SKYHAVEN AIRPORT MASTER PLAN UPDATE

SCOPE OF WORK

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Prepared For

BUREAU OF AERONAUTICS
Visit the Past, Experience the Future!

New Hampshire DOT

Prepared By

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In Association with
The Smart Associates

Introduction

A master plan was prepared for Skyhaven Airport (DAW) in 2001. Since that time, NHDOT has completed a number of projects at the airport, including replacement of obstruction lights and poles, installation of fencing, an environmental assessment (EA), a wetlands mitigation agreement with environmental agencies, and a new parallel taxiway will be constructed in 2008.

NHDOT and the Skyhaven Airport Operation Commission (SAOC) have identified a need to analyze additional projects in greater detail in a master plan update. In particular the master plan update will focus primarily on the proposed 1,000 -oot runway extension recommended in the 2001 Master Plan by re-examining the need and justification and the recommended length; analyzing alternative lengths of the extension on each runway end; and analyzing the potential for a new precision instrument GPS (LPV) approach to Runway 33.

The master plan update will be funded by grants from the FAA and NHDOT, and the project sponsor is NH DOT Bureau of Aeronautics. The Skyhaven Airport Operation Commission (SAOC) represents the surrounding communities and the users of the airport, and will serve as a study advisory committee with the airport's fixed base operator (FBO).

TASK 1 INVENTORY

Jacobs Edwards and Kelcey (JEK) has electronic base mapping of the airport which will be used to create an Existing Airport Layout Plan (EALP) drawing. The EALP will comply with FAA Advisory Circular 150-5070-6B, Airport Master Plans, through Change 1. JEK will:

T1.1 Prepare an Existing Airport Layout Plan (EALP) drawing. The drawing will be prepared using AutoCAD, however, GIS will also be used in order to compile a comprehensive data base for the current airport facilities. The taxiway construction scheduled to be completed in 2008 will be included as an existing condition.

T1.2 Review the base mapping (draft EALP) with NHDOT, the SAOC, and fixed base operator (Ossipee Valley Aviation) to ensure that the existing physical facilities are depicted accurately. If needed, field checking and verification will be undertaken, although no survey will be completed.

T1.3 Overlay the current appropriate imaginary surfaces (Part 77, TERPS, and AC 5300-13) based on the existing instrument approaches, approach minimums, and critical design aircraft.

T1.4 Compile and review the City of Rochester's aerial mapping and NH GIS files.

T1.5 Collect FAA Digital Obstacle File (DOF) and Form 7460 database obstruction data, and incorporate that information on the base plan.

T1.6 Identify areas that need additional mapping (as part of the analysis for the potential LPV approach to Runway 33), and solicit quotes from aerial photogrammetry firms to fly and capture tree-top elevations (leaf-on) within specified areas. Such data will supplement the existing obstruction information and mapping to provide data for a more comprehensive and accurate obstruction analysis.

T1.7 Review the 2001 Master Plan and confirm the status of all non-conforming conditions at the airport based on current FAA design criteria, and identify any new non-conforming conditions since the 2001 Master Plan was completed.

T1.8 Document current aviation activity levels in terms of based aircraft (by type of aircraft) and aircraft operations. Data sources to be considered will be limited to NHDOT, FAA, SAOC, OVA, FAA TAF, and airport tenants. Based on that data, confirm the existing critical design aircraft and airport reference code (ARC).

T1.9 The Smart Assoc. will field check wetlands off the end of Runway 15 and 33 and determine if any significant changes have occurred since the wetlands mapping was last completed and provide sketch-map level updates to this wetland mapping.

T1.10 Prepare technical memorandum documenting data collected.

Task 1 Documentation and Deliverables: will include a technical memorandum documenting the data collected, and an Existing Airport Layout Plan (EALP) drawing and wetland delineation map.

TASK 2 FORECASTS OF DEMAND

The primary focus of this task will be to: **a)** validate the 2001 Master Plan forecasts, **b)** identify whether any significant changes in aviation activity may occur at the airport, and **c)** determine if the forecast assumptions in the Master Plan are still valid given recent changes in the corporate aviation industry. Any changes that have occurred in the GA industry that could impact future activity levels and facility requirements, such as the advent of Very Light Jets (VLJ), at Skyhaven Airport will be documented. JEK will:

T2.1 Review and compare forecasts of demand presented in the 2001 Airport Master Plan with current FAA Terminal Area Forecast (TAF). Using information collected by JEK during discussions with NHDOT, airport tenants, and airport users (see Task T1.8), JEK will assess existing air traffic levels and recent trends in aviation activity. As a result of the pending transfer of Skyhaven Airport to the Pease Development Authority (PDA), JEK will also examine GA activity records at Portsmouth International Airport at Pease to assess recent trends in air traffic, and whether those trends are consistent with the activity at Skyhaven Airport.

This task will also examine the potential for some of the GA traffic at Portsmouth International Airport at Pease to migrate to Skyhaven Airport under existing conditions and if Runway 15-33 were extended by 1,000 feet.

T2.2 Prepare two (2) forecast scenarios, the preferred scenario will serve as the basis for the need and justification of the proposed runway extension. Scenario 1 will identify future traffic levels with a 1,000-foot runway extension, and Scenario 2 will project traffic without a runway extension (i.e. 'status quo'). The appropriate airport reference code and the critical design aircraft will be identified for each forecast scenario. The three forecast periods for each scenario will be: Short Term (2009-2013); Intermediate (2014-2018); and Long Range (2019-2028).

The forecasts will be disaggregated by:

- Based Aircraft by class/type (SEP, MEP, TP, TJ, Helo)
- Aircraft Operations by:
  - Aircraft type
  - Local (touch & go) & Transient
  - VFR & IFR
  - Peaking characteristics

T2.3 Prepare Technical Memorandum described below.

Task 2 Documentation and Deliverables: will include a technical memorandum documenting the forecasts of demand. The format of the documentation will be primarily graphic, in the form of tables, graphs, and charts.

TASK 3 FACILITY REQUIREMENTS

The focus of this analysis will be on reviewing and validating the 2001 Airport Master Plan facility requirements. Any significant changes and shortfalls in terms of capacity or design standards vis-à-vis forecasted demand, particularly in terms of new FAA design criteria, will be identified. Upon review of the forecasts of demand scenarios (prepared as part of Task 2), one of the two scenarios will be selected by NHDOT as preferred and used as the basis to identify future facility requirements. JEK will:

T3.1 Compare the existing airport facilities with respect to operational capacity and appropriate FAA design criteria. This analysis will include overall runway length requirements and approach requirements.

T3.2 Analyze a new GPS precision (LPV) instrument approach, with the objective of achieving better approach minimums than those that presently exist. JEK will overlay appropriate imaginary surfaces specified in FAR Part 77, TERPS, and AC 5300-13, on a base plan and identify any existing penetrations to the surfaces and those that are within five feet of penetrating those surfaces that could impact the minimums for the proposed approach.

T3.3 Coordinate with FAA Flight Standards Division (AVN), FAA Airports Division, and NHDOT to review the feasibility of publishing a new LPV approach, and the potential benefits in terms of lower instrument approach minimums. JEK will evaluate the benefits and drawbacks of various approach light systems as part of the new LPV approach. JEK will also list the equipment needed by the airport to support an LPV approach as well as a list of the equipment and training needed by pilots who will use an LPV approach.

T3.4 Prepare Technical Memorandum described below.

Task 3 Documentation and Deliverables: will include a technical memorandum documenting the facility requirements. The focus of the deliverables will be graphic depictions of the facility requirements, as well as graphs and charts, as appropriate. The requirements will also be shown in relation to the time frame/planning period when needed.

TASK 4 ALTERNATIVES ANALYSIS

The 2001 Master Plan presented a number of facility improvement recommendations, including extending Runway 15-33 by 1,000 feet from its current length of 4,000 feet to 5,000 feet, primarily to accommodate additional corporate jet activity. The 2001 ALP showed a 500-foot extension to both ends of the runway, which was also analyzed in the Environmental Assessment (EA) completed in 2004.

This task will analyze various options for extending each runway end, including the appropriate runway safety areas, with the primary objective being to maximize airport functionality while minimizing impacts on wetlands and water quality, as well as minimizing aircraft noise and negative land-use impacts. JEK will:

T4.1 Determine feasibility of establishing water quality infrastructure and stormwater detention infrastructure on airport property and off-airport alternatives. This will include determining the capacity of possible infrastructure meeting the requirements of NHDES and ACOE current standards.

T4.2 Determine the allowable development (additional runway length) at each runway end based on the capacity of stormwater management infrastructure and the planned wetland disturbances established as part of the Mitigation Agreement.

T4.3 Establish a maximum of two (2) runway layout options, in addition to the 2001 Master Plan layout, for further analysis (See T4.4-T4.6).

The analysis will most likely result in the following options:

a) Extend the runway 500 feet on each end, as presented in the 2001 Master Plan and EA.
b) Extend the Runway 15 end more than the 33 end (total extension = 1,000’)
c) Extend the Runway 33 end more than the 15 end (total extension = 1,000’)

T4.4 Examine non-conforming conditions and identify options for bringing those conditions into compliance with current FAA standards, and also examine the option to request a modification to standards from FAA.

T4.5 JEK will analyze the appropriate FAA imaginary surfaces for two (2) of the likeliest runway extension options identified by NHDOT, and determine the potential benefits and drawbacks based on the information gathered as part of Tasks 1 and 3, described above.

T4.6 Analyze the feasibility of a new GPS precision (LPV) instrument approach to Runway 33 to achieve better approach minimums than those that presently exist. Included as part of this task will be the identification of obstructions which may impact approach minimums. JEK will coordinate with FAA Flight Standards Division (AVN), FAA Airports Division, and NHDOT in reviewing the feasibility of publishing a new LPV approach, and the potential benefits in terms of lower instrument approach minimums.

T4.7 Evaluate, rank, and recommend a development plan from the three (3) runway extension options based on the following criteria:

a) Wetland disturbance impacts
b) Impacts on water quality
c) Instrument approach and operational benefits (e.g., lower minimums)
d) Impact on noise sensitive land uses
e) Potential construction cost

JEK will provide a summary of changes from this recommended plan to the previous airport development as mitigated in 2005-6.

T4.8 Prepare Technical Memorandum described below.

Task 4 Documentation and Deliverables: will include a technical memorandum describing each alternative, the evaluation criteria, the score for each alternative, the ranking of the options, and a description of the benefits and drawbacks of each one. In addition, graphics will be used to illustrate the options.

TASK 5 ENVIRONMENTAL CONDITIONS

Sensitive environmental resources have been documented on and in the vicinity of Skyhaven Airport, and any proposed development could impact those resources beyond those accounted for in the previous mitigation package completed for Skyhaven Airport. Data concerning those resources presented in the 2001 Master Plan and the subsequent Environmental Assessment (EA) will be used to the fullest extent possible.

The specific environmental issues to be examined as part of the overall project include:

- Wetland disturbance
- Water quality

- Noise and compatible land use
- Light emissions from approach lights (planning level analysis)

With respect to this task, JEK will:

T5.1 Review the aircraft noise contours presented in the 2001 Master Plan. If any significant changes in the forecasts prepared as part of Task 2 were made, the aircraft noise contours will be updated accordingly otherwise the previously prepared aircraft noise contours will be used.

T5.2 Compile existing and projected land uses and identify any incompatible land use in the vicinity of the airport.

T5.3 Determine the need for and timing of additional studies, specifically environmental assessments, and/or approvals and permit for the implementation of a new instrument approach, proposed runway extension(s), and/or approach light system will be needed.

T5.4 Prepare for and attend one natural resource agency coordination meeting during the final stage of the planning study, to present an overview of the master plan update and solicit feedback. Two representatives from JEK and two representatives from The Smart Associates will attend the meeting.

T5.5 Prepare Technical Memorandum described below.

Task 5 Documentation and Deliverables: will include a technical memorandum documenting the sensitive resources on and in the vicinity of the airport, in particular highlighting any changes to the data presented in the 2001 Master Plan and subsequent Environmental Assessment (EA). Graphics will be included to clearly illustrate the nature and location of the sensitive resources.

TASK 6 AIRPORT LAYOUT PLAN

A complete ALP drawing set will be produced in full conformance with FAA AC 150/5070-6B, Airport Master Plans, including Change 1. The ALP drawings will be prepared in AutoCad, however, GIS and other software will be used to incorporate data from various sources.

JEK will prepare the following plans to be included in one single plan set:

T6.1 ***Cover Sheet*** – A separate cover sheet, with approval signature blocks, airport location maps, and other pertinent information as required by the FAA New England Region Airports office.

T6.2 ***Existing Airport Layout Plan*** – JEK will include this plan, previously prepared under Task 1.1, as part of this plan set.

T6.3 ***Airport Layout Plan*** – (Required by FAA) A drawing depicting the existing and future airport facilities. The drawing will include required facility identifications, description labels, imaginary surfaces, Runway Protection Zones, Runway Safety

Areas and basic airport and runway data tables, although it may be necessary to include the data tables on a separate sheet. In addition, any modification to standards requested of FAA will be listed along with appropriate signature blocks.

T6.4 ***Data Sheet*** – May be a separate sheet containing basic airport and runway data tables, or may be included on ALP drawing sheet.

T6.5 ***Terminal Area Plan*** – This plan consists of one or more drawings that present a large-scale depiction of areas with significant terminal facility development. Such a drawing is typically an enlargement of a portion of the ALP.

T6.6 ***Airport Airspace Drawing*** – (Required by FAA) 14 CFR Part 77, *Objects Affecting Navigable Airspace*, defines this as a drawing depicting obstacle identification surfaces for the full extent of all airport development. It will depict airspace obstructions for the portions of the surfaces excluded from the Inner Portion of the Approach Surface Drawing.

T6.7 ***Inner Portion of the Approach Surface Drawing*** – (Required by FAA) Drawing contains the plan and profile view of the inner portion of the approach surface to the runway, and a tabular listing of all surface penetrations. The drawing will depict the obstacle identification approach surfaces contained in 14 CFR Part 77, *Objects Affecting Navigable Airspace*. The drawing will also depict other approach surfaces, including the threshold siting surface (TSS), appropriate TERPS surfaces, etc.

T6.8 ***Runway Departure Surface Drawing*** – This drawing depicts the applicable departure surfaces as defined in Appendix 2 of FAA AC 150/5300-13. The surfaces are shown for runway end(s) designated primarily for instrument departures.

T6.9 ***On-Airport and Off-Airport Land Use Drawing*** – A drawing depicting the land uses within the airport property boundary, as well as land uses and zoning in the area around the airport. The drawing will illustrate existing and future land uses in the vicinity of the ultimate 65 DNL aircraft noise contour, and/or underlying the FAR Part 77 Approach and Transitional Surfaces, whichever encompasses the larger area.

T6.10 ***Airport Property Exhibit A Map*** – It is understood the NHDOT maintains a current Exhibit A Map for Skyhaven Airport in accordance with AC 150/5100-17, *Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects.* JEK will include the most current version of this drawing in the ALP set. JEK will also compile and update the abutting property owners list based on information available from the City of Rochester.

Task 6 Documentation and Deliverables: will include an ALP set of drawings described above.

TASK 7 CAPITAL IMPROVEMENT PLAN

The Airport Capital Improvement Plan (ACIP) identifies each improvement project proposed for the airport, the cost estimate for each project, its time frame and relative priority level, as well as the potential funding sources/participation for each project. As part of this task JEK will:

T7.1 Review the most current ACIP for Skyhaven Airport that has been prepared by NHDOT and incorporate the projects and data on that existing ACIP into this updated ACIP.

T7.2 Create an ACIP for Skyhaven Airport covering a 20-year period (2009-2028), including any additional projects identified within this AMP Update. JEK will prepare project cost estimates for proposed projects within the first three years (2009-2011) using current construction cost data. For projects beyond the three time frame (from 2012 onwards), planning level cost estimates (i.e., quantities x cost estimate per unit + contingencies) will be prepared.

T7.3 Meet with NHDOT to discuss project priorities.

T7.4 Determine the need and time frame for non-developmental projects, such as environmental review and permitting.

If a new Airport Improvement Program (AIP) has not been adopted by the time this ACIP is prepared, assumptions based on the previous AIP (Vision 100) and information concerning a potential new AIP in terms of FAA's share of project costs and eligibility requirements will be used when developing this ACIP.

Task 7 Documentation and Deliverables: will include a technical memorandum along with tables and spreadsheets as appropriate, showing the ACIP for each year, as well as the cost estimate backup calculations.

TASK 8 PUBLIC OUTREACH AND PARTICIPATION PROGRAM

The public outreach program is one of the most important elements of the master plan update. The SAOC, NHDOT, FAA, and OVA will serve as the study advisory committee (SAC), along with additional invited members at the discretion of NHDOT. It is anticipated that public information meetings/workshops will be held throughout the study. As part of this task both JEK and The Smart Associates will:

T8.1 Prepare for and attend a "kick-off" public information meeting at the outset of the master plan update.

T8.2 Prepare for and attend public meeting upon completion of the draft Inventory, Forecasts, Facility Requirements, Alternatives, and initial Environmental Issues.

T8.3 Prepare for and attend public information meeting upon completion of the master plan update before it is formally adopted by NHDOT and FAA.

T8.4 Prepare for and attend a maximum of two (2) SAOC meetings at the request of NHDOT to brief and update the committee on the project status.

T8.5 Prepare documentation as described below.

Task 8 Documentation and Deliverables: will include meeting minutes and copies of any presentations and graphics used at each public meeting, as well as copies of meeting notices and comments received.

TASK 9 UPDATE SWPPP

NHDOT will decide whether it is necessary to update the SWPPP based on the recommendations presented in the master plan update and the release of EPA's new Multi-Sector General Permit anticipated in early 2008. JEK will update the current SWPPP to accurately reflect the adopted ALP and ACIP.

Task 9 Documentation and Deliverables: JEK will prepare and submit updated portions of the existing SWPPP to NHDOT.

TASK 10 PROJECT ADMINISTRATION

This task will include project administration tasks that will manage project communications, funding, and coordination efforts. As part of this task JEK will:

T10.1 Prepare for, attend, and document project scoping meeting with NHDOT, FAA, and SAOC members.

T10.2 Prepare project scope and fee for review and concurrence by NHDOT.

T10.3 Prepare grant application to request federal and state funding participation as well as comments from the intergovernmental review process (E.O. 12372).

T10.4 Prepare approximately eight (8) grant reimbursements to request reimbursement for eligible project expenditures.

T10.5 Coordinate efforts among all project parties during the course of this project, including the Smart Associates. JEK will review all material prepared by TSA prior to submissions to NHDOT, and JEK will coordinate with TSA to ensure accuracy and consistency in all material prepared and submitted by JEK and TSA.

T10.6 Prepare and print three copies of the complete draft Executive Summary, Technical Report, and ALP drawing set. The draft report and drawing set will be reviewed by NHDOT and FAA, and JEK will respond to comments, and with approval from NHDOT JEK will prepare and print the final Executive Summary, Technical Report, and ALP Drawing Set.

Task 10 Documentation and Deliverables: JEK will prepare and submit: scoping meeting minutes, project scope and fee, project grant applications, and project grant reimbursements (8 each). JEK will also prepare, print, and distribute the final Executive Summary, Technical Report, and ALP Drawing Set, as shown below:

- 20 copies of the Final Executive Summary and Technical Report
- 5 complete sets of the ALP Drawing Set
- 20 CDs with the Final Executive Summary and Technical Report, and ALP Drawing Set