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March 8, 2021

Mr. Kevin Welsh
Director, Office of Environment and Energy
Federal Aviation Administration

Docket Operations, M-30
US Department of Transportation
1200 New Jersey Avenue SE
Room W12-140, West Building, Ground Floor
Washington, DC 20590

Re: Docket No. FAA-2021-0037, Overview of FAA Aircraft Noise Policy and Research Efforts

Dear Mr. Welsh:

Thank you for the opportunity to comment on Federal Aviation Administration (FAA) Aircraft Noise Policy and Research Efforts.

The City of Minneapolis shares a border with Minneapolis-St. Paul International Airport (MSP), the 17th busiest airport in the United States. More than one million people live within ten miles of MSP. The community has a long history of robust engagement with the Metropolitan Airports Commission, which owns and operates the airport, and the FAA to support the airport while managing and mitigating noise impacts. We can bring a well-informed perspective to this inquiry.

Airports and airport-adjacent communities are in a symbiotic relationship and both benefit when the negative impacts from aviation are managed. A community benefits when residents and businesses can meet their needs for travel or transport. The airport benefits from serving a thriving community that is a desirable place to live, visit, and do business. Not only does the community produce business for the airport (about 60% of passengers at MSP originate or are destined for the metro area) but communities provide the workforce the airport depends on. In terms of the economic impact, it would be short-sighted to focus on the benefits of the free flow of commerce while not preventing economic, and other, harm on the ground.

It's a critical time to examine contributors to noise annoyance. With the transformation of the airspace that is occurring as Performance Based Navigation (PBN) procedures are implemented and the creation of paths with an enduring quality, it's more important than ever that impacts on the ground are understood and can be carefully considered. If these impacts are understood *and prioritized*, it will result in plans that are sustainable for all parties. What communities have known, and the Neighborhood Environmental Survey (NES) supports, is that 65 dB DNL is not an adequate way to quantify noise annoyance.

We believe that inadequate recognition of how operations affect communities, and insufficient prioritization of such impacts, are key contributors to the high level of annoyance revealed by the Neighborhood Environmental Survey.

Potential contributors to aviation-noise annoyance and recommendations for further investigation, analysis or research:

Number of planes. This may sound obvious, but it's important to note because the Day-Night Average Sound Level (DNL) relies on average sound and does not account for the number of planes. When relying on averages, 4 planes at 70 decibels could have the same average noise as 400 planes at 70 decibels. Clearly, this does not reflect the experience of noise by the community.

> **Recommendation:** Explore metrics that could be integrated into, or supplement, noise modeling to capture this impact. For example, the FAA could look at Number Above (Nx) or Time Above.

Frequency and concentration of planes. Residents are often annoyed when they hear one plane after another with little break. This condition can occur for a variety of reasons including market demand and decisions in the tower but has the potential to be created or greatly exacerbated by the implementation of PBN. PBN has been used to concentrate planes onto narrow, repeatable paths. Efforts to increase efficiency could also have the effect of reducing separation requirements allowing planes to be closer together. For these reasons, it's important to understand this as a contributor to annoyance -beyond just the "noise."

> **Recommendation:** Explore how to better measure the frequency of planes in noise modeling.

> **Recommendation:** Develop and use procedures that will reduce the frequency and concentration of planes over noise sensitive areas. For example, support efforts to disperse noise when appropriate using tools like divergent headings and runway rotation. Prioritize the use of corridors with more compatible zoning. Prioritize this issue in flight track design and control tower decisions.

> **Recommendation:** Strengthen practices to engage communities regarding operations or flight track design to find the best local solutions to mitigate impacts.

Time of day. When residents complain to the City, common themes are that they were eating dinner or "trying" to put the kids to bed. The time of day of noise and how it relates to common activities is important and except for the weighted metric for "nighttime," noise, modeling does not capture the relative annoyance.

> **Recommendation:** Analyze the impacts of time of day on noise disturbance and better account for relative annoyance in noise metrics. If DNL continues to be the basis for noise quantification it would be prudent to explore a metric like the Community Noise Equivalent Level (CNEL) which is used in California to help account for evening annoyance. It's also a widely adopted practice in Europe to use day-evening-night sound level metrics.

Sleep disturbance. Noise which awakens people or prevents them from sleeping can be particularly stressful and disruptive. We believe this is a significant contributor to annoyance and the NES phone survey lends support to this theory. According to the NES Analysis, a majority of respondents who reported being highly annoyed indicated that they experienced being "Startled", "Frightened", or "Awakened" by aircraft. Chronically disturbed sleep is associated with numerous negative health outcomes such as obesity, diabetes, and high blood pressure. Nighttime airplane noise has been linked to hypertension and cardiovascular disease. Chronic aircraft noise exposure in children is associated with impairment of reading and long-term memory and it's hypothesized that sleep disruption is the mediating factor.

> **Recommendation:** Better capture the impact of nighttime noise in modeling. Nighttime noise, now defined as 10 p.m. to 7 a.m., is weighted by an additional 10 decibels and helps account for relative annoyance of those planes. We strongly support this existing feature of the DNL metric. However, we

suggest exploring whether times within this window are more disruptive than others and assigning even great weight to them.

Recommendation: While we recommend that the FAA continue its research about the health impacts of nighttime noise, we also believe there's enough data about the harm of nighttime noise to warrant action now. Congress and the FAA should support strategies to reduce operations over people at night. Methods which are used elsewhere in the world include limiting hours of operations, encouraging flying at better hours with incentives, or recognizing the impact of nighttime noise with differential landing fees.

Public Expectations. It's possible that public expectations for what is acceptable have changed and the aviation industry is not keeping up. Strides have been made to reduce noise and emissions associated with many industries. When the Airport Noise and Capacity Act of 1990 (ANCA) was passed, it pushed the industry to meet stage 3 certification levels. ANCA provided forward momentum with the understanding that airports and communities will accept certain trade-offs for quieter aircraft. Today, communities remain locked into their part of the deal and, while new standards have been developed, the industry has not been substantially pushed to move beyond expectations set thirty years ago. Residents may also expect that operations can be better managed to reduce impacts.

Recommendation: Set new industry goals for noise and emissions reductions and allow airports to use more noise management tools.

Recommendation: Continue efforts to reduce noise and emissions at the source. Provide financial support and technical expertise to independent partners to develop new technology and incentivize or require the industry to implement improvements. Quantify the benefits of such improvements and capture that data in noise modeling.

Lack of trust. People are more bothered by noise when they think that no one cares about the impacts to their lives. They feel angry when the noise seems imposed upon them and they feel powerless to do anything. This frustration can be particularly acute when a change is made without communication or engagement. When communication does occur, it will only be effective if there's a foundation of trust. Around MSP, communities, the airport, and local FAA all put effort into cultivating trust, and we believe it's been critical to managing noise and balancing the needs of the community and the airport.

Recommendation: Foster a culture within the FAA that values communication with the public. Ensure clear, transparent and easy access to information about day-to-day operations or proposed changes. Invest the resources necessary to support this level of communication.

Recommendation: Significantly strengthen FAA engagement practices, especially regarding implementation of PBN. Build on efforts like the *Blueprint for Success to Implementing Performance Based Navigation* from the NextGen Advisory Committee. Give real weight to considerations on the ground when designing and implementing changes. Work collaboratively with airports and affected communities.

We hope these observations will help guide next steps. What is clear is that 65 dB DNL is not an adequate and complete measure of significant noise impacts. Noise modeling needs to be improved and supplemented with additional data to inform policy and planning. We also believe that significant impacts happen at a lower threshold.

Around MSP, homes that are within 60 dB DNL contours receive mitigation measures due to a legal agreement; This has been an important way to maintain livability and has the added benefit of fostering goodwill between the airport and its neighbors. While mitigation of homes is very important, we urge the FAA

to think more broadly about mitigation by reducing noise at the source, using noise-abating procedures, and carefully designing flight tracks.

As the FAA continues its research, we would like to emphasize again the importance of engaging the public and allowing that engagement to shape policy and planning. The best way to understand noise impacts is to talk to the people affected. The primary cause of noise annoyance may vary from one location to another and the best solutions are likely local.

Engagement and a thorough environmental assessment is particularly important around PBN design and implementation. NextGen is creating a roadmap in the sky, and one that has proven difficult to adjust once implemented. It's important to get things right from the start. Like all decisions about airport operations, there's a real effect on health, quality of life, climate, and the economy.

Thank you again for your work and the opportunity to comment. We look forward to continuing to engage as the work progresses.

On behalf of the City Minneapolis,

Linea M. Palmisano

Linea Palmisano, Minneapolis 13th Ward City Council Member