

From: [REDACTED]
To: [Manston Airport](#)
Subject: RE: Summary of Oral Submission made on 11th Jan 19
Date: 06 February 2019 23:24:52
Attachments: [image001.png](#)
[ILLEGAL AIR POLLUTION Manston Cargo Hub.docx](#)
Importance: High

Dear Sirs,

Please find attached my submission based on evidence of air pollution at Manston Airport, and its effects on health.

I would be grateful for an acknowledgement.

Thank you,

Yours,

Grahame Birchall
Resident

[REDACTED]

From: Manston Airport [mailto:ManstonAirport@pins.gsi.gov.uk]
Sent: 17 January 2019 16:30
To: Grahame Birchall
Subject: RE: Summary of Oral Submission made on 11th Jan 19

Dear Mr Birchall

Thank you for your email; I confirm receipt of your submission for Deadline 1.

Kind regards

Manston Airport Case Team
 The Planning Inspectorate

Temple Quay House, Temple Quay, Bristol BS1 6PN
Helpline: 0303 444 5000
Email: ManstonAirport@pins.gsi.gov.uk

Web: <https://infrastructure.planninginspectorate.gov.uk/> (National Infrastructure Planning)
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Twitter: @PINSgov

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From: Grahame Birchall [REDACTED]
Sent: 14 January 2019 20:02
To: Manston Airport
Subject: Summary of Oral Submission made on 11th Jan 19
Importance: High

Sirs,

As a registered interested party, I would be grateful if you could acknowledge receipt of this submission and my question to the Examining Board, herein.

STATEMENT TO SUPPORT ORAL SUBMISSION AT HEARING ON FRIDAY 11 JAN 19

-
FROM GRAHAME BIRCHALL – RESIDENT
-

At the hearing today, I added the following points to the written submission I made to PINS before Xmas. The aim of my comments today, were to achieve emphasis, and further justify my request to PINS made on Wednesday, at the preliminary meeting. I have also included below some new material that I did not have time to say today. The words in italics, below, are those I did not have time to develop or speak at the hearing.

I started by reminding the panel that I lived in Ramsgate since 2012, which is one year before the airport closed and I speak for myself, as an interested resident. I am not a member of any of the august organisations involved in opposing the DCO. I also stated that if the airport was to re-open **as before**, I would have no complaint, but as a 24/7 cargo hub, I am very much against.

My main observation, at this stage, from talking to hundreds of fellow residents, over the last 12 months, is the very poor level of knowledge and understanding of what RSP is planning and what a successful DCO would do to the town of Ramsgate. I maintain this level of ignorance has not come about by accident or through lack of interest. Not at all.

The evidence shows that it has come about by a **deliberate strategy** pursued by RSP and their senior political advisers and exclusive supporters ie. our two Thanets MPs. I do not believe this constitutes “mere assertion”, as suggested by the Chairman, today, as each of the component parts below, are all in the public domain, and can be readily proven. (If it walks and talks like a duck.....) I reminded the Board that this RSP strategy comprises the following components. The strategy sets out to:

- provide totally inadequate consultation – *only **one** consultation session, of a few hours, in Ramsgate, a town of 40,000 people, with thousands living under the flight path who are easily identifiable, but were NOT invited.*
- perpetuate irrelevant past experience – *in particular a reluctance to be honest or show the difference between the frequency of flights pre DCO, and post DCO.*
- conflate the airport issue with that of the need for housing in Thanet. *I have spoken to hundreds of residents who tell me they prefer an airport to housing. This means there are probably thousands who believe the same. No-one from RSP, or TDC, or our two MPs have ever tried to correct mis-apprehension. ie. They will get an airport **and** the same high level amount of housing.*
- supply misleading information on aircraft operations – *in particular the high frequency of flights and truth about the very heavy, low flying Super Jumbos freighters that are the dirtiest, noisiest aircraft in aviation.*

- tell lies about the need for night flights. *Discussed later.*
- vastly exaggerate assessments of jobs created in Thanet. *The number of jobs claimed to be created locally (30,000) is farcical and very misleading. Even if it creates 100 jobs, how many of those new workers will decide to live in Ramsgate. None ! No one would choose to actually to live under such a 'horror' of a flight path.*
- provide a cloak off respectability of the RSP position by senior public figures and politicians.
- put 'party politics' ahead of community needs and legal advice. *If any evidence is needed here, you need only consider why Ramsgate Town Council cannot present a unified position against the biggest existential threat to their own town. Party politics at work !*
- use local planning procedures to the advantage of private commercial investors. *The TDC decision to place the airport site outside the Local Plan, was celebrated publicly by one MP who said that it made sure the airport plans will now be "more sustainable" ie. the price of land will be kept low. This is critically important to RSP, the private company he supports, who will now enjoy a lower price to acquire the land in the CPO.*
- disregard and falsely minimize the health hazards of noise and pollution. *There can be no doubt about this. I will provide more evidence in subsequent submissions.*

Sadly, I did not have time to emphasize the following important observation:

It is extraordinary to see how the district council's independent legal advice on the financial viability of RSP, and its unsuitability as a CPO partner, has been trounced publicly by both Thanet MPs when adopting their pro airport stance. Moreover, their advice to the public is to ignore the advice of TDC's senior legal officers, in favour of believing the word of RSP, whose lead team includes members with very dubious character references.

I asked on Wednesday, for the Board's Annex B, 'themes for examination', to be expanded to include the suitability of this private company as a partner in a CPO and the chief benefactor of a successful DCO finding.

I asked for this as a direct response to this DCO being, by the Board's own admission, most "unusual in nature", in that the applicant is NOT a public body with the public interest at heart, but a private company, whose motives may have nothing to with public interest, at all.

I believe the importance of this request has been heightened since Wednesday, as we see in the national press, today, the case of Seaborne Freight, a company with no ships, no shipping experience and directors with less than honourable backgrounds. The comparison with RSP Ltd is uncanny. A company with no planes, no aviation experience, except a director with a failed history in aviation, and directors with less than honourable backgrounds.

I do not yet know whether this topic has been added to the Annex B, as requested ?

Due to time restrictions, I was unable to voice the following important evidence on my attendance at the Herne Bay consultation:

The most serious deficiency in RSP's case for the cargo hub, is in its analysis of likely harm to be done to the thriving community of 40,000 people living in Ramsgate. In particular its interpretation and unwillingness to discuss this critical issue with members of the public. At the consultation, one RSP consultant said he "didn't have the facts and figures to hand, but knew that there wouldn't be any negative effect on the residents of Ramsgate by way of noise and air pollution ! " He eventually produced a brochure and a map of the airport site that had a green

highlighted mark around the sites perimeter fence. **He explained that the only negative effects from air pollution would be inside this green line.** When asked about particulate matter of 2.5 microns and below, that would emanate from the 17,000 flights annually, only a few hundred feet over Ramsgate, **he tried to assure us that “there would be none “** and that RSP had done its homework, according to the World Health Organisations guidelines. **This is completely unbelievable** especially following recent research in the public domain into the high incidence of medium and long term adverse health effects, some fatal, from pollution and persistent noise, in cities and areas near to airports.

I will endeavour to provide relevant data to support this statement in more depth before the deadline. I will not need to accept RSPs offer of help, I will provide my own evidence. I have already seen the ‘so called’ evidence at Chapter 6 of their application and place in the category of ‘deliberately misleading’. Interestingly, the issue of air pollution was also prominent in national news today. It will be interesting to see if the ‘cause of death’ of the little girl living so close to the South Circular, will be officially recorded as ‘air pollution’. It could create a significant precedent, at a time when this Examining Board considers granting a DCO for opening a 24/7 cargo hub so close to a thriving 40,000 strong community.

Lastly, I did not get time to make the following statement:

The net result [of this strategy] is a well developed, condescending attitude amongst the general public of Thanet at large, towards the residents of Ramsgate who they believe, should either put up with intolerable living conditions for the sake of one last ditch attempt to save a popular local icon, or “get out of town”. The last comment was made to me, in the presence of witnesses I can call upon, if necessary, by Mr Niall Lawlor, a director of RSP Ltd.

I concluded my statement today, with a collective wish, that as a resident of Ramsgate, the Examining Board will be able to redress the imbalance deliberately created by RSP and their high level political advisers, here in Thanet and on their 3 invitations to the Terraces in Westminster. Moreover, I will be looking carefully to see whether this Examination has been relegated to that of ‘a tick box exercise’ to support a pre determined political decision.

As a parting shot, I asked the Board to take back the message to Westminster that they should not make the assumption that just because the political representation here in Thanet, so far, has been positively supine, they would be mistaken to think it will continue that way. *In particular careful note should be made of the adverse public interest which has suddenly been created around the decision to give Seaborne Freight a government contract.*

[I detected this last request was not well accepted by the Board, but it is nonetheless relevant, well meant, and critically important to taking the very unusual step of granting a DCO to a private company, some of whose directors have murky backgrounds and ownership of which, is not, in the least bit, transparent.]

My next submission will focus on evidence to support claims that RSP plans will poison the whole town of Ramsgate, bringing with it shortened life spans and early onset of life threatening illnesses to 40,000 residents.

Yours sincerely,

Grahame Birchall.

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MANSTON CARGO HUB
ILLEGAL AIR POLLUTION

Introduction

In a far-reaching human rights case, [REDACTED], the 9 year old girl who lived in Catford, dangerously close to the South Circular, a notorious pollution hotspot, could become the first person to have toxic air given as their cause of death, which would finally make this silent killer visible.

According to one of the UK's leading experts on asthma and air pollution, Prof Stephen Holgate, there was a "striking association" between [REDACTED] emergency hospital admissions and recorded spikes in nitrogen dioxide (NO₂) and PM₁₀s, the most noxious pollutants.

His report said there was a "real prospect that without unlawful levels of air pollution, [REDACTED] would not have died". She had experienced three years of seizures and hospital stays before her death in February 2013. During that time, local air pollution levels breached EU legal limits.

No individual death has previously been directly linked to air pollution. Such is the growing body of evidence about air pollution, the link to individual deaths, followed closely by litigious claims, Governments, national and local will need to show beyond all shadow of doubt they are doing everything possible to meet legal levels of air pollution in the area of their jurisdictions, or face serious consequences.

What then would a Government say, in its defence, if, as in the case of Manston, it had actually gone out of its way, to create an air 'pollution death trap' for thousands of innocent residents in the nearby town of Ramsgate, when it had the choice, not so to do ?

Key Questions

In attempting to provide a satisfactory answer to this question, it behoves the Planning Inspection Team to examine and provide answers to the following three corollary questions.

First, is it likely the planned cargo hub at Manston will create illegal levels of air pollution ?

Second, is how far is it likely that those illegal levels of air pollution will travel ?

Lastly, will the air pollution produced pose significant risk of premature death and/or ill health to the people living within the airport's 'radius of harm' ?

Aim

The aim of this paper is to assist the Examining Board with answering those questions, by means of pointing to a number of researched studies. It is not supposed to be an exhausted or an 'in depth' study in itself.

It is assumed that in a matter of such gravity, the Board would itself, endeavour to satisfy itself in performing its duty of care to the people and communities affected by their decision.

General Observation on Global Effects

Air freight often uses older, more polluting and noisier planes, and much is transported at night. The aviation industry hopes that the freighter fleet will continue to grow, and air cargo will grow as larger planes are built.

However, air freight has far higher negative environmental impacts, including greenhouse gas emissions, than other modes of transport. Air freight produces immensely more CO₂ equivalent emissions per tonne kilometer than transport by rail or by sea. There is a DEFRA /DECC report entitled:

“2011 Guidelines to DEFRA / DECC’s Green House Gas (GHG) Conversion Factors for Company Reporting”

which gives the conversion factors used to estimate carbon emissions from various forms of transport, including air freight. There is a greater difficulty in calculating the carbon emissions caused by air cargo carried as belly freight, in passenger planes. The document goes into this in some detail.

However, emissions from dedicated air freighters, (which are more relevant to Manston), are simpler to calculate and by comparison to train and ship, air freighters are already a lot worse in creating GHGs.

For example: 2 tonnes of freight carried 1,000 km produces:

4,532 kg CO₂-e - By Air

10 kg CO₂-e - By train

30 kg CO₂-e - By cargo ship.

As can be seen, air freighters are ‘arch offenders’ in the battle against global warming. Hence the starting point for assessing the negative effects of air freighters is not a good one, by comparison to other transport modes, when climate change is taken into account.

Turning now to the first question of how likely the planned cargo hub at Manston will create illegal levels of air pollution.

Existence of Air Pollution from Commercial Aviation

Airplanes and their attendant vehicles and equipment produce a cocktail of harmful gases and particulates. These include:

NO₂ (Nitrogen dioxide) which is harmful to humans. According to a UK Government study in 2015 “Studies of long-term exposure to NO₂ report associations with all-cause, respiratory and cardiovascular mortality, children’s respiratory symptoms and lung function”.

NO_x is a generic term for NO and NO₂. NO is relatively unstable and will convert to NO₂ if exposed to oxygen.

Particulates are harmful to humans. Particulates are tiny particles. Sometimes they are carbon, but they can be tiny particles of metal. Particles are often put into three sizes:

PM₁₀ – these are particles up to 10 micrometres (10 millionths of a metre) in diameter. These are often called ‘course particles’.

PM2.5 – these are particles up to 2.5 micrometres in diameter and are often called ‘fine particles’. Diesel engines emit a significant amount of PM2.5s

Ultra-Fine Particles (UFP) do not have a specific legal definition, but scientists consider these to have a diameter of up to 0.1 micrometres or 100 nanometres. They do however come within the legal definition of PM2.5s since they will pass through a PM2.5 inlet or filter. Ultra-Fine Particles are particularly harmful as when emitted there are so many of them and they have a large total area. They are known to get into the blood stream and in recent research by Queen Mary’s University Hospital have been found in the placentas of pregnant women.

According to the EU’s first aviation environment report in 2016, Air pollution from planes in Europe is to rise by nearly half in the next two decades.

Aircraft emissions of nitrogen oxides (NO_x), which are linked to lung damage, doubled since 1990 and are forecast to rise 43% by 2035.

NO_x is an indirect greenhouse gas created by fuel combustion, that can lead to the formation of health-damaging air pollutants such as particulate matter (PM).

High NO_x concentrations around airports are a particular public health concern, with Heathrow airport breaching safety limits in several different locations and times in 2012, according to its own measurements.

The UK government has been in breach of EU air quality laws since 2010, but the UK’s cleanup plan published did not envisage cities such as London becoming compliant until 2025 at the earliest.

Consequently, Environmental lawyers ClientEarth have been granted permission to take the UK government back to court over its failure to tackle illegal levels of air pollution. A judge at the High Court has granted our request to pursue a Judicial Review against DEFRA.

Aircraft jet engines, like many other mobile sources, produce carbon dioxide (CO₂), nitrogen oxides (NO_x), carbon monoxide (CO), oxides of sulfur (SO_x), unburned or partially combusted hydrocarbons (also known

as volatile organic compounds, or VOCs), particulates, and other trace compounds (Federal Aviation Administration 2005).

Each of these pollutants is emitted at different rates during various phases of operation, such as idling, taxiing, takeoff, climbing, and landing. For example, NO_x emissions are higher during high power operations like takeoff when combustor temperatures are high. On the other hand, CO emissions are higher during low power operations like taxiing when combustor temperatures are low and the engine is less efficient (Federal Aviation Administration 2005).

Even though the aircraft engine is often idling during taxi-out, the per minute CO and NO_x emissions factors are higher than at any other stage of a flight (Environmental Protection Agency 1992). Combining this with the long duration of taxi-out times during peak periods of the day, total taxiing over the course of a day can add up to a substantial amount.

Consistent with these facts, Los Angeles International airport is estimated to be the largest point source of CO emissions in the state of California and the second largest of NO_x. (Environmental Protection Agency 2005).

However, aircraft and airport emissions have only recently become the subject of regulatory scrutiny, although little has been done to reduce or manage emissions generated by airports and air travel. While there has been some effort to curtail the substantial CO₂ emissions generated by aircraft, there has been relatively little effort to control or contain some of the more pernicious air pollutants generated by jet engines.

Moreover, in support of its plans for a third runway at Heathrow, the DfT and Heathrow owners have been accused by the Teddington Action Group (TAG) of attempting to diminish the effects of pollution by claiming emissions from planes do not contribute notably to emissions once the plane is above 1,000ft. The DfT and its advisors also set a study area of just 2 kilometres from the expanded airport boundary.

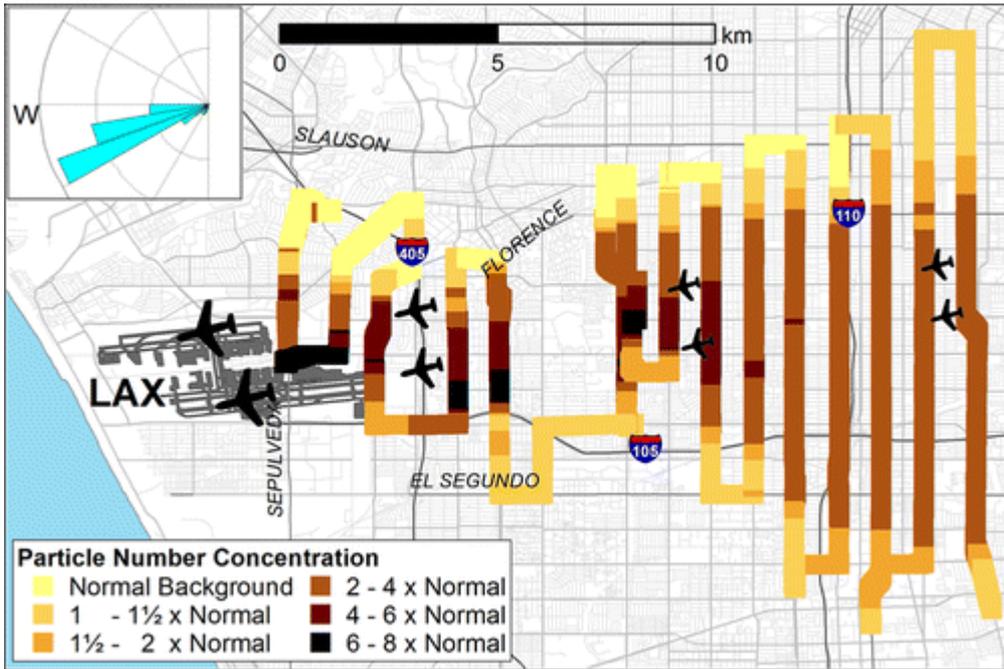
There is much evidence to indicate that is wrong. Planes emit significant amounts of NO₂ and particulates, which find their way down to the ground (and by definition into humans and living creatures as well as vegetation). The DfT deny this but the empirical evidence does not support the

DfT. Studies between 2014 and 2016 at Los Angeles, Atlanta and Schiphol, Amsterdam, strongly suggest otherwise. Mobile monitors set up under the inward flight paths show that particulates and NO₂ are transmitted by the wind up to some 20 kilometres down wind. Details have been extensively published by the Aviation Environmental Federation (AEF).

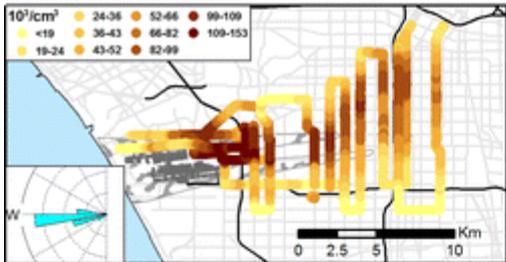
The spread of Air Pollution from Airports

One of the most relevant studies on the extent of travel of air pollution was conducted by the researchers at the University of Southern California (USC) and the University of Washington in Seattle who spent 29 days measuring levels of air pollutants while driving through neighbourhoods up to 10 miles from Los Angeles International Airport (LAX).

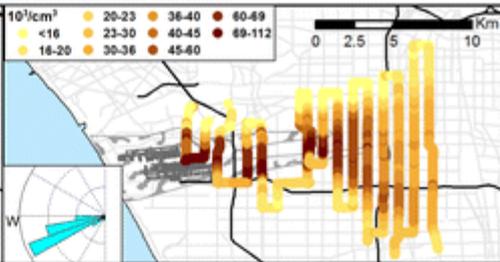
Most of the measurements were collected between 11 a.m. and 4 p.m., some of the airport's busiest hours, when 40 to 60 jets arrive per hour. But samples were also collected early in the morning and late at night, when air traffic was much lower. The scientists found that over a 23-square-mile area, an area that starts at the ends of LAX's four runways and then fans out east for more than 10 miles downwind of the airport. The particle-matter concentrations were double what they were in nearby areas outside the area of LAX impact. They also found that the concentrations were five times higher over a 9-square-mile section of the impact area, and within an almost 2-mile area just east of the airport, the particle-matter pollutants reached concentrations that were 10 times higher than in the non-impact areas. The study was funded by the National Institute of Environmental Health Sciences. The study's abstract can be found on the Environmental Science & Technology website. *"The consistent and distinctive spatial pattern of elevated concentrations was aligned to prevailing westerly winds and landing jet trajectories, and roughly followed the shape of the contours of noise from landing jets,"* the study's authors note, *"indicating that **landing jets** probably are an important contributor to the large downwind spatial extent of elevation [particle matter] concentrations."* I remind the Board, that Ramsgate will experience a high percentage of landing jets. The results were visually displayed on a scaled map below.



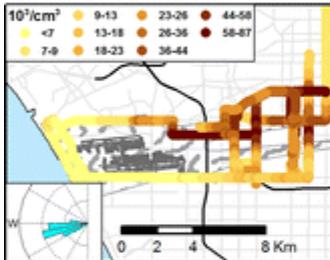
(a): Morn-Aft, 08/15/13



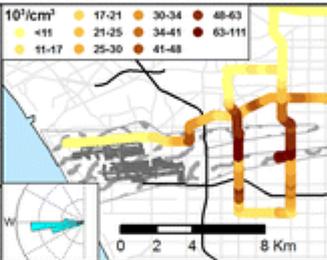
(b): Night, 08/23-24/13



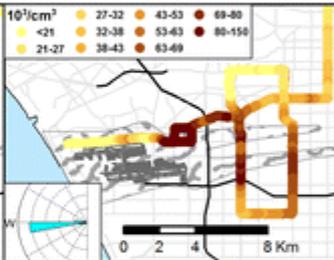
(c): Aft-Eve, 06/22/13



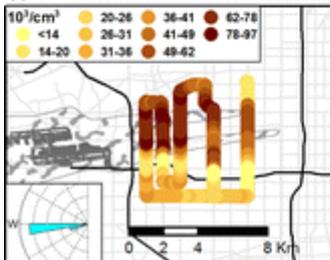
(d): Aft-Eve, 06/27/13



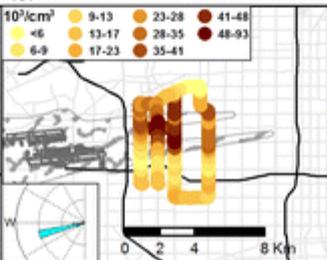
(e): Morn-Aft, 07/01/13



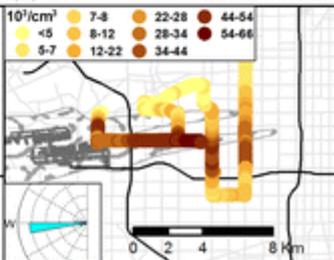
(f): Aft, 09/29/12



(g): Aft-Eve, 09/29/12



(h): Eve, 09/30/12



It should also be noted that the Royal Harbour in Ramsgate is less than 4 km from the end of the runway at Manston, and from this survey, the whole town would be experience 4-8 times the normal levels of pollution from particulate matter in the air.

This is completely different to the information I was told by at the RSP consultation, where I was shown a map where apparently, PM pollution would be confined to an area outlined by the perimeter fence !

The Los Angeles evidence is supported by a second major research study, 'Airports, Air Pollution, and Contemporaneous Health' conducted by Wolfram Schlenker and W. Reed Walker, published in July 2015, which investigated air pollution and the link with respiratory and heart-related issues in the areas surrounding the 12 largest airports in California.

This study used a number of sources to obtain data for analysis for the period 2005-07. Airport traffic data was found in the Bureau of Transportation Statistics (BTS) Airline On-Time Performance Database, which contains flight information for passenger aircraft, such as departure and arrival times, and airports.

The measure of air traffic for 12 major airports in California consisted of:

- the time aeroplanes spend between leaving the gateway and taking off from the runway
- the time between landing and reaching the gate

Data for pollution around the airports was collected from the California Air Resource Board (CARB), which includes hourly and daily pollution readings.

The weather effects on health were controlled in the analysis by using temperature, precipitation and wind data in distributing airport pollution from airports. Wind data was obtained from the National Climatic Data by the National Oceanic and Atmospheric Administration's (NOAA) hourly weather stations.

Health effects were measured using the California Emergency Department and Ambulatory Surgery data for emergency room visits, and inpatient discharge data for overnight hospital admissions. Daily admissions of all people with a diagnosis associated with respiratory illnesses were included.

Statistical modelling was performed to estimate a number of links, including:

- pollution levels and hospitalisation
- increased levels of airport traffic
- congestion and local measures of pollution
- health and air pollution

The study found a large proportion of local air pollution is caused by congestion from airports, **and the average area of impact is a 10km radius.**

In terms of the link with health outcomes, admissions for respiratory problems and heart disease were strongly related to these pollution changes. A one standard deviation increase in area-specific pollution levels, increased asthma counts by 17% of the baseline average.

It also showed increased admissions for respiratory problems, such as chronic obstructive pulmonary disease (COPD), by 17% and heart problems by 9%. **Changes in pollution levels had a negative impact on the whole population, but greater effects were seen in children and the elderly.**

Health effects were measured by overnight hospital admission and emergency room visits to any hospital in the state of California. The California Emergency Department & Ambulatory Surgery data set for the years 2005-2007 was used.

The dataset gives the exact admission date, the zip code of the patient's residence (as well as the hospital), the age of the patient, as well as the primary and up to 24 secondary diagnosis codes. An important limitation of the Emergency Department data is that any person who visits an ER and is subsequently admitted to an 'overnight stay' drops out of the dataset. This is done to prevent double counting in California's hospital admissions records, as overnight hospital stays are logged in California's Inpatient Discharge data.

Finally, they included three placebos: stroke, bone fractures, and appendicitis. In their baseline model, they counted a patient as suffering from a sickness, if either the primary or one of the secondary diagnosis codes, lists the illness in question.

These estimates suggest that relatively small amounts of ambient air pollution can have substantial effects on the incidence of local respiratory illness within a 10km radius of the source of polluton.

Does air pollution from commercial aviation pose significant risk of premature death and/or ill health ?

The Danish booklet, 'Air Pollution in Airports', published at Blegdamsvej 4B 2200 in Copenhagen, states that the main concern is related to ultrafine exhaust particles from aircrafts and diesel engines. Ultrafine diesel particles are known to cause cancer, heart disease, blood clots, brain haemorrhage and airway diseases (bronchitis, COPD), thereby increasing the risk of serious work related illness and premature death.

During recent years, several American studies have documented high concentrations of ultrafine particles in exhaust gas from aircrafts. However, very few airports monitor ultrafine particles.

This booklet presents a new exhaustive study from Danish airports focusing on air pollution in airports, pollution sources, employee exposure to ultrafine particles and

actions to limit the pollution. The booklet is thereby state of the art regarding air pollution in airports.

For decades the key focus has been on particulate mass, predominantly coarse and fine particles.

The main reason for this is that these larger particles have been easy to measure and because there is a connection between particulate mass and health effects. However, several newer investigations report that ultrafine particles (PM_{0.1}) measured in numbers seem to be a better indicator of harmful air pollution from local exhaust. This is explained by the fact that ultrafine particles have a large surface area available for sorption of toxic compounds (PAHs, VOCs etc.), and that they have a high deposition rate in the finest and most critical parts of the lungs (the alveolar).

A part of the deposited ultrafine particles containing the toxic compounds will be transferred from the alveolar directly to the blood and be transported around the body. Furthermore, newer investigations find that nanoparticles might be assimilated directly through the nasal mucous membrane and reach the brain.

Finally, the chemical composition of the ultrafine particles is believed to be crucial for their toxic properties as well. Particles with a high content of soot (black carbon) are believed to be the most dangerous particles, while inorganic sulphate particles are believed to be the least harmful.

Moreover in 2013, the World Health Organisation published details of the effects of particulate matter on human health.

It says that Particulate Matter of less than 10 microns (PM₁₀) and Particulate Matter of less than 2.5 microns (PM_{2.5}) include inhalable particles that are small enough to penetrate the thoracic region of the respiratory system. The health effects of inhalable PM are well documented. They are due to exposure over both the short term (hours, days) and long term (months, years) and include:

- respiratory and cardiovascular morbidity, such as aggravation of asthma, respiratory symptoms and an increase in hospital admissions;
- mortality from cardiovascular and respiratory diseases and from lung cancer.

There is good evidence of the effects of short-term exposure to PM₁₀ on respiratory health, but for mortality, and especially as a consequence of long-term exposure, **PM_{2.5} is a stronger risk factor** than the coarse part of PM₁₀. [An American Cancer Society cohort study of 1.2 million American adults for 26 years (from 1982-2008) showed that with a PM_{2.5} increase of 10 µg/m³ per day, lung cancer mortality increased by 15-27%.]

Susceptible groups with pre-existing lung or heart disease, as well as elderly people and children, are particularly vulnerable. For example, exposure to PM affects lung development in children, including reversible deficits in lung function as well as chronically reduced lung growth rate and a deficit in long-term lung function.

[A Paediatric Research panel study published in May 2018, outlines association of ambient PM 2.5 directly with school absence and symptoms in schoolchildren. The study included 20,291 observations in 615 schoolchildren, 8-13 years of age.]

The conclusions of the 2013 WHO report include:

- There is no evidence of a safe level of exposure or a threshold below which no adverse health effects occur.
- PM 2.5 is more dangerous than PM 10 because it easily penetrates deep into the human body. PM 2.5 can reach the alveoli through the nose and airways during breathing and can infiltrate the blood vessels and cause inflammation [10,11]. In this process, the blood vessels are damaged, which increases the risk of developing angina and suffering a stroke. The particles can embed themselves deep inside the lungs and then enter the bloodstream. The inflammation they cause is suspected of worsening many lung conditions, such as asthma and chronic obstructive pulmonary disease (COPD), and of contributing to the development of heart disease.
- Exposure to air pollution results in approximately 16% of lung cancer deaths, 11% of chronic obstructive pulmonary disease (COPD) deaths, and 13% of respiratory infection deaths.

Summary

The aviation industry has been slow and reluctant to measure accurately the incidence of air pollution at and around airports. No doubt this will change as air pollution becomes an urgent health concern to the whole nation.

A growing body of evidence points towards a historic underestimation of both the existence of the most harmful component of the pollution (PM2.5) from aviation, its persistence and ability to travel long distances, and its potentially devastating effects on health and shortening life spans, particularly in the most vulnerable ie. the elderly and children.

Child health experts have said families and parents are worryingly unaware of the severe damage air pollution is doing to young people in the UK. The executive director of Unicef, which carried out the work with the Royal College of Paediatrics and Child Health, **said British children were “in the grip of a public health emergency.”**

PM2.5 which is created in abundance by planes and airport equipment, is now being linked, empirically and medically, with just about every type of serious human illness and long term health syndrome, from heart attacks, stroke, damaged immunity and multiple sclerosis to COPD and cancer. Evidence exists to show that even small increases in PM2-5, above the norm, can have dramatic effects on health.

There is a plethora of studies and reports published on all these issues, far too many to research and list in this short paper. Believe it or not, I do have other paid work to be getting on with !

The applicant, RSP, has done everything in its power, to play down the existence of these harms, having been encouraged and strengthened in their application by politicians locally and in Westminster. They are at least correct, in assessing that this DCO could have serious political 'fall out' for everyone involved. Hence their transparent attempts to get 'top cover' for their dubiously motivated project.

So, the question this Board of Inspectors needs to answer, in the face of the growing body of scientific evidence and public awareness, is as follows.

Can they deliberately consign hundreds and possibly thousands of Ramsgate residents, old and young, (and to a lesser, but no less significant extent, the residents of Herne Bay), to living and working with levels of air pollution, which, in all probability, will, in time, be proven to be illegal, **where currently no such harm exists ?**

I look forward to seeing their decision and recommendations to Government.