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Subject: Vermont Aeronautics Environmental Program

A vision of Vermont Aeronautics is to preserve and enhance our system of airports while meeting Federal and State guidance, and promoting responsible environmental stewardship. On April 28, 2006, the Federal Aviation Administration (FAA) issued Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions. This Order delineates the agency's new NEPA policies and procedures, including the streamlining requirements specified in Vision 100.

In addition to Vision 100, the Order also provided guidance for Partnership for Air Transportation Noise and Emissions Reduction (PARTNER) develop Continuous Low Energy, Emissions and Noise (CLEEN) engine and airframe aircraft fuel efficiency; reduction in nitrogen oxide emissions associated from aircraft landings and takeoffs; a reduction of 10 decibels, alternate fuels.

In order for Aeronautics to bring this vision to fruition, it is imperative that specific guidance is provided to each Section.

Vermont Aeronautics is comprised of the following Sections:

- Project Development
- Operations and Facilities
- Maintenance
- Aviation Education

The purpose of this Program Guidance Letter is to consolidate specific areas of focus as it relates to environmental stewardship while incorporating the guidance provided by Order 5050.4B. It is my expectation that the guidance for each area not only be followed but that it is constantly reviewed, modified and improved.

Vermont Aeronautics is proud of its hard work in enhancing our system of airports. It is equally proud of its ability to preserve the environment through its established Best Management Practices (BMP's) outlined in the Vermont Aeronautics Environmental Program (VAEP).

We are always looking for ways to improve the VAEP and suggestions are welcome. Contact the Vermont Aeronautics office if you have concerns or suggested changes.

Guy Rouelle
Vermont Aeronautics Administrator

Vermont Aeronautics Environmental Program

VAEP

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Federally Funded Airport Projects

All Vermont Aeronautics Federally funded construction projects are subject to complete review under the National Environmental Policy Act (NEPA) of 1969. In addition, Vermont Aeronautics works closely with various Vermont permitting Agencies during this process.

Federal guidance on how to meet the NEPA requirements for FAA projects is outlined in FAA Order 5050.4B and FAA's Policies and Procedures for Considering Environmental Impacts under FAA Order 1050.1E.

Procedure

1. Review project with FAA. FAA determines if Categorically Excluded (CATEX) or if Environmental Assessment (EA) is required.
2. If CATEX, Aeronautics works with Vermont permitting Agencies for clearance or permits if required.
3. If no CATEX, Aeronautics conducts EA.
4. If EA results with a Finding of No Significant Impact to the environment, FAA issues (FONSI).
5. If EA results with a finding of significant impact to the environment, FAA requires Environmental Impact Statement.

EA consists of the detailed review of the following areas:

1. Purpose and Need
2. Alternatives
3. Proposed Action
4. Existing Conditions (all aspects of the environment)
5. Environmental Consequences and Mitigation (all aspects not listed)
 - a. Land Use Compatibility
 - b. Socioeconomic effects
 - c. Environmental Justice
 - d. Children's Health and Safety Risks
 - e. Land Acquisition and Established Easements
 - f. Historic and Archeological Resources
 - g. Noise
 - h. Air Quality
 - i. Water Resources and Wetlands
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 - k. Threatened and Endangered Species
 - l. Solid Waste, Hazardous Materials
 - m. Light emissions and Visual Effects
 - n. Energy Supplies, Natural Resources and Sustainable Design
 - o. Cumulative Impacts
6. Consultation and Coordination
 - a. Resource and Regulatory Agency Coordination
 - b. Advisory Committee Coordination
 - c. Public Meetings.

State Funded Airport Projects

When considering State funded airport projects and airport maintenance activities, Vermont Aeronautics shall utilize a review process similar those required under NEPA, and the FAA's Policies and Procedures for Considering Environmental Impacts under FAA Order 1050.1E. These Orders provide guidance for Partnership for Air Transportation Noise and Emissions Reduction (PARTNER) and assist in developing Continuous Low Energy, Emissions and Noise (CLEEN) Best Management Practices.

The following areas shall, at a minimum, be reviewed when considering State funded airport projects:

1. Purpose and Need
2. Alternatives
3. Environmental Consequences and Mitigation
 - a. Land Use Compatibility
 - b. Land Acquisition and Established Easements
 - c. Historic and Archeological Resources
 - d. Noise
 - e. Air Quality
 - f. Water Resources and Wetlands
 - g. Biotic Communities
 - h. Threatened and Endangered Species
 - i. Solid Waste, Hazardous Materials
 - j. Light emissions and visual effects
 - k. Energy supplies, Natural Resources and Sustainable Design
 - l. Cumulative Impacts
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State wide Implementation of the Vermont Aeronautics Environmental Program

Land Use Compatibility

FAA Grant Assurance 5: Sponsor will not take or permit any action which would operate to deprive it of any of the rights and powers necessary to perform any or all of the terms, conditions, and assurances...

FAA Grant Assurance 21: Sponsor will take appropriate action, to the extent possible, to restrict the use of land in the vicinity of the airport to activities compatible with normal airport activities.

Goal: Work with associated towns and cities to establish zoning for all airports in accordance with the 5 VSA, Chapter 17; Airport Zoning, Airport Hazard Area. In addition, continue working with the Vermont Legislature to incorporate tall structure Legislation into the Transportation Bill.

Recent Action: Statewide meetings held with Local and Regional Planning Commissions, Economic Development Corporations, Select Boards and local Airport Commissions/Committees.

Land Acquisition and Established Easements

FAA Grant Assurance 19:

- a. Sponsor shall operate airports in a safe and serviceable condition.
- b. Sponsor will not permit any activity or action which would interfere with its use of the airport.
- c. Sponsor shall mow, protect airport approaches, inspect regularly.
- d. Sponsor shall protect airport by land acquisition and establishing easements.

FAA Grant Assurance 20: Sponsor shall immediately mitigate known hazards as soon as practical.

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970: Vermont Aeronautics shall always consult with VTrans legal to ensure compliance when property is to be acquired.

Goal: (1). Vermont Aeronautics will establish avigation easements for each runway protection zone throughout the Statewide system of airports. **(2).** Vermont Aeronautics shall establish vegetation management practices that will protect each runway protection zone throughout the Statewide system of airports that will reasonably minimize maintenance while preserving solid environmental stewardship.

Recent Action: Establishment of Avigation easements through 502 Necessity at Morrisville-Stowe State Airport (2012), Middlebury State Airport (2014), Newport State Airport (2014). All Master Plans updates shall incorporate current avigation easements and shall build a matrix showing easement deficiencies. Environmental Assessments shall be completed for off airport property within the runway protection zone. Master plan updates for W.H. Morse State Airport, Hartness State Airport, Newport State Airport, Knapp State Airport (2014)

Historic and Archeological Resources

National Historic Preservation Act; Section 106: Vermont Aeronautics shall collaborate with appropriate Sections of VTrans Environmental, the office of State Historic Preservation, and other State Environmental

Agencies on projects that involve federal permitting, funding, or approval. Consideration must be given when a proposed project may affect historic properties.

Goal: Vermont Aeronautics shall always defer to the appropriate Agencies that have the expertise in this area and, whenever possible, shall maintain infrastructure that are deemed eligible historic resources.

Recent Action: Vermont Aeronautics has gone to great length identifying, documenting and preserving Historical infrastructure:

- Ground Level Stable Barn Newport State Airport
- Quonset Hangar Caledonia State Airport
- T-Hangar Middlebury State Airport
- Line Shack Rutland State Airport
- State Hangar Rutland State Airport
- State Hangar Hartness State Airport

Noise

14 CFR Part 150 and Part 161: Vermont State owned airports do not current have levels of noise that require Part 150 (Airport noise compatibility planning) or Part 161 (Airport noise and access restrictions) noise studies. Rather than simply not evaluating airport noise, Vermont Aeronautics does incorporate noise evaluation during the following planning studies:

Master plan: The Master plan will evaluate forecasted data for a current and anticipated fleet mix of aircraft for a planning period of 20 years. The FAA’s recommend Noise Integrated Model when evaluating noise at airports. The Federal statute designates the DNL 65 dB contour (and those contours greater than 65 dB) as the cumulative noise exposure level that is not compatible with several land uses, including residences, schools, and places of worship.

Environmental Assessments (EA): A component of the EA requires the evaluation of the current and 20 year projected noise for each project. The noise contours are mapped.

Goal: Vermont Aeronautics shall present these noise contours at Public meetings, Resource and Regulatory Agency Coordination meetings and during Advisory Committee Coordination.

Recent Action: Vermont Aeronautics has implemented best management practices and has been successful in meeting the Goal of presenting noise contours as prescribed.

Air Quality

Clean Air Act of 1970: The Environmental Protection Agency (EPA) developed National Ambient Air Quality Standards (NAAQS) and regulates Airport emissions affecting local air quality from both mobile and stationary sources, including the following:

- Aircraft. Vermont Aeronautics requires that each airport utilize 100 Low Lead for reciprocating aircraft.
- Motor vehicles (e.g., cars and buses for airport operations, and passenger, employee, and rental agency vehicles)
- Ground service equipment (GSE) (e.g., aircraft tugs, baggage and belt loaders, generators, lawn mowers, snow plows, loaders, tractors, air-conditioning units, and cargo moving equipment)

- Stationary sources (e.g., boilers, space heaters, emergency generators, incinerators, fire training facilities, aircraft engine testing facilities, painting operations, and solvent degreasers)

Goal: Vermont Aeronautics shall responsibly find ways to minimize air quality impacts within all Sections.

- **Project Development.** Design buildings and parking areas (airport users and visitors) in a way to minimize vehicular emissions and loiter time.
- **Operations and Facilities.** Purchase of efficient ground service equipment, training employees efficiency and environmental stewardship, ensure leases incorporate language regarding air quality, enforcement of policies, VALE, electric cars, establish and maintain park n rides, build adequate hangar space to minimize “drop and go” and maximize RON activities.
- **Maintenance.** Utilize equipment maintenance tracking software to ensure equipment is efficient both with emissions and fuel burn. Design vegetation control plans to minimize equipment usage. Common fuel facilities and equipment to minimize fuel delivery.
- **Aviation Education.** Incorporate Air Quality into aviation education curriculum. ACE Camp, EAA Young Eagles, Civil Air Patrol, statewide flight schools, various aeronautical events.

Recent Action:

- Voluntary Airport Low Emissions program (VALE) is designed to reduce all sources of airport ground emissions. This program was created in 2004. Vermont Aeronautics utilizes the concepts of VALE to help Vermont Airports meet the State and Federal air quality responsibilities under the Clean Air Act of 1970.
- Park n Ride established at Rutland State airport. 3 airports with established Park n Rides. Designed electric car stations for the proposed Park n Ride at Morrisville-Stowe State Airport.
- 3 highly efficient aircraft tugs purchased. Knapp, Caledonia, Hartness.
- 60% reduction in vegetation management plan, increasing efficiency and decreasing emissions.
- Formal training program designed and implemented for all Aeronautics maintenance personnel
- Statewide airport environmental education statewide.

Water Resources and Wetlands

Federal Water Pollution Control Act (commonly call the Clean Water Act (CWA)): Wetlands with exceptional or irreplaceable value are classified and Class I wetlands. Wetlands meeting certain criteria are classified as Class II. Wetlands that are not Class I or II are designated Class III. Under Section 404 of the CWA, wetlands are designated as “waters of the U.S and the Army Corp of Engineer regulates wetland impacts and produces guidance for wetland identification. At the state level, wetlands are regulated by the Vermont Agency of Natural Resources (VTANR).

Vermont Aeronautics has gone to significant lengths to delineate and map all wetlands on airport properties, Statewide.

Water Resources are monitored closely through many controls.

- No salt. Salt is not allowed on Airports. The use of Sodium Formate and Potassium Acetate are only used when absolutely needed and are restricted to commercial activity airports such as Rutland Southern Vermont Regional Airport, E.F. Knapp State Airport and Morrisville-Stowe State Airport.
- There are aviation fuel farms at nine (9) of the ten (10) state owned airports.
 - Fuel farm integrity is monitored daily
 - Tanks are stiked
 - Quality samples to ensure no water
 - Spill Protection Control and Countermeasures (SPCC) plans are implemented at each airport.
- Stormwater Monitoring Plan strictly enforced at each airport.

Goal: Continue responsible Water Resource and Wetland monitoring program while continuously implementing current changes when appropriate.

Recent Action: Project Development, Operations and Maintenance Sections designed and incorporated into the Newport State Airport development plan a stand-alone aircraft deice ramp at Newport to collect propylene glycol and ethylene glycol during deice operations. The collection of deice chemical will minimize short and long term impacts to the environment.

Biotic Communities

Biotic resources are those various types of flora and fauna that make up the living portion of an area's ecosystem that could be affected by future Airport operations, maintenance or developments. It also includes the physical habitats of an area, such as streams, lakes, wetlands, forest and farmland.

Each of the airports in Vermont have common species of vegetation. There are, however, known rare and endangered species at each airport and are usually categorized and documented during Environmental Assessments. These species are then placed into the airport specific Master Plan and corresponding Vegetation Management Plan. Typical rare species such as the Woodland Cud weed, Marsh Horsetail in open wetlands and the Green Rush near utility substations have been identified at some airports.

Goal: Continue to document rare species and update corresponding Vegetation Management Plan, statewide.

Recent Action: Vermont Aeronautics continues to update airport EA's, Airport Layout Plans and Master Plans for all airports.

Threatened and Endangered Species

Vermont Aeronautics consults with Vermont Fish and Wildlife Department (VFWD) and the Natural Heritage Inventory to determine if there are known occurrences in a respective Airport area of federal or state listed threatened or endangered flora or fauna.

Wildlife at Vermont State airports are managed in accordance with the Vermont Aeronautics Statewide Airport Wildlife Management Plan, dated June 2012. This plan calls out common animal species identified on Vermont airports, risk analysis, legal status, and their respective Control Measures.

Goal: Continue to follow protocols set forth in the Wildlife Management Plan and update the plan as appropriate.

Recent Action: Vermont Aeronautics incorporated the Wildlife Management Plan into the annual USDA training curriculum. All Aeronautics Operations and Maintenance staff required to attend.

Solid Waste, Hazardous Materials

Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). EPA has delegated the state to administer the RCRA and CERCLA programs in lieu of the federal program, and the Vermont Waste Management Division does so through the [Vermont Hazardous Waste Management Regulations](#).

Vermont Aeronautics has a strong recycling policy and provides solid waste containers at each of the airport. Fixed Base Operators, if privately owned, share in the cost for solid waste removal through their Airport Use Agreement and Operating Lease.

Other control measures implemented by Vermont Aeronautics for Solid Waste and Hazardous Materials:

- Used furniture is always recycled and brought to State Surplus.
- Daily Fuel Farm inspection fuel is placed in containment barrel and removed frequently by contractor.
- Waste Oil from aircraft oil changes is used in waste oil heating systems in maintenance facilities.
- As new facilities are built, materials are recycled as per ANR directives/assistance.
 - <http://www.anr.state.vt.us/dec/wastediv/r3/WPplanning/Appendix2.pdf>

Goal: Continue to follow protocols set forth in this plan and update the plan as appropriate.

Recent Action: Vermont Aeronautics recently modified its accident and incident reporting form to include equipment incidents and accidents. Through this modification, Aeronautics will better document infractions which will enable better control and possible enforcement, if appropriate. Additional Training was recently added to the Vermont Aeronautics training program to ensure Maintenance and Operations personnel are properly trained.

Light emissions and visual effects

Vermont State airports share in the ownership of its lighting systems. Approximately 70% of the aeronautical lighting on the airports are owned, operated and maintained by the Vermont Agency of Transportation, Vermont Aeronautics. The balance of aeronautical lighting is owned, operated and maintained by the FAA.

Vermont Aeronautics maintains in excess of 2,300 lights statewide. These lights include runway, taxiway, obstruction, buildings and parking lot lighting. Aeronautics has gone to great lengths to place the majority of airport lighting on a Pilot Controlled Lighting (PCL) circuit. The PCL, through the use of radio, are turned on. In an effort to reduce lighting emissions, the PCL controller is programmed to leave the aeronautical lighting on for a period of 20 minutes, at which time, the lights will turn off.

Vermont Aeronautics has also placed most non-aeronautical exterior lighting on photo cells and motion sensors to minimize light emissions. Lights will only come on when the ambient light has reduced to need the light and

the motion sensor will leave the light off until needed. The only exception to this rule is if the lights serve the aviation fuel farm. The security of the fuel farm requires constant light during darkness.

Omni-Directional Approach Lighting Systems (ODALS) emit strobe light in all directions. When ODALS fail, Vermont Aeronautics has been replacing them with Runway End Identifier Lights (REILS). REILS are very directional, are shielded and are aimed up so that impacts to property owners is greatly reduced.

Lighting systems, unless replacement in kind, are always subject to Vermont Act 250 review and approval. Vermont Aeronautics fully supports this permitting process.

Goal: Adequately inspect and maintain PCL systems to ensure optimal functionality. Place all non-aeronautical exterior lighting on photo cells and motion sensors, when appropriate. Replace last ODAL (W.H. Morse) with REILS.

Recent Action: Caledonia State Airport was given conditional approval by the Lyndon design review board, of a pilot controlled rotating beacon. All exterior lighting placed on photo cells and motion sensors.

Energy Supplies, Natural Resources and Sustainability Design

2012 Vermont Legislative Session, Section 17, Act 62 (H.433) Required Vermont Aeronautics to complete a business plan to achieve the goal of reducing or eliminating the existing operating deficits of State-owned airports by June 30, 2015.

FAA Compliance Order 5190.6B Airport Sponsors are required to place the airport on a path that will place it as sustainable as possible.

FAA Grant Assurance 24 Through airport fees and rental structures, the airport shall be as self-sustaining as possible and will set fees to recover as much of the operating costs as possible.

Vermont Aeronautics maintains 30 statute miles of power lines and 37 buildings, statewide.

In order for Vermont Airports to meet the requirements of the above listed guidance, Vermont Aeronautics would greatly decrease operating expenses through the selection of energy supplies, efficient lighting, and sustainable building and heating system designs. Most terminals will undergo significant efficiency upgrades over a 4 year period.

The following measures have been implemented by Vermont Aeronautics:

- Terminal and Snow Removal Equipment buildings. Reduced operating expenses by close to 60% by improving building and operating efficiencies. Heating systems, doors, windows, insulation, led lighting at the following airports:
 - E.F. Knapp (2011)
 - W.H. Morse State Airport (2011)
 - Rutland Southern Vermont Regional Airport (2012)
 - John Boylan (Island Pond) (2012)
 - Hartness State Airport (2012)
 - Caledonia County State Airport (2013)
 - Middlebury State Airport (2013)
 - Morrisville-Stowe State Airport (2014 construction season)

- Newport State Airport (2014 construction season)
- Franklin County State Airport (2014 construction season)
- Solar Hazard beacons Rutland and Hartness. Replace 21 of the 32 statewide incandescent, commercially powered beacons with LED Solar. Removed commercial power lines and poles
- Solar array. Rutland. 256 panel, 56KW array. Will reduce Rutland power costs by 80%.
- Solar fuel farm. Rutland. This is the only solar fuel farm in the State inventory. Rutland maintenance were traveling to fuel airport maintenance equipment wasting time and putting vehicles on the road.
- Solar supply building. Rutland. Total powered by solar. All lighting inventory for the entire statewide airport system.
- Solar powered Automated Weather Observation System (AWOS). Middlebury. A grid tied system reducing the carbon footprint and operating expenses for the airport.
- Solar powered weather monitoring systems. Statewide.
- Solar powered acoustical counting systems. A system that counts aircraft operations at airports Statewide. Data is required for FAA funding.
- Wind powered camera systems. Rutland. This system was designed and installed by Vermont Aeronautics. A completely self-sustaining system powered by solar and wind turbines. All critical points on the airport are recorded to DVR for safety and security.

Goal: Vermont Aeronautics will continue to find ways to increase efficiencies through energy systems and sustainable design.

Cumulative Impacts

The Council on Environmental Quality regulations, at 40 CFR 1508.7, define cumulative effects as the effect on the environment which results from the incremental effect of the action(s) when added to other past, present and reasonably foreseeable future actions. The cumulative effects analysis includes any actions “within the geographic area and time frame that affect environmental resources the Preferred Alternative would affect.”

Goal: Vermont Aeronautics will consider all aspects and the cumulative impacts of any proposed project. Vermont Aeronautics will rely on and trust in the permitting process and work closely with all permitting agencies, state and federal.

Miscellaneous Environmental

Environmental review

FAA Grant Assurance 7&8: Sponsor shall give fair consideration to the interests of the community and the airport users, respectively.

FAA Grant Assurance 9: Public is afforded the opportunity for public hearings for the purpose of considering the economic, social and environmental effects of the airport project

FAA Grant Assurances require Vermont Aeronautics to remove trees from each runway protection zone in a timely manner. As discussed previously, it is a goal of Vermont Aeronautics to acquire adequate avigation easements for each runway end.

As trees are removed from runway protection zones, Vermont Aeronautics shall make the wood available to under privileged. Although other programs may become available over the years, programs such as Wood for Warmth, managed by the Vermont Agency of Human Services, shall be utilized. This is the socially responsible thing to do and Aeronautics will do so.

It should be noted that in order to practice good Environmental Stewardship, operational costs to the taxpayer are more and it requires good budgetary planning.

Vermont Agency of Natural Resources Support

Forrest and Parks Annual and Special forest mapping 50+ hours of flight time annually.

Fish and Wildlife Building at the Hartness State Airport. This building has been built on the Hartness State to support Fish and Wildlife, Soft Shell turtle monitoring,

Geological Survey Over flights of Willoughby, Smugglers Notch

River Management Watershed/River mapping and water monitoring

ANR Enforcement Division Illegal dumping, manure spreading,