

**Portland International Jetport Part 150 Noise Committee
Meeting 5
October 9, 2002
6:00PM
Portland Jetport
Conference Room**

Agenda

Time: 6 p.m.
Location: Portland International Jetport Conference Room

- I. Administration**
Introductions
- II. Additional Results From Noise Measurement Program and Radar Data**
- III. Effects of Over Water Sound Propagation on Existing Contours**
- IV. Presentation of Land Use Elements**
- V. Presentation of Five-Year Forecast Operations**

Portland International Jetport FAR Part 150 Update

Part 150 Noise Advisory Committee Meeting

9 October 2002

Harris Miller Miller & Hanson Inc.

In association with:

Vanasse Hangen Brustlin, Inc.
Simat, Helliesen & Eichner, Inc.
Innovative Resource Group, Inc.

- I. Additional Results from Noise Measurement Program**
- II. Effects of Over Water Propagation on Existing Contours**
- III. Presentation of Land Use Elements**
- IV. Five-Year Forecast Operations**

Site 2 Loudest Documented Aircraft Events

Time	Operator	Aircraft Type	Operation	Weighted SEL (dBA)	Duration
6:28 AM	FedEx 1491	B727	Rwy 29 Arrival	99	98 sec
6:57 AM	ABX 118	DC-9	Rwy 29 Arrival	98	90 sec
9:14 AM	DAL 1081	MD80	Rwy 11 Departure	96	54 sec
6:05 AM	FedEX 1961	B727	Rwy 29 Arrival	96	83 sec
6:18 AM	FedEx 1491	B727	Rwy 29 Arrival	95	47 sec
9:36 AM	NWA 1473	DC-9	Rwy 11 Departure	94	60 sec
5:37 PM	DAL 2108	MD80	Rwy 11 Departure	94	63 sec
5:55 AM	FedEx 1961	B727	Rwy 29 Arrival	93	37 sec
6:27 AM	FedEx 2491	B727	Rwy 29 Arrival	92	33 sec
2:03 PM	DAL 2247	MD80	Rwy 11 Departure	91	55 sec

Night (10:00 PM -- 7:00 AM) shaded

ABX: Airborne Express

DAL: Delta Airlines

NWA: Northwest Airlines

*Note: Ten loudest events listed out of 165 total aircraft events at this site.

Site 6 Loudest Documented Aircraft Events

Time	Operator	Aircraft Type	Operation	Weighted SEL (dBA)	Duration
6:35 AM	FedEx 1491	B727	Rwy 29 Arrival	108	45 sec
10:09 PM	FedEx 1291	B727	Rwy 11 Departure	107	60 sec
6:02 AM	FedEx 1961	B727	Rwy 29 Arrival	105	44 sec
11:39 PM	USA 1730	B737	Rwy 29 Arrival	100	37 sec
10:59 PM	USA 532	B737	Rwy 29 Arrival	100	49 sec
10:00 PM	USA 759	B737	Rwy 29 Arrival	98	33 sec
10:01 PM	USA 746	B737	Rwy 29 Arrival	98	36 sec
10:04 PM	USA 759	B737	Rwy 29 Arrival	98	34 sec
9:35 PM	FedEx 1291	B727	Rwy 11 Departure	95	76 sec

Night (10:00 PM -- 7:00 AM) shaded

USA: US Airways

DAL: Delta Airlines

*Note: Nine loudest events listed out of 169 total aircraft events at this site.

Site 7 Loudest Documented Aircraft Events

Time	Operator	Aircraft Type	Operation	Weighted SEL (dBA)	Duration
10:10 PM	FedEx 1291	B727	Rwy 11 Departure	107	48 sec
10:59 PM	USA 532	B737	Rwy 29 Arrival	98	35 sec
11:38 PM	USA 1730	B737	Rwy 29 Arrival	98	34 sec
10:01 PM	USA 746	B737	Rwy 29 Arrival	97	32 sec
10:04 PM	USA 759	B737	Rwy 29 Arrival	96	30 sec
10:00 PM	USA 759	B737	Rwy 29 Arrival	96	34 sec
9:35 PM	FedEx 1291	B727	Rwy 11 Departure	96	70 sec
10:05 PM	Unknown 8640	D328	Rwy 29 Arrival	95	33 sec
5:47 PM	DAL 2108	MD80	Rwy 11 Departure	94	35 sec
6:49 PM	NWA 1850	DC-9	Rwy 29 Arrival	93	48 sec

Night (10:00 PM -- 7:00 AM) shaded

USA: US Airways

DAL: Delta Airlines

NWA: Northwest Airlines

*Note: Ten loudest events listed out of 158 total aircraft events at this site.

Site 9 Loudest Documented Aircraft Events

Time	Operator	Aircraft Type	Operation	Weighted SEL (dBA)	Duration
10:37 PM	Unknown 4181	D328	Rwy 18 Arrival	97	14 sec
10:23 AM	GA	SE Prop	Rwy 18 Arrival	94	20 sec
10:43 PM	EGF 035	Regional Jet	Rwy 18 Arrival	94	12 sec
8:04 AM	GA	SE Prop	Rwy 36 Departure	94	26 sec
5:37 AM	Unknown	Unknown	Rwy 36 Departure	93	23 sec
11:20 PM	BLR 488	Regional Jet	Rwy 18 Arrival	93	12 sec
3:19 PM	EGF 773	Saab 340	Rwy 18 Arrival	90	47 sec
10:35 PM	BLR 6130	D328 Jet	Rwy 18 Arrival	89	10 sec
12:31 PM	Uknown	Unknown	Rwy 18 Arrival	89	48 sec
7:43 PM	GA	ME Prop	Rwy 18 Arrival	89	26 sec

Night (10:00 PM -- 7:00 AM) shaded

GA: General Aviation

EGF: American Eagle Airlines

BLR: Atlantic Coast Airlines

*Note: Ten loudest events listed out of 67 total aircraft events at this site.

Site 12 Loudest Documented Aircraft Events

Time	Operator	Aircraft Type	Operation	Weighted SEL (dBA)	Duration
11:13 PM	WIG 7408	SE Prop	Rwy 18 Arrival	101	31 sec
11:53 PM	BLR 6130	D328 Jet	Rwy 18 Arrival	99	18 sec
3:46 PM	BLR 6128	D328 Jet	Rwy 18 Arrival	98	96 sec
6:02 AM	WIG 8408	SE Prop	Rwy 36 Departure	97	19 sec
3:33 PM	GA	ME Prop	Rwy 36 Departure	94	35 sec
5:55 AM	GA	Helicopter	Rwy 36 Departure	93	35 sec
6:17 AM	Unknown	Unknown	Rwy 36 Departure	93	20 sec
4:27 PM	GA	Corporate Jet	Rwy 18 Arrival	92	36 sec
4:23 PM	GA	ME Prop	Rwy 18 Arrival	92	56 sec
4:31 PM	BTA 3512	Regional Jet	Rwy 18 Arrival	91	33 sec

Night (10:00 PM -- 7:00 AM) shaded

GA: General Aviation

WIG: Wiggins

BLR: Atlantic Coast Airlines

BTA: Continental Express Airlines

*Note: Ten loudest events listed out of 82 total aircraft events at this site.



Site 18 Loudest Documented Aircraft Events

Time	Operator	Aircraft Type	Operation	Weighted SEL (dBA)	Duration
9:35 AM	NWA 1473	DC-9	Rwy 11 Departure	101	49 sec
4:14 PM	NWA 1847	DC-9	Rwy 11 Departure	99	37 sec
9:35 AM	NWA 1473	DC-9	Rwy 11 Departure	98	36 sec
9:14 AM	DAL 1081	MD80	Rwy 11 Departure	98	37 sec
2:02 PM	DAL 2247	MD80	Rwy 11 Departure	98	38 sec
1:57 PM	DAL 2247	MD80	Rwy 11 Departure	97	39 sec
5:37 PM	DAL 2108	MD80	Rwy 11 Departure	97	30 sec
1:52 PM	DAL 2247	MD80	Rwy 11 Departure	97	36 sec
5:34 PM	DAL 2108	MD80	Rwy 11 Departure	96	42 sec
8:16 AM	DAL 1149	MD80	Rwy 11 Departure	95	45 sec

Night (10:00 PM -- 7:00 AM) shaded

NWA: Northwest Airlines

DAL: Delta Airlines

*Note: Ten loudest events listed out of 199 total aircraft events at this site.

Site 19 Loudest Documented Aircraft Events

Time	Operator	Aircraft Type	Operation	Weighted SEL (dBA)	Duration
9:35 AM	NWA 1473	DC-9	Rwy 11 Departure	101	51 sec
4:14 PM	NWA 1847	DC-9	Rwy 11 Departure	99	35 sec
9:35 AM	NWA 1473	DC-9	Rwy 11 Departure	98	40 sec
9:14 AM	DAL 1081	MD80	Rwy 11 Departure	98	36 sec
1:57 PM	DAL 2247	MD80	Rwy 11 Departure	98	42 sec
2:02 PM	DAL 2247	MD80	Rwy 11 Departure	98	39 sec
5:37 PM	DAL 2108	MD80	Rwy 11 Departure	97	35 sec
1:52 PM	DAL 2247	MD80	Rwy 11 Departure	97	29 sec
5:34 PM	DAL 2108	MD80	Rwy 11 Departure	96	45 sec
8:16 AM	DAL 1149	MD80	Rwy 11 Departure	95	49 sec

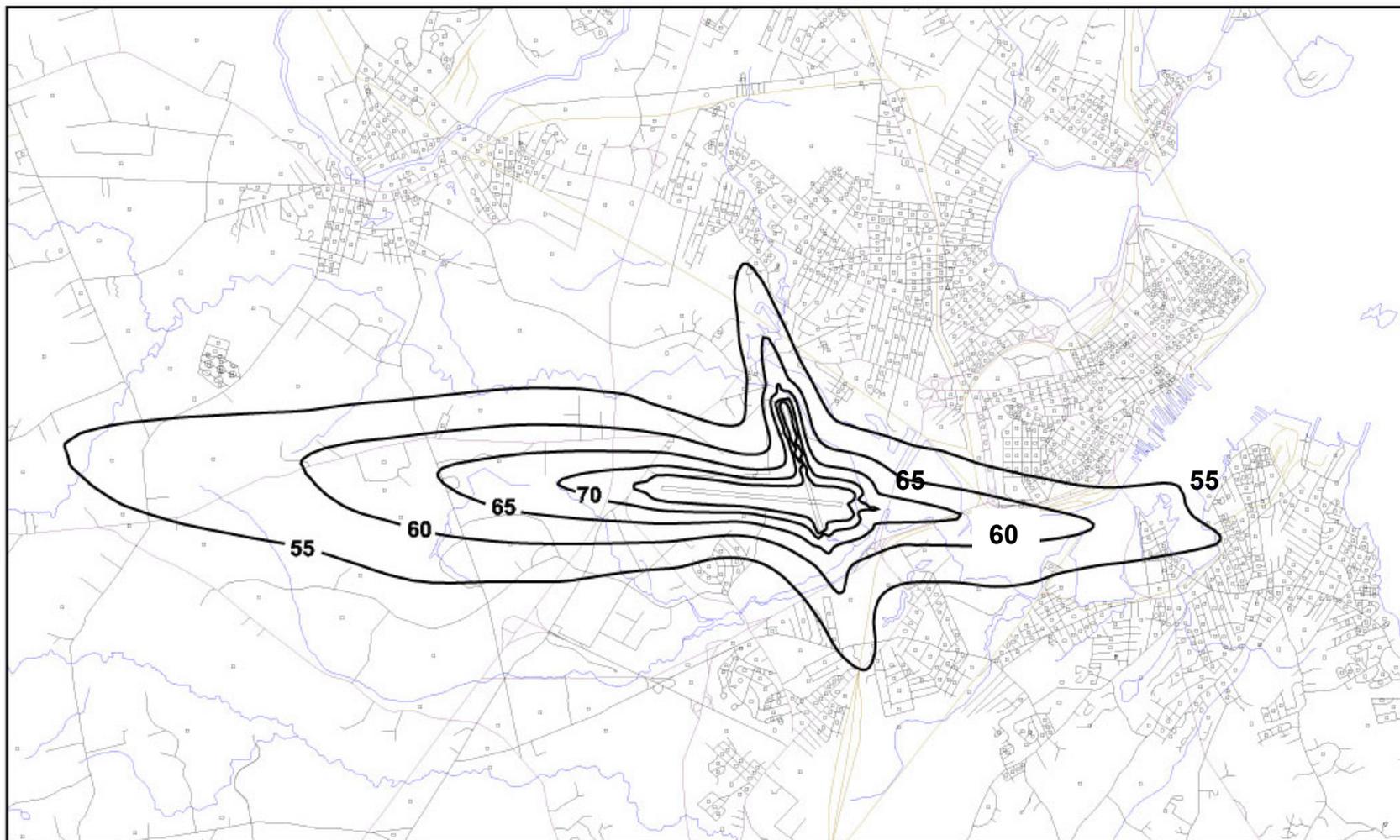
Night (10:00 PM -- 7:00 AM) shaded

NWA: Northwest Airlines

DAL: Delta Airlines

*Note: Ten loudest events listed out of 151 total aircraft events at this site.

2002 Existing Conditions



**Portland International Jetport
2002 Base Contour**

**Population Centroid
Scale**

1" = 6000'

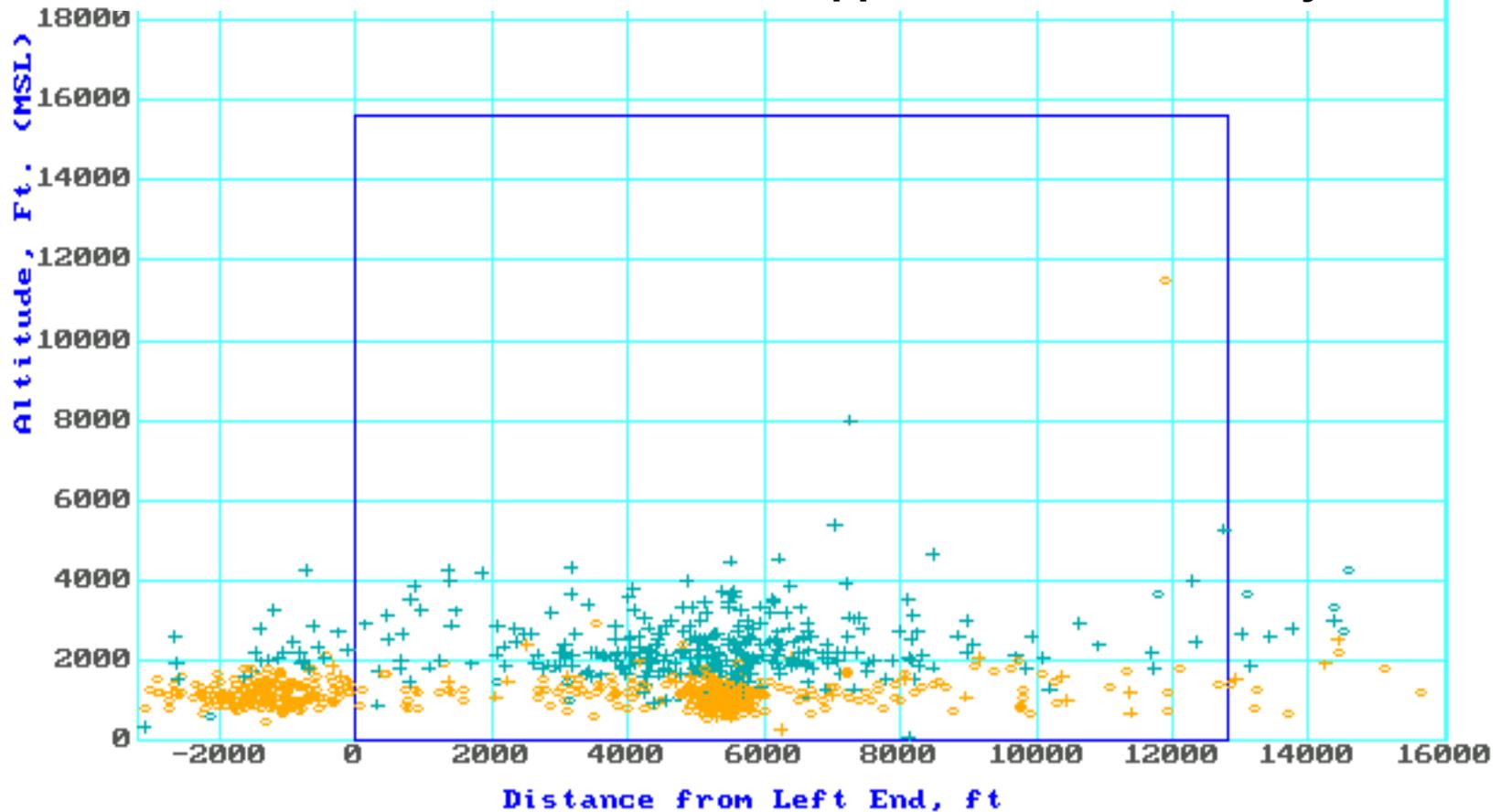


Aircraft Altitudes on Approach and Departure

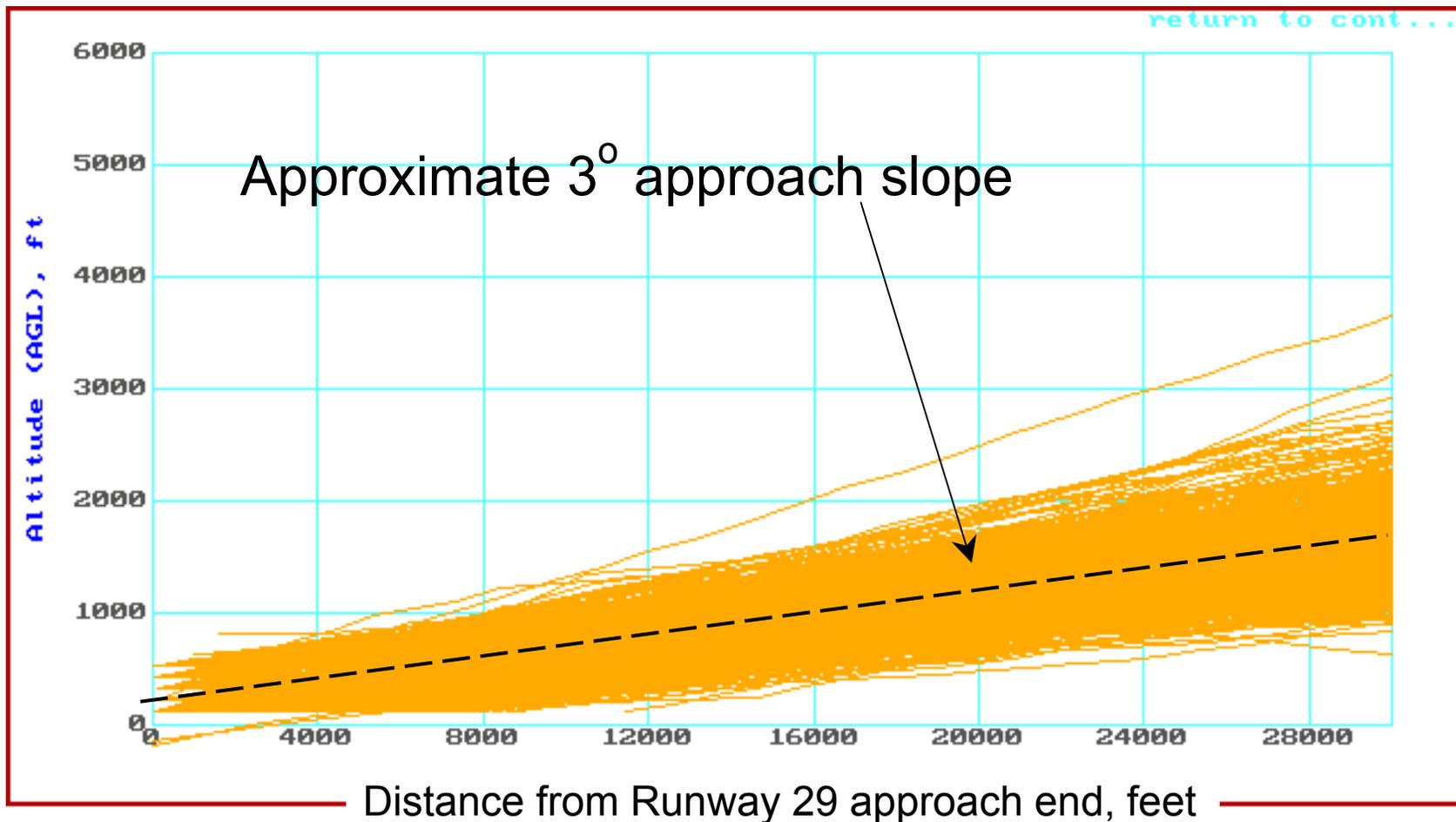
Gate 8 ALTITUDE

[return to cont...](#)

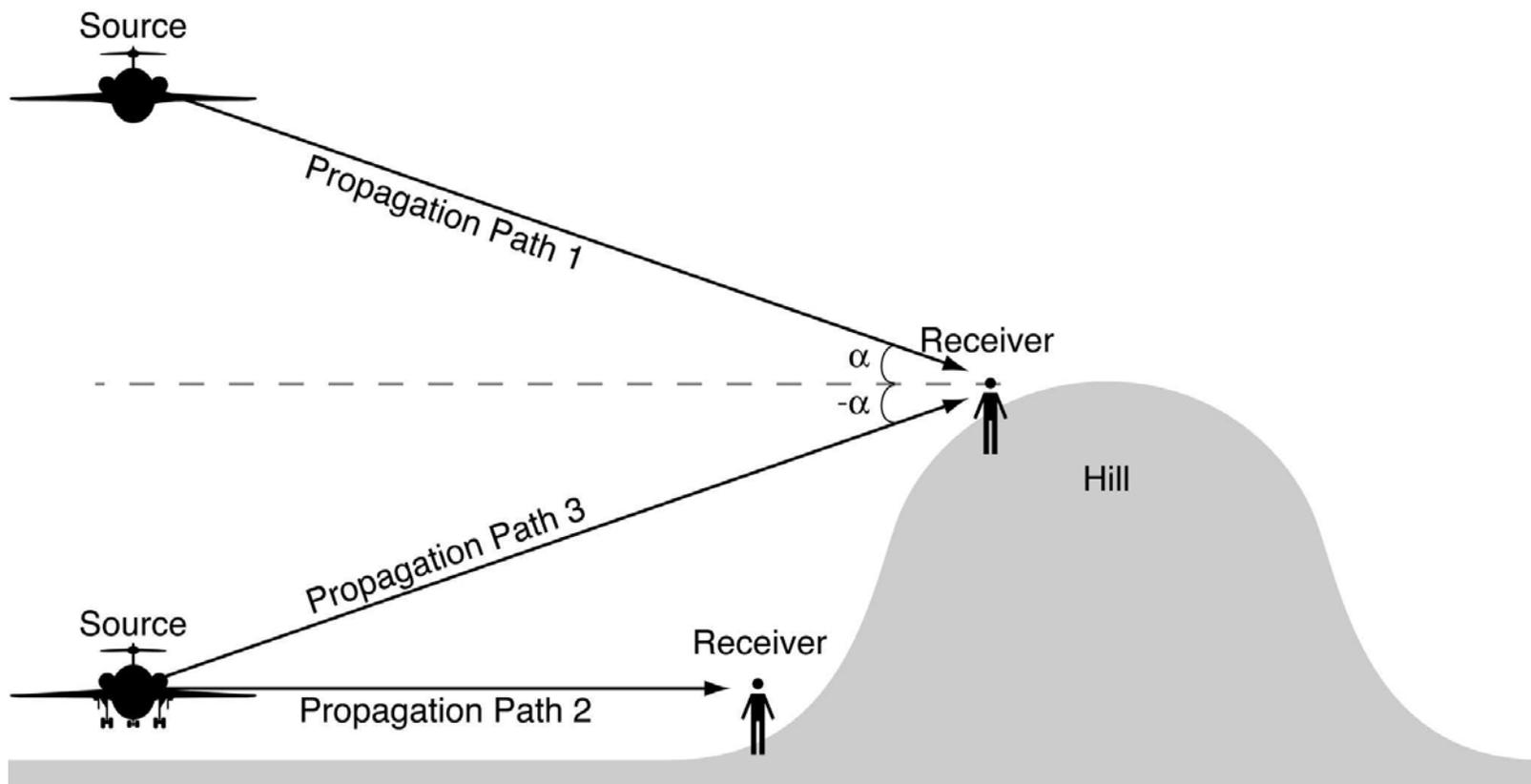
Aircraft altitudes 2.9 nmi east of approach end of Runway 29



Runway 29 Jet Arrival Altitude Profiles



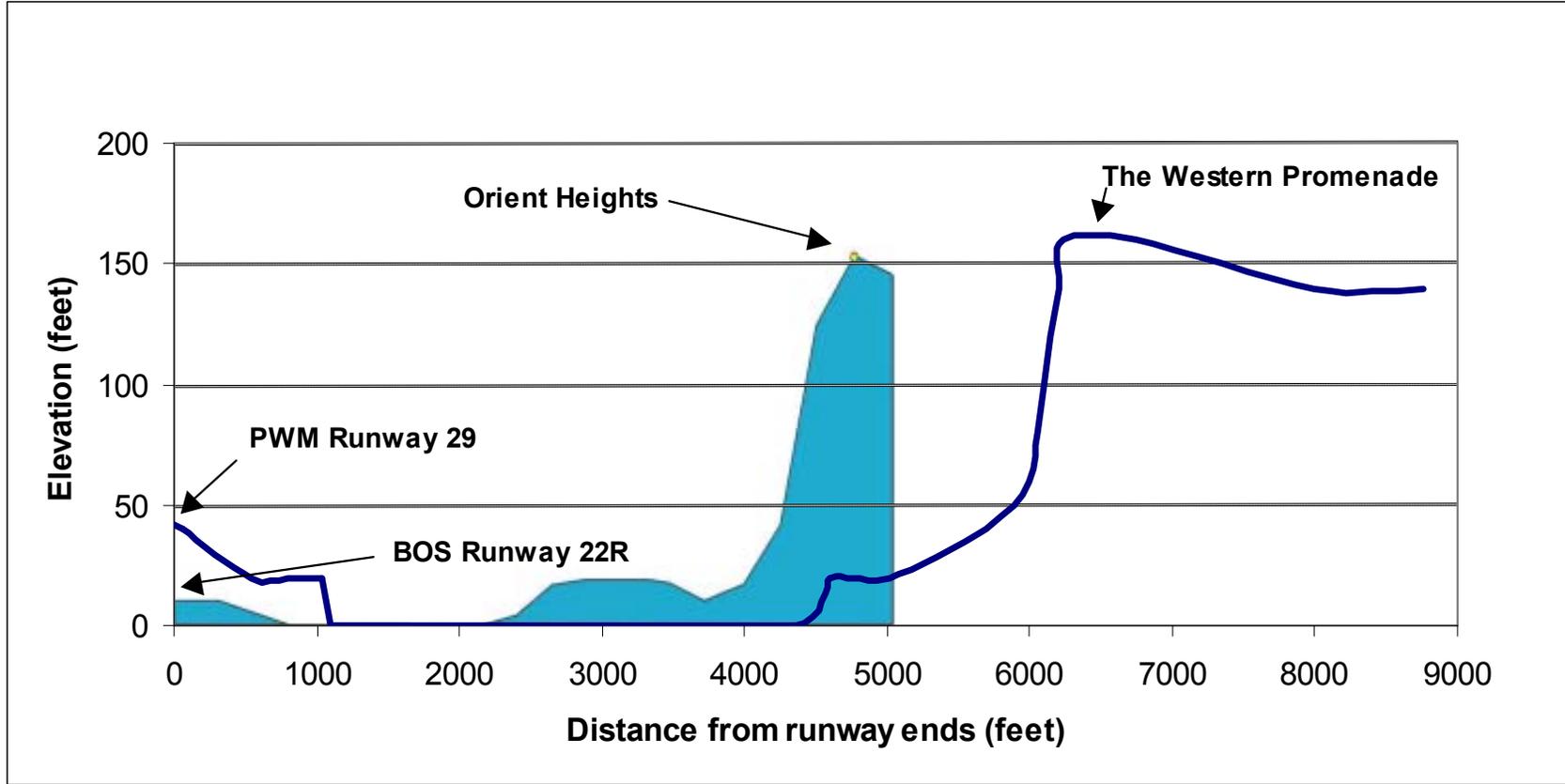
Over-Water Propagation



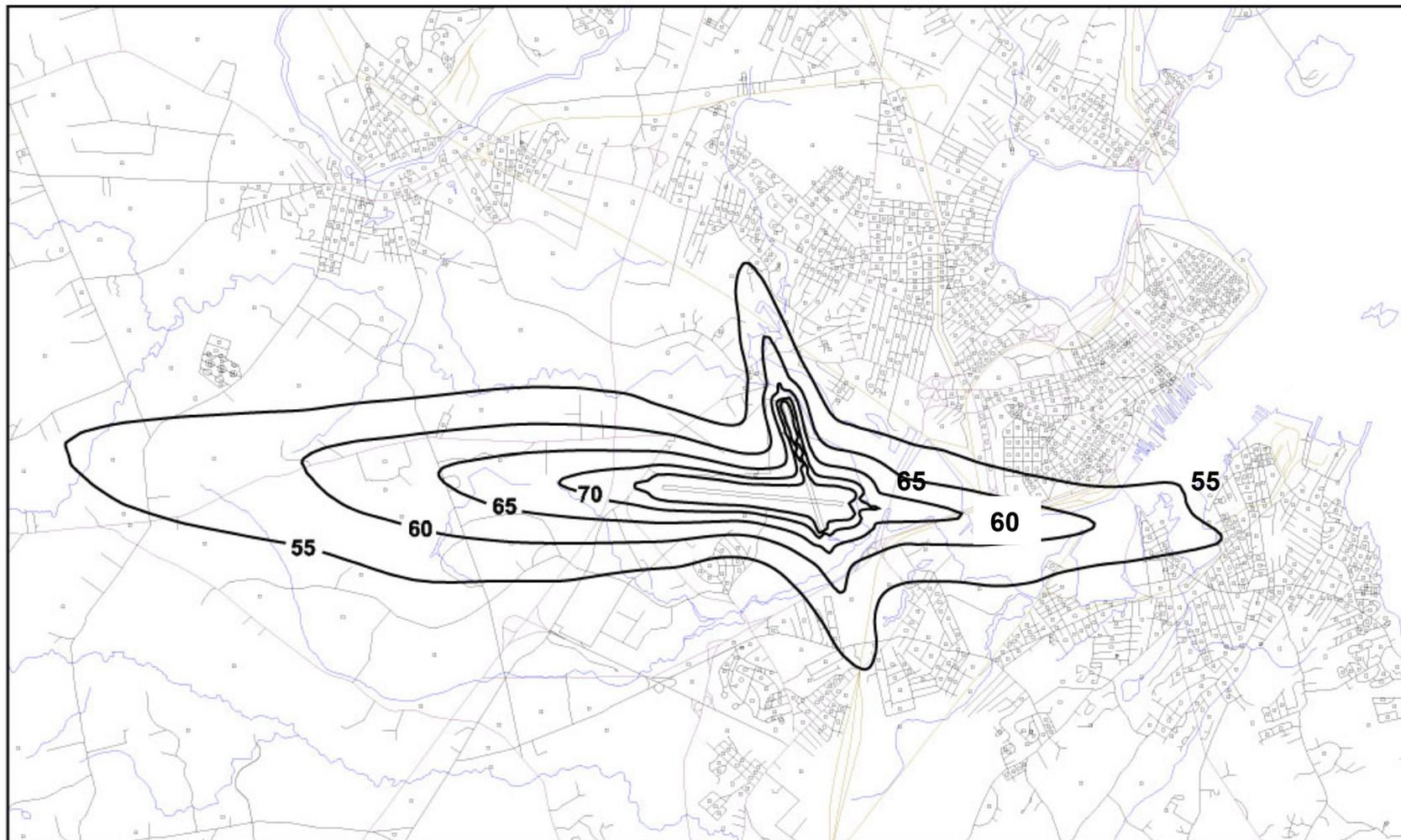
Terrain near Portland International Jetport and Logan International Airport



<http://www.hmmh.com/>



2002 Existing Conditions



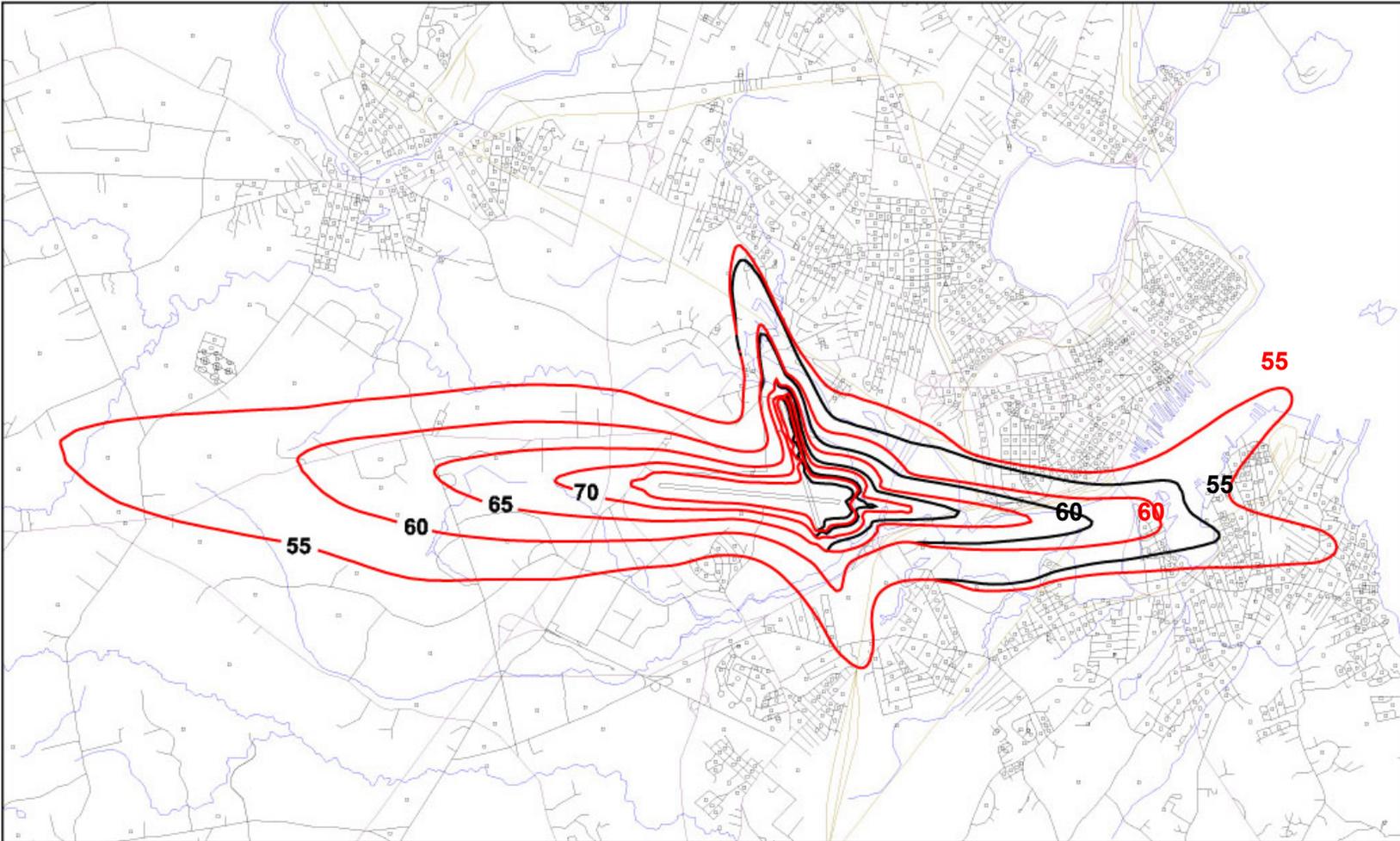
**Portland International Jetport
2002 Base Contour**

**Population Centroid
Scale**

1" = 6000'



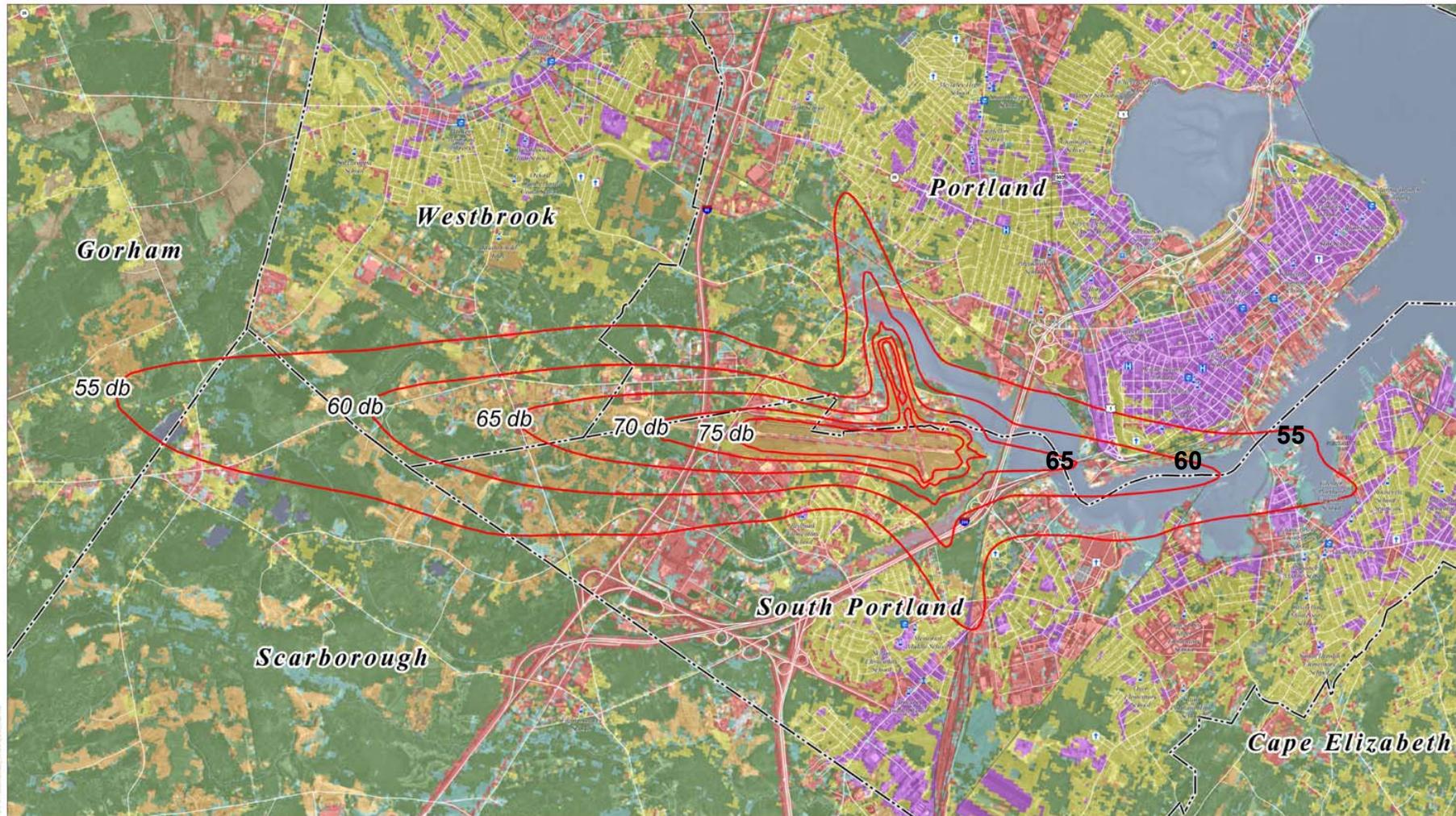
Comparison of 2002 Existing Contours to 2002 Over Water Adjusted Contours



Portland International Jetport
2002 Base Contour —————
2002 Adjusted Contour —————

Population Centroid
Scale
1" = 6000'

Existing Land Use



PORTLAND INTERNATIONAL JETPORT
Portland, Maine

Preliminary Land Use Map

October 9, 2002

-  Airport Noise Contours
-  School
-  University / College
-  Library
-  Hospital
-  Place of Worship
-  Cemetery

-  Low Intensity Residential
-  High intensity Residential
-  Commercial/Industrial/Trans.
-  Urban / Recreational Grasses
-  Undeveloped / Vegetated
-  Manufacturing
-  Agriculture
-  Water
-  Wetlands

Data Sources: National Land Cover Data, U.S. Geological Survey (USGS), Updated March, 2000
Maine Office of GIS (MEGIS), Feature Datasets



Harris Miller Miller & Hanson, Inc.



Vanasse Hangen Brustlin, Inc.



Projected Cargo Operations Show Modest Growth from Base Year Levels



<http://www.hmmh.com/>

Non-Scheduled Activity Forecast - Cargo

Projected Air Cargo Activity at Portland

<u>Air Carrier</u>	<u>Aircraft Type</u>	<u>Weekly Departures</u>
<u>Jets</u>		
Federal Express	Boeing 727-200	10
Airborne Express	McDonnell Douglas DC9 Freighter	5
<u>Non-Jets</u>		
Wiggins Airways	Cessna Caravan	20
Telford Aviation	Cessna Caravan	9

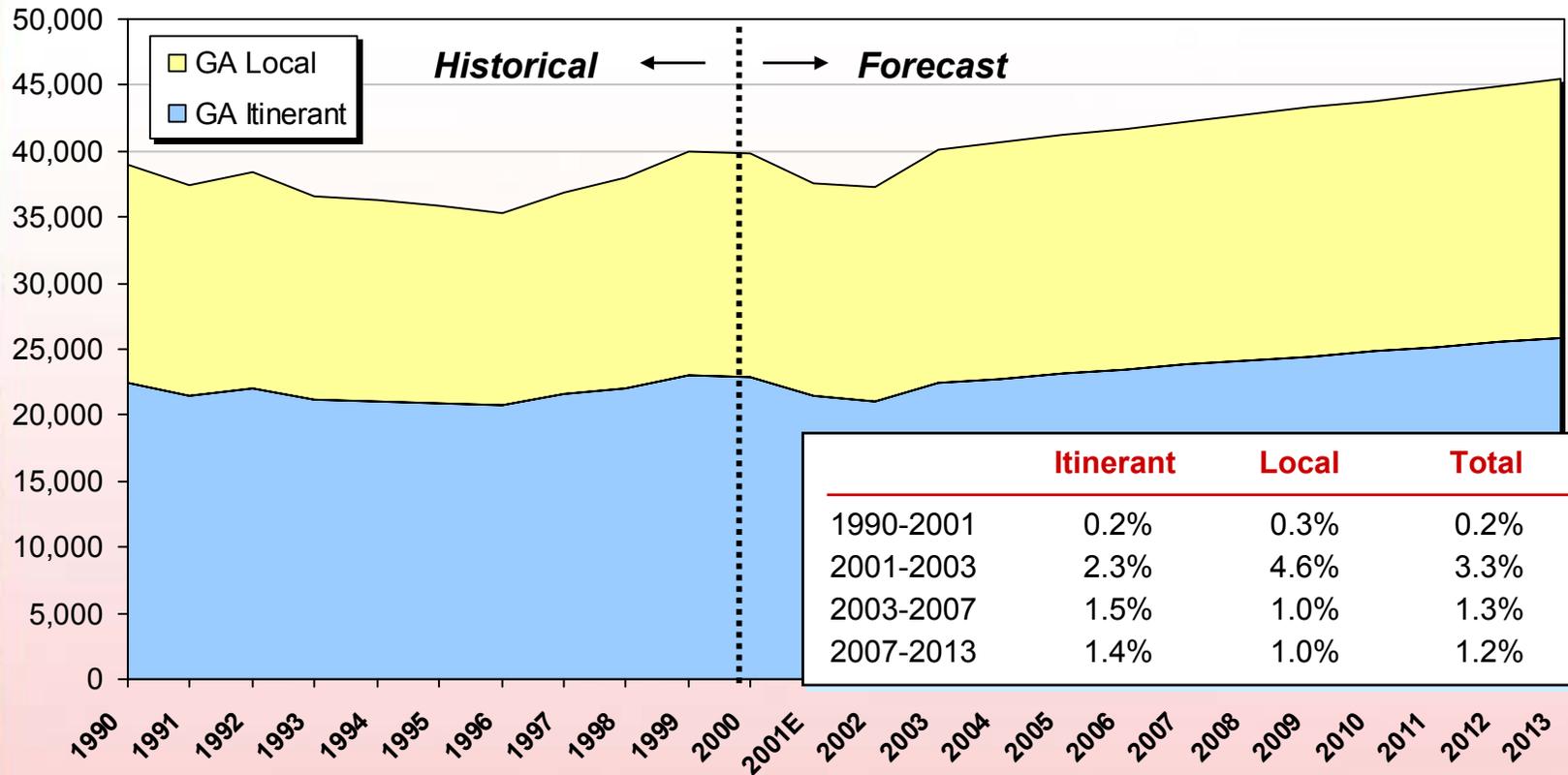
Source: Airport Data



FAA National Forecasts Project Future GA Activity to Grow Faster than Historic Growth

Non-Scheduled Activity Forecast – FAA Projections for the US

FAA US Industry Forecasts
Operations (000) at Airports with FAA and Contact Tower Services



Source: FAA, Aerospace Forecasts, March 2002.

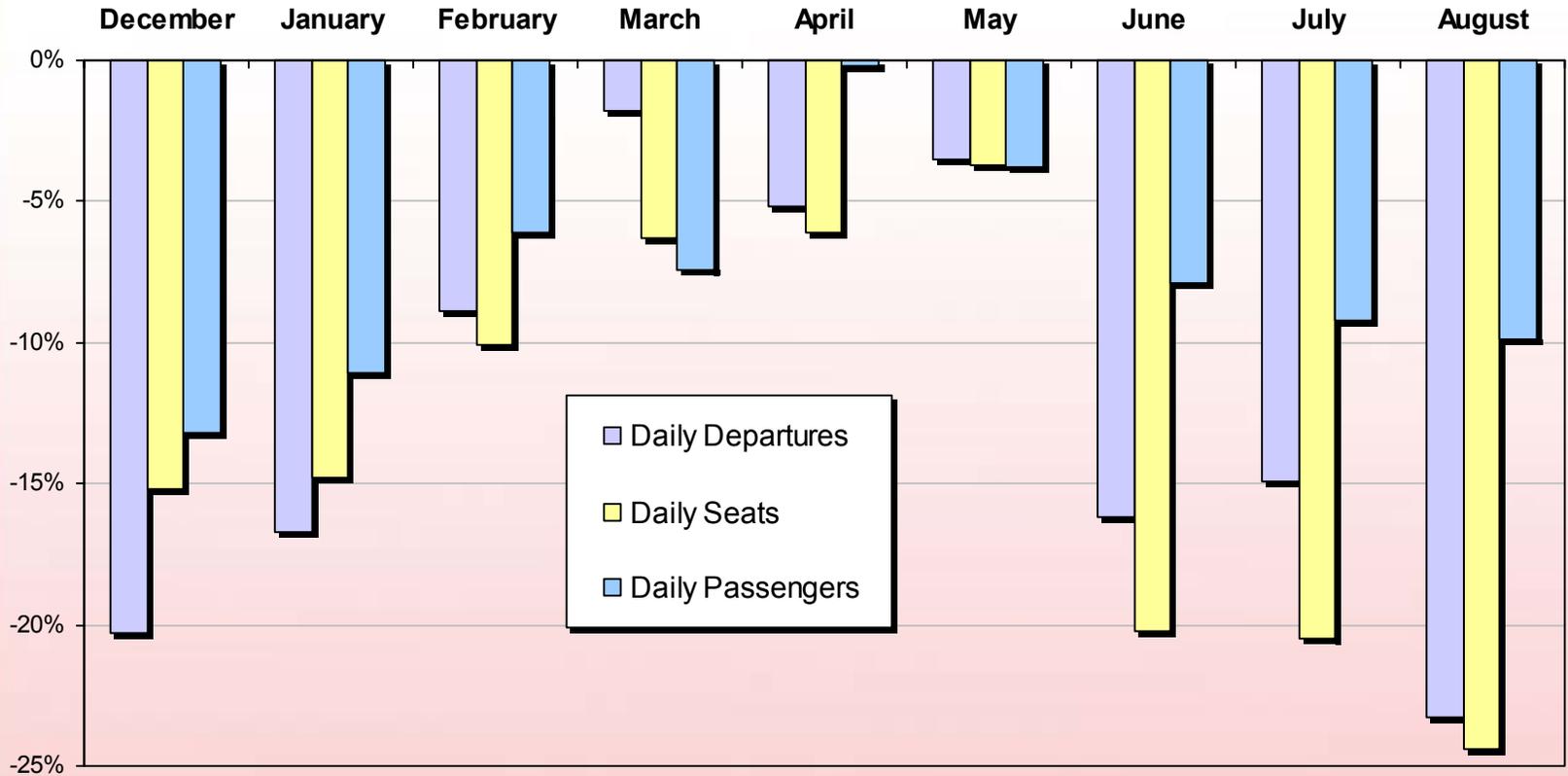
Portland Summer 2002 Schedules and Passengers Still Lag 2001 Activity



<http://www.hmmh.com/>

Scheduled Passenger Forecast – Impacts of September 11th

Changes in Monthly Activity at Portland vs. Prior Year
December 2001 - August 2002



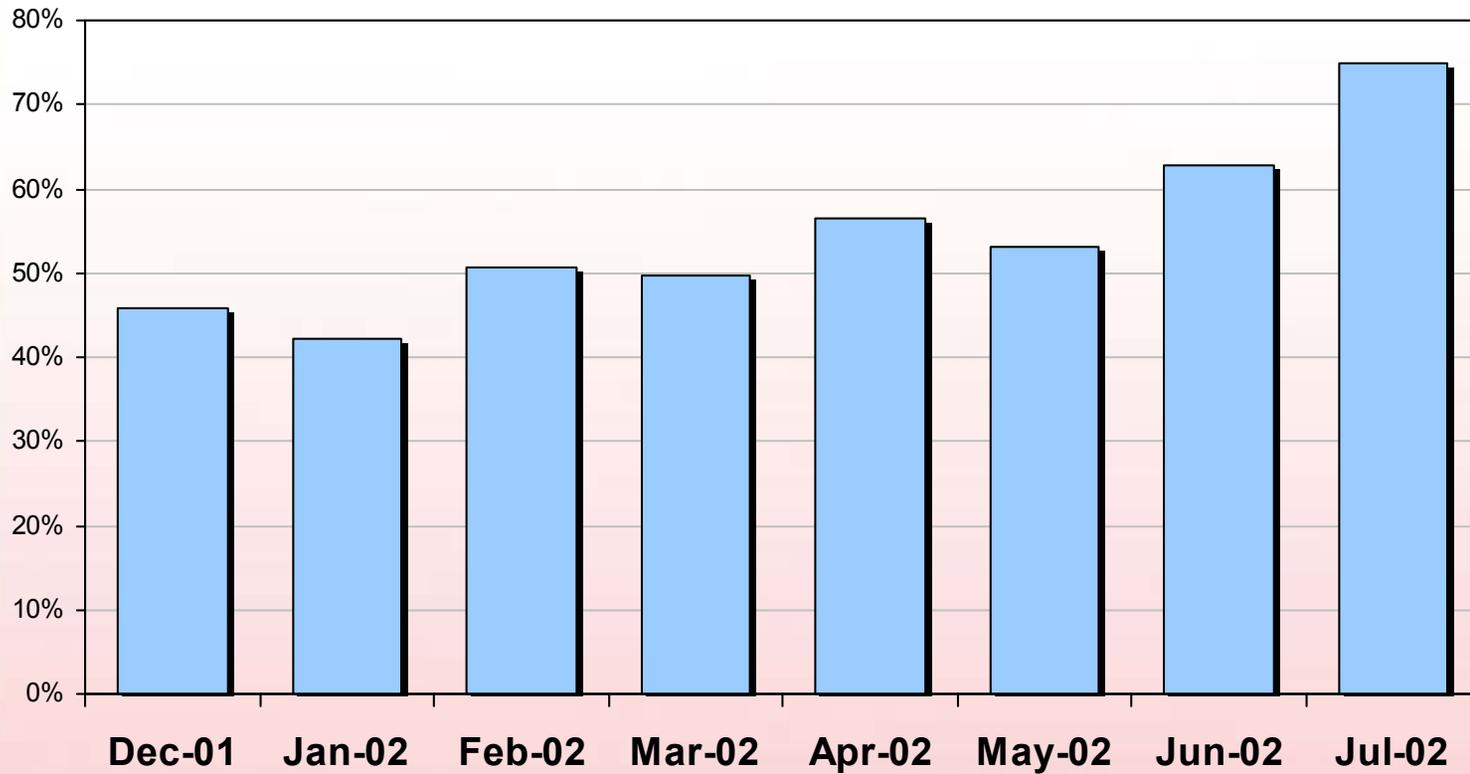
Source: OAG Schedule Tapes, Airport Data



Load Factors at Portland have Recovered to pre-September 11th Levels

Scheduled Passenger Forecast – Impacts of September 11th

Estimated Monthly Load Factors at Portland
December 2001 - July 2002



Source: Airport Records, OAG Schedule Tapes

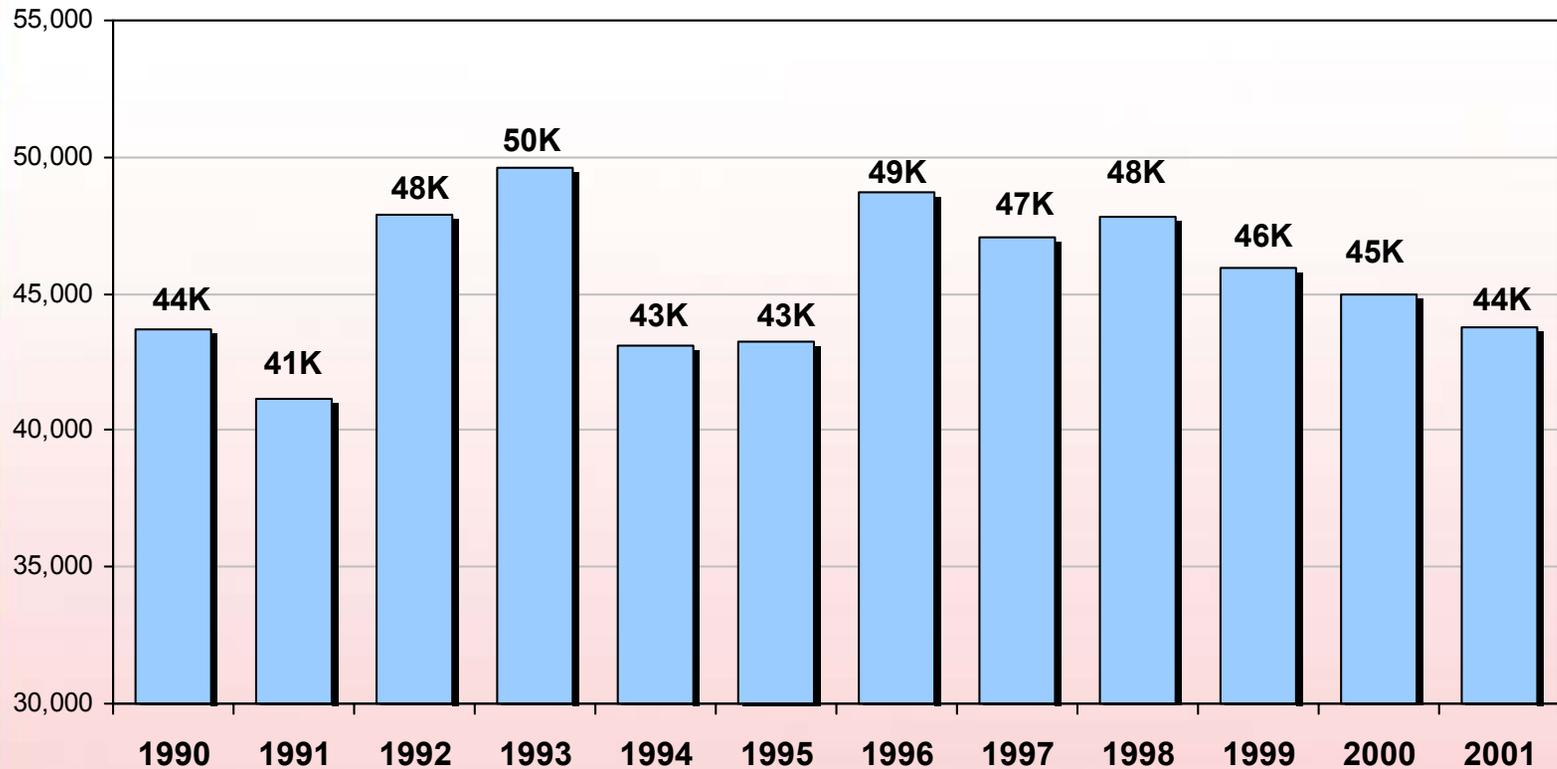
Scheduled Operations at Portland have Fluctuated Between 41,000 and 50,000 Annually



<http://www.hmmh.com/>

Scheduled Passenger Fleet Mix Forecast – Historic Trends

Scheduled Operations at Portland Airport
1990-2001



Source: OAG via BACK Associates

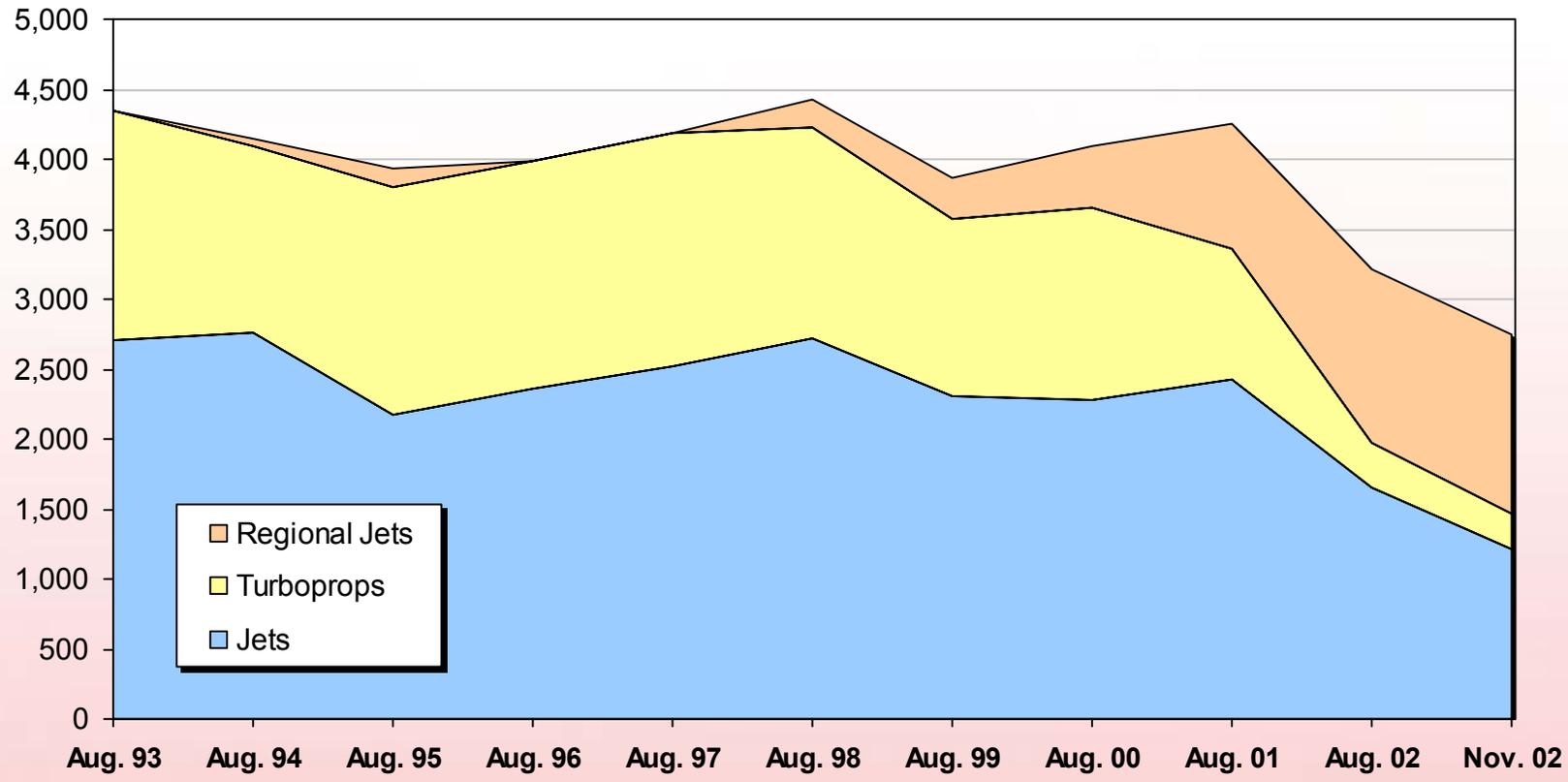


Regional Jets Represent a Steadily Increasing Share of Portland Seats, While Jets and Turboprops Have Declined



<http://www.hmmh.com/>

Scheduled Passenger Fleet Mix Forecast – Historic Trends
Share of Seats at Portland
by Aircraft Category, 1993 - 2002



Source: OAG Schedule Tapes



Forecast 2007 Fleet Mix by Aircraft Type

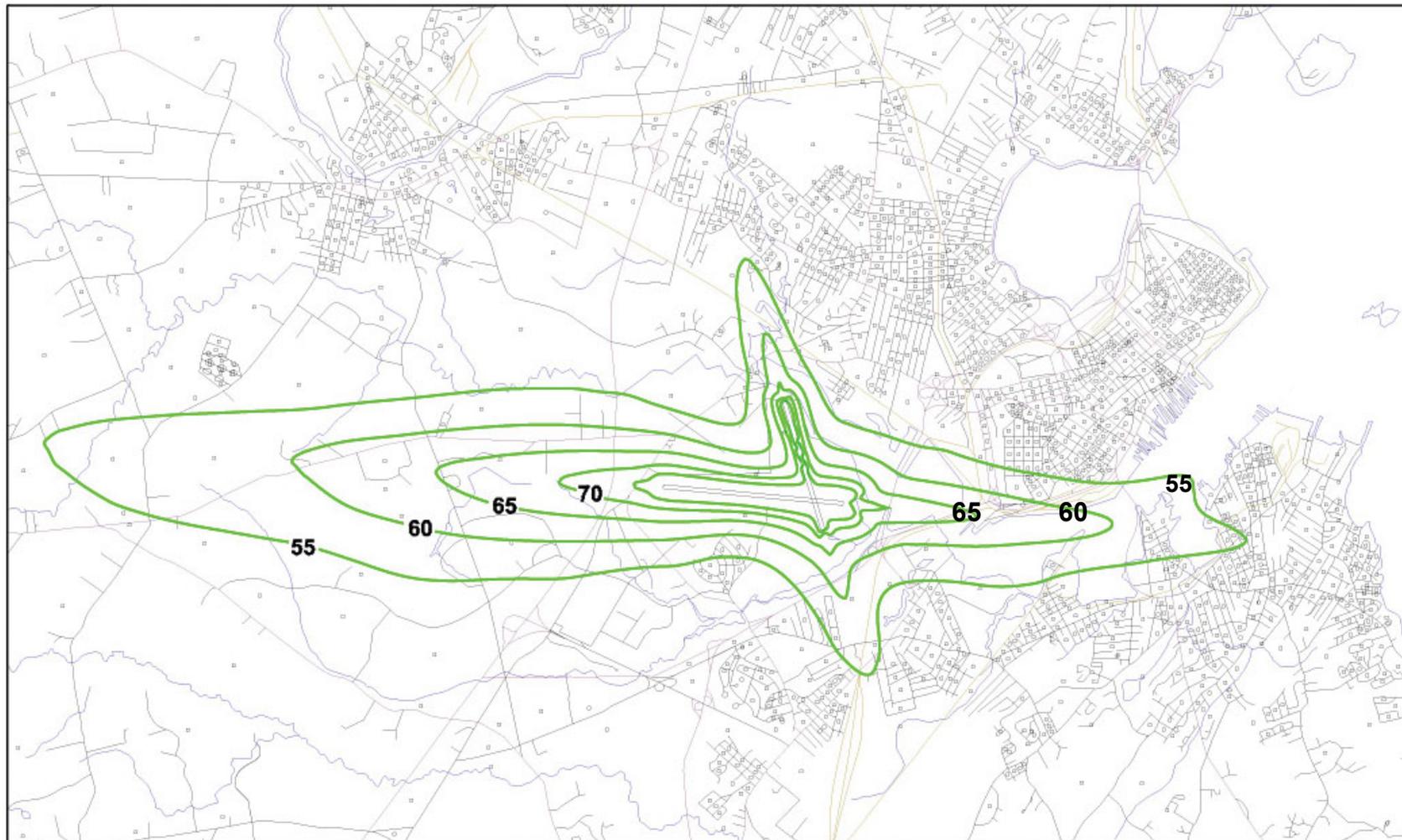


<http://www.hmmh.com/>

Forecast Summary

- **GA aircraft types within each class are based on May 2002 radar data**
- **Forecast further disaggregated into daytime and nighttime activity**
- **Day/Night splits by aircraft category assumed unchanged from 2002**

2007 Forecast Case Contours

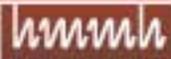


Portland International Jetport
2007 Future Contour —————

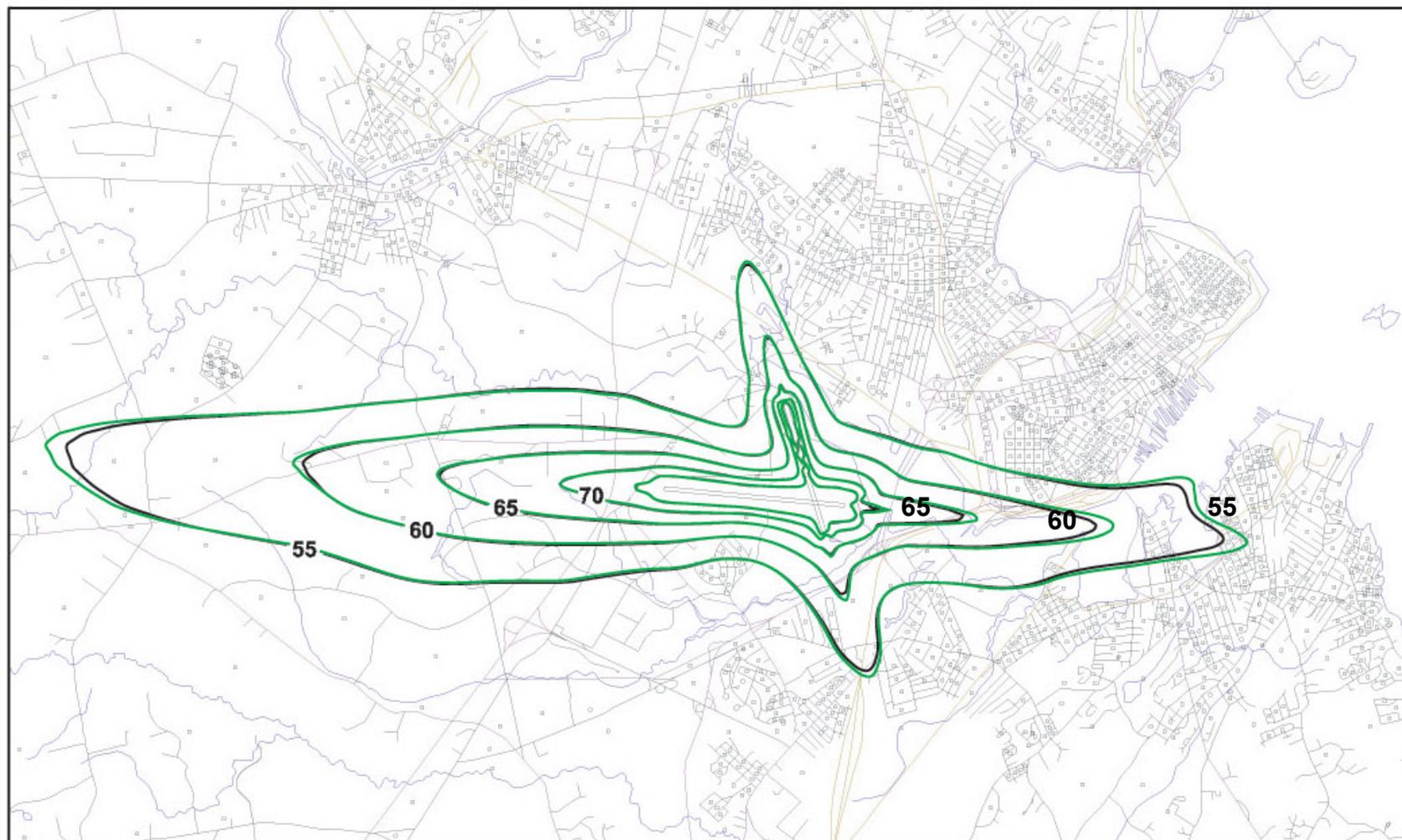
Population Centroid

Scale

1" = 6000'



Comparison of 2002 Existing Case and 2007 Forecast Case Contours



Portland International Jetport

2002 Base Contour 

2007 Future Contour 

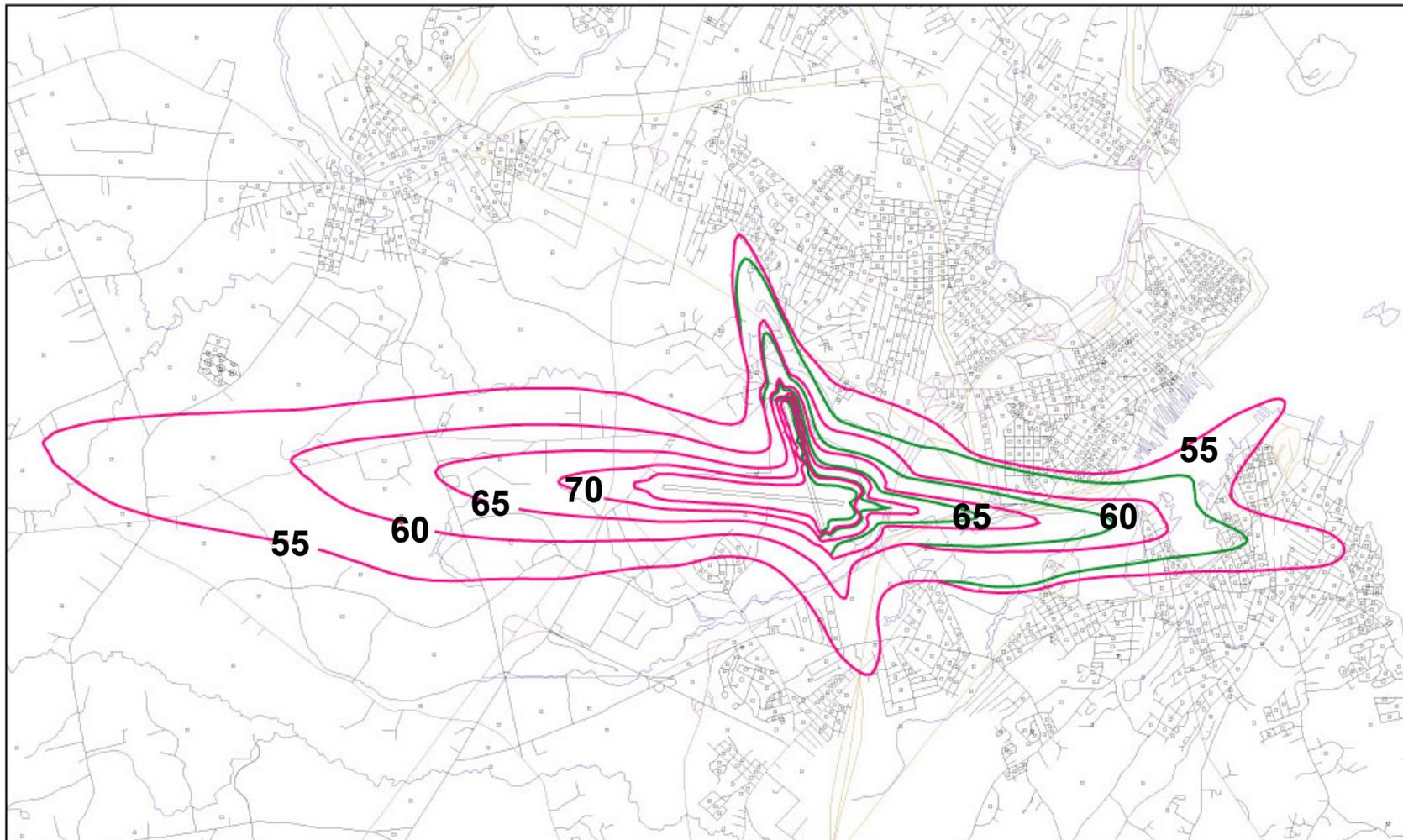
Population Centroid

Scale

1" = 6000'



Comparison of 2007 Forecast Case With and Without Over Water Adjustment



Portland International Jetport

2007 Future Contour 

2007 Adjusted Contour 



2002 and 2007 Population counts

Residential Population within Contour Interval		
	2002 Base Case	2007 Forecast Case
55-60 DNL	1659	2238
60-65 DNL	105	125
65-70 DNL	1432	1432
Over 70 DNL	0	0
Total	3196	3795

- **Approximate Schedule (*approx. 16 – 20 months*):**
 - Data collection phase – *3 months*
 - Base-case and forecast contours / land use – *4 months*
 - Noise abatement alternatives – *3 months*
 - Land use alternatives – *2 months*
 - Recommend alternatives – *3 months*
 - Final documentation – *3 months*
- **Schedule accommodated 8 meetings**

**Portland International Jetport Part 150 Noise Advisory Committee
Meeting 5
October 9, 2002
6:00PM
Portland Jetport
Conference Room**

I. Introductions

The meeting began at 6:10pm with 23 people present.

Name:	Organization Represented:
Jerry Angier	Chamber of Commerce
Edchen Ferguson	Loveitt's Field, South Portland
Paul Ferguson	Loveitt's Field, South Portland
Edward Green	FAA Tower
Bruce Chuluda	City of Westbrook
Nathan Smith	City of Portland
Michael Musca	PWM
Jeff Schultes	PWM
Richard Doucette	FAA New England Region
Tom Ainsworth	Stroudwater Village Association
Joe Calise	Cape Elizabeth
Dick Armstrong	Cape Elizabeth
Becky Steven	HMMH
Marla Engle	VHB
Pam Creamer	Westbrook resident
Peter Stanton	Loveitt's Field resident
Paul Ouellette	Portland
Anne Pringle	Western Promenade Neighborhood Association
Brooks More	City of Westbrook
Darrell Rogers	City of South Portland
Jeff Monroe	PDOT
Linda Boudreau	South Portland
Bob Miller	HMMH

II. Presentation and Discussion

R. Stevens presented the loudest documented single event levels, and the associated aircraft, measured during the monitoring period.

A Pringle: The same noisy flights seem to be over the Western Promenade on a regular basis.

E Green: Flight paths are very dependent upon the aircraft's destination; i.e., if the flight is always departing for the same destination, then the flight would make the same turn daily.

B. Chuluda: Why aren't there noise monitors in Westbrook?

J. Calise: Did you produce this document (single-event noise measurements) for the Cape Elizabeth area?

R. Stevens: No, we only produced single event levels for sites that had recurring overhead flights. However, the INM (Integrated Noise Model) will allow us to model the noise levels at all community areas around the airport. If any additional noise monitoring sites are requested, we ask that you filter them through the airport administration.

N. Smith: We need to make sure that all the stakeholders in this study are represented and their noise concerns are heard by way of this noise study.

R. Stevens presented data on aircraft altitudes as they approach the airport.

B. Miller presented data on over water sound propagation and how it relates to the Integrated Noise Model (INM). He also presented the 2002 existing conditions contours with an adjustment made for over water propagation.

B Miller: We believe that FAA will approve using the Boston Logan 'over water adjustment' for PWM. Why? the geometries of water to land elevations are similar in both cases.

P Stanton: Why not use 'over water adjustment' for the ocean coastal areas too?

B Miller: The over-water adjustment is only applicable when sound is propagating across water (as opposed to solid ground) from an aircraft that is low on the horizon, such as from the start of takeoff on Runway 29 to a receiver on the Western Promenade. That low-horizon geometry does not exist for people living in coastal areas or out on Peaks Island – aircraft are high in the air and sound is propagating directly to residents on the shore; there is no ground absorption reducing the noise that reaches those receivers.

M. Engel presented existing land use data for the communities surrounding PWM. She described the possible land use measures that can be used in noise mitigation.

M Engel: Future land use measures include: zoning changes to permit only noise compatible land uses in high-DNL noise areas; or designation of an Airport Overlay Zone. In the overlay zone, certain requirements could be imposed as a condition of development. For example, soundproofing for new structures could be required in the

building code, disclosure of the overlay zone and noise contours to perspective buyers could be required and/or avigation easements could be required for new construction. Another option is to purchase the development rights on property to ensure it is kept in compatible (for example, agricultural) use.

B. Miller presented the five-year forecast operations for PWM as prepared by SH&E. The forecast operations were used as an input into the INM to estimate the 2007 noise contours, which were presented with a comparison to the 2002 existing conditions and the 2007 contours adjusted for over water propagation.

B. Miller presented a review of milestones in the Part 150 process. The Part 150 update at PWM is on schedule. Projecting forward, we anticipate completion in June 2003.

B Miller: Percentage of Seats occupied on aircraft has increased, mostly due to downsizing of fleet numbers and aircraft size; no residents reside in the 70+ DNL areas; the population in the 65-70 DNL noise level, according to US Census counts, is about 1400 residents. However, we need to take an actual population count of the areas, because it is likely a much smaller amount.

General Discussion:

J Calise: Will we look at noise mitigation measures that would affect areas outside the noise contours?

B Miller: There are operational changes that the noise group will have to come up with, then make sure that the changes affecting all areas not just one particular area (i.e., their own neighborhood)

P Stanton: I'd like to discuss moving the Cargo Airlines to another airport, if they are the noisiest flights. We need to let FedEx know that their flights are the noisiest flights at Portland.

J Monroe: We can have the noise committee notify FedEx as a part of the part 150 study.

L Boudreau: Our next step is to move forward and have the existing data approved by the FAA. Then we can work on making recommendations for operations changes.

A Pringle: Let's go forward with recommendations. We need to meet prior to January to brainstorm about operational changes.

B Miller: Just as a review, we began the Part 150 process in December 2001, and we should be able to wrap up the process by June 2003.

III. Next Meeting

The next Noise Advisory Committee meeting is scheduled for December 4, 2002 at 6 p.m. in the Portland International Jetport Conference Room.

Reminder: These meeting notes and the HMMH presentation will be posted on our website (www.portlandjetport.org).