

3/13/18

To Port Commissioners:

FM: Debi Wagner

1) Encl: Hospitalization map from State dept. of public health. State Epidemiology found statistically significantly higher asthma in 98168 than King County comparison, higher cancer and other respiratory illness when compared to King County.

2) State board of Health determined EJ communities around Seatac in need of study, protection + planning consideration.

3) Commissioner Steinkueck stated 60% CO₂ issue @ Seatac from aircraft. See Ports own data on GHG for 2007 showing it is 90.6%.

This is from fuel pumped and the amount is now 5.4 million metric tons of CO₂, still 90% jets, climbing + not added is NO_x, black carbon, Methane which are over 2,000 tons per year + worse than CO₂ impact on warming.

You have to use all fuel pumped because this is not just a local issue but a global one

3/13/18

HC 1.018694
NOx 1.613773
SOx .272324
Part .000000

To: Port Commissioners

FM: Debi Wagner
debi.wagner@icloud.com

AIRCRAFT EMISSIONS RATES OR TOTAL GSE EMISSION PER LANDING/TAKEOFF CYCLE

Aircraft	AIRCFT 737	Geomode 1 - Takeoff	(kg/hr/eng)
Geographic mode	GEOMODE	Geomode 2 - Runway Queue	(kg/hr/eng)
		2 Geomode 3 - Touch & Go	(kg/hr/eng)
		Geomode 4 - Taxi in/out	(kg/hr/eng)
Fuel	FUEL.CD	13 Geomode 5 - Grnd supp equip	(kg/LTO)
Number of engines	ENG.NUM	2 Geomode 6 - Test	(kg/hr/eng)
		Geomode 7 - Climb	(kg/hr/eng)
		Geomode 8 - Approach	(kg/hr/eng)

Time in mode TIMEMOD 2.89 minutes

Sum of GSE costs per LTO GSE .00 dollars/hours

Aircraft engine emissions per unit time (kg/hr/eng) or emissions from all ground support equipment per aircraft LTO (kg/LTO)

CO 6.283627
 HC 1.018694
 NOx 1.613773
 SOx .272324
 Part .000000

rates not calculated as totals for time in mode from AP-42 Models for

AIRCRAFT EMISSIONS RATES OR TOTAL GSE EMISSION PER LANDING/TAKEOFF CYCLE

Aircraft	AIRCFT 737	Geomode 1 - Takeoff	(kg/hr/eng)
Geographic mode	GEOMODE	Geomode 2 - Runway Queue	(kg/hr/eng)
		4 Geomode 3 - Touch & Go	(kg/hr/eng)
		Geomode 4 - Taxi in/out	(kg/hr/eng)
Fuel	FUEL.CD	13 Geomode 5 - Grnd supp equip	(kg/LTO)
Number of engines	ENG.NUM	2 Geomode 6 - Test	(kg/hr/eng)
		Geomode 7 - Climb	(kg/hr/eng)
		Geomode 8 - Approach	(kg/hr/eng)

Time in mode TIMEMOD 14.00 minutes

Sum of GSE costs per LTO GSE .00 dollars/hours

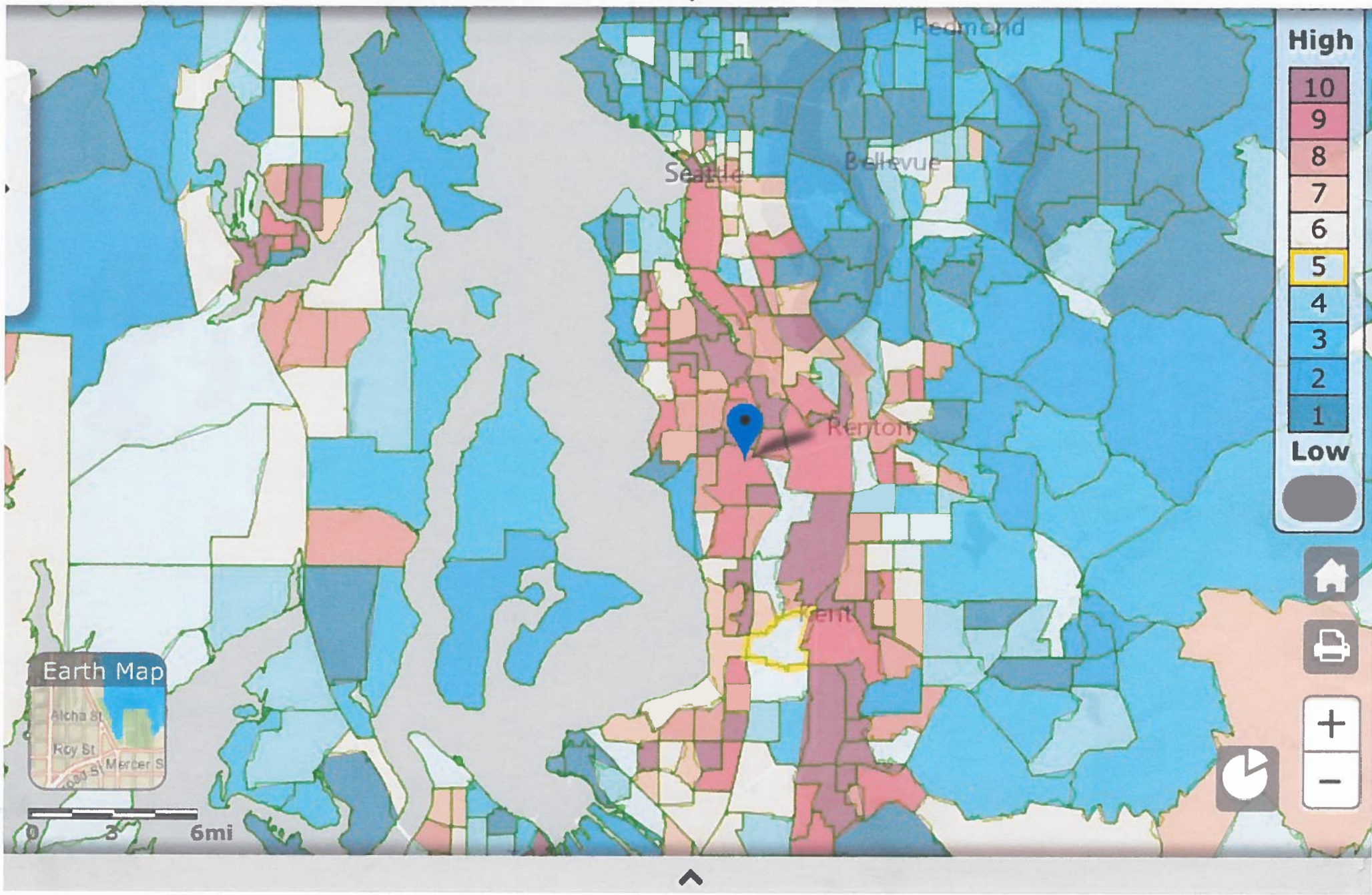
Aircraft engine emissions per unit time (kg/hr/eng) or emissions from all ground support equipment per aircraft LTO (kg/LTO)

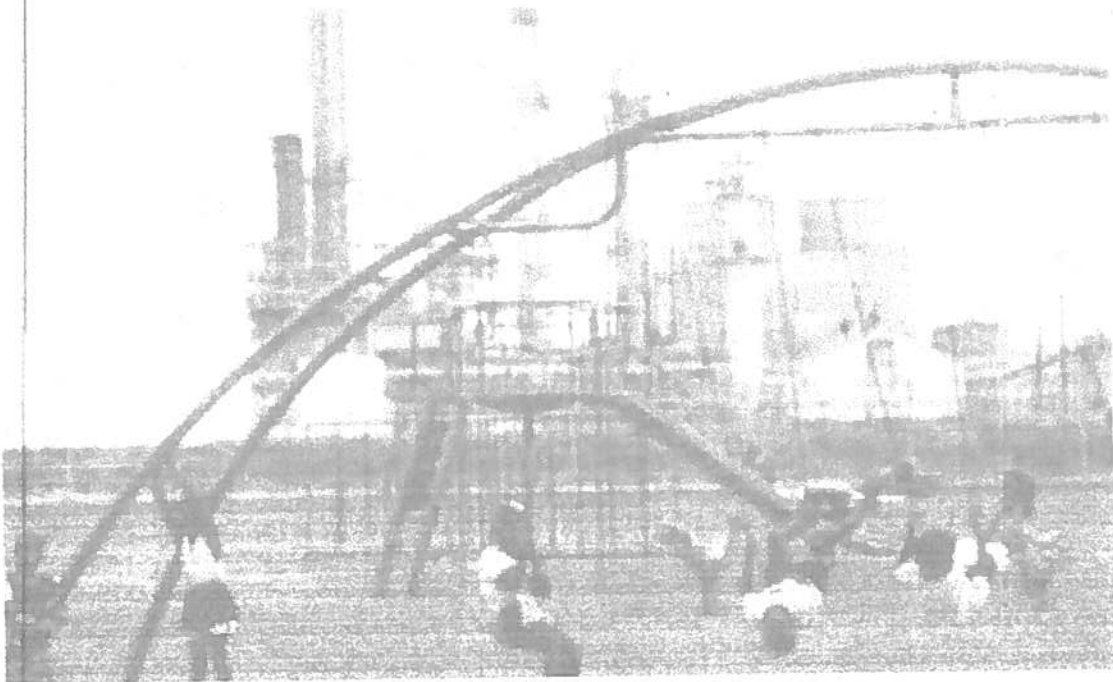
CO 6.283627
 HC 1.018694
 NOx 1.613773
 SOx .272324
 Part .000000

*7.74
4.58
1.77 NOx
.52
.16*

kg/hr engine

FAEED figures





**Final Report
State Board of Health Priority:
Environmental Justice**

June 2001

Committee on Environmental Justice:

Carl Osaki, R.S., M.S.P.H.

Joe Finkbonner, R.Ph., M.H.A.



Urban Pollution Concentration

In the United States, pollution sources (e.g., industrial and waste facilities) are often found in greater numbers in urban industrial areas. This pattern is evident in parts of South Seattle, where more industrial facilities are located than in other parts of the State. In several of South Seattle's neighborhoods, industrial facilities are located adjacent to residential housing. For example, in the South Park community, more than forty industrial and waste facilities are situated within a one- to five-mile radius of residential homes (CCEJ, 2001). As discussed in the following section of this report, toxic releases from these industrial and waste facilities are associated with increased health risks. The South Seattle communities experience higher mortality rates and decreased life expectancies than overall Seattle averages. They also have higher hospitalization rates for respiratory diseases than in other King County areas (Seattle King County Department of Public Health, 1997). More discussion on the relationship between exposure and disease is found in the following section, Environmental Justice: a Public Health Issue.

The Committee heard from a number of residents and community leaders concerned about the proximity of residential housing to industrial and waste facilities.

Community Health Concerns around SeaTac Airport

Community members living near the SeaTac Airport identified several concerns related to air pollution from operations at the airport (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 Committee heard from a number of residents and community leaders concerned about the proximity of residential housing to industrial and waste facilities.

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).

Implementing the Committee’s Work Plan

As described above, the Committee used a variety of methods to inform its work on environmental justice. This section describes how the Committee responded to each of the tasks in its work plan.

Raise Consciousness about the Issue

In the process of collecting information and speaking with the relevant players, the Committee was also achieving one of the primary goals of its work plan—to raise awareness about environmental justice issues. The Committee focused its efforts on raising awareness about these issues in government. The Committee participated in a number of community forums, meetings, and events in an effort to achieve this end.

In addition, the Committee published articles on environmental justice in the EPA Environmental Justice and the Washington Environmental Health Association newsletters. The Committee also presented its work at the Washington Public Health Association meeting in October 2000.

Create a Clearinghouse of Environmental Justice Information Housed on the SBOH Web site

The Committee launched its Web site in July 2000 at www.doh.wa.gov/sboh/priorities/ejustice/ejustice.htm. This site

serves as one clearinghouse of information on environmental justice. It also links users to a number of relevant other sites. Topical areas on the Web site include:

- What is Environmental Justice?
- History of Environmental Justice
- Literature Review
- Links
- Link to Board’s Health Disparities Site

Set Guidelines for Practice in State Government and within the Public Health Community to Encourage That Environmental Justice Principles Be Incorporated into Practice

To encourage state agencies and local health departments to incorporate environmental justice principles into their activities, the Environmental Justice Committee quickly discovered the need to inform agency staff about the relevance of this issue in their work and to collaborate with those already working on this issue.

The Committee convened an Inter-agency Workgroup on Environmental Justice. This workgroup served as another vehicle for education and an opportunity to influence agency practice. The workgroup met twice during the year to discuss issues of mutual concern and interest. In December 2000, the Committee convened an educational forum for interested agency representatives. This forum brought together a number of community and agency experts to discuss opportunities to incorporate environmental justice principles into practice. A videotape of this forum is available through the State Board of Health or through the Department of Health’s lending library.

ATTACHMENT A

Port of Seattle

Seattle-Tacoma International Airport

Greenhouse Gas Emissions Inventory - 2006

Prepared for:

Port of Seattle
Sea-Tac Airport

Prepared by:

Synergy Consultants, Inc.
BridgeNet International

October 19, 2007
Updated October 30, 2007
Errata March 17, 2008

EXECUTIVE SUMMARY

The Port of Seattle has voluntarily prepared a greenhouse gas emissions inventory associated with its Aviation Division. To date, an industry accepted methodology to prepare airport-related greenhouse gas inventories has not been prepared. Thus, the Port of Seattle is leading the airport community in the identification of the appropriate boundaries for quantifying Aviation Division emissions.

The protocol used in this analysis, while not complete, represents a substantial improvement in the data examined for Seattle-Tacoma International Airport (Sea-Tac) to date and is intended to guide emission reduction plans and future inventories. It relies on methods published by the Intergovernmental Panel on Climate Change (IPCC), the US Environmental Protection Agency, the World Resource Institute (WRI) and the International Council for Local Environmental Initiatives (ICLEI). Where data is not available at this time, this report notes the status and how the availability (or lack thereof) could affect the results. For instance, because emissions for non-carbon dioxide greenhouse gases (such as methane and nitrous oxides) are not available for all sources, this report focused exclusively on carbon dioxide (CO₂) emissions.

This inventory was prepared reflecting two emerging themes for identifying the boundaries associated with greenhouse gas inventories: organization boundaries and operational boundaries. In the case of the Airport, the organization boundaries were limited for this review to the Port's Aviation Division activities and associated emissions. Operational boundaries reflect to *direct, indirect, and optional emissions* for the Aviation Division. Direct emissions are from sources that are owned and controlled by the Aviation Division (terminal buildings, mobile sources, and the power required to operate these resources). Indirect and optional emissions are a consequence of the activities of the Port's Aviation Division, but occur at sources owned and controlled by another party. At an airport, these indirect and optional emissions are associated with the airlines, tenants, and general public that use that airport.

Based on these boundaries, nearly 4.7 million metric tons of CO₂ in 2006 were identified as a result of direct and indirect airport activities.

<u>Ownership/Control</u>	<u>Percent of Total</u>	<u>Key Sources</u>
Port of Seattle Aviation Division	1.4%	Hotel/parking lot shuttles, facility power
Airlines/Tenants	90.6%	Aircraft
Public	8.0%	Passenger vehicles, employee commute hotel/parking lot shuttles

Port of Seattle Aviation Division owned/controlled emissions represent about 66,491 metric tons of CO₂ in 2006. The largest portion of greenhouse gas emissions that the Port owns and controls is that associated with lighting and heating airport facilities, followed by passenger vehicles on the on airport roads, Port ground vehicles, and hotel and parking lot shuttles traveling on-airport roads.

Airline/tenant-owned and controlled emissions represent 4.2 million metric tons of CO₂ in 2006. As would be expected, aircraft represent the single largest source of CO₂ emissions. Over 90% of the airline emissions are from aircraft operating above 3,000 feet. All of the public-owned and controlled emissions reflect on-road travel associated with airport activity: either through vehicular access by passengers, hotel/parking lot shuttles off-airport, and airport employee work commute. Of airport-related emissions, public owned/controlled emissions represent 373,033 metric tons of CO₂ in 2006.

Next Steps: This report identified a number of steps that the Port can take to improve its future Aviation Division greenhouse gas emission inventory. These steps primarily focus on collecting data concerning airport activities in a way that enable the emissions to be identified by ownership and control. This inventory can also assist the Port with identifying emission reduction actions.