BEFORE THE ADMINISTRATOR OF FEDERAL AVIATION ADMINISTRATION
WASHINGTON, D.C.

PETITION FOR RULEMAKING SEEKING THE AMENDMENT OR THE PROMULGATION OF NEW REGULATIONS LIMITING AVIATION NOISE AND EMISSIONS OVER THE CITY OF MALIBU, CALIFORNIA

February 9, 2022

Communications regarding this document should be sent to Petitioners' Representative:

Steven M. Taber
LEECH TISHMAN FUSCALDO & LAMPL, INC.
200 South Los Robles Ave.
Suite 300
Pasadena, California 91101
(626) 796-4000 (phone)
(626) 795-6321 (fax)
staber@leechtishman.com

Counsel for Petitioner, the City of Malibu, California

Notice of Petition to:

Honorable Pete Buttigieg, Secretary
Department of Transportation
1200 New Jersey Avenue SE
Washington, D.C. 20590

Mr. John Putnam,
Deputy General Counsel
Department of Transportation
1200 New Jersey Avenue SE
Washington, D.C. 20500

Honorable Stephen Dickson, Administrator
Federal Aviation Administration
800 Independence Avenue SW
Washington, D.C. 20591

Mr. Marc Nichols
Chief Counsel
Federal Aviation Administration
800 Independence Avenue SW
Washington, D.C. 20591

TABLE OF CONTENTS

I. Statement of the Petitioner 6

II. Facts and Circumstances that Support and Demonstrate the Need for the Action 7

A. FAA's NextGen Project Has Failed to Protect Persons on the Ground from Increases in Aircraft Noise and Emissions 7

B. The SoCal Metroplex Project has caused an increase in aircraft noise and emissions over Malibu and surrounding areas 9

C. There is a disconnect between the findings in the Environmental Assessment for Southern California Metroplex and the residents' experience on the ground 13

III. Information and Arguments in Support of the Proposed Action, Including Technical and Scientific Data 16

A. Technical and Scientific Data Support the Finding that Aircraft Noise and Emissions are Detrimental to Public Health and Welfare 16

1. Aircraft noise has caused health risks to people living under flight paths 16

2. Aircraft emissions have caused health risk to people living under flight paths 25

B. FAA Has the Legal Authority and Duty to Promulgate Rules that Protect People on the Ground from Aircraft Noise and Emissions 28

1. FAA's role as "sovereign of the airspace" means not only managing that space for the benefit of aircraft, but also managing that space to protect people on the ground from aircraft noise and emissions 28

2. The U.S. Constitution and the Administrative Procedure Act provide the basis for FAA to promulgate rules and regulations protecting people on the ground 29

3. Under the Federal Aviation Act, FAA has a duty and the authority to promulgate rules governing aircraft in flight and to protect people and property on the ground 30

IV Proposed Actions 30

A. FAA's Response to the Problems Have Been Inadequate 30

B. Proposals 31

1. Supplemental Environmental Assessment to assess and analyze the environmental impacts of the SoCal Metroplex project on Southern California 31

2. Amend FAA Order 1050.1F to address unresolved issues with aircraft noise and emissions 33

3. Promulgate a Special Flight Rules Airspace over Malibu 40

V. Proposed Language Change to Regulations 41

A. Proposed Supplemental Environmental Assessment 41

B. Proposed Amendments to FAA Order 1050.1F 41

1. Thresholds of significance 41

2. Require use of ISO 1996-1:2016 45

3. Require development of a Health Impact Assessment 46

C. Changes to Usage of Airspace: Creation of Special Flight Rules Area Over Malibu 50

VI. Conclusion

I. Statement of the Petitioner.

Under the U.S. Constitution, the Administrative Procedure Act (APA), 5 U.S.C. § 553(e), and 14 C.F.R. §§ 11.61 – 11.103 of the Federal Aviation Regulations (FAR), the City of Malibu petitions the Department of Transportation (DOT) and the Federal Aviation Administration (FAA) to initiate a rulemaking proceeding to promulgate regulations. The intent of these proposals is to reduce the substantial increase in exposure to aircraft noise and emissions the residents of the City of Malibu, California, have experienced due to the re-design of the airspace over Southern California that took place as part of the Federal Aviation Administration's Next Generation of Air Transportation ("NextGen"). As the Supreme Court stated in *Burbank v. Lockheed Air Terminal*, 411 U.S. 624, 638-639 (1973), "[t]he Federal Aviation Act requires a delicate balance between safety and efficiency and the protection of persons on the ground." (citations omitted); *see also* 49 U.S.C. § 40103 and § 44715 (FAA Administrator has authority to "protect[ ] individuals and property on the ground" and "relieve and protect the public health and welfare from aircraft noise").

The City of Malibu believes that the current state of the Federal Aviation Regulations and FAA Orders are out of balance. FAA's current rules, regulations, and orders, particularly as they relate to the drafting of flight procedures, have over-emphasized "safety and efficiency" of the *aircraft in the airspace* while ignoring or downplaying the effects of aircraft noise and emissions on the safety and health of *persons on the ground*. These proposed rules and regulations would seek to not only resolve the issues facing the City of Malibu, but also are in the public interest and safety, particularly for those suffering from the effects of FAA's NextGen flight procedures.

Promulgating regulations addressing the issues raised by the City of Malibu would address, at least in part, the environmental issues caused by arrivals to Los Angeles International Airport (LAX) that were the subject of the Petition for Review filed by the City of Los Angeles. *See City of Los Angeles v. Federal Aviation Administration et al.,* Case No. 19-71581 (9th Cir., July 8, 2021) ("In sum, we conclude that the FAA violated NEPA, NHPA, and section 4(f) in issuing the amended [LAX] Arrival Routes").

II. Facts and Circumstances that Support or Demonstrate the Need for Action.

A. FAA's NextGen Project Has Failed to Protect Persons on the Ground from Increases in Aircraft Noise and Emissions.

FAA, "in an effort to modernize the National Airspace System, has introduced a new satellite-based air traffic control that it claims allows it to guide and track air traffic more precisely and efficiently"[1] across the country. The FAA has called this effort its "Next Generation Air Transportation System," or "NextGen," for short. NextGen includes the development and implementation of "area navigation procedures" or "RNAV" procedures in various regions around the United States. However, implementing FAA's NextGen procedures in the United States has caused widespread complaints across the country of increased aircraft noise and emissions.[2] The residents and local governments in Baltimore[3], Boston[4], Chicago[5],

---

[1] Judy Abel, *Malibu Livid Over Jet Noise Increase*, Malibu Times, December 6, 2017. http://www.malibutimes.com/news/article_0b558654-daba-11e7-a665-17fa2f0e6637.html

[2] Anita Snow, *New Flight Paths Lead to Airplane Noise Complaints Across U.S.*, Associated Press, October 23, 2017. https://apnews.com/article/2c040a68d76a4ab5b7420c0681a860e8.

Amy Zipkin, *GPS for Air Travel Came with Big Downsides: Noise, Then Lawsuits*, The New York Times, November 18, 2019. https://www.nytimes.com/2019/11/18/business/planes-noise-flight-paths.html.

Ashley Halsey III, *Inspector general's report says the FAA has bungled a $36 billion project*, The Washington Post, March 8, 2018. https://www.washingtonpost.com/local/trafficandcommuting/inspector-generals-report-says-the-faa-has-bungled-a-36-billion-project/2018/03/08/5436c6ba-22f6-11e8-badd-7c9f29a55815_story.html.

[3] Colin Campbell, *New Flight Plans at BWI Bring Jets Lower, Cause Headaches for Neighbors*, The Baltimore Sun, September 10, 2016. https://www.baltimoresun.com/maryland/anne-arundel/bs-md-bwi-noise-20160910-story.html.

[4] Fred Hanson, *Milton Meeting on Airplane Noise Draws Hundreds*, Patriot Ledger, December 4, 2015. https://www.patriotledger.com/article/20151204/NEWS/151207919.

[5] Paul Meincke, *FAA pressured to reconsider O'Hare noise problem*, ABC 7 Eyewitness News, September 12, 2014. https://abc7chicago.com/ohare-airport-noise-faa-federal-aviation-administration/306572/.

Denver[6], Los Angeles[7], Phoenix[8], Portland, Maine[9], San Diego[10], Washington D.C.[11], and various cities and towns in Northern California[12] have all called upon FAA to address the increase in aircraft noise and emissions caused by its implementation of NextGen flight procedures. Instead of balancing the safety and efficiency in the airspace with the safety, health, and welfare of the people on the ground as required by *Burbank v. Lockheed Air Terminal*, FAA has claimed that safety and efficiency in the airspace trump the safety, health, and welfare of the people on the ground. See https://www.faa.gov/about/mission (last accessed 02/07/2022). FAA has made it clear to communities affected by aircraft noise and emissions that alternative flight procedures that mitigate noise and emissions on the ground would only be considered if they also result in an increase in "safety and efficiency in the airspace."

---

[6] John Aguilar, *As Feds Prepare to Shift DIA Air Traffic Patterns, Gilpin County Is the Latest Community to Dread Plane Noise*, The Denver Post, December 16, 2019. https://www.denverpost.com/2019/12/16/denver-airport-noise-gilpin-metroplex-faa/.

[7] LAX: Dakota Smith, *L.A. is suing the FAA as residents are fed up with noisy planes in their neighborhoods*, Los Angeles Times, June 24, 2019. https://www.latimes.com/local/lanow/la-me-ln-flight-path-lax-faa-city-lawsuit-sue-noise-planes-20190624-story.html.

BUR: Anthony Clark Carpio, *L.A. City Attorney Feuer Sues FAA Over Airplane Noise in South San Fernando Valley*, Burbank Leader, December 12, 2019. https://www.latimes.com/socal/burbank-leader/news/story/2019-12-12/l-a-city-atty-feuer-sues-faa-over-airplane-noise-in-south-san-fernando-valley.

[8] CBS This Morning, *FAA's New Air Traffic Control System NextGen Causing Major Noise Pollution*, January 30, 2015. https://www.cbsnews.com/news/faa-new-air-traffic-control-system-nextgen-causing-major-noise-pollution/.

Wayne Schutsky, *Residents Vent to FAA about Noisy Flight Paths*, Scottsdale Progress, April 30, 2019. https://www.scottsdale.org/city_news/residents-vent-to-faa-about-noisy-flight-paths/article_913341ac-6859-11e9-a939-5726b12c2632.html.

[9] Peter McGuire, *Fed Up with Jetport Noise, Residents Ask FAA to Change Flight Paths*, Press Herald, August 1, 2019. https://www.pressherald.com/2019/08/01/sen-collins-asks-faa-to-address-jetport-noise/.

[10] Joe Deegan, *Airport Noise – from La Mesa to La Jolla*, San Diego Reader, August 1, 2018. https://www.sandiegoreader.com/news/2018/aug/01/cover-airport-noise-la-mesa-la-jolla/.

[11] Lori Aratani, *Arlington, Montgomery counties launch new effort in fight over airplane noise from National*, The Washington Post, November 7, 2020. https://www.msn.com/en-us/news/us/arlington-montgomery-counties-launch-new-effort-in-fight-over-airplane-noise-from-national/ar-BB1aNdiW.

[12] Los Altos: Bruce Barton, *Residents Make Noise with FAA Over Flight Paths*, Los Altos Town Crier, July 13, 2016. https://www.losaltosonline.com/news/sections/news/199-city-affairs/53248.

Palo Alto: Palo Alto Weekly Staff, *Editorial: Flawed new FAA NextGen air-traffic routing system needs reset*, Palo Alto Weekly, July 31, 2015. https://www.paloaltoonline.com/news/2015/07/31/editorial-flawed-new-faa-nextgen-air-traffic-routing-system-needs-reset.

Santa Cruz: Samantha Clark, *Santa Cruz NextGen flight path noise complaints get louder*, Santa Cruz Sentinel, June 5, 2015. https://www.santacruzsentinel.com/2015/06/05/santa-cruz-nextgen-flight-path-noise-complaints-get-louder/.

One of the primary issues confronting NextGen is that the precision of the NextGen technology and implementation concentrates aircraft noise in a smaller area. The residents in these areas often experience substantial increases over their historic noise and emission levels. Further, because aircraft noise from NextGen flight procedures may not reach the FAA's Day-Night Average Sound Level ("DNL") threshold of 65 dB, the FAA's National Environmental Policy Act (NEPA) review may find this change does not preclude the NextGen implementation even though the residents experience substantial, but not what the FAA deems to be "significant," increases in noise over the levels they have experienced historically. Likewise, the standards set in FAA Order 1050.1F are not sufficiently protective of air quality and the risks that aircraft emissions, such as ultrafine particulate matter and Nitrous Oxides, pose to the people living, working, and playing under flight paths.

To complicate matters two additional factors, appear to play a significant role. First, many of the flight patterns are new, so aircraft noise is affecting communities that have rarely experienced overflights in the past. Second, in some of these communities, the background or ambient noise levels are lower than in other neighborhoods affected by aircraft noise. In locations where ambient noise is lower, aircraft overflights are likely to be more noticeable even if the aggregate noise level is comparably lower.

Malibu residents have experienced a confluence of these factors creating a significant impact and sharp increase in aircraft noise and emissions.

B. The SoCal Metroplex Project has caused an increase in aircraft noise over Malibu and the surrounding areas.

The changes implemented by the FAA over Southern California resulted in more flight paths moving directly over the City of Malibu and the surrounding areas. As reported in the Malibu Times, "in the past few years, the FAA has steadily been implementing its new application called NextGen that tracks flight paths across the country. Routes have been consolidated into narrower areas and, in some cases, the altitudes planes fly lowered."[13] The FAA has maintained that "the narrowing of the flight paths makes it safer and noise will impact people on the ground less—it'll be more environmentally friendly."[14]

---

[13] Judy Abel, *Malibu Livid Over Jet Noise Increase*, Malibu Times, December 6, 2017.
[14] *Id.*

After conducting an Environmental Assessment, on August 31, 2016, the FAA signed a Finding of No Significant Impact and Record of Decision ("FONSI/ROD") determining that the changes in aircraft flight paths and altitudes implemented under the NextGen procedures would cause no significant or reportable noise increases within the Southern California Metroplex ("SoCal Metroplex") airspace. Based on the SoCal Metroplex Environmental Assessment ("EA"), FAA concluded in the FONSI/ROD that the NextGen flight plans would not "significantly" affect the quality of human environment nor exceed thresholds of significance for any environmental impact category under NEPA, including noise and air quality.

However, since the implementation of the NextGen flight procedures at LAX on April 8, 2017, the residents of Malibu have been severely affected by an increase in noise from aircraft arriving at LAX. Before the NextGen flight procedures were implemented, a larger number of aircraft arriving at LAX flew over unpopulated land and were spread out over a larger area. After NextGen, that is no longer the case. The NextGen flight procedures are now concentrated over Malibu. This change has been confirmed by graphics below, shown in Google Earth files supplied by the FAA on the website "metroplexenvironmental.com." Figure 1 shows the original flight procedures published to fly above Malibu and the surrounding communities. After implementing the NextGen procedures, several additional flight procedures had been added to fly above the City of Malibu. Besides the previous waypoints WAKER, SADDE, GHART and BAYST, the SoCal Metroplex added new waypoints KEVVI, MOOS, KILIE and LADYJ – all over Malibu. *See* Figure 2 (new waypoints shown in red).

Figure 1 – Pre-Metroplex Flight Procedures above Malibu with waypoints (taken from Google Earth Files on http://metroplexenvironmental.com)

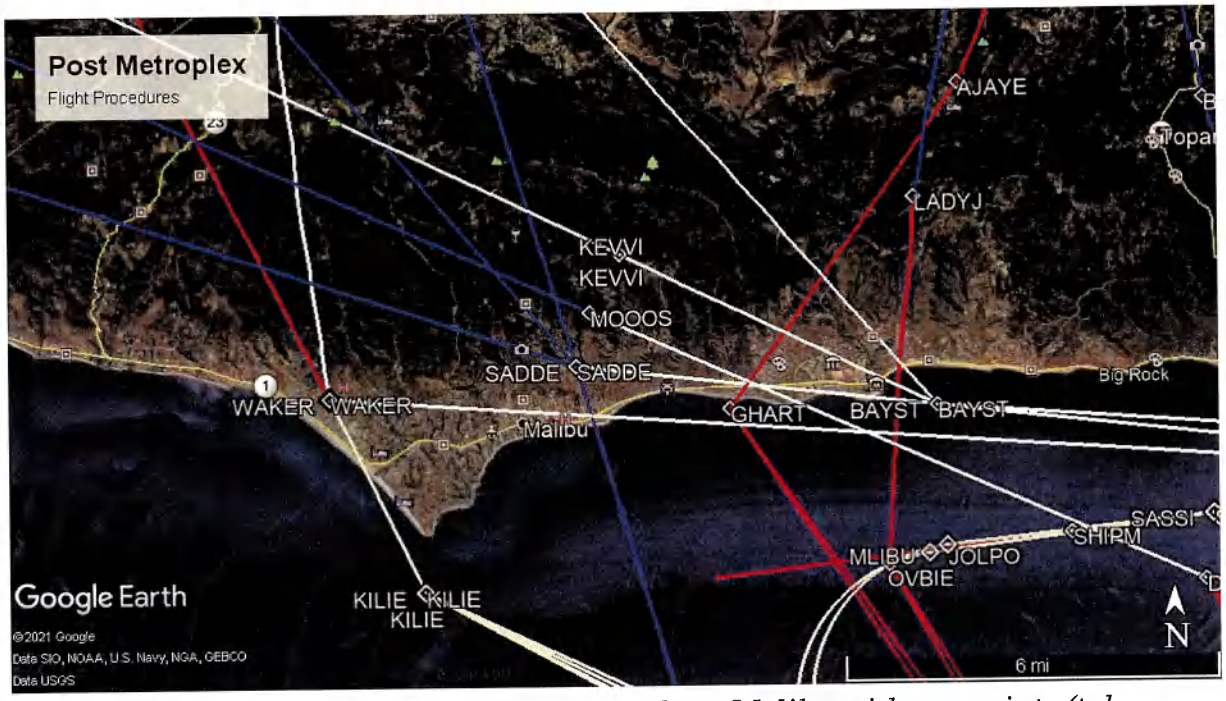

Figure 2 – Post Metroplex Flight Procedures above Malibu with waypoints (taken from Google Earth files on http://metroplexenvironmental.com)

To better understand the increase in aircraft traffic over Malibu, one need only look at the flight tracks supplied to the public by FAA as part of the SoCal Metroplex. Figure 3 represents the flight tracks as they existed before implementing NextGen. Figure 4 on the next page represents the flight tracks above Malibu after implementing the NextGen flight procedures. There is a noticeable increase in the number of flight tracks and concentration above Malibu.

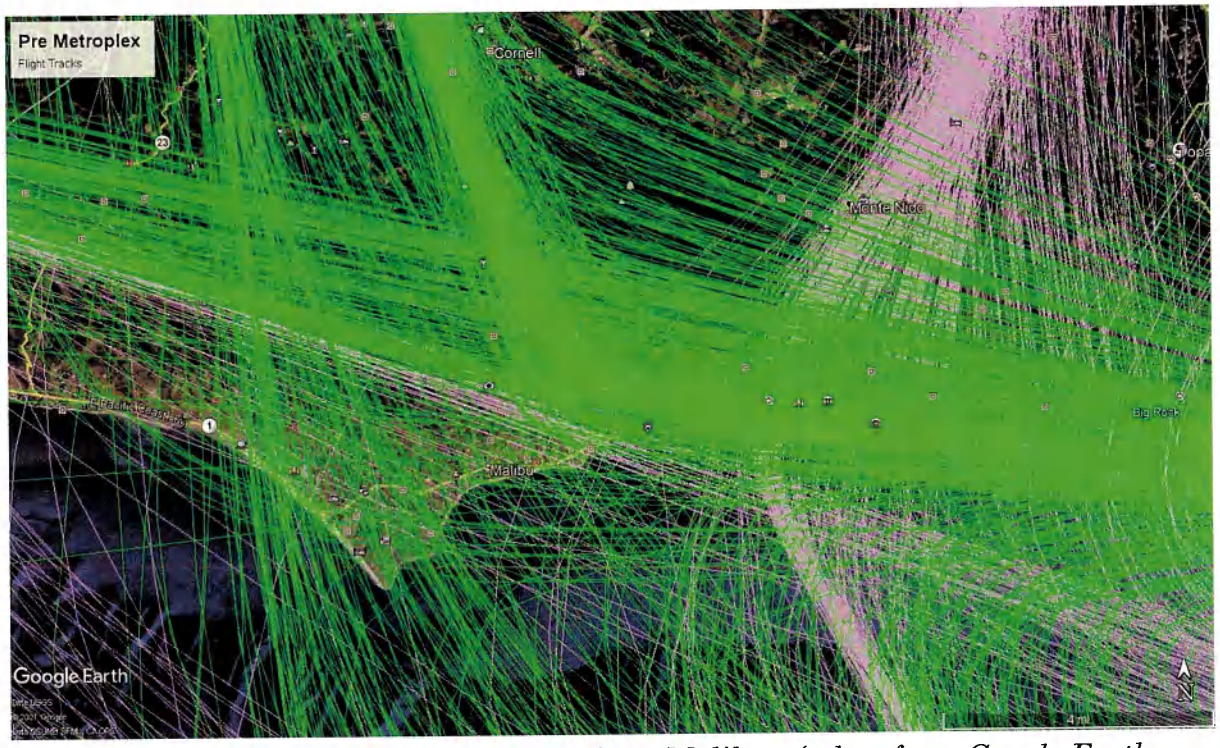

Figure 3 – Pre-Metroplex Flight Tracks Above Malibu - (taken from Google Earth files on http://metroplexenvironmental.com)

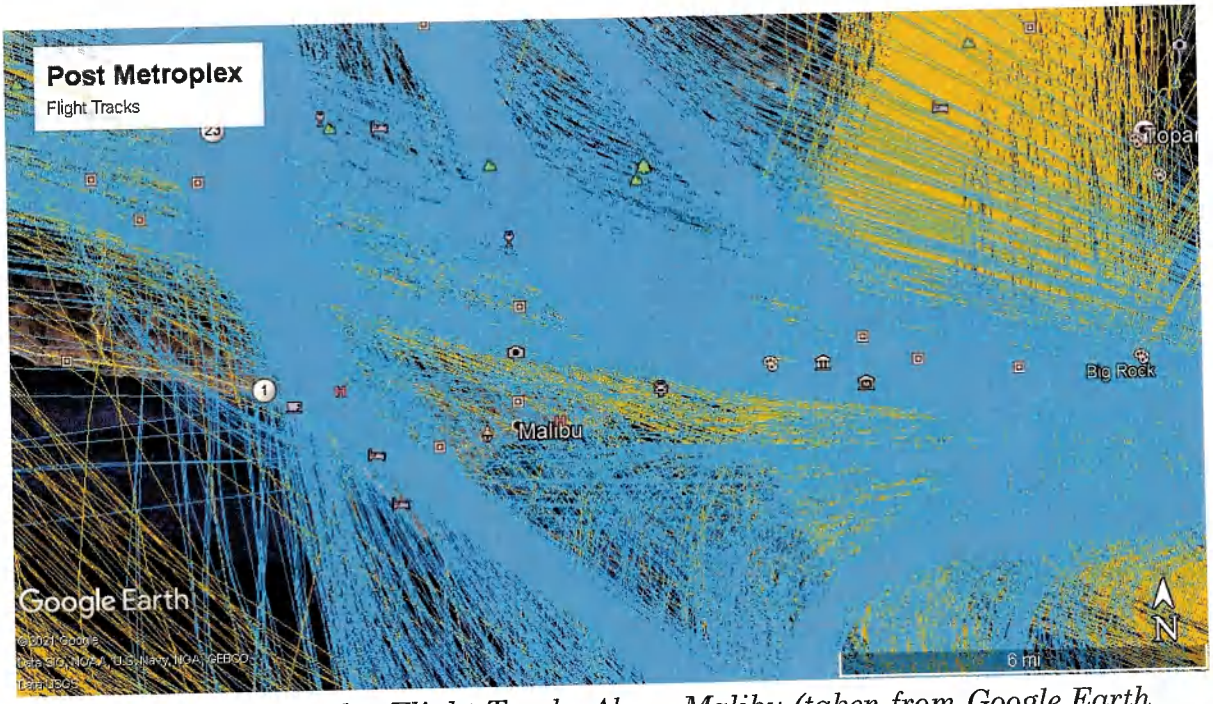

Figure 4 – Post-Metroplex Flight Tracks Above Malibu (taken from Google Earth files on http://metroplexenvironmental.com)

These graphics confirm the residents of Malibu's experience. Since the implementation of the SoCal Metroplex project air traffic over Malibu and the surrounding communities has increased significantly. NextGen technology has altered the flight paths of aircraft operating to and from Los Angeles International Airport (LAX) and other surrounding airports, causing aircraft to fly directly over Malibu and the surrounding communities at lower altitudes. These changes to the flight paths have created a de facto "community in the vicinity of an airport." While located approximately 27 air miles from LAX, Malibu is in immediate proximity to inbound aircraft as though Malibu was near the airport. The change in flight activity over Malibu has caused the residents of Malibu and the surrounding communities to experience an increased exposure to disruptive airplane noise, and an increased exposure to ultrafine particulate matter and Nitrous Oxides polluting their air.

C. There Is a Disconnect Between the Findings in the Environmental Assessment for Southern California Metroplex and The Residents' Experience on the Ground.

In adopting the FONSI/ROD, the FAA made an environmental determination that the SoCal Metroplex project (the "Project") would not cause significant

environmental impact. When FAA undertook the EA for the Project under FAA Order 1050.1E, [15] it used the Noise Integrated Routing System (NIRS)[16] to model the noise impacts for the Project because the Project involved a study area larger than the immediate vicinity of an airport, incorporates more than one airport, and includes actions above 3,000 feet AGL. The FAA applied its "criteria of significance" to determine whether the Project would cause a significant noise impact. Noise was analyzed during the year in which implementation of the Project would be initiated (2016) and projected for a five-year look-ahead (2021). The results identified the differences in DNL noise exposure between the two alternatives (Proposed Action compared to No Action Alternative)[17] to determine if implementing the Proposed Action would cause "significant" noise impacts.

According to the FAA, only a DNL increase of 1.5 dB or higher in areas exposed to noise levels above DNL 65 dB is a "significant" increase that would give rise to a finding of "significant impact." FAA's Order 1050.1F does states that DNL increases of 3 dB or higher in areas exposed to noise levels between DNL 60 dB and 65 dB and DNL increases of 5 dB or higher in areas exposed to noise levels between DNL 45 dB and 60 dB constitute "reportable noise increases." However, despite being "reportable," FAA deems these increases not to be "significant" and, therefore, FAA does not mitigate them.

In the Environmental Assessment, FAA told residents that they had nothing to fear because the Project would not cause any "significant impact" to the environment:

Q: Will the new procedures increase the noise generated from aircraft?

---

[15] FAA Order 1050.1F replaced FAA Order 1050.1E on July 16, 2015 ("FAA Order 1050.1F"). It serves as the FAA's policy and procedures for compliance with the National Environmental Policy Act (NEPA) and implementing regulations issued by the Council on Environmental Quality (CEQ). It updates FAA Order 1050.1E to provide a clear, concise, and up-to-date discussion of the FAA's requirements for implementing NEPA and clarifies requirements to facilitate timely, effective, and efficient environmental reviews of FAA actions, including NextGen improvements.

[16] NIRS has since been replaced by the Aviation Environmental Design Tool (AEDT). According to FAA, "AEDT is a software system that dynamically models aircraft performance in space and time to produce fuel burn, emissions and noise. Full flight gate-to-gate analyses are possible for study sizes ranging from a single flight at an airport to scenarios at the regional, national, and global levels. AEDT is currently used by the U.S. government to consider the interdependencies between aircraft-related fuel burn, noise and emissions.".

[17] The FONSI/ROD also considered an alternative project alongside the Project.

A: The FAA's environmental analysis for the project calculated noise at more than 330,000 locations throughout the study area. It showed the Proposed Action would not result in any significant or reportable noise increases under the National Environmental Policy Act. Some people will experience slight noise decreases, some will see no changes, and some will experience small noise increases.

Q: What is the FAA going to do to mitigate the noise increases that some people will experience?

A: The project will not exceed thresholds of significance for any environmental impact category, so no mitigations are being proposed[18]

However, despite these assurances, the Project moved flight paths and lowered flight altitudes causing an increase in noise levels that inflicted and continues to inflict great distress and to negatively affect the health and quality of life of the residents of the City of Malibu and the surrounding areas. The disconnect between the FAA's noise analysis and the experience on the ground raises two questions. One, if the FAA is using the best and most up-to-date scientific methods in determining the noise impacts on communities, why are so many communities being affected by increases in noise? And two, do FAA's rules, regulations and orders properly protect persons on the ground from the health risks caused by aircraft noise and emissions? The outcry and evidence from those on the ground shows the answer is "no." This Petition for Rulemaking seeks to rectify that deficiency and resolve the increased exposure to aircraft noise and emissions from which the residents of Malibu suffer.

[18] http://www.metroplexenvironmental.com/socal_metroplex/socal_questions.html

III. Information and Arguments in Support of the Proposed Actions, Including Relevant Technical and Scientific Data.

A. Technical and Scientific Data Support the Finding that Aircraft Noise and Emissions are Detrimental to Public Health and Welfare.

1. Aircraft noise has caused health risks to people living under flight paths.

a. Aircraft noise causes an increased risk of cardiovascular disease, hospitalizations, and mortality.

By concentrating flights into narrow flight paths, NextGen flight procedures, like those at issue here, increase the risk for cardiovascular disease, hospitalizations, and mortality. The causal connection between aircraft noise and this increased health risk is well-supported by a growing body of scientific evidence. Two large studies have found associations between aircraft noise and heart disease and stroke. In a 2013 Harvard University study, researchers examined hospitalization rates in 6 million adults aged 65 years and over living near 89 US airports. The study concluded there is a statistically significant association between exposure to aircraft noise and risk of hospitalization for cardiovascular diseases among older people living underneath flight paths.[19] A second 2013 study examined hospitalization and mortality in a population of 3.6 million potentially affected by aircraft noise from London Heathrow airport.[20] The conclusion in that study was that aircraft noise was associated with increased risks of stroke, coronary heart disease, and cardiovascular disease for both hospital admissions and mortality.

Two additional studies discussed below have found connections between aircraft noise and heart disease and stroke. In one study, using data collected between 2004 and 2006 on 4,712 participants who lived underneath flight paths in six European countries, researchers concluded that individuals exposed to aircraft

---

[19] Correia AW, Peters JL, Levy N, Melly S, Dominici F., *Residential exposure to aircraft noise and hospital admissions for cardiovascular diseases: Multi-airport retrospective study,* 347 BMJ f5561, (October 8, 2013).

[20] Hansell AL, Blangiardo M, Fortunato L, Floud S, de Hoogh K, Pecht D, et al., *Aircraft noise and cardiovascular disease near Heathrow airport in London: Small area study,* 347 BMJ f5432 (October 8, 2013).

noise over many years showed an increased risk of heart disease and stroke.[21] Likewise, a census-based study of 4.6 million individuals in Switzerland concluded that aircraft noise was associated with mortality from myocardial infarction.[22] The study noted that the association does not appear to be "explained by exposure to particulate matter air pollution, education, or socioeconomic status of the municipality."

i. Aircraft noise causes an increased risk of hypertension.

Besides causing cardiovascular disease, aircraft noise is also linked to an increase in hypertension among those exposed. Two meta-analyses[23] relating to seven epidemiological studies found a correlation between aircraft noise exposure and hypertension in adults.[24] A 2008 field study of 140 individuals living near four European airports found increases in blood pressure during the night sleeping period related to aircraft operations.[25] Short-term experimental studies in healthy adults[26] and those with existing cardiovascular disease[27] have found links between aircraft noise at night and next-morning blood pressure and blood vessel functions.

ii. Aircraft noise increases the risk of dementia in older individuals.

Besides an increased risk of cardiovascular disease and hypertension, a recent study confirms that aircraft noise also causes an increased risk of developing

---

[21] Floud S, Blangiardo M, Clark C, Babisch W, Houthuijs D, Pershagen G, et al., *Reported heart disease and stroke in relation to aircraft and road traffic noise in six European countries - The HYENA study*, 23 Epidemiology 39 (2012).

[22] Huss A, Spoerri A, Egger M, Roosli M. *Aircraft noise, air pollution, and mortality from myocardial infarction,* 21 Epidemiology 829 (2010).

[23] Meta-analyses combine evidence from several studies and are considered to provide the highest ranked research and to provide stronger evidence than single studies.

[24] *See* Babisch W, Kamp I., *Exposure-response relationship of the association between aircraft noise and the risk of hypertension.* 11 Noise Health 161 (2009). *See also* Huang D, Song X, Cui Q, Tian J, Wang Q, Yang K., *Is there an association between aircraft noise exposure and the incidence of hypertension? A meta-analysis of 16784 participants,* 17 Noise Health 93 (2015).

[25] Haralabidis AS, Dimakopoulou K, Vigna-Taglianti F, Giampaolo M, Borgini A, Dudley ML, et al., *Acute effects of night-time noise exposure on blood pressure in populations living near airports,* 29 Eur. Heart J. 658 (2008).

[26] Schmidt FP, Basner M, Kroger G, Weck S, Schnorbus B, Muttray A, et al., *Effect of nighttime aircraft noise exposure on endothelial function and stress hormone release in healthy adults,* 34 Eur. Heart J. 3508 (2013).

[27] Schmidt F, Kolle K, Kreuder K, Schnorbus B, Wild P, Hechtner M, et al., *Nighttime aircraft noise impairs endothelial function and increases blood pressure in patients with or at high risk for coronary artery disease* 104 Clin. Res Cardiol. 23 (2015).

dementia later in life.[28] "These findings suggest that within typical urban communities in the United States, higher levels of noise may impact the brains of older adults and make it harder for them to function without assistance. This is an important finding since millions of Americans are currently impacted by high levels of noise in their communities," said senior author Sara D. Adar, ScD, of the University of Michigan School of Public Health, Ann Arbor.[29] Professor Adar added that "although noise has not received a great deal of attention in the United States to date, there is a public health opportunity here as there are interventions that can reduce exposures both at the individual and population level." *Id.* This study underscores the need for FAA to reduce exposure to aircraft noise to better protect older adults living in Malibu.

b. Aircraft Noise Causes Sleep Disturbance for Those Who Live Under the Flight Paths.

"Sleep undoubtedly counts as one of life's basic needs," the court concluded in *Harper v. Showers*, 174 F.3d 716, 720 (5th Cir. 1999). The Second Circuit agreed that "[n]o reasonable person would disagree that "sleep is critical to human existence." *Walker v. Schult*, 717 F.3d 119, 126 (2d Cir. 2013). Sleep is a biological imperative, and a very active process that serves several vital functions for human life. Undisturbed sleep of sufficient length is essential for daytime alertness and performance, quality of life, and health.[30] The epidemiologic evidence that chronically disturbed or curtailed sleep is associated with negative health outcomes (such as obesity, diabetes, and high blood pressure) is overwhelming. Aircraft noise-induced sleep disturbance is considered the most deleterious non-auditory effect of aircraft noise.

---

[28] Weuve J, D'Souza J, Beck T, Evans DA, Kaufman JD, Rajan KB, Mendes de Leon CF, Adar SD, *Long-term community noise exposure in relation to dementia, cognition, and cognitive decline in older adults,* Alzheimer's & Dementia: The Journal of the Alzheimer's Association (October 20, 2020).
[29] https://www.eurekalert.org/pub_releases/2020-10/w-cnm101920.php (last accessed December 23, 2020).
[30] Fritschi L, Brown AL, Kim R, Schwela DH, Kephalopoulos S, editors. *Burden of Disease From Environmental Noise*. Bonn, Germany: World Health Organization (WHO); 2011. *See also* EU Parliament Directive 2002-49-EC. (The WHO has adopted the underlying principles of European Parliament's Directive 2002 in this publication. *See* the "introduction" section to the WHO publication: *Burden of Disease From Environmental* Noise. In recognition of the significant environmental risk from noise pollution, European Parliament and Council adopted Directive 2002/49/EC of 25 June 2002 to manage environmental noise. *Id.* In turn, the EU Parliament has mandated all EU Member States to develop a noise map and action plan to manage noise as evidence regarding the health effects of environmental noise has mounted in the recent years. *Id.*).

Muzet A, *Environmental noise, sleep and health,* 11 Sleep Med. Rev. 135 (2007).

In 2012, researchers conducted a systematic review to clarify the causal link between aircraft noise exposure and sleep disturbance.[31] The researchers reviewed 12 studies that dealt with sleep disturbances. Of those studies surveyed, four were determined to be of high quality, five were considered of moderate quality and three were considered of low quality. All moderate- to high-quality studies showed a link between aircraft noise events and sleep disturbances such as awakenings, decreased slow wave sleep time or use of sleep medication.

Four years later, in 2016, researchers investigated the relationship between sleep disturbance and exposure to aircraft noise on almost 4,000 residents living near an airport.[32] The study concluded that the prevalence of insomnia and daytime hypersomnia (excessive daytime sleepiness) was higher in the aircraft noise exposure group, as compared to the control group. The study concluded there is a causal relation between exposure to aircraft noise and sleep disturbances.

Research has shown a relationship between aircraft noise exposure and sleep disturbance and a link between noise-induced sleep disturbance and long-term health consequences. The residents underneath flight paths are now waiting for the policymakers to help mitigate the effects of aircraft noise on their sleep.

c. Aircraft Noise Has an Impact on Children's Learning and Low Weight at Birth.

The aircraft noise generated by aircraft flying above Malibu will affect children in schools located underneath flight paths. Recent studies show that children born to mothers living underneath flight paths are born with lower-than-normal birth weight.

i. Chronic exposure to aircraft noise negatively affects children's ability to learn.

Reviews of how noise, and in particular aircraft noise, affect children's learning have concluded that aircraft noise exposure at school or at home is

---

[31] Perron S, Tétreault LF, King N, Plante C, Smargiassi A, *Review of the effect of aircraft noise on sleep disturbance in adults*, 14 Noise & Health 58 (2012).

[32] Kyeong Min Kwak, Young-Su Ju, Young-Jun Kwon, Yun Kyung Chung, Bong Kyu Kim, Hyunjoo Kim, Kanwoo Youn, *The effect of aircraft noise on sleep disturbance among the residents near a civilian airport: a cross-sectional study*, 28 Annals of Occupational and Environmental Medicine 38 (2016).

associated with children having poorer reading and memory skills.[33] There is also increasing evidence suggesting 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. The RANCH study (Road traffic and Aircraft Noise and children's Cognition & Health) is a large-scale cross-sectional study of 2,844 children aged 9–10 years from 89 schools around London Heathrow, Amsterdam Schiphol, and Madrid Barajas airports. It found a causal link between aircraft noise and poorer reading comprehension and poorer recognition memory.[34] These associations were not explained by air pollution.[35] Children's aircraft noise exposure at school and that at home are often highly correlated.[36] In the RANCH study, night-time aircraft noise at the child's home was also associated with impaired reading comprehension and recognition memory.[37]

ii. Chronic aircraft noise exposure is linked to low birth weight.

Health economists from Lehigh University, Lafayette College and the University of Colorado, Denver, pinpointed a causal link between aircraft noise and low birth weight.[38] This study focused on the effects of aircraft noise on babies' health at birth, specifically low birth weight born to mothers living near Newark Liberty International Airport after implementing NextGen flight procedures at the airport. The study concluded that low birth weight was tied to implementing NextGen flight procedures. The flight procedures over Malibu are also NextGen flight procedures. One economist, Muzhe Yang of Lehigh University stated that "[o]ur findings have important policy implications regarding the trade-off between flight pattern optimization and human health. This is especially important given

---

[33] Clark C., *Aircraft Noise Effects on Health: Report Prepared for the UK Airport Commission. Report Number 150427.* London: Queen Mary University of London, (2015).
[34] Stansfeld SA, Berglund B, Clark C, Lopez-Barrio I, Fischer P, Ohrstrom E, et al. *Aircraft and road traffic noise and children's cognition and health: A cross-national study,* 365 Lancet 1942 (2005).
[35] Clark C, Crombie R, Head J, van Kamp I, van Kempen E, Stansfeld SA., *Does traffic-related air pollution explain associations of aircraft and road traffic noise exposure on children's health and cognition? A secondary analysis of the United Kingdom sample from the RANCH project,* 176 Am. J. Epidemiol. 327 (2012).
[36] Clark C, Martin R, van Kempen E, Alfred T, Head J, Davies HW, et al., *Exposure-effect relations between aircraft and road traffic noise exposure at school and reading comprehension - The RANCH project,* 163 Am. J. Epidemiol. 27 (2006).
[37] Stansfeld SA, Hygge S, Clark C, Alfred T., *Night time aircraft noise exposure and children's cognitive performance,* 12 Noise Health 255 (2010).
[38] Argys, L.M., Averett, S.L., Yang, M., *Residential noise exposure and health: Evidence from aviation noise and birth outcomes,* 103 Journal of Environmental Economics and Management 102343 (2020).

the long-term negative impact of low birth weight on a range of later-life outcomes such as lifetime earnings, educational achievement and long-term health."[39]

d. Aircraft noise causes poorer mental health.

Studies have also been conducted to show the link between aircraft noise exposure and poorer well-being, lower quality of life, and psychological ill health. In a 2020 study, researchers determined that noise annoyance, particularly from aircraft, is associated with depression, anxiety, and sleep disturbance over a five-year period.[40] The research concluded that over the five-year period, general noise annoyance remained stable and that "daytime noise annoyance predicted new onset of depressive, anxiety symptoms (also nighttime annoyance) and sleep disturbance." These results "indicate the need to provide regulatory measures in affected areas to prevent mental health problems." These results confirmed the findings in a 2010 study of 2,300 residents near Frankfurt airport that annoyance was associated with self-reported lower quality of life.[41]

e. Aircraft Noise Has Increased the Community's Annoyance with Environmental Noise.

i. International Organization for Standardization creates standards to address elevated levels of community annoyance from aircraft noise.

Community annoyance refers to the average evaluation of the disturbing aspects or nuisance of a noise situation by a "community" or group of residents, combined in a single outcome. To facilitate comparisons and data pooling, a standardized annoyance question was proposed by members of the International Commission on Biological Effects of Noise,[42] and was adopted by International

---

[39] https://www2.lehigh.edu/news/muzhe-yang-how-airplane-noise-affects-fetal-health (last accessed December 23, 2020).

[40] Beutel, M.E., Brähler, E., Ernst, M., *Noise annoyance predicts symptoms of depression, anxiety, and sleep disturbance 5 years later. Findings from the Gutenberg Health Study*. 30 European Journal of Public Health, 487 (2020).

[41] Schreckenberg D, Meis M, Kahl C, Peschel C, Eikmann T., *Aircraft noise and quality of life around Frankfurt Airport*, 7 Int. J. Environ. Res. Public Health 3382 (2010).

[42] Fields JM, De Jong RG, Gjestland T, Flindell IH, Job RF, Kurra S, et al., *Standardized general-purpose noise reaction questions for community noise surveys: Research and a recommendation*, 242 J. Sound Vibr. 641 (2001).

Organization for Standardization ("ISO") as TS 15666.[43] The percentage of highly annoyed respondents is considered the main indicator of community annoyance. Using a common question has allowed researchers to compare studies from around the globe.

Because of this step forward, in 2016, the ISO published a new standard to assess community annoyance because of environmental noise, such as aircraft noise. ISO 1996-1:2016, *Acoustics – Description, measurement and assessment of environmental noise* assists policymakers in predicting the potential annoyance response of a community to long-term exposure to various types of environmental noises, including aircraft noise. Although the U.S. has approved ISO 1996-1:2016 as being "state of the art," and ready for use in the United States, FAA has refused to implement it in assessing aircraft noise in communities. Use of this tool in developing flight procedures would allow FAA to better evaluate and manage aircraft noise exposure. See pp. 35-40, *infra* for complete discussion of ISO 1996-1:2016.

ii. Community annoyance from aircraft noise is increasing.

In 2017, the United Kingdom Civil Aviation Authority undertook a survey of "noise attitudes." The study examined evidence on attitudes to aircraft noise around airports in England, including the effects of aircraft noise on annoyance, well-being, and health. It found that the level of noise exposure that leads to significant community annoyance has fallen from 57 dB L_{Aeq} (in a previous survey) to 54 dB L_{Aeq}.

In 2016, the long-term German study entitled, "Noise-Related Annoyance, cognition, and Health" (NORAH) concluded there has been a change in annoyance responses: people are now more highly annoyed by aircraft noise than 30 years ago.[44] The NORAH study examined noise responses following the opening of a new runway, and implementation of a night curfew. The NORAH study mentions that several attempts are being made at trying to explain the variance within the annoyance response, using modelling to calculate the weight of non-acoustic factors.

---

[43] IS Organization, *ISO TS 15666: Acoustics- Assessment of Noise Annoyance by Means of Social and Socio-Acoustic Surveys* (2003).

[44] Schreckenberg, D. et al. *Effects of aircraft noise on annoyance and sleep disturbances before and after the expansion of Frankfurt Airport – results of the NORAH Study WP1 'Annoyance and Quality of Life'*, Internoise Congress, Hamburg (2016).

The NORAH study concluded that more people were "highly annoyed" when they experienced an increase in aircraft noise and that annoyance remains through the years. That is, people do not habituate to aircraft noise.

Moreover, annoyance with aircraft noise amongst the affected population is increasing, not decreasing. The authors of 2011 report looked at datasets from separate airports in various parts of the world, including the U.S. from 1967 until 2005.[45] The results suggested there has been a significant increase in annoyance over the years. Instead of a gradual increase, the study appeared to show increased levels of annoyance from 1996 onward. This is despite FAA's self-congratulatory declarations that aircraft noise is decreasing.[46]

iii. FAA's recent Neighborhood Environmental Survey underscores growing community annoyance with aircraft noise.

The method for representing the community response to noise is known as the "Schultz Curve," which is a dose-response curve developed in the 1970's. The noise thresholds used for current FAA noise policy are informed by the "Schultz Curve." While the "Schultz Curve" remains the accepted standard for describing transportation noise exposure-annoyance relationships, its original supporting scientific evidence and social survey data were based on information available in the 1970s. The last in-depth review and revalidation of the Schultz Curve was conducted in 1992 by the Federal Interagency Committee on Noise ("FICON Report"). More recent analyses have shown that aviation noise results in annoyance levels higher than other modes of transportation. Recent international social surveys have also generally shown higher annoyance than predicted by the Schultz Curve. These analyses and survey data indicate that the Schultz Curve may not reflect the current U.S. public perception of aviation noise.

In 2015 and 2016, FAA conducted a nationwide survey to measure the relationship between aircraft noise exposure and annoyance in communities underneath flight paths. This survey captured the community response to a modern fleet of aircraft as they are being flown today and it used best practices in terms of

---

[45] Janssen, S. et al., *Trends in aircraft noise annoyance: the role of study and sample characteristics,* 129 J. Acoust. Soc. Am. 1953 (2011).

[46] "By one measure, it has been a success: over the last four decades, the number of people in the U.S. exposed to aviation noise has dropped substantially, even as the number of flights has soared." https://www.faa.gov/regulations_policies/policy_guidance/noise/ (last accessed December 23, 2020).

noise analysis and data collection. This survey has been called the "Neighborhood Environmental Survey" (NES).

For the NES, FAA surveyed over 10,000 residents living near 20 representative airports via a mailed questionnaire. The questionnaire asked the recipients about various environmental concerns that bothered, disturbed, or annoyed them. Noise from aircraft was one of the thirteen environmental concerns that the survey covered. Since the aircraft noise question was one of 13 environmental concerns listed, the recipient did not know whether this was an airport community noise survey. This was the largest survey of this type undertaken at one time. The data from the survey was used to calculate the new "National Curve" to replace the "updated Schultz Curve" in use by the FAA and provides a contemporary picture of community response to aircraft noise exposure. A follow up phone survey was also offered to the 10,000 mail survey respondents, and just over 2,000 elected to participate. The phone survey provided additional insights on how the mail survey respondents felt about aircraft noise.

The results of the survey showed that the updated Schultz Curve, as used in the FICON Report, was very outdated and no longer reflected the public's response to aircraft noise exposure. Comparison of the FICON Report prepared using the updated Schultz Curve and NES prepared using the National Curve showed the following percentage of population highly annoyed by exposure to transportation noise:

- At a noise exposure level of DNL 65 dB, the FICON Report indicated 12.3% of people were highly annoyed, compared to between 60.1% & 70.9% from the NES.

- At a noise exposure level of DNL 60 dB, the FICON Report indicated that 6.5% of people were highly annoyed, compared to between 43.8% & 53.7% from the NES.

- At a noise exposure level of DNL 55 dB, the FICON Report indicated that 3.3% of people were highly annoyed, compared to between 27.8% & 36.8% from the NES.

- At a noise exposure level of DNL 50 dB, the FICON Report indicated that 1.7% of people were highly annoyed, compared to between 15.4% & 23.4% from the NES.

Extrapolating from the FAA's current "thresholds of significance," one concludes that the new "threshold of significance" should be around DNL 45 dB.

2. Aircraft Emissions have caused health risks to people living under flight paths.

Besides the health risks of aircraft noise, substantial research has been performed on the health risks posed by air toxics and particulate matter emissions from airports. This includes a 2014 study that showed that concentrations of particulate matter, black carbon, and nitrogen oxides (NO2) are elevated fourfold within six miles downwind of the airport and twofold within 10 miles from airport emissions. Hudda et al. *Emissions from an International Airport Increase Particle Number Concentrations 4-fold at 10 km Downwind*, Environmental Science & Technology, 2014 48(12), pp.6628-6635. In that study, researchers from University of Southern California's Keck School of Medicine conducted the analysis in a region near Los Angeles International Airport over 29 days, usually during times of onshore westerly winds in the late morning and afternoon. But measurements also were taken in early mornings and late nights when air traffic and onshore winds are lower. They found chemical concentrations to be up to five times higher than background pollution levels of an area within nine square miles of the airport. Within two miles east of the airport, levels of dangerous particulates were 10 times higher than in areas not affected by the airport's emissions. As a result, residents living downwind and to the east of the airport could be inhaling hazardous levels of nitrogen oxides and fine particulates that could contribute to inflammation, blocked arteries, asthma, heart conditions and other health issues.

The results from LAX were confirmed in a 2016 study at Boston's Logan Airport[47] where it was determined that aviation activities affected ambient ultrafine particle number concentrations ("PNC"). The study concluded there is a correlation between aviation activity and concentrations of ultrafine particulate matter and NO2. Two years later, in 2018, the same research group found that ultrafine particles from aviation activity penetrate indoors:[48]

---

[47] N. Hudda et al., *Aviation-Related Impacts on Ultrafine Particle Number Concentrations Outside and Inside Residences near an Airport,* February 7, 2018, Environmental Science & Technology.
[48] N. Hudda et al., *Aviation-Related Impacts on Ultrafine Particle Number Concentrations Outside and Inside Residences near an Airport,* February 7, 2018, Environmental Science & Technology.

> Overall, our results indicate that aviation-related outdoor PNC infiltrate indoors and result in significantly higher indoor PNC. Our study provides compelling evidence for the impact of aviation-related emissions on residential exposures. Further investigation is warranted because these impacts are not expected to be unique to Logan airport.

These findings were confirmed in 2020.[49]

Likewise, in 2020, it was reported that pregnant mothers exposed to aircraft emissions resulted in preterm births.[50] This analysis evaluated whether ultrafine particulate matter (UFPs) from jet aircraft emissions are associated with increased rates of preterm birth (PTB) among pregnant mothers living downwind of Los Angeles International Airport (LAX). The result was that *in utero* exposure to aircraft-origin ultrafine particles was positively associated with preterm births. This led the researchers to conclude that:

> emissions from aircraft play an etiologic role in PTBs [pre-term births], independent of noise and traffic-related air pollution exposures. These findings are of public health concern because UFP exposures downwind of airfields are common and may affect large, densely populated residential areas.

One of the perceived difficulties in assessing aircraft emissions was put to rest in a February 21, 2021, report that was able to distinguish between roadway particle pollution and aircraft particle pollution.[51] The Mobile ObserVations of Ultrafine Particles (UFP) study found that key differences existed in the particle size distribution and the black carbon concentration for roadway and aircraft features. These differences can help distinguish between the spatial impact of roadway traffic and aircraft UFP emissions using a combination of mobile monitoring and standard statistical methods.

Particulate pollution is not the only concern. In 2008 the Airport Cooperative Research Program produced an analysis entitled "Aircraft and Airport-Related

---

[49] N. Hudda et al., *Impacts of Aviation Emissions on Near-Airport Residential Air Quality*, June 23, 2020, Environmental Science & Technology/

[50] S. Wing et al., *Preterm Birth among Infants Exposed to In Utero Ultrafine Particles from Aircraft Emissions*, April 2, 2020, Environmental Health Perspective.

[51] E. Austin et al., *Distinct Ultrafine Particle Profiles Associated with Aircraft and Roadway Traffic*, February 21, 2021, Environmental Science & Technology/

Hazardous Air Pollutants: Research Needs and Analysis," which was funded through the FAA. That analysis provides direction on how airports should be able to address the requests from states and "communities surrounding airports to analyze the health impacts of aircraft and other airport-related sources of air toxics, also known as hazardous air pollutants (HAPs), in National Environmental Policy Act (NEPA) and state-level documents." Indeed, the health effects of emi ssions of air toxics from airports on the surrounding communities has been studied regarding large California airports under state law. The conclusion is inescapable: the HAPs emitted by airports create health risks to the surrounding communities and any project that increases the emission of HAPs into the air should be analyzed.

At the very least, the FAA should require a Hazardous Air Pollutants inventory under its guideline set out in *Guidance for Quantifying Speciated Organic Gas Emissions from Airport Sources*, (Ver. 1, September 2, 2009) ("HAP Guidance").[52] According to the FAA, the HAP Guidance "provides an approach to, and technical guidance for, preparing speciated OG/HAP emission inventories in support of environmental documents prepared by, or on behalf of, the FAA under the National Environmental Policy Act (NEPA)." With the establishment of HAP Inventory, there would be, at least, a baseline for future health risk assessments showing the deleterious effect that airport emissions have on the surrounding communities.

While establishing a HAP Inventory is a step in the right direction, what is needed is a study that quantifies the substantial health risks that HAP emissions resulting from the SoCal Metroplex project present to surrounding communities. Toward that end, a more significant finding is the May 8, 2009, article *Between-airport heterogeneity in air toxics emissions associated with individual cancer risk thresholds and population risks*, by Ying Zhou and Jonathan I. Levy. In that article, the authors conclude:

> Using state-of-the-art four-dimensional emissions characterization and atmospheric dispersion modeling, we demonstrated that both the emission rate contributing to a 10^{-6} maximum individual risk and the total population exposure within 50 km of the airport per unit emissions vary substantially across airports *but can be predicted with reasonable precision using easy to*

[52] In addition, the FAA and the EPA has published the *Recommended Best Practice For Quantifying Speciated Organic Gas Emissions From Aircraft Equipped with Turbofan, Turbojet, and Turboprop Engines* which details joint efforts between the FAA and the EPA to update OG/HAP speciation profile data from these types of aircraft.

obtain variables, such as distance from the airport, total population, and mixing height. These results provide a method to quickly but reasonably determine the likelihood of public health impacts of concern for airport modifications or expansions.

Zhou Levy Article, p.10 (emphasis added). In developing their conclusions about air toxics at airports, Zhou and Levy used the AERMOD high resolution atmospheric dispersion model, which is an FAA–approved model.

Because of the increase in aircraft flying at low altitudes directly over the City of Malibu, ultrafine particulate matter and various contaminants have increased in the air above Malibu. Consequently, the citizens of Malibu are breathing in more particulate matter and inhaling contaminants that can lead to serious health effects.

B. FAA Has the Legal Authority and Duty to Promulgate Rules that Protect People on the Ground from Aircraft Noise and Emissions.

1. FAA's role as "sovereign of the airspace" means not only managing that space for the benefit of aircraft, but also managing that space to protect people on the ground from aircraft noise and emissions.

The Federal Aviation Act gives FAA "sovereignty of airspace of the United States," 49 U.S.C. § 40103(a)(1). Because of FAA's sovereignty, federal law bars state and local governments, such as the City of Malibu, from enacting ordinances to protect their own interests and their citizens' health and welfare from aircraft noise and emissions. *See Burbank*, 411 U.S. at 633; *Burbank-Glendale-Pasadena Airport Authority v. Los Angeles,* 979 F.2d 1338, 1340 (9th Cir. 1992). With that authority comes responsibility not only for safety and efficiency of the airspace, but for protection of health and welfare of people on the ground affected by FAA's exercise of its sovereignty. *Burbank,* 411 U.S. at 638-639.

Protection of Malibu's public health and welfare from the damaging effects of aircraft noise and emissions, then, rests squarely – and solely – in FAA's hands. Since Congress and FAA have tied Malibu's hands from protecting itself and its residents from the public health crisis and economic harm created by aircraft noise, FAA must use its authority and the most up-to-date technical and scientific

methods and data to tackle this very real problem by addressing aircraft noise and emissions in its rules, regulations, and orders.

2. The U.S. Constitution and the Administrative Procedure Act provide the basis for FAA to promulgate rules and regulations protecting people on the ground from the effects of aircraft noise and emissions

The United States Constitution and the Administrative Procedures Act give Petitioners a basis for petitioning the Secretary. The First Amendment of the U.S. Constitution states that "Congress shall make no law . . . abridging . . . the right of the people . . . to petition Government for a redress of grievances." U.S. Const., amend. 1. This right has been upheld numerous times by the courts. The right to petition for redress of grievances is among the most precious of the liberties safeguarded by the Bill of Rights. *United Mine Workers of America, Dist. 12 v. Illinois State Bar Association*, 389 U.S. 217, 222 (1967). It shares the "preferred place" accorded in our system of government to the First Amendment freedoms and has "a sanctity and a sanction not permitting dubious intrusions." *Thomas v. Collins*, 323 U.S. 516, 530 (1945). "Any attempt to restrict those First Amendment liberties must be justified by clear public interest, threatened not doubtful or remotely, but by clear and present danger." *Id.* The Supreme Court has recognized that the right to petition is logically implicit in, and fundamental to, the very idea of a republican form of government. *United States v. Cruikshank*, 92 U.S. (2 Otto) 542, 552 (1875).

The purposes of the Administrative Procedure Act (5 U.S.C. § 551 *et seq.*) have been generally described as (1) to require agencies to keep the public informed of their organization, procedures, and rules; (2) to provide for public participation in the rulemaking process; (3) to establish uniform standards for the conduct of formal rulemaking and adjudication; and (4) to define the scope of judicial review. Since this petition falls within the definition of "rule making" (5 U.S.C. § 551), the Administrative Procedure Act applies.

3. Under the Federal Aviation Act, FAA has the duty and the authority to promulgate rules governing aircraft in flight and to protect people and property on the ground.

The FAA has broad authority and responsibility to regulate the operation of aircraft, using the navigable airspace and to establish safety standards for and regulate the certification of airmen, aircraft, and air carriers. (49 U.S.C. § 40104 et seq., § 40103(b)). The FAA's authority for this rule is contained in 49 U.S.C. § 40103 and § 44715. Under § 40103, the Administrator of the FAA has authority to "prescribe air traffic regulations on the flight of aircraft (including regulations on safe altitudes) for * * * (B) protecting individuals and property on the ground. (49 U.S.C. § 40103(b)(2)). In addition, § 44715(a), provides that to "relieve and protect the public health and welfare from aircraft noise," the Administrator of the FAA, "as he deems necessary, shall prescribe ... (ii) regulations to control and abate aircraft noise ...." This was confirmed in *Helicopter Ass'n Int'l, Inc. v. FAA*, 722 F.3d 430 (D.C. Cir. 2013) *("HAI")*. The court in *HAI* also pointed out that the Federal Aviation Act does not require that "air safety be the primary goal of all FAA regulations" and then points to the U.S. Supreme Court's statement that the "Federal Aviation Act requires a delicate balance between safety and efficiency and the protection of persons on the ground." *Id.* at 434.

IV. Proposed Actions.

A. FAA's Response to the Problems Has Been Inadequate.

While the SoCal Metroplex procedures have been amended since their implementation in 2017, none of the amendments have addressed the problems of aircraft noise and emissions on people who live and work underneath the flight paths.

Since FAA issued its Draft Environmental Assessment for the SoCal Metroplex project in June 2015, many parties commented on these very problems. Those comments were mostly ignored by FAA when it issued its Final Environmental Assessment, Finding of No Significant Impact and Record of Decision. Since the implementation of the SoCal Metroplex procedures, additional proposals have been made to the LAX Aircraft Noise Roundtable, but all have been rejected by FAA. There has also been litigation seeking to call the FAA's attention to this serious problem, but FAA has yet to act.

The FAA has always claimed that protection of the health and well-being of the people who live under the flight paths is not part of its mission, despite its specific duty to do so. 49 U.S.C. § 40103 and § 44715. FAA has made it clear that its only concern is "safety and efficiency" in the airspace, and not protection of public health and welfare. To the extent that there is any increase in noise or emissions, FAA has disavowed responsibility for mitigating any such noise or emission. Instead, it points its finger at the airlines and airports for the increase in volume of air traffic and resulting impacts on people.

FAA also claims that aircraft noise has been reduced through programs such as the voluntary "Part 150" program, which provides money to airports to pay for noise mitigation, and modifications to aircraft. These claims fall flat. Once an aircraft lifts off from the ground, the FAA is the only entity that has control over how that aircraft operates. FAA decides where in the airspace aircraft can go and over what neighborhoods they can fly. As United States Supreme Court Justice Jackson pointed out over 75 years ago: "Planes do not wander about in the sky like vagrant clouds. They move only by federal permission, subject to federal inspection, in the hands of federally certified personnel and under an intricate system of federal commands. The moment a ship taxis onto a runway it is caught up in an elaborate and detailed system of controls. It takes off only by instruction from the control tower, it travels on prescribed beams, it may be diverted from its intended landing, and it obeys signals and orders." *Nw. Airlines, Inc. v. Minnesota*, 322 U.S. 292, 303 (1944) (Jackson, J., concurring).

B. Proposals.

While the City of Malibu believes that solutions to the issues presented by the increase in overflights above Malibu are best left to the FAA to develop due to its expertise and regulatory authority, the following specific proposals would significantly address them.

1. Supplemental Environmental Assessment to assess and analyze the environmental impacts of the SoCal Metroplex project on Southern California.

As discussed in subsequent sections, new information about the impacts of the RNAV routes shows the FAA needs to reconsider its prior evaluations of the

impacts of the Southern California Metroplex. NEPA regulations and FAA's own Order 1050.1F require that FAA develop a supplemental EA or Environmental Impact Statement when there is significant new information relevant to environmental impacts from its action.

> The responsible FAA official must prepare a supplemental EA, draft EIS, or final EIS if either of the following occurs: (1) there are substantial changes to the proposed action that are relevant to environmental concerns, or (2) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts (see 40 C.F.R. §1502.9(c)(1), CEQ Regulations). Significant information is information that paints a dramatically different picture of impacts compared to the description of impacts in the EA or EIS. The FAA also may prepare supplements when the purposes of NEPA will be furthered by doing so (see 40 CFR § 1502.9(c)(2), CEQ Regulations).

FAA Order 1050.1F, Environmental Impacts, Policies and Procedures (2015) at ¶ 9-3.

Under Section 4(f) of the U.S. Department of Transportation Act of 1966,[53] an analysis of Section 4(f) resources (such as parks, recreation lands, wildlife, and historic sites) is required in each NEPA analysis (*see* FAA Order 1050.1F, ¶ 10-2, *1050.1F Desk Reference* at Chapter 5), if there is new information about Section 4(f) resource the impacts must be re-evaluated, and the analysis supplemented. The regulations implementing Section 106 of the National Historic Preservation Act ("NHPA") also require that agencies reinitiate Section 106 consultation when new information becomes available showing that conclusions in the original consultation document regarding the impacts on historic properties were incorrect. The regulations also require FAA to "make reasonable efforts to avoid, minimize or mitigate adverse effects to such properties." *See* 36 C.F.R. § 800.13(b).

New significant information that has come to light within the last decade, namely, aircraft noise health studies, aircraft emission health studies, the development of ISO 1996-1:2016, and the NES, indicate that the noise analysis conducted for the Southern California Metroplex is inadequate to properly assess the impact of noise on the affected population in general and the City of Malibu in

[53] 49 U.S.C. § 303 was originally enacted as Section 4(f) of the Department of Transportation Act of 1966 and is still commonly referred to as "Section 4(f)".

particular. As such, a Supplemental Environmental Assessment should be performed that focuses on RNAV arrivals at LAX. As part of that Supplemental EA, FAA should conduct an ISO 1996-1:2016 analysis, conduct a Health Impact Assessment and adjust the thresholds of significance to comply with the findings of the NES.

2. Amend FAA Order 1050.1F to address unresolved issues with aircraft noise and emissions.

To better assess the impact of aircraft noise and emissions from procedures and to provide relief to Malibu, FAA must amend its Order 1050.1F, and its companion "Desk Reference." FAA Order 1050.1F must be amended in at least three ways: (1) the "thresholds of significance" must be updated to reflect the findings of the Neighborhood Environmental Survey; (2) FAA must conduct a Health Impact Assessment on the health impacts of aircraft noise and emissions on the affected communities when creating or amending flight procedures; and (3) ISO 1996-1:2016 must be used as part of FAA's environmental assessment process to better analyze the effect of aircraft noise on communities.

a. Thresholds of Significance.

The FAA's current method of determining the impact of noise created by aircraft on communities, the "Day-Night average Sound Level" (DNL), was developed in 1970's. Then, in 1992, the Federal Interagency Committee on Noise (FICON) adopted the "Schultz Curve," which shows a dosage-response relationship linking transportation noise exposure to the prevalence of a consequential degree of transportation noise-induced annoyance in communities. This helped to establish the FAA's "thresholds of significance" in assessing the impact aviation noise would have on communities on the ground. These thresholds were based on the amount noise created by passing airplanes. Experts now agree that the Schultz Curve is obsolete. Despite that fact, the FAA continues to use the Schultz Curve as a basis for its decisions whether a project will have a "significant impact" on a community.

In 2021, FAA released the findings of its long-awaited Neighborhood Environmental Survey (NES), which was conducted to improve the agency's understanding of community response to aircraft noise and provides the scientific basis for the determination that FAA must update its 40-year-old aircraft noise policy. The survey, done to assess community annoyance to aircraft noise, consisted

of over 10,000 mail responses in communities around 20 "statistically representative" airports across the United States. To date, it is the largest survey of its kind undertaken at one time.

Despite the survey showing that FAA's aircraft noise policy is severely outdated, FAA has decided not to take any action in the short run that would offer relief to people suffering from aircraft noise and emissions. Instead, FAA said it "will not make any determinations based on the findings of these research programs for the FAA's noise policies including any potential revised use of the DNL noise metric, until it has carefully considered public and other stakeholder input along with any additional research needed to improve the understanding of the effects of aircraft noise exposure on communities." These proposals offer FAA a path forward to address community concerns based on FAA's conclusions in NES.

b. Require Health Impact Assessment.

The United States Environmental Protection Agency (EPA) uses Health Impact Assessments (HIA) as a tool to promote sustainable and healthy communities. EPA has long concluded that the foundation of a healthy community is strongest when built upon a decision-making process that balances environmental, social, and economic factors to promote the health and well-being of its members. An HIA is a tool designed to investigate how a proposed program, project, policy, or plan may affect health and well-being and inform decision-makers of these potential outcomes before the decision is made.

The FAA should use an HIA:

- To determine the potential effects of a proposed decision on the health of a population and the distribution of those effects within the population;
- consider input from stakeholders, including those affected by the decision;
- use different types of qualitative and quantitative evidence and analytical methods;
- Use such analytical methods that are flexible based on available time and resources; and

- provide evidence and recommendations to decision-makers in a timely manner.

HIAs consider the full range of potential impacts of the proposed decision on health and the factors known to affect human health (known as health determinants) directly and indirectly. HIAs provide recommendations for maximizing the potential positive health impacts and minimizing and/or avoiding the potential negative health impacts of the decision. In addition to promoting human health considerations, HIAs also encourage democracy, health equity, a comprehensive approach to individual and community health, and sustainability in decision-making.

The FAA has a legal and moral duty to protect human health and the environment. Every day the FAA makes critical decisions about the risks of exposures to environmental stressors on human health. Yet, the FAA does not have a program that develops and applies state-of-the-science research to characterize impacts on human and ecological systems – whether they result from exposure to single, complex, or multiple physical, chemical, or biological stressors – to support and improve FAA's risk assessment decisions. The FAA must develop a program that identifies, evaluates, and integrates existing and emerging information from diverse scientific disciplines to rigorously characterize hazard and evaluate exposure-response relationships supporting human health and environmental risk assessments.

Overall, federal agencies' analysis of health effects under the National Environmental Policy Act (NEPA) has been limited. To date, neither the Council on Environmental Quality (CEQ) nor federal agencies that comply with NEPA have produced guidance on the analysis of health effects. However, the lack of guidance on analyzing public-health effects does not diminish the legal requirement to consider health in an environmental impact statement or environmental assessment.

To address those deficiencies, Malibu proposes that FAA Order 1050.1F be amended to include a section requiring a Health Impact Assessment. Further, Malibu requests that a Health Impact Assessment be conducted regarding the flight procedures over Malibu.

c. Amend FAA Order 1050.1F to Require the Use of ISO 1996-1 in all environmental decisions.

To understand the disconnect between the FAA's methods and the experience on the ground, it is necessary to review why the FAA uses the methods it has. The Airport Safety and Noise Act ("ASNA") of 1979 (Public Law 96-193) required the Secretary of Transportation to identify a single, universally applicable aircraft noise measurement system. ASNA also required the Secretary of Transportation to "establish a single system for measuring noise that... has a highly reliable relationship between projected noise exposure and surveyed reactions of individuals to noise."[54]

Six years after Congress passed ASNA, the FAA formally endorsed the Environmental Protection Agency's (EPA's) cumulative 24-hour, time-weighted average measure of A-weighted sound levels in Part 150 of the Federal Aviation Regulations. The measure is known as the "Day-Night Average Sound Level" (DNL) and is represented symbolically in mathematical expressions as L_{dn}.[55]

The rationale for FAA noise regulatory policy is described by the Federal Interagency Committee on Noise ("FICON") in 1992. FICON states that "...the percent of the exposed population expected to be highly annoyed (%HA) [is] the most useful metric for characterizing or assessing noise impact on people," and that "...the updated 'Schultz curve' remains the best available source of empirical dosage-effect information to predict community response to transportation noise." The "Schultz curve," in sum, is an early dosage-response curve method used to describe noise exposure annoyance relationships. The original analysis by Schultz has been revisited several times in subsequent decades and is now obsolete."[56]

FICON's reliance on the Schultz curve, which, experts agree had become obsolete by 1992 created dosage-response relationships that uses a descriptive approach to predict annoyance due to aircraft noise exposure that is blind to bona fide differences among communities regarding aircraft noise annoyance. Fidell's article, cited in footnote 54, argues that a "one-size-fits-all, regression-based dosage-response relationship can greatly overestimate annoyance in actual communities of

---

[54] "*A Review of U.S. Aircraft Noise Regulatory Policy*," Sanford Fidell (Fall 2015), https://acousticstoday.org/wp-content/uploads/2015/11/Aircraft-Noise-Regs.pdf (last accessed March 8, 2021).
[55] *Id*, at p.28.
[56] *Id*, at p.28.

greater than average tolerance for noise exposure. It also underestimates annoyance in actual communities of lesser than average tolerance for noise exposure."[57] The empirical data from the past few years shows that the FAA's definitions of noise exposure do not protect the supposed percentage of people in most U.S. communities from exposure to highly annoying and detrimental aircraft noise. As Fidell points out "[t]he FAA's constant numerical definition of significant noise impacts does not recognize empirically measurable differences in tolerance for noise exposure among communities, and thus does not provide a uniform effect on a national basis."[58] In actual application, as evidenced by the plethora of noise complaints across the nation, the FAA's definition of the significance of aircraft noise exposure affords little protection of noise-exposed populations in many communities from consequential degrees of annoyance and detriment due to aviation noise.

What is needed here is a method that analyzes population percentages in different communities associated with particular definitions of noise impacts. A method that can ascertain by specifying two parameters, the percentage of the population of a nominally average community to be protected from high annoyance and detriment, and the percentage of people in all communities to be similarly protected, can properly gauge the efficacy and efficiency of regulatory policies expressed in acoustic units. This method is ISO 1996-1:2016.

The International Organization for Standardization (ISO) produces international standards. An international standard "provides rules, guidelines or characteristics for activities or for their results, aimed at achieving the optimum degree of order in a given context."[59] ISO 1996-1:2016 "Description, Measurement and Assessment of Environmental Noise – Part 1: Basic Quantities and Assessment Procedures," was published in March 2016, five months *before* the publication of the SoCal Metroplex Environmental Assessment. ISO 1996-1:2016 defines the basic quantities to be used for the description of noise in community environments and describes basic assessment procedures. It also specifies methods to assess environmental noise and gives guidance on predicting the potential annoyance response of a community to long-term exposure from various types of environmental noises. Application of ISO 1996-1:2016 to predict annoyance response is limited to areas where people reside and to related long-term land uses. ISO 1996-1:2016 and

---

[57] *Id.*, at p.32.
[58] *Id.*, at p.33.
[59] https://www.iso.org/deliverables-all.html

its companion ISO 1996-2:2016, have been approved for use by the ISO countries, which includes the United States. As with all ISO standards, ISO 1996-1:2016 represents the best scientific practices.

ISO 1996-1:2016 states in its introduction that "[its] broad aim . . . is to contribute to the international harmonization of methods of description, measurement, and assessment of environmental noise from all sources." The introduction adds, "the aim of the ISO 1996 series is to provide authorities with material for the description and assessment of noise in community environments. Based on the principles described in this part of ISO 1996, national standards, regulations, and corresponding acceptable limits for noise can be developed. The methods and procedures described in Part 1 of the ISO 1996 are intended to be applicable to noise from various sources,"[60] not just those emanating from aircrafts.

Relevant passages in the findings of ISO 1996-1:2016 explain how governmental agencies should assess noise in affected communities:

- Annex A:
  - "It is usually found that for the same equivalent continuous sound pressure level, aircraft noise is more annoying than road-traffic noise."
  - Discusses Community Tolerance Level variable in depth ("L_{CT}") and adjustments to such variable.
- Annex D:
  - In newly created situations, especially when the community is not familiar with the sound source in question, higher community annoyance can be expected. This difference may be equivalent to up to 5 dB. Research has shown that there is a greater expectation for and value placed on "peace and quiet" in quiet rural settings. In quiet rural areas, this greater expectation for "peace and quiet" may be equivalent to up to 10 dB.

[60] ISO Part 1 - Introduction

- A new, unfamiliar sound source cited in a quiet rural area can engender much greater annoyance levels than are normally estimated by these formulae. This increase in annoyance may be equivalent to adding up to 15 dB to the measured or predicted levels.

- Annex E: Estimated prevalence of a population highly annoyed as a function of adjusted day-evening-night or day-night sound levels using the community tolerance level formulation.

  - E.1 (Aircraft Noise), Table E.1 and Figure E.1.

- Annex F: Estimated prevalence of a population highly annoyed as a function of adjusted day-evening-night or day-night sound level using a regression formulation.
  - F.1 Aircraft Noise – introduces prevalence of high annoyance variable (P_{HA}).

- Annex H:

  - Theory-based approach to predict the growth of annoyance.

  - The community tolerance level is explained in Annex H to ISO Part 1 as part of a theory-based approach to predict the growth of annoyance.

Thus, ISO 1996-1:2016 corrects the deficiencies of the Schultz curve and the reliance on the Schultz curve. ISO 1996-1:2016 gives policymakers a much more accurate view of community tolerance levels of noise. The additional variable used in ISO 1996-1:2016 is the community tolerance level or ("L_{CT}"). This variable, as explained in ISO Part 1, is the "day-night sound level at which 50% of the people in a particular community are predicted to be highly annoyed by noise exposure." Note 1 to ISO Part 1 states that L_{CT} is used as a parameter that accounts for differences between sources and/or communities when predicting the percentage of people in a community highly annoyed by noise exposure. It is worth reiterating that Annex D to ISO 1996 Part 1 states that in newly created situations, especially when the community is not familiar with this sound source, higher community annoyance can be expected. This difference may equal up to 5 dB. Research has

shown there is a greater expectation for and value placed on "peace and quiet" in quiet rural settings. In quiet rural areas, this greater expectation for "peace and quiet" may equal up to 10 dB. A new, unfamiliar sound source cited in a quiet rural area can engender much greater annoyance levels than are normally estimated by these formulae. This increase in annoyance may be equivalent to adding up to 15 dB to the measured or predicted levels.[61]

Malibu's Vision and Mission statements focus on its rural characteristics and call on the City to preserve its rural characteristics and "maintain its rural character."[62] It is naturally isolated from greater Los Angeles by the Santa Monica Mountains and Pacific Ocean, and is characterized by natural open space and a quiet environment save for the sound of waves crashing on the shore. Before the Southern California Metroplex Project was implemented, residents of the City of Malibu experienced only low levels of aircraft noise. For these reasons, ISO Part 1 suggests that in the City of Malibu, higher community annoyance can be expected. However, this suggestion would be disregarded under the FAA's current noise model.

Thus, based on the inherent value of ISO 1996-1:2016, FAA must be required to comply with ISO standards. All duly passed ISO standards concerning noise and its measurement should be required to be used by the FAA in its evaluation of environmental impacts required under the National Environmental Policy Act.

3. Create a Special Flight Rules Airspace over Malibu to address the impacts of the Project on Malibu residents.

To address the impacts that the residents of Malibu are experiencing, FAA should create a Special Flight Rules Airspace over Malibu to protect the public health and welfare of the residents of Malibu. This request is similar to the request that the residents of the North Shore of Long Island submitted in its Petition for Rulemaking that resulted in the North Shore Helicopter Route. *See HAI*, 722 F.3d 430. The FAA's authority to make such a change was upheld in *HAI* where the court pointed out that the "FAA found that 'residents along the north shore of Long Island emphatically agreed that helicopter overflights during the summer months are unbearable and negatively impact their quality of life.'" *Id.* at 432. On this basis, the Court found, the FAA made the North Shore Helicopter route mandatory, even

[61] *Id*, at Annex D - D4.4.
[62] Malibu General Plan Section I.0

though "'[t]he FAA found that the sound levels, which were below DNL 45 dB, were 'below levels at which homes are significantly impacted.'" *Id.* Malibu requests the same consideration that the North Shore of Long Island was given.

V. Proposed Language for Rulemaking.

A. Proposed Supplemental Environmental Assessment.

The Federal Aviation Administration will issue a Notice of Intent (NOI) to prepare a Supplemental Draft Environmental Assessment (SEA) for the Southern California Metroplex Project (SoCal Metroplex) pursuant to the National Environmental Policy Act (NEPA). A Final Environmental Assessment was issued on August 31, 2016. Since that time, new and significant data has been discovered regarding the effects of aircraft noise on communities under flight paths and calling into question the FAA's decision in the SoCal Metroplex that there would be no significant environmental impact on the people living under the new flight paths. As a result of the new and significant studies discussing such data, it would serve the purposes of the National Environmental Policy Act for FAA to conduct a Supplemental Environmental Assessment to ensure that no significant environmental impact has been occurring underneath the flight paths using new "thresholds of significance," ISO 1996-1:2016, and a Health Impact Assessment. Should FAA find that its initial assessment was incorrect and there will, in fact, be a significant impact, it should then develop a mitigation program or develop alternative flight procedures.

B. Proposed Amendments to FAA Order 1050.1F.

1. Thresholds of Significance.

FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, shall be amended in the following sections to account for the changes suggested by the outcome of the Neighborhood Environmental Survey.

Exhibit 4-1, in the Chart under "Noise and Noise Compatible Land Use" in the "Significance Threshold" column:

> *The action would increase noise by DNL 1.5 dB or more for a noise sensitive area at or above DNL 45 dB noise exposure level, or that will be exposed at or*

above the DNL 45 dB level due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the time frame. For example, an increase from DNL 45.5 dB to 47 dB is considered a significant increase, as is an increase from DNL 43.5 dB to 45 dB.

And in the "Factors to Consider" column:

> Special consideration needs to be given to the evaluation of the significance of noise impacts on noise sensitive areas within Section 4(f) properties (including, but not limited to, noise sensitive areas within national parks; national wildlife and waterfowl refuges; and historic sites, including traditional cultural properties) where the land use compatibility guidelines in 14 CFR part 150 are not relevant to the value, significance, and enjoyment of the area in question. For example, the DNL 45 dB threshold does not adequately address the impacts of noise on visitors to areas within a national park or national wildlife and waterfowl refuge where other noise is very low and a quiet setting is a generally recognized purpose and attribute.

Next, in § 11-5, "Definitions," subsection (10), "Noise Sensitive Area," should be amended to read:

> An area where noise interferes with normal activities associated with its use. Normally, noise sensitive areas include residential, educational, health, and religious structures and sites, and parks, recreational areas, areas with wilderness characteristics, wildlife and waterfowl refuges, and cultural and historical sites. For example, in the context of noise from airplanes and helicopters, noise sensitive areas include such areas within the DNL 45 dB noise contour. Individual, isolated, residential structures may be considered compatible within the DNL 45 dB noise contour where the primary use of land is agricultural and adequate noise attenuation is provided. Also, transient residential use such as motels should be considered compatible within the DNL 45 dB noise contour where adequate noise attenuation is provided. A site that is unacceptable for outside use may be compatible for use inside of a structure, provided adequate noise attenuation features are built into that structure (see table 1 in Appendix A of 14 CFR part 150, Airport Noise Planning, Land Use Compatibility Guidelines). The FAA recognizes that there are settings where the DNL 45 dB standard may not apply. In these areas, the responsible FAA official should determine the

appropriate noise assessment criteria based on specific uses in that area (see also the 1050.1F Desk Reference for further guidance). In the context of facilities and equipment, such as emergency generators or explosives firing ranges, but not including aircraft, noise sensitive areas may include such sites in the immediate vicinity of operations mentioned immediately above, pursuant to the Noise Control Act of 1972, 42 U.S.C. §§ 4901–4918 (see state and local ordinances, which may be used as guidelines for evaluating noise impacts from operation of such facilities and equipment).

Third, the third sentence of the first paragraph of § B-1.3 "Affected Environment" shall be amended to read: "An airport environs study area must be large enough to include the area within the DNL 45 decibels (dB) contour and may be larger." First bullet point after the fourth paragraph should read: "DNL contours or noise grid points showing existing aircraft noise levels. Noise exposure contours must include DNL 45, 50, 55, 60-, 65-, 70-, and 75-dB levels (additional contours may be provided on a case-by-case basis)." The second bullet point on the same page and paragraph should read in its entirety: "The number of residences or people residing within each noise contour where aircraft noise exposure is at or above DNL 45 dB" (the remainder of the text in the current bullet point should be deleted).

Fourth, the second paragraph of § B-1.4 "Environmental Consequences." shall be amended to read:

> For proposed airport development and other actions in the immediate vicinity of an airport, the AEDT is used to provide noise exposure contours at the DNL 45, 50, 55, 60, 65, 70, and 75 dB levels (additional contours may be provided on a case-by-case basis). For all comparisons analyzed, the analysis will identify noise increases of DNL 1.5 dB or more over noise sensitive areas that are exposed to noise at or above the DNL 45 dB noise exposure level, or that would be exposed at or above the DNL 45 dB level due to a 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe.

The bullet points in the third paragraph of the same section shall amended to read:

- The number of residences or people residing within each noise contour where aircraft noise exposure is at or above DNL 45 dB and the net

increase or decrease in the number of people or residences exposed to that level of noise;

- The location and number of noise sensitive uses in addition to residences (e.g., schools, hospitals, parks, recreation areas) exposed to DNL 45 dB or greater;
- The identification of noise sensitive areas within the DNL 40 dB contour that are exposed to aircraft noise at or above DNL 40 dB but below DNL 45 dB and are projected to experience a noise increase of DNL 3 dB or more, only when DNL 1.5 dB increases are documented within the DNL 45 dB contour;
- Discussion of the noise impact on noise sensitive areas within the DNL 45 dB contour; and
- Maps and other means to depict land uses within the noise study area. The addition of flight tracks is helpful. Illustrations should be sufficiently large and clear to be readily understood.

The bullet points in the fifth paragraph of the same section on the same page should be amended to read:

- For DNL 45 dB and higher: +1.5 dB
- For DNL 40 dB to <45 dB: +3 dB
- For DNL <40 dB: +5 dB

The sixth paragraph of the same section should be amended to read:

> The location and number of noise sensitive uses (e.g., schools, churches, hospitals, parks, recreation areas, etc.) exposed to DNL 45dB or greater must be disclosed for each modeling scenario that is analyzed.

Fifth, the first paragraph of § B-1.5, "Significance Determination" shall be amended to read:

> Exhibit 4-1 of FAA Order 1050.1F provides the FAA's significance threshold for noise: *The action would increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 45 dB noise exposure level, or that will be exposed at or above the DNL 45 dB level due to a 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe.* For example, an increase from DNL 45.5 dB to 47 dB is

> considered a significant impact, as is an increase from DNL 43.5 dB to 45 dB. The determination of significance must be obtained through the use of noise contours and/or grid point analysis along with local land use information and general guidance contained in Appendix A of 14 CFR part 150.

The last sentence of the second paragraph should be amended to read: "For example, the DNL 45 dB threshold may not adequately address the impacts of noise on visitors to areas within a publicly owned park or recreation area where other noise is very low and a quiet setting is a generally recognized purpose and attribute."

Sixth, the third paragraph of § B-1.13. "Noise Mitigation," shall be amended to read as follows:

> When a noise analysis in the immediate vicinity of an airport identifies noise sensitive areas that would have an increase of DNL 3 dB or more from DNL 40 dB up to DNL 45 dB noise exposure, the potential for mitigating noise in those areas should be considered, including consideration of the same range of mitigation options available at DNL 45 dB and higher and eligibility for Federal funding. This is not to be interpreted as a commitment to fund or otherwise implement mitigation measures in any particular area.

2. Require use of ISO 1996-1:2016.

Section 11.1.3, "FAA Aircraft Noise Screening Tools and Methodologies," shall be amended to include a bullet requiring the use of ISO 1996-1:2016 in assessing noise impact on communities.

- ISO 1996-1:2016, *Acoustics — Description, measurement and assessment of environmental noise.*

Community response to noise can vary differently among sound sources that are observed to have the same acoustic levels. ISO 1996-1:2016 defines the basic quantities to be used for the description of noise in community environments and describes basic assessment procedures. It also specifies methods to assess environmental noise and gives guidance on predicting the potential annoyance response of a community to long-term exposure from various types of environmental noises. The sound sources can be separate or in various combinations. FAA will

apply this method to predict annoyance response in communities affected by aircraft noise.

3. Require development of a Health Impact Assessment.

FAA Order 1050.1F shall be amended to include a section 18 requiring the development of a Health Impact Assessment during any environmental analysis of FAA projects that are not categorically excluded.

18. Health Impact Assessment Required.

18.1 Purposes.

The purposes of a Health Impact Assessment are—

18.1.1 to facilitate the involvement of tribal, State, and local public health officials in decisions affecting the airspace environment to identify any potential health concern or health benefit relating to an activity or proposed activity;

18.1.2 to provide for an investigation of any health-related issue of concern raised in a planning process, an environmental impact assessment process, or policy appraisal relating to a proposed activity;

18.1.3 to describe and compare alternatives (including no-action alternatives) to a proposed activity to provide clarification with respect to the potential health outcomes associated with the proposed activity and, where appropriate, to the related benefit-cost or cost-effectiveness of the proposed activity and alternatives;

18.1.4 to contribute, when applicable, to the findings of a planning process, policy appraisal, or an environmental impact statement with respect to the terms and conditions of implementing a proposed activity or related mitigation recommendations, as necessary;

18.1.5 to ensure that the disproportionate distribution of negative impacts among vulnerable populations is minimized as much as possible; and

18.1.6 to engage affected community members and ensure adequate opportunity for public comment on all stages of the Health Impact Assessment.

18.2 Activities

18.2.1 In General. FAA shall conduct an evaluation of any proposed activity to determine whether it will have a significant adverse or positive effect on the health of the affected population based on the criteria described in 18.2.2.

18.2.2 Criteria. The criteria described in this subparagraph include, as applicable to the proposed activity, the following:

18.2.2.1 Any substantial adverse effect or significant health benefit on health outcomes or factors known to influence health, including the following:

18.2.2.1.1 Physical activity.

18.2.2.1.2 Injury.

18.2.2.1.3 Mental health.

18.2.2.1.4 Accessibility to health-promoting goods and services.

18.2.2.1.5 Respiratory health.

18.2.2.1.6 Chronic disease.

18.2.2.1.7 Nutrition.

18.2.2.1.8 Land use changes that promote local, sustainable food sources.

18.2.2.1.9 Infectious disease.

18.2.2.1.10 Health disparities; and

18.2.2.1.11 Existing air quality, ground or surface water quality or quantity, or noise levels.

18.2.2.2 Other factors that may be considered, including—

18.2.2.2.1 the potential for a proposed activity to result in systems failure that leads to a public health emergency;

18.2.2.2.2 the probability that the proposed activity will result in a significant increase in tourism, economic development, or employment in the jurisdiction of the eligible entity;

18.2.2.2.3 any other significant potential hazard or enhancement to human health, as determined by the eligible entity; or

18.2.2.2.4 whether the evaluation of a proposed activity would duplicate another analysis or study being undertaken in conjunction with the proposed activity.

18.3 Factors for Consideration.

In evaluating a proposed activity under 18.2, FAA shall take into consideration any reasonable, direct, indirect, or cumulative effect that can be clearly related to potential health effects and that is related to the proposed activity, including the effect of any action that is—

18.3.1 included in the long-range plan relating to the proposed activity;

18.3.2 likely to be carried out in coordination with the proposed activity;

18.3.3 dependent on the occurrence of the proposed activity; or

18.3.4 likely to have a disproportionate impact on high-risk or vulnerable populations.

18.4 Requirements.

A Health Impact Assessment shall incorporate the following, after conducting the screening phase:

18.4.1 Scoping. Identifying which health effects to consider and the research methods to be utilized.

18.4.2 Assessing Risks and Benefits. Assessing the baseline health status and factors known to influence the health status in the affected community, which may include aggregating and synthesizing existing health assessment evidence and data from the community.

18.4.3 Developing Recommendations. Suggesting changes to the proposed activity to promote positive or mitigate adverse health effects.

18.4.4 Reporting. Synthesizing the assessment and recommendations and communicating the results to decisionmakers.

18.4.5 Monitoring and Evaluating. Tracking the decision and implementation effect on health determinants and health status.

18.5 Plan.

FAA shall develop and implement a plan for meaningful and inclusive stakeholder involvement in all phases of the Health Impact Assessment. Stakeholders may include community-based organizations, youth-serving organizations, planners, public health experts, State and local public health departments and officials, health care experts or officials, housing experts or officials, and transportation experts or officials.

18.6 Submission of Findings.

FAA shall submit the findings of any Health Impact Assessment activities to the Administrator prior to making any decision regarding the proposed activity and make these findings publicly available.

18.7 Assessment of Impacts.

FAA shall ensure the assessment of the distribution of health impacts (related to the proposed activity) across race, ethnicity, income, age, gender, disability status, and geography.

18.8 Conduct of Assessment.

To the greatest extent feasible, a Health Impact Assessment shall be conducted under this section in a manner that respects the needs and timing of the decision-making process it evaluates.

18.9 Methodology.

In preparing a Health Impact Assessment under this subsection, an eligible entity or partner shall follow the guidance developed and published by the United States Environmental Protection Agency.

C. Changes to Usage of Airspace: Creation of Special Flight Rules Area over Malibu.

In addition to the above Supplemental Environmental Assessment and amendments to FAA Order 1050.1F, FAA shall create a Special Flight Rules Area over Malibu and the surrounding Santa Monica Mountains area. This Special Flight Rules Area will be promulgated as part of the Federal Aviation Regulations at 14 C.F.R., Part 93, *Special Air Traffic Rules.*

93.XX1 Applicability

This subpart prescribes special air traffic rules for aircraft conducting operations in the Malibu, California Special Flight Rules Area.

93.XX2 Description of area

The Malibu Special Flight Rules Area is designated as that part of Area A of the Los Angeles Class B airspace area at 3,000 feet above mean sea level (MSL), beginning at lat. 34°7′48.85″ N, long. 118°50′42.74″ W, then southbound to lat. 33°59′5.01″ N, long. 118°52′32.47″ W, then eastbound lat. 34°0′40.45″ N, long. 118°29′57.67″ W,

then bound to lat. 34°7′37.40″ N, long. 118°31′4.92″ W, then westbound to the point of beginning.

93.XX3 Aircraft Operation

(a) Each person piloting an aircraft within the [Malibu Airspace] shall remain on the route at the published altitude.

(b) Pilots may deviate from the route and altitude requirements of paragraph (a) of this section only when necessary for safety, or weather conditions.

(c) Each person piloting an aircraft within the Malibu Airspace shall comply with the rules established in 93.XX4.

93.XX4 – Noise Monitoring within the Malibu Airspace

93.XX4(a) Definitions

(i) *Commercial Air Carrier Aircraft,* for the purposes of this Division, shall mean those aircraft operated as a federally certificated air carrier.

(ii) *dB,* A-weighted sound pressure level or A-level shall mean, for the purposes of this Division, the sound pressure level as measured using the slow dynamic characteristic for sound level meters specified in American National Standard Specification for Sound Level Meters, (ANSI S 1.4-1983, Type 1 for Aircraft Noise Measurement), which is hereby incorporated by reference. The A-weighting characteristic modifies the frequency response of the measuring instrument to account approximately for the frequency characteristics of the human ear. The reference pressure is 20 micronewtons/square meter (2 x 10-4 micro- bar).

(iii) *General Aviation Aircraft,* for the purposes of this article, shall mean all other aircraft operated within the Malibu Airspace, except those exempted under Section 93.XX4(d).

(iv) *Single Event Noise Exposure Level ("SENEL"):* The single event noise exposure level, in decibels, for the purposes of this Division, shall mean the noise exposure level of a single event, such as an aircraft flyby, measured over the time interval between the initial and final times for which the noise level of a single event exceeds a predetermined threshold noise level. For implementation of this Section, the threshold noise level shall be at least ten (10) decibels below the numerical

value of the single event noise exposure level limits specified in Sections 93.XX4(b) and 93.XX4(c), as the case may be. Specific SENEL limitations, for purposes of this article, shall be determined at each noise monitoring station without "trade-offs" between noise monitoring stations.

93.XX4(b) Commercial airline operations

(i) No person may engage in commercial airline operations within the Malibu Airspace if such aircraft generate a SENEL level at or above 86.6 dB at any of the noise monitoring stations ("NMS").

(ii) The location of the NMS shall be located at terrestrial coordinates for each waypoint located within the Malibu Airspace. If a waypoint is located within the Malibu Airspace but over water or otherwise inaccessible, then the noise monitoring station will be located at the nearest suitable point on land due north of the waypoint.

93.XX4(c) General aviation operations

(i) No person shall operate any general aviation aircraft within the Malibu Airspace if it generates a SENEL level at or above 86.6 dB, at any of the NMS.

(ii) The location of the noise monitoring stations shall be located at terrestrial coordinates for each waypoint located within the Malibu Airspace. If a waypoint is located within the Malibu Airspace but over water, then the noise monitoring station will be located at the nearest suitable point on land due north of the waypoint.

93.XX4(d) Exemption

The following categories of aircraft shall be exempt from the provisions of Sections 93.XX5(b) and 93.XX5(c):

(i) Aircraft operated by the United States of America or the State of California;

(ii) Law enforcement, emergency, fire, or rescue aircraft operated by any county or city of said state;

(iii) Aircraft used for emergency purposes during an emergency which has been officially proclaimed by competent authority pursuant to the laws of the United States, said State, or the County;

(iv) Civil Air Patrol aircraft when engaged in actual search and rescue missions;

(v) Emergency aircraft flights for medical purposes by persons who provide emergency medical care, provided written information concerning dire emergency is submitted to the FAA Administrator for all emergency aircraft flights within seventy-two (72) hours prior to or after the departure or arrival of the aircraft.

93.XX4(e) Enforcement officials

The FAA Administrator, and such other FAA employees as are designated by the FAA Administrator and who are acting under the direction and control of the FAA Administrator are authorized to enforce the provisions of this Division.

93.XX4(f) Enforcement procedures a

Violation of Section 93.XX5(b) or 93.XX5(c) of this Division shall be a violation of the Federal Aviation Regulations and enforcement of these regulations shall follow the procedures set forth in 14 C.F.R. Part 13, Investigative and Enforcement Procedures, including the allowance for a civil penalty pursuant to 49 U.S.C. § 46301 for violations of these regulations.

VI. CONCLUSION

Federal law requires the Federal Aviation Administration Administrator to give this petition prompt consideration. Additionally, under the Administrative Procedure Act "agency action" is defined to include "the whole or part of an agency rule, order, license, sanction, relief, or the equivalent denial there of *or failure to act*." Therefore, Petitioners are requesting a substantive response to this petition within one hundred eighty (180) calendar days.[63]

Dated: February 9, 2022

Respectfully submitted,

LEECH TISHMAN FUSCALDO & LAMPL, INC.

Steven M. Taber
LEECH TISHMAN FUSCALDO & LAMPL, INC.
200 South Los Robles Ave., Suite 300
Pasadena, California 91101
(626) 796-4000 (phone)
(626) 795-6321 (fax)
staber@leechtishman.com

Counsel for Petitioner City of Malibu, California

[63] Petitioners note that a response period of 180 days has been deemed "reasonable" under the APA. *See* 42 U.S.C. § 7604(a) requiring notice of 180 days prior to commencement of an action for unreasonable delay.