

TAKEOVER AGREEMENT

This Agreement is made in duplicate as of the ____ day of _____, 2013 by and between the Town of Nantucket acting by its Airport Commission (hereinafter “Nantucket”), Merchants Bonding Company (hereinafter “Merchants”), and Fasano Acchione & Associates, LLC.

WHEREAS, on or about December 13, 2011 Baybutt Construction Corp. (“Baybutt”) entered into a contract (hereinafter called the “Contract”) with Nantucket for a project known as the “General Aviation/Administrative Offices Building (hereinafter “Project”); and

WHEREAS, Merchants executed and delivered to Nantucket a Performance Bond and a Payment Bond, each numbered MAC44710, and each in the penal sum of \$3,819,525.00 (“Bond”);

WHEREAS, Baybutt was terminated “for cause” on its Contract by Nantucket with no right to further performance under the Contract and Nantucket called upon Merchants, as surety, to arrange for completion of the Contract under the Performance Bond.

WHEREAS, Merchants desires to effect completion of the Contract work, to preserve continuity of performance, and to expedite completion of the Project;

WHEREAS, Merchants is ready, willing and able to perform its obligations under its Performance Bond in accordance with paragraph 4.2 of that bond and the terms of this Agreement;

WHEREAS, Merchants has elected to complete the Contract work under paragraph 4.2 of the Performance Bond, and therefore has retained the services of Fasano Acchione & Associates,

LLC (Completion Contractor) to arrange for completion of the Contract, according to its terms;
and

WHEREAS, Merchants and Nantucket desire to enter into this Agreement pursuant to its terms.

NOW THEREFORE, in consideration of the agreements and undertakings set forth in this Agreement, and other good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, Nantucket and Merchants agree as follows:

1. Merchants, under its Performance Bond, agrees to arrange for completion of **all** Contract **work**, utilizing the services of the Completion Contractor, in accordance with the Contract **and applicable law**. The Parties agree that the Contract consists of all the documents identified in paragraph 11 of the December 13, 2011 Owner-Contractor Agreement between Nantucket and Baybutt, and in section 1.1.1 of the General Conditions of the Contract for Construction. Nantucket **and Merchants** acknowledge that Merchants, by its execution of this Agreement, and by arranging for completion of the Contract and Project, is acting under **paragraph 4.2 of** the Performance Bond.

2. Nantucket represents and warrants to Merchants, and agrees that, as of the date of this Agreement:

a. The authorized amount of the Contract, including all approved change orders and adjustments to date is \$3,810,025.00;

b.Nantucket has previously made payments on the Contract in the aggregate amount of \$2,344,126.70;

c.Nantucket is currently holding \$555,484.70 in earned but unpaid Contract funds. Within 21 days of the execution of this Agreement, Nantucket shall remit these funds to Merchants, subject to a **withholding therefrom** of \$384,254.57, representing amounts demanded for direct payment by “subcontractors” under G.L. c. 30, § 39F, which subcontractors are identified in Exhibit A attached hereto. Upon Merchants providing to Nantucket a **full** release and withdrawal of a demand for direct payment, on a form satisfactory to Nantucket, **signed by each subcontractor**, the withheld funds pertaining to the involved subcontractor will be **promptly** released to Merchants **in accordance with the terms of the Contract**. **Merchants represents and warrants that no such subcontractor has, on or before the date of this Agreement, assigned to Merchants or the Completion Contractor any of such subcontractor’s rights under G.L. c. 30, § 39F.**

d.Nantucket is presently holding \$135,702.00 in retainage;

e.After the payment related to in Paragraph 2(c), the remaining Contract balance, subject to Nantucket’s rights under the Contract **and applicable laws, including G.L. c. 30, §§ 39K and 39F**, shall be paid by Nantucket to Merchants in accordance with the terms and conditions of the Contract.

f.(f) Nantucket has assessed and is withholding \$91,000.00 in liquidated damages accrued up to and including January 31, 2013. Such damages shall continue to accrue at \$1,000/

day from and including February 1, 2013 forward until all Contract work is substantially completed. The Town shall not pay liquidated damages to Merchants or the Completion Contractor absent order of a court or subsequent written agreement of the Parties. Merchants and Nantucket each fully reserve all available claims, rights and defenses, if any, under the Contract and applicable law with respect to such liquidated damages.

g.3. Merchants and the Completion Contractor represent and warrant to Nantucket that the Completion Contractor has the financial ability, experience and qualifications to complete the Project in accordance with the terms of the Contract and applicable laws, and that the Completion Contractor has visited the Project site and reviewed the Contract.

3. Merchants agrees that its Performance Bond shall remain in full force and effect, according to its terms for all Project work performed or to be performed under the Contract and this Agreement, subject to the terms and conditions of this Takeover Agreement.

4. Upon Within 15 days of the execution of this Agreement, Merchants shall furnish to Nantucket a detailed, CPM schedule of the Contract work, subject to the approval of Nantucket, which approval shall not be unreasonably withheld. Such schedule shall provide for full and final completion of all Project work, including any and all punch list work, so called, within 120 days of the date of this Agreement. At such time, Merchants shall also provide Nantucket with a Cash Flow Schedule in accordance with Article 9 of the General Conditions of the Contract.

5. Merchants has granted or will grant the Completion Contractor the authority up to \$ _____ in the aggregate to negotiate on Merchants' behalf deductive or additive Change Orders, credits, backcharges or net additions or deductions from the Contract or the Contract Balance of any nature whatsoever. Any deductive or additive Change Orders, credits, backcharges, or net additions or deductions from the Contract or the Contract Balance in excess of \$ _____ in the aggregate, and on account of any alleged warranty work of Baybutt or alleged corrective work as a result of any alleged latent defect in the work performed by Baybutt shall require the prior written approval of Merchants, which approval shall be sought solely by the Completion Contractor, not Nantucket. Merchants, not Nantucket, shall be solely responsible to ensure that the Completion Contractor acts within any authority granted it by Merchants.

6. To the extent of Nantucket's right, title or interest therein, Nantucket agrees, without making any warranties or representations as to the materials and equipment on site, that Merchants, or the Completion Contractor, will have the right to use and/or incorporate into the work, without charge, any and all equipment, supplies, materials and appurtenances furnished or supplied to Nantucket by or on behalf of Baybutt which are stored on or about the premises of the Project, or stored at warehouses, provided such use and incorporation is conducted in accordance with the terms of the Contract and applicable law.

7. Based upon Merchants' representations and warranties contained in this Agreement, Nantucket hereby consents to the use of Fasano Acchione & Associates, LLC as the Completion Contractor for Merchants.

8. Nantucket agrees that irrespective of the language in the Performance Bond, except as otherwise provided herein **and by applicable law**, the total liability of Merchants under this Agreement and under the Performance Bond for the **cost to complete** the Project work is limited to the bond penalty of the Performance Bond, which is \$3,819,525.00. It is understood and agreed that payments made by Merchants for performance of the work and payments to subcontractors or suppliers for work furnished after the date of this Agreement that are in excess of the remaining Contract balances set forth in Paragraph 2(e) herein shall be credited against the bond penalty of the Performance Bond. Nothing in this Agreement constitutes a waiver of such bond penalty, or an increase in the liability of Merchants under the Performance Bond.

9. Together with each application for payment, the Completion Contractor shall provide a "release of claims and liens" from each subcontractor for whom payment is sought in accordance with the terms of the Contract.

10. The Payment Bond shall remain in full force and effect in accordance with its terms and provisions **for all Project work performed or to be performed under the Contract and this Agreement**. Nothing in this Agreement constitutes a waiver of the bond penalty under the Payment Bond, or an increase in the liability of Merchants under the Payment Bond. Nantucket acknowledges that Merchants has the sole and unfettered

discretion in good faith to settle, compromise and otherwise independently handle any and all claims against the Payment Bond, subject to the terms of the Contract and any and all applicable laws, including, but not limited to, G.L. c. 149, §§ 29A-29D. It is further agreed that nothing contained herein varies the obligations, rights and defenses of Nantucket to respond to statutory demands for direct payment under G.L. c. 30, § 39F, and to deduct the amount of any such demands from amounts otherwise payable to Merchants under this Agreement. Nantucket and Merchants agree to reasonably cooperate with each other in connection with any Payment Bond claims submitted to Merchants relating to the Contract or Payment Bond and any statutory demands for direct payment submitted to Nantucket under G.L. c. 30, § 39F.

11. Upon execution of this Agreement, Merchants shall furnish certificates of insurance indicating that the Completion Contractor maintains the insurance coverages required by the Contract. Merchants shall also furnish at such time copies of all agreements with any subcontractors for or in connection with the Contract work.

12. Except for the reservation of rights and defenses as set forth herein, this Agreement is solely for the benefit of Nantucket and Merchants. Nantucket and Merchants do not intend by any provision of this Agreement to create any rights in or to increase the rights of any third-party beneficiaries, including but not limited to the Completion Contractor, nor to confer any benefit upon or grant enforceable rights under this Agreement or otherwise to anyone other than Nantucket and Merchants. Nantucket and Merchants acknowledge that nothing in this Agreement shall extend or increase the

rights, if any, of any third-party claimants, under the Performance Bond and Payment Bond.

13. Nantucket and Merchants agree to provide to the other, or their representatives, upon reasonable request, access to the Project site and to all non-privileged documents and other non-privileged information in their possession, custody or control relating to the Contract and Project, including without limitation all documents and other information relating to the work performed to date and the work not performed to date, and/or relating to Baybutt, and/or relating to claimants who submit payment claims or under other claims against the Bonds for the Project.

14. This Agreement constitutes the whole of the understandings, discussions and agreements by and between Nantucket and Merchants with respect to the default and termination of Baybutt and Merchants' response thereto. Nantucket and Merchants acknowledge that there have been no oral, written or other agreements of any kind as a condition precedent to, or to induce the execution and delivery of, this Agreement. Any written or oral discussions conducted prior to the effective date of this Agreement shall not in any way vary or alter the terms of this Agreement. Notwithstanding the foregoing, nothing in this Agreement shall be deemed an accord or satisfaction, waiver or release of the Contract or the Bonds, all of which remain in full force and effect.

15. This Agreement may not be changed, amended or altered in any way except by a writing executed by both Nantucket and Merchants. This Agreement shall be governed and controlled by the laws of the Commonwealth of Massachusetts **notwithstanding**

principles of conflicts-of-law. This Agreement shall inure to the benefit of and be binding upon the parties hereto and their successors and assigns.

16. Any Notices given by Nantucket and Merchants under this Agreement or the Bonds shall be addressed as follows:

As to Nantucket:

Nantucket Airport Commission
14 Airport Road
Nantucket, MA 02554

With a copy to:

Richard T. Holland, Esq.
Kopelman and Paige, P.C.
101 Arch Street, 12th Floor
Boston, MA 02110

As to Merchants:

Michael E. Fisk, Esq.
Merchants Bonding Company
2100 Fleur Drive
Des Moines, IA 50321
908-689-6016
mfisk@merchantsbonding.com

17. This Agreement may be executed in counterparts, and it shall be effective when both Merchants and Nantucket have executed their respective counterparts. Facsimile, electronic and photocopy signatures are effective and acceptable as original signatures.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date indicated above, and each of the undersigned individuals personally represent and warrant that

they have the full right, power and authority to execute this Agreement on behalf of the respective parties:

Town of Nantucket acting by its Airport
Commission

By: _____

Printed Name: _____

Title: _____

Merchants Bonding Company

By: _____

Printed Name: Mike Fisk

Title: Claims Attorney

Fasano Acchione & Associates, LLC

By: _____

Printed Name: _____

Title: _____

Town of Nantucket
NANTUCKET MEMORIAL AIRPORT
14 Airport Road
Nantucket Island, Massachusetts 02554



Proposal
First Carbon Neutral Airport in the United States
Submitted to:



Prepared by Nantucket Airport, Airport Commission and Town staff members
Thomas M. Rafter, A.A.E. Airport Manager
Arthur Gasparro, Airport Commission Vice-Chairman
Noah Karberg, Airport Environmental Coordinator
Lauren Sinatra, Energy Coordinator; Town of Nantucket Energy Office
George Aronson, Senior Technical Advisor; Town of Nantucket Energy Office

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Town of Nantucket
NANTUCKET MEMORIAL AIRPORT
14 Airport Road
Nantucket Island, Massachusetts 02554



Thomas M. Rafter, A.A.E., Airport Manager
Phone: (508) 325-5300
Fax: (508) 325-5306

Commissioners
Daniel W. Drake, Chairman
Arthur D. Gasbarro, Vice Chair
David C. Gray, Sr.
Sonny Raichlen
Jeanette Topham

February 8, 2013

It is with great pleasure that the Nantucket Memorial Airport submits this proposal to work with the Massachusetts Department of Transportation to become the first carbon neutral airport in the United States.

Nantucket Island, rich in history, is about 15 miles long and, on average, three miles wide, and about 22 miles south of Cape Cod. Today, Nantucket is less than 20 minutes from the mainland by airplane or one hour by fast ferry. In 2012, Nantucket was named the “Best Island in the World,” by National Geographic, and for the 50,000 or so people who are here on any given summer day, the pace of life is tempered by the clean air and by the late 18th and early 19th century atmosphere of the town, which is painstakingly preserved. In addition, about one-half of the island is dedicated to open space and conservation.

Nantucket’s geographic uniqueness has always required its inhabitants, including the Wampanoag natives and founding Quaker families, to live life *sustainably* within their means and resources. Living on Nantucket today, our residents, just like those who lived centuries before us, embrace conservation, a “doing more with less” attitude, and enduring support for our intertwined, and close-knit community. The limited resources available to us today, often at premium prices, have upheld a culture where sustainable efforts—environmental, social and economical-- are a natural way of life.

Nantucket Memorial Airport (ACK) is, overall, one of the busiest in New England even with its concentration of seasonal activity. In the summer season, operations have exceeded those at Boston Logan Airport. In 2011, there were 120,000 operations at ACK, nearly 180,000 enplanements, and almost 2.2 million pounds of cargo. The Airport is 1,200 acres, excluding some non-aeronautical parcels adjacent to the airport.

Year-round air taxi service to Hyannis is provided by Island Airlines and Nantucket Airlines and to Martha’s Vineyard, New Bedford, and Boston by Cape Air. Cape Air expands its routes seasonally to Providence and White Plains, which is also served by Island Airlines and Tradewind Aviation. Cape Air has code sharing arrangements with JetBlue, American and Continental Express. From May through Columbus Day, JetBlue offers service to JFK and Boston. For a slightly shorter period, USAir Express flies to LaGuardia and Continental has service to Newark. Delta Connection offers seasonal service to JFK and Washington Reagan.

The airport’s budget for fiscal year 2013 is estimated to be \$12.5 million, roughly half of which is attributed to fuel sales. It operates financially through an “enterprise fund.” ACK currently has 35 (local) full-time employees and adds about 20 seasonal personnel to staff the FBO during the high season.

I thank you for your consideration of the enclosed proposal, thoughtfully prepared by members of our Airport, Airport Commission and Town staff.

Respectfully,

Daniel Drake,
Chairman

PROPOSAL JUDGING CRITERIA

1. Program Understanding

The concept of sustainability is nothing new to the inhabitants of Nantucket—in fact, it’s a natural way of life on an island where resources are limited, and progressive thinking is commonplace. As part of our unique island culture, airport staff, tenant employees and the community all recognize the need, demand and importance of sustainability. Having an understanding of this basic precept will be a benefit to educating stakeholders throughout this process.

It is our understanding that the ultimate goal of this project is to attain carbon neutrality in accordance with the definitions used by the Airport Carbon Accreditation program following the principles of the Greenhouse Gas (GHG) Protocol. As stated in the RFP, MassDOT will initially seek neutrality entirely within the airport property.

Given that a goal of the program is the intention to achieve carbon neutrality entirely within the airport property, it may be beneficial that Nantucket, as an island community, is more likely to attain this objective. However, as part of the process, items will need to be identified that may not be transferrable to mainland airports and consider the alternatives that may be required to attain neutrality, such as offsets. However, even with the inherent advantages that an island Town/Municipality poses, there are still challenges that any airport may face. For example, due to the unique design of airport specific equipment used for snow removal and firefighting, technological advancements may not yet be in place to reduce or eliminate their carbon impact. Additionally, airports may be limited in certain efforts to reduce the carbon footprint if it results in reduced safety or security efforts. For example, low-level lighting may be a method to reduce energy consumption, but this may not be an appropriate consideration for a security-screening checkpoint. While these impacts may be addressed through other efforts that could account for the net effect produced, achieving total neutrality within the footprint of the airport may be challenging in this first phase.

The first phase of the MassDOT Carbon Neutral Airport Program appears to align with the first two levels of the Airport Carbon Accreditation process. Specifically, Mapping and Reduction, along with renewable energy efforts will be the initial focus of this program, with the understanding that subsequent phase(s) will work toward Optimization and total Neutrality. Moving forward the Optimization level should be a smooth transition, as there are already relationships and energy efficiency efforts in place with third parties. For example the shuttle bus provider to the airport leases a portion of an airport owned facility and a primary air service provider, Cape Air, has partnered with the airport on electric vehicle charging stations for both automobiles and ground service equipment.



Photo 1: Three electric vehicle charging stations were installed at the airport for use by the public and airline tenants. Pictured here is Cape Air’s Nissan Leaf used for luggage concierge.

Photo 2: Electric charging stations have also been installed on the aircraft apron for ground support equipment.



In order to get to the final level of Neutrality, it may be possible to achieve this through use of direct and indirect offset and other island-wide municipal efforts, which are detailed in latter sections.

In preparing this proposal, the airport has researched various sources of information relating to carbon neutral airports. While airports throughout the world have made various levels of progress toward carbon neutrality, two North American airports that have set the standard as leaders through their successes in this area: Gander Airport in Canada and Dulles Airport in Washington, D.C. Although Gander is a Carbon Neutral airport, it has achieved this status under the Carbon Neutral Protocol as opposed to the GHG Protocol used in Airport Carbon Accreditation. In order to achieve carbon neutrality, Gander had to purchase offset credits. In the Dulles (IAD) case, the airport has done extensive work in the entire process of becoming carbon neutral. Both airports provide significant best-practices examples and lessons learned opportunities.

It is interesting to note that in a recent annual report of the Airport Carbon Accreditation program, Abu Dhabi Airports Company (ADAC), operator of the Abu Dhabi International Airport is cited as the first Asia-Pacific airport to become accredited¹. The interesting part of this, is that James Bennett, CEO of ADAC is the former Director of the Metropolitan Washington Airports Authority, which includes Dulles Airport. The current Airport Manager at Nantucket Memorial Airport (ACK), Tom Rafter, has known Mr. Bennett for several years, as he was the Chairman of the American Association of Airport Executives (AAAE) while Mr. Rafter served on their Board of Directors. We bring this to your attention as an example of knowledge transfer, as it is apparent that Mr. Bennett has transferred his knowledge from Washington to Abu Dhabi.

One area that all parties involved in this effort need to be cognizant of is potential legal implications of these efforts. The Airport Cooperative Research Program (ACRP) recently issued a document titled *State and Federal Regulations That May Affect Initiatives to Reduce Airports' GHG Emissions*². Nantucket Memorial Airport is aware of this issue, and anticipates working closely with MassDOT and FAA throughout the process to help resolve any such predicaments that may arise.

2. Compelling Airport Vision and Commitment to the Carbon Neutral Airport Program

As a major local employer and hub of vital transportation, ACK airport serves as a critical lifeline to our Nantucket community. The airport integrates a “triple-bottom-line” approach towards sustainable airport operations, as our local residents, economy and environment are more interrelated here, than most anywhere. By employing local residents and contractors, we not only strengthen our local economy, but also maintain a very low staff environmental footprint. In fact, we are the only Airport in the Country where all of our employees reside in the same Town, Municipality and Island—and all within seven miles of each other. We are an island of neighbors; together sharing resources and working collectively towards a more environmentally, socially and economically responsible and prosperous Nantucket for present and future generations.

Becoming a carbon neutral airport would strengthen ACK’s role as a municipal leader, where sustainable actions, policies, and culture will directly inspire our travelers, contractors, colleagues and, by extension, community in a top-down approach. The Airport management team maintains a close and collaborative relationship with the Town of Nantucket Energy Office (www.ACKEnergy.org), whose staff has been instrumental in contributing support to this proposal, on behalf of Town Administration. The role of the Town’s Energy Office is to identify and implement *island-wide* energy efficiency, conservation and renewable energy programs for the Municipality and the residential and business communities. Since 2011, the staff of the Energy Office has assisted the airport with several sustainability efforts and initiatives, such as:

- Independently evaluating the former LANCO solar project proposal and contract terms
- Securing a grant and promoting the installation of public electric charging stations at Hanger 3
- Coordinating utility-sponsored energy audits and the installation of the resulting upgrade recommendations
- Providing the airport with hundreds of LED replacement bulbs as part of the DOER “Lead by Example” program.
- Sharing materials and information from the Town’s “SEE the light Energy Toolkit” to encourage employee participation in reducing energy waste
- Researching and supporting applicable energy-related grant opportunities, such as the DOER’s Owner’s Agent Technical Assistance program to fund AHRAE Level 2 audits

When the opportunity of the Carbon Neutral Airport Program came to the attention of the Airport and the Town, the Energy Office staff was not only authorized to contribute time, knowledge and support, but was highly encouraged by Town Administration to do so. Also in support of the Airport’s Carbon Neutral Airport proposal is reMain Nantucket (remainnantucket.org), a prominent and influential philanthropic foundation that generously funds numerous sustainability initiatives on Nantucket each year—including the Town’s Energy Office.

In conjunction with Town officials and the Energy Office, the Nantucket Airport Commission, and Airport management and staff are fully committed to the development of a Carbon Neutral Airport. The Airport has established an Environmental Technical Advisory Committee (TAC) that meets annually to review permit compliance and related-environmental matters. In fact it should be noted that the staff of the airport is responsible for preparing this document, including data gathering and overall proposal development with support from the Energy Office. The Airport commission is supportive as well, having passed a resolution pledging their commitment to the program.

ACK and Nantucket have a history of supporting energy initiatives as seen in other portions of this proposal. Recently, the Airport hired Mr. Noah Karberg to fill the position of Environmental Coordinator. As Mr. Karberg has had extensive experience managing carbon offset projects, he is qualified to be the lead representative on this project, with support from Tom Rafter (Airport Manager), Arthur Gasparro (Airport Commission Vice-Chairman), Lauren Sinatra and George Aronson (Town Energy Office), among other staff members. Please refer to **APPENDICES A to E** for staff resumes.

Nantucket Memorial Airport understands that the effort to become carbon neutral is more of a culture-shift than a single action or responsibility of a single individual-- much like the approach to safety management systems. Therefore it must be integral to everything we do. An example of this is in the preparation of this

proposal. Each division of airport staff has been tasked with supplying information or development of information for inclusion in this proposal. As stated earlier, ACK has a history of stewardship in sustainability, and therefore much of the data was already in place.

Various funding sources at the state, federal and third party levels are available and necessary for the success of this endeavor; the airport will need to support this effort financially. It is the intent of the Nantucket Memorial Airport to redefine a current landing fee incentive program and to establish it as a green initiative funding source by identifying a specific line item that would be dedicated to carbon neutral program efforts. This current incentive program is valued at approximately \$14,000 annually. It is also our understanding that the funding associated with the Voluntary Airport Low Emission (VALE) program may need to be reconstituted considering other sustainable efforts.

According to ACRP Synthesis 10: Airport Sustainability Practices, funding is the number one barrier to implementing sustainable efforts at airports³. Given this understanding, as part of the project, the Airport would work closely with the various entities to identify and establish funding mechanisms to support carbon neutral efforts that could be used as templates for other airports. These could mirror efforts from other industries and business segments such as sustainable student fees many colleges have, and may include voluntary or mandatory fees. Ideas such as a Green Ticket Fee, Green Parking Fee or even a Carbon Neutral Charge (CNC) could be explored.

It should be noted that the airport is currently in the initial stage of an Airport Master Plan Update, which will have a sustainability component that will be derived from lessons learned through the "Sustainable Master Plan Pilot Program," which is due to be completed in 2013. This project would dovetail with this portion of the Master Plan.

3. Demonstrated Stewardship Leadership

In 2010, a Town-wide Climate Action Plan (CAP) was produced, but quickly criticized by elected officials on a number of grounds, including that the analysis and recommendations were too generic and not appropriate or applicable to Nantucket. Rather than approving the CAP, the Board of Selectmen responded favorably to an offer by a reMain Nantucket to award the Town a grant to fund an Energy Office to implement initiatives related to island-wide energy efficiency and long-term energy strategy on Nantucket.

Presently, the Energy Office staff is in the process of finalizing “Energy Policy Recommendations for the Town of Nantucket,” –to be released in late February-- which has integrated critical input and data from the Nantucket Airport. Recent activities of the Nantucket Energy Office have also focused on energy efficiency and cost reduction projects almost exclusively, with emphasis on initiatives to save energy and costs at the Municipality’s top energy consuming buildings, notably including three airport facilities. The Energy Office created an “Energy Reduction Roadmap,” which identifies the Town’s “Top 20” energy consuming facilities, and the most appropriate energy cost saving measures for each⁴. Within the “Top 20” list, the Nantucket Memorial Airport Terminal Building ranks as the Town’s **4th** largest energy consumer, the Nantucket Airport Rescue & Fire building follows closely at 8th, while the **FAA Control Tower ranks as 15th**

On Nantucket, waste from residential, commercial and institutional sources is managed through an integrated approach that has been cited by the Massachusetts Department of Environmental Protection as “a leadership example..”⁵. The Nantucket program achieves the highest recycling rate of any Massachusetts municipality through program actions that include:

- A materials recovery facility (MRF) to accept, sort and provide preliminary processing of paper and container products into marketable products.
- A rigorous regime for collecting recyclables and glass separate from other components of household and commercial waste, and by a town by-law for biodegradable packaging
- A comprehensive recycling drop-off center, including an innovative “take-it-or-leave-it” swap shop, to encourage re-use of discarded consumer products; recycling of scrap metal, white goods, and other bulky and hard-to-manage wastes; and proper handling of electronics wastes, auto and marine wastes, refrigerants, and other materials requiring special attention in management.
- Periodic special collections of household hazardous wastes and products.
- A handling facility for construction and demolition (C&D) wastes.
- A co-composting facility for processing the remaining trash with sewage sludge and animal manure to produce compost.

The Nantucket Airport would also be open to consideration as a site for the pyrolysis facility and as a customer for electricity that might be generated from combustion of the bio-gas and used behind the meter should such a facility prove feasible.

Green efforts are not limited just to recycling. Historically, the airport efforts to develop green “certified” buildings has been one of constructing to the goal of silver level LEED certification, but not necessarily completing the certification process due to cost constraints. The Airport has also carefully considered building tear down and removal: construction debris streams have been avoided by finding reuse for entire buildings. The Annex (2,250 ft²) and Operation/Administration building (5,100ft²) were both removed and reassembled at other sites on island. The current business office (1,500ft²) will be moved and repurposed. This effort has avoided transportation and disposal costs of several tons of construction and demolition waste.

The airport is currently working with the Town of Nantucket and the Energy Office to develop an overall Town Energy Policy Guidelines to address sustainability on the Municipal level. While greenhouse gas emissions have not been definitively measured, efforts have been taken to reduce their footprint through a series of utility-sponsored energy efficiency assessments. Currently, the airport is working with Northern Energy Services through National Grid’s Energy Initiative Program to replace approximately 600 light fixtures with more energy efficient components. This project is estimated to result in a 161,834 KWH reduction per year, and a \$24,000 annual savings. Additionally, it is anticipated that our Airport’s carbon footprint will be reduced by 112 tons of CO₂ equivalent per year. This program is being funded through a new Mass Save “Municipal Program,” where National Grid pays for 60% of the installed project total, with the Airport paying the balance,

interest-free over 24 months, essentially enabling the energy savings to pay for the lighting upgrades directly through the utility bill. The airport is extremely committed to reducing the utility costs associated with the operation of the airport, and would support any program that leverages long term savings with rapid return on investments.

In a similar manner, the Airport has engaged Northern Energy Services to conduct a re-commissioning proposal for the onsite Ground Source Heat Pump, to improve the efficiency of the system's operation and design as currently configured. Another effort that has been taken to improve efficiency was the installation of Light Emitting Diodes (LED) lights on taxiway E. During the design phase of a recent runway project, the airport attempted to have the runway edge lights replaced with LED fixtures, but it was unsuccessful due to the lack of an LED approval process by the FAA.

The Airport has also committed to reducing vehicle traffic by working actively with the Nantucket Regional Transit Authority (NRTA) to function as stop for airport staff and passengers. A large bike rack has been installed, and well-lit and surfaced bike path connects with the greater island-wide trail network to help provide alternative transport to and from the airport.

Stewardship practices are also being implemented within the airport's resource use area, which is populated by a number of rare plant and animal species. Sand-plain blue-eyed grass, bushy rockrose, purple needlegrass, New England blazing star, and a suite of rare moths are found on airport grounds. Increased development of the island, as well as expansion and upgrades of airport facilities often find themselves at odds with these species of concern. Through cooperation with several of Nantucket's most prominent science and conservation organizations, such as the Nantucket Conservation Foundation, Maria Mitchell Association, and the Nantucket Biodiversity Initiative, the Nantucket Airport is demonstrating its commitment to stewardship and management of these rare and charismatic resources. Also, in conjunction with the US EPA and MassDEP, the Airport installed and monitored an Air-Quality Station that will be useful to demonstrate measurable improvements associated with the Carbon Neutral Plan^{6,7}: in addition, the Airport is also part of the Massachusetts Air Monitoring Network Plan⁸.

4. Knowledge Transfer Expertise and Experience

The airport industry in general has a multitude of resources available to share information. Almost every system or facility of an airport is built upon lessons learned and proven successes of other airports. From daily self-inspections to establishment of rates and charges, rules and regulations, minimum standards and lease language to the layout of the Aircraft Rescue and Firefighting facility and Terminal Building and Fixed Base Operator facility, Nantucket Airport has either relied upon an existing airport knowledge base or a distinctive system used to transfer information known as Airport Advisory Circulars⁹. This program provides airports with guidance on a plethora of subjects. In addition, the previously mentioned Airport Cooperative Research Program (ACRP) is an invaluable source of information for airports operators, where various problem statements are submitted, and practical solutions are provided by industry peers.

We would suggest that ACK work closely with the FAA and ACRP throughout this program to develop specific series of Advisory Circulars and ACRP Studies as a means to transfer not only the knowledge gained at project completion, but insights documented throughout the process as well. By keeping an accurate record of projects, pitfalls, methods and resources available, ACK can serve as a key “Case Study” to other airports. As a result of setting standards as a model example, the process of transferring expertise and insights should become more accessible for similar facilities in the future. Additionally, we are prepared to host webinars, tours and virtual meetings, as well as create and deliver presentations about this project. To retain and archive information about our experience becoming a carbon neutral airport, we would also seek to establish an airport library for all documents, including but not limited to: procedures, manuals, calculations, inventory/data collection, awareness campaign materials and training resources.

However, one of the key components for effective information sharing and knowledge/technology transfer is the use of personal networking. Knowing where to get information is one thing, but initiating a dialogue with an experienced peer or specialist is invaluable. As a former member of the AAAE Board of Directors, Past President of the Northeast Chapter of AAAE, current Chair of the Technical Advisory committee for AAAE, and former manager of the airport that is co-located with the FAA Technical Center, Mr. Rafter has extensive contacts in the industry. Alongside Mr. Rafter, Mr. Karberg and Ms. Sinatra collectively have considerable experience in the development and delivery of public presentations (including presenting internationally), policy papers, web content, social media and other public engagement and marketing efforts.

It is also important to recognize the role of an engaged local citizenry and the power of casual conversation. Here Nantucket is no exception, with voter turnout rates among the highest in the nation. Back channels and word of mouth are essential means of communication, on which our first responders rely for urgent action to emergencies. The seasonal nature on Nantucket also results in a fall diaspora of professionals and college students back across the country. In both cases, local and seasonal residents alike monitor Facebook accounts and Twitter feeds for the most recent and breaking news and information – be it a brush fire threatening their vacation home or an appetizer special at their favorite eatery. The downside of the modern digital age is that misinformation is just as easily publicized, and typically spreads like wildfire, but more difficult to contain or undo. Through social media and informal communication, the Environmental Working Group can engage in cheap and effective forms of knowledge transfer, community education, and eliciting feedback by engaging local support and seasonal resources that the more formal methods often ignore.

5. Dedication to High Efficiency and High Potential for Energy Generation

Within the past four years, ACK has completed or initiated three projects aimed at reducing emissions and reducing energy consumption.

- In 2009 a major terminal expansion was completed (38,979 ft²) that included commissioning of a geothermal system (**APPENDIX F**).
- In 2012, the airport installed three electric-vehicle (EV) charging stations for use by tenants and the general public. These stations are located behind hangar number three and are used on a regular basis by Cape Air, a primary airline serving ACK. Additionally, two charging stations have been installed on the north ramp for airline use to charge their electric ground service equipment.
- Currently the airport is in the process of replacing approximately 600 lighting fixtures with more energy efficient replacements. This program is expected to reduce the carbon footprint by 112 tons of CO₂ equivalent per year by reducing the annual KWH usage by 161,834, and saving an estimated \$24,000 for the airport (**APPENDIX G**).
- With the assistance of the Energy Office, the Airport secured over \$6000 worth of no-cost LED bulbs, with estimated annual savings of nearly \$4,000 through the “Commonwealth of MA Lighting Program.” (**APPENDIX H**).

Nantucket Airport is in a unique position to take advantage of the Massachusetts net metering program to support development of solar PV or wind turbine electric generation facilities. The value offered by the net metering program is often critical to the economic feasibility of solar PV and wind turbine projects, because (a) electricity generates a much higher value as an offset to retail purchases than if it were sold into the wholesale electric market; and (b) the host facility captures and realizes the value of all of the electricity being generated (including electricity exported to the grid in excess of the instantaneous needs of the host facility). The net metering program has been so popular that it is currently oversubscribed to the point that new projects initiated by most mainland municipalities face the risk of not qualifying. In particular, for the large mainland utilities, the net metering program limits on capacity from private entities have already been exceeded by existing projects; while public entities face the risk that the limits on public programs will be exceeded before their projects are sufficiently developed to qualify. Such risk does not apply to development of solar PV or wind projects on Nantucket. Although Nantucket is within the service territory of National Grid, electricity is distributed on Nantucket by a special-purpose subsidiary of National Grid called Nantucket Electric Company. For the purposes of the net metering program, Nantucket Electric Company has separate limits on eligibility that apply only to projects on Nantucket – 1.2 MW of capacity from public entities and a separate 1.2 MW for private entities, none of which has been used to date.

The Airport is also in a position to use its resources to develop and/or contribute to a town-wide biodiesel feasibility study. Off island, restaurant grease is a product with tangible value as a raw material for biodiesel synthesis. On Nantucket, the restaurant industry produces over 35,000 gallons of trap grease and approximately 10,000 gallons of yellow grease (the on-airport restaurant alone produces 780 total gallons annually). The product is currently unused and negatively valued: restaurants pay a third party to haul yellow grease off island while trap grease is taken to the wastewater treatment facility, partially digested and turned into municipal compost. Assuming trap grease is 5% renderable product at 80% processing efficiency for both¹⁰, a theoretical maximum of 9,400 gallons of biodiesel is obtained for a direct carbon offset of 105 tons CO₂ equivalent per year. Pending the results of a feasibility study, the airport is in a position to provide leadership and coordination for an island-wide synthesis and refueling study.

On-site efficiency improvement and renewable energy production will never be enough to completely counter all airport carbon emissions. The airport owns 1,200 acres; excluding operational areas and buffers, 400 acres exist in combination of meadow, scrub, and forested land. These Resource Use areas offer the potential for the airport to develop and optimize its own local biological carbon offset activities on site. Reforestation and carbon credit development is an established tool in carbon offset technology¹¹. Briefly stated, through photosynthesis vegetation incorporates atmospheric CO₂ into plant tissues such as the trunk, branches, and roots. These components are long-lived, and represent long-term sequestration of CO₂ from the atmosphere into vegetation. When combined with land conservation, this process represents a viable and demonstrable ability to

offset fossil fuel emissions that are inherent to airport operations. While exact estimates require more data about soil quality, available area, and co-management objectives, a reforestation project of pitch pine could potentially yield a one-time offset of 53 tons of CO₂ equivalent per acre planted^{12,13}.

Nantucket Memorial Airport Airfield Facilities

	Length	Rwy Lts.	Twy Lts.	App. Lts	CL Lts.	TDZ Lts.	Wig Wags	LAHSO Lts.	luminated signs
Rwy 24	6,303'	60 edge lts. HIRLS(5 steps) includes semi-flush and 24 end/threshold	299 MITLS (LEDS) 3 Steps all twy edge lights between Rwy 6-24 and ramps	MALSR 5 Steps approach lts.	125 5 steps	180 5 steps			17 luminated signs 5 Steps
Rwy 6	5,766' 537' dsiplaced Threshold			MALSF approach lts. 5 Steps				1 set	' "
Rwy 15	4,500'	46 MIRLS 3 Steps includes semi-flush and 15 end/threshold lts.		REILS			2		13 luminated signs 3 Steps
Rwy 33	4,500'			REILS				1 set	" "
Rwy 12	2,696'		70 MITLS (Quartz) 3 Steps all twy lights on Rwy12-30						6 luminated signs 3 Steps
Rwy 30	2,696'						2		" "
Twy A	477'						2		48 3 Steps
Twy B	533'						2		" "
Twy C	533'						2		" "
Twy D	533'						2		" "
Twy E	6,884'						4		" "
Twy F	3,373'								" "

Nantucket Memorial Airport Building Information

Building #: Hangar #1 (Ocean Wings)		Square footage (ft ²): 5,872	Age of Building: AYB 1994	Occupied and Aircraft Hangar
Airport function: Aircraft Hangar / Office	Percent of building heated/conditioned: 100% heat	Individually metered for Electricity: Yes	Individually metered for Water: YES	Sub-metering: yes/no and which system component?
Airport owned: NO	Who pays utility bill: Airport, tenant, other? Tenant	If leased when is lease up for renewal? 2015	Roof available for solar energy generation:	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): Propane Gas, hot air no duct	Building utility data available included in proposal: yes/no
Building #: Hangar #2 (Airport Hangar)		Square footage (ft ²): 7,200	Age of Building: AYB 1995	Aircraft Hangar only
Airport function: Hangar	Percent of building heated/conditioned: 100% heat	Individually metered for Electricity: YES	Individually metered for Water: N/A	Sub-metering: yes/no and which system component?
Airport owned: YES	Who pays utility bill: Airport, tenant, other? Nantucket Airport	If leased when is lease up for renewal? N/A	Roof available for solar energy generation: YES	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): Propane Gas, Radiant Heat	Building utility data available included in proposal: yes/no
Building #: Hangar #3 (Airport Hangar)		Square footage (ft ²): 4,800	Age of Building:	Aircraft Hangar only
Airport function: Hangar	Percent of building heated/conditioned: 100% heat	Individually metered for Electricity: YES	Individually metered for Water: YES	Sub-metering: yes/no and which system component?
Airport owned: YES	Who pays utility bill: Airport, tenant, other? Nantucket Airport	If leased when is lease up for renewal? N/A	Roof available for solar energy generation: YES	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): OIL heat, Forced Air Duct	Building utility data available included in proposal: yes/no

Building Information

Building #: Hangar #4 (Airport Hangar)		Square footage (ft ²): 6,264	Age of Building: AYB 1981	Aircraft Hangar only
Airport function: Hangar	Percent of building heated/conditioned: 0%	Individually metered for Electricity: YES	Individually metered for Water: N/A	Sub-metering: yes/no and which system component?
Airport owned: YES	Who pays utility bill: Airport, tenant, other? Nantucket Airport	If leased when is lease up for renewal? N/A	Roof available for solar energy generation: YES	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): N/A	Building utility data available included in proposal: yes/no
Building #: Hangar #5 and #6 (McGrath and Santos Hangar)		Square footage (ft ²): 4,480	Age of Building: AYB 1988	Aircraft Hangar only
Airport function: Hangar	Percent of building heated/conditioned: 50% heat	Individually metered for Electricity: NO	Individually metered for Water: N/A	Sub-metering: yes/no and which system component?
Airport owned: NO	Who pays utility bill: Airport, tenant, other? Airport pays electric, tennant pays Propane Gas	If leased when is lease up for renewal? 2015	Roof available for solar energy generation: NO	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): Propane Gas 50% of Hangar	Building utility data available included in proposal: yes/no
Building #: Hangar #7 (Taylor Hangar)		Square footage (ft ²): 6,900	Age of Building: AYB 1988	Aircraft Hangar only
Airport function: Hangar	Percent of building heated/conditioned: 0%	Individually metered for Electricity: YES	Individually metered for Water: N/A	Sub-metering: yes/no and which system component?
Airport owned: NO	Who pays utility bill: Airport, tenant, other? Tenant	If leased when is lease up for renewal? 2018	Roof available for solar energy generation: N/A	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): N/A	Building utility data available included in proposal: yes/no

Building Information

Building #: Hangar #8 (Freight Hangar)		Square footage (ft ²): 2,520	Age of Building: AYB 1988	Occupied and Office
Airport function: Storage and Office	Percent of building heated/conditioned: 15% heat	Individually metered for Electricity: YES	Individually metered for Water: YES	Sub-metering: yes/no and which system component?
Airport owned: YES	Who pays utility bill: Airport, tenant, other? Tenant	If leased when is lease up for renewal? 2020	Roof available for solar energy generation: NO	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): Propane Gas	Building utility data available included in proposal: yes/no
Building #: Hangar #9 (T-Hangars)		Square footage (ft ²): 13,650	Age of Building: AYB 1988	Aircraft Hangar only
Airport function: Hangar	Percent of building heated/conditioned: 0%	Individually metered for Electricity: YES	Individually metered for Water: NO	Sub-metering: yes/no and which system component?
Airport owned: NO	Who pays utility bill: Airport, tenant, other? Tenant	If leased when is lease up for renewal? 2018	Roof available for solar energy generation: NO	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): N/A	Building utility data available included in proposal: yes/no
Building #: Harbor Fuel Administrative Offices		Square footage (ft ²): 1,800	Age of Building: not known	Occupied
Airport function: Office	Percent of building heated/conditioned: 100%	Individually metered for Electricity: YES	Individually metered for Water: YES	Sub-metering: yes/no and which system component?
Airport owned: NO	Who pays utility bill: Airport, tenant, other? Tenant	If leased when is lease up for renewal? 2018	Roof available for solar energy generation: NO	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): Oil heat	Building utility data available included in proposal: yes/no

Building Information

Building #_: Airport Gas Station (Harbor Fuel)		Square footage (ft ²): 3,064	Age of Building: Not Known	Occupied
Airport function: Storage and Office	Percent of building heated/conditioned: 65%	Individually metered for Electricity: YES	Individually metered for Water: YES	Sub-metering: yes/no and which system component?
Airport owned: NO	Who pays utility bill: Airport, tenant, other? Tenant	If leased when is lease up for renewal? 2018	Roof available for solar energy generation: NO	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): Oil heat	Building utility data available included in proposal: yes/no
Building #_: Harbor Fuel (Concrete Building)		Square footage (ft ²): 728	Age of Building: AYB 1981	Storage only
Airport function: Storage	Percent of building heated/conditioned: 0%	Individually metered for Electricity: YES	Individually metered for Water: N/A	Sub-metering: yes/no and which system component?
Airport owned: NO	Who pays utility bill: Airport, tenant, other? Tenant	If leased when is lease up for renewal? 2018	Roof available for solar energy generation: NO	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): N/A	Building utility data available included in proposal: yes/no
Building #_: FBO (Flat top buildings)		Square footage (ft ²): 2,289	Age of Building: 2003	Occupied
Airport function: Office	Percent of building heated/conditioned: 75% both	Individually metered for Electricity: YES	Individually metered for Water: YES	Sub-metering: yes/no and which system component?
Airport owned: YES	Who pays utility bill: Airport, tenant, other? Nantucket Airport	If leased when is lease up for renewal?	Roof available for solar energy generation: NO	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): N/A	Building utility data available included in proposal: yes/no

Building Information

Building #:ARFF Facility		Square footage (ft ²): 9,420	Age of Building:2009	Occupied and equipment
Airport function: Equipment, Storage, Office	Percent of building heated/conditioned: 100% both	Individually metered for Electricity: YES	Individually metered for Water: YES	Sub-metering: yes/no and which system component?
Airport owned: YES	Who pays utility bill: Airport, tenant, other? Nantucket Airport	If leased when is lease up for renewal?	Roof available for solar energy generation: NO	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): Fuel Oil Forced Air-Duc, Central	Building utility data available included in proposal: yes/no
Building #:Airport Fuel Farm (AV Gas/JET A)		Square footage (ft ²): 13,060	Age of Building: AYB1992	Storage Only
Airport function: Fuel Storage	Percent of building heated/conditioned: 0%	Individually metered for Electricity: YES	Individually metered for Water: YES	Sub-metering: yes/no and which system component?
Airport owned: YES	Who pays utility bill: Airport, tenant, other? Nantucket Airport	If leased when is lease up for renewal?	Roof available for solar energy generation: NO	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): N/A	Building utility data available included in proposal: yes/no
Building #:Snow Removal Equipment Building		Square footage (ft ²): 17,535	Age of Building: 1998	Occupied and Equipment
Airport function: Maintenance, storage, office, equipment	Percent of building heated/conditioned: 100% heat, 10% conditioned	Individually metered for Electricity: YES	Individually metered for Water: YES	Sub-metering: yes/no and which system component?
Airport owned: YES	Who pays utility bill: Airport, tenant, other? Nantucket Airport	If leased when is lease up for renewal?	Roof available for solar energy generation: YES	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): Oil Heat	Building utility data available included in proposal: yes/no

Building Information

Building #_: United Parcel Service (UPS) Building		Square footage (ft ²):1,125	Age of Building: Not Known	Occupied
Airport function: Storage and Office	Percent of building heated/conditioned: 100% heat	Individually metered for Electricity: YES	Individually metered for Water: YES	Sub-metering: yes/no and which system component?
Airport owned: NO	Who pays utility bill: Airport, tenant, other? Tenant	If leased when is lease up for renewal? 2018	Roof available for solar energy generation: NO	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): Propane Gas	Building utility data available included in proposal: yes/no
Building #_: United States Post Office (USPS) Building		Square footage (ft ²): 5,390	Age of Building: Not Known	Occupied
Airport function: Storage and Office	Percent of building heated/conditioned: 60%	Individually metered for Electricity: YES	Individually metered for Water: YES	Sub-metering: yes/no and which system component?
Airport owned: NO	Who pays utility bill: Airport, tenant, other? Tenant	If leased when is lease up for renewal? 2027	Roof available for solar energy generation: NO	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): Propane	Building utility data available included in proposal: yes/no
Building #_: Airport Storage Tent		Square footage (ft ²): 2,400	Age of Building: 2009	Equipment
Airport function: Storage and Equipment	Percent of building heated/conditioned: 0%	Individually metered for Electricity: N/A	Individually metered for Water: N/A	Sub-metering: yes/no and which system component?
Airport owned: YES	Who pays utility bill: Airport, tenant, other? N/A	If leased when is lease up for renewal?	Roof available for solar energy generation: NO	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): N/A	Building utility data available included in proposal: yes/no

Building Information

Building #_: General Aviation Building		Square footage (ft ²): 3,825	Age of Building: 2011	Occupied
Airport function: Terminal and Office	Percent of building heated/conditioned: 100% both	Individually metered for Electricity: YES	Individually metered for Water: YES	Sub-metering: yes/no and which system component?
Airport owned: YES	Who pays utility bill: Airport, tenant, other? Nantucket Airport	If leased when is lease up for renewal?	Roof available for solar energy generation: NO	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): Propane Gas	Building utility data available included in proposal: yes/no
Building #_: Nantucket Memoiral Airport Terminal Building		Square footage (ft ²): 33,203	Age of Building: 2009	Occupied
Airport function: Terminal and Office	Percent of building heated/conditioned: 100% both	Individually metered for Electricity: YES	Individually metered for Water: YES	Sub-metering: yes/no and which system component?
Airport owned: YES	Who pays utility bill: Airport, tenant, other? Nantucket Airport	If leased when is lease up for renewal?	Roof available for solar energy generation: NO	If applicable, Building "green" certification and level:
Energy efficiency retrofit (date) year:	Date (year) of last energy audit:	Date (year) of last energy retrofit:	Other energy source(s): Oil fired hot water, Geothermal	Building utility data available included in proposal: yes/no

Nantucket Memorial Airport Circulators, GSE and other Fleet Equipment

Description	Response (Note: each response cell should be limited to 100 words maximum)
Airfield facility information (# of runways, # of taxiways, lengths, # of edge lights and # of illuminated signs)	Please see tab under Airfield Facilities
Number and types of internal circulators (i.e., escalators, elevators, moving walkways, baggage conveyors, etc.)	Three Elevators, One Baggage Conveyor
Ground Support Equipment (GSE) Please list the total number for each model type of equipment and the age each vehicle. Please list the fuel source and age for each of the GSE	One Deicer - 2006 runs on both Gas & Diesel; One GPU - 1999 Diesel One Pre-Heater - 2007 Diesel Three Tugs - 2004 & 2007 are Electric, 2001 is Gas
"Other" fleet equipment owned and operated by airport (e.g., mowers, snow removal, maintenance vehicles, fire suppression, etc.) type and age. Fuel source and age for each "Other" fleet equipment.	Three Loaders - '81, '99 (Skid) '03 (Diesel) Two Fire Trucks - '89, '02 (Deisel) Fire Hummer - '03 (Diesel) Three - Tractors - '97, '03, '10 (Diesel) Grader - '10 (Diesel) Two Dump Trucks - '94, '04 (Diesel) Five Mowers - '94 (Deck), '94, '02, (2) '10 (3 diesel, 2 Gas) One Gator - '10 (Gas) Two - Sweepers - '01 (w/ Blower), '06 (Diesel) Two Lifts - '04, '06 (Gas, Diesel) Two - Light Towers - '10 (Diesel) One - Cracksealer - '07 (Diesel) One - Refueler - '06 (Diesel)
Transport Vehicles for passengers and employees	Two, '11 - 14 Passenger Buses (Gas) Two, '06 - 4 Passenger Golf Carts (Gas) One, '12- 6 Passenger Golf Cart (Electric) Two, SUV's - '04, '07 (Gas) Four, Pick-Ups - '99,'05,'06,'08 Gas.

Nantucket Memorial Airport

Ground Service Equipment Detail

Year	Type	Fuel Type
11	Bus	Gas
11	Bus	Gas
06	Deicer	Both Gas & Diesel
12	Golf Cart	Electric
06	Golf Cart	Gas
06	Golf Cart	Gas
99	GPU	Diesel
07	Pre Heater	Diesel
04	Tug	Electric
07	Tug	Electric
01	Tug	Gas

Nantucket Memorial Airport Fleet Equipment Detail

Year	Make	Model	Type	Fuel Type	
1981	John Deere	644E	Loader	Diesel	
1989	Oshkosh	Lowtil	Fire Truck	Diesel	
1994	Ford	L-8000	Dump	Diesel	
1994	Woods	D80-2	Mower Deck	Diesel	
1994	Honda	HRC7018ZXA	Walk behind	Gas	
1997	John Deere	5200	Tractor	Diesel	
1999	Ford	F250	Pick up	Diesel	
1999	New Hold	Skid	Loader	Diesel	
2001	Oshkosh	Sweepster	w/ blower	Diesel	
2002	Oshkosh	Lowtil	Fire Truck	Diesel	
2002	John Deere	F680 Ztrak	Lawn Mower	Gas	
2003	John Deere	724J	Loader	Diesel	
2003	AM General	Hummer	Fire	Diesel	
2003	John Deere	5520	Farm Tractor	Diesel	
2004	Sterling	L850	Dump	Diesel	
2004	Ford	F550	Truck	Diesel	
2004	Ford	Expedition	Utility	Gas	
2004	JLG	600S	Boom Lift	Gas	
2005	Ford	F350	Pick up	Diesel	
2006	Cargo	Utility	Trailer	Diesel	
2006	Freightliner	FC80	Sweeper	Diesel	
2006	Ford	Ranger	Pick up	Gas	
2006	Isuzu	JW5S042	Refueler	Diesel	Leased
2006	JLG	2030ES	Scissor Lift	Electric	
2007	Ford	Explorer	Utility	Gas	
2007	Isuzu	1500 gal	Avgas Refueler	Diesel	Leased
2007	B E Welding	450	Seed Stripper	Gas	
2007	Baldor Generations		trailer, light tower	Diesel	
2007	Baldor Generations		trailer, light tower	Diesel	
2007	Crafco	supershot 125D	Cracksealer	Diesel	
2008	Ford	F250	Pick up	Diesel	
2010	John Deere	772G	Grader	Diesel	
2010	International	5000 Gal	Jet refueler	Diesel	Leased
2010	John Deere	Z Trac 997	Lawn Mower	Diesel	
2010	John Deere	Z Trac 997	Lawn Mower	Diesel	
2010	John Deere	XUV 620i	Gator	Gas	
2010	John Deere	5095M	Tractor	Diesel	
2012	International	5000 Gal	Refueler	Diesel	
2012	International	5000 Gal	Jet refueler	Diesel	Leased

**Nantucket Memorial Airport
Employees**

	Full Time	Part Time
Administration	6	1
Operations	8	9
Maintenance	13	1
Terminal/Security	2	3
Fixed Base Operator	3	2
	32	16

Primary Individual Responsible for Sustainability Efforts

Name: Noah Kargerg

Title: Environmental Coordinator

(Please see attached Resume and Job Description)

Legend

- Approximate Project Boundary

- Plant Communities**
- B Beach
- CH Coastal Healthlands
- CH/SO1B Coastal Healthlands/Scrub Oak Shrubland Complex
- DL Developed Land
- DL/R Developed/Ruderal Lands
- GL-1 Sandplain Grassland
- GL-2 Cultural Grassland
- GL/R Grassland/Ruderal Areas
- MS Maritime Shrublands
- PF Playing Fields
- PP1B/SO1B Pitch Pine/Scrub Oak Community
- PP1B/SO1C
- PP2B/SO1B
- R Ruderal Areas
- SD Sand Dunes
- SO1A Scrub Oak Shrublands

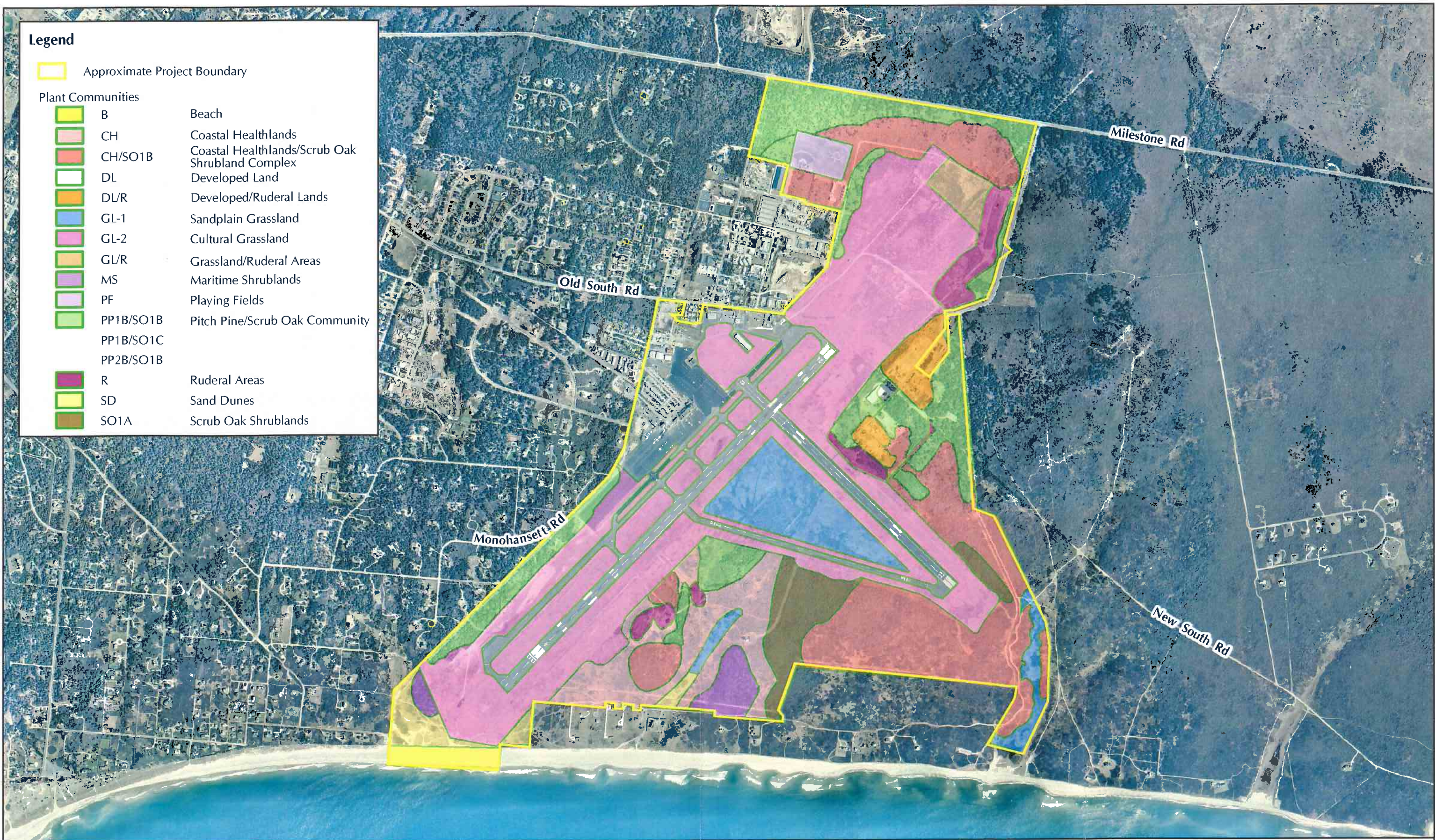
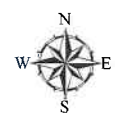


Figure A-3
Plant Communities
Nantucket Memorial Airport
Nantucket, Massachusetts

Basemap: 2003 Orthophotography, MassGIS

Scale 1:14,400
 1 inch = 1200 feet

600 0 600 1,200 1,800
 Feet



Legend

- Approximate Project Boundary
- Approximate Rare Plant Occurrence Areas

		Lion's Foot (<i>Prenanthes serpentina</i>)	Broom Crowberry (<i>Corema conradii</i>)	Bushy Rockrose (<i>Helianthemum dumosum</i>)	Nantucket Shadbush (<i>Amelanchier nantucketensis</i>)	New England Blazing Star (<i>Liatris scarrosa</i> var. <i>nova-angliae</i>)	Sandplain Flax (<i>Linum intercursum</i>)	Sandplain Blue Eyed Grass (<i>Sisyrinchium arenicola</i>)
NHESP Status		E	SC	SC	SC	SC	SC	SC
Rare Species Occurrence Area	A		✓	✓		✓		✓
	B			✓				✓
	C							✓
	D				✓			✓
	E		✓	✓	✓			✓
	F				✓			✓
	G				✓			✓
	H				✓			✓
	I				✓			✓
	J	✓	✓	✓	✓	✓		✓
	K				✓			✓
	L				✓		✓	✓
	M	✓			✓			✓
	N			✓	✓			✓
	O				✓			✓
	P				✓			✓
	Q				✓			✓
	R			✓	✓			✓
	S				✓		✓	✓
	T				✓			✓
U	✓						✓	



Scale 1:14,400
1 inch = 1200 feet

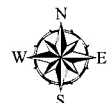


Figure A-4
Rare Plant Occurrence Areas
Nantucket Memorial Airport
Nantucket, Massachusetts

Basemap: 2003 Orthophotography, MassGIS



Legend

	Approximate Project Boundary
	Approximate Rare Moth Habitat
	Plant Communities
B	Beach
CH	Coastal Healthlands
CH/SO1B	Coastal Healthlands/Scrub Oak Shrubland Complex
DL	Developed Land
DL/R	Developed/Ruderal Lands
GL-1	Sandplain Grassland
GL-2	Cultural Grassland
GL/R	Grassland/Ruderal Areas
MS	Maritime Shrublands
PF	Playing Fields
PP1B/SO1B	Pitch Pine/Scrub Oak Community
PP1B/SO1C	Pitch Pine/Scrub Oak Community
PP2B/SO1B	Pitch Pine/Scrub Oak Community
R	Ruderal Areas
SD	Sand Dunes
SO1A	Scrub Oak Shrublands

POTENTIALLY AFFECTED RARE MOTH SPECIES

- Oncocnemis riparia*
- Cicinnus melsheimeri*
- Acronicta albarufa*
- Anisota stigma*
- Catocala herodias*
- Psectraglaea carnosus*
- Abagrotis nefascia*
- Metarranthis pilosaria*
- Cingilia catenaria*

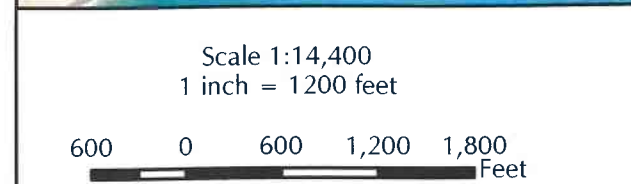
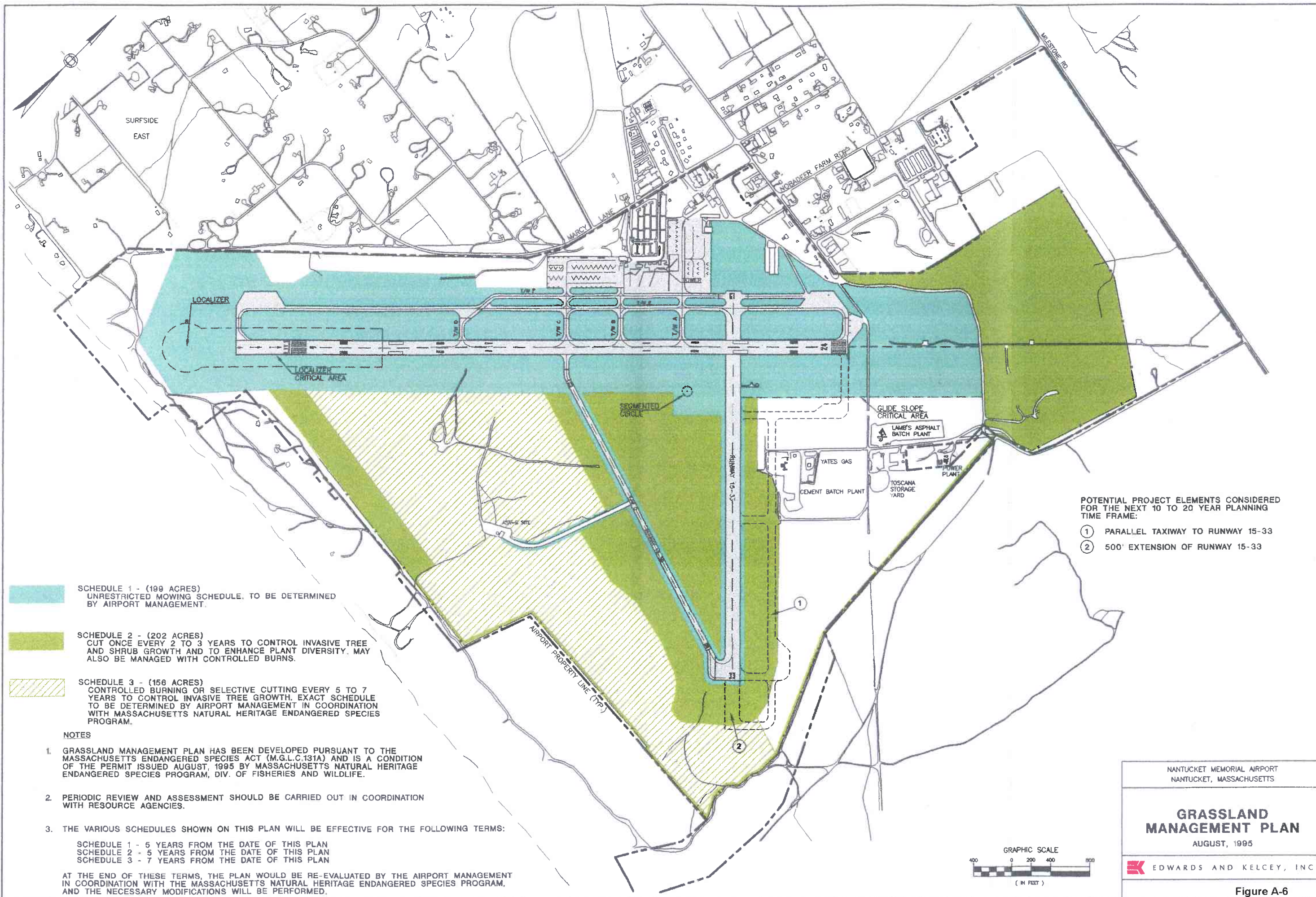


Figure A-5
Rare Moth Habitat
Nantucket Memorial Airport
Nantucket, Massachusetts

Basemap: 2003 Orthophotography, MassGIS





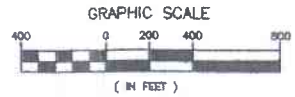
- SCHEDULE 1 - (199 ACRES)
UNRESTRICTED MOWING SCHEDULE. TO BE DETERMINED BY AIRPORT MANAGEMENT.
- SCHEDULE 2 - (202 ACRES)
CUT ONCE EVERY 2 TO 3 YEARS TO CONTROL INVASIVE TREE AND SHRUB GROWTH AND TO ENHANCE PLANT DIVERSITY. MAY ALSO BE MANAGED WITH CONTROLLED BURNS.
- SCHEDULE 3 - (158 ACRES)
CONTROLLED BURNING OR SELECTIVE CUTTING EVERY 5 TO 7 YEARS TO CONTROL INVASIVE TREE GROWTH. EXACT SCHEDULE TO BE DETERMINED BY AIRPORT MANAGEMENT IN COORDINATION WITH MASSACHUSETTS NATURAL HERITAGE ENDANGERED SPECIES PROGRAM.

NOTES

1. GRASSLAND MANAGEMENT PLAN HAS BEEN DEVELOPED PURSUANT TO THE MASSACHUSETTS ENDANGERED SPECIES ACT (M.G.L.C.131A) AND IS A CONDITION OF THE PERMIT ISSUED AUGUST, 1995 BY MASSACHUSETTS NATURAL HERITAGE ENDANGERED SPECIES PROGRAM, DIV. OF FISHERIES AND WILDLIFE.
2. PERIODIC REVIEW AND ASSESSMENT SHOULD BE CARRIED OUT IN COORDINATION WITH RESOURCE AGENCIES.
3. THE VARIOUS SCHEDULES SHOWN ON THIS PLAN WILL BE EFFECTIVE FOR THE FOLLOWING TERMS:
 SCHEDULE 1 - 5 YEARS FROM THE DATE OF THIS PLAN
 SCHEDULE 2 - 5 YEARS FROM THE DATE OF THIS PLAN
 SCHEDULE 3 - 7 YEARS FROM THE DATE OF THIS PLAN

AT THE END OF THESE TERMS, THE PLAN WOULD BE RE-EVALUATED BY THE AIRPORT MANAGEMENT IN COORDINATION WITH THE MASSACHUSETTS NATURAL HERITAGE ENDANGERED SPECIES PROGRAM, AND THE NECESSARY MODIFICATIONS WILL BE PERFORMED.

- POTENTIAL PROJECT ELEMENTS CONSIDERED FOR THE NEXT 10 TO 20 YEAR PLANNING TIME FRAME:
- ① PARALLEL TAXIWAY TO RUNWAY 15-33
 - ② 500' EXTENSION OF RUNWAY 15-33

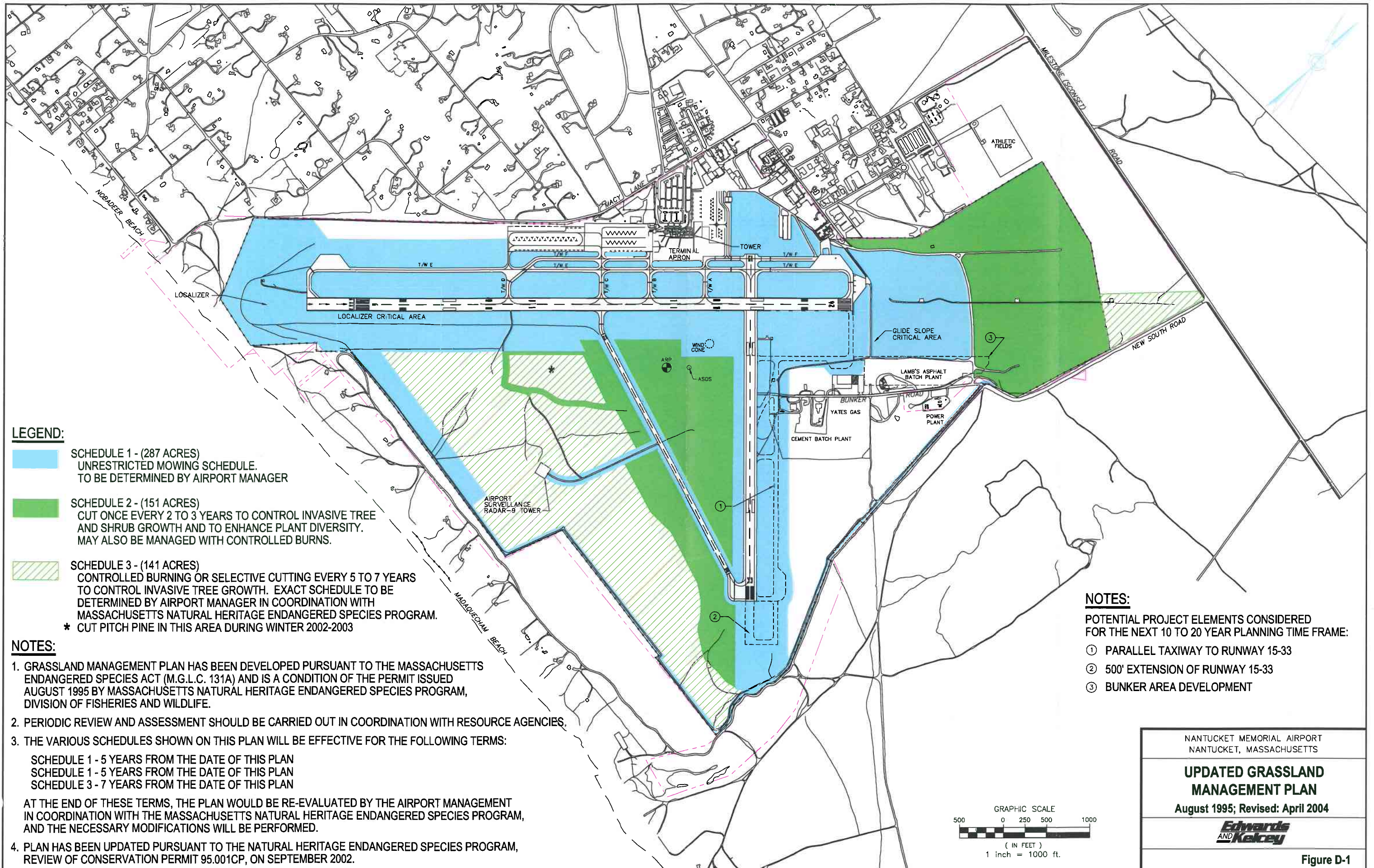


NANTUCKET MEMORIAL AIRPORT
NANTUCKET, MASSACHUSETTS

**GRASSLAND
MANAGEMENT PLAN**
AUGUST, 1995

EDWARDS AND KELCEY, INC.

Figure A-6



LEGEND:

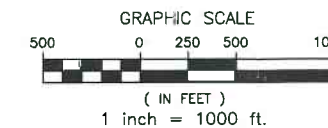
- SCHEDULE 1 - (287 ACRES)
UNRESTRICTED MOWING SCHEDULE.
TO BE DETERMINED BY AIRPORT MANAGER
- SCHEDULE 2 - (151 ACRES)
CUT ONCE EVERY 2 TO 3 YEARS TO CONTROL INVASIVE TREE
AND SHRUB GROWTH AND TO ENHANCE PLANT DIVERSITY.
MAY ALSO BE MANAGED WITH CONTROLLED BURNS.
- SCHEDULE 3 - (141 ACRES)
CONTROLLED BURNING OR SELECTIVE CUTTING EVERY 5 TO 7 YEARS
TO CONTROL INVASIVE TREE GROWTH. EXACT SCHEDULE TO BE
DETERMINED BY AIRPORT MANAGER IN COORDINATION WITH
MASSACHUSETTS NATURAL HERITAGE ENDANGERED SPECIES PROGRAM.
* CUT PITCH PINE IN THIS AREA DURING WINTER 2002-2003

NOTES:

1. GRASSLAND MANAGEMENT PLAN HAS BEEN DEVELOPED PURSUANT TO THE MASSACHUSETTS ENDANGERED SPECIES ACT (M.G.L.C. 131A) AND IS A CONDITION OF THE PERMIT ISSUED AUGUST 1995 BY MASSACHUSETTS NATURAL HERITAGE ENDANGERED SPECIES PROGRAM, DIVISION OF FISHERIES AND WILDLIFE.
2. PERIODIC REVIEW AND ASSESSMENT SHOULD BE CARRIED OUT IN COORDINATION WITH RESOURCE AGENCIES.
3. THE VARIOUS SCHEDULES SHOWN ON THIS PLAN WILL BE EFFECTIVE FOR THE FOLLOWING TERMS:
 SCHEDULE 1 - 5 YEARS FROM THE DATE OF THIS PLAN
 SCHEDULE 1 - 5 YEARS FROM THE DATE OF THIS PLAN
 SCHEDULE 3 - 7 YEARS FROM THE DATE OF THIS PLAN
 AT THE END OF THESE TERMS, THE PLAN WOULD BE RE-EVALUATED BY THE AIRPORT MANAGEMENT IN COORDINATION WITH THE MASSACHUSETTS NATURAL HERITAGE ENDANGERED SPECIES PROGRAM, AND THE NECESSARY MODIFICATIONS WILL BE PERFORMED.
4. PLAN HAS BEEN UPDATED PURSUANT TO THE NATURAL HERITAGE ENDANGERED SPECIES PROGRAM, REVIEW OF CONSERVATION PERMIT 95.001CP, ON SEPTEMBER 2002.

NOTES:

- POTENTIAL PROJECT ELEMENTS CONSIDERED FOR THE NEXT 10 TO 20 YEAR PLANNING TIME FRAME:
- ① PARALLEL TAXIWAY TO RUNWAY 15-33
 - ② 500' EXTENSION OF RUNWAY 15-33
 - ③ BUNKER AREA DEVELOPMENT



NANTUCKET MEMORIAL AIRPORT
NANTUCKET, MASSACHUSETTS

**UPDATED GRASSLAND
MANAGEMENT PLAN**

August 1995; Revised: April 2004

**Edwards
AND Kelcey**

Figure D-1

Nantucket Memorial Airport Environmental Resources and Land Sizes

Description	Response (Note: each response cell should be limited to 100 words maximum)
Wetlands, critical habitat, and cultural resources	302 acres of critical habitat as identified MA-2 and MA-3 as noted in Appendix A: Resource Areas. Approximately 100 additional acres non-critical habitat available, including a 3 acre wetland on adjacent parcel 89.7.
Size of environmentally sensitive lands on airport property in acres	151 non-contiguous acres denoted as MA-3 with approximately 35 acres of combined Cultural/Sandplan Grassland and Sandplain Heathland 151 non-contiguous acres denoted as MA-2 without detailed vegetaion community mapping
Threatened and Endangered plant species (zones MA-2 and MA-3, 2011)	Sandplain blue-eyed grass Bushy rockrose Purple needlegrass New England blazing star Papillose nut sedge Lion's foot
Threatened and Endangered <i>Lepidoptera</i> species (year observed)	Coastal Heath Cutworm (2001) Barrens Dagger Moth (2001) Gerhard's Underwing (2001) Melsheimer's Sack-bearer (2001, 2011) Chain-dotted Geometer (2001, 2011) Coastal Swamp Metarranthis (2001, 2011) Dune Noctuid Moth (2001) Pink Sallow (2001) Barrens Buckmoth (2010) Sandplain Heterocampa (2011)

Nantucket Memorial Airport
Electric Use 2011

Account Name/Number	Use/Charges	JAN/11	FEB/11	MAR/11	11-Apr	11-May	11-Jun	11-Jul	11-Aug	11-Sep	11-Oct	11-Nov	11-Dec
0133425000	Total kWh	3118	3030	2489	April -Account was transferred to 72298-08009								
Airport Nantucket,30 Macys Ln PKLOT	Charges	\$ 283	\$ 277	\$ 232									
0214776002	Total kWh	8932	8085	5716	7025	5716	5769	5734	5943	5496	6097	7166	6818
Nantucket Memorial Airport,11 Bunker Rd TEMP	Charges	\$ 858	\$ 783	\$ 864	\$ 705	\$ 589	\$ 568	\$ 601	\$ 623	\$ 562	\$ 627	\$ 741	\$ 1,212
2620890004	Total kWh	135360	137440	120320	110240	109280	122240	134880	124160	102080	124160	120160	127840
Town of Nantucket,Macys Ln AIRFIELD	Charges	\$ 8,022	\$ 8,175	\$ 7,360	\$ 7,033	\$ 7,168	\$ 7,933	\$ 9,203	\$ 8,526	\$ 6,769	\$ 8,016	\$ 7,844	\$ 18,534
5114834002	Total kWh	8232	8608	7011	4249	4179	4507	5713	1555	6417	4174	4914	7855
Nantucket Memorial Airport,30 Macy's Ln FAA	Charges	\$ 789	\$ 835	\$ 699	\$ 420	\$ 424	\$ 439	\$ 601	\$ 237	\$ 675	\$ 421	\$ 503	\$ 1,404
5209418007	Total kWh	6142	4846	954	Account was transferred to 75096-16010								
Town of Nantucket,Macys Ln RMPLT	Charges	\$ 525	\$ 454	\$ 212									
8856162008	Total kWh	?	4070	3828	246 Meter was removed when new ARFF Building was completed								
Town of Nantucket,MACYS Ln CRASH	Charges	\$ 253	\$ 381	\$ 370	\$ 23								
Nantucke Airport 30 Macy's Lane (Terminal)	2621024004 Total kWh	4220	3688	3488	3346	3724	2998	2198	2201	2425	2515	1283	1545
	Charges	\$ 774	\$ 677	\$ 657	\$ 625	\$ 682	\$ 529	\$ 295	\$ 296	\$ 433	\$ 453	\$ 241	\$ 274
Nantucket Airport, 30 Macys Ln TEMP	7229808009 Total kWh				3218	3564	2746	2718	2936	3100	3357	3954	4846
	Charges				\$ 607	\$ 652	\$ 483	\$ 496	\$ 538	\$ 562	\$ 614	\$ 758	\$ 892
Town of Nantucket, 14 Airport Rd ARFF	7509616010 Total kWh	?	15440	19840	23720	?	34000	33720	35760	36600	32560	35360	30000
	Charges	\$ 2,398	\$ 2,458	\$ 3,267	\$ 3,833	\$ 4,225	\$ 5,272	\$ 5,539	\$ 5,944	\$ 5,836	\$ 5,258	\$ 5,896	\$ 4,436
	Airfield Only	\$ 8,022	\$ 8,175	\$ 7,360	\$ 7,033	\$ 7,168	\$ 7,933	\$ 9,203	\$ 8,526	\$ 6,769	\$ 8,016	\$ 7,844	\$ 18,534
	Other Meters	\$ 5,881	\$ 5,865	\$ 6,301	\$ 6,213	\$ 6,572	\$ 7,291	\$ 7,532	\$ 7,638	\$ 8,068	\$ 7,373	\$ 8,139	\$ 8,218
	Total Charges	\$ 13,903	\$ 14,040	\$ 13,661	\$ 13,246	\$ 13,740	\$ 15,224	\$ 16,735	\$ 16,164	\$ 14,837	\$ 15,389	\$ 15,983	\$ 26,752
	Airfield Total	\$ 104,584											
	Other Total	\$ 85,090											
	Grand Total	\$ 189,674											

**Nantucket Memorial Airport
Water/Sewer Use 2011**

Meter #	Description	Measure	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total	
5443	14 Macys Lane Operations	Gallons - Water	748	748	2,992	800									5,288	
		Amount Billed Water	\$21.30	\$21.30	\$31.80	\$41.05										\$115.45
		Amount Billed Sewer	\$34.50	\$34.50	\$48.00	\$58.00	Final Bill									\$175.00
5444	14 Macys Lane Annex (Changed to landscape in Feb)	Gallons - Water	3,740	3,740	4,488	3,740	3,740	11,968	11,220	13,468	11,968	5,236	0	0	73,308	
		Amount Billed Water	\$32.50	\$32.50	\$68.50	\$32.50	\$32.50	\$71.00	\$67.50	\$78.00	\$71.00	\$39.50	\$15.00	\$15.00		\$555.50
5445	14 Airport Rd - terminal	Gallons - Water	18,700	21,692	23,936	20,196	24,684	31,416	39,644	40,392	34,408	23,936	24,684	27,676	331,364	
		Amount Billed Water	\$116.25	\$130.25	\$140.75	\$123.25	\$144.25	\$175.25	\$214.25	\$217.75	\$189.75	\$140.75	\$144.25	\$158.25		\$1,895.00
		Amount Billed Sewer	\$142.50	\$160.50	\$174.00	\$151.50	\$228.00	\$282.00	\$348.00	\$354.00	\$306.00	\$222.00	\$178.50	\$196.50		\$2,743.50
5446	14 Macy Lane - Tower	Gallons - Water		3,740	5,236	2,992	4,488	4,488	4,488	4,488	4,488	2,244	2,244	3,740	42,636	
		Amount Billed Water	\$95.80	\$35.30	\$42.30	\$31.80	\$38.80	\$38.80	\$38.80	\$38.80	\$38.80	\$28.30	\$28.30	\$35.30		\$491.10
		Amount Billed Sewer		\$52.50	\$61.50	\$48.00	\$66.00	\$66.00	\$66.00	\$66.00	\$66.00	\$48.00	\$43.50	\$52.50		\$636.00
5449	30 Macys Lane	Gallons - Water	0	748	0	0	0	0	748	0	0	0	748	0	2,244	
		Amount Billed Water	\$15.00	\$18.50	\$15.00	\$15.00	\$15.00	\$15.00	\$18.50	\$15.00	\$15.00	\$15.00	\$18.50	\$15.00		\$190.50
		Amount Billed Sewer	\$30.00	\$34.50	\$30.00	\$30.00	\$30.00	\$30.00	\$36.00	\$30.00	\$30.00	\$30.00	\$34.50	\$30.00		\$375.00
05321	14 Airport Rd Rescue Bldg	Gallons - Water	1,496	2,244	2,992	2,992	2,992	5,236	5,236	2,992	11,968	3,740	3,740	2,992	48,620	
		Amount Billed Water	\$32.75	\$39.25	\$42.75	\$42.75	\$42.75	\$53.25	\$53.25	\$42.75	\$84.75	\$46.25	\$46.25	\$42.75		\$569.50
		Amount Billed Sewer	\$39.00	\$43.50	\$52.14	\$48.00	\$54.00	\$72.00	\$72.00	\$54.00	\$126.00	\$60.00	\$52.50	\$48.00		\$721.14
05420	14 Airport Rd Rescue Bldg	Gallons - Water	0	0	0	11,968	61,336	51,612	118,932	127,160	133,144	47,872	0	0	552,024	
		Amount Billed Water	\$17.80	\$17.80	\$17.80	\$73.80	\$304.80	\$259.30	\$574.30	\$612.80	\$640.80	\$241.80	\$17.80	\$17.80		\$2,796.60
00802	Bunker Road	Gallons - Water	2,992	2,992	2,992	2,992	3,740	3,740	13,464	17,204	4,488	2,244	3,740	2,244	62,832	
		Amount Billed Water	\$31.80	\$31.80	\$63.60	\$31.80	\$35.30	\$35.30	\$80.80	\$98.30	\$38.80	\$30.21	\$35.54	\$30.57		\$543.82
02223	14 Airport Road	Gallons - Water	4,488	9,724	3,740	2,244	4,488	8,228	11,968	11,968	8,228	3,740	3,740	1,496	74,052	
		Amount Billed Water	\$36.00	\$60.50	\$32.50	\$25.50	\$36.00	\$53.50	\$71.00	\$71.00	\$53.50	\$32.50	\$32.50	\$22.00		\$526.50
		Amount Billed Sewer	\$57.00	\$88.50	\$52.50	\$43.50	\$66.00	\$96.00	\$126.00	\$126.00	\$96.00	\$60.00	\$52.50	\$39.00		\$903.00
04849	126 Old south Rd Comm	Gallons - Water	748		748	0	748	0	748	0	748	0	748	0	4,488	
		Amount Billed Water	\$15.00		\$18.50	\$15.00	\$18.50	\$15.00	\$18.50	\$15.00	\$18.50	\$15.00	\$18.50	\$15.00		\$182.50
		Amount Billed Sewer	\$30.00		\$34.50	\$30.00	\$36.00	\$30.00	\$36.00	\$30.00	\$36.00	\$30.00	\$34.50	\$30.00		\$357.00
04938	14 Airport Road - New Term Bldg	Gallons - Water		9,724	13,464	13,464	20,944	36,652	92,752 combined		29,920	17,952	16,456	11,220	262,548	
		Amount Billed Water		133.25	150.75	150.75	185.75	259.25	521.25 with		227.75	171.75	164.75	140.25		2,105.50
		Amount Billed Sewer		88.50	111.00	111.00	198.00	324.00	774.00 july		270.00	174.00	129.00	97.50		2,277.00
05698	14 Airport Rd Hangar #2	Gallons - Water						0	0	0	0	0	0	0	0	
		Amount Billed Water						\$13.50	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00		\$103.50

Total Gallons	1,459,404
Total Amount Billed Water	\$ 10,075.47
Total Amount Billed Sewer	\$ 8,187.64

Nantucket Memorial Airport
2011 Diesel Use

<u>Vehicle ID</u>	<u>Gallons</u>
A1	176.9
A11	1064.4
A-2	111.4
A3	145.6
A-4	439.3
A-6	446
A-8	138.3
A-9	577.1
Brushcutter	157.9
GPU1	186.2
GPU2	292.3
L1	267.8
L2	670.4
LT1	62.7
LT2	19
PUMP	69.9
S1	92.8
SS	92.3
T-1	474.6
T-2	711.9
T-3	634.3
T-5	379
T-6	192.7
T-7	253.9
T-8	137.5
TR1	126.9
TR-2	222.4
TUG1	84
Total Diesel	8,228

Nantucket Memorial Airport
2011 Gasoline Use

<u>Vehicle ID</u>	<u>Gallons</u>
A-10	623.6
A-14	962.8
A-5	353.2
BUS-1	390.5
BUS2	351.8
M-1	332
TUG2	14.9
Total Gas	3,029

**Nantucket Memorial Airport
Heating Fuel Oil**

2011	Tank 1	Tank 2	Tank 3
Gallons	18,735.50	1,321.30	10,313.70
Dollars	\$ 62,723.39	\$ 4,866.19	\$ 38,542.78
Avg Cost/Gal	\$ 3.35	\$ 3.68	\$ 3.74

Works Cited

- 1 <http://www.airportcarbonaccreditation.org/>
- 2 <http://www.trb.org/ACRP/Blurbs/168308.aspx>
- 3 http://www.airportsgoinggreen.org/content/documents/acrp_syn_010.pdf
- 4 <http://www.ackenergy.org/Top20Facilities.html>
- 5 <http://www.mass.gov/dep/recycle/solid/mprev12.pdf>
- 6 <http://www.epa.gov/otaq/regs/nonroad/aviation/memo-selc-airport-mon-stdy.pdf>
- 7 <http://www.epa.gov/airnow/2011conference/monitoring/Cavender%20Pb%20Monitoring%20Wrapup%20-%20NAQC%202011.pdf>
- 8 <http://www.mass.gov/dep/public/netplan.pdf>
- 9 http://www.faa.gov/airports/resources/advisory_circulars/
- 10 <http://www.gobiomass.com/article.cfm?id=28407>
- 11 <http://www.epa.gov/aml/revital/cseqfact.pdf>
- 12 <ftp://ftp.eia.doe.gov/pub/oiaf/1605/cdrom/pdf/sequester.pdf>
- 13 http://www.forestecologynetwork.org/climate_change/maine_forests_%26_carbon.html

GEORGE H. ARONSON
Principal

SUMMARY

Over 15 years of progressively responsible experience as an analyst, project manager and senior management consultant with a broad record of accomplishment in the fields of solid waste management, independent power production, utility regulation and energy conservation. Areas of expertise include:

Development of solid waste management facilities and programs, including negotiation of development rights, waste acquisition, site selection, permit acquisition, conceptual design development, and acquisition of product sales arrangements for landfill gas recovery facilities, landfill expansions, waste-to-energy facilities, recycling programs, and composting facilities and programs.

Business and economic analysis in support of investments in facilities, programs, services and acquisition, including market analysis, price and demand forecasts, modeling of technical performance, financial analysis, projections of pro forma operating results, valuation analysis and sensitivity analysis.

Procurement of solid waste management facilities and services, including structuring of business and financial arrangements, preparation of bid documents; management of bidding processes; proposal evaluation; and support for vendor selection and negotiations.

Negotiation of electricity sales agreements, including energy market assessments, utility negotiations, and acquisition of regulatory approvals.

PROFESSIONAL EXPERIENCE

1991 to present	CommonWealth Resource Management Corporation Principal
1985 to 1991	CSI Resource Systems, Inc. Director, Business Services Project Manager Senior Associate Associate
1982 to 1985	Massachusetts Energy Facilities Siting Council Director of Technical Analysis Senior Economist Staff Economist

EDUCATION

Master in Public Policy	Harvard University, Kennedy School of Government (1983)
Bachelor of Science in Mechanical Engineering	Massachusetts Institute of Technology (1978)

CONSULTING ASSIGNMENTS

Development of solid waste management facilities and programs

NEO Corporation
BioMedical Waste Systems, Inc.
Molten Metal Technologies, Inc.
GreenCycle of the Northeast, Inc.
Bio Systems Partners, Inc.
United Waste Services, Inc.
Connecticut Resource Recovery Authority
Springfield Resource Recovery, Inc.
City of Boston, Massachusetts
Lions' Head Organics, Inc.
Environmental Recovery Systems, Inc.
The ARS Group, Inc.
Traitement Industriel des Residus Urbain, s.a.

Business and economic analysis

NEO Corporation
EcoNet, Ltd.
Mass. Financial Services
Wright & Moehrke
Dinwiddie County
North East Solid Waste Committee
City of Chelsea Receivership
Woodland Industries
American Capital Advisors, Inc.
Highland Financial, Inc.
Prudential Management Advisors, Inc.
Town of Lunenburg, Massachusetts
Municipal Review Committee (PERC)
Springfield Resource Recovery, Inc.
Town of Marblehead, Massachusetts
Town of Nantucket, Massachusetts

GEORGE H. ARONSON

Principal

The Deer Path Group, Inc.
Orange County, Florida
Will County, Illinois
Town of Smithtown, New York

Procurement of solid waste management facilities and programs

Town of Sharon, Massachusetts
Town of Canton, Massachusetts
Windham County, Vermont
City of Concord, New Hampshire
Somerset County, New Jersey
City of Los Angeles, California
Town of Hempstead, New York
Monroe County, Pennsylvania
Town of Wallingford, Connecticut
Delaware County, Pennsylvania
City of Boston, Massachusetts
Stanislaus County, California

Negotiation of electricity sales agreements

Niagara Mohawk Power Company
Taunton Municipal Light Plant
Massachusetts Electric Company
New England Power Company
Connecticut Light and Power Company
United Illuminating Company
Metropolitan Edison Company
Pacific Gas and Electric Company

MEMBERSHIPS

Member, Solid Waste Association of North America

Chair, Town of Sharon (Massachusetts) Recycling Advisory Committee

Member, Northeast Energy and Commerce Association

Member, Independent Power Producers of New York

Capt. Arthur D. Gasbarro, III, PE, PLS, LEED AP

Blackwell & Associates, Inc. Professional Land Surveyors & Civil Engineers Nantucket, Massachusetts

Education

1991-1995 University of Massachusetts-Lowell Lowell, MA

- Bachelor of Science in Civil Engineering

Regular participant in professional continuing education studies, trade-related conferences and seminars.

Accreditation

- Massachusetts Registered Professional Engineer, License No. 45,951
- Massachusetts Registered Land Surveyor, License No. 47,149
- Massachusetts Certified Soil Evaluator & Title V System Inspector
- USCG Licensed Operator with Transportation Worker Identification Credentials
- LEED Accredited Professional – U.S. Green Building Council

Professional Affiliations

- American Society of Civil Engineers (ASCE)
- Massachusetts Association of Land Surveyors and Civil Engineers (MALSCE)
- Town of Nantucket Memorial Airport Commission Vice-Chairman
- Town of Nantucket Traffic Safety Advisory Workgroup Member

Experience

October 1995 - Present Blackwell & Associates, Inc. Nantucket, MA
Professional Civil Engineer & Land Surveyor

- Responsible for site evaluation and design of residential and commercial projects
- Representation of surveying and engineering matters to clients, their agents, municipal boards and state agencies.
- Function as sole liaison between clients and contractors.
- Preparation and oversight of construction stake out.
- Perform soil evaluations including percolation testing.
- Provide quality control and supervision of site information gathering.
- Conduct supporting document research and studies.
- Full project life-cycle documentation and management.

Technical Expertise

Strong familiarity with State and Local Wetland Protection and Health Codes.

Applications include Autodesk with Civil Design, Benchmark System, Microsoft Office Suite, with a comprehensive understanding of network and systems' configurations.

Well-versed in the operation of survey equipment and precise field measurements.

Noah Joseph Karberg
165 Cliff Rd
Nantucket, MA 02554
(508) 901-1175
noahjvk@yahoo.com

Education:

09/2002 to 12/2003: Michigan Technological University, Houghton MI.
MS Forestry 12/2003
09/1997 to 12/2000: University of Michigan, Ann Arbor MI
BS with a dual concentration: Resource Ecology and
Management, Environmental Policy and Behavior 12/2000

Academic Honors:

Xi Sigma Pi Associate Forester (4/2000), Dean's List (3/1999, 6/1999, 4/2000)

Work experience:

1/2013 to present: Environmental Coordinator, Nantucket Memorial Airport, Nantucket
MA
1/2011 to 1/2013: Wastewater Treatment Plant Operator, Town of Nantucket Department
of Public Works, Nantucket, MA
9/2008 to 12/2010: Arborist, Nantucket Yard Guard, Nantucket, MA
1/2001 to 9/2008: Ecologist, U.S. Forest Service, Northern Research Station, Houghton, MI

Professional certifications:

Commonwealth of Massachusetts Class B Commercial Driver's License
Commonwealth of Massachusetts Grade 6 Combined Municipal/Industrial Wastewater
Operator
U.S. Forest Service Trailer towing instructor, backhoe/loader operator, S-212 wildfire
powersaws (Class A sawyer), snowmobile/ATV operator, shop equipment and
powertools,
OSHA/MIOSHA Excavation and Scaffolding Competent Person, General Industry and
Collateral Safety Duty endorsements, OSHA 29 CFR 1960
National Safety Council Emergency First Responder and CPR

Professional Awards:

Certificate of Merit, U.S. Forest Service (11/2001, 10/2003, 10/2004)
Best Poster Award, ASA/CSSA/SSSA 2007 Annual Meeting: S7 Division-Effects of Invasive
Species

Publications:

Peer-reviewed manuscripts:

1. **Karberg, N.J.** and E.L. Lilleskov. (2008) White-tailed deer (*Odocoileus virginianus*) fecal pellet decomposition is accelerated by the invasive earthworm *Lumbricus terrestris*. *Biological Invasions* 11: 761-767
2. **Karberg, N.J.**, K.S. Pregitzer, J.S. King, A.L. Friend, and J.R. Wood. (2005) Soil carbon dioxide partial pressure and dissolved inorganic carbonate chemistry under elevated carbon dioxide and ozone. *Oecologia* 142:296-306
3. Loya, W.M., K.S. Pregitzer, **N.J. Karberg**, J.S. King and C.P. Giardina (2003) Reduction of soil carbon formation by tropospheric ozone under increased carbon dioxide levels. *Nature* 425:705-707

Manuals and technical documents:

1. **Karberg, N.J.** and A.L. Friend (2004) FACT sheet for Criterion five: The maintenance of forest contribution to global carbon cycles. In W. Heinrich-Sanders (ed) Montreal Process Criteria and Indicators. A publication for the Great Lakes Forest Alliance Sustainable Forest Regional Roundtable, March 23-24, 2004 LaCrosse, WI USA <http://lsfa.org/publications.html>
2. Friend, A.L., E.A. Lilleskov, **N.J. Karberg**, and J.W. Powers (*In prep*). Root and macrofauna colonization of a novel Rhizotron facility. U.S. Forest Service General Technical Report

Book chapters:

1. Pregitzer, K.S., D.R. Zak, W.M. Loya, **N.J. Karberg**, J.S. King, and A.J. Burton (2007) The contribution of root systems to biogeochemical cycles in a changing world. In Z. Cardon and J Whitbeck (eds.) *The Rhizosphere: An Ecological Perspective*. Academic Press, NY
2. **Karberg, N.J.** and C.P. Giardina (2008). Methods for estimating litter decomposition. In R. Birdsey and C. Hoover (eds.) *Field measurements for forest carbon monitoring*. Springer, Netherlands.

Presentations:

1. Friend, A.F., C.P. Giardina, E.L. Lilleskov, and **N.J. Karberg**. NIACS: A Science to End-User Bridge. Third USDA Symposium on Greenhouse Gases and Carbon Sequestration in Agriculture and Forestry. Baltimore, MD USA. March 21-24, 2005
2. Friend, AF, **NJ Karberg** and S. Pugh. The Northern Institute of Applied Carbon Science. Sustainable Forest Management Regional Roundtable. LaCrosse, WI USA. March 23-24, 2004
3. **Karberg, N.J.** The Case for Paleozoic Sedimentary Geology as a Determinant of Calciphilic Plant Distribution in the Michigan Basin. Michigan Technological University Graduate Seminar Series. Houghton, MI, December 16, 2003
4. **Karberg, N.J.** and A.L. Friend. Carbon Management in the Lake States. Technical Advisory Meeting of the Pulp and Paper Industry. Appleton, WI, October 13, 2005.
5. **Karberg, N.J.**, E.L. Lilleskov, A.J. Storer and A.L. Friend (2007). European earthworm invasion alters soil carbon storage and nutrient availability. Annual Meetings Abstracts [CD-ROM] ASA, CSSA, and SSSA, Madison WI.

Thomas M. Rafter

4a Green Hollow Road, Nantucket, Ma. 02554

W (508) 325-5304 ♦ C (609) 437-4780

trafter12@verizon.net

EXPERIENCE:

Airport Manager

Nantucket Memorial Airport

6/12- present

Responsibilities include:

- Managing all aspects of staffing, strategic and long-term planning, facilities, financial management, security, safety, stakeholder relations, and infrastructure planning
- Overseeing and implementing programs to ensure effective operation and safety of the airfield
- Directing all maintenance and construction
- Preparing and monitoring the operating and capital budgets and measuring performance against budget
- Managing the collection and audit of all revenues
- Directing staff and providing oversight, including collective bargaining negotiations
- Assisting the Commission in developing overall airfield policy and long-term planning
- Overseeing compliance with applicable rules and regulations, Commission policies and priorities, and airport procedures
- Communicating regularly with the Town Manager
- Responsibility for day-to-day working relationships with the FAA, Mass DOT Aeronautical Division, TSA, airline and general aviation customers, tenants, users, service contractors, etc.
- Directing and participating in the negotiation and management of real estate transactions, concession contracts, and commercial service agreements
- Overseeing contract compliance, including applicable procurement laws
- Designing and implementing new business opportunities
- Leading air service development, marketing and community affairs

Thomas Rafter, A.A.E.

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Airport Director

12/94- 6/12

Atlantic City International Airport

South Jersey Transportation Authority

Responsible for overall operation of a small hub airport including:

- Operating airport in accordance with all applicable Federal Regulations
- Developing business opportunities and negotiation of all leases
- Implementation of Master Plan
- Preparation of Capital Plan and Grant applications
- Oversight of Contract Operator
- Developing capital and operating budgets
- Operation of ARFF and Police Departments
- Advising Board of Commissioners on Airport matters
- Establishing policies and procedures for operation of the airport
- Preparing and updating Rules and Regulations, Rates and Charges and all manuals and plans

Program Manager

12/92 - 12/94

Atlantic City International Airport

South Jersey Transportation Authority

Assisting the Airport Director and responsible for the following:

- Overseeing daily operations, maintenance and security of airport facilities
- Monitoring tenant activities and negotiating resolution of business matters
- Initiating and managing airport planning and development projects and studies
- Preparing operating budget, pricing policies and minimum standards
- Overseeing management of ground transportation activities
- Maintaining liaison with other governmental agencies and Authority departments

Deputy Director

3/91 - 12/92

Atlantic City International & Bader Field Airports

Johnson Controls Management Systems

Responsible for daily activities of an Air Carrier and General Aviation airport system including:

- Representing Director of Airports in his/her absence
- Managing Fixed Base Operation
- Developing personnel policy and procedures
- Preparing operational and fee studies and analysis
- Developing and implementing lease negotiation strategies

Thomas Rafter, A.A.E.

Page 3

Terminal Manager

6/86 - 3/91

Atlantic City International Airport

Pan Am Management Systems

Responsible for all functions of terminal and ground transportation operations including:

- Preparing and negotiating leases, permits, and agreements
- Preparing concession Requests for Proposals
- Developing procedures for all ground transportation operators
- Assisting in design and layout of facilities
- Coordinating various construction projects
- Preparing annual operating budget

Airport Manager

7/83 - 6/86

Atlantic City International & Bader Field Airports

City of Atlantic City

Airport Manager of two-airport system, responsible for:

- Acquiring FAR Part 139 certification for Bader Field Airport, Atlantic City, NJ (AIY)
- Overseeing daily operations, including aircraft rescue/ firefighting and operation of a private control tower
- Developing gate allocation program for scheduled and charter air carrier use
- Working with FAA on various test projects involving security and airfield safety
- Developing security program for international airport

Airport Maintenance Supervisor

9/81 - 7/83

Atlantic City International & Bader Field Airports

City of Atlantic City

Responsible for:

- Establishing maintenance policy and procedures for air carrier and general aviation airports
- Developing inventory control program
- Scheduling personnel

Thomas Rafter, A.A.E.

Page 4

EDUCATION:

Atlantic City High School - Mechanical Drafting

Montclair State College - Major - Industrial Education and Technology

Thomas Edison State College – Course work toward Bachelor of Science, Business Administration program, specializing in Transportation Management

AFFILIATIONS:

American Association of Airport Executives - Accredited Airport Executive

Northeast Chapter American Association of Airport Executives – Past President

Airports Council International – Official Representative

Aviation Ground Services Association – Policy Board member

American Association of Airport Executives – Board of Directors (June 2008 - 2012)

Technical Service Committee Chair (2012 – present)

RELATED SKILLS:

Computer programs – Microsoft Office, Access, Project and AutoCAD Lite

Ability to Read and Comprehend Blueprints

Public Speaking – International and Domestic

Highly developed negotiating skills

REFERENCES:

Supplied Upon Request

LAUREN M. SINATRA

12 Perry Lane Nantucket, MA 02554
LMSinatra@gmail.com / Mobile: 203-988-0255

SUMMARY: Successful program & outreach coordinator with more than six years' experience in marketing, communications and business development for the environment, sustainability and renewable energy sectors; proven ability to self-manage, satisfy the highest performance standards and execute critical as well as minute tasks; creative problem solver with solid common sense.

PROFESSIONAL EXPERIENCE

July 2011-Present **TOWN OF NANTUCKET ENERGY OFFICE: Energy Project & Outreach Coordinator** Nantucket, MA

- Promotes, maintains, and manages informational public outreach and furthers the development of energy initiatives to reduce municipal and Town-wide energy consumption and costs
- Facilitates utilization of local and low-impact energy resources on Nantucket

Nov 2007 – May 2011 **ESTY ENVIRONMENTAL PARTNERS** New Haven, CT / Boston, MA
Program Coordinator—Esty Sustainability Network / Sales, Research & Outreach Associate (Jul 2010-present)

- Acted as chief liaison between Esty Environmental Partners and C-level executives of Working Group client firms
- Was solely responsible for researching, managing and executing the logistics of webinars, meetings and conferences
- Implemented sales and marketing strategies for new business development, client management and retention
- Writer of firm press releases, project briefs, new client pitches and advertising copy (ex. sales brochures, webpage)
- Significantly involved with business development and evaluation of new collaborative opportunities
- Created and managed team work plans, program budget, financials, and client relationships

Special Assistant to Daniel C. Esty, Chairman/Founder; Esty Environmental Partners (Nov 2007- Jul 2010)

• RESEARCH, ANALYSIS, AND PROJECT MANAGEMENT

- Provided leadership and assistance on a variety of complex organizational and special projects to support the work of the Chairman (researching new business development prospects & creating presentations for keynote speeches)
- Represented the Chairman at meetings and university events, at which he could not attend
- Researched and responded to complex questions related to budgets, administration and strategic planning
- Represented the firm to outside clients and potential clients and decided their access to Chairman
- Researched local, state and federal environment-related public policy and prepared weekly debriefs for Chairman, and used research to draft Chairman's presentations

• WRITING AND COMMUNICATIONS

- Drafted and edited documents to ensure accurate and effective communication
- Interfaced and collaborated with executive management and senior leadership at client organizations on behalf of the Chairman/ firm
- Researched and helped draft and edit chapters (ex. *Office Activities, Developing a Climate Action Plan*) for Dan Esty's soon to be released book "*Green to Gold: Business Playbook*"

Sep 2008 - Present **NANTUCKET SOLAR, LLC (www.AckSolar.com)** Nantucket, MA
Local, Renewable Electric System Design & Installation Company
Business Manager/ Co-Founder "Nantucket Solar Express: Mobile Solar Generator"

- Spearheads policy research, marketing/communications, business development, event/project management & community outreach efforts to bring affordable mobile solar power to local non-profits & the Nantucket community
- Highly knowledgeable on renewable energy systems and Federal, State & Local policies, i.e. Green Communities Act, SRECs market, Commonwealth Solar II Rebate Program & Nantucket HDC "Sustainable Preservation" guidelines

Apr 2005 - Jan 2008 **o.s. Earth, Inc. (www.osearth.com)** New Haven, CT
A direct descendant of Buckminster Fuller's famous World Game™, o.s.Earth's Global Simulation Workshop is an interactive education tool for schools and organizations to learn about sustainable resource management and global "interconnectedness"
Project Manager/Hiring Manager/Head Researcher, April 2007-January 2008

- Improved product development and industrial design: from developing workshop content, formatting, ordering and organizing, to shipping, packing and website development
- Established and directed creative development projects and company priorities for staff
- Managed all aspects of recruiting and hiring: writing of ads, interviewing and negotiating employment offers
- Achieved the highest title of "Senior Facilitator" after independently facilitating 15 workshops to organizations, universities and schools over the course of 8 months with over 95% client satisfaction

EDUCATION

Sep 2000 - May 2004 **Tufts University - Bachelor of Arts** Medford/Somerville, MA
Major: Sociology, Focus: (Sustainable) Community Preservation, Minor: Communication & Media Studies
Graduated Magna Cum Laude: 3.63/4.0 GPA

Sep 2009-May 2010 **Yale University – Non-matriculated student, completed courses:** New Haven, CT
- Corporate Environmental Strategy & Management, Yale School of Management
- Legal Aspects of Entrepreneurism, Yale School of Law

SKILLS

Computer: Proficiency in Mac OS and PC platforms, Microsoft Office Suite, MediaWiki, Central Desktop, Adobe Creative Suite (Photoshop, Illustrator, Dreamweaver), Sugar CRM, HTML

Professional: Project Management, public speaking, workshop preparation and facilitation, staff training, creative product development

Interests: Sustainable Business Management, Clean Technology & Energy, Bio-mimicry, Nantucket Island Sociology (history, community)



February 6, 2013

Thomas M. Rafter, A.A.E.
Airport Manager
Nantucket Memorial Airport
126 A Old South Road
Nantucket, MA 02554

Nantucket Airport Ground Source Heat Pump Evaluation

Dear Tom:

Thank you for giving Northern Energy Services the opportunity to present the following energy efficiency systems proposal for ***Nantucket Airport's Ground Source Heat Pump System.***

Background:

Nantucket Memorial Airport (approximately 30,000 square foot) built in 2009 has a Ground Source Heat Pump System (GSHP) to provide both heating and cooling for the facility. According to Airport facility personnel, the GSHP can provide sufficient heating and cooling during approximately 95 percent of the year. Unfortunately, during design heating and cooling days, the system is currently unable to maintain indoor design temperatures. The Airport's Chris Wilson indicated that the GSHP has been totally unable to maintain comfortable space temperatures in the Airport restaurant (Crosswinds Restaurant & Bar) during cold weather experienced over the last few days. Hot water temperatures leaving the GSHP were recorded 107 degrees rather than the 115 to 120 degrees, as designed. As a consequence, the restaurant located some 300 feet from GSHP, was showing space temperatures as low as 46 degrees while the thermostat was calling for heat.

Chris suspects that the GSHP System compressors have sufficient capacity to provide both heating and cooling for the Airport facility. From his prospective, the central problems are under-sized distribution equipment on the indoor side and improper control on the ground side of the compressors. The original system programmer no longer works in the area and apparently his early attempts to properly balance the system were not fully documented. Other vendors have been brought in to evaluate the system but haven't provided a satisfactory solution to the performance problems. To address the most urgent need, the Airport recently issued an RFP to install an independent heating and cooling system for the restaurant. Finally, Chris also provided copies of the original As Built Diagrams for the Airport HVAC (Enterprise Equipment Co, dated 1/02/10), for our review.



Initial Scope of Work

Northern Energy and our engineering partner (*Automatic Temperature Controls*) propose to review the operation of the GSHP and, as warranted, submit a Re-Commissioning proposal for the system to Nantucket Airport & National Grid. Our initial objective is to identify the specific operation & design problems associated with the Airport's GSHP, as currently configured, and propose possible solutions.

Please let me know if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Donald E. Robinson".

Donald Robinson
Business Development Manager
Northern Energy Services

Energy Initiative

Energy Efficient Lighting Systems



Customer Report: TOWN OF NANTUCKET
Application No: 2192828
Report Date: 02-04-2013
Report Version: Final

Customer Information

Customer Name:	TOWN OF NANTUCKET	Facility Name:	Nantucket Airport
Billing Acct No:	2620890004	Street Address:	14 Airport Rd
Contact Person:	Lauren Sinatra	City:	Nantucket
Telephone:	203-988-0255	State:	Massachusetts
Email Address:		Zip:	02554

Savings Summary

Incentive Summary

Gross Annual kWh Savings	117,072 kWh	Authorized Incentive:	\$40,459
Estimated Customer Cost per kWh	0.15	Total Cost of Installed Measures:	\$68,109
Annual Electric Cost Savings	\$17,561	Simple Pay Back	3.9 years
CO2 Savings (lbs)*	128,779 lbs		

Installation Contractor Information

Installed By: PROJECT EXPEDITOR Company Name: NORTHERN ENERGY SERVICES INC
 Contact Person: MELISSA DAY PAUL MALLET Street Address: 78 WEST MAIN STREET
 Telephone: 508-393-7500 ext. City: NORTHBOROUGH
 E-mail Address: mday@northernenergy.net State and Zip: MASSACHUSETTS 01532

Application Date:	October 19, 2012
Expected Completion Date:	March 30, 2013
Proposed Incentive Recipient:	PROJECT EXPEDITOR

Leading By Example Program LED Replacement Bulb Project: Phase2 Request Form

LED replacement bulb project

Scope: Provide State Agencies, Higher Education Institutions, and Municipalities with a number of reduced wattage, energy saver-bulbs, including the Philips 9.7 watt, L-Prize, dimmable LED bulb, equivalent to a typical 60 – 75 watt incandescent light bulb. Also available are a number of LED equivalent BR and PAR flood lamps, and select linear fluorescent tube lamps. All bulbs in this offer are Energy Star qualified and UL approved.

DOER, in cooperation with NSTAR/WMECO, National Grid and Philips Lighting, is providing a year-end opportunity of free Energy Star qualified, dimmable, LED light bulbs to Agencies, Schools, and Municipalities who complete the form (below). This offer also includes select high efficiency linear T-8 fluorescent lamps. See below for details and worksheet 2 for links to bulb specifications.

This is a year-end opportunity. Supplies are limited and bulb **order forms must be submitted to DOER no later than December 12, 2012.**

Eligibility Requirements:

- Facilities/Schools/Municipalities must be within NSTAR/WMECO or National Grid territories
- Orders must be placed with DOER before December 12, 2012
- You must complete the form below for each facility receiving bulbs, including location, shipping contact information, number of bulbs for each
- All bulbs must be installed in a public facility/location – no bulbs can be used for personal use
- All bulbs must be installed no later than January 31, 2013
- There is no limit to the number of bulbs you may order. However, you may not stockpile bulbs. All bulbs must be used to replace existing in-use bulbs.
- Agency/School/Municipality agrees to provide representative photographic evidence of installed lamps

DOER makes no representations or warranties concerning merchandise fitness for a particular purpose, and that, in its capacity as pass-through agent, it is not responsible for any damages, including consequential damages, arising from the use of the bulbs.

Please Return Completed Forms by C.O.B. December 12, 2012 electronically to: charles.tuttle@state.ma.us

Fill in information below

Agency Name:	Nantucket Energy Office
Address:	16 Broad Street
Contact Person:	Lauren Sinatra
Phone:	508-325-5379
Email:	Lauren Sinatra
Current electricity cost (kWh):	\$0.15

Facility Name & Shipping Address Building Name/Location getting new bulbs Contact name and phone for delivery	Bulb types	Current Bulb Wattage	# of Bulbs Requested	Estimated Annual Usage Hours (use table below to calculate)	Estimated Annual kWh Saved	Estimated Annual Savings
Nantucket Memorial Airport 126 A Old South Road Nantucket, MA 02554 Airport Main Terminal Thomas M. Rafter, A.A.E. 508-325-5303	10A19/LPRIZE - A LAMP - PN# 420224	60	96	4000	19,315	\$ 2,897
	7PAR20/END/F25 2700 DIM 6/1 - Par 20 - PN# 418574				-	\$ -
	13BR30/END/F90 2700-700 DIM SM 6/1 - BR30 - PN# 420554	65	30	4300	6,708	\$ 1,006
	12PAR30L/END/S15 2700 DM 6/1 - PAR30L - PN# 414482				-	\$ -
	13PAR30L/END/F25 2700-800 DIM 6/1 - PAR30L - PN# 418566				-	\$ -
	12PAR30L/END/F36 3000 DM 6/1 - PAR30L - PN# 414581				-	\$ -
	12PAR30S/END/F22 2700 DIM 6/1 - PAR30S - PN# 410118				-	\$ -
	12PAR30S/END/F22 3000 DIM 6/1 - PAR30S - PN# 410126				-	\$ -
	PHI 12PAR30L/END/F36 2700 DIM 6/1 - PAR30L - PN# 414573				-	\$ -
	18PAR38/END/S15 3000-1200 DIM 6/1 - PAR38 - PN# 418525				-	\$ -
	17PAR38/END/F22 2700 DIM 6/1 - PAR38 - PN# 410175				-	\$ -
	PHI 17PAR38/END/3000/120V/DIMM/22D - PAR38 - PN# 410183				-	\$ -
	17PAR38/END/F36 2700 DM 6/1 - PAR38 - PN# 414607				-	\$ -
	PHI 17PAR38/END/F36 3000 DIM 6/1 - PAR38 - PN# 414615				-	\$ -
	F32T8/VEA835/EW/ALTO 28W - T8 - PN# 424176				-	\$ -
	F32T8/VEA841/EW/ALTO 28W - T8 - PN# 424192				-	\$ -
F32T8/VEA850/EW/ALTO 28W - T8 - PN# 424218				-	\$ -	
Totals:			126	8300	26,023	\$ 3,903

Describe how all bulbs requested will be installed

Calculator for "Estimated Annual Usage Hours" Cell Above

hours/day	days/week	weeks/year	hrs/year
8	5	52	2,080
10	6	52	3,120
24	7	52	8,736
		52	-
		52	-