Portland International Jetport
FAR Part 150 Update

Part 150 Noise Advisory Committee Meeting

4 February 2004

Harris Miller Miller & Hanson Inc.

In association with:

Vanasse Hangen Brustlin, Inc.
Simat, Helliesen & Eichner, Inc.
Agenda

• Updates on previous mitigation concepts
• Current recommendations for new Noise Compatibility Program
• Final steps in Part 150 process
Updates

- **New FMS/RNAV Procedures:**
  - FAA moratorium continues indefinitely on new GPS-based published instrument procedures; new procedures can only incorporate GPS navigation if they are voluntary

- **Federal Express:**
  - Has indicated that there is insufficient cargo volume to justify changing to a quieter aircraft type

- **Increased Glide Slope angle:**
  - FAA has rejected PWM’s request for 3.5 degree glide slope to Runway 29
Revised Noise Abatement Program elements

帨 Operational measures:

- Modify current preferential runway use
- Increase use of the CASCO TWO departure procedure when air traffic control tower is operational
- Adopt voluntary noise abatement departure procedures for Runways 11 and 29
- When moratorium is lifted, upgrade the CASCO TWO to an FMS/RNAV procedure with GPS points
- Increase use of the new CASCO TWO at night, especially by loudest aircraft
- Add new straight-out Standard Instrument Departure for takeoffs from Runway 29
Revised Noise Abatement Program elements, continued

Operational measures, continued

- Restrict engine run-ups to Runway 11 run-up pad; require prior permission from Jetport operations staff; establish preferred run-up headings of 110° or 345° for run-ups
- Propose raising VGSI to 3.5°

Administrative measures:

- Increase emphasis on FedEx compliance with voluntary measures
- Change access to noise-complaint website; increase emphasis on noise issues
- Acquire a Flight Track Monitoring System (FTMS)
- Develop flight corridors and flight track graphics to monitor conformance with operational measures
Revised Noise Abatement Program elements, continued

- Compute EXP(osure) metric to assess changes in fleet noise
- Continue meetings with Noise Advisory Committee
- Provide periodic updates of conformance with operational measures using flight track plots and other FTMS data
- Publish an annual review of NCP effectiveness
- Suggest text changes to FAA Tower Order 7110.4 to clarify language regarding noise abatement measures
- Publish Jeppesen inserts for pilots
- Publicize NCP elements to pilot organizations
- Include reference to noise abatement measures in FAA’s ATIS announcements
Land use elements:

- Coordinate efforts with municipalities to reduce incompatible land development, for example:
  - Encourage noise notifications on subdivision plans
  - Encourage building code revisions
Modify Preferential Runway Use Program

- Voluntarily limit use of Runway 18/36 by noise-critical aircraft unless crosswinds exceed 15 knots
  - “Noise-critical” aircraft are those having Estimated Maximum A-weighted Sound Levels (from FAA Advisory Circular 36-3H) greater than 80 dBA
  - Would limit many jets and loud turboprops, including ATR-42s

- Continue preferred use of:
  - Runway 29 for early morning departures
  - Runway 11 for late night arrivals

- Suggest modified wording for PWM 7110.4, Chg 1; allow exceptions for construction on Runway 11/29, emergencies, etc.
Noise Exposure from Modified Preferential Runway Use
Increase use of CASCO TWO Standard Instrument Departure

- Procedure already exists as a published noise abatement measure
- PWM will encourage operators of loud aircraft (e.g. hushkitted aircraft, MD-80s, Stage 2 jets) to request CASCO TWO
- FAA should assign the CASCO TWO to loud aircraft departing Runway 11 whenever possible
- Pilots should fly CASCO TWO to 3,000 feet MSL to reduce turns over Portland and S. Portland
- PWM should conduct initial test of benefits (check complaints, review with FAA); retest benefits when flight track monitoring system is available
This SID is a noise abatement procedure and applies only to turbojet aircraft and turboprop aircraft capable of 210 knots. All aircraft must be DME equipped.

DEPARTURE ROUTE DESCRIPTION

TAKE-OFF RUNWAY 11: Fly runway heading to I-PWM 2.6 DME, then turn left heading 060° maintain 3000 feet. Expect vectors to filed route or depicted NAVAID. Expect further clearance to requested altitude/flight level 5 minutes after departure.

LOST COMMUNICATIONS: If radio contact not established within 2 minutes after departure, proceed on course and climb to requested altitude or 10,000 feet, whichever is lower.
Adopt Voluntary Noise Abatement Departure Procedure for Runway 11

- Reasonable alternative to a published FMS/RNAV procedure as long as moratorium exists
- Change first GPS waypoint to a “flyover” point rather than a “flyby” point
  - Aircraft will maintain runway heading longer, reducing early turns toward Western Prom
- Second GPS waypoint keeps aircraft over Fore River until reaching 3,000 feet MSL
  - Will reduce early turns over Western Prom and South Portland
Voluntary Noise Abatement Procedure for Runway 11

Representative FMS/RNAV Departure Procedure and Modeled Flight Tracks with Normal Dispersion (39%, 34%, 6.5%)

Scale 1:40,000
1 inch = 2000 feet

http://www.hmmh.com/
Reasonable alternative to a published FMS/RNAV procedure as long as moratorium exists

Reduces overflights of Saco Street residents in Westbrook

Fly runway heading to 3,000 feet MSL or 5.0 nautical miles from takeoff (N43° 39' 6.1452", W70° 24' 49.7628"), whichever comes first
Noise Exposure from Increased Use of Noise Abatement Flight Procedures

http://www.hmmh.com/
Objective is to permit use by Boston Center when tower is closed at night

GPS waypoints would be same as or similar to voluntary departure procedure for Runway 11

PWM to propose FAA review only if voluntary measure proves beneficial
- PWM to evaluate radar traces using Flight Track Monitoring System
- Review results with Noise Advisory Committee
- Tweak GPS waypoints if needed

Retain voluntary procedure and CASCO TWO SID for older technology aircraft
Limit Engine Run-ups to Runway 11
Maintenance Run-up Area

Operator required to notify PWM operations staff prior to run-up; operator must report:

- Aircraft type
- Requested time and estimated duration
- Expected maximum power setting
- Reason

PWM will report winds and specify preferred headings:

- For winds from east, 080° to 125°, 110° preferred
- For winds from west, 345° preferred
Representative Noise from High-Power Run-up
Raise VGSI to 3.5 Degrees

- VGSI – Visual Glide Slope Indicator
  - Used primarily by smaller VFR aircraft
  - Currently set at 3° for Runway 36 approaches

- If increased to 3.5°, aircraft will be ~9 feet higher in altitude for every 1,000 feet of horizontal distance (~45 feet per mile)

- Noise benefit is small, <1 dB at one mile
Noise Exposure from Combined Operational Measures
Acquire Flight Track Monitoring System

- Allows monitoring of flight paths by individual aircraft, as analyzed in Part 150 study
- Data may be delayed up to 72 hours, depending on the source
- Incorporates corridors and gates to check deviations from desired procedures
- May be usable for tracking landing fees
- Can produce graphics and summary reports for presentations and analyses
- Cost likely to range from $75,000 to $175,000
Typical FTMS Outputs
Compute EXP(osure) Metric

- Spreadsheet calculation of change in fleet noise
- Helps anticipate significance of operations by new carriers, new tenants, nighttime flights, etc.
- Generally proportional to DNL but without consideration of runway use and flight track changes
- Easily computed automatically by FTMS
- Tracks long term trend in noise exposure
### Example of Fleet Noise Changes

#### Cumulative Noise Index*

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• Publicize Noise Compatibility Plan to carriers and pilot organizations
• Streamline access to noise complaint website: (www.portlandjetport.org/noise-complaint.asp); publicize current noise issues
• Use FTMS to help address complaints
• Publish annual review of program effectiveness
• Continue periodic meetings with Noise Advisory Committee
• Participate in more homeowner association meetings
Continued Public Involvement (Highlights)

- Coordinate with Portland, South Portland, Westbrook and other jurisdictions to:
  - Publicize noise contours, flight track maps, etc.
  - Continue efforts to meet with planning departments and other municipal employees to reduce development by noise-sensitive land uses

- Plan to Update Part 150 Study in 5 years
Final Steps

• Hold final Public Hearing (~15 March)
• Integrate final comments from Noise Advisory Committee
• Complete documentation and submit to FAA for findings (~31 March)