

March 7, 2022

Subject: MVCCA Transportation Committee Points of Concern about the New Plan Amendment and Airport Noise Policy

## 1. Background

On July 28, 2020, the Fairfax County Board of Supervisors authorized a [Comprehensive Plan amendment](#) to consider locating residential uses between the 60-65 DNL<sup>1</sup> airport noise contours. The Board of Supervisors contend that doing so will enable more affordable housing to be built – even though just a small percentage of residential projects is actually set aside for affordable dwelling units and workforce housing.

The Supervisors' action was taken over the vehement objections of many residents, land-use and environmental groups and the Metropolitan Washington Airports Authority (MWAA). They objected because the Supervisors were approving developers' plans to build large, residential communities in Land Unit J – the Westfields area of Chantilly directly underneath noisy and heavily used flight paths of Dulles International Airport.

In 2019, MWAA updated its new noise-contour map delineating aircraft-noise decibel levels (DNL) in Westfields. The Board of Supervisors chose to disregard the new noise contours since it was based on projected flight operations over the next 20 years or so. As a result it allowed developers to construct homes based on MWAA's 1993 Noise Contour map.

On July 21, 2020 the Fairfax County Land-Use Policy Committee – chaired by Supervisor Kathy Smith (D-Sully), the supervisor in whose district three developers wanted to build 734 new homes. If the new MWAA noise contours were adopted the new residential would most likely have been rejected because of its extreme noise levels from the airport. So on July 21, 2020 the Supervisors decided to keep ignoring the updated contours and using the expired ones, instead. Supervisor Pat Herrity (R-Springfield). "To pretend they don't exist is a mistake." Supervisor Smith disagreed, and she had enough support from the other supervisors. She also refused to allow the admission of any information which might have changed anyone's minds.

The county approved the three, new residential projects in Westfields:

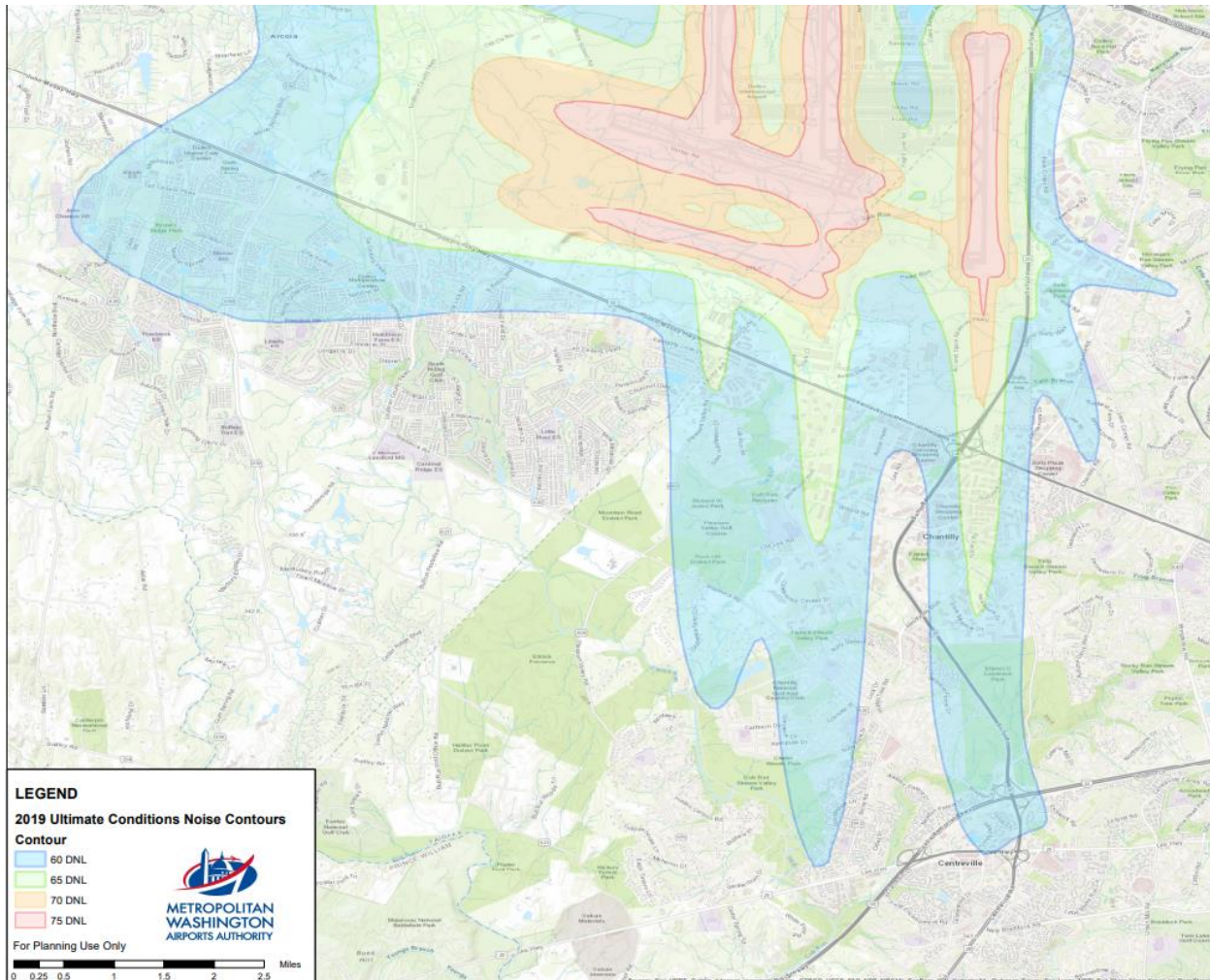
- Elm Street's 158 homes will be located directly underneath the main, center runway of Dulles for arriving flights at a frequency of 30-60 seconds apart – and a flightpath is just 1,000 -1,300 feet above [residents'] heads."

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<sup>1</sup> The day-night average sound level (DNL) noise metric is used to reflect a person's cumulative exposure to sound over a 24-hour period, expressed as the noise level for the average day of the year on the basis of annual aircraft operations.

- Boulevards at Westfield will bring 442 homes to a site where noisy, jumbo jets will fly overhead 24 hours/day, and land every 6-9 minutes.
- Stonebrook’s 134 homes will have overhead flights lower than 1,000 feet above them.

As a result, people considering buying homes, at Westfields community will be told about their homes’ proximity to the Dulles airport and that planes will be flying overhead. Based on the 29-year-old noise contours, the developer is able to say that residents there will be living in an area between the 60-65 DNL noise contours. That doesn’t change the fact that almost all of this project is actually in the 65 DNL contour, 65 DNL is identified by the FAA as the threshold level of aviation noise which is “significant.” The FAA has established 65 DNL as the threshold above which aircraft noise is considered to be incompatible with residential areas.



## 2. 1993 Noise Contours at Dulles are Outdated

The Fairfax County Board of Supervisors (BOS) chose to use the 1993 Noise Contours for preparing their New Plan Amendment and Airport Noise Policy. The basis for their decision was a

report dated March 5, 2020 by Johnson Aviation Consulting. There are 2 points made by Johnson Aviation that are speculative at best:

- The ultimate operational capacity of the existing four runways at Dulles International is well beyond the reasonably foreseeable projected demand for aircraft operations for the next 60 to 75 years.
- The ultimate operational capacity of the planned addition of a fifth runway at Dulles International is well beyond the reasonably foreseeable projected demand for aircraft operations over the next 80 to 90 years.

Johnson Aviation does not provide substantiating data to support these 2 findings. They do not take into consideration the growth and expansion of United Airlines at Dulles (IAD), the impact that the Metro Silver Line will have on growing passenger use at IAD, the population and demographic changes in Loudon and Prince William Counties and the efforts by MCAA to drive air traffic from Washington Reagan National Airport (DCA) to IAD. As a result the Fairfax County BOS is using 29 year old data for their Comprehensive Plan Amendment and Aircraft Noise Policy, which in turn will result in more residential development near or under the 1993 60-65 DNL noise contours.

### **3. Placing Homes Under Flight Paths**

Placing homes under the IAD flight paths is an unmitigated disaster which is entirely avoidable. It is simply bad public policy to allow residential development under a flight path to 3 parallel runways at IAD. The best way to cripple an airport is to allow residential developments to encroach. When that happens, noise-disclosure documents are a flimsy attempt to rectify an obvious mistake, and they fail the test of time.

Eventually, the affected residents grow weary of the noise, pressure grows for the airport to ‘do something,’ and shortsighted politicians find a way to curb airport operations. The FAA has more than 70 years’ experience managing airport-noise impacts on communities. Does Fairfax County presume superior expertise?”

Stonebrook residents will be the most affected by aircraft noise. Besides townhouses, it’ll have 110,000 square feet of open space – where families and children will experience the full blast of noise from jet airplanes flying just 1,000 feet above them, 24 hours/day.

### **4. New MCAA Noise Contours Rejected by BOS**

Airport noise contour maps derived from airport noise modelling are an essential noise management tool and form the basis for noise zoning policies and land-use planning decisions. They also contribute to the performance of Environmental Impact Assessments (EIS) at airports. Airport noise modelling combines the specific features of both flight path and ground aircraft noise models. Important input parameters are the atmospheric temperature, pressure and humidity, all of which may influence both the flight performances of the aircraft and the sound

propagation. In addition, aircraft specific data and airport operational information are required to compute the noise of each individual operation.

Reduction of noise at the receiver point is a means to reduce the effects of noise. This translates into limiting or reducing the number of people affected by significant aircraft noise.

MWAA's updated noise contours place the new residential site clearly inside the 65-70 DNL contour, with a day/night average decibel noise level of 65 decibels and above. Once again by using the 29 year old noise contour data, the developer can claim it's below 65 DNL. The homes will supposedly not exceed interior noise levels of 45 DNL based on developer plans to address interior noise levels from the airplanes. It is very doubtful that these residents will be able to open their windows or enjoy the outdoor space with the constant, low-flying airplanes.

## 5. Conflicting Policies

The same Fairfax County Supervisors that are urging MWAA and the FAA to address noise impacts of aircraft from DCA, voted in favor of ignoring the new MWAA Noise contour maps at IAD and supporting development of new residential construction in the 60-65 DNL noise contour. The County BOS decision is contrary to the principles and charter established by the MWAA CWG in 2015. **This action by the BOS undermines the efforts of the MWAA CWG representatives who are working with the FAA to reduce airplane noise in communities north and south of the DCA airport, including Mt. Vernon communities** that are experiencing noise impacts lower than what will be experienced in the new developments near IAD.

## 6. 55 and over Retirement Community in Loudon County within 1993 60-65 DNL Contours

Despite the efforts by MWAA to persuade Loudon County not to approve the development of new residential properties under the 1993 65 DNL contours, a retirement community and senior care facility was built near Runway 1L/19R and Runway 12/30, which is used for 70% of the flight departures. While residents of these facilities were provided notice of the airplane traffic MWAA is inundated with noise complaints from residents at this facility (23430 Rock Haven Way, Sterling VA).

## 7. Adverse Environmental Effects

Aircraft noise is one, if not the most detrimental environmental effect of aviation. The peer-reviewed literature shows that noise exposure can cause community annoyance, disrupt sleep, adversely affect academic performance of children, and can increase the risk for cardiovascular disease of people living in the vicinity of airports. Studies of aircraft noise on children's learning have concluded that aircraft noise exposure at school or at home is associated with children having poorer reading and memory skills. There is also an increasing evidence base, which suggests that children exposed to chronic aircraft noise at school have poorer performance on standardized achievement tests, compared with children who are not exposed to aircraft noise.

Residents, especially those that are outside will be exposed to jet engine exhaust particles and gases suspended in the air. Exhaust is a complex mixture of gases and fine particles. The carbon particle or soot content varies from 60-80% depending on the jet fuel used and contain chemicals such as nitrogen oxides, sulfur oxides, carbon dioxide, carbon monoxide, and fine particles called particulate matter (or "PM"). These chemicals occur naturally in the environment, but at high levels, are harmful to the health of both the individual and the environment. Exhaust may also include known or suspected cancer-causing substances such as benzene, arsenic, and formaldehyde and contain harmful pollutants that are frequent components of urban smog, such as nitrogen oxides. The potential for and type of possible health effects from exposure to such exhaust depends on how much exhaust is inhaled. As with most airborne exposures, this is partly determined by how close someone is to the source (proximity) and how long someone is inhaling the exhaust (duration of exposure). Directly breathing in large quantities of exhaust fumes may cause nausea, dizziness, and irritation of the eyes, nose and throat. Prolonged exposure to exhaust fumes may cause respiratory symptoms, such as coughing, chest tightness, breathlessness, and decrease in exercise tolerance, particularly in persons who are naturally predisposed or have a history of asthma or in persons with pre-existing lung problems. Exposures to exhaust fumes may aggravate respiratory symptoms and increase the risk of lung cancer and that the risk of death due to lung cancer rose with increasing diesel exhaust exposure.

#### **8. Higher safety risk to aircraft accidents and incidents**

According to the Flight Safety Foundation, approximately 56 percent of commercial jet airplane accidents occur during the approach and landing phases of flight and account for 44 percent of all fatalities worldwide. In contrast, the duration of the approach and landing phases typically is 16 percent of the total flight time. Thirteen (13%) of commercial airplane accidents occur during the departure climb out phase. The location of these new residential properties puts them in the most vulnerable accident phase categories.

TFOA ("Things Falling-Off Aircraft") is any piece of equipment falling from an aircraft, ranging in size from a simple rivet, frozen sewage (blue ice) up to a fan cowl. TFOA represents a safety risk which could cause serious or fatal injuries to people on ground in the new communities.

#### **9. No Safety and Risk Assessment was conducted**

There is no indication that the Fairfax County BOS conducted a Safety Risk Assessment (SRA) associated with the new residential properties under the IAD flight paths and the exposure to noise and safety risk. There is ample data and studies on-line that should have been examined and considered by the BOS before making their decision. Such as documented at <https://jdasoc.files.wordpress.com/2015/04/really-really-final-version-of-white-paper-on-faa-regulatory-framework.pdf>.and [https://www.lincoln.ne.gov/files/sharedassets/public/planning/reports-tools-amp-references/airport/far\\_appe.pdf](https://www.lincoln.ne.gov/files/sharedassets/public/planning/reports-tools-amp-references/airport/far_appe.pdf).

Fairfax County clearly failed to conduct adequate research and enough due diligence on the impact of IAD flight traffic will have on the new residences located under the flight paths and focused solely on the potential economic gains.

## **10. Effects of Aircraft Noise on Property Values**

Studies have shown that aircraft noise does decrease the value of residential property located around airports. Although there are many socio-economic factors which must be considered because they may negatively affect property values themselves, all research conducted in this area found aircraft noise results in negative effects ranging from a 0.6 to 2.3 percent decrease in property value per decibel increase of cumulative noise exposure.

In 1994 Booz-Allen & Hamilton, Inc. prepared a report titled "The Effect of Airport Noise on Housing Values: A Summary Report for the Federal Aviation Administration". The report describes a methodology for evaluating the impact of noise on housing values. The methodology essentially compares market prices in similar neighborhoods that differ only in the level of airport-related noise. In pilot studies using this method, Booz-Allen found that the effect of noise on prices was highest in moderately priced and expensive neighborhoods. In two paired moderately priced neighborhoods north of Los Angeles International Airport, the study found "an average 18.6 percent higher property value in the quiet neighborhood, or 1.33 percent per dB of additional quiet."

A 1996 study funded by the Legislature of the State of Washington used a somewhat similar methodology and found that the proposed expansion of Seattle-Tacoma Airport would cost five nearby cities \$500 million in property values and \$22 million in real-estate tax revenue.

In 1997 Randall Bell, MAI, Certified General Real Estate Appraiser, licensed real estate broker, and instructor for the Appraisal Institute, provided the results of his own professional analysis to the Orange County Board of Supervisors. Comparing sales of 190 comparable properties over six months in communities near Los Angeles International Airport, John Wayne Airport, and Ontario Airport, Bell found a diminution in value due to airport proximity averaging 27.4 percent. Bell has also developed a list of over 200 conditions that impact real estate values -- airport proximity is categorized as a "detrimental condition."

## **11. Dr. Sanford Fidell's report on noise metrics, "Analysis of the Technical Basis of FAA's Noise Regulatory Framework and its Application to the Chicago O'Hare Modernization Program" outlined key factors regarding airplane noise;**

The Basis for FAA selection of Ldn = 65 dB as a criterion of "significant" noise impact

- FAA's 1985 adoption of Ldn = 65 dB as a definition of "significant" noise impact was not based on objective analysis or systematic scientific research.
- The 65 dB level is based on outdated analysis of the relationship between noise exposure levels and the percentage of community residents adversely affected by noise.

FAA's current adherence to the 65 dB level is predicated on a **1992 report** by Federal Interagency Committee on Noise (FICON), which updates and accepts earlier statistical analysis methods.

- Since the 1992 FICON report, many subsequent statistical studies of the annoyance of aircraft noise show that the 65 dB value significantly understates both geographic extent, and hence the size of the population adversely impacted by aircraft noise. As explained further by Dr. Fidell, FAA's use of an annualized average DNL value of 65 dB has other flaws which render its definition of the significance of noise impact technically inaccurate.
- The tolerance of a particular community for exposure to aircraft noise can be quantified by means of research and surveys. This would permit estimation of a Community Tolerance Level (CTL) value for those in the vicinity of airports that would permit better-informed planning and zoning decisions to be made about the significance of noise impacts. It would also permit systematic and specific application of policy-based decisions about the percentage of a community that deserves protection from exposure to highly annoying aircraft noise.
- To remain consistent with the international scientific consensus (per ISO 1996- 1, "Description, measurement and assessment of environmental noise — Part 1: basic quantities and assessment procedures"), FAA must reduce its definition of "significant" noise impact by about an order of magnitude, to Ldn  $\approx$  55 dB. Failure to do so will deprive populations of communities of average sensitivity to aircraft noise protection from exposure to highly annoying noise.
- FAA's interpretive criterion for the significance of aircraft noise exposure applies only to a hypothetical community of average tolerance for aircraft noise. In reality, communities differ considerably from one another in the prevalence of annoyance induced by the same levels of noise exposure. If FAA wishes its criterion of significant noise impact to apply with uniform effect in different communities, the criterion must reflect community-specific differences in tolerance for noise exposure.

The Federal Aviation Administration (FAA) undertook a multi-year research effort to quantify the impacts of aircraft noise exposure on communities around commercial service airports in the United States (US). The goal of this research effort was to develop an updated and nationally representative civil aircraft dose-response curve, quantifying the relationship between aircraft noise exposure and community annoyance. The FAA report dated February 2021 provides substantiating data supporting Dr. Fidell's recommendation that the FAA must reduce its definition of "significant" noise impact to Ldn  $\approx$  55 dB.

**12. Summary** The decision by the Fairfax County Board of Supervisors to proceed with the Comprehensive Plan Amendment and the new aircraft noise policy was based solely on economics. No reference can be found that the County conducted research or studied the safety and risk factors associated with locating residential communities under 60-65 DNL noise contours. The long term negative effects of resident exposure to aircraft noise, especially in the 3 developments near Dulles referenced in paragraph 1 far outweigh the economic benefits.

**13. Recommendation**

The points listed in this document provide overwhelming arguments that no residential development should be allowed within the 60-65 DNL noise contour. The MVCCA Transportation Committee and the MVCCA General Council should not support the Comprehensive Plan Amendment and New Aircraft Noise Policy and should draft and submit a resolution to that effect.