May 14, 1982

Ms. Jody Yamanaka
Port of Seattle
Post Office Box 1209
Seattle, Washington 98111

Re: Sea-Tac/Boeing Field Airspace Study
Public Involvement Element

Dear Jody:

I am disappointed and disheartened with the way the Port is proceeding with the public involvement element of the airspace study. You haven't been fair with those people represented by the citizen members of the Advisory Committee.

If you are knowledgeable regarding the public involvement process, and I must assume you are, you could not have expected a week or ten days to be long enough for representatives of community organizations (those people with whom Mr.. Wood and I are in contact) to:

1) Receive their <u>one</u> newsletter;

2) Reprint that newsletter for the members of the community groups;

3) To distribute the reprinted newsletter to individual members of the organizations.

4) The newsletter to be read and discussed by members of the community organizations;

5) Those persons interested in obtaining the AIRSPACE AND AIR TRAFFIC CONTROL/PRELIMINARY ASSESSMENT OF AIRSPACE INTERACTIONS Report for review;

6) For the persons wishing to have a copy of the report to contact the Port during business hours and arrange to receive the report (most likely via 4th class mail --and how long do you think that takes!);

7) For persons who have received a copy of the report, which is lengthy and somewhat technical, to read and understand it;

8) For these people to draft their questions and comments and transmit them to the Port;

9) The Port to make appropriate responses to questions, concerns and comments.

On the basis of the above it is fair to conclude that you are not conducting the public involvement process in good faith. It is no consulation whatever that, when the study began, many of those representing community groups were suspicious that the Port would conduct the public involvement process fairly and in good faith. This suspicion appears to be confirmed. I believed the Port would act in good faith; apparently I was wrong.

The leadership of the eastside communities has met and discussed this situation. We think it appropriate to expect the Port of Seattle and King County to extend the review time for the draft working paper of this last task of Phase I of the study (the document entitled "AIRSPACE AND AIR TRAFFIC CONTROL/PRELIMINARY ASSESSMENT OF AIRSPACE INTERACTIONS").

Finally, it is my understanding that, two weeks before it went to the leadership of the various community groups, the Port mailed the newsletter announcing availability of the above-referenced report to the membership of the Washington State Pilots Association. Is this the case? Further, to date I have not received this newsletter or know of its existence until May 13.

Very truly yours,

Rosemary Zeutschel

April 13, 1982

Policy Advisory Committee (see Distribution)

Art Yoshioka, Special Project Director

Scope of Work for the Sea-Tac Noise Remedy Program Update

As a guideline for the planning process of the Sea-Tac Noise Remedy Program Update, the study team has developed an outline of the scope of work. This outline presents a strategy and a list of major steps which allow for an effective relationship between the goals and objectives of the study, the planning study, the study recommendations, and plan adoption and implementation. It will be used as the basis for the preparation of a work program which will describe in detail, for each task identified in the outline of the scope of work, the approach (i.e., how the task is to be done), the products (i.e., what is to be accomplished), the responsibilities of each of the study participants and a schedule for completion.

A copy of the outline of the scope of work is attached. It is a product of the evaluation of three strategies and input from the study's working subcommittee of PAC. The study team considered three strategies with which to carry out the Sea-Tac Noise Remedy Program Update. The scope of the three strategies were the same, but differentiated by the phasing of the tasks

within the study. The first strategy would address all remedy programs for

the total study area in one phase. Completion and implementation of any recommendations could take as long as 24 months. The second strategy would address all remedy programs for the total study area in two study phases with recommendations for implementation following each phase. The first phase would address only the land acquisition program in areas which meet land acquisition criterion established in the Sea-Tac/Communities Plan with updated noise projections. Completion and implementation of first-phase recommendations could take as long as 12 months. The third strategy would also address all remedy programs for the total study area in two study phases with recommendations for implementation following each phase. However, its first phase would address only the land acquisition program in areas identified in the Sea-Tac/Communities Plan for land acquisition which has not yet fallen within a completed or ongoing land acquisition program and at the same time meet land acquisition criterion established in the Sea-Tac/Communities Plan with updated noise projections. Completion and implementation of first-phase recommendations could be within eight months.

Based on the estimated implementation schedule, the third strategy was selected and presented herein. An expeditious implementation schedule was given highest priority in the evaluation of these three strategies for the following reasons:

* Continue Port of Seattle commitment made for an ongoing implementation program.

* Fulfill commitment made to communities identified in the Sea-Tac/Communities Plan for land acquisition that have not yet fallen within a completed or ongoing land acquisition program.

* Maintain present staff of trained purchase and relocation personnel.

* Be prepared to take advantage of any Federal funds for noise remedy program implementation before completion of the total study (e.g., possibility of fiscal year 1982 Airport Development Aid Program funds).

This strategy of early implementation was presented to the study's working subcommittee of PAC at a meeting held on March 23, 1982. Comments were solicited on the strategy and on the proposed scope of work. Comments were received verbally at the meeting from the committee and in writing from three of the members (copies of written comments are available upon request). Strategy preference appeared to be associated with the potential inclusion/exclusion of individual communities in the first-phase land acquisition programs. Comments on the scope of work were incorporated into the outline whenever possible. The major additions made to the scope of work were the insertion of two new elements: A review of existing literature covering the effects of noise on population and land resources and the identification and evaluation of aircraft access restrictions as possible noise abatement measures.

Without further delay, the study team will prepare a work program which will be based on the attached scope of work. It will be presented to the study's subcommittee of PAC in mid-May and to PAC thereafter.

Attachments

Distribution:

PAC Members: Alexander (POS), etc. . . . .

Clark, Dunham, Killeen, Parks, Sims, Sutter, Taylor, Wittren,

Yamanaka (POS)

Broberg (Highline Times), Buley (FAA), Berwald, Conradi, Currie,

Holstine, Legg, MacKenzie, Summers, etc....

OUTLINE OF SCOPE OF WORK FOR THE
SEA-TAC NOISE REMEDY PROGRAM UPDATE

Task 1: Purpose and Objectives

a. Review of Sea-Tac/Communities Plan process, goals, and recommendations.

b. Port planning policies and guidelines.

c. Community and other agencies' goals and guidelines or rules and regulations.

Task 2: Interim Land Acquisition Program

a. Definition of Study Area

- Study area will include the area identified in the Sea-Tac/Communities Plan for land acquisition which has not fallen within a completed or on-going land acquisition program and at the same time meet land acquisition criterion established in the Sea-Tac/Communities Plan using update noise data from Sea-Tac Noise Exposure Update study.

b. Recommended Program for Study Area

- Schedule for implementation
- Implementation Responsibilities
- Needed actions
- Sources of funding

c. Determination of Federal and/or State Environmental Requirements

- Prepare environmental documentation necessary for implementation of land acquisition program.

d. Commission Authorization for Implementation

Task 3: Literature Review of the Impact of Noise on Population and Land Resources

a. Noise and Health

b. Noise and Property Values

Task 4: Definition of Study Area (Sea-Tac/Communities Plan's Airport Vicinity Planning Areas)

D/46

Task 5: Update of Inventory of Existing Conditions Within Study Area

a. Land Use and Zoning

- Categories of land use as per King County land use maps
- Location of noise sensitive community facilities
- Location of permanent and mobile noise monitoring sites
- Zoning

b. Population

- Number of individuals and families
- Characteristics of households (e.g., minorities, income levels, renter or owner, tenure, elderly, large families, etc.)
- Characteristics of community (e.g., attitudes toward neighborhood future, noise, etc.)

c. Housing

- Number of housing types
- Characteristics of structures (e.g., types, value, historical significance, etc.)
- Neighborhood composition

d. Ground Transportation

- Surface transportation patterns
- Vehicular mix and volume

e. Noise

- Ambient noise sources and noise levels
- Aircraft generated noise by contour and grid cell
- Total noise levels

f. Air Quality

g. Water Quality and Drainage

h. Physical Geography

- Geology and soil

- Topography and slope
- Flora and fauna

i. Community Plans and Programs

Task 6: Trends and Forecasts

a. Land Use Plans

- Sea-Tac/Communities Plan
- Highline Community Plan

b. Population Forecasts

c. Ground Transportation Projections

d. Summary of Sea-Tac Noise Exposure Update

- Forecasts of aviation demand
- Projections of noise exposure levels
- Findings

Task 7: Identification of Noise Abatement Measures

a. Implementation Authority by Airport Operator

- Residentially-oriented programs as defined in the Sea-Tac/Communities Plan (e.g., land acquisition, purchase guarantee, cost sharing insulation, limited cost sharing insulation, property advisory services, etc.)
- Aircraft noise reduction policies as developed in the Sea-Tac/Communities Plan (e.g., support of adoption of all operational procedures effective in reducing noise exposure, engine run-up curfews, and specified run-up locations, noise monitoring program, etc.)
- Aircraft access restrictions (e.g., noise level restrictions, time of day restrictions, limits to number of aircraft operations, etc.)

b. Implementation Authority Vested in a Local Agency or Political Subdivision Governing Body, or a State Agency or Political Subdivision Governing Body

- Zoning
- Soundproofing of buildings

- Building codes for sound insulation and noise-induced building vibration control

c. Implementation Authority Vested in a Federal Agency

- Preferential runway system
- Noise abatement takeoff or approach procedures
- Modification of flight tracks

Task 8: Identification of Evaluation Criteria and Evaluation of Noise Abatement Measures

a. Community Sentiment

b. Noise Reduction

c. Reduction of Noncompatible Land Uses and Exposed Population and Prevention of Additional Noncompatible Land Uses and Exposed Population

d. Social and Induced Socioeconomic Impacts

e. Air and Water Quality

f. Other Environmental Considerations

g. Costs

h. Relationship to Existing Airport Layout Plan, Airport Master Plan, Airport System Plan, Community Plans, and Port goals and guidelines.

i. Safety

j. Feasibility of Implementation

k. Timing Before Implementation

Task 9: Recommended Program

a. Relative Contribution of Each Measure to the Overall Program

b. Schedule for Implementation and Periodic Review and Updating

c. Implementation Responsibilities

d. Needed Actions for Implementation

e. Sources of Funding

f. Future Actions for Monitoring and Periodic Review and Updating

Task 10: Community and Intergovernmental Coordination

a. Citizen Involvement Program

- Policy Advisory Committee (PAC)
- Working subcommittees of PAC
- Public information meetings
- Newsletters

b. Meetings - Consultation with Governmental Agencies

c. Summary of Comments and Material Submitted to Operator with Responses

Task 11: Environmental Assessment of Proposed Airport Noise Compatibility Plan

PORT OF SEATTLE

MEMORANDUM

DATE August 24, 1982

TO Sea-Tac Noise Exposure Update Study Technical Advisory Committee

FROM Jody Yamanaka, Planner II

SUBJECT Transmittal of Sea-Tac Noise Exposure Update Study

The Sea-Tac Noise Exposure Update Study, a copy of which is attached, has been completed. It differs from the draft update, distributed in November 1981, primarily by the revision of the forecast of aircraft operations and the resulting projections of noise exposure levels.

A summary of the study's findings are presented in Chapter 1. A presentation of these findings will be made at the next Sea-Tac Policy Advisory Committee Meeting, tentatively scheduled for September 15, 1982.

D/060/25
Attachment

cc: TAC--Bray, Breysse, Chalupnik, Dana, Hamilton, Holstine, Horn, Huebner, Kronshage, Koss, MacKenzie, McLaughlin, Nelson, Patterson, Russell, Shindler (w/Attachment)

The Parry Company w/Attachment
Jay Buechler--Port of Portland w/Attachment
Bill Martin--Orange County w/Attachment
Alan Nelson--Boeing w/Attachment
Brad Broberg--Highline Times w/Attachment
Herb Belanger--Seattle Times w/Attachment
Dunham, Muller, Parks, Sims--POS

PORT OF SEATTLE

MEMORANDUM

DATE September 21, 1982

TO Distribution

FROM Jody Yamanaka, Planner II JY

SUBJECT Sea-Tac/Boeing Field Airspace Study
Distribution of Phase II Working Papers

Our records indicate that you requested and received a copy of the working paper prepared for the Preliminary Analysis of Airspace Interactions element of the Sea-Tac/Boeing Field Airspace Study. Given this interest, we are sending herewith a copy of the working papers prepared for the Detailed Analysis of Airspace Interactions and the Alternative Identification and Evaluation elements.

If you would like to make any comments on these working papers, please submit them in writing to the project manager, Ms. Jody Yamanaka, at the Port of Seattle Planning and Research Department, P. O. Box 1209, Seattle, Washington 98111, (206) 382-3327 on or before October 21, 1982.

A public meeting is scheduled for Thursday, October 21, 1982, at 7:00 p.m. in the Commission Chambers on the third floor of the Port of Seattle Pier 66 offices (2201 Alaskan Way, Seattle). Here we will present the findings of the working papers and solicit comments on the recommendations to be made by the study staff for a program to minimize congestion and delays attributable to airspace interactions between Sea-Tac and Boeing Field. Following the public meeting, the study staff will prepare their recommendations based on the information presented in the working papers and on your comments.

Distribution:

Ackerman, Barnes, Battey, Beeson, Bement, Brooks, Buchanan, Conradi, Dana, Deak, Ferrier, Gentili, Happel, Hass, Heberling, Hutchinson, Jennings, Kamprath, Kendrick, Kohlschmidt, Nelson, Pace, Robinson, Roderick, Smith, Subert, Swenson, Vadset (w/enclosure)

0343p

cc: Alexander, Sims -- Port of Seattle
Smith -- King County
Ray w/enclosure

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FAA study
was completed

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PORT OF SEATTLE

MEMORANDUM

DATE October 12, 1982

TO Distribution

FROM Jody Yamanaka, Project Manager

SUBJECT Summary of Airspace Study Advisory Committee Meeting
October 7, 1982
FAA Bulding, Boeing Field

ATTENDING:

Advisory Committee Members:

Virginia Dana (Alternate for Jean Pihlman) - Zone 3
M.C. Kronshage - Air Transport Association
Buddy Schmidt - (Alternate for John Nord) - East King County Airfield Association
Don Secrist - Puget Sound Council of Governments
Hal Woosley - Bellevue Chamber of Commerce
Rosemary Zeutschel - Northeast King County Coalition

Study Team:

Don Maddison - Peat Marwick Mitchell & Co.
George Saito - Federal Aviation Administration
Joe Sims - Port of Seattle
Don Smith - King County
Jody Yamanaka - Port of Seattle

Others:

Dave Battey
Charles Crum
Robert Shindler
Harold Vadset

We believe the follwoing to be an accurate summary of the meeting's discussions. We will appreciate notification of exceptions to this record within ten days of its receipt. Failing such notification, we will consider this a statement of fact in which you concur.

The meeting was opened at 7:15 by Joe Sims, Chairman of the Project Management Committee. He then turned the meeting over to Jody Yamanaka who reviewed the process by which the study recommendations will be made and the schedule for the balance of the project.

A final chapter will be prepared by the study team which will include the study recommendations. The recommendations will be based on the evaluation of alternative measures presented in Chapter 7 and on the comments received from the

study sponsors, the Advisory Committee, and other interested parties. An Advisory Committee meeting will be held during late November/early December in order to discuss these recommendations.

Following the October 21 Public Meeting, the schedule of study meeting and report distribution was presented as follows:

* Early November/mid November - Distribution of draft report to Study Management Committee and Advisory Committee. (Copies of the recommendation chapter will be made available to other interested parties upon request).
* Late November/early December - Advisory Committee Meeting.
* January - Port of Seattle Commission presentation of Airspace Study; Advisory Committee Meeting.

The "Evaluation of Alternative Measures" working paper (Chapter 7) was reviewed by Don Maddison, Project Manager from Peat Marwick Mitchell & Co. He described the measures in the categories of improved air traffic control technology, airport facility improvements, and demand management and presented their evaluation in terms of the effect on air field and airspace capacity, effect on aircraft delays, cost of implementation and feasibility of implementation. He added that the Sea-Tac runway alternative was included in the evaluation only as a possible means to eliminate the Sea-Tac/Boeing Field airspace interaction. Its implementation feasibility would be changed to "very low" in Table 7-1 in order to reflect Port policies and commitments regarding new runway development and environmental costs.

Further discussion of the content of the working paper clarified a number of points. For example, the reliever airport alternative addresses only existing airports, not construction of a new facility. The MLS and the Sea-Tac new runway measures essentially eliminate the airspace interaction between Sea-Tac and Boeing Field. And the wake vortices associated with the existing fleet will likely remain a problem through the year 2000 because the year 2000 fleet is expected to be composed of many of the same types of aircraft now in operation.

In addition to comments on the content and format of Chapter 7, a number of meeting participants contributed suggestions on the study recommendations to be made by the study team. Most of the comments addressed the encouragement of air traffic control research and development, the accelerated implementation of improved ATC facilities, and the examination of coordination at a regional level for the diversion of traffic to reliever airports (i.e, existing airports with IFR capabilities or airports at which opportunities for IFR operations are possible with facility improvements).

0476p

cc: Distribution:
Alexander, Dunham, Muller, Sims, Taylor (Port of Seattle); Ahn, Smith (King County); Binger, Crum, Orr, Saito (FAA); Hamilton (WSDOT); Maddison (PMM); Ault, Battey, Collins, Dana, Jhaveri, Kohlschmidt, Kos, Kronshage, McKenna, Nord, Patterson, Pihlman, Rotter, Schmidt, Searles, Secrist, Shindler, Sukut, Sweet, Vadset, Wood, Woosley, Zeutschel

PORT OF SEATTLE
P.O. BOX 1209 SEATTLE, WASHINGTON 98111

Airspace Study
Advisory Committee Meeting
October 7, 1982
7:00 p.m.
FAA Building, Boeing Field

AGENDA

1. Purpose of meeting

2. Process for study recommendations

3. Study schedule

   Meetings
   Reports

4. Presentation of the evaluation of alternative measures

   Identification of measures
   Evaluation of measures

5. Question/answer/comment period

0461p

PORT OF SEATTLE

MEMORANDUM

DATE November 10, 1982

TO Distribution

FROM Jody Yamanaka, Project Manager JY

SUBJECT Sea-Tac/Boeing Field Airspace Study
Distribution of Study Recommendation Working Paper

Our records indicate that you requested and received copies of the Preliminary Analysis of Airspace Interactions working papers and/or the Detailed Analysis of Airspace Intreractions and the Alternative Identification and Evaluation working papers. Given this interest, we are sending herewith a copy of the working paper prepared for the study recommendations.

If you would like to make comments on this working paper, please submit them in writing to the Project Manager, Ms. Jody Yamanaka, at the Port of Seattle Planning and Research Department, P.O. Box 1209, Seattle, Washington 98111, (206) 382-3327 on or before November 30, 1982. You are also welcome to attend the Airspace Study Advisory Committee meeting scheduled for Tuesday, November 30, 1982 at 7:00 p.m. in the Main Conference Room at the Federal Aviation Administration Building at Boeing Field (9010 East Marginal Way So., Seattle). Here we will present the proposed study recommendations.

0481p

Distribution:

Ackerman, Barnes, Beardsley, Beeson, Bement, Blangy, Breen, British Columbia Aviation Council, Brooks, Buchanan, Carlson, Cassidy, Conradi, Dana, Deak, Dodds, Fain, Ferrier, Gentili, Happel, Hass, Heberling, Hutchinson, Jennings, Joosten, Kamprath, Kendrick, Kissinger, Moffett, K. Nelson, R. Nelson, Owings, Pace, Potter, Ray, Reams, Robart, Robinson, Roderick, Rome, Schmidt, Skelly, Smith, Subert, Swenson, Tax, Taylor, Wallick, Wright (w/enclosure)

cc: Alexander, Sims - Port of Seattle
D. Smith - King County
Battey, Kohlschmidt, Sukut, Vadset (enclosure under separate cover)
Brumbaugh, Dickinson, Gering (w/enclosure)

Chapter 8

RECOMMENDATIONS

Airspace interactions between Sea-Tac and Boeing Field, overlapping aircraft traffic patterns, are a source of congestion and delays to aircraft users. On the basis of the analysis conducted in this study, the structure, time of occurrence and impact on aircraft trip time and flow of these airspace interactions have been identified. Measures to reduce the resulting aircraft delays have been presented and evaluated. With this information, this chapter discusses some general assumptions as they apply to the application of forecasts, outlines some of the general guidelines used to develop the study recommendations and proposes a recommendation with the associated actions and responsibilities for its implementation.

Delays attributable to airspace interactions are presently being experienced by aircraft users at Sea-Tac and are expected to occur in the future at both Sea-Tac and Boeing Field. They are projected to become increasingly more significant toward the end of the study period--1990 to 2000. This projection is based on two forecasts: the forecast of aviation demand at the two airports (Chapter 3) and the range of anticipated reductions of aircraft separations (Chapter 6). The growth of aircraft operations and some improvement in reductions of aircraft separations are predicted. However, the speculative nature of forecasts has brought up the question of the rate at which these changes will take place, either faster or slower than indicated in this study. Therefore, the recommendations are developed to accommodate both immediate action and the opportunity for deferral.

In addition to the evaluation criteria used in Chapter 7, some general guidelines were developed to further assist in the prioritization of alternative measures and possible combination of measures. These include:

* Both airports will be operated for the use and benefit of the public on fair and reasonable terms and without undue discrimination to their users.

* Both airports will be operated in a safe and environmentally responsive manner.

* No actions will be taken which may cause major adverse financial impact to the operations and facilities of the airport.

* Sea-Tac will be maintained as the primary air carrier airport in the region and continue to serve the needs of air carriers.

With the aforementioned constraints and opportunities, the Airspace Study proposes a recommendation for a three-part program. First, to encourage the research, development and application of air traffic control technology which may further reduce the standard aircraft separations currently in use, second, to investigate the potential of existing airports in the vicinity of Sea-Tac and Boeing Field to serve as reliever airports for diverted general aviation IFR aircraft operations, and third, to reassess the airspace situation in approximately 5 years.

A number of programs are being undertaken by organizations such as the FAA, NASA, and the aircraft industry which addresses the possible reduction of standard aircraft separations. Continued research and development and the possible application of programs in this area may be encouraged, possibly by joint Port of Seattle/King County correspondence to that effect directed to the organizations involved.

An investigation of the current and future ability of existing airports in the vicinity of Sea-Tac and Boeing Field to serve as relievers for diverted general aviation IFR aircraft operations should be conducted. It would be based on existing airport system plans, airport master plans, and airport layout plans. The feasibility of both voluntary and mandatory measures to divert this traffic would also be assessed. If reliever candidates are identified as a result, steps will need to be taken to encourage this reliever role. If no reliever candidates are identified, efforts may need to be initiated to assess the feasibility of expanding the existing airport system. These technical analyses would be carried out by a technical task force. Participants in this task force would include the Port, the County, and other airport operators and governmental agencies.

A reassessment of the airspace situation will provide the Port and the County the opportunity to evaluate the accuracy of the forecasts and to determine the level of delay reduction achieved by actions taken resulting from this study's recommendations. On the basis of this reassessment, a new program or further work in the same direction could be suggested.

This three-part program is recommended in order to reduce delays attributable to airspace interactions. The Airspace Study and recommendation are responsive to several formal objectives of the sponsors and governments within the region. Specifically, the findings can aid the Port of Seattle in assessing any involvement in the planning and provision of facilities for general aviation's small aircraft; and they support the guidelines for growth and development of airport facilities and services presented in the King Sub-regional Plan. These recommendations also satisfy the airlines' and other aviation users' opposition to actions which control scheduling demand at airports. Finally, the Study emphasizes the inter-relationship between the operations at Sea-Tac and Boeing Field.

One area that this recommendation does not address is the reduction of delays caused by the demands placed on the two airports independent of the delays resulting from airspace interactions between Sea-Tac and Boeing Field. Even by eliminating the overlapping traffic patterns, delays would still occur at both airports, as indicated in Chapters 5 and 6. These "other" delays are particularly significant at Boeing Field in VFR conditions. However, this issue of "other" delays (i.e., delways caused by factors other than airspace interactions) was not included in the identification and evaluation of mitigating measures. Therefore, further investigation beyond this study in this area may be prudent. This investigation, for example, could take the form of a FAA sponsored Airport Improvement Task Force at Sea-Tac which would investigate measures to increase airfield capacity and/or a VFR reliever airport study for Boeing Field.

Aircraft delays, resulting from airspace interactions or other factors, not only disrupt operations and airline schedules and result in substantial increases in operating costs but could be so high as to have a negative influence on the level of airline service at Sea-Tac and the service provided to business/personal aircraft at Boeing Field. To minimize them, therefore, will become increasingly important to the Port of Seattle and King County as these delays increase.

PORT OF SEATTLE

MEMORANDUM

DATE: July 12, 1983

TO: Distribution

FROM: Diane Summerhays, Community Involvement Coordinator

SUBJECT: Technical Working Committee Meeting
Sea-Tac Noise Remedy Update
June 29, 1983, 4:00 P.M.

In attendance:

Technical Working Committee: Carol Berwald, Westside Hilltop Survival Committee and Highline Community Council; L. C. Bohrer, Tukwila City Council; Paul Bray, Highline School District; Rob Cahill, Highline Parks Board; Pauline Conradi, Westside Residential Community; Virginia E. Dana, Zone 3; Bill Holstine, Sea-Tac Threat; Curt Horner, Seattle-King County Health Department; Arun Jhaveri, PAC, West Citizen Representative; Doris Kos, Beacon Hill Community Council; M. C. Kronshage, Air Transport Association Western Region LAX; Jan Kumasaka, City of Seattle, Department of Community Development; Bob Nelson, Des Moines City Council; R. E. Russell, Boeing Commercial Airplane Company; Don Secrist, Puget Sound Council of Governments; Jeanne Zalud, PAC, South Citizen Representative.

Study Staff: Dawson Alexander, Assistant Director of Aviation, Port; Fred Alexander, FAA; Don Maddison, Peat Marwick; George Saito, FAA; Diane Summerhays, Peat Marwick; George Sutter, Land Acquisition Manager, Port; Ted Tarantino, King County Planning Division; Jody Yamanaka, Project Manager, Port.

Others: Joe Black, Brad Collins, Alice Sutherland.

We believe the following to be an accurate summary of the meeting's discussions. We will appreciate notification of exceptions to this record within 10 days of its receipt. Unless we receive such notification, we will consider this a statement of fact with which you concur.

The meeting was opened at 4:10 p.m. by Ms. Jody Yamanaka, Project Manager of the Noise Remedy Update, Port of Seattle. Ms. Yamanaka explained that Mr. Joe Sims, Project Director of the Noise Remedy Update, was unable to attend and she would therefore summarize the May 10 Technical Working Committee meeting instead of Mr. Sims (as stated on the agenda). Ms. Yamanaka gave a brief explanation of the "kick-off" purposes of the first Technical Working Committee. (See minutes from May 10 Technical Working Committee.) Ms. Diane Summerhays, Community Involvement Coordinator, Peat Marwick was then introduced and briefly summarized the May neighborhood workshops. Extra copies of the workshop summaries were handed out.

The project staff considered the workshops to be productive and very helpful in indicating the feelings of the community regarding various noise remedies. Many of the suggested remedies have already been addressed in researching possible "quick fix" remedies, as subjects of the new Noise Remedy Update column in the Highline Times, and as possible topics for community discussion and upcoming workshops.

For more details, Ms. Summerhays urged participants to see the workshop summaries that were mailed to them last month or to contact her for an extra copy. She also asked that committee members inform her of any suggestions for future workshop times, locations, topics, etc.

Ms. Jody Yamanaka then gave a status report on various "quick fix" noise remedies which are currently being examined in the Update. The following is a list and explanation of each:

1. FAA Departure Procedure. The Port has requested that the FAA evaluate the feasibility of aircraft using existing navigational aids during departures to ensure that departing aircraft stay as close as possible over the extended runway centerline. This would supplement the existing departure procedure of "assigned departures runway heading." The FAA has responded by initiating a proposal for a new departure procedure to the south which would require all runway 16 departures to climb out on Seattle VOR 158 radial, (see attached letter from Lien to Ljungren dated 6/23/83).

2. Noise Monitoring System (NMS). The Planning and Research Department has requested the help of the POS Engineering Department to evaluate the capacity of the present NMS and the cost of possible expansion. An expansion of the system would serve the original intent of monitoring long-term noise exposure trends.

3. Berms/Noise Barriers. A request for information on noise barriers and their effectiveness was sent to Peat Marwick consulting firm. Their response indicated that a noise barrier for the Riverton Heights neighborhood (the neighborhood that specifically requested this remedy) would not be effective in significantly reducing noise. However, studies indicate that there may be a "perceived" noise reduction due to the presence of a physical barrier. (See attached letter from Maddison to Yamanaka dated 6/20/83.)

4. Building Code. King County is proposing to amend the County building codes to reflect noise insulation requirements for protection from aircraft-generated noise. There is a possibility of FAA funding for a research project that will evaluate the noise reduction and cost effectiveness of construction and renovation techniques. FAA funding could also assist in taking the proposed building code amendments through the County approval and adoption process. Ms. Yamanaka stressed that if anyone at the meeting supports these building code amendments, they should lend their support when requests are presented to the County Council.

5. Engine Run-up Curfew. A Port staff proposal to increase the run-up curfew from 11:00 p.m. - 6:00 a.m. to 10:00 p.m. - 6:00 a.m. is being reviewed by the FAA and the airlines.

6. The Housing Authority. The Housing Authority of King County applied for and received a $50,000.00 HUD block grant to insulate homes in the Sea-Tac area. Eligibility for this money is tied to the low income eligibility requirements of State Weatherization or County Home Repair programs. However, other applicants may be accepted if they meet the low income criteria but are not participants in the two above-mentioned programs. Five homes will be initiated this summer, but the total number will depend on the cost per home.

After Ms. Yamanaka's presentation, Don Maddison of Peat Marwick briefly reviewed the content and purpose of the working papers that had been mailed to Committee members in mid-June. These included:

(1) Study Background (Ch. 1). This paper gives a history of events leading to the initiation of noise remedy planning at Sea-Tac. It also includes an account of the involvement of the FAA, local governments, and community groups in aviation noise remedy planning.

(2) Inventory of Existing and Forecast Conditions (Ch. 2). This paper summarizes information on existing and forecast land use, zoneing, population and housing, ground transportation, and air traffic and aircraft noise in the study area.

(3) Potential Noise Abatement and Noise Remedy Measures (Ch. 3). This paper documents the various noise abatement and noise remedy measures for achieving the compatibility of an airport with its neighboring communities that have been considered, recommended, or implemented in Seattle and other areas of the United States.

(4) Glossary of Terms.

(5) Summary statements.

a) The Effects of Aircraft Noise on Property Values.
b) The Effects of Aircraft Noise on Health.

Both these papers very briefly summarize the conclusions of current literature on these topics. Both have extensive bibliographies with sources for most entries.

Mr. Maddison explained that these papers are for review by all Technical Working Committee members and that comments should be given to Jody Yamanaka. Ms. Yamanaka added that, if possible, comments should be in writing. However, some verbal comments were taken at the meeting.

Ms. Yamanaka then introduced Mr. Richard Russell from Boeing Commercial Airplane Company who gave a slide presentation on the new technology aircraft. After reviewing the various Boeing aircraft that are in current use, a comparison between low by-pass ratio and high by-pass ratio engines was made. The high by-pass ratio engines, used in 767, 757, 737-300, have several advantages which result in reduced noise to the affected communities. Mr. Russell went on to elaborate on noise reduction requirements for various engine noise components, noise reduction features of the 737-300, and noise control design. He explained through the use of various graphs, the progress in the reduction of airplane noise.

The specifics of Mr. Russell's presentation are presented in a BCAC publication, Aircraft Noise Reduction Progress. (A limited supply is available to Technical Working Committee members. Contact Diane Summerhays at 382-3320 for more information.)

Discussions with Committee members attending the meeting addressed the following issues:

* Monitoring of full noise spectrum for use in building code noise insulation requirements instead of only A weighted sound levels.

* Prospect of new departure procedures to the north as well as to the south.

* Differences between energy and sound insulation.

* Tax reduction for noise reduction treatment of houses.

* Expansion of the curfew to 7:00 a.m. instead of 6:00 a.m.

* County monitoring of possible airport curfew violations.

Before adjourning the meeting, Ms. Yamanaka made some meeting announcements. The next Technical Working Committee meeting will be at 4:00 p.m., Wednesday, July 27, in the Airport Police Training Room (instead of the Main Conference Room in the Administrative offices).

Directions to this meeting place will be mailed out with the agenda for the July meeting. The next series of workshops will be held during the evenings of August 29, 30, and 31, 1983. The meeting was adjourned at 6:15 p.m.

1922p
Attachments

Distribution:

Technical Working Committee - Berwald, Bohrer, Bray, Cahill, Conradi, Dana, Dinwiddie, Dodds, Hall, Hamilton, Holstine, Horner, Jhaveri, Kos, Kronshage, Kumasaka, D. Legg, R. Legg, Nelson, Petterson, D. Robertson, Russell, Secrist, Selander, Shride, Simpson, Strander, Thouttle, Tranum, Wing, Zalud

King County - Miller, H. Robertson, Tarantino
Federal Aviation Administration - Coppinger, Saito
Peat Marwick - Maddison, McClure

Others - Black, Bowen, Brown, Collins, Jennings, Neilsen, Phillips, Smith, Sutherland

Port of Seattle - Alexander, Clark, Hoeck, Parks, Richmond, Sims, Sutter, Taylor, Yamanaka, Wells

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Air Traffic Control Tower
Seattle-Tacoma Int'l Airport

AVIATION DEPT.
DIRECTOR
ASST. DIR / O & S
ASST. DIR / A & B
MGR. A / A MKTG.
DATE

June 23, 1983

JUN 24 1983

ENGINEERING
FIRE
MAINTENANCE
OPERATIONS
PARKING
POLICE
REAL ESTATE
PUBLIC INF.

Mr. Vernon L. Ljungren, PE
Director of Aviation
Seattle-Tacoma Int'nl Airport
P.O. Box 68727
Seattle, WA 98168

Dear Mr. Ljungren:

This is in response to Mr. Richmond's letter of 6/15/83 regarding the modification of departure procedures in order to assist in noise mitigation.

As has already been identified, the current procedure for aircraft departing Sea-Tac is to "maintain runway heading for vector to...(assigned route or airway)". Once the aircraft is airborne it becomes subject to any wind forces present. In the case of a calm wind, the aircraft can reasonably be expected to track out the extended runway centerline. However, if a crosswind is present, the aircraft may "drift" until such time as the radar departure controller establishes radio contact with the pilot after which a heading correction can be issued. This could easily result in the aircraft traversing a distance of 2 miles before a new heading is issued. By the time a correction is made to departures from runways 16, for example, the aircraft is usually past the most noise sensitive area of Des Moines.

Normally, departures utilize runways 16L and 34L, but traffic or other conditions may necessitate the occasional use of the other parallel runway. Therefore, we must caution against any presumption that residents will not occasionally experience departures from the atypical runway. We recognize that the concern expressed by these residents is that the departures are "off course" when this is not necessarily always the case.

As a result of the concerns expressed by the community regarding "drift", we have initiated a proposal requiring all runway 16 departures to climb out on the Seattle VOR 158 radial. This will provide electronic guidance to the pilot and ensure that the aircraft remains on the desired track, which approximates the extended runway centerline for runway 16L. We expect that this procedure will be incorporated into a Standard Instrument Departure (SID) to be published this Fall. Unfortunately, due to the offset nature of the reciprocal radial, this same procedure does not appear to be practical for runway 34L departures. These departures, if assigned the Seattle 338 radial, would climb out on a track between the extended runway centerlines rather than the extended centerline for runway 34L.

We hope this change to our current procedures will assist the Sea-Tac Noise Remedy Update Committee in their efforts in noise mitigation. Please be assured that we will continue to explore other procedural remedies toward abating noise in the communities surrounding Sea-Tac.

Sincerely,

Richard R. Lien
Air Traffic Manager
Seattle-Tacoma Tower

PEAT MARWICK

Airport Consulting Services

Peat, Marwick, Mitchell & Co.
Post Office Box 8007
San Francisco International Airport
San Francisco, California 94128
415-347-9521

June 20, 1983

Ms. Jody Yamanaka
Planner II
Port of Seattle
P.O. Box 1209
Seattle, Washington 98111

Re: Noise Barriers

Dear Jody:

In response to your request of May 26, 1983, we have reviewed the types of physical barriers that have been used at airports to reduce noise as well as the effectiveness of such barriers. The types of noise barriers reviewed include earthen berms, noise walls, and vegetation belts. Our analysis did not include blast fences because they are used to deflect jet engine exhaust and do little, if anything, to reduce noise.

A literature search of our library files indicated that there is almost no written material on noise barriers for airports. Therefore, we contacted several airports that have constructed barriers to find out how effective they are.

Before discussing the experience with noise barriers at specific airports, some general comments on barriers would be appropriate. First, noise barriers are effective only in line-of-sight situations. Differences in terrain elevations that place the noise sensitive receptor at a higher elevation than the noise source can negate the effectiveness of a noise barrier because the barrier cannot be constructed high enough to block the line-of-sight transmission of the noise.

As to location, the noise barrier should be placed as close to either the noise receptor or the noise source as possible. Because of height restrictions at an airport (FAR Part 77 surfaces), noise barriers are usually placed closer to the receptor rather than the source. A barrier placed equidistant

between the receptor and the source (unless the two are close together) is least effective. Also, general experience with noise barriers, both at airports and along highways, indicates that perceptible noise reductions are achieved only within a few hundred feet of the barrier, about the equivalent of one city block.

Barriers are effective in reducing noise only in the higher frequency ranges. This limits their effectiveness in shielding noise sensitive uses adjacent to airports because the ground runup noise of jet aircraft from engine testing, taxiing, or acceleration on takeoff is dominated by the low frequency components. High frequencies can be deflected or absorbed by noise barriers, the lower frequencies with their higher vibration components cannot.

Finally, noise barriers can be perceived in a positive or negative light by local residents regardless of the actual noise reduction. If people feel strongly that a noise barrier will improve their noise environment, then, from a perception standpoint, it will. On the other hand, if local residents feel very strongly that nothing can be done to improve the noise environment, the installation of a noise barrier will typically not be perceived as being effective. Also, noise barriers sometimes are perceived in a negative light by residents if they block their view. Still others may feel "closed in" if a high barrier is constructed adjacent to their property. The perception issue must be weighed carefully when the construction of a noise barrier is being considered.

Insofar as we can determine, major airports in the United States where noise barriers have been constructed include Minneapolis, St. Louis, Los Angeles, and the Dulles International Airport serving Washington, D.C. Wold-Chamberlin Field at Minneapolis apparently has had the longest experience with noise barriers. A berm was constructed along the western side of the Airport in 1974 and additional berms are currently under construction on both the north and south sides of the Airport.

At Minneapolis, the berms were constructed in response to community requests. Although Airport personnel feel that actual noise reductions are probably marginal (no conclusive noise tests have been made), residents in the communities adjacent to the berms perceive that the noise environment has

improved and noise complaints have dropped. Therefore, Airport management feels that since the noise situation is perceived as being better, they will continue with the berm construction program.

No berm has been constructed without the approval of the affected community. The only complaints received by the Airport about the berms to date have been from residents who feel that the berms block their view of the Airport. It should be noted that the City of Minneapolis provides the Airport with the fill material at no charge so the only real cost is landscaping.

Interestingly enough, the experience with a noise berm at Lambert-St. Louis International Airport has been just the opposite of the Minneapolis situation. At St. Louis, the residents of a neighborhood adjacent to the Airport wanted their property to be acquired and relocated (the neighborhood fell in the Ldn 75-78 noise exposure range). However, the City Council of the local community desired that every reasonable attempt be made by Airport management to preserve the neighborhood--regardless of the desires of residents. Based on the wishes of those who then served on the City Council, the St. Louis Airport Authority decided to construct the berm. Unfortunately, the reaction of affected residents to the berm was even more hostile than before. As a result, the local City Council conceded that the neighborhood should be acquired and that a noise barrier was of little value in this instance.

The actual effectiveness of the berm in reducing noise at St. Louis was also tested. These tests indicated a 5-6 decibel reduction at the foot of the berm on the neighborhood side, decreasing to a zero reduction about 150 feet into the neighborhood. In effect, only the first row of homes realized any appreciable noise reduction.

As occurred at Minneapolis, a number of residents in the St. Louis neighborhood objected to the berm in general because it blocked their view of the Airport. Also, because the berm varied between 25 and 30 feet in height, there were complaints from some residents that the massiveness of the berm made them feel closed in. The St. Louis Airport Authority is now acquiring the neighborhood and eventually will remove the berm so the newly acquired property can be added to the Airport proper.

The Los Angeles experience falls between that of St. Louis and of Minneapolis. At Los Angeles, a noise wall was constructed on top of a berm for a length of approximately one city block. The average height of the berm/wall was about 30 feet with the upper 20 feet being the wall. After the berm/wall was constructed, the Los Angeles Department of Airports conducted noise tests which indicated that the noise reduction was 8-9 decibels immediately adjacent to the berm, dropping to zero reduction approximately 150-200 feet away from the berm.

Community reaction to the berm was not measured at Los Angeles. According to Airport personnel, general reactions to the berm indicated that some residents felt that the berm/wall did mitigate noise while others indicated that the money spent constructing the berm could have been better spent in acoustically treating their homes.

To our knowledge, extensive vegetation belts have been used as noise barriers only at Dulles International Airport. At Dulles, the original design specified a 2000 foot forest belt around the airfield except in the clear zone, approach areas, and terminal area. It is not known if the noise reduction achieved was due to the vegetation or because no noise sensitive use was permitted within 2,000 feet of the airfield. The report "Noise Attenuation of Foliage and Ground Cover Around Airports," prepared by Bolt Beranek and Newman, Inc., in 1972, did conclude, however, that the effectiveness of foliage and ground cover as a means of attenuating the noise generated during ground roll and ground run-up operations is limited.

From our review of airports where noise barriers have been constructed, several general conclusions can be made. First, noise barriers are not particularly effective in shielding entire neighborhoods because of the limited distance away from the barrier that noise reductions are actually achieved. Barriers might be effective for shielding a single facility if that facility is adjacent to the barrier. Second, the perceived improvement in the noise environment as a result of constructing a barrier depends more on the outlook of affected residents than it does on any measurable noise reduction. And, third, construction of barriers close to the source of noise on an airport is very difficult, if not impossible, because of the necessarily rigid height restrictions imposed by FAR Part 77.

A case in point is the use of noise barriers to shield the Riverton Heights neighborhood. The end elevation of Runway 16L is 429 feet above mean sea level (MSL) while the elevation of the nearest homes in Riverton Heights is about 400 feet MSL. Ideally, to protect the Riverton Heights neighborhood, a noise barrier should be constructed close to the end of Runway 16L. This is not possible because of FAR Part 77 height restrictions and because the terrain drops steeply to the north away from the end of the runway.

The next best solution would be to build a noise barrier adjacent to the neighborhood. Such a barrier would be parallel to State Highway 518 on a diagonal between 24th Avenue South and South 154th Street. A review of the topography indicates that it would be very difficult to construct a noise barrier in this location. The neighborhood is situated on a plateau whose southwestern edge drops off steeply to State Highway 518. There is not sufficient distance between the edge of the plateau and the homes to construct an earthen berm, although it might be possible to erect a masonry noise wall. Such a wall would be very close (within 20 feet in some instances) to the homes located along the southern edge of the plateau. In order to be effective, the noise wall would have to be at least 20 feet high to shield the homes from Airport generated noise. It is very doubtful that the local residents would be in favor of a wall that high so close to their homes.

Even if a noise wall were to be built, it would be effective only for the first row of homes. Thus, only a few homes would realize any form of noise reductions at the cost of building a wall 20 feet high and approximately 1,500 feet long. Therefore, we do not feel that noise barriers are the solution for the Riverton Heights neighborhood.

I hope this answers your questions on noise barriers. If you have any additional questions or comments on our analysis, please give me a call.

Sincerely,

Donald Maddison
Manager

DM/jc

cc: Mr. Joseph D. Sims, Jr., Port of Seattle

PORT OF SEATTLE

MEMORANDUM

DATE July 15, 1983

TO Distribution

FROM Jody Yamanaka, Project Manager

SUBJECT Sea-Tac Noise Remedy Update
Technical Working Committee Meeting Notice

The next Technical Working Committee meeting will be held on Wednesday, July 27, 1983 at 4:00 p.m. in the Sea-Tac Police Training Room (Room M3A) on the Mezzanine Level of the Sea-Tac terminal building. Elevator access is located behind the TWA ticket counter opposite the southernmost parking garage bridge. The meeting agenda is attached.

Your comments are solicited on two documents to be distributed at the meeting: the draft working paper for the North Sea-Tac Park Density Guideline Review and the proposal for the Community Attitude Survey. If you will be unable to attend the meeting and would like to review these documents, please call me to make arrangements for mailing. Comments are requested to be received by me no later than August 9, 1983.

1962p
Attachment

Distribution:

Technical Working Committee - Berwald, Bohrer, Bray, Cahill, Conradi, Dana, Dinwiddie, Dodds, Hall, Hamilton, Holstine, Horner, Jhaveri, Kos, Kronshage, Kumasaka, D. Legg, R. Legg, Nelson, Petterson, D. Robertson, Russell, Secrist, Selander, Shride, Simpson, Strander, Thouttle, Tranum, Wing, Zalud

King County - Miller, H. Robertson, Tarantino

Federal Aviation Administration - Coppinger, Saito

Peat Marwick - Maddison, McClure, Summerhays

Others - Black, Bowen, Brown, Collins, Jennings, Neilsen, Phillips, Smith

Port of Seattle - Alexander, Clark, Hoeck, Ljungren, Parks, Richmond, Sims, Sutter, Taylor

Aug. 31st meeting

Sandy Greenwood

PORT OF SEATTLE

P.O. BOX 1209 SEATTLE, WASHINGTON 98111

SEA-TAC INTERNATIONAL AIRPORT
NOISE REMEDY UPDATE

Technical Working Committee Meeting
July 27, 1983 - 4:00 p.m.
Sea-Tac Police Training Room

Agenda

1. Summary of June 29, 1983 Technical Working Committee Meeting - Jody Yamanaka.

2. Status of "Quick Fix" Noise Remedies - Diane Summerhays.

3. Summary of the Working Paper for the North Sea-Tac Park Density Guideline Review - Jody Yamanaka.

4. Community Attitude Survey Proposal - Mary McClure.

5. Upcoming Schedule - Jody Yamanaka.

1962p

PORT OF SEATTLE
SEA-TAC INTERNATIONAL AIRPORT
P.O. BOX 68727 / SEATTLE, WASHINGTON 98188

POLICY ADVISORY COMMITTEE
TUESDAY, JUNE 12, 1984, 2:00 pm
SEA-TAC INTERNATIONAL AIRPORT AUDITORIUM

AGENDA

1.	Introduction of PAC Memberships	Alexander
2.	Noise Remedy Program Update	Sims
	Review of Process/Proposed Action	Sims
	Definition of Program Boundaries	Barney
	Progress of Current Acquisition	Sutter
3.	Facilities Improvements-Sea-Tac	Jody/Sievers
	Concourse/Gate Changes	Jody/Sievers
	Alaska Hanger, Training Facility	Jody/Sievers
4.	Master Plan Update	Burr Stewart
5.	Community Related Activities	Parks
6.	Joint Committee on Aircraft Over Flights	Jody
7.	Other Special Events at Sea-Tac	Parks
	Final 4, Pow Wow, China Service, Goofy Express.	

/mmh/1109A

PORT OF SEATTLE
SEA-TAC INTERNATIONAL AIRPORT
P.O. BOX 68727 / SEATTLE, WASHINGTON 98188

May 7, 1984

Dear Sea-Tac Neighbor:

On Tuesday, June 12, the Policy Advisory Committee will convene to review and discuss activity and proposed development on and around Sea-Tac International Airport. The meeting will be held in the Auditorium of the Airport and will begin promptly at 2:00 pm.

Much time has passed since our last meeting. The Airport was named and renamed, new community organizations have emerged and the seemingly endless planning process around Sea-Tac continues. We wish to take this June 12, opportunity to brief you, the local community, about events at the Airport. Port, County, School district and FAA personnel will be present to discuss issues with you.

Please plan to attend the PAC meeting on Tuesday, June 12.

Sincerely,

Dawson Alexander Jr.
Assistant Director of Aviation
Administration & Budgets

/mmh/1108A

PORT OF SEATTLE

MEMORANDUM

DATE June 4, 1984

TO Technical Working Committee

FROM Janet Bowlin, Community Involvement Coordinator JB

SUBJECT Technical Working Committee Meeting Notice
Sea-Tac Noise Remedy Update

The next meeting of the Technical Working Committee is scheduled for Wednesday, June 20, 1984, at 4:00 p.m. in the Airport Administrative Conference Room on the third floor of the terminal building. The proposed agenda will include the following items:

1. Program area boundaries
2. Proposed July workshop format and topics – 10" & 12"
3. Question and comments on the following noise remedies: sound insulation, transaction assistance, and acquisition

3735p

Distribution:

Technical Working Committee: Bennett, Berwald, Black, Bohrer, Bray, Carver, Conradi, Dana, Dinwiddie, Dodds, Drury, Gestner, Hall, Hamilton, Healey, Holstine, Horner, Jhaveri, Johnson, Jones, Kos, Kumasaka, R. Legg, Petterson, D. Robertson, Russell, Secrist, Shride, Simpson, Strander, Traunum, Vinton, Whisler, Wing, Zalud

King County: Balcom, Miller, H. Robertson

Federal Aviation Administration: Coppinger, Saito

Peat Marwick: Doyle Maddison

Port of Seattle: Alexander, Clark, Hoeck, Ljungren, Myer, Parks, Richmond, Sims, Stewart, Sutter, Taylor, Yamanaka

Others: Bacalzo, Bowen, Brown, Collins, Jennings, Neilson, Nicoli, Peart, Phillips, Pihlman, Sheets, Smith, Roberts, Rus