessment and project limit-of-disturbance plans to ensure that the archaeological survey is conducted only in project impact and access/staging areas.

Other expected sources of historic and archival information that will be reviewed include the reports on previous archaeological studies at the airport (e.g. Herbster 2008; Macpherson and Herbster 2003; PAL 2012, 2018) as well as the 2000 town-wide archaeological reconnaissance survey report of Edgartown (Herbster and Cherau 2000).



Technical Proposal Martha's Vineyard Capital Improvement Intensive (locational) Archaeological Survey page 7 of 10

Field Investigations

PAL staff will conduct a walkover survey to examine and document the current physical condition of the project area, to assess the integrity of the ground surface, and to collect data about current environmental settings. Information on existing conditions will be noted on scaled project plans and with digital photography.

Any surface indications of archaeological sites will also be recorded during the walkover survey. While pre-contact sites in New England are most often found belowground, artifact scatters are sometimes exposed on the surface through cultural agents such as pedestrian and vehicular traffic, and natural processes such as erosion. Post-contact archaeological site types that might be visible include stone foundations, stone walls, and trash deposits.

Information collected as part of the assessment and walkover survey will be used to refine the initial archaeological sensitivity of the project area and to select the locations for subsurface testing. PAL's predictive model considers various criteria to rank the potential for the project area to contain archaeological sites. The criteria are proximity of recorded and documented sites, local land use history, environmental data, and existing conditions.

Field investigations will involve hand testing of approximately **35 to 40, 50-x-50 centimeter test pits placed within archaeologically sensitive portions of the project area**. Subsurface testing will be conducted in the Capital Improvement project impact areas assessed as having a moderate archaeological sensitivity. These include an approximately 1.9 acre wooded area where additional parking is proposed (Figure 3) and an approximately 1.3 acre wooded area proposed as a turning area for the Taxiway E ALT 1 project (Figure 4).

The hand testing will be used to locate and identify any potentially important belowground archaeological deposits associated with previously unknown cultural deposits. It will also provide information relating to the belowground soil stratigraphy to assist in the identification of intact/natural versus previously disturbed and/or excavated soils. The fieldwork will also include recordation and documentation of any aboveground features such as stone walls, enclosures, and/or cartpaths within the project area.

Test pits will be excavated along linear transects, with test pits placed at 10 meter (m) intervals from one another. Judgmental test pits (JTPs) will be placed as necessary in areas too small for transect testing and/or to investigate surface finds. All test pits will be excavated by shovel in arbitrary 10-cm levels to sterile subsoils. All excavated soil will be screened through ¹/₄-inch hardware cloth and remaining cultural material will be collected. Soil horizons will be recorded for each unit. Cultural material and samples will be bagged and labeled with provenience information. Digital photographs will be taken of the general project area and of all testing areas throughout the field investigations.

If cultural material is found in isolated test pits, additional testing will be used to determine the extent and density of the deposition. This additional testing will be completed in the form of arrays in which test pits are placed at 2.5-m intervals in each of the cardinal directions around the test pit where the material was originally located.



Technical Proposal Martha's Vineyard Capital Improvement Intensive (locational) Archaeological Survey page 8 of 10

Laboratory Processing and Analyses

All cultural material recovered from the project area during the field investigations will be returned to the PAL facility for laboratory processing and analyses. These activities will include:

- cleaning, identification, and cataloging of any recovered cultural materials;
- preliminary analysis of spatial distributions of cultural materials;
- map and graphics production.

Curation

Following laboratory processing and cataloging activities, all recovered cultural materials are stored in acid-free Hollinger boxes with box content lists and labels printed on acid-free paper. These boxes are stored at PAL according to curation guidelines according to Secretary of Interior Standards (36 CFR 79) and MHC guidelines.

Report Preparation

On completion of fieldwork, PAL will prepare a summary report that presents the results of the archaeological investigations, describes deposits that were identified, and includes recommendations regarding the significance of any identified deposits and the need for additional work and consultation. The summary report will follow the guidelines established by the National Park Service in the *Recovery of Scientific, Prehistoric, Historic, and Archaeological Data* (36 CFR Part 66, Appendix A) and the MHC. Draft copies of the report will be submitted to the proponent and the MHC for review. If necessary, archaeological site forms will be completed and submitted to MHC.

Project Schedule

PAL is prepared to submit the technical proposal and MHC permit application on receipt of a noticeto-proceed from the project proponent. The MHC has 60 days to review the application and issue the permit, although permits are generally received within 3 weeks of submittal. The research review can be completed while the permit application is under review. The field investigations will take two days to complete and can begin within two weeks of receipt of the permit, weather permitting. *Under the State Archaeologist's permit regulations, fieldwork cannot be completed when the ground is frozen or obscured by snow cover.* PAL will coordinate all fieldwork activities in advance with the proponent, and the proponent will be notified of the survey results immediately following the completion of fieldwork. The technical report can be submitted within 45 days of the completion of fieldwork and laboratory processing.

Project Personnel

Archaeological investigations will be carried out under the direction of Holly Herbster, Principal Investigator. Ms. Herbster meets the qualifications set by the National Park Service (36 CFR Part 66, Appendix C) for direction of archaeological projects.



Cost

A fee proposal is attached.

References Cited

Aquinnah Wampanoag Tribe

1999 *Wampanoag Way: An Aquinnah Cultural Trail.* Education Department of the Wampanoag Tribe of Gay Head (Aquinnah) and Aquinnah Cultural Center, Aquinnah, MA.

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Herbster, Holly

- 2004 Technical Report, Archaeological Data Recovery Program, East Pasture Site (19-DK-238), Aquinnah, Massachusetts. PAL Report no. 1530.01. Submitted to Lang Gerhard, Greenbrae, CA.
- 2008 Addendum to Technical Report, Intensive (locational) Archaeological Survey, Martha's Vineyard Airport Improvement Program, West Tisbury and Edgartown, Massachusetts. The Public Archaeology Laboratory, Inc. Report No. 1561/2158. Submitted to Hoyle, Tanner and Associates, Boston, MA.

Herbster, Holly, and Suzanne G. Cherau

- 2000 Archaeological Reconnaissance Survey, Town of Edgartown, Martha's Vineyard, Massachusetts. The Public Archaeology Laboratory, Inc. Report No. 1106. Submitted to Martha's Vineyard Commission, Oak Bluffs, MA, and Massachusetts Historical Commission, Boston, MA.
- 2001 Summary Report, Intensive (Locational) Archaeological Survey, Pioggia Property, Aquinnah, Massachusetts. PAL Report no. 1195. Submitted to Pioggia Realty Trust, c/o Glenn Provost, Vineyard Land Surveying, West Tisbury, MA.

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1964 Outline of Pleistocene Geology of Martha's Vineyard, Massachusetts, U. S. Geological Survey Professional Paper 501C, *Geological Survey Research*, pp. 134-139, Washington, DC.

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1925 *Soil Survey of Dukes and Nantucket Counties.* United States Department of Agriculture, Washington, D.C.



Macpherson, Jennifer and Holly Herbster

2003 Intensive (locational) Archaeological Survey, Martha's Vineyard Airport Improvement Program, West Tisbury and Edgartown, Massachusetts. The Public Archaeology Laboratory, Inc. Report No. 1561. Submitted to Hoyle, Tanner and Associates, Inc., Boston, MA.

Massachusetts Historical Commission (MHC)

- 1984a *Town Reconnaissance Survey Report: Edgartown*. On file, Massachusetts Historical Commission, Boston, MA.
- 1984b *Town Reconnaissance Survey Report: West Tisbury.* On file, Massachusetts Historical Commission, Boston, MA.
- 1987 *Historic and Archaeological Resources of Cape Cod and the Islands*. Office of the Secretary of State, Boston, MA.

Mulholland, Mitchell T., Timothy Binzen, and Christopher Donta

1999 *Community-Wide Archaeological Reconnaissance Survey of West Tisbury, Massachusetts.* Report on file, Massachusetts Historical Commission, Boston, MA.

The Public Archaeology Laboratory, Inc. (PAL)

- 2019 Technical Memorandum, Archaeological Assessment, Martha's Vineyard Airport Capital Improvement Plan, West Tisbury and Edgartown, MA. The Public Archaeology Laboratory, Inc. Report No. 3602. Submitted to McFarland Johnson, Concord, NH.
- 2018 Technical Memorandum, Archaeological Assessment, Martha's Vineyard Airport Proposed Land Release Parcels, West Tisbury and Edgartown, MA. The Public Archaeology Laboratory, Inc. Report No. 3479. Submitted to McFarland Johnson, Concord, NH.
- 2012 Technical Memorandum, Archaeological Assessment, Martha's Vineyard Airport Improvements R/W 33 and 15, West Tisbury and Edgartown, MA. Submitted to Jacobs, Boston, MA.

United States Department of Agriculture [USDA]

1986 *Soil Survey of Dukes County, Massachusetts*. Soil Conservation Service, United States Department of Agriculture, Washington, D.C.



Figure 1. Location of the Martha's Vineyard Airport Capital Improvements project area on the Edgartown and Vineyard Haven USGS topographic quadrangles, 7.5 minute series.



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The Commonwealth of Massachusetts William Francis Galvin, Secretary of the Commonwealth Massachusetts Historical Commission

February 25, 2019

Jed Merrow Project Manager McFarland Johnson 53 Regional Drive Concord, NH 03301

RE: Martha's Vineyard Airport, Capital Improvement Plan Projects and Well House Demolition, West Tisbury and Edgartown, MA. MHC #RC.48090/2664. EEA #15964.

Dear Mr. Merrow:

Thank you for submitting additional information to the Massachusetts Historical Commission (MHC), received February 13 and 20, 2019, for the projects referenced above.

The project impact area proposed for demolition of the decommissioned well house at the intersection of South Line Road and Barnes Road has been previously disturbed during airport construction activities and therefore possesses low archaeological sensitivity. The well house is not included in the MHC's Inventory and does not, in the MHC's staff opinion, meet the criteria of evaluation (36 CFR 60) for listing in the National Register of Historic Places.

The Capital Improvements project includes nine separate projects associated with runway safety, taxiways and structure improvements. The MHC looks forward to reviewing additional information that is responsive to the MHC's February 7, 2019 comments for the capital improvements project, including the PAL's archaeological sensitivity assessment and State Archaeologist's permit application (950 CMR 70) to conduct intensive (locational) archaeological survey within archaeologically sensitive project impact areas. The results of the survey will provide information to assist in consultation to consider alternatives to avoid, minimize, or mitigate any adverse effects to significant historic and archaeological resources.

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), and/or Massachusetts General Laws, Chapter 9, Sections 26-27C (950 CMR 70-71) and MEPA (301 CMR 11). If you have any questions concerning this review, please contact Jonathan K. Patton, Archaeologist/Preservation Planner at this office.

Sincerely,

Gluade L. Bell, DSHPO Brona Simon

State Historic Preservation Officer Executive Director State Archaeologist Massachusetts Historical Commission

 Ann B. Richart, Director, Martha's Vineyard Airport Richard Doucette, FAA
 Bettina Washington, Wampanoag Tribe of Gay Head (Aquinnah)
 David Weeden, Mashpee Wampanoag Tribe
 Massachusetts Aeronautics Commission
 Deborah C. Cox, PAL, Attn: Holly Herbster

> 220 Morrissey Boulevard, Boston, Massachusetts 02125 (617) 727-8470 • Fax: (617) 727-5128 www.sec.state.ma.us/mhc



The Commonwealth of Massachusetts William Francis Galvin, Secretary of the Commonwealth Massachusetts Historical Commission

PERMIT TO CONDUCT ARCHAEOLOGICAL FIELD INVESTIGATION

Permit	Number	3909	Date of Is	ssue	March	25,	2019	
			Expiration	n Date	March	25.	2020	

PAL

is hereby

authorized to conduct an archaeological field investigation pursuant to Section 27C of Chapter 9 of General Laws and according to the regulations outlined in 950 CMR 70.00.

> Martha's Vineyard Airport Capital Improvement Project, West Tisbury & Edgartown

> > Project Location

Brona Simon, State Archaeologist Massachusetts Historical Commission

> 220 Morrissey Boulevard, Boston, Massachusetts 02125 (617) 727-8470 • Fax: (617) 727-5128 www.sec.state.ma.us/mhc



The Commonwealth of Massachusetts

August 12, 2019

William Francis Galvin, Secretary of the Commonwealth Massachusetts Historical Commission

Jed Merrow Project Manager McFarland Johnson 53 Regional Drive Concord, NH 03301

RE: Martha's Vineyard Airport, Capital Improvement Plan Projects and Well House Demolition, West Tisbury, and Edgartown, MA. MHC #RC.48090/2664. EEA #15964.

Dear Mr. Merrow:

Staff of the Massachusetts Historical Commission (MHC) have reviewed the archaeological report, Addendum, Intensive (Locational) Archaeological Survey, Martha's Vineyard Airport Capital Improvements Plan, West Tisbury and Edgartown, Massachusetts, prepared and submitted by the PAL, received July 15, 2019, for the project referenced above.

The intensive (locational) archaeological survey for the project yielded no historic or archaeological resources. Since no significant historic or archaeological resources were identified within the project impact area no further archaeological survey is recommended for the project, as proposed.

In the MHC's staff opinion, the project as proposed is unlikely to affect significant historic or archaeological resources. If project plans change in future, then current project information should be submitted to the MHC for review and comment.

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), and/or M.G.L Chapter 9, Sections 26-27C (950 CMR 70-71) and/or MEPA (301 CMR 11). If you have any questions or require additional information, please contact Jonathan K. Patton at this office.

Sincerely,

Brong

Brona Simon State Historic Preservation Officer Executive Director State Archaeologist Massachusetts Historical Commission

AUG 1 5 2019

McFarland Johnson Concord, NH

 xc: Ann B. Richart, Director, Martha's Vineyard Airport Richard Doucette, FAA
 Bettina Washington, Wampanoag Tribe of Gay Head (Aquinnah) David Weeden, Mashpee Wampanoag Tribe Massachusetts Aeronautics Commission Deborah C. Cox, PAL, Attn: Holly Herbster

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December 16, 2019 Telecon

Attendants

Martha's Vineyard: Cindi Martin, Geoff Freeman FAA: None. MassDOT: Owen Silbaugh, Nate Rawding, Mike Garity McFarland Johnson: Rich Lasdin, Matt O'Brien, Jed Merrow

Obstruction Description and Background

MJ explained the graphics which showed dots, without hatches for identification of obstructions. Also shown was the Exhibit A property map. A graphic was also shown using 2012 data and an anticipated obstruction clearing based on 2012 data. Jed provided an assessment on the vegetation based on his field observations.

DCR requested a breakdown of dot vs. trees. Timeline was discussed assuming trees were required by FAA to be cleared for 2020 commercial service starts for the season. May 15th was the date discussed. Runway 24 threshold siting surface was considered an emergency as FAA Airports requires this area to be clear of obstructions. Part 77, Departure, and other airspace was considered non-emergency at this time.

RW 15/33 area records indicates that this area has been untouched historically.

Cutting

Proposed cutting is anticipated to introduce habitat to manage low growth species. This may be a good opportunity for both the species and the airport as there are a lot of rare plants alone the fire lanes. DCR requires a meeting with Natural Heritage and Endangered Species Program (NHESP).

Regulatory

The following list are the regulatory hurdles anticipated for the tree clearing:

- MESA
 - Trails are hot spots for rare species.
- Northern Long-eared Bats
- MEPA/NEPA
- Article 97 areas with no easements
 - \circ $\,$ DCR has experience with Article 97 and will need to consult their attorneys
 - o DCR has alternative means to mitigate for this regulatory need

• Need plans with impacts, Change in community, acreage.

DCR will need to review the legal parameters and permit construction access permit access.

DCR requested that NHESP and DCR be copied on correspondence together.

Schedule

MEPA is underway. Anticipate an EIR in the spring of 2020 including this cutting.

Cutting will be subject to time-of-year restrictions by NHESP

Management/Plans

DCR has an existing habitat management plan for Fire Lanes due to rare plant. Mowing regimen approved by NHESP.

DCR has a Master plan which call for more cutting. DCR would like to see more open land.

Bat Data – acoustic monitoring was not conducted by DCR, but by other biologist for years. NHESP should have this. DCR can provide the contact name.

Next Steps

Provide proposed obstruction removal plans to DCR. Coordinate a site walk to discuss areas of impact.

DCR requires specifics from NHESP. Include Paul Gregory in these discussions.

MJ to keep working on developing proposed obstruction clearing plans.



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MEETING NOTES

DATE: January 8, 2020

MJ Project No.: 18226.07

LOCATION: Conference call

PROJECT: Martha's Vineyard Airport 5-year CIP EA/EIR and Obstruction Removal

ATTENDEES:

Richard Doucette, FAA Michelle Ricci, FAA Tom Mahoney, MassDOT Owen Silbaugh, MassDOT Cindi Martin, Martha's Vineyard Airport Jed Merrow, McFarland Johnson (MJ) Matthew O'Brien, MJ

The call was held to discuss tree obstructions at Martha's Vineyard Airport and the graphics to be shared with environmental agencies.

Jed Merrow noted that most of the obstructions off airport property are on State Forest land; some of the State Forest land has easements; some is native sand barrens habitat that has not historically been cut; and nearly all is Priority Habitat of Rare Species. Most of the rare species are moths, but some other plant and animal species may occur there. Cutting would probably improve the habitat for moths.

Matt O'Brien described the 2019 obstruction mapping that was previously distributed. The plan sheets show all trees above and within 10 feet below protected surfaces. There are two plans for each approach, split up to reduce clutter. Owen Silbaugh liked the plans as a final product but thought they should be simplified for general distribution. Owen also suggested that more detail be conveyed within the hatched areas, specifically showing the limits of current penetrations, within five feet below and within 10 feet below the approach surface.

MJ is comparing the 2012 and 2019 data to determine tree growth rates. Jed compared the heights of 21 trees that were measured in both 2012 and 2019 in the Runway 15 approach, which has not historically been cut. The change in height ranged from -1 to 7 feet, averaging 3.6 feet or 0.5 feet per year. The Runway 24 end has white pine which is probably growing faster. Since some areas are slow-growing, the plans should show trees 5 feet below surfaces as well as 10 feet. Michelle suggested not to cut vegetation that will take very many years to become an obstruction, and noted that the arbitrary 10 feet number should be justified.

Regulatory implications of clearing were discussed:

• MESA and MEPA apply to clearing regardless of property lines or easements.

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- Section 4(f) of the U.S. DOT Act applies to "uses" of parks and wildlife refuges. It would not apply to easement areas in this case. Impacts proposed on the State Forest would require demonstration that no other feasible or prudent alternative is possible. The minimum clearing required for safety might be allowable, but clearing Part 77 would probably be unacceptable. Clearing would have to be limited to that necessary to meet required safety standards and grant assurances. Grant assurances require consideration of "operational" surfaces. The minimum surfaces to clear are probably those required in the Design AC Table 3-2 and Engineering Brief 99. It was noted that the departure surface is included in Engineering Brief 99, and it covers a broad area.
- Article 97 of the state constitution states that "Lands and easements taken or acquired for such purposes [conservation etc.] shall not be used for other purposes or otherwise disposed of except by laws enacted by a two thirds vote... of each branch of the general court [state legislature]." MEPA has an Article 97 Land Disposition Policy with additional requirements. Article 97 appears to pertain to transfer of ownership or easements.

There was discussion of the easement for the Runway 24 end, which states "the airspace may be used for the unobstructed and unrestricted flight of aircraft at any altitude or height... It will not... permit any growths thereon..." "It" appears to refer to the state. Richard thinks that FAA will offer to fund the cutting this round on Runway 24, but would like to see DCR meet their deeded obligation in the future.

Richard and Michelle will meet with John Merck to discuss what is required or critical for safety. They will also approach FAA's Flight Procedures staff to see if procedures can be modified to allow less clearing. Owen recommended taking actual operations into account, such as the numbers and sizes of aircraft known to use the runways. Once the required/preferred clearing areas are determined, two sets of plans could be developed: one showing all areas that would be cleared if all surfaces including Part 77 were addressed, and one showing only "operational" surfaces, excluding Part 77.

For now, MJ was directed to revise the obstruction plans for coordinating with environmental agencies for MEPA/NEPA to include Design AC Table 3-2 (as amended by Engineering Brief 99) Row 4, Row 5, Row 6 and Departure Surface. This would eliminate Part 77 approach and transitional surfaces. FAA discussions could result in further changes.

The eligibility of future FAA funding was discussed, particularly if not all obstructions are cut now. Areas not being addressed would need to be clearly delineated, and could be eligible in the future. If they are just lower trees in the cutting area, future eligibility is more questionable. The airport and MassDOT have limited resources to pay for obstruction removal and maintenance.

Runway 15-33 alternatives were discussed in light of the sensitive habitat off the 15 end. MJ has been looking at a runway shift, displaced thresholds, and raising the threshold elevation. Although not in the Master Plan, this is necessary to address the "feasible and prudent" requirement of Section 4(f). It was noted that other actions, such as a Master Plan or ALP

Update, might be needed for changes to the runway. Justification for the crosswind runway may also be necessary.

Richard noted that the work could be phased if some runway ends would take longer than others to get approvals. The Runway 15 end threshold could be temporarily displaced.

Owen recommended that FAA look at PAPI impacts on clearing, and referenced Engineering Brief 95.

The group agreed to reconvene by phone on Jan. 17 to provide updates and discuss clearing areas to propose, after which a resource agency meeting could be set up.

- MJ will revise obstruction graphics based on Table 3-2 and Engineering Brief 99 referenced above, and will show trees which penetrate surfaces, are within 5 feet, and are within 10 feet, coded by color.
- FAA will meet internally to discuss which obstruction areas are most critical for safety and whether some of the areas can be addressed with procedures.



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MEETING NOTES

DATE: March 24, 2020 10:00AM

MJ Project No.: 18226.07

LOCATION: Conference call

PROJECT: Martha's Vineyard Airport 5-year CIP EA/EIR and Obstruction Removal

ATTENDEES:

Richard Doucette, FAA John Merck, FAA Tom Mahoney, MassDOT Owen Silbaugh, MassDOT Nate Rawding, MassDOT Cindi Martin, Martha's Vineyard Airport Jed Merrow, McFarland Johnson (MJ) Matthew O'Brien, MJ Rich Lasdin, MJ

The call was held to prepare for the April 1 meeting with the Dept. of Conservation and Recreation (DCR) and Natural Heritage and Endangered Species Program (NHESP) regarding tree obstructions at Martha's Vineyard Airport. A draft agenda/outline and graphics of obstructions at the four runway ends were circulated prior to the meeting. The notes below follow the agenda items.

- 1. FAA protected airspace and
- 2. Determination of critical airspace to keep clear at the airport

The April 1 meeting would start with a brief description of the concept of protected airspace. FAA suggested, "These are required by FAA to keep concurrent with the grant assurances." However, be prepared to discuss if they ask specific questions. We will note that there are many kinds of protected airspace and clearing some of them would require much more extensive clearing than we are proposing. A graphic of Part 77 clearing will be shown to illustrate this. We will note that we are proposing clearing more or less the minimum allowable under FAA guidelines. We should not state or promise that Part 77 will never be cleared, as it may be required at some point.

3. How tree obstructions were determined and what they mean

We will describe how tree growth rates were estimated based on 2010 and 2019 data, and 2019 heights were extrapolated to determine obstructions within 10 years. The data were derived from a grid and the points may represent individual trees or clusters of trees; they do not reflect the number of trees that need to be cut.

4. Discuss obstructions and alternatives in each runway approach

The graphics showing obstructions within the four runway approaches were viewed in turn:

- Runway 6: only one location, along road
- Runway 24:
 - Most of clearing is within the easement but some is outside of it.
 - Clearing outside the easement could trigger Article 97.
 - Part of the area is white pine-dominated and the State Forest staff have indicated they are interested in restoring it to sandplain habitat.
 - The lateral areas are mostly natural or native habitat with some non-native conifers invading.
 - The easement deed states the state is required to keep it clear for airport purposes.
 - Photos of potential clearing areas would be helpful.
- Runway 15: A relatively small area of clearing is shown on State Forest land, in habitat that has been little altered historically. There is no easement for clearing here. It would be a Section 4(f) use and clearing could trigger Article 97. Section 4(f) requires consideration of alternatives, which gets into Runway 15-33 alternatives.
- Runway 33: This is entirely on airport property. It is relatively undisturbed habitat but surrounded by development so probably does not have as high habitat value as the Runway 15 end. May look at shifting the Runway south. Similar habitat, however more fragmented due to being on airport property. MassDOT: Trees keep growing, so a shift is only a temporary fix. FAA: Section 4(f) requires that we look at the avoidance.
- Richard asked if there were trees suitable for bat roosting habitat, such as old trees with peeling bark or knotholes. The trees are mostly oaks with some pitch pine and planted conifers. Most trees do not have noticeably shaggy or peeling bark, but some of the oak bark is platy and peeling. This may need further review.
- Nate Rawding noted that trees will continue growing, and avoiding clearing in one area now (such as by shifting the runway) may not prevent it from needing clearing in future years.
- If FAA is to pay for clearing off airport property and outside of easements, they would need ownership, an easement, or some other kind of formal agreement. The airport or State Forest could implement or pay for the clearing without FAA funding.
- 5. How to quantify and evaluate impacts; information needed

We will note again that the number of trees cannot be quantified, but acreage could be, and perhaps there could be an estimate of number of trees.

We would like to know what information the DCR and NHESP would like to have on the proposed clearing areas within their jurisdiction. We would rather not suggest what we could provide, because we have no idea what level of detail they might want. We have information on the general vegetation community composition and character within each clearing area. If more detailed vegetation community, rare species or other studies are needed, they might

Obstruction Removal Conference Call Notes – Page 3

need to be done this summer, in which case they should be included in the work being scoped not for the upcoming FAA grant application (for new CIP alternatives, greenhouse gas analysis and obstruction-related work).

6. Possible mitigation measures

We would discuss the kinds of mitigation measures that could be considered and the process for coming up with a reasonable and acceptable mitigation plan. It is unlikely we would come to agreement at this meeting on specific measures, but for NEPA and Section 4(f) we will eventually have to agree on a fairly specific plan, so any progress we can make in that direction would be useful.

- 7. Permits and approvals
- 8. Process going forward

The schedule was discussed in broad terms. Richard Doucette requested the overall schedule for obstruction removal, from this point to actual clearing. Richard expects it will take several months to get DCR and NHESP to agree on a clearing and mitigation plan. Article 97 is a big wild card at this point.

Elaborating on what was discussed at the meeting, the schedule is likely to be as follows:

- May 2020: Submit grant application to FAA for new CIP alternatives, greenhouse gas and obstruction analyses
- Summer 2020: Work with DCR and NHESP to evaluate alternatives and impacts and develop mitigation
- Fall 2020: Draft EA/EIR
- Winter 2020-21: Final EA/EIR
- April 2021: Final FONSI and MEPA Certificate
- May 2021: Submit grant application to FAA for permitting
- October 2021: Receive Conservation and Management Permit from NHESP (unless Article 97 required)
- Spring 2022: Design and bid obstruction removal
- May 2022: Submit grant application to FAA for obstruction removal
- Winter 2022-2023: Remove obstructions

- MJ to revise and circulate April 1 meeting agenda (attached).
- MJ will prepare a presentation for the DCR/NHESP meeting, to include an example of Part 77 clearing; proposed clearing; and photographs of each runway approach.



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MEETING NOTES

DATE: April 1, 2020 1:30PM

MJ Project No.: 18226.07

LOCATION: Skype and conference call

PROJECT: Martha's Vineyard Airport Tree Obstruction Removal

ATTENDEES:

Karl Pastore, MA Dept. of Conservation and	Nate Rawding, MassDOT Aeronautics
Recreation (DCR)	Mike Garrity, MassDOT Aeronautics
Paul Cavanagh, DCR	Cindi Martin, Martha's Vineyard Airport
Paul Gregory, DCR	(MVY)
Nancy Putnam, DCR (joined in progress)	Geoff Freeman, MVY
Amy Hoenig, MA Natural Heritage and	Jed Merrow, McFarland Johnson (MJ)
Endangered Species Program (NHESP)	Matthew O'Brien, MJ
Richard Doucette, FAA	Rich Lasdin, MJ
John Merck, FAA	Steve Riberdy, GZA (left early)

The call was held to discuss proposed tree clearing at Martha's Vineyard Airport and in the surrounding Correllus State Forest. The proponents hoped to get some feedback on proposed alternatives and guidance on impact assessment and mitigation strategies. The airport hopes to come to agreement on not just short-term clearing needs but longer-term needs as well. The agenda is attached and the notes below follow the agenda items.

1. Determination of critical airspace to keep clear at the airport

Federal regulations known as Part 77 define airspace around every airport. Ideally all of the Part 77 airspace is kept clear of obstructions, especially if the airspace is on airport property. When FAA issues grants to airports, there are conditions that airspace be kept clear of obstructions. In practice this means the airspace surfaces that have an operational impact on aviation need to be kept clear. Surfaces are defined in the FAA's Airport Design Advisory Circular.

The defined surfaces do not change often – occasionally when FAA changes the Advisory Circular; if an airport's navigational equipment changes; or if an accident somewhere leads to different requirements.

For this airport, FAA, MassDOT and the airport discussed which were the critical operational surfaces at the airport. The proposed clearing represents those surfaces, which are much less

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than the Part 77 and other surfaces that could be cleared. They are not expected to change in the near future.

2. How tree obstructions were determined and what they mean

Surveyed tree height for 2010 and 2019 were compared. The change in tree height at each point was calculated and converted to growth per year. The growth rates were averaged for all the points within each runway approach, then applied to all the trees within each approach. Growth rates ranged from 0.5 feet per year (north of the Runway 15 end) to nearly 2 feet per year (Runway 24 end in the white pine area).

Areas to clear were determined by applying growth rates over 10 years. Traditional obstruction management would propose cutting all trees within 10 feet of the airspace surface. At this airport, the traditional approach would result in more clearing in the slower-growing tree stands (Runways 6, 15, and 33, and the sides of Runway 24), and less clearing off the end of 24.

The points may represent individual trees or clusters of trees. The yellow and red polygons show the approximate areas where there are multiple tree obstructions, red currently penetrating and yellow within 10 years. The exact number of trees to be cut is determined with the help of a surveyor during the actual tree cutting operation.

Nate Rawding asked whether the estimate of tree growth accounts for more sunlight and less biological competition which would improve the growth rate. It does not, but future vegetation management planning should consider that.

3. Discuss obstructions and alternatives in each runway approach, on and off airport property

Runway 6 Approach

There is only one data point identified, on airport property.

Runway 24 Approach

Runway 24 is the most important and most frequently used approach at the airport. There are meteorological conditions that can limit the use of the airport to only this runway approach, as it allows flying in poor visibility.

There is an easement on the State Forest providing for unobstructed airspace. The language (attached) states there shall be no buildings, growths, or assembly of persons on the easement area. The Runway 24 approach requires cutting on State Forest both within and outside the easement.

Conversion of state-owned conservation or recreation land triggers Article 97. FAA does not believe that cutting within the easement would require Article 97, but clearing outside of that

might. This needs to be determined. Paul Cavanagh made reference to two acts of the legislature pertaining to clearing within airport easements (also attached). There needs to be further review of deeds, easements and state acts, along with conversations with the DCR attorneys.

It was noted that landscape designations have been applied to state conservation land. There are three categories: Parkland, Woodland, and Reserve. There are exemptions specifying what activities can occur within each category. The Reserve category probably allows tree removal in easement areas or hazardous trees that pose a significant risk to the public. To alter designated land, one would have to appear before DCR's Forest Reserve Science Advisory Council (FRSAC), which meets approximately twice per year and is next scheduled to meet in mid-April. Peter Church is the Director of Forest Stewardship. Nancy will send his contact information to MJ.

It was noted there is a "no-cut buffer" along the airport side of Barnes Road in this area. This buffer was reportedly established as compensation for past airport impacts to State Forest land. There are obstructions in this area and cutting would presumably require an agreement with DCR and some sort of mitigation. This needs further investigation.

Paul Cavanagh referred to the Green Docket Process, an expedited agency review process. MJ will work with DCR to investigate its applicability to this project.

Jed Merrow suggested there is a potential "win-win" solution for clearing this area, as it could remove a monotypic tree stand and establish a more natural sandplain vegetation community, which would support rare species and which the State Forest managers might prefer. Paul Gregory thought that might be appropriate, assuming it improves rare species habitat and NHESP approves. Amy Hoenig stated that it could benefit some of the many rare species found in this general area. However, some of the proposed clearing area is a more typical native oak tree/shrub community, and both trees and shrubs support rare moth species.

Runway 15 Approach

There is no record of clearing, planting or fire within the left "diamond" (directly off the runway end). The area is a mixture of post, white and black oak trees and scrub oak thickets. The lower diamond (northwest of the runway end) had a tree clearing operation in the recent past. There is a management plan for the fire lanes for the purpose of rare species management.

There are no clearing easements in this area, so the clearing would trigger Section 4(f) of the U.S. Department of Transportation Act. Section 4(f) regulates the "use" of certain resources, including wildlife refuges and recreational parks. The Act requires that all prudent and feasible alternatives to use of the resource be considered. These alternatives could include raising the runway elevation (to reduce the clearing needed), shifting the runway away from the State Forest, or other measures. DCR will need to provide input on alternatives, and if agreement cannot be reached, then the FAA cannot conduct the clearing. DCR would need to consult with their legal counsel regarding Section 4(f).

Runway 33 Approach

There is a relatively small area of proposed clearing and it is all on airport property. The habitat is native post/white/black/scrub oak but it is surrounded by roads and developed lands so probably has lower ecological value than the State Forest land on the Runway 15 end. Shifting Runway 15-33 south would result in more trees to be cleared on the 33 end and fewer on the 15 end. Amy Hoenig noted that any shift in the runway would result in rare species and habitat impacts, and possibly a take, that would require a Conservation and Management Permit.

The federally listed northern long-eared bat occurs on the island. It is unclear whether the trees found in the airport vicinity provide suitable habitat.

4. How to quantify and evaluate impacts; information needed

The entire project is within designated Priority Habitat of Rare Species and includes areas of Estimated Habitat of Rare Wildlife. MJ has calculated acreage of clearing as an indication of approximate impacts, but there is no way of confirming the exact number of trees.

Amy Hoenig noted that pitch pine is habitat for the state-endangered imperial moth; and there are potential benefits for removal of white pine. She recommended the airport identify access routes and staging areas; identify the time of year of tree removal; herbicide usage; and what and where long-term management would occur. It is possible a rare plant survey would be required, but NHESP needs to learn more about what is proposed first. It may be appropriate to assume some level of survey, although they may not be needed at this stage of the project.

DCR staff would like information on acreage affected; how many days areas would be closed to recreation; if buffers would be needed; and what trails would be affected. Chris Bruno has provided a trail map to MJ. There are some user-created trails on DCR property that are not mapped, but DCR is not as concerned about user-defined trails if they are not supposed to be there in the first place.

Amy asked whether any lower-growing vegetation will be cut. On the Runway 15 end, the redshaded areas flanking the runway are within the Runway Object Free Area (ROFA), which needs to be cut to 4 inches or lower. This would probably be mowed annually; the proposed vegetation and management would need to be addressed.

DCR (Nancy) would like to see a natural community survey completed by an ecologist, with data on the plant species found in different vegetation communities. The NHESP forms (2 or 3) should be used. The survey can take place any time during the growing season, and possibly as early as May. There should be representative photos and descriptions of distinct vegetation communities. The proposed survey methods can be emailed to NHESP and DCR for comment. 5. Possible mitigation measures

Tree removal methods were discussed. Work is most often done in winter, ideally on frozen ground, which would have the least impact on rare plants. Herbicides may be applied to cut stumps to prevent sprouting. Tree cutting and removal methods have not yet been considered. On the State Forest at the Runway 15 end, red pines were cut and moved with feller-bunchers and skidders, brought to a log landing, and a crane fed the whole trees into a chipper, after which chips were trucked away. Jed Merrow noted that he saw little evidence of the cutting or equipment operation in his recent field visit to this area. Amy noted that leaving chips on site could adversely affect rare plant species and habitat.

Habitat restoration was discussed. Where there is good native vegetation cover in the understory, it may only be necessary to remove non-native or tall-growing species, but no planting should be necessary. Where there is no understory, as in the white pine area, the pines could be cut, vegetation allowed to grow for one or two seasons, then mow or burn the vegetation. This should encourage a more typical native sandplain plant community.

Monitoring should continue for 5 years.

- 6. Process going forward
- MJ will continue coordinating with DCR and NHESP to evaluate alternatives and impacts and develop mitigation. A regular meeting of the key parties was suggested, to include at least Nancy Putnam, Amy Hoenig, Richard Doucette, Nate Rawding, the airport, and MJ. Others would be kept in the loop.
- MJ will develop a scope of work for these tasks and continue working on the overall project environmental process and documents to satisfy NEPA and MEPA.
- MJ will investigate Article 97, acts of the legislature, and other legal and regulatory documents and requirements.
- MJ and subconsultant GZA will conduct necessary ecological studies for the tree obstruction work.

- DCR will provide MJ with contact information for DCR land use attorneys or specialists and for Peter Church.
- MJ will further review deeds, easements and state legislative acts, and initiate conversations with the DCR attorneys.
- MJ will work with DCR to investigate the Green Docket Process's applicability to this project.
- MJ will investigate the implications of cutting in the "no-cut buffer" along the airport side of Barnes Road.



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MEETING NOTES

DATE: April 7, 2020 1:00PM

MJ Project No.: 18226.07

LOCATION: Skype and conference call

PROJECT: Martha's Vineyard Airport CIP Projects EA/EIR – rare species surveys

ATTENDEES:

Amy Hoenig, MA Natural Heritage and Endangered Species Program (NHESP) Jed Merrow, McFarland Johnson (MJ) Matthew O'Brien, MJ Steve Riberdy, GZA

The call was held to discuss rare species studies undertaken and needed for the above project.

Rare plant species were surveyed in project impact areas in 2012/2013 and 2017. The surveys included a thorough review for rare plants then listed. Exact numbers of plants were not determined but individual plants and colonies of plants were identified and mapped.

New projects have come up since the original study areas were determined. These include:

- Runway 6-24 ground obstructions These are grass areas that do not meet FAA guidance on primary surface elevations and safety area grading. (The primary surface surrounds the runway and is at the elevation of the runway centerline. The safety area also surrounds the runway and is intended to support aircraft that leave the runway.) The ground obstructions shown on plans will change but this general area needs to be reviewed for rare plants.
- Taxiway E This is not a new project but new locations are possible. The taxiway could be relocated on either side of Runway 15-33, but Matt thinks the northeast side alternative will not be carried forward. If it is retained, prior surveys extended to the tree line, and additional tree or shrub areas that will be affected will need to be looked at for moth habitat. An "elbow" has been added where it connects with Runway 6-24, expanding the rare species study area.
- Southwest ramp There are grass and tree areas between the pavement and buildings that should be checked for rare plants and habitat.
- Tree obstruction areas We will be describing the natural communities in accordance with NHESP guidance. Rare plants and the host plants of rare species will be identified, but there will not be a comprehensive survey for rare plants or host plants. Make sure to note pitch pine presence. No trapping or survey of rare animals is necessary.

• Runway 15-33 shift – The runway could be shifted to the southeast to minimize impacts to the State Forest off the Runway 15 end. To accommodate this potential shift, the consultants will review the habitat 300 feet into the wooded area on the Runway 33 end.

Other topics addressed include:

- The current level of effort needs to be sufficient to characterize the habitat, determine whether rare species are present, and define impacts. For permitting, NHESP needs to have a solid estimate of numbers of protected plants affected. The information could be obtained this summer, as part of the EA/EIR studies, or at a later date. As it stands, we would do the additional preliminary surveys and assessments this summer (some of them were completed in previous years); survey final impact areas next year for permitting purposes; and do a pre-construction review as projects come up. The consultants will probably continue with this approach, as much of the preliminary survey has been completed. It was acknowledged that the COVID situation could affect this field season.
- It is also helpful to know the extent of the rest of the rare plant populations to determine relative impact. It is not necessary to look at the entire airport, but try to get an idea of the populations' broader contexts.
- Bats were discussed. Amy has refined mapping of bat locations. Steve proposes doing a Phase I level habitat assessment and no acoustic survey. Amy will look into requirements.
- MJ and GZA will submit a new information request to update the rare species list.

- Amy will look into bat locations and survey requirements.
- MJ and GZA will submit a new information request to update the rare species list.



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MEETING NOTES

DATE: April 29, 2020 1:00PM

MJ Project No.: 18226.07

LOCATION: Skype and conference call

PROJECT: Martha's Vineyard Airport Tree Obstruction Removal – Biweekly Call

ATTENDEES:

Paul Cavanagh (for Nancy Putnam), MA Dept. of Conservation and Recreation (DCR) Amy Hoenig, MA Natural Heritage and Endangered Species Program (NHESP) Richard Doucette, FAA Tom Mahoney, MassDOT Aeronautics Cindi Martin, Martha's Vineyard Airport (MVY) Geoff Freeman, MVY Jed Merrow, McFarland Johnson (MJ) Matthew O'Brien, MJ Rich Lasdin, MJ

The call was held to continue discussions regarding proposed tree clearing at Martha's Vineyard Airport and in the surrounding Correllus State Forest.

At the prior meeting held on 4/1/2020, we discussed how the airport surfaces to keep clear were based on a review of the range of surfaces which may need to be kept clear. Those proposed to be cleared were essentially the minimum needed to maintain current airport operations. Trees needing to be cleared are those that are projected to penetrate the aviation surfaces within 10- years' time. This was determined by comparing 2010 and 2019 tree heights, calculating the average annual growth rate, and projecting the tree heights 10 years later based on the growth rates. This was done separately for each runway approach.

Action items from the last meeting included:

- DCR will provide MJ with contact information for DCR land use attorneys or specialists and for Peter Church. Update: Paul Cavanagh will follow up.
- *MJ will further review deeds, easements and state legislative acts, and initiate conversations with the DCR attorneys.* Update: The review is ongoing.
- *MJ will work with DCR to investigate the Green Docket Process's applicability to this project.* Update: Nancy Putnam reported that the Green Docket Process is not applicable to this project. However, DCR needs to review and approve permit applications before they are submitted to other agencies.
- *MJ will investigate the implications of cutting in the "no-cut buffer" along the airport side of Barnes Road.* Update: MJ is investigating.

Graphics showing the proposed tree clearing areas within each of the four airport runway approaches were viewed. In the Runway 24 and 15 approaches, clearing is proposed within the State Forest. The approximate clearing acreages are shown below.

		Runway 6	Runway 24	Runway 15	Runway 33	Totals
All 10-year Vegetation Obstructions (Yellow + Orange)	On Airport	(1 obstruction)	1.86	1.97	0.26	4.09
	Easement on State Forest	-	10.51	-	-	10.51
	State Forest / No Easement	-	1.53	1.50	-	3.03
	Total	(1 obstruction)	13.90	3.47	0.26	17.63

MJ has submitted a proposal to the airport, FAA and MassDOT to continue studies relating to this project. It includes a scope of work for GZA GeoEnvironmental to conduct rare species and habitat studies in potential impact areas. Their work includes:

- Update Natural Heritage information request to bring the information up to date and extend coverage to the tree clearing areas.
- Develop rare species and habitat survey protocols in consultation with NHESP.
- Conduct rare plant surveys in grassland areas.
- Conduct a natural community assessment, rare moth host plant review, and northern long-eared bat habitat assessment based on fieldwork.
- Assess potential habitat for rare birds and the rare purple tiger beetle.

Possible mitigation measures were briefly discussed. It was agreed that more information would be needed on the impacted areas before mitigation can be addressed in detail. In general, however:

- Time of year restrictions would probably be followed and would probably help minimize impacts. There could be multiple, overlapping recommended time windows depending on species and habitat impacts. Winter is generally preferred from both a logging perspective and a resource impact perspective. The ground is unikely to be deeply frozen on the island, however.
- Tree cutting and removal methods will be explored. Heavy equipment was used in a prior State Forest logging operation, but could have some soil disturbance. Paul and Amy would like to see what is proposed before commenting.
- Paul Gregory is involved in pine barrens habitat restoration work in Myles Standish State Forest and would be a useful resource.

Post-clearing monitoring would be needed to identify invasive species, undesirable native vegetation, overall progress, and vegetation management needs.

- DCR will provide MJ with contact information for DCR land use attorneys or specialists and for Peter Church.
- MJ will continue reviewing deeds, easements and state legislative acts, including the "nocut buffer" along the airport side of Barnes Road; and will initiate conversations with the DCR attorneys.
- MJ and GZA will conduct habitat assessments and rare species surveys when they are under contract and able to travel.
- MJ will continue working on design alternatives and provide as they become available.



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MEETING NOTES

DATE: May 27, 2020 1:00PM

MJ Project No.: 18226.07

LOCATION: Conference call

PROJECT: Martha's Vineyard Airport Tree Obstruction Removal – Biweekly Call

ATTENDEES:

Shaun Provenchur, MA Dept. of Conservation and Recreation (DCR) Richard Doucette, FAA Nate Rawding, MassDOT Aeronautics Cindi Martin, Martha's Vineyard Airport (MVY) Geoff Freeman, MVY Jed Merrow, McFarland Johnson (MJ)

The call was held to continue discussions regarding proposed tree clearing at Martha's Vineyard Airport and in the surrounding Correllus State Forest.

Action items from the last meeting included:

- DCR will provide MJ with contact information for DCR land use attorneys or specialists and for Peter Church. (Completed)
- *MJ will continue reviewing deeds, easements, and state legislative acts, including the "nocut buffer" along the airport side of Barnes Road; and will initiate conversations with the DCR attorneys.* (MJ is preparing a summary of deed provisions. Jed spoke with Shaun Provenchur of DCR; see below.)
- *MJ and GZA will conduct habitat assessments and rare species surveys when they are under contract and able to travel.* (The scope and fee for this work has been agreed to in principle and a grant application has been submitted to FAA; awaiting the FAA grant.)
- *MJ will continue working on design alternatives and provide as they become available.* (ongoing)

Jed Merrow spoke with Shaun Provenchur, land protection planner for the Southeast Region at DCR, about the applicability of Article 97. Jed summarized the key points as follows:

- If the project is periodic vegetation management, an easement would be needed, and any clearing easement would trigger Article 97.
- If it's a one-time event, DCR may be able to permit work under a "Construction Access Permit". The applicability of the Construction Access Permit can depend on habitat quality and who benefits:

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- If the habitat is "pristine", it's likely to require Article 97. The Runway 15 end State Forest land is relatively undisturbed and is designated as "Forest Reserve", a restrictive category, so clearing would probably trigger Article 97. If an ecologist determines the habitat value will not be adversely impacted, then DCR may be able to issue a Construction Access Permit. Shaun will discuss this with DCR ecologist Nancy Putnam and NHESP's Amy Hoenig, since it's all Priority Habitat.
- An alternative may be topping or trimming trees. Again, this depends on the ecological impact. Following the meeting, Nate Rawding offered the following elaboration regarding tree topping and vegetation management generally:

While I agree with the need to research this analysis, I don't think it will be likely to be feasible, as it does not solve the issue of reoccurring obstructions/hazards to the airspace and flying public from trees that will eventually regrow.

Additionally, we have not much talked about the desired future conditions of the cutting areas, including easement area, and areas of RW 15 end, but we should at some point discuss the need for the areas to be maintainable by the airport. This is because the FAA will only pay once to have an area of obstructions removed/cut. If it is not left in a maintainable state, new obstructions/hazards will take place, and will not be eligible for FAA funding. I mention this as it is an ongoing issue with our GA airports across the state.

I understand the needs of DCR and NHESP, and can/will work with them both to make sure we are environmental stewards but also, meet the needs of aviation safety for the flying public.

 If the habitat is disturbed and could benefit from restoration, then perhaps the restoration could be done for DCR as part of the clearing project. The Runway 24 end is more disturbed, although the proposed cutting outside the easement area is not as disturbed as most of the easement area. (Much of the easement area is a homogeneous white pine stand.)

To complete the Article 97 process, the following steps would be required:

- Prove there are no feasible alternatives to the impact. MJ is investigating modifications to Runway 15-3 that might lessen the State Forest impact. Nate Rawding cautioned that runway modifications might result in delaying rather than eliminating State Forest impacts. The alternatives analysis should shed light on this.
- Get agreement on acceptable mitigation, which may include mitigating for a multiple of the impact acreage; replacement land; or in lieu payment. DCR must agree with the proposal.
- Get approval from DCR at the Secretary level.
- Get a 2/3 vote of the legislature.

- The Dept. of Capital Asset Management handles the legal/business aspects: appraisals, title work, survey, etc. The project proponent pays all expenses.
- The process typically takes years, but depends on project size and complexity.
- This project is a public safety project, which could perhaps facilitate it. Incentives (more mitigation) could also help.

- Shaun Provenchur will speak with Nancy Putnam, Amy Hoenig, and Peter Church about the proposed clearing areas and ecological implications of clearing.
- MJ will contact Peter Church about the implications of the forest classification.
- MJ will provide a summary of deeds, easements, and state legislative acts.
- MJ will investigate the feasibility of trimming or topping trees rather than wholesale tree removal.
- MJ will continue working on design alternatives that might minimize Runway 15 end clearing.



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MEETING NOTES

DATE: June 24, 2020 1:00PM

MJ Project No.: 18226.07

LOCATION: Conference call

PROJECT: Martha's Vineyard Airport Tree Obstruction Removal – Biweekly Call

ATTENDEES:

Shaun	Provenchur,	MA	Dept.	of	Tom Mahoney, MassDOT Aeronautics
Conser	vation and Recre	ation (I	DCR)		Nate Rawding, MassDOT Aeronautics
Nancy	Putnam, DCR				Geoff Freeman, Martha's Vineyard Airport
Amy	Hoenig, Natu	ral He	eritage	and	(MVY)
Endang	gered Species Pro	ogram (I	NHESP)		Jed Merrow, McFarland Johnson (MJ)
Richard	Doucette, FAA				Matt O'Brien, MJ
John IV	lerck, FAA				Rich Lasdin, MJ

The call was held to continue discussions regarding proposed tree clearing at Martha's Vineyard Airport and in the surrounding Correllus State Forest.

Action items from the last meeting included:

- Shaun Provenchur will speak with Nancy Putnam, Amy Hoenig, and Peter Church about the proposed clearing areas and ecological implications of clearing. (ongoing)
- *MJ will contact Peter Church about the implications of the forest classification.* (completed, coordination continuing; Mr. Church has been invited to these meetings)
- *MJ will provide a summary of deeds, easements, and state legislative acts.* (completed)
- *MJ will investigate the feasibility of trimming or topping trees rather than wholesale tree removal.* (ongoing)
- *MJ will continue working on design alternatives that might minimize Runway 15 end clearing.* (ongoing)

Jed Merrow recapped the last discussion, in which we discussed the applicability of Article 97. Since that meeting, Shaun has sent a briefing to DCR's legal department for review of Article 97 implications. Jed spoke with Peter Church, who sits on the Forest Reserves Science Advisory Committee (FRSAC), which reviews proposed work in Forest Reserves and makes recommendations to DCR. Peter suggested Jed sit in on the July 8 committee meeting, at which they will be discussing this project. Nancy Putnam will forward the invitation to Tom LaRosa, DCR general counsel.

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DCR issues 10-year permits for activities in state forests, and Shaun and Peter looking into it.

MJ is developing alternatives that would avoid or minimize cutting outside of airport property and easements.

One alternative to wholesale tree removal would be tree topping or trimming, which might not trigger Article 97. MJ is investigating how much would need to be cut to avoid cutting again in at least 10 years. Nate Rawding noted that future maintenance should be considered for all alternatives – effort needed, frequency, cost, etc. – and should be part of the alternatives evaluation. If the clearing is such that the trees will penetrate again in 10 years, there will be more frequent cutting needed.

Shaun Provenchur noted that tree clearing is likely to trigger Article 97, but regular maintenance would also likely trigger Article 97. Nancy Putnam stated that selective clearing without a change in overall land cover might be acceptable, though this can also trigger Article 97 as "perpetual use". Amy Hoenig noted that past maintenance could be a factor in evaluating the impact of future maintenance.

Other alternatives under consideration include shifting the useable runway at the Runway 15 end away from the State Forest 275 feet or raising the elevation of the Runway 15 end by 12 feet. Shifting the useable runway might result in more tree clearing or grassland impacts at the other end of the runway. The elevation increase would require substantial earthwork and grading, and there is no guarantee trees would not grow higher and penetrate airspace again after 10 years or so.

Nate pointed out that maintenance should occur as soon as possible after cutting, otherwise vegetation will grow up and become a problem again in 10 years, requiring more effort and greater impact to clear.

Jed summarized the vegetation management provisions of land ownership and easements:

- Runway 24 approach: the big easement allows clearing of any growths, while the 1970 legislative act allows clearing above a 50:1 surface projected from the end of the runway.
- Runway 6: The tree clearing area is airport property. The triangular easement area on State Forest land is mowed regularly and has no trees.
- Runway 15: no easements
- Runway 33: clearing area is owned by the airport

Jed asked whether, under MESA, impacts to areas that have clearing easements are regulated differently from those that do not have easements. Amy responded that they are not viewed differently in terms of impacts to state-listed species. Landowner ascent is needed.

Amy suggested that one Project Review Checklist be filed for all of the projects being proposed in the EA/EIR. This could be completed after there are footprints, with as much detail as is

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available. The Conservation and Management Permit would come later. Nancy noted that DCR must review any state permit applications pertaining to DCR jurisdiction before they are formally submitted to the permitting agencies.

GZA GeoEnvironmental ecologists will be doing rare plant surveys on the airfield (for other projects) and natural community assessments in proposed clearing areas this field season.

There is still interest in a field meeting following a review of updated plans. Currently, DCR staff are allowed to attend meetings of very small numbers of people, and Nancy has attended some site meetings. The consensus was that a field meeting of 10 or fewer people would be reasonable. Attendees might include:

- 1. Cindi Martin, airport
- 2. Geoff Freeman, airport
- 3. Richard Doucette, FAA
- 4. Nate Rawding, MassDOT
- 5. Nancy Putnam, DCR
- 6. Shaun Provenchur, DCR
- 7. Amy Hoenig, NHESP
- 8. Chris Buelow, NHESP restoration ecologist
- 9. Jed Merrow, MJ
- 10. Matt O'Brien, MJ

- Shaun Provenchur will continue coordinating with DCR staff on regulatory implications.
- MJ will sit in on the FRSAC meeting on July 8. This is the same time as our biweekly meeting, which will be rescheduled.
- MJ will continue working on alternatives that avoid or minimize clearing on State Forest outside of easements, and will distribute concepts to the group when they are ready.
- When alternatives are distributed, MJ will set up a field meeting to review the site.



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MEETING NOTES

DATE: July 8, 2020 3:00PM

MJ Project No.: 18226.07

LOCATION: Conference call

PROJECT: Martha's Vineyard Airport Tree Obstruction Removal – Biweekly Call

ATTENDEES:

Nancy Putnam, MA Dept. of Conservation Tom Mahoney, MassDOT Aeronautics and Recreation (DCR) Elise Stanmeyer, DCR (bat specialist) (MVY) Natural Heritage Amy Hoenig, and Endangered Species Program (NHESP) Matt O'Brien, MJ

Cindi Martin, Martha's Vineyard Airport Jed Merrow, McFarland Johnson (MJ)

The call was held to continue discussions regarding proposed tree clearing at Martha's Vineyard Airport and in the surrounding Correllus State Forest.

Action items from the last meeting included:

- Shaun Provenchur will continue coordinating with DCR staff on regulatory implications. (Shaun spoke with DCR legal staff and coordinated with FRSAC.)
- MJ will sit in on the FRSAC meeting on July 8. This is the same time as our biweekly meeting, which will be rescheduled. (Completed)
- MJ will continue working on alternatives that avoid or minimize clearing on State Forest outside of easements, and will distribute concepts to the group when they are ready. (ongoing)
- When alternatives are distributed, MJ will set up a field meeting to review the site. (to be completed)

During the last call, it was concluded that tree clearing would probably need to be done periodically, which should be done under an easement. Shaun Provenchur since spoke with DCR legal staff and confirmed that periodic vegetation management would require an easement, and an easement would trigger Article 97. However, he advised that a "revocable permit" could be issued to allow clearing to proceed in advance of formal Article 97 approval, so Article 97 does not necessarily have to hold a project up.

Jed Merrow (along with Shaun Provenchur, chair Pete Church and committee member Nancy Putnam) attended the Forest Reserve Science Advisory Committee (FRSAC) meeting, at which this project was discussed. Jed summarized the discussion as follows:

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- Jed described the tree obstruction project and need, approximate impacts, and alternatives under consideration.
- Correllus State Forest is one of the more actively managed forest reserves for fire management and habitat.
- A new or additional easement is not out of the question.
- Safety is a valid consideration.
- DCR staff need to see the natural community information to evaluate impacts and discuss mitigation.
- Article 97 requires mitigation, which could take the form of additional land, funding, work in kind, etc.
- Avoidance and minimization are important.
- They would rather not see a reduction in forest reserve acreage.

Jed reported on progress on alternatives:

- New impact acreages had been sent around. Acreages generally increased as they were applied to a larger set of trees than had been done previously.
- Revised tree clearing figures were shown.
- Runway 15-33 alternatives were shown and discussed. These will be distributed to the group as soon as the airport, FAA and MassDOT have a chance to review them. Alternatives that would affect the amount of tree clearing include:
 - Raise the elevation of the Runway 15 end. This would also substantially increase the amount of disturbance in grassland habitat on the airfield.
 - Displace the threshold of Runway 15-33, adding 275 feet of pavement on south end, eliminating the tree removal off the Runway 15 end but increasing the footprint in grassland.
 - Shift the entire runway south, eliminating tree removal at the Runway 15 end but increasing it at the Runway 33 end, which is on airport property. This would substantially increase grassland impacts and be very expensive, and some trees might still need clearing further in the future.

Amy Hoenig noted that alternatives with substantially more grassland (rare plant) impact might not be permittable. If there is another alternative that is less impacting and is feasible, it should be selected. Some alternatives might result in a take but still meet permitting standards. The alternative that raises the runway elevation is of particular concern.

Amy also asked about the proposed September timing of the rare plant review. MJ will consult with GZA about that. An updated rare species list should be requested.

- MJ will request an updated rare species list from NHESP.
- MJ will discuss with GZA the timing of the rare plant review and the natural community review.
- MJ will distribute updated Runway 15-33 alternatives, with updated clearing and grassland impact acreages, to the group as soon as the airport, FAA and MassDOT have a chance to review them.



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MEETING NOTES

DATE: September 30, 2020 1:00PM

MJ Project No.: 18226.07

LOCATION: Conference call

PROJECT: Martha's Vineyard Airport Tree Obstruction Removal – Biweekly Call

ATTENDEES:

Nancy Putnam, MA Dept. of Conservation	Nate Rawding, MassDOT			
and Recreation (DCR)	Richard Doucette, FAA			
Ale Echandi, DCR (regional ecologist)	Geoff Freeman, Martha's Vineyard Airport			
Shaun Provenchur, DCR	(MVY)			
Amy Hoenig, Natural Heritage and	Jed Merrow, McFarland Johnson (MJ)			
Endangered Species Program (NHESP)	Matt O'Brien, MJ			
Tom Mahoney, MassDOT Aeronautics	Jordan Tate, MJ			
Owen Silbaugh, MassDOT				

The call was held to continue discussions regarding proposed tree clearing at Martha's Vineyard Airport and in the surrounding Correllus State Forest.

Action items from the last meeting included:

- *MJ will request an updated rare species list from NHESP.* (Request submitted and data received.)
- *MJ will discuss with GZA the timing of the rare plant review and the natural community review.* (Natural community fieldwork completed in August and preliminary mapping distributed to this group.)
- *MJ will distribute updated Runway 15-33 alternatives, with updated clearing and grassland impact acreages, to the group as soon as the airport, FAA and MassDOT have a chance to review them.* (New alternative completed and distributed; overall impacts being tabulated.)

Jed Merrow provided a recap of past discussions, in particular:

- The critical airspace to keep clear of obstructions is the minimum needed to maintain current aircraft activity and operations; and
- Tree obstructions were identified based on average tree growth rates in each runway approach. Tree heights from 2010 to 2019 were compared, the amount of growth calculated and converted to growth per year. The growth rates were then extrapolated over a 10-year period to determine which trees would exceed the protected airspace. In the past, airports have used the more simplistic approach of adding 10 feet of growth on all trees. The calculated "10 years of

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growth" method being used here was chosen to provide results based on site-specific tree growth characteristics rather than a single growth height.

Jed said the airport, FAA and MassDOT had met several times to discuss the tree removal, and the following decisions were made:

- The "mosaic" tree removal areas previously proposed would be hard to implement in practice, as there are many small areas within and between proposed clearing areas that are not proposed to be cleared, and would be difficult to identify in the field.
- It would result in a patchwork of vegetation that would be harder to maintain and might require more tree removal in the not-too-distant future.
- Trees just outside the tree removal areas might have canopies that overlap the removal areas.
- Feasibility and cost of future maintenance was also taken into consideration, with some areas proposed for mowing in the future.

For these reasons, the proposed clearing areas were expanded to become solid polygons and to include a 30-foot buffer in adjacent treed areas.

The project proponents also investigated ways to minimize clearing in the more sensitive Runway 15 approach (off the northwest corner of the airport) and have come up with a new alternative for Runway 15-33, which is described below.

The four runway approaches were then discussed in turn, followed by discussion.

Runway 6

At the Runway 6 end, the proposed tree removal has been expanded to include all the trees along both sides of the road. On the airport side, the area is proposed to be mowed annually, consistent with management of the adjacent land. Across the road from the airport, the tree removal area is proposed to be managed the same way the adjacent mitigation area is managed, with less frequent brush cutting or mowing.

Runway 24

At the Runway 24 end, the proposed tree removal was expanded and divided into zones. On airport property, the proposal is to cut trees and mow the areas annually or biannually, consistent with management on the adjacent airfield. Some of this area is within the Runway Object Free Area and must be kept low and some of it is proposed to be mowed for convenience. (See discussion section below.)

Across the paved road and fire road, and within the area around the landing lights (the "approach light plane"), the tree removal areas are also proposed to be mowed, like the rest of the existing area beneath the approach light plane. MJ will provide more information on the dimensions and height limitations of the approach light plane at this airport.

Other tree removal areas within this runway approach are proposed to be cut and converted to a native sandplain habitat type. The type of habitat would be determined in discussions with DCR and Natural Heritage. There are broad areas of scrub oak with no overstory growing naturally in this area, so that may be a viable proposal and might also support rare species.

Most of the cutting would be within the existing easement, but some would be outside the easement. The deed states that the state is responsible for keeping this area clear for aviation traffic. Jed suggested that it might be mutually beneficial if the airport cut trees within the easement for the state, and the state cut trees that are on the State Forest outside the easement.

Geoff Freeman asked if there is documentation regarding the original condition of the easement areas and the original clearing requirements in the easements. Paul Gregory may have some information, and MJ can look into the easement language.

Runway 15-33

Jed said that FAA, MassDOT and the airport had been looking into ways to reduce or eliminate the tree cutting in the State Forest at the Runway 15 end. This area is sandplain shrub/forest vegetation with no historical records of cutting or burning. Airplane traffic on Runway 15 is relatively light and it may be reasonable to shorten the runway in this direction. A new Runway 15-33 alternative was developed and shown that would displace the threshold of the Runway 15 end by 275 feet without extending the opposite end of the runway. This would result in a shorter runway in this direction but would eliminate the need to remove trees in the State Forest on the Runway 15 end. The proposed run-up pad was also eliminated in this alternative, further reducing tree removal and habitat alternation. There would still be tree removal on the Runway 33 end, where it is proposed to be cut and mowed annually or biannually.

Discussion

There was a question regarding the height limitation for objects within the Runway Object Free Area (ROFA), and whether a range of heights is possible. The purpose of the ROFA is to allow safe travel of aircraft that may veer off the runway. Owen noted that the Runway Safety Area is most critical, and the ROFA pertains to objects that could be a hazard to aircraft. MJ later looked into the FAA height restrictions. Per FAA design guidance, objects within the Runway Object Free Area and the Runway Safety Area may not be higher than three inches unless they are "frangibly mounted" (i.e., able to bend or break off easily) and are required to be there due to function. (The four-inch height limitation mentioned in the meeting was incorrect.)

Nancy asked about tree species and noted that different species grow at different rates and to different heights. Jed responded that all the trees within each runway approach were grouped together in estimating growth rates. Nancy also asked that we show the actual heights of trees. Jed will look into it.

There were comments that the scope seems very different from previous proposals, and that this is more of a habitat conversion rather than selective cutting. The tree removal areas should be characterized as habitat conversion. The proposed habitat restoration would be a mitigation measure.

The impacts and benefits of the tree removal and follow-up management would need to be considered on a species-by-species basis.

There is interest in seeing the natural community data forms to better evaluate the proposed work. It would be helpful if it included tree heights and the proper natural community classifications. Tree heights relative to the runway approach surface elevations would be helpful also.

The acreage of tree removal should be summarized by natural community classification. Jed will have the natural communities put on the tree removal figures and will summarize the acreage of tree removal by community.

There was also a question regarding the timing of tree removal; this has not been considered yet.

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There was also a question about what is most sustainable in the long run. A dense, open-canopy scrub oak community occurs naturally in this area and may be compatible with aviation requirements in some areas.

There is still interest in a field meeting this season. The state limits meetings to maximum 10 people. Jed will propose dates, times and personnel based on prior discussions. It was suggested Paul Gregory from DCR and Chris Buelow from Natural Heritage be invited. (Ale later asked to attend and that Eric Seaborn be invited.)

- MJ will look into showing the actual heights of trees along with the approach surface elevations.
- MJ will provide more information regarding the approach light plane dimensions on the Runway 24 end.
- Natural community data forms will be provided as soon as they are available.
- MJ will have the natural communities put on the tree removal figures and will summarize the acreage of tree removal by community.
- MJ will look into vegetation management requirements per the easement language.
- MJ will organize a field meeting or meetings.



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MEETING NOTES - REVISED

DATE: September 30, 2020 1:00PM

MJ Project No.: 18226.07

LOCATION: Conference call

PROJECT: Martha's Vineyard Airport Tree Obstruction Removal – Biweekly Call

ATTENDEES:

Nancy Putnam, MA Dept. of Conservation	Nate Rawding, MassDOT		
and Recreation (DCR)	Richard Doucette, FAA		
Ale Echandi, DCR (regional ecologist)	Geoff Freeman, Martha's Vineyard Airport		
Shaun Provenchur, DCR	(MVY)		
Amy Hoenig, Natural Heritage and	Jed Merrow, McFarland Johnson (MJ)		
Endangered Species Program (NHESP)	Matt O'Brien, MJ		
Tom Mahoney, MassDOT Aeronautics	Jordan Tate, MJ		
Owen Silbaugh, MassDOT			

The call was held to continue discussions regarding proposed tree clearing at Martha's Vineyard Airport and in the surrounding Correllus State Forest.

Action items from the last meeting included:

- *MJ will request an updated rare species list from NHESP.* (Request submitted and data received.)
- *MJ will discuss with GZA the timing of the rare plant review and the natural community review.* (Natural community fieldwork completed in August and preliminary mapping distributed to this group.)
- *MJ will distribute updated Runway 15-33 alternatives, with updated clearing and grassland impact acreages, to the group as soon as the airport, FAA and MassDOT have a chance to review them.* (New alternative completed and distributed; overall impacts being tabulated.)

Jed Merrow provided a recap of past discussions, in particular:

- The critical airspace to keep clear of obstructions is the minimum needed to maintain current aircraft activity and operations; and
- Tree obstructions were identified based on average tree growth rates in each runway approach. Tree heights from 2010 to 2019 were compared, the amount of growth calculated and converted to growth per year. The growth rates were then extrapolated over a 10-year period to determine which trees would exceed the protected airspace. In the past, airports have used the more simplistic approach of adding 10 feet of growth on all trees. The calculated "10 years of

Obstruction Removal Biweekly Conference Call Notes – Page 2

growth" method being used here was chosen to provide results based on site-specific tree growth characteristics rather than a single growth height.

Jed said the airport, FAA and MassDOT had met several times to discuss the tree removal, and the following decisions were made:

- The "mosaic" tree removal areas previously proposed would be hard to implement in practice, as there are many small areas within and between proposed clearing areas that are not proposed to be cleared, and would be difficult to identify in the field.
- It would result in a patchwork of vegetation that would be harder to maintain and might require more tree removal in the not-too-distant future.
- Trees just outside the tree removal areas might have canopies that overlap the removal areas.
- Feasibility and cost of future maintenance was also taken into consideration, with some areas proposed for mowing in the future.

For these reasons, the proposed clearing areas were expanded to become solid polygons and to include a 30-foot buffer in adjacent treed areas.

The project proponents also investigated ways to minimize clearing in the more sensitive Runway 15 approach (off the northwest corner of the airport) and have come up with a new alternative for Runway 15-33, which is described below.

The four runway approaches were then discussed in turn, followed by discussion.

Runway 6

At the Runway 6 end, the proposed tree removal has been expanded to include all the trees along both sides of the road. On the airport side, the area is proposed to be mowed annually, consistent with management of the adjacent land. Across the road from the airport, the tree removal area is proposed to be managed the same way the adjacent mitigation area is managed, with less frequent brush cutting or mowing.

Runway 24

At the Runway 24 end, the proposed tree removal was expanded and divided into zones. On airport property, the proposal is to cut trees and mow the areas annually or biannually, consistent with management on the adjacent airfield. Some of this area is within the Runway Object Free Area and must be kept low and some of it is proposed to be mowed for convenience. (See discussion section below.)

Across the paved road and fire road, and within the area around the landing lights (the "approach light plane"), the tree removal areas are also proposed to be mowed, like the rest of the existing area beneath the approach light plane. MJ will provide more information on the dimensions and height limitations of the approach light plane at this airport.

Other tree removal areas within this runway approach are proposed to be cut and converted to a native sandplain habitat type. The type of habitat would be determined in discussions with DCR and Natural Heritage. There are broad areas of scrub oak with no overstory growing naturally in this area, so that may be a viable proposal and might also support rare species.

Most of the cutting would be within the existing easement, but some would be outside the easement. The deed states that the state is responsible for keeping this area clear for aviation traffic. Jed suggested that it might be mutually beneficial if the airport cut trees within the easement for the state, and the state cut trees that are on the State Forest outside the easement.

Geoff Freeman asked if there is documentation regarding the original condition of the easement areas and the original clearing requirements in the easements. Paul Gregory may have some information, and MJ can look into the easement language.

Runway 15-33

Jed said that FAA, MassDOT and the airport had been looking into ways to reduce or eliminate the tree cutting in the State Forest at the Runway 15 end. This area is sandplain shrub/forest vegetation with no historical records of cutting or burning. Airplane traffic on Runway 15 is relatively light and it may be reasonable to displace the threshold (i.e., move the takeoff and landing point further from the Runway 15 end). A new Runway 15-33 alternative was developed and shown that would displace the threshold of the Runway 15 end by 275 feet without extending the opposite end of the runway. This would result in a shorter runway in this direction but would eliminate the need to remove trees in the State Forest on the Runway 15 end. Geoff noted that this would reduce the capability of the runway and was not the most desirable outcome from the airport's perspective. (After the meeting, in discussions with FAA, it was made clear that a displaced threshold would be a temporary measure pending a future planning study that would analyze the optimum runway length for this runway. The proposed run-up pad was also eliminated in this alternative, further reducing tree removal and habitat alternation. There would still be tree removal on the Runway 33 end, where it is proposed to be cut and mowed annually or biannually.

Discussion

There was a question regarding the height limitation for objects within the Runway Object Free Area (ROFA), and whether a range of heights is possible. The purpose of the ROFA is to allow safe travel of aircraft that may veer off the runway. Owen noted that the Runway Safety Area is most critical, and the ROFA pertains to objects that could be a hazard to aircraft. MJ later looked into the FAA height restrictions. Per FAA design guidance, objects within the Runway Object Free Area and the Runway Safety Area may not be higher than three inches unless they are "frangibly mounted" (i.e., able to bend or break off easily) and are required to be there due to function. (The four-inch height limitation mentioned in the meeting was incorrect.)

Nancy asked about tree species and noted that different species grow at different rates and to different heights. Jed responded that all the trees within each runway approach were grouped together in estimating growth rates. Nancy also asked that we show the actual heights of trees. Jed will look into it.

There were comments that the scope seems very different from previous proposals, and that this is more of a habitat conversion rather than selective cutting. The tree removal areas should be characterized as habitat conversion. The proposed habitat restoration would be a mitigation measure.

The impacts and benefits of the tree removal and follow-up management would need to be considered on a species-by-species basis.

There is interest in seeing the natural community data forms to better evaluate the proposed work. It would be helpful if it included tree heights and the proper natural community classifications. Tree heights relative to the runway approach surface elevations would be helpful also.

Obstruction Removal Biweekly Conference Call Notes – Page 4

The acreage of tree removal should be summarized by natural community classification. Jed will have the natural communities put on the tree removal figures and will summarize the acreage of tree removal by community.

There was also a question regarding the timing of tree removal; this has not been considered yet.

There was also a question about what is most sustainable in the long run. A dense, open-canopy scrub oak community occurs naturally in this area and may be compatible with aviation requirements in some areas.

There is still interest in a field meeting this season. The state limits meetings to maximum 10 people. Jed will propose dates, times and personnel based on prior discussions. It was suggested Paul Gregory from DCR and Chris Buelow from Natural Heritage be invited. (Ale later asked to attend and that Eric Seaborn be invited.)

- MJ will look into showing the actual heights of trees along with the approach surface elevations.
- MJ will provide more information regarding the approach light plane dimensions on the Runway 24 end.
- Natural community data forms will be provided as soon as they are available.
- MJ will have the natural communities put on the tree removal figures and will summarize the acreage of tree removal by community.
- MJ will look into vegetation management requirements per the easement language.
- MJ will organize a field meeting or meetings.



DIVISION OF FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581 p: (508) 389-6300 | f: (508) 389-7890 M A S S . G O V / M A S S W I L D L I F E

August 17, 2020

Jed Merrow McFarland Johnson 53 Regional Drive Concord NH 03301

RE: Project Location: Town: NHESP Tracking No.: Martha's Vineyard airport, 71 Airport Road EDGARTOWN & WEST TISBURY **20-39524**

To Whom It May Concern:

Thank you for contacting the Natural Heritage and Endangered Species Program of the MA Division of Fisheries & Wildlife (the "Division") for information regarding state-listed rare species in the vicinity of the above referenced site. Based on the information provided, this project site, or a portion thereof, is located within *Priority Habitat 945* (PH 945) and *Estimated Habitat 126* (EH 126) as indicated in the *Massachusetts Natural Heritage Atlas* (14th Edition) for the following state-listed rare species:

Scientific name	Common Name	Taxonomic Group	State Status
Anthophora walshii	Walsh's Anthophora	Bee	Endangered
Cicindela purpurea	Purple Tiger Beetle	Beetle	Special Concern
Ammodramus savannarum	Grasshopper Sparrow	Bird	Threatened
Antrostomus vociferus	Eastern Whip-poor-will	Bird	Special Concern
Circus hudsonius	Northern Harrier	Bird	Threatened
Abagrotis benjamini	Coastal Heathland Cutworm	Butterflies and Moths	Special Concern
Acronicta albarufa	Barrens Dagger Moth	Butterflies and Moths	Threatened
Catocala herodias	Herodias Underwing Moth	Butterflies and Moths	Special Concern
Chaetaglaea cerata	Waxed Sallow Moth	Butterflies and Moths	Special Concern
Cicinnus melsheimeri	Melsheimer's Sack Bearer	Butterflies and Moths	Threatened
Cingilia catenaria	Chain Dot Geometer	Butterflies and Moths	Special Concern
Cycnia collaris	Collared Cycnia	Butterflies and Moths	Threatened
Eacles imperialis	Imperial Moth	Butterflies and Moths	Threatened
Euchlaena madusaria	Scrub Euchlaena	Butterflies and Moths	Special Concern
Hemaris gracilis	Slender Clearwing Sphinx	Butterflies and Moths	Special Concern
Hemileuca maia	Buck Moth	Butterflies and Moths	Special Concern
Heterocampa varia	Sandplain Heterocampa	Butterflies and Moths	Threatened
Lycia ypsilon	Woolly Gray	Butterflies and Moths	Threatened
Metarranthis apiciaria	Barrens Metarranthis Moth	Butterflies and Moths	Endangered
Metarranthis pilosaria	Heath Metarranthis	Butterflies and Moths	Special Concern
Psectraglaea carnosa	Pink Sallow	Butterflies and Moths	Special Concern
Ptichodis bistrigata	Southern Ptichodis	Butterflies and Moths	Threatened

MASSWILDLIFE

Scientific name	<u>Common Name</u>	Taxonomic Group	State Status
Speranza exonerata	Pine Barrens Speranza	Butterflies and Moths	Special Concern
Stenoporpia polygrammaria	Faded Gray Geometer	Butterflies and Moths	Threatened
Zale lunifera	Pine Barrens Zale	Butterflies and Moths	Special Concern
Aristida purpurascens	Purple Needlegrass	Plant	Threatened
Nabalus serpentarius	Lion's Foot	Plant	Endangered
Scleria pauciflora	Papillose Nut-Sedge	Plant	Endangered
Sisyrinchium fuscatum	Sandplain Blue-Eyed Grass	Plant	Special Concern
Spiranthes vernalis	Grass-Leaved Ladies'-Tresses	Plant	Threatened

The species listed above are protected under the Massachusetts Endangered Species Act (MESA) (M.G.L. c. 131A) and its implementing regulations (321 CMR 10.00). State-listed wildlife are also protected under the state's Wetlands Protection Act (WPA) (M.G.L. c. 131, s. 40) and its implementing regulations (310 CMR 10.00). Fact sheets for most state-listed rare species can be found on our website (www.mass.gov/nhesp).

Please note that <u>projects and activities located within Priority and/or Estimated Habitat **must** be reviewed by the Division for compliance with the state-listed rare species protection provisions of MESA (321 CMR 10.00) and/or the WPA (310 CMR 10.00).</u>

Wetlands Protection Act (WPA)

If the project site is within Estimated Habitat and a Notice of Intent (NOI) is required, then a copy of the NOI must be submitted to the Division so that it is received at the same time as the local conservation commission. If the Division determines that the proposed project will adversely affect the actual Resource Area habitat of state-protected wildlife, then the proposed project may not be permitted (310 CMR 10.37, 10.58(4)(b) & 10.59). In such a case, the project proponent may request a consultation with the Division to discuss potential project design modifications that would avoid adverse effects to rare wildlife habitat.

A streamlined joint MESA/WPA review process is available. When filing a Notice of Intent (NOI), the applicant may file concurrently under the MESA on the same NOI form and qualify for a 30-day streamlined joint review. For a copy of the NOI form, please visit the MA Department of Environmental Protection's website: <u>https://www.mass.gov/how-to/wpa-form-3-wetlands-notice-of-intent</u>.

MA Endangered Species Act (MESA)

If the proposed project is located within Priority Habitat and is not exempt from review (see 321 CMR 10.14), then project plans, a fee, and other required materials must be sent to Natural Heritage Regulatory Review to determine whether a probable Take under the MA Endangered Species Act would occur (321 CMR 10.18). Please note that all proposed and anticipated development must be disclosed, as MESA does not allow project segmentation (321 CMR 10.16). For a MESA filing checklist and additional information please see our website: https://www.mass.gov/regulatory-review.

We recommend that rare species habitat concerns be addressed during the project design phase prior to submission of a formal MESA filing, <u>as avoidance and minimization of impacts to rare species and their habitats is likely to expedite endangered species regulatory review.</u>

This evaluation is based on the most recent information available in the Natural Heritage database, which is constantly being expanded and updated through ongoing research and inventory. If the purpose of your

MASSWILDLIFE
inquiry is to generate a species list to fulfill the federal Endangered Species Act (16 U.S.C. 1531 et seq.) information requirements for a permit, proposal, or authorization of any kind from a federal agency, we recommend that you contact the National Marine Fisheries Service at (978)281-9328 and use the U.S. Fish and Wildlife Service's Information for Planning and Conservation website (https://ecos.fws.gov/ipac). If you have any questions regarding this letter please contact Melany Cheeseman, Endangered Species Review Assistant, at (508) 389-6357.

Sincerely,

Wase Schluts

Everose Schlüter, Ph.D. Assistant Director

MASSWILDLIFE



53 Regional Drive Concord, NH 03301 Established 1946 www.mjinc.com Telephone: (603) 225-2978 Fax: (603) 225-0095

MEETING NOTES

DATE: October 22, 2020 10AM

MJ Project No.: 18226.07

LOCATION: Conference call

PROJECT: Martha's Vineyard Airport Tree Removal

ATTENDEES:

Amy Hoenig, Natural Heritage and Endangered Species Program (NHESP) Richard Doucette, FAA Nate Rawding, MassDOT Michael Garrity, MassDOT Geoff Freeman, Martha's Vineyard Airport (MVY) Jed Merrow, McFarland Johnson (MJ) Rich Lasdin, MJ

This meeting was held to present to Amy the materials from the 10/14/20 biweekly meeting with DCR staff, to answer questions she may have, and discuss permitting options.

Jed showed the 3D visualization of the airport surfaces and tree obstructions. Amy asked what airport surfaces need to be clear of obstructions, and there was discussion of the various surfaces. She would like clear definitions of the various surfaces involved and the reasons they need to be kept clear.

The latest Runway 15-33 alternative with a displaced threshold on the 15 end and no extension on the 33 end was shown. It was noted that this would eliminate the need to remove trees off airport property in the State Forest, to the northwest. It would also reduce the functionality of the runway, but it might be reasonable because of the runway is relatively lightly used. It would have to be considered an interim measure until a full planning study is done of the optimum length of the runway and the pros and cons of different lengths. This would likely be studied during the next master plan update, several years hence.

From a rare species perspective, Amy says the biggest concern is habitat conversion. Conversion can benefit certain species; for example, converting forest to shrub habitat can benefit rare moths, and converting to grass can benefit rare plants. Nevertheless, wholesale habitat conversion, especially of naturally vegetated forest or shrub to grass, is not desirable.

The permitting process was discussed. There was a question whether the off-airport tree removal could be separately permitted, for example if DCR were the permittee for land they are responsible for clearing. The MESA segmentation provision would consider all of the tree removal to be related and have a common purpose, and therefore likely one project with one

PLANNING, ENGINEERING AND CONSTRUCTION ADMINISTRATION CONSULTANTS

approval. The approval could potentially be phased. Amy expects MEPA would see it the same way.

NHESP does review other agencies' projects, including its own.

NHESP would like to have the current MESA Conservation and Management Permit closed out and to permit the new CIP projects under a new permit. Nevertheless, projects needing a quicker approval could be permitted through an amendment to the existing permit.

Tree removal is probably the first FAA project, but the airport would like to advance two other projects – the business park lots and a hangar – as soon as possible. Amy thinks NHESP might consider advancing these with an amendment and addressing the other CIP projects later with a new permit. Regardless, the MEPA process would be concluded first, followed by permitting.

Jed noted that the tree removal might end up with a few different kinds of vegetation management areas:

- Areas where all tree and shrub vegetation is removed and the area becomes frequently mowed grassland.
- Areas where all trees are removed and the area is brush-cut regularly to allow shrub vegetation that supports rare species but that can be easily maintained.
- Areas where all trees are cut and it is managed for a native habitat such as scrub oak.

Amy thought that approach could be considered, depending on factors such as acreage, habitat sensitivity, and their analysis of rare species impacts.

There was discussion of what vegetation is allowed within the Runway Object Free Area. Richard Doucette will follow up and report back to the group.

Nate Rawding noted that FAA only pays for the initial cutting, then airports are responsible for managing the vegetation, so long-term management needs to be feasible in terms of cost, equipment, and capabilities.

The next step will be the field meeting on November 12.

Action Items

- MJ will provide graphics and definitions of the various runway approach surfaces.
- FAA will investigate the ROFA and RSA height requirements.



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MEETING NOTES

DATE: November 2, 2020 10:00AM

MJ Project No.: 18226.07

LOCATION: Skype and conference call

PROJECT: Martha's Vineyard Airport CIP Projects EA/EIR

ATTENDEES:

Nate Rawding, MassDOT Aeronautics	Rich Lasdin, MJ
Jed Merrow, McFarland Johnson (MJ)	Matthew O'Brien, MJ
Geoff Freeman, Martha's Vineyard Airport	Richard Doucette, FAA

Alex - Is the obstruction project review due in May 2021 as well? - Yes

FAA – Next steps \rightarrow Grant Application to issue for permitting.

• Can't change the \$\$ due to natural heritage permitting needs. Therefore need to know how much effort to complete the NHESP.

Alex – MEPA does not need 100% from NHESP to finish, in fact NHESP will not provide final determination in a MEPA review.

**Submit the DRAFT EA/EIR and also label it as a Notice of Project Change. Samantics really.

- Obstructions seem simple, have already completed good alternatives
- Seems that there is enough information
 - Thorough alts analysis.
 - Make sure the envelop is the largest option proposed. Creates challenges if you have to expand after MEPA review.
 - List the potential mitigation measures
 - NHESP does not commit during MEPA.
 - Demonstrate that it can be permitted

GHG Analysis

- Incorporate lost carbon due to trees
- Sequestration
- Soil disturbance

Dates for Environmental Monitor

- File by November 30th for December 9th publication
- File by December 13? (Maybe 15th? Didn't hear) for December 23rd
- File by December 31 for January 6th
- 30 Comment Period + 7 days

Alex – Who have you spoken with at DCR?

• Everyone, Jed provided a list, along with FAA's efforts, and Airport's Efforts PLANNING, ENGINEERING AND CONSTRUCTION ADMINISTRATION CONSULTANTS



United States Department of the Interior

FISH AND WILDLIFE SERVICE New England Ecological Services Field Office 70 Commercial Street, Suite 300 Concord, NH 03301-5094 Phone: (603) 223-2541 Fax: (603) 223-0104 <u>http://www.fws.gov/newengland</u>



In Reply Refer To: Consultation Code: 05E1NE00-2021-SLI-0426 Event Code: 05E1NE00-2021-E-01280 Project Name: MVY Capital Improvement Projects November 12, 2020

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/ eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/correntBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office

70 Commercial Street, Suite 300 Concord, NH 03301-5094 (603) 223-2541

Project Summary

Consultation Code:	05E1NE00-2021-SLI-0426
Event Code:	05E1NE00-2021-E-01280
Project Name:	MVY Capital Improvement Projects
Project Type:	TRANSPORTATION
Project Description:	The proposed project consists of multiple capital improvement projects and obstruction removal at Martha's Vineyard Airport. The majority of the projects are located on airport property, with a portion of the obstruction removal located off-airport. The proposed projects would result in approximately 48 acres of temporary and permanent impacts

Project Location:

Approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/place/41.39250977192375N70.61150964498265W</u>



Counties: Dukes, MA

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS	
Northern Long-eared Bat Myotis septentrionalis	Threatened	
No critical habitat has been designated for this species.		
Species profile: <u>https://ecos.fws.gov/ecp/species/9045</u>		

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.



United States Department of the Interior

FISH AND WILDLIFE SERVICE New England Ecological Services Field Office 70 Commercial Street, Suite 300 Concord, NH 03301-5094 Phone: (603) 223-2541 Fax: (603) 223-0104 http://www.fws.gov/newengland



In Reply Refer To: Consultation Code: 05E1NE00-2021-TA-0426 Event Code: 05E1NE00-2021-E-01298 Project Name: MVY Capital Improvement Projects November 13, 2020

Subject: Verification letter for the 'MVY Capital Improvement Projects' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear Jordan Tate:

The U.S. Fish and Wildlife Service (Service) received on November 13, 2020 your effects determination for the 'MVY Capital Improvement Projects' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"^[1] prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

MVY Capital Improvement Projects

2. Description

The following description was provided for the project 'MVY Capital Improvement Projects':

The proposed project consists of multiple capital improvement projects and obstruction removal at Martha's Vineyard Airport. The majority of the projects are located on airport property, with a portion of the obstruction removal located off-airport. The proposed projects would result in approximately 48 acres of temporary and permanent impacts, of which tree removal will account for approximately 31.90 acres.

Approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/</u> <u>maps/place/41.39250977192375N70.61150964498265W</u>



Determination Key Result

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

Qualification Interview

- 1. Is the action authorized, funded, or being carried out by a Federal agency? *Yes*
- Have you determined that the proposed action will have "no effect" on the northern longeared bat? (If you are unsure select "No")

No

- 3. Will your activity purposefully **Take** northern long-eared bats? *No*
- 4. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?

Automatically answered No

5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html.

Yes

6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

No

- 7. Will the action involve Tree Removal? Yes
- 8. Will the action only remove hazardous trees for the protection of human life or property? *No*
- 9. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year? No
- 10. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

31.9

2. If known, estimated acres of forest conversion from April 1 to October 31 ${\it 0}$

3. If known, estimated acres of forest conversion from June 1 to July 31 *0*

U

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31 *0*

6. If known, estimated acres of timber harvest from June 1 to July 31 *0*

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0

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Martha's Vineyard Airport

Capital Improvement Plan

Notice of Project Change / Draft Environmental Impact Statement / Environmental Assessment

APPENDIX G

Surface Transportation Study

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1. INTRODUCTION AND BACKGROUND

This Surface Transportation Study is to address various agency's comments regarding the 2018 Environmental Notification Form (ENF) and Environmental Assessment for Capital Improvement Program projects at the Martha's Vineyard Airport. This study will be used to augment the 2021 Notice of Project Change / Draft Environmental Impact Report / Environmental Assessment (EIR/EA) and address the ongoing MEPA and NEPA reviews.

The ENF outlined 10 projects from the Martha's Vineyard Airport Capital Improvement Plan. The projects included at that time were the following:

- Runway 6/24 Primary Surface Obstruction rehabilitation,
- Runway 15/33 rehabilitation,
- construct concrete fuel pad,
- expand and renovate the existing Terminal Building*,
- relocate Taxiway E,
- Pave Transient Turf Tie Down Area,
- Southeast Ramp expansion,
- Southwest Ramp expansion, and
- install new aircraft hangars.

*Terminal Improvement included Surface Parking and Access Road Improvements.

The ENF outlined various Transportation Sections pertaining to the Surface Transportation to Martha's Vineyard Airport on the Island. Traffic in the ENF was not to increase under the 10 projects outlined in the ENF per 301 CMR 11.03(6). The ENF outlined the increase of 549 parking spaces from 369 to 918 and an explanation that the increase of parking was to accommodate the existing shortages of parking at the Airport, not due to the 10 projects outlined in the ENF. The ENF proposed the addition of a turn lane exiting the airport. The intent of the unsignalized modification at the entrance to Airport Road was to address existing Level of Service challenges and existing queueing issues, not due to any additional trips to the Airport as a result of the 10 projects outlined in the ENF.

The intent of this report is to address the comments received on the transportation portion of the ENF. This report will review the various agency's comments and outline the scope of analysis fully investigating those concerns pertaining only to the surface transportation at Martha's Vineyard Airport.

1.1 ENF Martha's Vineyard Commission Comments

The Martha's Vineyard Commission's (MVC) overall evaluation of the ENF was that it effectively presented the various 10 projects proposed and how they would help the Airport meet FAA safety





requirements but did not clearly explain the need of expanding things like parking for planes and cars. The MVC pointed out the inconsistencies of the ENF stating the existing 1,300+ daily trips would not increase however the number of parking spaces would and by a significant amount.

The MVC noted the creation of 549 new parking spaces proposed in the ENF lacked transparency for such a large expansion of parking. The nearly tripling of the 369 existing parking spaces, as proposed in the ENF, would indicate a large change in transportation on the Island and to the Airport, without fully quantifying the need of that parking with parking counts or trip generation. A large change in transportation to the Airport should be consistent with surface transportation on the Island as outlined in the Martha's Vineyard Regional Transportation Plan 2020-2040 (MVRTP).

The right turn lane proposed in the ENF was found by the MVC to lack context, typically addressing a capacity issue the ENF didn't make a case on how the additional turn lane would reduce the queuing of vehicles existing on Airport Road. The analysis for an additional turn lane would require information on volume of vehicles exiting, turning movements out of the Airport, and speed of vehicles on Edgartown-West Tisbury Road. The MVC suggested the investigation of the following alternatives to address potential capacity issues:

- Connector Road A proposed new roadway between the terminal area and the business park through the southern approach zone for Runway 33.
- Roundabout A proposed roundabout at the intersection of Airport Road and Edgartown-West Tisbury Road.

The MVC outlined objectives for surface transportation on the Island in the MVRTP. The MVRTP notes that the Island is unique as its population sees roughly a 500% increase in the peak summer season with tourists to see some of the rich historic character of the Island. This unique situation poses a challenge to deal with the increase in population and road capacity while keeping the rich historic character of the Island. The Island. The MVC outlined goals like increasing multiple modes of travel (bus, taxi, bicycle, and foot), avoiding adding additional lanes to existing roads, keeping narrow travel lanes and shoulders to reduce impervious area, maintaining low speeds and accommodating bicyclists, and avoiding using traffic signals.

This study took place in 2019, with data collection occurring in the summer of 2019 and the subsequent data analysis in the fall of 2019. MassDOT Highway, MassDOT Aeronautics, and the MVC were coordinated with on the approach of data collection and project goals. MVC was coordinated with on the approach of analysis in October of 2019. This report is a product of that coordination.

1.2 ENF MassDOT Comments

MassDOT pointed out that the project exceeds the Massachusetts Environmental Policy Act (MEPA) threshold for parking (300 spaces) and would require a Vehicle Access Permit for





modification to the Airport Road and Edgartown-West Tisbury Road intersection. MassDOT recognized that the permit might not be needed as the ENF does not anticipate any additional trips and that the additional parking spaces proposed in the ENF might not be required.

MassDOT's opinion of the project was that even if there were additional vehicle trips from the projects it would likely not trigger a Transportation Impact Assessment (TIA). The Surface Transportation Analysis should provide the necessary backup for MassDOT to review and confirm that the project wouldn't need a TIA.

The surface transportation analysis, according to MassDOT, should conduct outreach to the Vineyard Transit Authority (VTA) regarding improving the transit services to the Airport. MassDOT recommended comparing the parking at the Airport to the ITE's Parking Generation (4th edition) and local zoning codes.

The VTA was coordinated with during data collection in July of 2019. This report is a product of that coordination.

1.3 ENF Energy and Environmental Affairs Comments

Energy and Environmental Affairs (EEA) echoed some of the same sentiments as other agencies on the proposed parking in the ENF. The construction of parking spaces should be compared to the Institute of Transportation Engineers' (ITE) Parking Generation and local zoning codes to prevent parking spaces to be constructed if they are not needed.

EEA emphasized that a comprehensive review of transit to the Airport would be necessary to minimize trips to the Airport by single-occupancy vehicles. Governor Baker's Executive Order 569: Establishing an Integrated Climate Change Strategy for the Commonwealth (EO 569; the Order) aims to combat climate change by implementing an integrated strategy for this effort. Minimizing Single-occupancy vehicle trips has been identified as a key part to lowering greenhouse gases in Massachusetts to meet the Global Warming Solutions Act of 2008.

EEA commented on the addition of a right-turn lane at the exit of Airport Road that, like the other agencies, the alternative lacked context. Additional information including the volume of existing vehicles, volume of vehicles turning left or right, speed of the vehicles traveling on Edgartown-West Tisbury Road, and interval between vehicles should be gathered. EEA proposed that a study investigate the effectiveness of a connector road between the terminal area and the business park and a roundabout at the intersection of Airport Road and Edgartown-West Tisbury Road.





2. SCOPE OF SURFACE TRANSPORTATION ANALYSIS

2.1 Parking

Parking was a common theme in the comments on the ENF. The ENF had limited information supporting the large expansion of parking. This report investigated the parking at the airport and investigated parking at some of the various park-and-rides on the Island as the various agencies noted an expansion of parking has larger impacts on transportation for the Island as a whole. The ITE's Parking Generation and local zoning laws were compared to the number of spaces today. Comment regarding field observations of parking were provided for understanding and context on effectiveness of parking at the Airport today.

2.2 Alternatives

The ENF identified one alternative, a proposed right turn lane, to address congestion at the Edgartown-West Tisbury Road and Airport Road intersection for vehicles exiting Airport Road. This traffic analysis was conducted to support the ENF alternative, and investigate an additional two other alternatives: a connector road from terminal area to the business park, and a roundabout option at the Edgartown-West Tisbury Road and Airport Road intersection.

This study reviewed the following intersections for the analysis;

- Intersection (101) Airport Road and Edgartown-West Tisbury Road
- Intersection (102) Barnes Road and Edgartown-West Tisbury Road

Intersection 101 was chosen as it directly pertains to the potential issue with congestion leaving Airport Road. Intersection 102 was chosen for supplementary information to the analysis at intersection 101, presumably vehicles traveling to the Airport from the east, will have to go through intersection 102 located roughly a half mile east on Edgartown-West Tisbury Road as shown in **Figure 1**.





Figure 1 – Site Locus Map



This surface transportation analysis used the regulating agency's recommendations to investigate, in addition to the right turn lane, a connector road alternative and a roundabout alternative. In an attempt to fully analyze the congestion at intersection 101 the study also investigated a left-turn only lane on Edgartown-West Tisbury Road. Alternatives for intersection 102 will mirror alternatives investigated at intersection 101 for reference. The analysis at intersection 102 is anticipated to better understand the traffic issues of the corridor and delineate between congestion due to the Airport and traffic as a result of daily commuting. The modeling software used for this analysis will be Sidra Intersection 7, Version 7.0.9.6902.





3. PARKING

3.1 Existing Conditions

Parking at Martha's Vineyard Airport is divided into various lots dedicated to certain parking needs as shown in <u>Figure 2</u>. Short term parking serves as parking for the restaurant. It should be noted that since the field visit the short-term parking lot has since been renovated to include revenue control. Long term parking is a staging area for car rentals and has a rental detailing operations area where they wash the rentals. The closest employee parking lot is comprised of reserved parking for operations and handicap parking. The further employee parking lot is where the majority of the employees park.

Figure 2 - 2018 Existing MVY Parking Facilities







The existing parking numbers are shown in **Table 1**.

Table 1 MVY Existing Parking Facilities

Parking Spaces	Parking Facilities
14	GA Corporate Pick-Up and Drop-Off
46	Employee Parking Lot
39	Short Term Lot & Restaurant Parking
234	Long Term Lot
333	TOTAL

This inventory of parking was done to establish a baseline of available parking at the Airport for parking analysis. The inventory identifies 333 available parking spots at the Airport, however the 2006 airport master plan indicated that there were an available 369 vehicle parking spots. One likely cause for this discrepancy is due to the 2016 redevelopment of the existing Aircraft Rescue and Fire Fighting (ARFF)/Snow Removal Equipment (SRE) building and site. Previously there were parking locations available for General Aviation pilots, however these locations were eliminated, and the site is now restricted to airport operations only. The airport is working with the pilots to facilitate a convenient solution to parking and are utilizing an existing gravel area within the airport fence.

3.2 Field Visit Observations

Airport Parking

The surface transportation field visit occurred on Thursday, July 25th, 2019, historically one of the busiest days at the Airport. Throughout the day, observations were made as Aircraft arrived to and departed from the Airport. Observations suggested that a large majority of those traveling to the Airport for a flight or from a flight would utilize ridesharing options such as Taxi, Uber, Lyft, and Public Transit.

The Short-Term Parking Lot was closed at the beginning of the day by a series of cones. The short-term parking lot opened mid-morning and was approximately at 50% capacity by noon. The short-term lot seemed to maintain approximately 25% capacity throughout the day and was observed to be the busiest during the lunch rush from the restaurant. The employee parking area had quite a bit of activity throughout the day and seemed to maintain an occupancy of 75%.

The long-term parking at the beginning of the day was 60% full. The first long-term parking lot to Airport Road was 90% full, 80% of the parking in this lot was comprised of reserved spots for the





rental companies or set aside as handicap. The second long-term parking lot from Airport Road had approximately 50% parking spots occupied. It was also observed that rental agencies use the gravel section next to the Airport (as identified in <u>Figure 2</u>) as holding for vehicles that have not been rented or added to the fleet.

The available capacity observed in the various parking lots provides an anecdotal snapshot into the relative demand of parking to the enplanements on the day of the field visit. A large majority of the long-term parking spots being reserved for rental vehicles only, the large majority of ride share options being utilized, and the observed available 40% capacity, suggest an adequate supply of parking for that day of enplanements.

Park-And-Ride Parking

The three park-and-rides on the Island include Chilimark, Edgartown, and Tisbury as shown in **Figure 3**. None of these park-and-rides offer direct bus routes (travel by bus without having to switch buses) to the Airport. These park-and-rides were investigated in the field visit to help gather more information of the parking conditions on the Island.



Figure 3 - Martha's Vineyard Park-And-Ride





The Tisbury Lot has a capacity of 420 vehicles and has long-and short-term parking. During the field visit at 10:30 am the observed approximate capacity of the long-term parking was at 50% and the short-term parking was at 90%. The short-term parking was observed to not require a parking permit, but the long-term parking required such permit. Observations indicated that many contractors were using the long-term parking to stage work trucks and vans on the Island, It is assumed that this practice allows mainland companies to save costs by not having to ferry across as many vehicles which could cost considerably more money than just a single passenger rate.

The Edgartown Lot has a capacity of 150 vehicles and is free to park, this Lot is largely empty off season and at capacity during the summer months, it was observed to have been at approximately 40% capacity after 5:00 pm during the field visit. The Edgartown Park-And-Ride is serviced by shuttle 5 months out of the year.

The Chilmark Park-And-Ride has a capacity of 70 vehicles and is serviced by the Menemsha Sunset Shuttle which provides access to the Menemsha Village and the Chilmark Community Center. The Chilmark Park-And-Ride operates as additional parking for the busy summer months. The Chilmark Park-And-Ride was not observed during the field visit due to it's relative size compared to the other two park-and-rides, time constraints and its geographical location. Of the three park-andrides, the Chilmark Park-And-Ride is located the furthest from the ferries, located in Oak Bluffs and Vineyard Haven, and furthest from the densely populated Edgartown.

The Tisbury and Edgartown Park-And-Rides are primarily for visitors, those lots are connected via bus routes with the ferries and the downtown centers. Although the Tisbury and Edgartown lots were observed to have additional capacity, both park-and-rides are observed serving specific purposes. The Tisbury Park-And-Ride is generally used for contractors to store equipment for long durations; or utilized for the free short-term parking with close proximity to the island ferries and a route frequently serviced by public transit. The Edgartown Park-And-Ride is in the densely populated area on the Island and provides parking for the various stores and restaurants downtown.

As an anecdotal discussion of the likelihood of improving bus services to utilize the existing Park-And-Rides we offer the following observations and statements. It was observed that human behavior traveling to the Island was categorized in two distinct groups: the affluent seasonal vacationers who prioritized travel convenience above financial burden; and those more financially constrained who would prioritize their finances over time spent traveling. Those who traveled to the Island by air typically appeared more affluent and either were picked up by taxi and rideshare or opted to drive themselves by renting a vehicle at the Airport to use during their stay. Those traveling to the Island by ferry typically appeared more financially constrained and less often traveling for leisure. It should be noted that those on the island who wish to take a flight must decide between the convenience of the Airport or longer time spent traveling to Boston for cost savings and airline options, prioritizing financial burden or time traveling.

Because of these observations, it is not likely that an island resident would travel across the island to a Park & Ride and transfer bus services to the airport, and that is a requirement for those who rent the vehicles to return them to the airport. Additionally, the observed Patrons of the Airport,





while presented with a choice of bus services chose an alternative means of travel, because as suspected they opted for travel convenience over budget. Therefore, expanding Park-And-Rides with Bus services would not improve the transit services to the Airport due to the preferences of Airport Patrons. This would indicate that off-site Park & Ride locations are not a viable option currently.

3.3 Methodology

Institute of Transportation Engineer's Parking Generation

Institute of Transportation Engineers' (ITE) Parking Generation 4th edition derives parking demand based on enplanements. The ITE Parking Generation does this by recording different sized airports and their observed enplanements with subsequent parking demands on a day-by-day basis. This record is then plotted with other airports to derive empirical equations to estimate the parking demand for any airport based on their enplanements. It should be noted however that many of the Airports used in the ITE Parking Generation are larger than MVY and may not represent the unique characteristics of MVY nor does the equation take into account the other municipal/business services and their demand.

ITE's Parking generation provides the following information aggregated in <u>Table 2</u> based on 2018 average enplanements to produce a demand of parking spaces. The various equation are broken down by average enplanements recorded for all of 2018 by weekday, Saturday, and Sunday. The equations are further broken down to estimate the 33rd percentile and 85th percentile of parking demand based on average enplanements. 2018 Enplanements and ITE Parking Generation calculations can be found in *Appendix D*.

Parking Spaces Demand	(ITE) Parking Generation 4 th Edition Airports
129	Weekday Parking Equation
160	Weekday Parking 85th
68	Weekday Parking 33rd
173	Saturday Parking Equation
382	Saturday Parking 85th
132	Saturday Parking 33rd
346	Sunday Parking 85th
140	Sunday Parking 33rd

Table 2 - ITE Parking Generation Airports





The ITE Parking Generation provides a large amount of data to help best put an Airport of interest in context to predict a parking demand most accurately. Due to the complexities found at MVY like seasonal variations, size, and volume there is not a one-size-fit-all equation for MVY. In the 5 months between April and September roughly 80% of the enplanements took place, demonstrating most of the passengers fly to the Island during the summer months. For MVY, using average enplanements as seen by the equations above in determining parking demand, is greatly skewed due to such seasonal activity. To help determine which equation would best fit the demand for parking at MVY by enplanements we looked to the observed parking capacity noted in the previous field visit section and the recorded enplanements for that day. On July 25, 2019 MVY recorded 710 enplanements with parking demand at approximately 60% of the long-term capacity, or 141 parking spots. When using the weekday 33rd percentile parking equation with 710 enplanements, we derive a demand of 185 parking spots for the day of the field observations which is relatively close to the parking demand observed. For a sensitivity calculation we looked at the peak day of enplanements and subsequent parking demand based on the same weekday 33rd percentile equation in 2018, which was 1,407 enplanements and demand of 366 parking spots. This sensitivity analysis for the peak day suggests that the parking demand at the Airport exceeds the capacity for parking during some points during the year. The results of the sensitivity analysis also support the historic knowledge of the Airport exceeding the parking supply at points during its busy season.

Parking Bylaws

Edgartown classifies most of Martha's Vineyard Airport as B-III Light Industrial and Service District (the B-III District) as shown in <u>Appendix N</u>. A triangle portion of Airport Property is classified as B-IV District in Edgartown, roughly the first 1,000 feet from the Edgartown/ West Tisbury Town Line on Airport Road. Both the B-III and B-IV zoning designations allow for parking and storage for aviation facilities and aviation related uses. The B-III classification does not stipulate a parking requirement for the Airport. West Tisbury designates the Airport as light industrial and assess parking by demand basis in the summer season. Based upon parking bylaws of the municipalities parking is a compatible land use.

3.4 Conclusion

Due to the nature of the Island and the observed demand for parking, the airport experiences seasonal peak parking demands that are likely to exceed the current parking available. Although it is likely that existing Park & Ride facilities may have capacity, they are not a realistic solution to this situation. Further, the MVRTP is guiding a reserved approach to addressing peak seasonal demands whereby accepting the congestion during the short timeframes in order to preserve the Island character. Because of the significant amount of rideshare and public transportation alternative practices currently being utilized to and from the airport, it is recommended that the airport continue to promote these uses, especially during peak timeframes and that the existing parking availability is sufficient. Since the airport is currently utilizing gravel lots during peak periods that is not included in the available parking counts, it may be acceptable to upgrade these





existing facilities to organize with paint markings to facilitate more efficient use of the current infrastructure without adding new parking.

4. SURFACE TRAFFIC ANALYSIS EXISTING CONDITIONS

4.1 Existing Conditions Site Information

Airport Road

Airport Road is a local road without any signage indicating the posted speed limit, it is a paved two-lane road with a center double-yellow solid pavement marking line and is approximately the border between the Town of Edgartown and West Tisbury. This road is a dead-end north/south road that connects at the approximate midpoint of Edgartown-West Tisbury Road. Airport Road is the only access to the Airport, various shops, a gym, a liquor store, restaurants, and various government buildings that are located either on Airport Road or on connecting roads to Airport Road.

Edgartown-West Tisbury Road

Edgartown-West Tisbury Road is a rural major collector with a 35-MPH speed posting prior to the intersection of Barnes Road and Airport Road. It was noted that Edgartown-West Tisbury Road has a posted speed of 45-MPH and has a reduction to 35-MPH on approach to the intersections of Barnes Road and Airport Road. Edgartown-West Tisbury Road is a Two-Lane Road with a center double-yellow solid pavement marking line separating the eastbound and westbound lanes and a single solid white lane line on the right in each direction with paved shoulders. Edgartown-West Tisbury Road is a primary east/ west road (approximately 8.5 miles in length) that connects the Town of Edgartown downtown to the Town of West Tisbury downtown. Edgartown-West Tisbury Road acts as the southern border to the Airport.

Barnes Road

Barnes Road is a Rural Minor Collector with a posted 45-MPH speed limit. Barnes Road is a twolane road with a center double-yellow pavement marking line separating the northbound and southbound lanes and a single solid white lane line on the right in each direction with paved shoulders. Barnes Road is a primary road north/ south road from the Vineyard Haven downtown (approximately 5.5 miles) to the Edgartown-West Tisbury Road midpoint. Barnes Road acts as the eastern border of the airport and is the primary access to the airport business park.




Intersection 101

The Airport Road and Edgartown-West Tisbury Road intersection is an unsignalized T-intersection with Airport Road as the north leg under stop control. Edgartown-West Tisbury Road is the east and west leg of the intersection and has a have a free east/ west movement through the intersection. Each leg of the T-intersection has one approach and one exit lane from the intersection. A shared use path running along Edgartown-West Tisbury Road crosses Airport at the Intersection.

Intersection 102

The Barnes Road and Edgartown-West Tisbury Road intersection is an unsignalized T-intersection with Barnes Road as the north leg under stop control. Barnes Road widens out to have two southbound lanes approaching the intersection and one northbound lane exiting the intersection. The two southbound lanes are designated left-turn and right-turn only with an available queue length of 250 feet for the right-turn only lane. Edgartown-West Tisbury Road is the east and west leg of the intersection and has a free east/ west movement through the intersection. Each leg of the T-intersection has one approach and one exit from the intersection with the exception of Barnes Road which has two approaches to the intersection as previously stated.

4.2 Field Visit Observations

Queueing and Traffic Congestion

Site visits to intersection 101 and 102 occurred on July 25th, 2019. Traffic counts were taken at both locations for a 12-hour period on the same day of the site visit as shown in <u>Appendix A</u> by Precision Data Industries, LLC, a subconsultant to McFarland Johnson, Inc. The field visit for this study has been used to calibrate the Traffic modeling software to more accurately model the traffic queueing and level of service of the intersection.

The focus of the study was to review the congestion issues at Airport Road since it was understood that there were existing queueing issues that the Airport has observed with vehicles trying to exit Airport Road at intersection 101. Airport Employees on site confirmed that the peak season queueing would frequently back up as far as the stop sign by the laundromat, suggesting a queueing length of up to 1,000 feet. The focus of the site visit was to observe the conditions of queueing at both intersection 101 and 102 at the morning, mid-day, and evening peak. The morning peak was understood to occur sometime between 7 AM and 10 AM, the mid-day peak to





occur sometime from 10 AM to 2 PM, and the evening peak to occur from 2 PM to 7 PM. Traffic conditions at both intersections appeared to mimic each other.

Throughout each of the peak times, observations were made with regard to the operations of both intersections. General observations of traffic volumes suggest the Barnes Road southbound to Edgartown-West Tisbury Road westbound carried slightly more vehicles in the morning and reversed in the evening. Presumably morning traffic would be coming from the ferries at Vineyard Haven and Oak Bluffs and then returning to the ferries by the end of the day.

It was the general observation that intersection 102 would backup with a queue routinely and gradually more so towards the peak hour but rarely would traffic backup to the point where the queue of one lane would block the other lane on Barnes Road. It was apparent that vehicles from Barnes Road had difficulties passing through the intersection given the amount of free east/ west movements on Edgartown-West Tisbury Road. Long wait times on Barnes Road appeared to stress drivers resulting in attempts to enter traffic with shorter gaps between vehicles on Edgartown-West Tisbury Road.

The general observations of the operations at both intersections were similar. Southbound traffic volumes at intersection 101 were far less than intersection 102 but experienced the same difficulties entering the intersection due to the large volume of vehicles on West-Tisbury Road. The primary differences between the two intersections pertained to their southbound movements, intersection 102 heavily favored the southbound right movement and intersection 101 heavily favored the southbound left movement. The general functionality at intersection 101 was observed to have extreme functional difficulties at the peaks, likely as a result of the traffic heavily favoring a left turn exiting Airport Road and having to yield to two lanes of traffic. The most notable peak hour queueing was observed beginning around 1:00 PM, measurements were taken periodically to determine a common or Average Queue Length, a prominent queue length observed (Design Queue Length), and the Longest Queue Length observed as shown in Table 3

Length (LF)	Intersection 101 Observed Queue Lengths
490	Average Queue Length
625	Design Queue Length
730	Longest Queue Length

Table 3 – Field Observation Queue Lengths at Intersection 101 During Mid-Day Peak``

During the mid-day peak, when queue lengths were recorded, traffic was observed to be its heaviest. This increased traffic was observed on Fire Road 53, at the County offices off Airport Road, and at the Airport. Fire Road 53 had a significant volume of traffic traveling to the liquor store and restaurant. Additionally, the Dukes County offices and laundromat appeared to generate a large portion of traffic. The Airport's traffic seemed to have originated when two regional jets with up to 175 scheduled seats arrived around the time of congestion. The queueing experienced at intersection 101, although significant and noteworthy, was not observed to be consistent





throughout the day. Intersection 101 operated adequately when traffic was low, however when large aircraft land the short surge of surface traffic largely comprised of rideshare would seem to overwhelm the intersection, these surges of traffic will be most noticeable when peak hour traffic from the Airport coincides with the Peak Traffic generated from the various shops off of Airport Road.

4.3 Traffic Analysis

Traffic Modeling Calibration

Traffic counts from PDI, as shown in <u>Appendix A</u>, were analyzed with Sidra, as shown in <u>Appendix</u> <u>B</u>, during the same peak hour that was observed from the field visit with the field measured queueing as shown in **Table 3**. The Sidra analysis software model uses a critical gap and the follow-up headway sensitivity to help better model site-specific driver behavior and traffic characteristics specific to intersection 101. Some of the site-specific information pertinent to intersection 101 would include how fast vehicles are traveling through the intersection on the free movements and how aggressive traffic is with exiting the Airport. The raw and un-adjusted traffic volumes experienced at the mid-day peak were modeled to produce queue lengths that were then compared to the field-measured queue lengths for that same time period. In calibrating the model the critical gap acceptance was increased by 8%. All alternatives and existing conditions utilize this same adjustment factor.

Crash Data Analysis

When conducting crash analysis MassDOT suggests collecting the crash records for all reported crashes on file within the last 5 years (3 minimum). Crash data for Edgartown and West Tisbury have been collected and sorted for the study corridor area as shown in <u>Appendix K</u>. While speaking with the Airport, it was brought to MJ's attention that there were anecdotal evidence of vehicles getting impatient in the queue and subsequently intentionally deviating from the travel way, through the adjacent turf area, and striking small lighting figures while exiting the Airport. Such vehicles would allegedly travel eastbound by taking a right westbound just to make a U-turn a street or two down the road. The analysis noted there were three instances of vehicles crashing making U-turns, as recorded in the MassDOT Crash Reports within the area of interest as shown in <u>Appendix K</u>. There were not enough instances of this to be statistically relevant. A summary of the findings are shown below in <u>Table 4</u>.





Year	Single Vehicle Crash	Multi Vehicle Crash	Town	Location
2014	1	1	Edgartown	Intersection 102 Corridor
2015	2	0	Edgartown	Intersection 102 Corridor
2016	4	4	Edgartown	Intersection 102 Corridor
2017	6	3	Edgartown	Intersection 102 Corridor
2018	1	2	Edgartown	Intersection 102 Corridor
2019	1	0	Edgartown	Intersection 102 Corridor
TOTAL	15	10		
2014	1	1	West Tisbury	Intersection 101 Corridor
2015	1	1	West Tisbury	Intersection 101 Corridor
2016	3	3	West Tisbury	Intersection 101 Corridor
2017	3	3	West Tisbury	Intersection 101 Corridor
2018	2	4	West Tisbury	Intersection 101 Corridor
2019	0	0	West Tisbury	Intersection 101 Corridor
TOTAL	10	12		

Table 4 - Crash Data Table Edgartown & West Tisbury

When looking through the crash data for intersections 101 and 102 the study was focused on looking at crashes with multiple cars involved. Intersections with more than 5 right angle crashes in a 12-month period would indicate that the intersection was not being navigated in a safe manner and could benefit with a signal or roundabout. In reviewing the crash report the majority of the single car crashes were a result of bad weather and either colliding with wildlife or apparently losing control and hitting a tree or utility pole while traveling straight. In reviewing the crash report on the multi vehicle crashes no one 12-month period stood out. A large portion of multi-vehicle crashes were rear end collisions.

Design Year

A 10-year design period was chosen to analyze the future conditions for the alternatives. MassDOT recommends that major transportation investments use 15 to 25 design year range and for less capital-intensive projects a 5 to 10 design year is generally used.

Seasonal Factors

Martha's Vineyard installed several continuous traffic counters around the island to better collect data on traffic on the Island. These counters would be great sources of information for MassDOT's





Monthly ADT Comparison Reports, however, because they had just become operational at the time of this study, the only available information at the time of this analysis was the MassDOT's Weekday Seasonal Factor Reports as shown in <u>Appendix G</u>. A seasonal adjustment of 0.83 was used on the raw traffic counts to reduce the traffic volumes by 17% as the summer months in Martha's Vineyard have significantly more traffic than the rest of the year.

Growth

Martha's Vineyard Regional Transportation Plan (MVRTP) 2020-2040 Section 3 investigates the population changes on the island. The MVRTP states, "In 2015 the University of Massachusetts Donahue Institute projected that the population in Dukes County would increase about 12% by 2035." This projection suggests a 0.64% growth rate per year, consistent with growth rates used in the industry. As shown in <u>Appendix I</u> over a 10-year period the island would see a 6.60% growth rate, for our study a 7% growth rate will be applied to future build and no-build alternatives.

Traffic Warrants

Although it is not the intention or the goal of this study to propose traffic lights on Martha's Vineyard, it is beneficial to fully understand the complexities of the problems at the intersections of interest to help the analysis and aid in determining the best solution for the residents of the island. This study produced calculations to determine if the intersections meet traffic warrants as a way to better understand which warrants the intersections might be experiencing difficulties. As shown in *Appendix E* both intersections meet signal warrants as shown in the **Table 5** below;

Warrant	Description	Int 101 Existing Raw	Int 101 Existing Seasonally Adj.	Int 102 Existing Raw	Int 102 Existing Seasonally Adj.
1	8-hour vehicular volume	YES	YES	YES	YES
2	4-hour vehicular volume	YES	YES	YES	YES
3	Peak Hour	YES	YES	YES	YES
4	Pedestrian Volume	NO	NO	NO	NO
5	School Crossing	N/A	N/A	N/A	N/A
6	Coordinated Traffic Signal System	N/A	N/A	N/A	N/A
7	Crash Experience	NO	NO	NO	NO
8	Roadway Network	N/A	N/A	N/A	N/A

Table 5 - Signal Warrants Analysis





Warrants 1, 2, and 3 are volume-based warrants, indicating that there are sufficient vehicles traveling through the intersections that, on a volume basis, would benefit from a signal. What these warrants are suggesting is that due to the magnitude of vehicles traveling through the intersection, those vehicles under stop control on Airport Road and Barnes Road, will experience difficulty navigating the intersection. Although no alternatives will have a signal, this signal warrant information will be helpful in demonstrating that improvements are warranted.

Speed

Speed was identified as a possible contributor to the congestion experienced at Airport Road. Recently continuous traffic counters have been installed on Martha's Vineyard and one is currently recording data between intersection 101 and intersection 102 within the project corridor. The speed study can be seen in <u>Appendix H</u>. Notably the roadway between the intersections is posted at 45 MPH and the reported 85th percentile, the industry standard in setting speed limits from speed studies, was found to be 44-45 MPH. On site speed was noted to be at or below the posted speed between the intersections. At the intersections of interest, vehicles constantly had to decelerate and accelerate on the major movements due to turning vehicles onto Airport Road and Barnes Road. It should be noted that the existing congestion did not serve as a traffic calming technique but rather a hindrance to the effectiveness of vehicles traveling along the free movements and a further complication to vehicles trying to exit the minor legs of the intersections.

Directional Traffic

When looking at the operations of an intersection, it is always important to investigate the directional traffic changes to determine if one movement is overwhelmingly predominant during certain times of the day. By analyzing this phenomenon, additional information can be used to determine the preferred alternative. <u>Appendix J</u> shows the directional breakdown of each movement.

At intersection 101, as expected with a dead-end road, the northbound and southbound traffic is equally split 50/50, however it was obvious that more vehicles entered Airport Road in the morning and more exited Airport Road in the evening. Every vehicle that enters Airport Road must exit Airport Road. Edgartown-West Tisbury Road shows a roughly even split fluctuating up to 5% either direction changing by the hour.

At intersection 102, it appears that traffic traveling westbound was a favored movement through the intersection, but no more than 5%. Southbound was the favored movement through the intersection, consistently more than the northbound movement but not more than 9%, however after 5 PM the directional travel favored the northbound direction.





The analysis can deduce that the directional traffic through these intersections are not prominent enough to warrant additional discussion. However, it is notable that the volume of the northbound and southbound movement at intersection 102 is more than double the volumes experienced at intersection 101. The main differences in these two intersections, important for comparisons between functionality of alternatives at both locations, is that intersection 102 is a major travelway on the Island and intersection 101 is just the entrance to the facilities off Airport Road.

5. PROPOSED ALTERNATIVES

5.1 Capacity Analysis

Capacity Analysis Methodology

Capacity analysis is used to assign levels of service to traffic facilities under various traffic conditions. The capacity analysis methodology is based on the concepts and procedures outlined in the Highway Capacity Manual (HCM)¹.

Intersection Capacity – Unsignalized Intersections

Level of Service (LOS) is a term used to characterize the operational conditions of a traffic facility and their perception by motorist and/or passengers at a point in time. Numerous factors contribute to a facility's LOS index including travel delay, speed, congestion, driver discomfort, convenience, and safety based on a comparison of the facility's capacity to the facility's demand. The alphabetic designations A through F define the six levels of service. LOS A represents very good traffic operating conditions with minimal delays while LOS F depicts poor traffic operating conditions with excessive delays and queues that are unacceptable to most motorists.

Operating levels of service are calculated using the procedures defined in the HCM. The operating LOS of two-way stop-controlled (TWSC), all-way stop-controlled (AWSC) and circular intersections is the computed or measured control delay. The intersection delay is based upon the quality of service for the vehicles turning into and out of minor approaches, i.e.; approaches that are stop controlled. The availability of sufficient gaps in the traffic stream on the major street controls the capacity for movements to and from the minor approaches, thus resulting in delay for the minor

¹ Highway Capacity Manual 6th Edition, Transportation Research Board, Washington DC 2016.





approaches. The criteria, i.e., the delays associated with corresponding levels of service for TWSC and AWSC intersections, as specified by the HCM and are shown below.

Unsignalized Intersection Level of Service Criteria				
Level of Service	Control Delay (sec/veh) TWSC and AWSC Intersections			
А	< 10			
В	> 10 and < 15			
С	> 15 and < 25			
D	> 25 and < 35			
E	> 35 and < 50			
F	> 50			

5.2 Alternatives

The intent of the alternative analysis is to investigate the operations of the entrance to Airport Road and fully understand the difficulties traffic has accessing the facilities of the Airport and the various shops and stores that are serviced through Airport Road. This review of Intersection 101 will analyze various alternatives suggested by various agencies from the ENF review and to propose additional alternatives that could further improve those conditions. Thereafter designating a recommended alternative that can both address the functionality of the intersection while meeting the goals set forth in the MVRTP. The analysis of intersection 102 will also model similar alternatives to help differentiate between difficulties of the intersections due to traffic on the island and difficulties of the intersection due to the specifics of Airport Road. For consistency all the alternatives below were analyzed using Sidra Intersection 7. A critical gap and the followup headway sensitivity factor of 108% was used to replicate the existing conditions as noted previously.

This iterative process, which resulted in the alternatives discussed below, included the additional right turn lane proposed within the ENF, the suggested connector road from the terminal area to the business park, and the suggested roundabout at intersection 101. Additionally, left only turn lanes were investigated on Edgartown-West Tisbury Road as it was observed that left turning eastbound vehicles impact the queue backup on Edgartown-West Tisbury Road due to the heavy traffic volumes that the road experiences. As stated before, the alternatives will be mirrored at intersection 101 to intersection 102 and the alternatives are as follows;





- 1. Alternative A Right Turn Only Lane (At Airport Road)
- 2. Alternative B Roundabout at Airport Road
- 3. Alternative C Connector Road
- 4. Alternative D Left Turn Lane at Airport Road
- 5. Alternative E Left Turn Lane at Barnes Road
- 6. Alternative F Roundabout at Barnes Road

As stated in the MVRTP report, Martha's Vineyard has set out goals that new transportation infrastructure will need to follow in order to meet the needs of the community that the infrastructure is intended to serve. Goals such as an emphasis on multi-modal means of transportation, energy efficient solutions to decrease greenhouse gases, increased safety through traffic calming techniques, and maintaining the island's historic character and rural beauty will be important in selecting a preferred alternative.

Each proposed alternative was compared against the traffic operations of a no-build scenario in the design year of 2029 which represents future traffic volumes in the existing conditions. For the purposes of this report, alternatives showing an improvement in traffic operations in the design year can be assumed to also improve operations in years prior to the design year. The existing conditions have free movement for the mainline, Edgartown–West Tisbury Road, and stop control with the side roads, Airport Road and Barnes Road. In the following alternatives where intersection controls are implemented for the currently unimpeded movements, the change in LOS and queue will be quite apparent. Finding balance between the impacts to the mainline movements and the two sideroad movements will be integral in determining a recommended alternative. See *Appendix C* for all traffic modeling.

No-Build Alternative

To establish a baseline for comparison, a no-build scenario using the existing conditions was modeled in the 2029 design year. The traffic counts from July 25, 2019 were seasonally adjusted as mentioned above to attain volumes for 2029. The subsequent analysis corroborated the field observations of the delays and queues to be unacceptable in the present year and to worsen with projected growth. <u>Table 6</u> & <u>Table 7</u> below compare the queue lengths and LOS in 2019 and 2029 for the intersections of Edgartown–West Tisbury Road with Airport Road and Barnes Road respectively.





Airport Road	2019 DES. SEAS./MO <u>LOS</u>	2019 DES. SEAS./MO <u>QUEUE</u>	2029 NO BUILD <u>LOS</u>	2029 NO BUILD <u>QUEUE</u>
AM PEAK				
AIRPORT RD SB LT	F	303	F	499.2
AIRPORT RD SB RT	F	303	F	499.2
EDGE. W. TIS. EB LT	А	24.5	А	31
EDGE. W. TIS. EB TH	А	24.5	А	31
EDGE. W. TIS. WB RT	А	0	А	0
EDGE. W. TIS. WB TH	А	0	А	0
MID PEAK				
AIRPORT RD SB LT	D	168.6	F	291.6
AIRPORT RD SB RT	С	168.6	F	291.6
EDGE. W. TIS. EB LT	А	27.8	Α	36.4
EDGE. W. TIS. EB TH	А	27.8	А	36.4
EDGE. W. TIS. WB RT	А	0	А	0
EDGE. W. TIS. WB TH	А	0	А	0
PM PEAK				
AIRPORT RD SB LT	E	136.9	F	186
AIRPORT RD SB RT	D	136.9	E	186
EDGE. W. TIS. EB LT	А	35.4	Α	45.1
EDGE. W. TIS. EB TH	А	35.4	Α	45.1
EDGE. W. TIS. WB RT	А	0	Α	0
EDGE. W. TIS. WB TH	А	0	Α	0

Table 6: No-Build Alternative Results – Airport Road

The advantage of this alternative is the cost. With no intersection improvements planned, capacity at the intersections will not increase and the volume of vehicles will overwhelm existing conditions ability to operate adequately.





		2019 DES.	2019 DES.	2029 NO	2029 NO
Barne	s Road	SEAS./MO	SEAS./MO	BUILD	BUILD
		LOS	QUEUE	LOS	QUEUE
	AM PEAK				
BA	RNES RD SB LT	E	167.7	F	241.9
BA	RNES RD SB RT	В	96.6	В	130.1
EDG	E. W. TIS. EB LT	Α	80.9	А	109.6
EDGE	. W. TIS. EB TH	Α	80.9	А	109.6
EDGE.	W. TIS. WB RT	Α	0	А	0
EDGE.	W. TIS. WB TH	А	0	А	0
	MID PEAK				
BA	RNES RD SB LT	E	165.8	F	238.2
BA	RNES RD SB RT	В	95.3	В	127
EDG	E. W. TIS. EB LT	Α	91.3	А	121.4
EDGE	. W. TIS. EB TH	Α	91.3	А	121.4
EDGE.	W. TIS. WB RT	Α	0	А	0
EDGE.	W. TIS. WB TH	А	0	Α	0
	PM PEAK				
BA	RNES RD SB LT	F	185.2	F	300.1
BA	RNES RD SB RT	В	44.5	В	64.0
EDG	E. W. TIS. EB LT	А	150.5	А	183.4
EDGE	. W. TIS. EB TH	А	150.5	А	183.4
EDGE.	W. TIS. WB RT	Α	0	А	0
EDGE.	W. TIS. WB TH	А	0	А	0

Table 7: No-Build Alternative Results –Barnes Road

It should be noted that field observations found the mid-day peak larger than the AM peak and the 2019 seasonally adjusted baseline modeling in <u>Table 6</u> found the AM peak to be larger than the PM peak, an acceptable discrepancy due to Peak Hour Factor.

The results shown in <u>Table 6</u> support the historic knowledge of the challenges vehicles face exiting Airport Road. Even with the seasonally reduced volumes, the LOS is an F in the AM with three hundred feet of queuing. This poor condition and unacceptable delays are seen in all three peaks for the No-Build baseline.

Alternative A: Southbound Right Turn Lane - Airport Road

As originally proposed in the ENF, the addition of a 300-foot exclusive right turn lane for the traffic exiting Airport Road is the first alternative analyzed. Traffic volumes in the AM, MID, & PM peak hours traveling on Edgartown–West Tisbury Road preclude traffic exiting Airport Road from turning left without significant delays and queueing. To decrease the queue lengths on Airport Road without detrimental impacts to mainline traffic operations, a right turn only lane was modeled. The additional capacity of the intersection allows right-turning traffic the opportunity to





bypass the left-turning traffic queue. <u>Table 8</u> below shows notable improvements in queueing compared to the no-build scenario, however the resulting LOS remains poor.

The main advantages of this alternative are the negligible impacts and relative low cost. While the queue length reduction of 50-60% is of note, that delay in the AM Peak hour is well over 1 minute. This is in part due to the fact this alternative does not address the difficulties left turning traffic faces trying to exit Airport Road on to Edgartown–West Tisbury Road, a road that has been identified as meeting signal warrants due to the volume of traffic it serves freely through the intersection on the major movement. *Appendix L* Figure C-01 shows the approximate area of disturbance to be 0.51 acres of non-priority habitat while *Appendix M* shows the cost is estimated at \$380,000 for Alternative A.

2029 ALT A - RT TURN LANE AIRPORT RD	2029 NO BUILD <u>LOS</u>	2029 NO BUILD QUEUE	2029 ALT A RT TURN LANE <u>LOS</u>	2029 ALT A RT TURN LANE <u>QUEUE</u>
AM PEAK	2			
AIRPORT RD SB LT	F	499.2	F	245.8
AIRPORT RD SB RT	F	499.2	В	14.7
EDGE. W. TIS. EB LT	A	31	А	31
EDGE. W. TIS. EB TH	A I	31	А	31
EDGE. W. TIS. WB RT	A	0	А	0
EDGE. W. TIS. WB TH	I A	0	А	0
MID PEAK	(
AIRPORT RD SB LT	F	291.6	E	123.2
AIRPORT RD SB RT	F	291.6	В	18.8
EDGE. W. TIS. EB LT	A	36.4	А	36.4
EDGE. W. TIS. EB TH	I A	36.4	А	36.4
EDGE, W. TIS, WB R	A	0	А	0
EDGE. W. TIS. WB TH	I A	0	А	0
PM PEAK	(
AIRPORT RD SB LT	F	186	E	97
AIRPORT RD SB RT	E	186	В	14.4
EDGE. W. TIS. EB LT	A	45.1	А	45.1
EDGE. W. TIS. EB TH	A	45.1	А	45.1
EDGE, W. TIS, WB R	A	0	А	0
EDGE. W. TIS. WB TH	A	0	А	0

Table 8: Alternative A Results

The disadvantages of this alternative are the LOS and increased crossing distance for pedestrians/cyclists on the shared use path. The AM Peak hour delay at 85.7 seconds is firmly in the LOS F category (>50 sec for an unsignalized intersection). Additionally this alternative is not in line with the MVRTP measures to help protect and enhance the Island's scenic roads; the addition of lanes to existing roads is specifically identified as not an effective solution to the increased functionality and safety of transportation on the Island. However, this approach mimics a recent improvement implemented at the intersection of Barnes Road and Edgartown-West Tisbury Road





which has obtained positive feedback from island residents. Throughout this report, we have identified that these intersections behave similarly, and if it has been identified as appropriate and effective on Barnes Road, it is likely to prove the same at Airport Road, as the data suggests.

Alternative B: Roundabout - Airport Road

Following the development of the right turn only lane was the implementation of a single lane roundabout at Airport Road, as suggested by the MVC. The HCM analysis of signal warrants as mentioned earlier showed that this intersection does warrant a traffic signal or roundabout to improve traffic operations. The moderate volume of eastbound traffic turning left onto Airport Road was modeled to create sufficient gaps for the Airport Road southbound traffic to benefit from a roundabout configuration. <u>Table 9</u> below shows the queue lengths and LOS associated with this alternative. Changing from a three-legged intersection with a stop-controlled minor approach and a free-flowing major approach mainline to a roundabout will introduce delays and queueing to the mainline, Edgartown–West Tisbury Road.

The advantage of this alternative is considerable traffic operations improvements for Airport Road. Delay in the AM Peak hour drops by over 1 minute and queue length on Airport Road decreases from nearly 500 feet in the no-build to approximately 60 feet. The roundabout alternative at intersection 101 has a significant advantage as it is an alternative that is more in line with the MVRTP for several reasons:

- 1. The traffic calming characteristics of roundabouts have been shown on the Island to reduce the speed from 45 MPH to 15 MPH by the Martha's Vineyard Regional High School and has been listed as a goal for the MVRTP as a solution to improve road safety and congestion.
- 2. This alternative can also implement grassed areas streetscapes, reinforcing the distinct character of the Island, to medians and center circular island in the roundabout which would reduce the amount of impervious area introduced under this alternative.
- 3. This alternative maintains an equivalent level of pedestrian accommodations on Airport Road.





2029 ALT - B RO AIRPORT	OUNDABOUT T ROAD	2029 NO BUILD <u>LOS</u>	2029 NO BUILD <u>QUEUE</u>	2029 ALT B ROUNDABOUT <u>LOS</u>	2029 ALT B ROUNDABOUT <u>QUEUE</u>
	AM PEAK				
AIRE	PORT RD SB LT	F	499.2	В	59.1
AIRP	ORT RD SB RT	F	499.2	В	59.1
EDGE	. W. TIS. EB LT	А	31	В	130.8
EDGE.	W. TIS. EB TH	А	31	В	130.8
EDGE.	W. TIS. WB RT	А	0	В	101.6
EDGE.	W. TIS. WB TH	А	0	В	101.6
	MID PEAK				
AIRF	PORT RD SB LT	F	291.6	В	47.2
AIRP	ORT RD SB RT	F	291.6	В	47.2
EDGE	. W. TIS. EB LT	А	36.4	В	95.6
EDGE.	W. TIS. EB TH	А	36.4	В	95.6
EDGE.	W. TIS. WB RT	А	0	В	84.4
EDGE.	W. TIS. WB TH	А	0	В	84.4
	PM PEAK				
AIRF	PORT RD SB LT	F	186	А	33.7
AIRP	ORT RD SB RT	E	186	А	33.7
EDGE	. W. TIS. EB LT	А	45.1	В	109.2
EDGE.	W. TIS. EB TH	А	45.1	В	109.2
EDGE.	W. TIS. WB RT	А	0	В	82.5
EDGE.	W. TIS. WB TH	А	0	В	82.5

Table 9: Alternative B Results

The disadvantages of this alternative are the introduction of queueing and delay to Edgartown-West Tisbury Road, the limited impacts to the habitats, and the project estimated costs. The LOS and queue lengths are considered good within industry standards; however, westbound movements will incur queueing and delay where none previously existed. Eastbound movements will see increased queueing and decreased LOS.

As mentioned previously, Intersection 101 is comprised of a major travel-way, with a functional classification as a rural major collector, and a minor travel-way with a functional classification of a local road. This difference in classification is evident in the traffic that each road saw in the 12-hour window of traffic counts shown in <u>Appendix A:</u> 10,462 vehicles approached the intersection from Edgartown-West Tisbury Road and 2,104 vehicles approached the intersection from Airport Road. Edgartown-West Tisbury Road saw almost five times the volume of vehicle traffic that Airport Road saw because it provides an essential east/west commute from Edgartown to West Tisbury on the Island. Where Airport Road is an entrance way to the Airport and various businesses off Airport Road. This queuing and delays caused by this "improvement" may be perceived as impacting higher functioning classification of road and users to help a lower volume of road, and users.





The proposed roundabout would impact an approximate 1.66 acres of non-priority habitat and approximately 0.20 acres of priority habitat. See <u>Appendix L Figure C-02</u> for alternative B. <u>Appendix</u> <u>M</u> shows the cost is estimated at \$1,720,000 . Due to the magnitude of cost, the question of funding strategy requires further exploration. This project would not qualify for eligibility under FAA Airport Improvement Program (AIP) entitlement funding due to the multiple businesses benefiting from the airport access road. Therefore, other federal programs would require exploration, along with state programs such as the MassDOT Airport Safety and Maintenance Program (ASMP), however these sources do not typically offer the magnitude of funding required to support this project as it is currently estimated. This implies a funding gap in the feasibility of this alternative.

Although this option may provide an engineered solution, in a fiscally constrained environment, this alternative is not preferred due to the cost, the habitat impacts, and the political perception.

Alternative C: Connector Road

This alternative stems from the significant number of vehicles turning left out of Airport Road and subsequently turning left onto Barnes Road. This volume of left-left turning traffic is the focus of this alternative. This volume would be diverted away from Edgartown-West Tisbury Road via extending Fire Road #53 by a connector road to the existing West Line Road west of Barnes Road as shown in <u>Appendix L Figure C-03</u>. For modeling purposes, the analysis was focused on whether or not the problems at Airport Road would be moved to Barnes Road under this alternative. To investigate this alternative effectively, it was modeled as if the connector road directly intersected Barnes Road as shown in <u>Figure 4</u>. By redirecting the left-left volume away from intersection 101 and 102 there is an anticipated increase in LOS with a decrease in modeled delay queue length from the No Build condition. The resulting improvements to intersections 101 and 102 can be found in <u>Table 10</u> and <u>Table 11</u> below.





Figure 4 - Alternative C Traffic Modeling Diagram

NETWORK LAYOUT + Network: 2029 PM [Seasonally Adjusted 2029 PM Peak] Proposed Connector ٩N 103 F STOP 101 TOF 102 -1--SITES IN NETWORK Site ID CCG ID Site Name Intersection Airport Rd Edgartown W. Tisbury Rd - PM @101 NA **©**103 NA Intersection Connector Rd Airport Rd - PM **1**04 NA Intersection Connector Rd Barnes Rd - PM NA Intersection Barnes Rd Edgartown W. Tisbury Rd - PM 102

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2029 ALT C - A CONNECT	IRPORT ROAD FOR ROAD	2029 NO BUILD <u>LOS</u>	2029 NO BUILD QUEUE	2029 ALT C AIRPORT ROAD <u>LOS</u>	2029 ALT C AIRPORT ROAD <u>QUEUE</u>
	AM PEAK				
AIR	PORT RD SB LT	F	499.2	E	108.2
AIR	PORT RD SB RT	F	499.2	D	108.2
EDG	E. W. TIS. EB LT	А	31	А	31.0
EDGE	. W. TIS. EB TH	А	31	А	31.0
EDGE.	W. TIS. WB RT	А	0	А	0.0
EDGE.	W. TIS. WB TH	А	0	А	0.0
	MID PEAK				
AIR	PORT RD SB LT	F	291.6	D	74.9
AIR	PORT RD SB RT	F	291.6	С	74.9
EDG	E. W. TIS. EB LT	Α	36.4	А	36.4
EDGE	. W. TIS. EB TH	А	36.4	А	36.4
EDGE.	W. TIS. WB RT	Α	0	А	0.0
EDGE.	W. TIS. WB TH	А	0	А	0.0
	PM PEAK				
AIR	PORT RD SB LT	F	186	D	62.3
AIR	PORT RD SB RT	E	186	С	62.3
EDG	E. W. TIS. EB LT	А	45.1	А	45.1
EDGE	. W. TIS. EB TH	А	45.1	А	45.1
EDGE.	W. TIS. WB RT	Α	0	А	0.0
EDGE.	W. TIS. WB TH	Α	0	А	0.0

Table 10: Alternative C – Airport Road Results





2029 ALT C - BARNES ROAD CONNECTOR ROAD	2029 NO BUILD <u>LOS</u>	2029 NO BUILD <u>QUEUE</u>	2029 ALT C BARNES ROAD <u>LOS</u>	2029 ALT C BARNES ROAD QUEUE
AM PEAK				
BARNES RD SB LT	F	241.9	F	195.1
BARNES RD SB RT	В	130.1	В	130.1
EDGE. W. TIS. EB LT	А	109.6	А	61
EDGE. W. TIS. EB TH	А	109.6	А	61
EDGE. W. TIS. WB RT	А	0	Α	0.0
EDGE. W. TIS. WB TH	А	0	А	0.0
MID PEAK				
BARNES RD SB LT	F	238.2	E	165.2
BARNES RD SB RT	В	127	В	127.0
EDGE. W. TIS. EB LT	А	121.4	А	42.7
EDGE. W. TIS. EB TH	А	121.4	А	42.7
EDGE. W. TIS. WB RT	А	0	Α	0.0
EDGE. W. TIS. WB TH	А	0	А	0.0
PM PEAK				
BARNES RD SB LT	F	268.1	F	218.4
BARNES RD SB RT	В	136.1	В	64.0
EDGE. W. TIS. EB LT	А	128.5	Α	116.0
EDGE. W. TIS. EB TH	А	128.5	А	116.0
EDGE. W. TIS. WB RT	Α	0	Α	0.0
EDGE. W. TIS. WB TH	Α	0	Α	0.0

Table 11: Alternative C – Barnes Road Results

<u>Table 10</u> and <u>Table 11</u> show a slight improvement in the LOS from the No-Build comparison, however this improvement is not considered significant by industry standards due to still operating at LOS F at some points during the day.

The study then looked to the left-left volume and whether those vehicles would have less of a delay at Intersection 104 from <u>Figure 4</u> than their current delays experienced at Intersections 101 and 102. The model did not consider existing traffic volumes from West Line Road, instead considering them to be outside the scope of the analysis of the study and relatively small. The analysis also did not consider the volume of vehicles turning right off Barnes Road and subsequently turning right onto Airport Road This was done in part because the Right-Right movement is not opposed by significant volumes of traffic and would therefore not be subjected to long queues or delays. The impacts of these unknowns on the Left-Left movement were not analyzed as it is not anticipated to vary significantly due to the nature of the traffic movements, however it should be viewed with caution and may require further investigation. The modeling results can be found in <u>Table 12</u>.





	2029 ALT C	2029 ALT C	2029 ALT C
2029 ALT C - BARNES ROAD	CONNECTOR	CONNECTOR	CONNECTOR
CONNECTOR ROAD	ROAD	ROAD	ROAD
	LOS	QUEUE	DELAY
AM PEA	<u>(</u>		
BARNES RD SB R	A	0.0	0
BARNES RD SB TH	I A	0.0	0
CONNECTOR RD EB L	D	51.8	30
CONNECTOR RD EB R	С	51.8	23.5
BARNES RD NB L	A	0.4	5.5
BARNES RD NB TH	I A	0.0	1.4
MID PEAI	<u>c</u>		
BARNES RD SB R	A I	0.0	0.0
BARNES RD SB TH	I A	.0.	0.0
CONNECTOR RD EB L	D	47.3	26.7
CONNECTOR RD EB R	С	47.3	21.2
BARNES RD NB L	A	0.4	5.3
BARNES RD NB TH	I A	0.4	1.3
PM PEA	<u>(</u>		
BARNES RD SB R	A I	0.0	0.0
BARNES RD SB TH	A I	0.0	0.0
CONNECTOR RD EB L	r D	39.4	30.8
CONNECTOR RD EB R	С	39.4	21.2
BARNES RD NB L	A	0.4	6.0
BARNES RD NB TH	I A	0.4	2.2

Table 12: Proposed Connector at Barnes Road Results

The results shown in <u>Table 12</u> are not shown compared to an existing condition as they represent a new connection with no current operations, as a result, the delays are noted to show the relative effectiveness of the anticipated traffic operations. These results show an acceptable LOS D with a delay that is less than the delays experienced in the No-Build Alternative for the left-left movement as they would have to wait through the delays experienced at both Intersection 101 and 102. It should be cautioned however that the volumes being modeled for the left-left movement are relatively low, without additional information on the existing volumes already present from West Line Road it can not be certain if these delays will stay as the model predicts.

The advantages of this alternative are increased access between Airport Road and Barnes Road and the lack of impacts to Edgartown-West Tisbury Road. Upgrading the gravel wheel path and connecting Fire Road #53 to West Line Road would allow construction to commence without detours or lane closures on the mainline. Pedestrian facilities are also not impacted by this alternative.

The disadvantages of this alternative are the lack of improvements for Intersections 101 and 102; the impacts to the adjacent habitat; and potential land use constraints on FAA obligated land.





Depending on how traffic functions, this added connectivity could lead to the connector being used as a cut-through for traffic intending to turn right at Barnes Road to avoid the long queues from the left turning traffic at Barnes Road and instead turning right at Airport Road. This increase in traffic turning left at the intersection of Fire Road #53 and Airport Road could be detrimental to the overall traffic operations of the intersection. A further analysis of the network with traffic counts at West Line Road and Barnes Road would need to be taken to better understand the traffic patterns.

This alterative would impact the most habitat with approximately 1.63 acres of priority habitat and 2.44 acres of non-priority habitat disturbed as shown in <u>Appendix L Figure C-03</u>.

The Martha's Vineyard Airport is bound by both deeded restriction and FAA grant assurances that mandate the use of the airport land be obligated to aviation activity. There is a process, however, to request a release for such obligations if the Sponsor can demonstrate that the land has no aeronautical use, and the release will benefit the airport. Although there is no current proposal, the 2021 EIR/EA explored the shift of Runway 15/33 along its current alignment to avoid cutting vegetation in the state forest. It was determined that further analysis was required and that the next Master Plan should determine the long-term configuration of the cross-wind runway. Because of this uncertainty, it is reasonably foreseeable that the land be preserved for the use of aviation, either for protection of the aircraft approach, or the land use safety parameters.

<u>Appendix M</u> shows the cost is estimated at \$2,820,000 for Alternative C which makes it the most expensive alternative and financially unfeasible.

Alternative D: Eastbound Left Turn Lane – Airport Road

This alternative examines whether an eastbound left turn lane (LTL) on Edgartown-West Tisbury Road is warranted at Airport Road. A warrant analysis based on the 2006 Massachusetts Highway Design Manual was performed. The analysis can be found in <u>Appendix F</u> the results of which show that the percent of eastbound traffic turning left at Airport Road when compared to the volume of opposing westbound traffic warrants the addition of a left turn lane.





2029 ALT D - LTL EDGARTOWN W. TISBURY ROAD	2029 NO BUILD <u>LOS</u>	2029 NO BUILD QUEUE	2029 ALT D EB LTL <u>LOS</u>	2029 ALT D EB LTL <u>QUEUE</u>
AM PEAK				
AIRPORT RD SB LT	F	499.2	F	577.5
AIRPORT RD SB RT	F	499.2	F	577.5
EDGE. W. TIS. EB LT	А	31	А	7.9
EDGE. W. TIS. EB TH	А	31	А	0
EDGE. W. TIS. WB RT	А	0	А	0
EDGE. W. TIS. WB TH	А	0	А	0
MID PEAK				
AIRPORT RD SB LT	F	291.6	F	333.3
AIRPORT RD SB RT	F	291.6	F	333.3
EDGE. W. TIS. EB LT	А	36.4	А	9.8
EDGE. W. TIS. EB TH	А	36.4	А	0
EDGE. W. TIS. WB RT	А	0	А	0
EDGE. W. TIS. WB TH	А	0	А	0
PM PEAK				
AIRPORT RD SB LT	F	186	F	211
AIRPORT RD SB RT	E	186	F	211
EDGE. W. TIS. EB LT	Α	45.1	А	10.1
EDGE. W. TIS. EB TH	А	45.1	А	0
EDGE. W. TIS. WB RT	А	0	А	0
EDGE. W. TIS. WB TH	А	0	А	0

Table 13: Alternative D Results

This additional 100' lane allows for the through movement to continue unencumbered by left turning traffic. While this alternative will improve the movements of Edgartown-West Tisbury Road, <u>Table 13</u> shows the negative impact on the queues and LOS for Airport Road.

The advantage of this alternative is to improve the eastbound mainline movements. Alternative D is also relatively cost effective at an estimated \$560,000, as can be seen in <u>Appendix M</u>. While it may be warranted by traffic volumes, the benefits may not overcome the disadvantages. It should be noted that the MassDOT guidance on left turning lanes is considerably flexible, the criteria being predicated on engineering judgement rather than a simple warrant.

The disadvantages of this alternative are the increased queues and delays for traffic exiting Airport Road and the habitat impacts. What is concerning about this alternative is that it adversely effects the movements that have been identified as having the most difficulties and is counterproductive to the objective of the study. The AM Peak hour queue length on Airport Road is projected to increase approximately 80 feet when compared to the no-build alternative.

Additionally, this alternative is not in line with the MVRTP measures to help protect and enhance the Island's scenic roads. The addition of lanes to existing roads is specifically identified as not an effective solution to the increased functionality and safety of transportation on the Island. To





accommodate the shift in the roadway, approximately 1.02 acres of non-priority habitat and 0.26 acres of priority habitat would be disturbed as shown in *Appendix L* Figure C-04.

Alternative E: Eastbound Left Turn Lane – Barnes Road

This alternative examines whether an eastbound left turn lane on Edgartown-West Tisbury Road is warranted at Barnes Road. This alternative is being investigated to better understand the interactions between intersection 101 and 102. While Intersection 102 has considerably more north/ south traveling vehicles, a left turn lane could be beneficial for traffic operations. The analysis in <u>Appendix F</u> shows that the percent of eastbound traffic turning left at Barnes Road when compared to the volume of opposing westbound traffic warrants the addition of a left turn lane. The addition of a left turn lane at this intersection improves the operations of the mainline but results in degraded operations for traffic exiting Barnes Road.

The advantages of this alternative are improved queue lengths and delay for eastbound traffic as shown in <u>Table 14</u>. The left turning queue decreases considerably, and the eastbound through movement ceases to have a queue or delay.

The disadvantages of this alternative are the increased queues and delay for traffic exiting Barnes Road and the impacts to adjacent habitats. Approximately 1.10 acres of non-priority habitat and 0.20 acres of priority habitat would be disturbed as shown in <u>Appendix L Figure C-05</u>. The queue lengths are projected to increase for each peak hour when compared to the no-build alternative. <u>Appendix M</u> shows the cost is estimated at \$610,000 for Alternative E which is a high cost for the relatively small improvement.





2029 ALT E - LTL EDGARTOWN W. TISBURY ROAD	2029 NO BUILD <u>LOS</u>	2029 NO BUILD QUEUE	2029 ALT E EB LTL <u>LOS</u>	2029 ALT E EB LTL <u>QUEUE</u>
AM PEAK				
BARNES RD SB LT	F	241.9	F	284.0
BARNES RD SB RT	в	130.1	В	130.1
EDGE. W. TIS. EB LT	A	109.6	А	29.4
EDGE. W. TIS. EB TH	А	109.6	А	0.0
EDGE. W. TIS. WB RT	A	0	А	0.0
EDGE. W. TIS. WB TH	A	0	А	0.0
MID PEAK				
BARNES RD SB LT	F	238.2	F	279.8
BARNES RD SB RT	в	127	В	127.0
EDGE. W. TIS. EB LT	A	121.4	А	33.7
EDGE. W. TIS. EB TH	А	121.4	А	0.0
EDGE. W. TIS. WB RT	A	0	А	0.0
EDGE. W. TIS. WB TH	A	0	А	0.0
PM PEAK				
BARNES RD SB LT	F	268.1	F	363.0
BARNES RD SB RT	в	136.1	В	64.0
EDGE. W. TIS. EB LT	A	128.5	А	56.5
EDGE. W. TIS. EB TH	А	128.5	А	0.0
EDGE. W. TIS. WB RT	A	0	А	0.0
EDGE. W. TIS. WB TH	Α	0	Α	0.0

Table 14: Alternative E Results

Alternative F: Roundabout – Barnes Road

This alternative evaluates whether a single lane roundabout at the intersection of Edgartown-West Tisbury Road and Barnes Road would improve traffic operations. The traffic volumes meet signal warrants and a roundabout is more consistent with the MVRTP vision for the island as mentioned in Alternative B. With the addition of traffic control, the operations of traffic exiting Barnes Road improve considerably in the AM and PM Peak hours but remain consistent with the MID Peak hour of the no-build alternative as shown in <u>Table 15</u>. The mainline operations suffer; decreasing in LOS and increasing in queue length due to the implementation of yield control at the roundabout.





2029 AI ROUNDA	LT F BOUT	2029 NO BUILD <u>LOS</u>	2029 NO BUILD QUEUE	2029 ALT F ROUNDABOUT <u>LOS</u>	2029 ALT F ROUNDABOUT QUEUE
	AM PEAK				
BAR	NES RD SB LT	F	241.9	В	89.2
BAR	NES RD SB RT	В	130.1	В	89.2
EDGE.	W. TIS. EB LT	А	109.6	В	94.9
EDGE.	W. TIS. EB TH	Α	109.6	В	94.9
EDGE. W	V. TIS. WB RT	Α	0	А	48.2
EDGE. W	V. TIS. WB TH	А	0	А	48.2
	MID PEAK				
BAR	NES RD SB LT	F	238.2	С	240.2
BAR	NES RD SB RT	В	127	С	240.2
EDGE.	W. TIS. EB LT	А	121.4	С	253.5
EDGE.	W. TIS. EB TH	Α	121.4	С	253.5
EDGE. W	V. TIS. WB RT	Α	0	В	70.8
EDGE. W	V. TIS. WB TH	А	0	В	70.8
	PM PEAK				
BAR	NES RD SB LT	F	268.1	В	146.2
BAR	NES RD SB RT	В	136.1	В	146.2
EDGE.	W. TIS. EB LT	Α	128.5	С	338.0
EDGE.	W. TIS. EB TH	Α	128.5	С	338.0
EDGE. W	V. TIS. WB RT	Α	0	С	237.1
EDGE. W	V. TIS. WB TH	А	0	С	237.1

Table 15: Alternative F Results

The advantages of this alternative are significant improvements in the operations for traffic exiting Barnes Road in the AM and PM Peak hours. The implementation of a roundabout at this intersection does reduce the LOS and increase the queue lengths for the movements along Edgartown-West Tisbury Road, however the LOS achieved is reasonable and the queues manageable. This alternative also has relatively lower impacts to the adjacent habitats, with approximately 0.83 acres of priority habitat and 0.71 acres of non-priority habitat disturbed as shown in <u>Appendix L Figure C-06</u>.

The disadvantages of this alternative are the impacts to the pedestrian/shared path and the proposed geometric changes to accommodate property lines and avoid impacts to state forest land. The inscribed diameter of the single lane roundabout will require shifting the intersection to



the northwest and add considerable horizontal deflection to the Barnes Road approach. Horizontal deflection has been shown to slow traffic however, too much deflection can cause problems with truck turning radii as well as drivers potentially entering the roundabout incorrectly. Proper signage and visual cues will be required to adequately direct approaching traffic. To provide appropriate pedestrian accommodations, the shared use path will need to be elongated. This will not only add length but curvature as well. As with Alternative B, the cost of building a roundabout may prove to be prohibitive, at an estimated \$1,960,000 shown in <u>Appendix M</u>. This project may also be considered an off-site improvement and too far from the airport to be eligible for the use of Airport funds due to FAA regulations on diverting revenue. A strategic partnership and funding plan would need to be developed in order to make this feasible.

5.3 Recommended Alternative for Airport Road

The viability of a recommended alternative will be based upon the evaluation of the queue lengths and LOS to balance the improvements to the sideroad operations and the deteriorations to the mainline operations in a fiscally-constrained environmental. Impacts to protected environment are also a factor of consideration. <u>Table 16</u> below shows a combination of all alternatives and their impacts to the existing intersections. Blank spaces in the table represent where no results have been changed from the No-Build Alternative.

Based on a comparison of LOS and queue lengths, Alternative B represents a balance between the greatest improvement to traffic operations while limiting negative impacts. Other alternatives adequately addresses the concerns of traffic exiting Airport Road. However, the cost of those Alternatives are financially prohibitive.

Alternative C slightly improves LOS and queue lengths at Intersections 101 and 102, however not significantly and at a greater unattainable cost while resulting in the most impacts to the Island's environmentally sensitive areas of the alternatives investigated. Alternative C would face land use restrictions from FAA regulations and may not be feasible at this time while not significantly improving the Airport Road Intersection. Combined with the disturbance to the priority and non-priority habitats, Alternative C is not preferred.

Although Alternative A does not completely solve the traffic challenges, it provides an incremental improvement and at an obtainable price. Similar to the recent improvements at Barnes Road, Alternative A is anticipated to receive favorable support along with a perceived improvement over the current condition.

It is recommended that the Martha's Vineyard Airport Commission strongly consider Alternative A as the preferred alternative. Alternative A provides an incremental improvement, however the





No Build is the least expensive. This report recommends Alternative A due to the incremental improvement, especially to the right turn traffic, and the observations of how a similar approach improved Barnes Road intersection with Edgartown-West Tisbury Road. This Alternative would be a component of the Terminal Improvement Project included in the ENF, costs prohibiting.





2029 ALTE 2029 ALTE 2029 ALTE 2029 ALTE 2029 ALTE EBLIT EBLIT ROUNDABOUT ROUNDABOUT ROUNDABOUT LOS QUEUE LOS QUEUE LOS					F 284.0 B 83.2 B 130.1 B 89.2 A 29.4 B 94.9 A 0.0 B 94.9 A 0.0 A 48.2 A 0.0 A 48.2	F 279.8 C 240.2 B 127.0 C 240.2 A 33.7 C 240.2 A 33.7 C 243.5 A 0.0 B 70.8 A 0.0 B 70.8	F 3530 B 146.2 B 64.0 B 146.2 B 64.0 B 333.0 A 56.5 C 338.0 A 0.0 C 333.0 A 0.0 C 333.0 A 0.0 C 333.0 A 0.0 C 333.0 A 0.0 C 333.1	
2029 ALT D 2029 ALT D EB LT EB LT LOS QUEUE		F 577.5 F 577.5 A 7.9 A 0 A 0	F 333.3 F 333.3 A 9.8 A 0 A 0	 211 211				
2029 ALT C 2029 ALT C CONNECTOR CONNECTOR ROAD ROAD LOS QUEUE		E 108.2 D 108.2 A 31.0 A 31.0 A 0.0 A 0.0	D 749 C 749 A 36.4 A 36.4 A 0.0	D 623 C 623 A 451 A 451 A 00	F 195.1 8 130.1 A 61 A 61 A 0.0	E 165.2 B 127.0 A 42.7 A 42.7 A 0.0	F 2184 E 64.0 A 116.0 A 116.0 A 0.0 A 0.0	
2029 ALT B 2029 ALT B ROUNDABOUT ROUNDABOUT LOS QUEUE		8 59.1 8 59.1 8 130.8 8 130.8 8 130.8 8 130.8 8 101.6	8 472 8 472 8 472 8 956 8 844 8 844	A 33.7 A 33.7 B 109.2 B 109.2 B 82.5 B 82.5				
2029 ALT A 2029 ALT A RTTURN LANE RTTURN LANE LOS QUEUE		F 245.8 B 14.7 A 31 A 31 A 0 A 0	E 123.2 B 18.8 A 36.4 A 36.4 A 0 A 0	E 97 B 14.4 A 45.1 A 45.1 A 0 A 0				esent no impacts to traffic operations seen performed in Sidra Intersection 7 section Tables
2029 NO 2029 NO BUILD BUILD LOS QUEUE		F 499.2 F 499.2 A 31 A 31 A 0 A 0	F 291.6 F 291.6 A 36.4 A 36.4 A 0 A 0	F 186 E 186 A 45.1 A 45.1 A 0 A 0	E 241.9 B 130.1 A 109.6 A 109.6 A 0 A 0	F 238.2 B 127 A 121.4 A 121.4 A 0 A 0	2881 8 1361 8 1385 A 1385 A 1285 A 0 A 0	Blank spaces repre All analyses have b
	Airport Road	AIRPORT RD 58 LT AIRPORT RD 58 LT AIRPORT RD 58 RT EDGE. W. TIS. EB LT EDGE. W. TIS. WB RT EDGE. W. TIS. WB TH	MID PEAK AIRPORT RD SB LT AIRPORT RD SB RT EDGE. W. TIS. EB LT EDGE. W. TIS. WB RT EDGE. W. TIS. WB RT EDGE. W. TIS. WB TH	PM PEAK AIRPORT RD 58 LT AIRPORT RD 58 RT EDGE. W. TIS. E8 LT EDGE. W. TIS. WB RT EDGE. W. TIS. WB RT EDGE. W. TIS. WB TH Barnes Road	AM PEAK BARNES RD 58 LT BARNES RD 58 RT BARNES RD 58 RT EDGE. W. TIS. E8 TH EDGE. W. TIS. WB TH EDGE. W. TIS. WB TH	MID PEAK BARNES RD 58 LT BARNES RD 58 RT BARNES RD 58 RT EDGE. W. TIS. BU T EDGE. W. TIS. WB RT EDGE. W. TIS. WB RT	PM PEAK BARNES RD SB LT BARNES RD SB RT EDGE. W. TIS. EB LT EDGE. W. TIS. WB TH EDGE. W. TIS. WB RT EDGE. W. TIS. WB TH	< 80 €

Table 16: Alternative Comparison

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Martha's Vineyard Airport

Capital Improvement Plan

Notice of Project Change / Draft Environmental Impact Statement / Environmental Assessment

APPENDIX G

Surface Transportation Study APPENDICES (279 Pages) Available Online or upon Request



APPENDIX A - PDI TRAFFIC COUNTS **APPENDIX B - EXISTING CONDITIONS SENSITIVITY ANALYSIS** APPENDIX C - PROPOSED ALTERNATIVES ANALYSES APPENDIX D - PARKING GENERATION ANALYSIS APPENDIX E - SIGNAL WARRANT ANALYSES APPENDIX F - LEFT TURN LANE WARRANT ANALYSES APPENDIX G - TRAFFIC VOLUME - SEASONAL ADJUSTMENT APPENDIX H - SPEED STUDY APPENDIX I - TRAFFIC PROJECTIONS CALCULATION BOOK APPENDIX J - DIRECTIONAL TRAFFIC ANALYSIS APPENDIX K - CRASH DATA APPENDIX L - ALTERNATIVE FIGURES **APPENDIX M - ESTIMATES** APPENDIX N - EDGARTOWN ZONING MAPS



