September 1, 2000

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RE: Analysis of Proposed Mitigation Ratios for Impacts Resulting from the Construction of SeaTac Third Runway

Dear Mr. Luster, Mr. Stockdale, Ms. Terzi, Mr. Freedman, Ms. Breenan-Dubbs, Ms. Childers, Mr. Landino and Mr. Daneker,

At the request of the Airport Communities Coalition (ACC) I have reviewed the wetland mitigation plan and resulting ratios proposed by the Port of Seattle to compensate for impacts to wetlands resulting from the construction of the third runway at Seattle Tacoma International Airport. As you probably already know, I am an environmental scientist and a professional wetland scientist (SWS certification number 001067). A package describing my background and experience is attached to this report. This report analyses the proposed mitigation in detail and compares the proposal to the acreages and functions that will be lost.

The following conclusions are detailed in this report:

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- There are numerous errors in the accounting of wetland acreage that will be lost due to fill activities. These errors include mathematical errors in tabulating impacted wetland acres and inconsistencies identifying affected wetlands between documents prepared by Parametrix for the Port of Seattle. The result is an incorrect accounting of the full extent of wetland losses.
- No methods were provided for how permanent impacts were differentiated from temporary impacts to wetlands. Therefore temporary impacts remain unsubstantiated, often defy common sense, and significantly underestimate the degradation of beneficial uses that will occur in the Miller, Walker and Des Moines Creek watersheds.
- The use of buffer enhancement as mitigation for losses of associated wetlands to Miller Creek and Walker creeks does not provide measurable benefit from current conditions to offset losses of hydrologically connected wetlands and will result in further degradation to watershed resources. The regulatory standard requires one-for-one functional replacement for impacted uses. Enhancing a stream buffer in exchange for eliminating associated wetlands is not an acceptable trade.
- There is no clear link identified in the mitigation plan reports between the functions to be provided by the proposed out-of-basin wetland mitigation at Auburn, and those functions that will be eliminated in Miller, Walker and Des Moines Creek watersheds for the third runway. Without this link to ecological context, the mitigation provided is out-of-basin and out-of-kind, which will result in a result net loss of wetland functions within the watersheds and Water Resource Inventory Area 9 (WRIA9).[1]
- Finally, the Port's proposal is inadequate to meet recommended mitigation ratios developed by the Department of Ecology (DOE) in order to meet the regulatory goal of no net loss of wetland functions.

The mitigation documents provided by the Port are repetitive, inconsistent, and lack data to support a mitigation strategy that is counter to existing DOE policies. Critically, the organization and presentation of the natural resource mitigation plan in combination with having multiple drafts to review renders it difficult to tabulate filled wetlands and analyze their functions for consistency with the policy of no net loss of wetland functions. The following report attempts to do this. First, mitigation ratios are analyzed with respect to impacts identified by the Port in context of DOE policy and best professional wetland science. Secondly, impacts are re-evaluated, using corrected data, to predict a more realistic outcome to the mitigation strategy. The purpose was to evaluate the adequacy of the numbers of acres of mitigation proposed for within and outside the affected watersheds.

The following documents were reviewed in preparation for this report:

- Wetland Functional Assessment and Impact Analysis Draft, Parametrix, Inc., July 1999,

[1] *How Ecology Regulates Wetlands*, Washington State Department of Ecology, Publication 97-112 (Revised April 1998). See discussion on Compensatory mitigation regarding adequacy of mitigation methods.

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- Wetland Functional Assessment and Impact Analysis, Revised Draft, Parametrix, Inc., August 1999,
- Wetland Delineation Report, Revised Draft, Parametrix, Inc., August 1999,
- Wetlands Re-Evaluation Document, Draft, Port of Seattle, August 1999,
- Natural Resources Mitigation Plan, Draft, Parametrix, Inc., July 1999,
- Natural Resources Mitigation Plan, Revised Draft, Parametrix, Inc., August 1999,
- Appendices A-E Design Drawings Natural Resource Mitigation Plan, Seattle-Tacoma International Airport, Parametrix, Inc. No Date,
- Implementation Addendum, Natural Resource Mitigation Plan, Master Plan Update Improvements, Seattle-Tacoma International Airport, Parametrix Inc., June 2000,
- Supplemental Airport Site Wetland and Stream Analysis Parametrix, Inc., November 1999,
- Addendum to the Final Supplemental Environmental Impact Statement, Auburn Wetland Mitigation Project, Port of Seattle, May 5, 2000,
- Biological Assessment, Revised Draft, Parametrix, November 1999,
- Biological Assessment, Master Plan Update Improvements, Seattle-Tacoma International Airport, Parametrix Inc., June 2000,
- SeaTac Runway Fill Hydrologic Studies Report, Pacific Groundwater Group, June 19, 2000.

Mitigation Ratios: Purpose and Context

It is worth reviewing Department of Ecology (DOE) policy in light of the requirements for mitigation documented in the memorandum of agreement concerning mitigation under The Clean Water Act Section 404(b)(1) Guidelines.[2] The objective of mitigation for unavoidable impacts is to offset environmental losses. The agreement states that for wetlands, such mitigation will provide, at a minimum, one for one functional replacement with an adequate margin of safety to reflect the expected degree of success associated with the mitigation plan.

DOE, after extensive research into wetland mitigation, has developed guidelines defining the margin of safety needed to mitigate wetland losses to achieve no net loss. The guidelines are based on habitat category and are shown in Table 1. Recommended mitigation ratios are 3:1 for Class 2 or 3 forested wetlands (49% of the wetlands being filled are forested or have a forested component), 2:1 for Class 2 or 3 scrub-shrub and emergent wetlands (34% of wetlands to be filled) and 1.25:1 for the lowest value, Class 4 wetlands (17% of filled wetlands).[3][4]

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[2] Memorandum Of Agreement Between The Environmental Protection Agency And The Department Of The Army Concerning The Determination Of Mitigation Under The Clean Water Act Section 404(B)(1) Guidelines, February 6, 1990.

[3] Wetland Mitigation Ratios: Defining Equivalency, Shorelands and Coastal Zone Management Program, Washington State Department of Ecology Publication Number 92-8, February 1992.

[4] Wetland Mitigation Replacement Ratios: An Annotated Bibliography, Publication #92-09, February 1992.

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DOE's recent Phase 1 report evaluating wetland mitigation in Washington found that only 29% of sites were in full compliance with permit requirements and only 35% were meeting assessed standards. The mitigation ratios recommended by DOE are derived from experience that the ecological experiment of wetland mitigation has been largely unsuccessful in achieving no net loss. Few systems other than Class 4 wetlands are successfully replicated; therefore greater areas of mitigation are required to offset functional losses.[5,6] In fact the executive summary of DOE publication *Wetland Mitigation Replacement Ratios: Defining Equivalency* states that investigators who authored the report found that "forested systems were not replicated at all. The creation of a wetland that was functionally equivalent to its counterpart has never been documented".

The memorandum of agreement for implementing Section 404 guidelines states that in the absence of more definitive information on the functions and values of specific wetland sites, a minimum of 1 to 1 acreage replacement may be used as a reasonable surrogate for no net loss of functions and values.[7] However, this ratio is expected to be greater where the functional values of the area being impacted are demonstrably higher than the replacement wetlands and when the likelihood of successful mitigation is low. Both conditions apply in this situation, where out-of-kind and out-of watershed mitigation is proposed for the majority of wetland impacts, and where the bulk of wetland mitigation is to be located in a high-risk location (on the Green River north of Auburn) subject to the disturbance activities of numerous watersheds.[8]

Given realistic concerns about the success of wetland mitigation documented by DOE, it is critical that proposed mitigation be commensurate with the functions lost and of sufficient acreage to insure no losses of beneficial uses occur.[9] DOE's guidelines for mitigation ratio requirements are based on best available wetland science and are designed to protect wetlands as public resources. Here they are being ignored without justification.

What Constitutes Equivalent Mitigation and Why

The Implementation Addendum to the Natural Resource Mitigation Plan uses mitigation ratios designed for use in wetland mitigation banks, which are lower than DOE's guidelines for individual projects.[10] Mitigation ratios in banks are expected to be lower because it is understood that a bank will be well sited, with adequate hydrology and an overseeing staff to insure project success. The mitigation proposed for construction of the third runway is not part of a bank, does not carry the same reduction in risk as a bank, and therefore should not be evaluated using mitigation bank ratios.

The objective of mitigation for unavoidable impacts is to offset environmental losses. The memorandum of agreement for implementing Section 404 states that for wetlands, such

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[5] Wetland Mitigation Evaluation Study Phase 1, Department of Ecology Publication No. 00-06-016, June 2000.
[6] Wetland Mitigation Replacement Ratios: An Annotated Bibliography, Publication #92-09, February 1992.
[7] Memorandum Of Agreement Between The Environmental Protection Agency And The Department Of The Army Concerning The Determination Of Mitigation Under The Clean Water Act Section 404(B)(1) Guidelines, February 6, 1990. Section 3.b.
[8] See discussions in previous memo to Mr. Tom Luster, DOE et al. addressing both these conditions including risk factors related to the Auburn site. August 16, 2000, Review of Wetlands Mitigation Plan for Construction of SeaTac Third Runway, Azous Environmental Sciences.
[9] Wetland Mitigation Evaluation Study Phase 1, Department of Ecology Publication No. 00-06-016, June 2000.
[10] Tables 3-1 and 3-2, Implementation Addendum, Natural Resource Mitigation Plan, Master Plan Update Improvements, Seattle-Tacoma International Airport, Parametrix Inc., June 2000, p. 9.

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mitigation will provide, at a minimum, one for one *functional* replacement (emphasis added).[11] That means that all identifiable wetland functions such as groundwater exchange, nutrient sediment trapping, wildlife habitat and flood storage, must be mitigated, not just some of the functions. The use of the term functional replacement specifically requires that all functions of the filled wetland be replaced. This emphasis is intended to prevent large-scale alterations of complex wetland systems to simplified forms providing only one or two of the original functions.

Table 3-3 of the Wetland Functional Assessment and Impact Analysis ranks the wetlands to be filled according to their value for nine identifiable wetland functions.[12] Five relate to the wetlands habitat value for fish, passerine birds, waterfowl, amphibians and small mammals. The remaining functions include exporting of organic carbon, groundwater exchange, flood storage and nutrient, sediment trapping. When the individual wetlands in Table 3-3 are tabulated with respect to their value, it turns out that they have the highest rankings for exporting organic carbon (81% ranked moderate to high), groundwater exchange (54%) and nutrient sediment trapping (54%), followed by small mammals and passerine bird habitat (42% each). Rankings for flood storage are among the lowest (only 15% of wetlands ranked moderate to high). These rankings provide evidence of what specific wetland functions are being eliminated and dictate the determination of what mitigation can be considered a functional replacement. They should be the criteria for determining no net loss.

Based on the Port's analysis of wetland functions, it is unacceptable for the Port's wetlands mitigation strategy to focus on providing low-ranking flood storage within the basin at the expense of the other high-ranking wetland system functions. Flood storage cannot be construed as providing functional replacement for wetland functions documented in the Parametrix functional assessment study, particularly as flood storage was among the lowest ranking attributes of the wetlands. Allowing in-basin wetland mitigation that mitigates for only one low-ranking function of the wetlands it is replacing will result in a loss of beneficial uses within WRIA9.

Accounting of Mitigation Ratio

Table 2, in this report, shows a summary of the permanent wetland impacts by wetland category that is taken from Table 3.1-1 of the Natural Resource Mitigation Plan.[13] The table shows the total acres of wetlands by class (DOE system), DOE's recommended mitigation ratio for that class, and the number of wetland acres required to meet DOE's guidelines. Tables 2 and 3 shows the Port's proposal for mitigation (in and out of basin) using the mitigation guidelines developed by DOE. The tables show that there is a less than 0.62:1 mitigation ratio within the basin and only a 0.69:1 ratio for the off-site mitigation including all claimed restoration and enhancement activities. The tables do not include the errors and omissions that have been found in the Port's documentation, do not include temporary impacts to wetlands and rely on the summary tables documented in the Parametrix reports for accuracy.[14] The tables also include credit for buffer enhancement for which there are no guidelines provided.

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[11] Memorandum Of Agreement Between The Environmental Protection Agency And The Department Of The Army Concerning The Determination Of Mitigation Under The Clean Water Act Section 404(B)(1) Guidelines, February 6, 1990. Section 3.B.

[12] Wetland Functional Assessment and Impact Analysis, Revised Draft, Parametrix, Inc., August 1999, p.3-5.

[13] Natural Resources Mitigation Plan, Parametrix, Inc., Revised Draft, August 1999, p.3-2 to 3-3.

[14] Implementation Addendum, Natural Resource Mitigation Plan, Master Plan Update Improvements, Seattle-Tacoma International Airport, Parametrix Inc., June 2000, p. 9.

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Even ignoring these factors, the resulting mitigation proposed by the Port, including within and outside of the basin, amounts to only 23.93 credited acres, which is merely a 1.3:1 ratio. Mitigation ratios this low do not meet accepted standards, will result in degradation to beneficial uses within the Miller and Des Moines Creek watersheds and will produce a net loss of wetland functions within the WRIA.

Table 1. DOE Recommended Mitigation Ratios. [15]

	DOE Class and Habitat			
DOE Class and Habitat	Class 2 Forested	Class 2 or 3 Scrub-shrub	Class 2 or 3 Emergent or Open water	Class 4 all
DOE Recommended Mitigation Ratio	3:1	2:1	2:1	1.25:1
DOE Recommended Enhancement Ratio[16]	6:1	4:1	4:1	2.5:1

Table 2. Summary of Wetland Acre Impacts Claimed by Port and Required Mitigation Using DOE Guidelines.

	DOE Class and Habitat				
	Class 2 Forested	Class 2 or 3 Scrub-shrub	Class 2 or 3 Emergent or Open water	Class 4 all	Total Acres
Total Acres of Wetlands Eliminated	7.57	3.07	5.63	2.01	18.28
DOE Guideline for Wetland Creation/Restoration (Acres)	22.71	6.14	11.26	2.51	42.62
DOE Guideline for Wetland Enhancement (Acres)	45.42	12.28	22.52	5.03	60.90

Table 3. Summary of Port's Proposed In-Basin Mitigation and Mitigation Ratio.

	DOE Class and Habitat (Acres)					
Mitigation Activity	Class 2 Forested	Class 2 or 3 Scrub-shrub	Class 2 or 3 Emergent or Open water	Upland Buffer	Credited Acres	Cumulative Mitigation Ratio
Wetland Restoration		6.13			3.15	0.17:1
Wetland Enhancement		13.54			3.4	0.35:1
Buffer Enhancement				28.39	4.73	0.62:1[17]
Total					11.28	

[15] Wetland Mitigation Ratios: Defining Equivalency, Shorelands and Coastal Zone Management Program, Washington State Department of Ecology Publication Number 92-8, February 1992.

[16] Wetland Mitigation Ratios: Defining Equivalency, Shorelands and Coastal Zone Management Program, Washington State Department of Ecology Publication Number 92-8, February 1992.

[17] There are no recommendations given for the contribution of buffer enhancement and it is permitted on a case-by-case basis. A ratio of 6:1 is assumed for this discussion.

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Table 4. Summary of Proposed Out-of-Basin Mitigation and Mitigation Ratio.

	DOE Class and Habitat (Acres)					
Mitigation Activity	Class 2 Forested	Class 2 or 3 Scrub-shrub	Class 2 or 3 Emergent or Open water	Upland Buffer	Credited Acres	Cumulative Mitigation Ratio
Wetland Restoration	25.96	3.40	5.20		8.65	.47:1
Wetland Enhancement		6.00			1.5	0.56:1
Buffer Enhancement				15	2.5	0.69:1[18]
Total					12.65	

Corrections to Wetland Impacts Evaluation and Revised Mitigation Ratios

Wetland Impact Accounting Practices

There are numerous inconsistencies in the wetland acreage tables provided in the Parametrix reports that misconstrue the full extent of permanent impacts. One example is that portions of wetlands remaining after fill activities are considered fully functional. Although the Natural Resource Management Plan states "Where fill impacts to wetlands result in small fragments of remaining wetlands, the remaining area has been considered permanently impacted, and is tabulated in Table 3.1-1", that is not the case. There are numerous contradictions when the total wetland acres for individual wetlands shown in Table 1-1 of the Wetland Functional Assessment and Impact Analysis report is compared with the fill impact acres for each wetland presented in Table 3.1-1.[19, 20]

For example, Wetland 37a-f is identified as being 5.74 acres in size and having 4.08 acres filled, leaving 1.7 acres. Although 71% of the wetland is permanently filled, the remnant 29% is not included as an impacted wetland, although it certainly would have reduced ecosystem functioning from its original extent. Wetland 8 is described as 3.56 acres, of which 2.6 will be filled, leaving 27% of the original wetland (0.96 acres). Specific functional losses to these wetlands would include reduced habitat diversity and reduced species richness. The fill activities will permanently alter hydrology in the remaining wetland remnants, which would affect export of organic carbon and baseflow support functions. Other examples are wetlands 53, 11 and R1 with 0.05, 0.16 and 0.04 acres remaining respectively. Although very small and not likely to remain functional, these remnant wetlands are not included as permanently impacted wetland.

Another example is the siting of temporary ponds in the remnants of wetlands 18 and 37 as well as a portion of Wetland 44a. These wetland acres are counted as remaining functional wetlands, yet they are to be used as detention ponds for runway construction activities.[21] These

[18] There are no recommendations given for the contribution of buffer enhancement and it is permitted on a case-by-case basis. A ratio of 6:1 is assumed for this discussion

[19] Natural Resources Mitigation Plan, Revised Draft, Parametrix, Inc., August 1999.

[20] Wetland Functional Assessment and Impact Analysis Draft, Parametrix, Inc., July 1999.

[21] Appendices A-E Design Drawings Natural Resource Mitigation Plan, Seattle-Tacoma International Airport, Parametrix, Inc. No Date. p. STIA-XXXX-C4 and C-6.

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wetland areas are then also recorded as wetland restoration and included in the buffer enhancement calculation.[22]

Within the Des Moines Creek watershed wetland impacts are also underestimated. It is stated but not substantiated that a 50 foot buffer is sufficient to protect the hydrology of wetlands near the borrow site areas because those wetlands are fed by a shallow aquifer. Since there exists no actual hydrologic modeling of aquifer recharge for this basin, it is unreasonable to accept this assumption at face value.[23] Wetlands likely to experience permanent alterations to their hydrology as a result of runway construction activities include B4, B5, B6, B7, B9a&b, B10, B12, B15a&b, 29, 30, 48. In addition the full extent of wetlands B15 and 48 are not included in the tabulation of wetland area shown in the tables, so that the impact to these wetlands appears smaller than will actually occur because of their proximity to Borrow Site 1. It is estimated that these wetlands likely add around 5 acres to the tally of wetland impacts.

Finally, no methods were provided for how permanent impacts were differentiated from temporary impacts to wetlands, other than the unsubstantiated assertion that a fifty-foot buffer would protect remaining wetland areas. This defies common sense in addition to being contrary to best available wetland science on adequate buffers. DOE's own guidance says "buffer widths effective in preventing significant water quality impacts to wetlands are generally 100 feet or greater.[24] Temporary impacts remain unaccounted for and, again, the estimates provided by the Port significantly understate the degradation of beneficial uses that will occur in the Miller, Walker and Des Moines Creek watersheds.

Mitigation Credit Accounting

The site plan for the Vaca Farm wetland restoration, shown on sheet STIA-9805-C2 of the Appendices A-E Design Drawings Natural Resource Mitigation Plan, shows the area to be designed for water storage and lacking in structural features that would provide habitat, food chain support, baseflow augmentation or effective nutrient sediment trapping.[25] Such features would include sinuous wetland edges, meandering channels, an emergent understory in the planting plan, and retaining and avoiding disturbance to existing hydric soils. Labeling Vaca Farm a wetland restoration is unacceptable, as it is an alteration performed solely for stormwater management purposes without regard to other beneficial uses of wetlands. Indeed, it is the third runway project that is driving upwards the need for stormwater storage in the basin. Vaca Farm should be appropriately identified as a detention facility, and the wetlands eliminated should be correctly added to the list of permanently impacted wetlands. These include wetlands A1, A2, A3, A4, FW1, 2, 3, 5, 6, 8, 9,10 and 11, and total approximately 1.3 acres.

Buffer Enhancement Credit

Available documentation provided by the Port provides no basis for the Port's claim it will enhance 24 acres of Miller Creek upland buffer. There are numerous wetlands within the claimed buffer area that are already protected. Wetlands R1-10, A10, A11, 18, and 37c are all located in the buffer enhancement area and total approximately 5.7 acres (after filling). In addition wetlands, previously unidentified are shown within the buffer in Appendices A-E

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[22] Ibid, STIA-XXXX-L1.

[23] SeaTac Runway Fill Hydrologic Studies Report, Pacific Groundwater Group, June 19, 2000, p. 1.

[24] *How Ecology Regulates Wetlands*, Washington State Department of Ecology Publication 97-112 (Revised April 1998). Section: The Case for Buffers.

[25] Appendices A-E Design Drawings Natural Resource Mitigation Plan, Seattle-Tacoma International Airport, Parametrix, Inc. No Date.

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Design Drawings Natural Resource Mitigation Plan.[26] These include R17, R9a, R14a&b, R15, R12b, and A16. No acres are given for these wetlands. Although, it is not possible to determine the exact area of buffer enhancement to deduct from the claim of 24 acres, an estimate of approximately 5 acres can be made. It is not acceptable to include existing wetlands in a buffer enhancement calculation, as they are not intended to be altered. Under the circumstance the Port can only be credited with about 13 acres of upland buffer restoration to Miller Creek.

In addition, stormwater management facilities are sited within the Miller Creek buffer areas and in some cases are sited within wetlands. Stormwater facilities are not an appropriate use for a buffer as buffers are intended to provide terrestrial habitat for amphibians and small mammals that use wetlands and streams in these coastal watersheds. Stormwater management goals typically conflict with wetland functions and especially those of wildlife support. Detention facilities near wetlands frequently attract wildlife, due to the presence of water and warmer water temperatures, and ultimately can cause distress to wildlife due to unexpectedly large water level fluctuations, sedimentary deposits and maintenance activities.[27] All of the detention ponds shown in Appendices A-E show detention facilities located at least partially in the buffer. These facilities should be sited away from Miller Creek and associated wetlands. At minimum the areas should be removed from the calculation of enhanced buffer.[28]

Based on this discussion, the summary of wetland impacts was corrected, and is shown in Table 5, followed by the actual mitigation ratios presented in Table 6. Wetland impacts within the watershed are likely to exceed 24 acres when remnant wetlands, unaccounted for wetlands and wetlands permanently affected by hydrologic changes are included. The actual mitigation ratio that results is 0.17:1. Out-of-watershed mitigation remains 0.69:1 and when both in-basin and out-of basin mitigation is calculated cumulatively it just under 1:1. That is lower than the lowest mitigation requirement for low value Class 4 wetlands (less than 1.25:1). This is an unacceptable trade for the losses that will be sustained.

Table 5. Summary of Wetland Impacts and DOE Recommended Mitigation Ratios.

	DOE Class and Habitat				
	Class 2 Forested	Class 2 Forested	Class 2 or 3 Scrub-shrub	Class 2 or 3 Emergent or Open water	Total Acres
Acres	10.92	4.45	5.63	3.06	24.06
Required Acres of Wetland Creation	32.76	8.90	11.26	3.83	56.75
Required Acres of Wetland Enhancement	65.52	17.80	22.52	7.65	80.81

[26] Appendices A-E Design Drawings Natural Resource Mitigation Plan, Seattle-Tacoma International Airport, Parametrix, Inc. No Date. Landscape Plans L-1 through L-5.

[27] Dr. Klaus Richter. King County Natural Resources Division. Personal Communication. Subject of numerous discussions between 1998 and 2000.

[28] Estimated to be less than 0.5 acres.

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Table 6. Summary of Corrected In-Basin Mitigation Ratio.

	DOE Class and Habitat					
Mitigation Activity	Class 2 Forested	Class 2 or 3 Scrub-shrub	Class 2 or 3 Emergent or Open water	Upland Buffer	Credited Acres	Cumulative Mitigation Ratio
Wetland Restoration		0.00			0.00	0:1
Wetland Enhancement		13.54			3.4	0.19:1
Buffer Enhancement				13.00	2.16	0.3:1[29]
Total					5.56	

Summary

The wetland mitigation documentation provided by the Port focuses on an accounting strategy with little regard for replacing equivalent functions. If wetland regulation has become a numbers game then it is important, at minimum, to get the numbers right. The Port has not done so. This report has focused on correcting the numbers of acres claimed by the Port for wetland impacts and for wetland and buffer restoration. Evidence was also presented that shows providing only flood storage as mitigation does not meet the criteria for replacing the wetland functions slated to be eliminated from WRIA9 as a result of this proposal. Clearly, not only numbers of wetland acres are at stake, but also protection of beneficial uses, which demand that the importance of replacing wetland functions, in addition to acres, not be diminished.

Thank you for your time spent in reviewing this material. Please call me or email me if you have any questions or comments.

Sincerely,

Amanda Azous

Attachment A: Vita for Amanda Azous

Cc:
Mr. Tom Sibley, NMFS
Ms. Joan Cabreza, EPA
Kimberley Lockard, Airport Communities Coalition (ACC)
Dr. John Strand, Columbia Biological Assessments
Mr. Bill Rozeboom, Northwest Hydraulic Consultants
Mr. Peter Willing, Water Resources Consulting, Inc.

[29] There are no recommendations given for the contribution of buffer enhancement but it is permitted on a case-by-case basis.

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