

February 26, 2019

Port of Seattle Commissioners:

There are some major issues you should be talking about and asking questions on. These involve health disparities, emission releases of toxic and criteria pollutants into the airshed around the airport and what effects both cumulative noise and emissions from Sea-Tac airport have on human health and the environment. You should all be aware by now that Sea-Tac airport jet aircraft are the greatest producer of noise in the entire state, the largest single source of greenhouse gas and nitrogen oxides in the county and it is well documented that airports are major sources of toxic and criteria emissions. In fact, Sea-Tac's thousands of tons of emissions released each year near densely populated neighborhoods rival some of the largest polluters in the nation.

How has the Port of Seattle responded to these concerns?

The Port of Seattle has been planning for years to **NOT** do any air quality monitoring. They have also planned to **NOT** analyze most emissions. They also wish to not do too much to evaluate risk and health impacts and recommending to internally summarize some studies. They can do this least amount of work rather quick and cheap by in-house staff and without outside interference, for instance, by the department of health. This flimsy, biased and unscientific approach is their preferred one. They may recommend more depending upon community pressure. The maximum expense in option D is 1.5 to 2.0 million dollars, would involve health experts and take a year to complete with three preferred much less expensive alternatives, the first of which, costing nearly nothing, is recommended. A maximum 2 million dollar study is less than 2 100ths of a percent of the over 10 billion dollar expansion cost.

In my opinion, real science scares the Port staff and it is obvious from their internal documents they don't know what to do about mitigation of, for instance, the ultrafine particulate problem. They are concerned about pollution problems that cannot be mitigated leading to reduced operations. They are also now reporting in the EA/EIS scoping that they will not evaluate environmental justice even though it is required and was requested by community, organizations and even EPA. This makes me wonder at what level the community concern must rise to for them to move to more expensive, time consuming and thorough discovery options when even EPA requests for an environmental justice analysis can be ignored.

Internal Port of Seattle staff memos in summary:

1) Air quality monitoring and cancer studies have found no significant impacts.

This is a lie. Monitoring found violations of the Washington State Acceptable Source Impact level of air toxics: Dichloromethane, carbon tetrachloride, benzene, trichloroethylene, tetrachloroethene, formaldehyde, acetaldehyde, acrolein, benzo(a)pyrene, short term sulfur dioxide and carbon monoxide. Modeling found violations of the National Ambient Air Quality Standards for nitrogen dioxide, particulate matter, and carbon monoxide.

2) FAA not expected to require the Port to do additional air modelling or monitoring for the SAMP.

This is irresponsible. The State Department of Health and the State Board of Health stated in 2001 that impacts are unknown because no comprehensive air quality study has ever been performed to determine impacts around Sea-Tac Airport and then called for a thorough air quality analysis that has still not ever been done. Department of Ecology presented a work plan for this exact study right before 9/11. Since then all planning for further analysis has been stalled. EPA has now asked the area be defined and characteristics of the existing



conditions be analyzed. This cannot happen without a comprehensive analysis such as monitoring the air in the communities around the airport for both toxics and criteria emissions as has been recommended by the state and EPA in the past. City of Burien recently passed resolution also asks for these long overdue discoveries. Puget Sound Clean Air Agency has asked for a risk analysis due to their belief hydrocarbon and other dangerous cancer-causing chemicals in jet exhaust may affect local public health. Still, no proper risk analysis has been done. If someone voices concern over some of the worrisome findings of short term monitoring the Port claims it was too preliminary to draw conclusions, meanwhile Port staff are using those same studies to say there are no proven problems.

Previous health studies have not found impacts.

This is false information. The State Department of Health found the following statistically significantly higher than average illnesses:

Lung cancer cases within one mile of the airport when compared to King County and State

Oral and pharyngeal cancer cases within one mile of the airport compared to state

Deaths from lung cancer and COPD three miles to the west and north and one mile to the east and south of the airport compared to King County

Hospital admission for asthma, pneumonia/influenza three miles to the west, north, east and one half mile to the south of the airport compared to King County

75% higher glioblastoma brain tumors and much higher rates found in two hot-spots to the northeast of the airport in 98168 and southwest of the airport in 98198. Port staff continue to tell you that this problem was in only one year 1992 and then stopped being a problem. Thousands of people were removed from the flightpath in subsequent years but the spike still persisted in 1993. The problem was so alarming to the Riverton Heights community that the Port bought out the neighborhood even though it was not in the flight path or original plans for buy-out. Higher than average brain tumors are still occurring in the 5 mile area around the airport as well as statistically significantly higher than King County average asthma.

Please see the enclosed discussion with Eric Fitch admitting the planning is not going to address most aircraft emissions and the discussion should be shifted to the Century Agenda goals which might result in reduced aircraft emissions in the long term, not specifying what, when or how that might happen. Also see former Commissioner Albro's desire to **push back** against the way they are talking about support for an air quality study. At the Federal Way scoping meeting, both Leslie Stanton and Lance Lyttle agreed that an air quality monitoring study was a good idea.

It is imperative the EA/EIS document include a thorough environmental justice outreach, analysis and mitigation proposals, monitoring of air quality and a health impact analysis. EPA has also asked for a monitoring of mitigation to assure objective data collection on success, a cumulative analysis that includes other projects besides the 30 planned for the SAMP which would include increased emissions and noise from 509 expansion, past, present and future impacts on health and quality of life.

Debi Wagner

Air Quality & Health Analysis Recommendation (May 2015)

History of Air Quality & Health Studies at Sea-Tac

To date, Sea-Tac Airport has conducted or participated in several air quality monitoring and modeling studies, and has been the subject of health studies. These include monitoring and dispersion modeling done as part of a Master Plan Environmental Impact Statement in 1997, and cancer incidence studies conducted in response to community concerns in the last two decades. None found significant impacts.

FAA & NEPA Approach to Air Quality Studies

FAA is not expected to require Port of Seattle to do additional air dispersion modelling or monitoring for the current Sustainable Airport Master Plan. This is primarily because the airport will be in conformity with the Clean Air Act in 2016 (this was not the case in 1997), and there are no exceedances of National Ambient Air Quality Standards. It is also anticipated that the SAMP Preferred Alternative will not show significant impacts compared with the No Action Alternative.

What Other Airports Have Done

Other airports have not been required to do modeling or monitoring under similar circumstances, and have instead conducted additional studies due to concerns from the community, not the FAA. There is still a possibility more analysis could get triggered for the SAMP work due to community concern.

Costs

We reviewed costs associated with options ranging from a simple summary of the health-related analyses conducted to date to a more comprehensive health study. In brief, costs range from relatively low for a summary (probably 80-120 hours in staff time) to relatively high for modeling (\$400K-\$600K) and at least \$1.8M or higher for a comprehensive health study.

Recommendation for Sea-Tac Airport

Given that previous health studies have not found any significant impacts, the limited information regarding community interest and the high costs for modeling, monitoring, and health studies, we recommend **Option A** below. We also provide a cascade of additional recommendations in order of

preference, should community concern begin to build or new information emerges.

A. Do Nothing/Monitor Community Concerns (\$0 + in-house work)

It is our recommendation to summarize all air quality and health research conducted to date at Sea-Tac Airport and other airports in North America, and demonstrate how new studies are unlikely to provide different outcomes or air quality exceedances. This work could be done in house. We will then monitor community concerns and decide if we need to move to option B in Q3 or Q4 2015.

B. Dispersion Modeling Ahead of NEPA or community triggers (\$350K to \$650K)

Developing the necessary input files to conduct dispersion modeling for 2014 or 2034 scenarios requires 3 to 6 months, and can only be done after a scenario is fully developed (airside, landside, terminal emission sources).

The cost to prepare these input files is also high (\$300K for first scenario). Therefore the benefit of conducting modeling ahead of schedule is minimal and the earliest it could be done for the SAMP 2034 alternatives is in Q2 2016.

C. Monitoring Ahead of NEPA or community triggers (\$250K min, but scalable)

Developing a monitoring plan requires significant planning with air quality experts. Obtaining the necessary instrumentation, site locations and expertise could take 12-18 months, and monitoring should be done for at least 3 months in both summer and winter seasons. While this option is less expensive than option B, it is considerably more complex, requires more partners, and only satisfies questions about current air quality and not future airport growth impacts.

D. Health Study in response to community triggers (\$1.5M to \$2.0M)

This is an extension of option B and would require large scale participation with health experts, would take at least a year to plan, and at least a year to conduct, if it was done in the same style as the Boston-Logan Airport study, which we would recommend.

Uncertainties

None of the recommendations are expected to answer all community concerns about air quality and health. The key uncertainties are:

- While dispersion models have improved, they perform better when averaged over time and space. This means specific events and locations in the model will be less accurate.
- Monitoring studies typically only capture criteria air pollutant concentrations, and it is very expensive to monitor for less common chemicals. The limited geographic scope also means communities often call into question whether the right monitoring locations were chosen.
- The science is immature on the health impacts and measurement standards of ultrafine particulates (UFP) and the link between odors and health. Health studies would not be able to link these concerns because no data exists on community exposure.

68484985.msg

From Linda St

Eric, thanks for the thoughts. I'm not opposed to pushing back, as I think that the ultrafine message being spread by certain community members warrants a factual response. To that end, I support the stronger language about linkages.

However, I have concerns about the other language, in particular (1) the possible interpretation that the SAMP (and by extension, its environmental review) will address ultrafines and (2) the reference to federal intervention.

If you want to put in language about airport growth, we could help with some edits, but our planning is not going to address most aircraft emissions, and I don't want to give that impression. Meeting our Century Agenda goals could result in reduced aircraft emissions in the long term, and perhaps we could shift the emphasis to that message.

The federal intervention reference raised alarm bells for me. It reads to me as "if the UFP study finds a problem, the feds may need to intervene to restrict growth and/or change flight paths." If that's what you meant, I'm opposed to making that point. At a minimum, it implies that there could be an aircraft-UFP issue

(and we're not aware of evidence of that to date).

There's a lot more I could say here, but I think a discussion would be more helpful. However, I'm traveling Monday and Wednesday and in an all-day meeting Tuesday. If you need to get this out right away, I'd vote for a simpler response, with an internal meeting soon to walk through the ultrafine issue and agree on an external message.

Stephanie and Stan: please weigh in on this. Thanks.

From: fitch, Eric
Sent: Friday, May 12, 2017 2:34 PM
To: Schinfeld, Eric; Collins, Julie; Edwards, Pearse; Halse, Katie
Cc: Stanton, Leslie; Meyn, Stephanie; Purcell, Arlyn (Env&Sus); Shepherd, Stan
Subject: RE: CHAC support letter fund SB5225 airport air quality study this year

Thanks for the thoughts, Eric. That is the letter I would *like to send*, and I think it would satisfy Commissioner Albro's goal of pushing back on the way in which they're discussing their support for air quality study.

That said, I'd be interested in what others think about what may be gained from this approach. Maybe the thing to do is present both letters to Commissioner Albro and let me know our concerns with pushing back too hard rather than simply highlighting our agreement on the need for more information.

71 for *[illegible]*
242-2193

Final Report
Air Quality Survey
Seattle-Tacoma International Airport

Prepared for
Port of Seattle
Aviation Planning Department

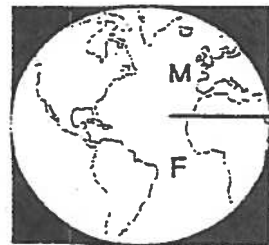
Prepared by
McCulley, Frick & Gilman, Inc.

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January 1995

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Table 14. Comparison of TO-14 Compounds with WDOE ASILs

CAS No.	Compound	Overall Results (ppb)					WDOE ASIL (ppb)	
		mean	median	min	max	std dev	annual	24-hr
75-71-3	Freon 12 *	0.49	0.55	0.10	0.77	0.21		3237.6
76-14-2	Freon 114	ND	ND	ND	ND	ND		3292.1
74-87-3	Methyl chloride	0.26	0.24	0.08	1.30	0.22		164.8
75-01-4	Vinyl chloride	ND	ND	ND	ND	ND	0.005	
74-83-9	Methyl bromide	ND	ND	ND	ND	ND		1.3
75-00-3	Ethyl chloride	ND	ND	ND	ND	ND		3792.0
75-59-4	Freon 11	0.31	0.30	0.09	0.40	0.05		3383.7
75-35-4	Vinylidene chloride	ND	ND	ND	ND	ND		16.9
76-13-1	Freon 113	ND	ND	ND	ND	ND		3525.4
75-09-2	Dichloromethane	0.27	0.11	0.08	4.20	0.58	0.151	
74-34-3	1,1-Dichloroethane	ND	ND	ND	ND	ND		667.5
156-59-2	cis-1,2-Dichloroethylene	0.10	0.10	0.08	0.30	0.04		NA
67-56-3	Chloroform	ND	ND	ND	ND	ND	0.009	
71-55-6	1,1,1-Trichloroethane *	2.35	0.28	0.09	35.00	7.20		1173.7
56-23-5	Carbon tetrachloride	0.10	0.10	0.08	0.22	0.03	0.011	
71-43-2	Benzene	2.04	2.10	0.26	4.20	0.77	0.038	
107-06-2	1,2-Dichloroethane	ND	ND	ND	ND	ND	0.009	
79-01-6	Trichloroethylene	0.13	0.10	0.08	1.20	0.19	0.110	
78-87-5	1,2-Dichloropropane	ND	ND	ND	ND	ND		NA
10061-01-5	cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	NA	
108-88-3	Toluene	6.32	5.10	0.09	40.00	6.11		106.2
10061-02-6	trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	NA	
79-00-5	1,1,2-Trichloroethane	ND	ND	ND	ND	ND		33.0
127-18-4	Tetrachloroethene	0.15	0.13	0.08	0.33	0.07	0.162	
106-93-4	1,2-Dibromoethane	ND	ND	ND	ND	ND	0.001	
108-90-7	Chlorobenzene	ND	ND	ND	ND	ND		32.6
100-41-4	Ethyl Benzene	0.83	0.77	0.09	1.80	0.37		230.4
1330-20-7	m,p-Xylene	2.92	2.70	0.09	6.60	1.42		345.7
95-47-6	o-Xylene	1.08	0.96	0.09	2.60	0.55		345.7
100-42-5	Styrene	0.19	0.13	0.08	0.54	0.12		234.9
79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND		3.4
108-67-8	1,3,5-Trimethylbenzene	0.22	0.20	0.08	0.67	0.15		NA
95-63-6	1,2,4-Trimethylbenzene	0.78	0.70	0.09	2.00	0.40		NA
541-73-1	m-Dichlorobenzene	ND	ND	ND	ND	ND		NA
106-46-7	p-Dichlorobenzene	ND	ND	ND	ND	ND	0.250	
100-44-7	Benzyl chloride	ND	ND	ND	ND	ND		3.3
95-50-1	o-Dichlorobenzene	0.11	0.10	0.08	0.38	0.05		166.4
120-82-1	1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND		16.2
87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	ND		NA

ND : Compound below minimum detection limit (MDL) for entire data group
 Stats : Mean, Min, Max & Std use MDL/2 when the sample was below the MDL. Does not include QA Values.
 NA : Compound does not have a WDOE ASIL
 ASIL : Acceptable source impact levels, revised 2/2/94 (WAC 173-460), converted to ppb.
 * : Relatively low method precision for this compound

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Table 20. Comparison of TO-11 Compounds with WDOE ASILs

Cas No	Compound	Overall Results (ppb)					WDOE ASIL (ppb)	
		mean	median	min	max	std dev	annual	24-hr
50-00-0	Formaldehyde	2.99	3.03	1.12	6.90	1.79	0.263	
75-07-0	Acetaldehyde	1.92	1.67	0.89	3.89	0.89	0.250	
107-02-8	Acrolein	3.01	3.15	0.06	16.29	5.77		0.009
123-38-6	Propionaldehyde	ND	ND	ND	ND	ND		NA
67-64-1	Acetone	2.21	2.30	0.05	5.20	1.22		2485.4
4170-30-3	Crotonaldehyde	ND	ND	ND	ND	ND		7.0
78-84-2	Isobutyraldehyde	0.36	0.05	0.04	2.12	0.73		NA
78-93-3	Methyl Ethyl Ketone	2.12	1.17	0.04	9.34	2.92		339.3
100-52-7	Benzaldehyde	0.51	0.04	0.03	2.14	0.74		NA
110-62-3	Valeraldehyde	0.48	0.04	0.04	2.28	0.82		167.6
529-20-4	o-Tolualdehyde	ND	ND	ND	ND	ND		NA
520-23-5	m-Tolualdehyde	ND	ND	ND	ND	ND		NA
104-87-0	p-Tolualdehyde	ND	ND	ND	ND	ND		NA
66-25-1	Hexanaldehyde	0.37	0.04	0.03	4.10	1.55		NA

ND : Compound below minimum detection limit (MDL) for entire data group
 Stats : Overall statistics used MDL/2 when samples were below the MDL and do not include CA values.
 NA : Compound does not have a WDOE ASIL.
 ASIL : Acceptable Source Impact Levels, revised 2/2/94 (WAC # 173-460), converted to ppb
 * : Relatively low overall method precision for this compound

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 155
Seattle, WA 98101-3140

OFFICE OF
ENVIRONMENTAL REVIEW
AND ASSESSMENT

September 28, 2018

Cayla Morgan, Environmental Protection Specialist
Seattle Airports District Office
Federal Aviation Administration
1601 Lind Avenue, South West, Suite 250
Renton, Washington 98055

Dear Ms. Morgan:

The U.S. Environmental Protection Agency has reviewed the Federal Aviation Administration's announcement to prepare an Environmental Assessment for the proposed Seattle-Tacoma International Airport Sustainable Airport Master Plan near-term projects in King County, WA (EPA Region 10 Project Number 18-0056-FAA). The EPA comments are provided pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR §§ 1500-1508), and Section 309 of the Clean Air Act. Thank you for informing us of your proposed action.

According to the July 30, 2018 request for scoping comments, the FAA, in collaboration with the Port of Seattle, is analyzing the potential environmental impacts associated with approximately 30 near-term projects at the Seattle-Tacoma International Airport to improve efficiency, safety, access to the airport, and support facilities for airlines and the airport. The activities would include construction of a second terminal, a centralized maintenance campus, off-airport cargo handling facilities, realignment of airport roadways, and expansion of the fueling facilities. As Sea-Tac is the primary air transportation facility for the Puget Sound region, the airport expects increased number of passengers (56 million) and aircraft operations (477,000) activity each year through 2027. The proposed projects therefore would assist in accommodating that projected growth, which would also occur with or without the projects. As a result of such growth, the 2018 Sea-Tac SAMP includes Long-Term Vision projects, which will also be subject to NEPA analysis in the future.

We appreciate the opportunity to provide early input and support the FAA decision to include scoping as a step in the EA process for the proposed action. In addition to the preliminary list of issues and resources that will be addressed in the EA, we offer the attached scoping comments to highlight the issues that we believe are important to consider in the NEPA analysis. Because this analysis would only involve up to 30 near-term projects only, we anticipate that the issues and impacts for each project will be fully analyzed and that mitigation measures will be incorporated. If the analysis reveals that significant impacts would result from the proposed action, then an Environmental Impact Statement should be prepared.

We appreciate the opportunity to provide scoping comments and look forward to continued participation in the project NEPA process. If you have questions about our comments, please contact me at (206) 553-6322 or electronically at mbabaliye.theogene@epa.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Theogene Mbabaliye".

Theogene Mbabaliye, NEPA Reviewer
Environmental Review and Sediment Management Unit

EPA Scoping Comments on the proposed Sea-Tac Sustainable Airport Master Plan Projects King County, WA

Range and Comparison of Alternatives

The EA should include a range of reasonable alternatives that meet the stated purpose and need for the proposed action and that are responsive to the issues identified during the scoping process. The Council on Environmental Quality (CEQ) recommends that all reasonable alternatives should be considered, even if some of them could be outside the capability of the applicant or the jurisdiction of the agency. The environmental impacts of the proposal and alternatives should also be presented in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public. The potential impacts of each alternative should be quantified to the greatest extent possible. It would also be useful to list each alternative action's impacts and corresponding mitigation measures. The EPA encourages selection of reasonable alternatives that will minimize environmental degradation.

Environmental Effects

The EA document should include the environmental effects of the proposed projects on natural resources and any necessary mitigation measures to reduce or cancel those effects. This would involve the delineation and description of the affected environment or analysis area, indication of the impacted resources, the nature of the impacts, and proposed mitigation measures to reduce those impacts. We recommend that providing adequate information in the EA on the following topics would be especially helpful for decision makers and the public.

a) Air Quality Impacts

The EA should provide a detailed discussion of ambient air conditions (baseline or existing conditions), National Ambient Air Quality Standards (NAAQS), and criteria pollutant non-attainment areas in the analysis area and vicinity, if applicable. The EA should estimate emissions of criteria pollutants for the airport area and discuss the timeframe for release of these emissions from construction through the lifespan of the near-term projects. The NEPA document should also include analysis of the potential impacts to air quality (including cumulative and indirect impacts) from the projects, especially during construction. The EA should specify all emission sources and quantify these emissions. Such an evaluation is necessary to assure compliance with State and federal air quality regulations, and to disclose the potential impacts from temporary or cumulative degradation of air quality. The EA should include the following:

- Detailed information about ambient air conditions, NAAQS, and criteria pollutant non-attainment areas in all areas considered for the airport and adjacent areas.
- Data on emissions of criteria pollutants from the proposed projects and discuss the timeframe for release of these emissions.
- Specific information about pollutant from mobile sources, stationary sources, and ground disturbance. This source specific information should be used to identify appropriate mitigation measures and areas in need of the greatest attention.
- An Equipment Emissions Mitigation Plan that identifies actions to reduce diesel particulate, carbon monoxide, hydrocarbons, and NO_x associated with construction activities¹.

The potential effects from air pollutants, including air toxics, to airport personnel and users, ground crews, nearby residents, businesses, and any sensitive receptor locations, such as, schools, medical facilities, senior centers and residences, daycare centers, outdoor recreation areas (e.g., parks) should be identified.

¹ <https://www.epa.gov/cleandiesel/construction-and-agriculture#construction>

We know that greenhouse gas emissions can contribute to climate change. Impacts of climate change may include changes in hydrology, weather patterns, precipitation rates, and chemical reaction rates. The EA should discuss how changes in climate could potentially impact the proposed projects and how the projects can impact the climate. The EA should quantify and disclose emissions from the projects' activities and consider mitigation measures to reduce the emissions. Potential mitigation measures for greenhouse gas emissions could be the use of energy efficient equipment and limiting idling when possible.

b) Noise and disturbance effects

The Sea-Tac currently experiences noise and other flight-related disturbance to communities, which variously affects residents, visitors, schools, businesses, recreation areas and activities, natural areas and wildlife. The EA should address the direct, indirect, and cumulative effects from additional noise and disturbance that would potentially result for both human and wildlife communities. The analysis should include but not necessarily be limited to the following:

- Identification of the geographic location and area affected by projects construction and airport operations.
- Any differences in intensity/severity of effects with respect to the updated and additional air traffic, including height above ground and height above sea level for all effects.
- Any new effects on previously undisturbed areas and cumulative/increased effects (increased frequency, severity) on areas currently within the airport flight paths.
- Effects on birds, including migratory birds, raptors, shorebirds, waterfowl, marine birds, ground dwelling birds, passerines, and overall effects on habitat quality/suitability for nesting, rearing, foraging, roosting, particularly within important habitat/concentration areas, such as, Wildlife Refuges, Natural Areas/Key Conservation Sites, and other important habitat, and on threatened, endangered, candidate, sensitive, and other species of concern listed by Federal or State fish and wildlife agencies.
- Effects on other terrestrial or aquatic wildlife species, including marine mammals. For affected species and habitats, disclose the area, location, and accessibility of any remaining intact habitats and refugia currently unaffected by the airport operations, including new construction.
- Effects on children's health and safety, including effects of noise/disturbance on school and other learning environments, outdoor recreation areas, and other sensitive locales. See Executive Order 13045².
- Effects on other vulnerable/disadvantaged populations, including minorities, low income, elderly, disabled, and Native Americans.
- Effects on quality of life, recreation activities, and quietude. Churches and other community gathering environments may be affected by new or increased noise and frequency of military flights.
- Indirect and cumulative effects on sensitive human and non-human animal receptors.

c) Public Participation and Environmental Justice

The NEPA process should effectively engage the public in dialogue about the proposed projects and its potential environmental, social, historical, cultural, and economic impacts – both positive and negative. In compliance with NEPA and with the Executive Order 12898³ on *Environmental Justice (EJ)*, actions should be

² <https://www.epa.gov/children/executive-order-13045-protection-children-environmental-health-risks-and-safety-risks>

³ <https://www.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice>

taken to conduct adequate public outreach and participation that ensures the public and Native American tribes truly understand the possible impacts to their communities and trust resources. Minority and/or low-income communities and tribes must be effectively informed, heard, and responded to regarding the projects impacts and issues affecting their communities and natural and cultural resources. The information gathered from the public participation process and how this information is factored into decision-making should be disclosed in the NEPA document.

The EPA requests the following information from lead agencies, at a minimum, when reviewing NEPA documents to determine the adequacy of analysis:

- Describe the efforts that have/will be taken to inform the communities about the impacts of the projects and to ensure “meaningful public participation” by the potentially affected communities/individuals.
- Identify low income and minority communities in the analysis area.
- Disclose in the NEPA document what was heard from the community about the proposed action during the public participation sessions by listing the impacts identified by the projects proponents and the communities.
- Address whether these impacts are likely to occur and to whom, and evaluate all impacts for their potential to disproportionately impact low income and/or minority communities.
- Describe how what was heard from the public was/will be incorporated into the decisions made about the projects (such as, the development or choice of alternatives).
- Propose mitigation for the impacts that will or are likely to occur.

Public health and safety impacts and other impacts of concern to the public should be analyzed and disclosed in the NEPA document. The potential for disproportionate impacts and need for special consideration should extend to any vulnerable population, including the elderly, disabled, and children, as well as low income and minorities. The EJ populations can be located using the EJSCREEN tool⁴.

d) Water resources impacts

The EA should disclose waters in the analysis area and vicinity that proposed developments could impact, nature of the potential impacts, and pollutants likely to affect those waters. The EA should also assess whether proposed facilities would affect drinking water and sources. If they would be impacted, then, the EA would need to include contaminants of concern and measures to take to protect drinking water and related source areas, consistent with the 1996 amendments to the Safe Drinking Water Act.

The EA should address potential effects of facility discharges on surface and groundwater quality. If facilities would be zero discharge, the EA would need to disclose the amount of process water that would be disposed of onsite and explain methods of onsite containment. If evaporation ponds would be used for disposal of wastewater, indicate how seepage into groundwater will be prevented. Identify the storm design containment capacity of ponds, explain how overflow in larger storm events will be managed, and discuss potential environmental impacts (drainage channels affected, water quality, biological resources) in the event of overflow. Disposal of wastewater or other fluids into the subsurface is also subject to the requirements of the Underground Injection Control Program and permits may be required, depending on project specifications and federal and/or state requirements.

Please note that under the Clean Water Act, any project construction that would disturb a land area of one or more acres also requires a National Pollutant Discharge Elimination System (NPDES) permit for discharges to waters of the United States. The EA should document the projects’ consistency with applicable storm water

⁴ <http://www.epa.gov/ejscreen>

permitting requirements and should discuss specific mitigation measures that may be necessary or beneficial in reducing adverse impacts to water quality. We would also encourage the FAA to consider Low Impact Development techniques⁵ during projects' activities due to their potential to reduce storm water volumes, and mimic natural conditions. Other measures to conserve energy and resources may include those under the Energy Independence and Security Act of 2007 and related EPA Technical Guidance on Implementing the Storm Water Runoff Requirements for Federal Projects under Section 438 of this Act⁶.

For water use and conservation, the EA should discuss conservation measures to implement to reduce water demands. Facility designs should maximize conservation measures such as appropriate use of recycled water for landscaping, xeric landscaping, and water conservation education. For information on those measures, you may consult two EPA publications, *Protecting Water Resources with Smart Growth*⁷ and *Water Conservation Plan Guidelines*⁸. The EA should discuss water reliability for future development projects, factoring in the effects of climate change.

Construction of facilities and access roads and runways may also compact the soil, thus changing hydrology, runoff characteristics, and affecting flows and delivery of pollutants to waterbodies and ecological function of the area. The EA should therefore include a detailed discussion of the cumulative effects from this and other projects on the hydrologic conditions of the analysis area. The document should clearly depict reasonably foreseeable direct, indirect, and cumulative impacts to groundwater and surface water resources. For groundwater, the potentially affected groundwater basin should be identified and any potential for subsidence and impacts to springs or other open waterbodies and biologic resources should be analyzed.

e) Aquatic resources and impacts

The EA should describe all waters of the United States, including wetlands that could be affected by proposed development activities and their locations in the analysis area, preferably using maps. The document should include data on acreages and channel lengths, habitat types, values, and functions of the waters and related wetlands. If the projects would result in impacts to aquatic resources e.g., filling of wetland, then, the FAA would need to work with the U.S. Army Corps of Engineers to determine if projects would need a CWA §404 permit.

Please also note that activities affecting floodplains are also regulated under the CWA §404, Executive Orders 11988, *Floodplain Management* and 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*. The EA should include information explaining why activities would be located in floodplains, alternatives considered, and steps to be taken to reduce impacts to floodplains.

f) Solid Waste, Hazardous Materials and Wastewater Management

The EA should address potential direct, indirect, and cumulative impacts of use of hazardous and non-hazardous materials in the construction and operation of the projects. Because of the projects, hazardous materials such as compressed gas, petroleum products, and others may be used and/or stored in the community or at the airport site. Although their proper management is presumed to be safe, concerns remain about the possibility of accidents resulting in the release of hazardous materials to the environment. The EA should therefore describe measures that will be taken to minimize the chances of such an accident, and emergency response measures that would be taken should an accident occur.

⁵ <http://www.epa.gov/polluted-runoff-nonpoint-source-pollution/urban-runoff-low-impact-development>

⁶ <http://www.epa.gov/polluted-runoff-nonpoint-source-pollution/stormwater-management-federal-facilities-under-section-438>

⁷ <http://www.epa.gov/sites/production/files/2014-04/documents/protecting-water-resources.pdf>

⁸ www.epa.gov/watersense/docs/app_a508.pdf

The EA should address the applicability of state and federal hazardous materials, pollution prevention, and solid waste requirements, and appropriate mitigation measures to prevent and minimize the generation of solid and hazardous materials. Consistent with the FAA guidelines⁹ and EPA regulations (40 CFR 112¹⁰), the FAA may need to prepare and implement a Spill Prevention, Control, and Countermeasure (SPCC). We recommend that information addressing such SPCC be included in the EA document, if applicable.

If any pesticides and herbicides will be used during construction, operation, and maintenance of the projects, the EA should address any potential toxic hazards related to the application of the chemicals, and describe what actions will be taken to assure that impacts by toxic substances released to the environment will be minimized. See Executive Order 13112¹¹. The EA should include a project design feature that calls for the development of an invasive plant management plan to monitor and control noxious weeds, and to utilize native plants for restoration of disturbed areas after construction.

As the airport operations usually require the construction of support and passenger facilities, we also recommend that the EA discuss how wastewater and solid waste generated at Sea-Tac will be managed.

g) Habitat, vegetation, and wildlife species impacts

During construction of facilities, clearance of vegetation and movement of soils may be necessary. The EA should describe the current quality and capacity of habitat, its use by wildlife in the proposed action area, especially fish. The EA should:

- Identify species, describe their critical habitat and potential impacts;
- Discuss blasting and excavation needs, methods, and control of effects, and mitigation of impacts;
- Indicate Best Management Practices (BMPs) to protect resources; and
- Include a vegetation management plan to address control of invasive plants, including prevention, early detection of invasion, and control procedures for the species. We recommend that the plan be consistent with the E.O. 13112.

Construction of the near-term projects may also have impacts on native and rare plants. We recommend that the EA include information about these plants and any related impacts, as well as measures to be taken to mitigate the impacts. As an example, the timing of projects' activities may be planned so that there would be little to no impacts to plants and animals during crucial seasons in their life cycle. We recommend that the EA specify BMPs to protect these resources in the analysis area.

h) Seismic and other risks

Construction and operation of the projects may cause or be affected by increased earthquake activity in tectonically active zones. Therefore, we recommend that the NEPA document discuss the potential for seismic risk and approaches to evaluate, monitor, and manage the risk. The document should include a seismic map or a reference to it. Construction of the projects should use appropriate seismic design and construction standards and practices to minimize impacts. One strategy would be to assess geologic faults in the analysis area because fault areas are vulnerable to movement, which makes them potential areas of risk for landslides and related impacts.

During construction of the projects, blasting may also be required in some areas, resulting in increased noise and related effects to residents and wildlife, including disruption, displacement, and potential species mortality.

⁹ https://www.faa.gov/airports/environmental/environmental_desk_ref/media/desk-ref.pdf

¹⁰ https://www.epa.gov/sites/production/files/2014-04/documents/b_40cfr112.pdf

¹¹ https://www.environment.fhwa.dot.gov/env_topics/ecosystems/roadside_use/vegmgmt_rdu3_9.aspx

The EA should discuss where blasting would be needed, blasting methods that will be used, and how the adverse effects of blasting will be controlled and mitigated.

i) *Endangered Species Act (ESA)*

The EA should identify the endangered, threatened, and candidate species under ESA, and other sensitive species within the analysis area. It should also describe their critical habitats and how the proposed projects will meet all requirements under ESA, including consultation with the US Fish and Wildlife Service and, if applicable, the National Oceanographic Atmospheric Administration.

j) *Land use impacts*

Land use impacts would include, but not be limited to, disturbance of existing land uses within construction work areas during construction and creation of permanent-right-of ways for construction, operations, and maintenance of the airport and associated facilities. The EA should document all existing land cover and uses within the analysis area, anticipated impacts by the projects to the land cover and uses, and mitigation measures that would be implemented to reduce the impacts. The EA should indicate which land uses would be converted into airport use and acreages, and measures that would be taken to compensate landowners for loss of their resources because of the projects.

k) *Cumulative and indirect effects*

The proposed action should assess impacts over the entire area of impact and consider the effects of the proposed projects when added to other past, present and reasonably foreseeable future projects in and outside the analysis area, including those by entities not affiliated with FAA. Only by considering all actions together can one conclude what the impacts on environmental resources are likely to be. The EPA has issued guidance on how we are to provide comments on the assessment of cumulative impacts, *Consideration of Cumulative Impacts in EPA Review of NEPA Documents*¹². The guidance states that to assess the adequacy of the cumulative impacts assessment, there are five key areas to consider:

- Resources, if any, that are being cumulatively impacted.
- Appropriate geographic area and the time over which the effects have occurred and will occur.
- All past, present, and reasonably foreseeable future actions that have affected, are affecting, or would affect resources of concern.
- A benchmark or baseline.
- Scientifically defensible threshold levels.

Indirect effects, which must also be analyzed in the NEPA document, are those that are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include additional development or other activity inducing effects and other effects related to induced changes in the pattern of land use, road systems and access, number and frequency of human visits/uses, and related effects on air and water and other natural systems, including ecosystems (40 CFR Part 1508.8).

Climate Adaptation

EPA recommends that the EA include a discussion of reasonably foreseeable effects that changes in the climate may have on the proposed projects and the analysis area, including its long term infrastructure. This could help inform the development of measures to improve the resilience of the proposed project. If projected changes could notably exacerbate the environmental impacts of the projects, EPA recommends these impacts also be considered as part of the NEPA analysis.

¹² <http://www.epa.gov/compliance/resources/policies/nepa/cumulative.pdf>

Coördination with Tribal Governments

The EA should describe the process and outcome of government-to-government consultation between FAA and tribal government(s) that would be affected by the projects, issues that were raised, if any, and how those issues were addressed. Executive Order 13175¹³, *Consultation and Coordination with Indian Tribal Governments* (November 6, 2000), was issued to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, and to strengthen the U.S. government-to-government relationships with Indian tribes.

Monitoring and Adaptive Management

The proposed projects have the potential to impact a variety of resources for an extended period. As a result, the EPA recommends that the projects be designed to include an environmental inspection and mitigation monitoring program to ensure compliance with all mitigation measures and to assess their effectiveness. The EA document should describe the monitoring program and how it will be used as an effective feedback mechanism, such as through adaptive management, so that any needed adjustments can be made to the projects to meet environmental objectives during the airport operations, maintenance, and any decommissioning including existing facilities. We would expect lessons learned from past practices and adaptive management efforts at Sea-Tac, combined with the need to account for new challenges, such as climate change, would influence management of the proposed projects.

¹³ <https://www.epa.gov/laws-regulations/summary-executive-order-13175-consultation-and-coordination-indian-tribal>

SCOPING COMMENTS

To the Port of Seattle and FAA

9/16/2018

Scoping should be taken seriously. Past requests for the Third Runway analysis to address environmental considerations have been ignored. Please see attachment for an example of Puget Sound Clean Air Agency (PSCAA) formerly, Puget Sound Air Pollution Control Agency request for the third runway EIS to include a risk analysis and the response to not perform the analysis from the FAA/Port of Seattle. Where insufficient information exists (was not a valid excuse since EPA had just done a thorough risk assessment for Midway Airport <http://www.csu.edu/cerc/documents/SWChicagoCancerRisks1993.pdf>) or unknown risk exists as was the case with existing widespread community health disparities, it is the responsibility of the agency proposing the project involving additional impacts to use all available means to discover and disclose. NEPA §1508.27

The FAA and Port of Seattle should analyze the following items in the Environmental Assessment and Environmental Impact Statement:

HUMAN HEALTH AND ENVIRONMENT

- 1) Conduct an air quality analysis for all pollutants of concern; hydrocarbon emissions, air toxics, lead and criteria pollutants in the communities surrounding the airport and flight paths where aircraft overfly to 3,000 feet. This was required by a MOA between the Port of Seattle, EPA, PSCAA and DOE to be done post 2010 (See Attached). Please note the request for chemical analysis of residues in flight paths. Funding shortfall prevented this from going forward. It is still needed. Monitoring is used to validate modeling and has been recommended by our air quality agencies
- 2) Provide data on demographics and health in all communities affected by airport noise/emissions using existing data, science, agencies, institutions with city and citizen input. Give same consideration to multiple stressors (noise/emissions, traffic, etc.) in EJ community as was provided by the Port of Seattle in the near Port community grant for Duwamish residents.
- 3) Identify significant cumulative impacts considering past, present and reasonably foreseeable, multiple project impacts and high and adverse impact areas.509, SASA, South Satellite, flight path changes, modifications, hardstands, new terminal construction and operation etc.
- 4) Identify areas where low income and minority populations reside and analyze disproportionate impact by airport operations, traffic, congestion, etc.
- 5) Consider cumulative noise and emissions on resident's health
- 6) Consider unknown risk and develop methods to determine sources, nature and develop control strategies
- 7) Conduct a risk analysis using all air contaminants known to be produced by airport operations using the collected monitoring and modeling data for validation as per Puget Sound Clean Air request in 1994 not yet completed
- 8) Map the areas of impact
- 9) Conduct a health impact assessment (HIA) and social impact assessment (SIA).
- 10) Provide meaningful insights into mitigation strategies

METHODOLOGY

- 1) Both co-lead agencies should use available science, data and input from independent sources to inform and validate the process and conclusions
- 2) Worst-case scenarios for impact analysis should be considered and developed
- 3) Mapping the area of emission impact will be different than the noise contours and should highlight highest risk areas.
- 4) A map should be color coded to easily identify:
 - a) Low income and minority populations eligible for environmental justice consideration
 - b) High and adverse impact assessment by census tract
 - c) Impact from emissions and types of emissions
 - d) At risk areas by type of risk
 - e) Noise contours and highest noise sensitive areas impact
 - f) Existing health disparities

All assumptions and conclusions should be peer reviewed and independently verified for accuracy.

The following are examples summarized of some topics for investigation of EJ communities in NEPA reviews. See the Interagency Working Group on Environmental Justice https://www.epa.gov/sites/production/files/2016-08/documents/nepa_promising_practices_document_2016.pdf:

- Define the boundaries (GIS or mapping) of the affected population for both noise and emissions
- Define Exposure pathways
- Utilize citizen, organization and government data, science collection
- Define unique characteristics, i.e., human health vulnerabilities, health disparities, socio-economic vulnerabilities
- Explain methodologies and data
- Consider alternatives with the least impact on the low income and minority population
- Identify benefits and detriments
- Determine presence of high and adverse impacts (EJ community may be more susceptible to impacts than the general population)
- Utilize systems for data collection such as Health Department, Cancer Registry, National Birth Defects Registry, National Brain Tumor Registry, etc.
- Develop a health impact assessment (HIA) and Social Impact Assessment (SIA)
- Use a comparative population
- Monitoring plan to assure mitigation is successful

- Consider on balance compensatory mitigation to equalize detriments

Impact categories FAA must address in an EA:

Table 1: List of Environmental Impact Categories in FAA Order 10501.1F

	Environmental Impact Category
1	Air Quality
2	Biological Resources
3	Climate
4	Coastal Resources
5	Department of Transportation Act, Section 4(f)
	Environmental Impact Category
6	Farmlands
7	Hazardous Materials, Solid Waste, and Pollution Prevention
8	Historical, Architectural, Archeological and Cultural Resources
9	Land Use
10	Natural Resources and Energy Supply

	Environmental Impact Category
11	Noise and Noise-Compatible Land Use
12	Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks
13	Visual Effects
14	Water Resources
15	Cumulative Impacts
16	Irreversible and Irrecoverable Commitment of Resources

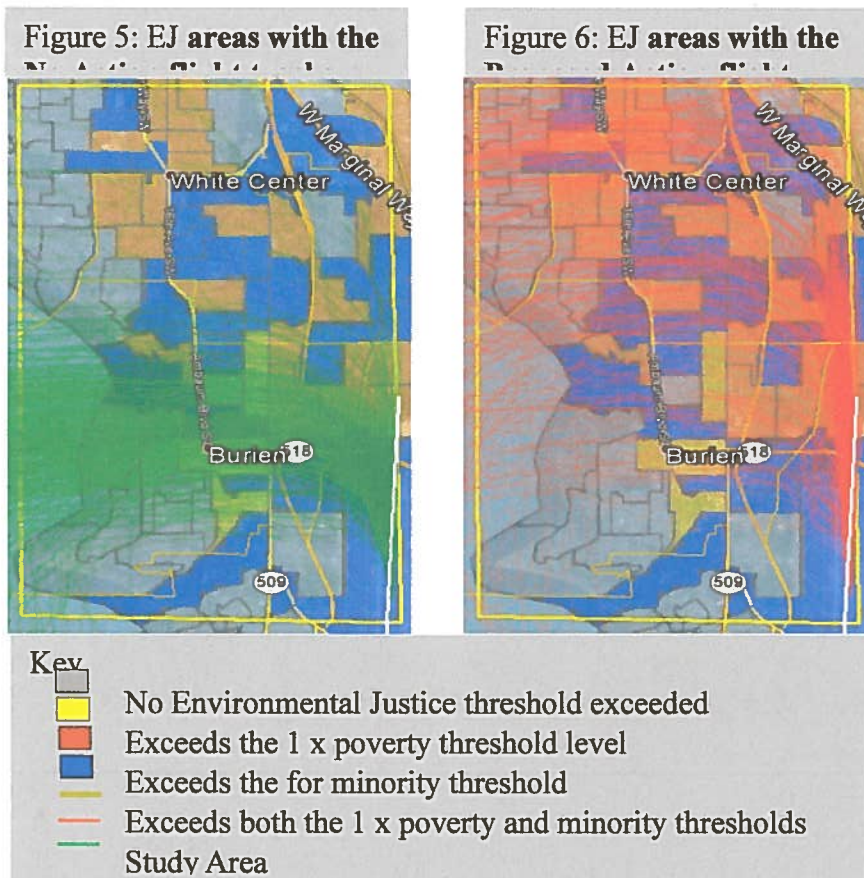
ENVIRONMENTAL JUSTICE

Health disparities in the communities surrounding the airport have been evaluated by the State Department of Public Health. Findings of disproportionate, high and adverse consequences exist in these communities. Currently, respiratory and brain cancer cases are higher than average when compared to King County and asthma in 98168 is statistically significantly higher than average when compared to county, state and national levels.

Environmental Justice (EJ) eligible community has been identified by FAA in their June 2017 Preliminary Environmental Analysis (PEA). The Interagency Working Group on EJ Methodologies March 2016 outlines numerous items for analysis that have not been discussed in any detail in the SAMP planning process. Cumulative impacts to these communities of noise and emissions along with health impacts have not been analyzed. Past, present and reasonably foreseeable impacts have not been addressed. Unknown risks should be evaluated.

(From the PEA)

Figures 5 and 6 shows the areas in which Environmental Justice (EJ) may be a concern within the Study Area. This data was pulled using the U.S Consensus 2015 data, through the Environmental Justice tool in AEDT. There are multiple areas of which exceed environmental justice thresholds within the Study Area. However, there are no reportable or significant noise impacts and the noise level of the No Action and Proposed Action Alternatives are less than 45 dBA DNL. Furthermore, there is no change to air quality. Therefore, the FAA has preliminarily determined that there are no high and disproportionate impacts to environmental justice communities.



The aforementioned analysis preliminarily indicates that there would be no direct or indirect or cumulative significant impact as a result of the implementation of the Proposed Action.

This analysis, above, ignores the significant impact that already exists with air quality impacts, violations of federal and state law, excessive noise through the night and health disparities discovered in the past and present. EPA EJ Screen tool can be used to assess the low income and minority populations around Sea-Tac and view the risk and negative health outcomes. Many of the census tracts in 98168 and 98198 typically overflowed by departing and arriving aircraft exhibit *extreme* conditions. Some of the greatest poverty levels, language barriers, no access to healthcare deficiencies and health disparities in the county exist in these communities along with double the average for the county numbers per household of children. The Highline School District that serves these communities has some of the highest poverty level families, and service

needs of any school district in the state. See attached high noise area map and State Department of Health Washington Tracking Network health disparities map. Both exhibit similar areas of impact for high noise levels and negative health outcomes.

The State Board of Health on behalf of the State Department of Public Health finding statistically significant health disparities in the communities surrounding Sea-Tac Airport writing in The Washington State Committee on Environmental Justice, June 2001 "Final Report, State Board of Health Priority: Environmental Justice" states:

"Airport community members living near the SeaTac Airport identified several concerns related to air pollution from operations at the airport (see Washington State Department of Health et al., February and December 1999. These reports can be accessed through: <http://www.doh.wa.gov/EHSPHL/Epidemiology/NICE/HTML/nicepubs.htm>.)

A March 2000 report prepared jointly by DOH, the Washington State Department of Ecology, the Puget Sound Clean Air Agency, Public Health—Seattle and King County and several other agencies and community representatives found that, in the SeaTac Airport area, there are statistically significantly higher rates of the following conditions:

- Lung cancer cases within one mile of the airport compared to the rest of King County and to Washington State;
- Oral and pharyngeal cancer cases within one mile of the airport compared to Washington State;
- Deaths from lung cancer and chronic obstructive pulmonary disease in an area approximately three miles to the west and north and one mile to the east and south of the airport (defined by census tracts) compared to King County; and
- Hospital admission for asthma and pneumonia/influenza in an area approximately three miles to the west, north and east and one half mile to the south of the airport (defined by zip codes) compared to King County.

The March 2000 report recommended that an air quality study be conducted around SeaTac Airport. This recommendation was, in part, forwarded because of environmental justice concerns. The report states, "fundamental to the concept of environmental equity is the value that one group of people not incur environmental exposures from commercial activities from which another group benefits. Those who use SeaTac Airport often derive great financial and

other benefits from worldwide travel. **The extent to which these benefits come at the expense of environmental degradation affecting the people who live around the airport is unknown, since a comprehensive air quality study has not been performed at SeaTac Airport to determine the impacts attributable to airplane emissions and airport-related traffic**" (Washington State Department of Health et al., 2000, p. 8). [pages 14, 15] (Emphasis added)

Regarding unknown risks the Federal Interagency Working Group (IWG) on Environmental Justice states in publication "Promising Practices for EJ Methodologies in NEPA Reviews" dated March 2016: https://www.epa.gov/sites/production/files/2016-08/documents/nepa_promising_practices_document_2016.pdf

"The degree to which an impact involves **unique or unknown risks** (see 40 CFR§1508.27(b)(5)) to minority populations and low-income populations in the affected environment can inform how agencies assess the significance of the impact. Minority populations and low-income populations could be uniquely susceptible to impacts from a proposed action due to: 1) **special vulnerabilities, e.g. pre-existing health conditions that exceed norms among the general population**; 2) unique routes of exposure, e.g. use of surface or well water in rural communities; or 3) cultural practices, e.g. subsistence fishing, hunting or gathering, access to sacred sites." IWG page 34

The FAA EA and Port of Seattle EIS must include the following:

- 1) An air quality monitoring program must be completed which includes toxics and criteria pollutants and used as a validation for modeling
- 2) A risk analysis must be completed which evaluates all known chemicals released from the airport including air toxics, criteria pollutants, PAH, metals, soot analysis which might be affecting the poor public health outcomes
- 3) A toxicology study must be completed to help plan mitigation. This should include analysis of people, plants, soil, and open water at a minimum.
- 4) Mitigation plans, programs and strategies should be planned and implemented along with the SAMP development not after
- 5) Any mitigation strategy must have a monitoring plan to assure success
- 6) A similar area must be used for comparison to evaluate health impacts (Kent Auburn area was used as a comparative population to Sea-Tac Airport communities by the State Department of Health zip code study in 2000. This area along with Tukwila is overflowed by arriving aircraft to both Boeing Field and Sea-Tac Airport. Health disparities in these cities can clearly be seen as extreme on the enclosed map of poor health outcomes and should not be used as a comparison)
- 7) Areas of impact for emissions should be mapped along with noise.

Consider for instance:

- a) New Jersey Institute of Technology has found a wide circular area around airports in the US experiencing toxic emissions 10 times greater than elsewhere
 - b) State Department of Health found health impact areas to the west and east of Sea-Tac Airport experiencing health disparities
 - c) EPA evaluating Midway Airport found risk threshold exceeded for 1,3 Butadiene to the northeast of the airport not typically in a noise contour band,
 - d) McCulley Frick and Gilman Air Quality Survey found hydrocarbon levels exceeding state New Source regulations around Sea-Tac Airport outside of the noise contours
 - e) Department of Commerce and LAX Ultrafine Particulate study found sooty debris typical of jet engine combustion discharge in flight paths for 10 miles out from runway ends
- 8) An epidemiological study should be conducted
 - 9) All studies should show independence and be peer reviewed to assure objectivity
 - 10) All analysis should include data input, assumptions and justification

WRONG!

LATS maximize maintenance of and existing facilities expansion -

Reason is how the question was asked:
Would you prefer to enhance existing facilities for a small amt of investment
or build an entirely new facility for a high dollar amount.
Destruction, degradation
Dilemma + despair