

COMMUNITY HEALTH & AIRPORT OPERATIONS NOISE & AIR POLLUTION: THE KING COUNTY HEALTH STUDY

DRAFT

ATTORNEY WORK PRODUCT

ATTORNEY CLIENT PRIVILEGE

AGENDA

A. THE LEGISLATIVE CHARGE

B. FINDINGS & RECOMMENDATIONS BY REPORT SECTION:

1. What is the health of airport communities compared to the rest of King County?
2. What pollutants result from airport operations and what are the likely health impacts?
3. What were findings from the UW public health study of ultrafine particulates?
4. Recommendations to address health issues

C. CONCLUSIONS

THE LEGISLATIVE CHARGE

\$125,000 over 2 years provided to King County local health jurisdiction to conduct a study on the population health impact of the SeaTac airport communities

An analysis of existing data sources and an oversample of the Best Start for Kids child health survey to produce airport community health profiles within a one-mile, five-mile, and ten-mile radius of the airport



A comprehensive literature review concerning the **community health effects of airport operations**, including a **strength-of-evidence analysis**



The findings of the University of Washington School of Public Health study on ultrafine particulate matter at the airport and surrounding areas



Any recommendations to address health issues **related to the impact of the airport on the community**



WAS THE REPORT RESPONSIVE TO THE CHARGE?

Request	Requirements	Status	What KCDOH did
1	Analysis of existing data sources	[REDACTED]	[REDACTED]
	Oversample Best Starts for Kids Health Survey	[REDACTED]	[REDACTED]
	Produce airport community health profiles within a one-, five-, and ten-mile radius	[REDACTED]	[REDACTED]
2	Comprehensive literature review of community health effects of airport operations	[REDACTED]	[REDACTED]
			[REDACTED]
	Strength-of-evidence analysis of community health effects of airport operations	[REDACTED]	[REDACTED]
			[REDACTED]

WAS THE REPORT RESPONSIVE TO THE CHARGE?

Request	Requirements	Status	What KCDOH did
3	Findings of UWSPH study of UFP at airport	[REDACTED]	[REDACTED]
4	Any recommendations to address health issues related to the impact of the airport on the community	[REDACTED]	[REDACTED]

THE KING COUNTY HEALTH REPORT

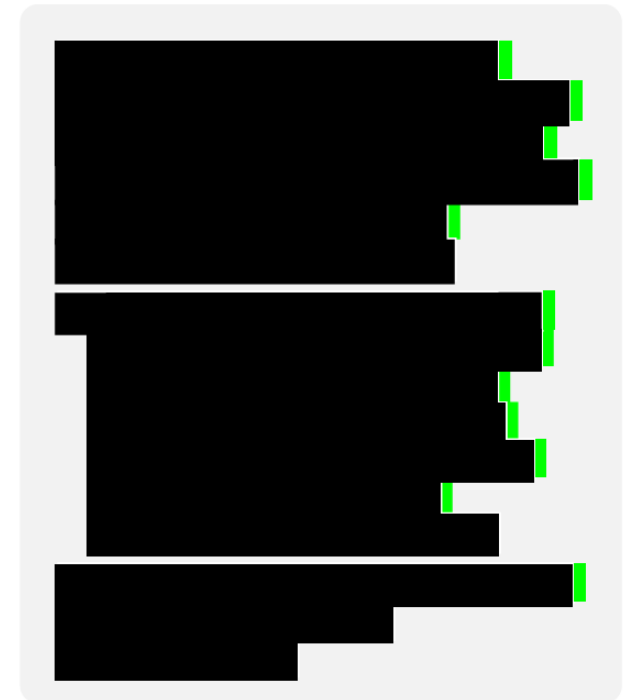
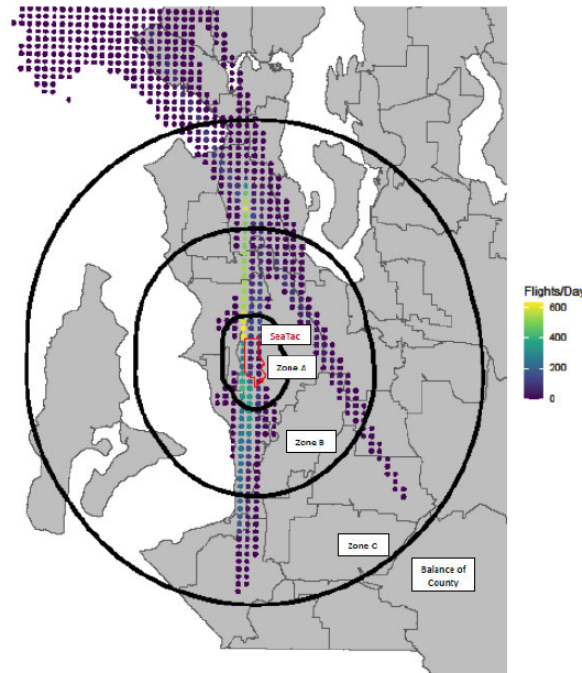
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DISTANCE FROM AIRPORT 1-, 5-, AND 10-MILES (ZONES A, B, C, RESPECTIVELY)

Figure 1
Community Health Profile Zones



Figure A1
SeaTac Average Flights per Day in 2018 and Community Health Profile Zones



01 WHAT IS THE HEALTH OF AIRPORT COMMUNITIES COMPARED TO THE REST OF KING COUNTY?



Greater level of poverty/
lower income compared to
other areas in County



Greater frequency of smoking



Greater obesity



Greater depression



Greater frequency of
inadequate sleep



Lower life expectancy
(1.7-5.0 years)



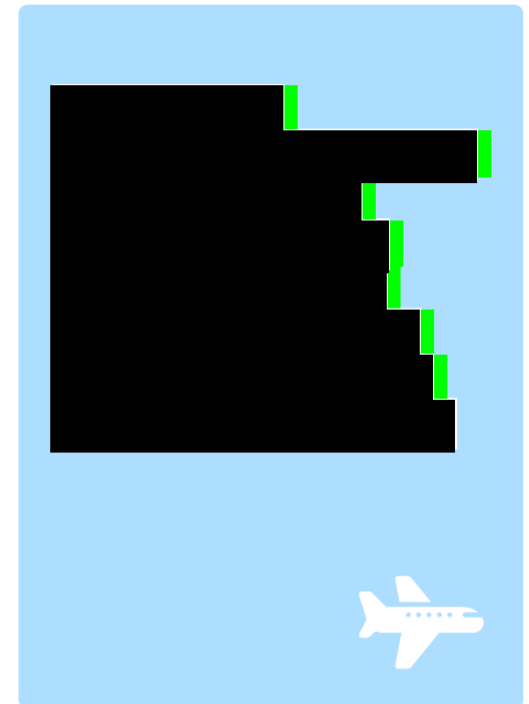
Death rates higher for heart
disease, unintentional injury
(poisoning, falls, traffic
crashes), chronic lower
respiratory disease, diabetes,
chronic liver disease, homicide



Higher hospitalization rates
for asthma, stroke, diabetes,
heart disease



Greater cancer incidence



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

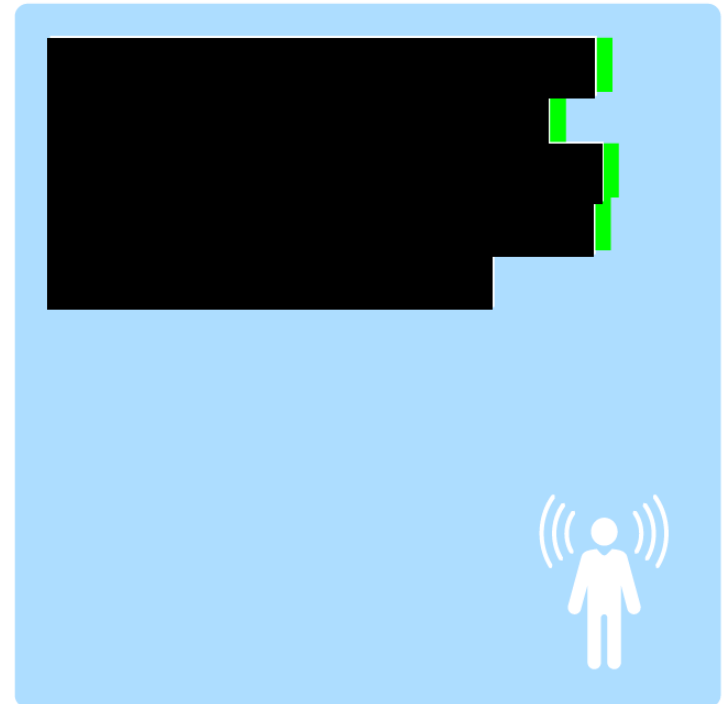
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NOISE POLLUTION & HEALTH EFFECTS

- Noise pollution causes:
 - Cardiovascular disease
 - Sleep disturbances
 - Annoyance
- Noise pollution is likely to cause:
 - Decreased school performance



AIR POLLUTION HEALTH EFFECTS: SHORT-TERM EXPOSURE*

Health Outcome	PM _{2.5}	UFP	O ₃	CO	NO ₂	SOx
Cardiovascular	Causal	Suggestive	Suggestive	Likely causal	Suggestive	Inadequate evidence
Respiratory	Causal	Suggestive	Causal	Suggestive	Causal	Causal
Nervous system	Suggestive	Suggestive	--	Suggestive	Inadequate evidence	Inadequate evidence
Metabolic	--	--	Likely causal	--	--	--
Reproductive / Birth outcomes	Suggestive	Suggestive	Suggestive	Suggestive	Suggestive	Inadequate evidence

*These assessments of short-term exposure came from US EPA, where short term exposure duration is considered "hours up to approximately one month"

AIR POLLUTION HEALTH EFFECTS: LONG-TERM EXPOSURE*

Health Outcome	PM _{2.5}	UFP	O ₃	CO	NO ₂	SOx
Cardiovascular	Causal	Inadequate evidence	Suggestive	Likely causal	Suggestive	Inadequate evidence
Respiratory	Causal	Inadequate evidence	Likely to be causal	Inadequate evidence	Likely to be causal	Suggestive
Nervous system	Likely to be causal	Likely to be causal	--	Suggestive	Suggestive	Inadequate evidence
Metabolic	--	--	Likely to be causal	--	--	--
Reproductive / Birth outcomes	Likely to be causal	Suggestive	Suggestive	Suggestive	Inadequate evidence	Inadequate evidence

* These assessments of long-term exposure came from US EPA, where long-term exposure duration is considered "from one month to years"

COMMENTS: POLLUTANTS & HEALTH IMPACTS FROM AIRPORT OPERATIONS

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

POLLUTANTS & HEALTH IMPACTS FROM AIRPORT OPERATIONS

[REDACTED]

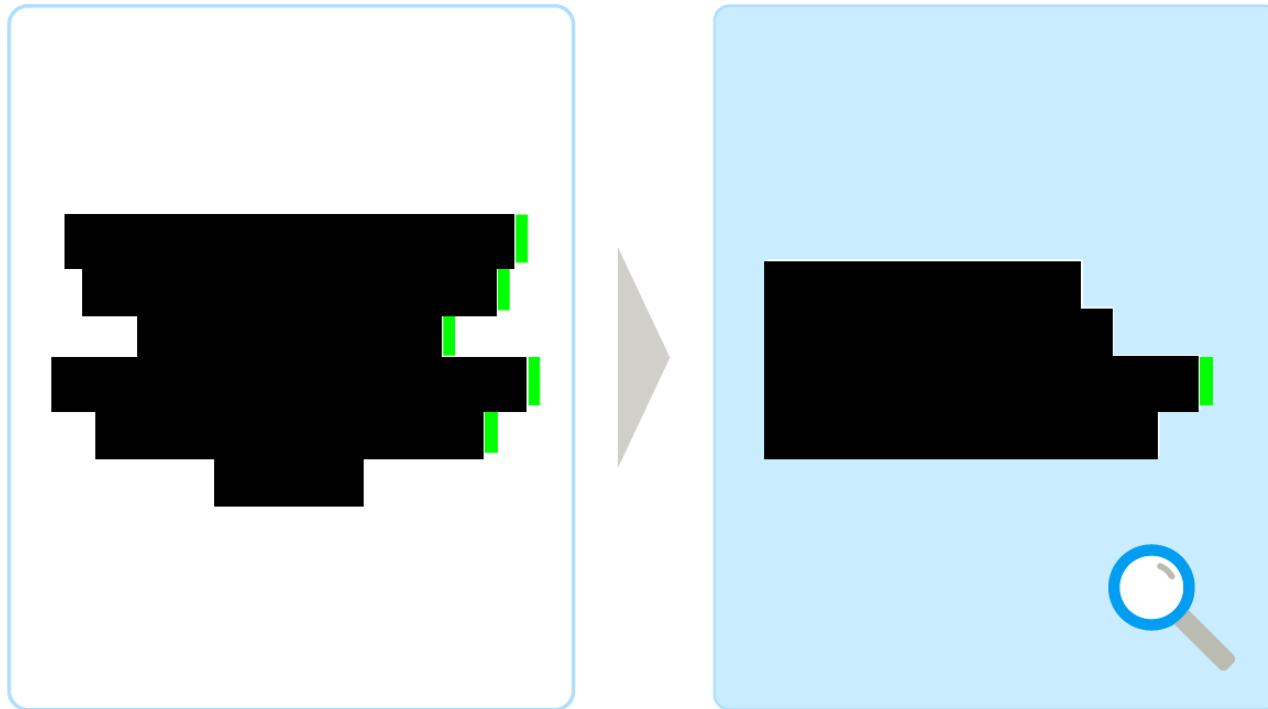
- Report states:



“Not enough is known about people’s exposure to airport-related noise and air pollution, likely because it can be difficult to assess and requires understanding the concentration of pollutants, duration of exposure, and in some cases infiltration of pollutants into biological system. At an individual level, determining exposure requires either testing biologically to determine the level of pollutants in systems, or using personally, portable pollutant monitors to measure exposure as well as people’s location when exposure occurred. Such studies are infrequent and time consuming; the more common approach is to use available information from existing ambient noise and air pollutant monitors and estimate people’s exposure using residential addresses or similar data.”



[REDACTED]



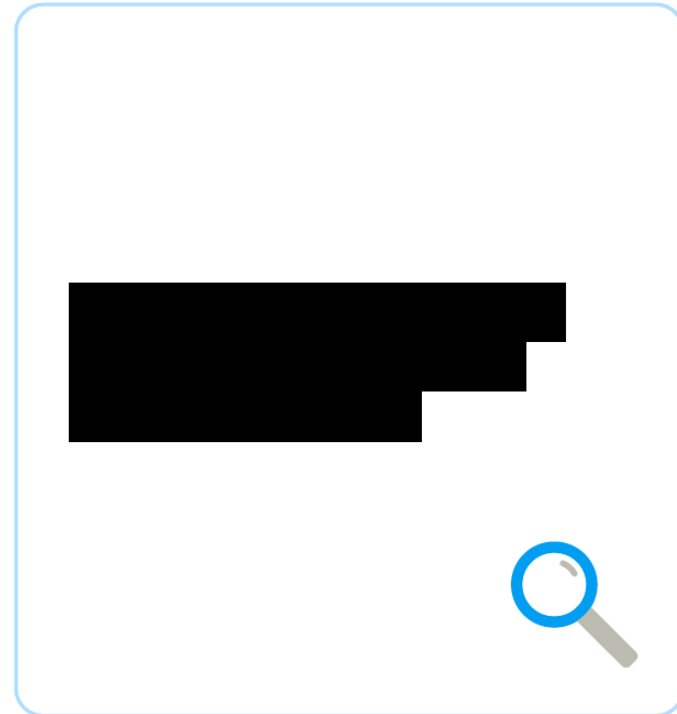
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WHAT KCDOH REPORTED

Provides excerpt of Executive Summary from MOV-UP report

“The study primarily found that UFPs derive from both roadway and aircraft sources, with the highest UFP counts found nearest major roadways (Interstate 5). Total concentrations of UFP alone (10-1,000 nm) did not distinguish roadway and aircraft features”



[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]

! [REDACTED]

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KCDOH MADE RECOMMENDATIONS TO ADDRESS HEALTH DISPARITIES OF AIRPORT COMMUNITIES

Issue	Recommendations
Mitigate health impacts of airport operations	<ul style="list-style-type: none"> • Ensure participatory community engagement • Increase culturally and linguistically appropriate prevention and disease management <ul style="list-style-type: none"> • Prevent and treat chronic disease and intentional injuries • Ensure healthy births and pre/postnatal care • Quality education and equitable learning opportunities • Increase awareness of risks to health from airport noise and air pollutants <ul style="list-style-type: none"> • Seal and vent buildings
Mitigate airport pollution and noise	<ul style="list-style-type: none"> • Healthy housing conditions: adequate ventilation and effective sealing of residences • Ensure safe physical environment of childcare, schools, community centers, long-term care facilities <ul style="list-style-type: none"> • Seal and vent buildings • Reduce noise and emissions from airports • Create green space and add trees to help capture particulate matter
Expand monitoring indoors and outdoors	<ul style="list-style-type: none"> • Measure peak noise levels • Create monitoring network • Measure noise levels and pollutant concentrations in airport communities
Support further research	<ul style="list-style-type: none"> • The extent outdoor pollution infiltrates buildings • The impact of sound exposures on human health and quality of life • Mechanisms and nature of UPF effects on human health

[Redacted]



CONCLUSIONS

[Redacted]

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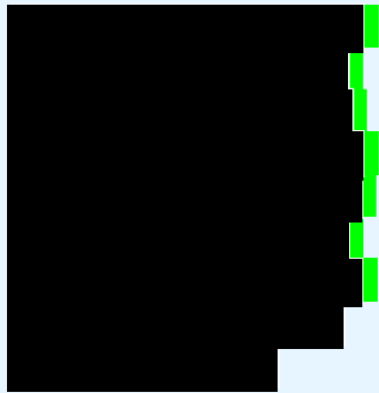
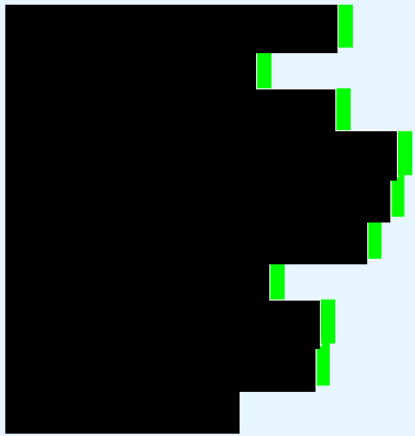
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THANK YOU QUESTIONS?

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Bright ideas. Sustainable change.

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