August 14, 2026

Docket Operations, M-30
U.S. Department of Transportation (DOT)
1200 New Jersey Avenue SE
Room W12-140
West Building Ground Floor
Washington, DC 20590-0001

Re: Docket Number FAA-2026-6935 - Notice of Proposed Rulemaking 26-07, Enabling Supersonic Overland Flight, 14 CFR Parts 1 and 91

Dear Administrator Bedford,

Earthjustice and Sierra Club submit these comments to identify many legal and technical errors in the Federal Aviation Administration's (FAA) proposed action titled *Enabling Supersonic Overland Flight*, 91 Fed. Reg. 40470 (July 2, 2026) ("Proposal"). As detailed below, supersonic flight is disproportionately harmful to public health and the environment, and FAA's Proposal fails to adhere to the agency's statutory mandate to protect the public health and welfare from sonic booms and other aircraft noise. The Proposal is also arbitrary and capricious under the Administrative Procedure Act because it proposes a standard that is unsupported and unprotective of public health and welfare, fails to adequately consider its environmental impacts or reasonable alternatives, relies on an inadequate analysis of its costs and benefits, and is procedurally deficient. FAA must withdraw the Proposal.

I. SUPERSONIC FLIGHT IS DISPROPORTIONATELY HARMFUL TO PUBLIC HEALTH AND THE ENVIRONMENT.

A. Air Pollution from Supersonic Flight

Repealing the ban on supersonic flight would have vast environmental and public health impacts. As it stands, aviation's emissions, both historic and current, already account for approximately 3.5-4% of all drivers of climate change from human activity.[1] All aircraft account

[1] National Oceanic and Atmospheric Administration, *Aviation is responsible for 3.5 percent of climate change, study finds*, NOAA.gov (Sept. 3, 2020), https://research.noaa.gov/aviation-is-responsible-for-35-percent-of-climate-change-study-finds/; M. Klöwer, M.R. Allen, D.S. Lee, S.R. Proud, L. Gallagher, and A. Skowron, *Quantifying*

for 11% of U.S. emissions from the transport sector and 4% of all U.S. carbon dioxide (CO_2) emissions overall.[2] Greenhouse gas emissions from the aviation sector continue to rise and endanger public health and welfare. Supersonic planes are expected to burn seven to nine times more fuel per seat-km flown than comparable subsonic designs and would intensify climate damages.[3] A working paper by the International Council for Clean Transportation (ICCT) modeled the reintroduction of supersonic flight with 2,000 aircraft linking 500 city-city pairs in 2035.[4] Such a fleet would emit an estimated 96 (88 to 114) million metric tons of CO_2 annually, approximately the same level as the combined emissions of American, Delta, and Southwest Airlines in 2017.[5] Over the 25-year lifetime of the fleet, it would emit an additional 1.6 to 2.4 gigatonnes of CO_2.[6]

The promise by some supersonic transport companies to use so-called "sustainable aviation fuel," or SAF, which is formulated to result in lower carbon dioxide emissions, is unrealistic given the amount of land needed to produce such fuel, and even if it were possible, it would not eliminate climate concerns raised by supersonic flight.[7] Since supersonic aircraft fly at higher altitudes than subsonic aircraft, their emissions of nitrogen oxides and water vapor would cause harm to the stratospheric ozone layer.[8] These emissions, which supersonic aircraft emit regardless of whether using SAF or standard fuel, have profound climate warming effects.[9]

Aviation's Contribution to Global Warming, 16 Envtl. Res. Lett. 104027, 4 (2021), https://iopscience.iop.org/article/10.1088/1748-9326/ac286e/pdf.

[2] Congressional Research Service, *Aviation, Air Pollution, and Climate Change* 1 (Apr. 26, 2024), https://www.congress.gov/crs-product/IF11696.

[3] Dan Rutherford, Sebastian Eastham, Inés Sanz-Morère, Joonhee Kim, & Ray Speth, *Environmental limits on supersonic aircraft in 2035* (Jan. 2022), https://theicct.org/wp-content/uploads/2022/01/aviation-global-supersonic-safs-mar22.pdf (hereinafter "Rutherford et al. (2022)").

[4] Dan Rutherford, Brandon Graver, & Chen Chen, *Noise and climate impacts of an unconstrained commercial supersonic network* 1 (Jan. 2019), https://theicct.org/sites/default/files/publications/Supersonic_Impact_Working_Paper_20190130.pdf (hereinafter "Rutherford et al. (2019)").

[5] *Id.*

[6] *See generally id.*

[7] For further explanation as to why SAF is an improbable solution to the question of high emissions from supersonic aircraft, *see* Dan Rutherford, *Zero Cheers for the Supersonic Renaissance: Blog* (July 11, 2022), https://theicct.org/aviation-us-supersoynic-jul22/. Generating enough SAF to fuel fifteen of a particular model of supersonic aircraft, Boom Supersonic's Overture, would require more than five million acres of soybeans, or more than South Dakota's entire soybean crop. *Id.*

[8] Sebastian D. Eastham, Thibaud Fritz, Inés Sanz-Morère, Prakash Prashanth, Florian Allroggen, Ronald G. Prinn, Raymond L. Speth, & Steven R. H. Barrett, *Impacts of a near-future supersonic aircraft fleet on atmospheric composition and climate*, 2:3 Environ. Sci.: Atmos. 388, 389 (May 2022), https://doi.org/10.1039/d1ea00081k; *see also* Sebastian D. Eastham, Thibaud Fritz, Inés Sanz-Morère, Prakash Prashanth, Florian Allroggen, Ronald G. Prinn, Raymond L. Speth, & Steven R. H. Barrett, *Correction: Impacts of a near-future supersonic aircraft fleet on atmospheric composition and climate*, 2:3 Environ. Sci.: Atmos. 547 (May 2022), https://doi.org/10.1039/d2ea90009b.

[9] *Id.*

In addition to carbon dioxide, nitrogen oxides, and water vapor, supersonic aircraft emit sulfur, black carbon, carbon monoxide, hydrocarbons, and particulate matter.[10] These emissions correspond approximately with fuel burn, meaning that fuel-intensive supersonic aircraft will also have disproportionate air pollution impacts compared to normal aircraft. These pollutants have detrimental effects on public health, ranging from increased instances of respiratory illness,[11] heart disease,[12] hypertension,[13] and cognitive impairments in children.[14]

B. Noise Pollution from Supersonic Flight and Human Impacts

Along with climate-warming and unhealthy emissions, supersonic aircraft pose a significant public health concern due to the noise pollution caused by the production of a "sonic boom" and other types of noise including evanescent waves. A sonic boom occurs when an aircraft travels faster than the speed of sound, creating an explosive shock wave that travels for tens of miles on either side of the flight path.[15] ICCT found that, when it modeled a network of 2,000 supersonic aircraft connecting 500 city-city pairs, Canada, Germany, Iraq, Ireland, Israel, Romania, Turkey, and parts of the United States would experience frequent sonic booms, with the most exposed regions experiencing between 150 and 200 booms per day - up to one boom every five minutes during a sixteen-hour flight day.[16]

Exposure to aircraft noise pollution *below* sonic boom levels has been linked to sleep disturbance, learning delay in children, mental health problems, heart disease, and annoyance.[17] The World Health Organization's Guideline Development Group strongly recommends reducing the Day-Evening-Night Level (LDEN)—or average, weighted, 24-hour level[18]—of aircraft noise

---

[10] *Id.*
[11] U.S. Environmental Protection Agency, *Basic Information about NO_2* (last updated June 24, 2026), https://www.epa.gov/no2-pollution/basic-information-about-no2.
[12] Usman Sagheer, Sadeer Al-Kindi, Shady Abohashem, Colin T. Phillips, Jamal S. Rana, Aruni Bhatnagar, Martha Gulati, Sanjay Rajagopalan, & Dinesh K. Kalra, *Environmental Pollution and Cardiovascular Disease: Part 1 of 2: Air Pollution*, 3:2 JACC Adv. (Feb. 2024), https://doi.org/10.1016/j.jacadv.2023.100805.
[13] Martin Kaltenbach, Christian Maschke, & Rainer Klinke, *Health Consequences of Aircraft Noise*, 105(31-32) Deutsches Arzteblatt International, 548-556 (Aug. 2008), https://pmc ncbi nlm nih.gov/articles/PMC2696954/.
[14] *See, e.g.*, Irene van Kamp & Lex Brown, *A systematic review of evidence of the effect of transport noise interventions on human health,* Inter-Noise Conference (2016), https://research-repository.griffith.edu.au/server/api/core/bitstreams/8b232a54-8731-47ba-a0f1-6d62b9973456/content; Staffan Hygge, Gary W. Evans, & Monika Bullinger, *A prospective study of some effects of aircraft noise on cognitive performance in schoolchildren*, 13 Psychological Sci. 469 (2002), http://www me.unlv.edu/Undergraduate/coursenotes/egg102/Aircraft%20noise.pdf.
[15] Rutherford et al. (2019) at 2.
[16] *Id.*
[17] World Health Organization, *Environmental noise guidelines for the European region* 63 (2018), https://www.who.int/publications/i/item/9789289053563; Aviation Environment Federation, *Aircraft noise and public health: the evidence is loud and clear* (2016), https://www.aef.org.uk/uploads/Aircraft-Noise-and-Public-Health-the-evidence-is-loud-and-clear-final-reportONLINE.pdf.
[18] Aviation Environment Federation, *Aircraft noise and public health: the evidence is loud and clear* 10

to below 45 decibels during the day and below 40 decibels at night to reduce adverse health effects.[19] The former Concorde supersonic plane, infamous for its extreme sonic boom, produced sound at levels of up to 109 perceived level decibels (PLdb).[20] Even the quietest supersonic planes currently in development will still create noise levels of 75 PLdb in normal supersonic operations.[21]

A study by the International Civil Aviation Organization (ICAO) estimating noise impacts under different demand scenarios for supersonic flight through 2050 found that noise energy could increase by an average of up to 9.5% at all airports with supersonic operations compared to a scenario without supersonic operations.[22] ICAO also estimated that, in the same year and under the same scenario, the area surrounding selected airports exposed to total average day-to-night noise levels (DNL) of up to 55 DNL dB—a threshold higher than the level recommended by the WHO—could increase by 40%.[23]

C. Wildlife Harms from Supersonic Flight

In addition to the serious impacts to human health and welfare, sonic booms also have adverse impacts on wildlife. There are many studies documenting impacts of Concorde flights on wildlife and domestic animals. These studies demonstrate the potential for significant harm to wildlife and, in particular, to endangered species. For example, a study of the California condor, which is listed as endangered under the Endangered Species Act, 16 U.S.C. ch. 35 § 1531 *et seq.*, found that disturbance from sonic boom and low-altitude aircraft sometimes caused an incubating adult to flush from the nest.[24] Repeated disturbance of condors at nests might also cause egg loss through chilling or inadequate feeding of a young bird.[25] In fact, airplane traffic

(2016), https://www.aef.org.uk/uploads/Aircraft-Noise-and-Public-Health-the-evidence-is-loud-and-clear-final-reportONLINE.pdf.

[19] World Health Organization, *Compendium of WHO and other UN guidance on health and environment, Chapter 11: Environmental noise* 2 (2022), https://cdn.who.int/media/docs/default-source/who-compendium-on-health-and-environment/who_compendium_noise_01042022.pdf?sfvrsn=bc371498_3.

[20] Rutherford et al. (2019) at 2; National Aeronautics and Space Administration, *NASA Low Boom Flight Demonstration (LBFD) Project Overview. Presentation at Aviation Noise & Emissions Symposium in Long Beach, California* 8 (Feb. 27, 2018), https://aqrc.ucdavis.edu/sites/g/files/dgvnsk1671/files/inline-files/Craig_Nickol%20LBFD%20Overview%20for%20NE%20Symp%202%2027%2018%20rev4.pdf.

[21] National Aeronautics and Space Administration, *NASA Instruments Will Listen for Supersonic X-59's Quiet 'Thump'* (Feb. 22, 2024), https://www.nasa.gov/centers-and-facilities/armstrong/nasa-instruments-will-listen-for-supersonic-x-59s-quiet-thump/. Note that normal operations do not include Mach cut-off operations. As further explained below, *see* Section III.A.2-3 *infra*, Mach cut-off operations have been studied very little and are difficult to achieve.

[22] International Civil Aviation Organization, *CAEP/13 Complementary Supersonic Study: Estimating Noise and Emissions of Supersonic Aviation Out to 2050* 6 (2025), https://www.icao.int/sites/default/files/environmental-protection/Documents/Environmental_Trends/CAEP13_ComplementarySupersonicStudies_web.pdf.

[23] *Id.*

[24] Sanford R. Wilbur, *The California condor, 1966-1976: a look at its past and future* 38-39, U.S. Fish and Wildlife Service, Washington, D.C., North American Fauna No. 72. (1978), https://digital.library.unt.edu/ark:/67531/metadc700957/m2/1/high_res_d/nafa.72.0001.pdf.

[25] *Id.*

generally (not just sonic booms) has been observed to interrupt condor courtship, which could inhibit reproduction.[26] A meta-analysis reviewing 47 research papers on the impact of aircraft noise generally on bird behavior found noise significantly disrupts avian behavior of at least 22 species, including changes to communication, population abundance, reproductive success, and predator-prey interactions, as well as negative effects to avian stress reactions, foraging activity, flight or flushing reactions, and avoidance of environments impacted by aircraft noise.[27]

Negative impacts from sonic booms have been documented for other kinds of birds, including poultry, waterbirds, and raptors.[28] Domestic chicks exposed to sonic booms have been found to weigh less than those not exposed, and interruption in brooding and reduced egg production were observed in response to general aircraft noise.[29] A colony of sooty terns in southern Florida exposed to frequent sonic booms contained just 242 chicks when researchers arrived, instead of the normal 20,000 to 25,000, amounting to a 98% reduction in reproduction in the colony. The adults who remained were "markedly wild and restless."[30] Sonic booms caused by low-flying military aircraft occurred daily and some were strong enough to shatter windows on a nearby Garden Key.[31] Researchers theorized that the frequent sonic booms disturbed the birds' incubating rhythm and caused nest desertion.[32]

Sonic booms can also negatively impact land mammals and fish. In land mammals, the impacts of sonic boom noise range from startle reactions to health harms such as premature births and insufficient lactation.[33] One study even reported that female domestic minks have killed their own offspring in response to sonic booms.[34] Fish species have been observed to respond to sonic booms, including startle responses, alarm, jumping response, avoidance of noise sources, and other behavioral reactions.[35] A survey of selected U.S. Fish and Wildlife staff reported that fish seizures and death of hatchery fish (striped bass) occurred following intense sonic booms.[36]

---

[26] *Id.*
[27] T.K. Kler, P. Sharm, G.S. Sekhon, & R.K. Aulakh, *Meta-analysis of avian behavioural responses to aircraft noise*, Eco. Env. & Cons. 29 (1): 2023, 426-32, https://www.envirobiotechjournals.com/EEC/volume29issue1/EEC-63.pdf.
[28] Karen M. Manci, Douglas N. Gladwin, Rita Villella, & Mary G. Cavendish, *Effects of aircraft noise and sonic booms on domestic animals and wildlife: a literature synthesis*, U.S. Fish and Wildlife Service, National Ecology Research Center, Ft. Collins, Co. NERC-88/29, 47-48 (1988), https://www.nonoise.org/library/animals/litsyn.htm (hereinafter "Manci et al. (1988)").
[29] *Id.* at 46.
[30] *Id.* at 54.
[31] *Id.*; *see also* n.26 *supra*.
[32] Manci et al. (1988) at 54.
[33] *See, e.g.*, Y. Espmark et al., *Behavioral responses in cattle and sheep exposed to sonic booms and low-altitude subsonic flight noise*, 94 Vet. Rec. 106 (1974); J. Brouček, *Effect of noise on performance, stress, and behavior of animals*, 47 Slovak J. Anim. Sci. 111 (2014); Manci et al. (1988) at 17-23.
[34] Manci et al. (1988).
[35] *Id.*
[36] Douglas N. Gladwin & Karen M. Manci, *Effects of aircraft noise and sonic booms on fish and wildlife: results of a survey of U.S. Fish and Wildlife Service Endangered Species and Ecological Services Field Offices, Refuges,*

***

As further explained below, FAA's Proposal fails to consider these impacts of increased air and climate pollution presented by repealing the ban on overland supersonic aircraft, or to evaluate the harms to public health and welfare, as well as wildlife, caused by exposure to increased noise and sonic boom.

II. FAA IS REQUIRED TO PROTECT THE PUBLIC'S HEALTH AND WELFARE FROM AIRCRAFT NOISE AND SONIC BOOM UNDER 49 U.S.C. § 44715(a)(1)(A).

In the Noise Control Act of 1972, Congress entrusted the FAA, in coordination with EPA, with a statutory duty to "prescribe . . . standards to measure aircraft noise and sonic boom" and necessary regulations to control and abate aircraft noise and sonic boom to relieve and protect "the public health and welfare." Noise Control Act of 1972, Pub. L. No. 92-574, § 611, 86 Stat. 1234, 1239; 49 U.S.C. § 44715(a)(1)(A) (current codification as amended). The statute requires FAA to work with EPA and other relevant agencies in establishing these important standards. *See* 49 U.S.C. §§ 44715(a)(2), (b)(2), (c). In 1973, pursuant to its statutory duty, FAA issued regulations prohibiting civil overland supersonic flight without special authorization. *See* Civil Aircraft Sonic Boom, 38 Fed. Reg. 8051, 8051-55 (Mar. 28, 1973);[37] 14 C.F.R. § 91.817 (current codification as amended). Those regulations have protected the public from sonic booms and other types of supersonic aircraft noise for more than half a century.[38]

On June 6, 2025, the Trump Administration issued Executive Order 14304, which directs the FAA to repeal the longstanding prohibition on overland supersonic flight and to develop new noise-based certification standards for supersonic aircraft on an expedited timetable. *See* E.O. 14304, Sec. 2(a), 90 Fed. Reg. 24717 (June 6, 2025). The Order directs the FAA to issue a notice of proposed rulemaking to repeal the prohibition on overland supersonic flight and establish an "interim noise-based certification standard." E.O. 14304 at Sec. 2(a). The Order asserts—without any support and despite the decades-old prohibition—that modern supersonic flight is "safe, sustainable, and commercially viable." *Id.* at Sec. 1.

Hatcheries, and Research Centers, U.S. Fish and Wildlife Service, National Ecology Research Center, Fort Collins, Co., NERC-88/30 (1987), https://www nonoise.org/library/fishwild/survey.htm.

[37] https://www.govinfo.gov/content/pkg/FR-1973-03-28/pdf/FR-1973-03-28.pdf.

[38] One exception to that general protection was for the Concorde, which flew from 1976 to 2003. *See* Jack Mitchell, *20 years ago, the supersonic passenger jet Concorde flew for the last time*, NPR (Nov. 24, 2023), https://www.npr.org/2023/11/24/1211551109/concorde-last-flight-2003. Some communities along the United States's east coast experienced secondary booms from the Concorde flights off coast, which were the subject of a 1980 study conducted by the U.S. Department of Transportation and discussed further below, *see* Section III.A.2 *infra*.

The Proposal at issue here is FAA's response to the Executive Order's command. With little more factual support than the Executive Order itself, the Proposal arrives at the same predetermined conclusion: the prohibition on civil overland supersonic flight is "outdated" and, so long as such flights operate under conditions operators identify themselves, they will be "safe, efficient, and commercially viable." 91 Fed. Reg. at 40472, 40470. In the Proposal, FAA acknowledges that its "statutory duty [is] to protect public health and welfare from aircraft noise and sonic booms"; to "consider whether a regulation . . . is economically reasonable, technologically practicable, and appropriate for the applicable aircraft"; and to "consider whether a regulation is consistent with the highest degree of safety and carries out the purpose of § 44715." *Id.* at 40473. And yet FAA promotes the Proposal because it "removes regulatory barriers, provides clear pathways for testing and early commercial operations, and positions the United States to serve as the leader in setting global standards for supersonic flight," objectives wholly separate from the agency's duty to the public's health and welfare. *Id.* at 40470. As explained below, FAA's blind commitment to advancing commercial supersonic flight fails to align with FAA's statutory responsibility to "control and abate" aircraft noise and sonic boom, and to "relieve and protect" the public from those effects.

III. THE PROPOSAL MUST BE WITHDRAWN BECAUSE IT IS ARBITRARY, CAPRICIOUS, AND CONTRARY TO LAW.

Under Section 706(2)(A) of the Administrative Procedure Act (APA), an agency action that is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law" must be set aside. 5 U.S.C. § 706(2)(A). To satisfy that statutory standard, FAA's action must be both "reasonable and reasonably explained." *FCC v. Prometheus Radio Project*, 592 U.S. 414, 423 (2021). FAA must "articulate a satisfactory explanation for its action including a 'rational connection between the facts found and the choice made.'" *Motor Vehicle Mfrs. Ass'n of United States, Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (quoting *Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168 (1962)).

FAA cannot "rel[y] on factors which Congress has not intended it to consider" or "entirely fail[ ] to consider an important aspect of the problem," nor can it proffer "an explanation for its decision that runs counter to the evidence before the agency." *Id.* Further, FAA "must consider the 'alternative[s]' that are 'within the ambit of the existing [policy].'" *Dep't of Homeland Sec. v. Regents of the Univ. of Cal.*, 591 U.S. 1, 30 (2020) (quoting *State Farm*, 463 U.S. at 51). When departing from prior positions, FAA must provide "a reasoned explanation . . . for disregarding facts and circumstances that underlay or were engendered by the prior policy." *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515-16 (2009); *see also FDA v. Wages & White Lion Invs., L.L.C.*, 604 U.S. 542, 568 (2025); *Encino Motorcars, L.L.C. v. Navarro*, 579 U.S. 211, 222 (2016).

A. The Proposal Fails to Adequately Protect Public Health and Welfare from Aircraft Noise.

As explained above, Congress entrusted FAA, in coordination with EPA and other key agencies, with a statutory duty to "prescribe standards" that "relieve and protect the public health and welfare from aircraft noise and sonic boom." 49 U.S.C. § 44715(a)(1)(A). The proposed standard for protecting the public from aircraft noise and sonic boom—peak overpressure—cannot meet this standard for at least four reasons: (1) it relies on a metric that does not actually measure human impacts, (2) the proposed standard is not supported by the studies on which FAA relies nor any other publicly available data, (3) the proposed standard does not adequately consider the achievability of Mach cut-off operations, the main compliance option it describes, and (4) the Proposal fails to establish adequate verification and enforcement measures. Additionally, the Proposal's new standard departs from long-held agency policy without sufficient explanation. The proposed standard is therefore arbitrary, capricious, and contrary to the statutory requirements of section 44715(a)(1)(A), and the agency should not finalize it. 5 U.S.C. § 706(2)(A).

1. The Peak Overpressure Standard Cannot Ensure Protection of Public Health and Welfare.

The governing statute does not direct FAA merely to regulate shock waves. Rather, Congress instructed the agency to regulate sonic boom and aircraft noise in a manner that protects "public health and welfare." 49 U.S.C. § 44715(a)(1)(A). To be lawful, FAA's standard must bear a rational relationship to the actual impacts experienced by people and communities. The Proposal does not satisfy that requirement because FAA's chosen metric, peak overpressure, does not measure human impacts directly.

Peak overpressure is the maximum pressure increase above ambient atmospheric pressure in a sonic boom waveform, typically measured in pounds per square foot (psf).[39] As FAA's own sources demonstrate, peak overpressure is a blunt physical metric that does not capture how humans respond to sonic booms, including how loud or disruptive a sonic boom may be.[40] It does not correspond well to any level of community annoyance, sleep disturbance, startle response, vibration, rattle, or other health-and-welfare outcome associated with the selected

[39] *See* FAA-2026-6935-0064, Comment from International Council on Clean Transportation, at 3 (hereinafter "ICCT Comments") (citing Christian R. Bolander, Douglas F. Hunsaker, Hao Shen, & Forrest L. Carpenter, *Procedure for the Calculation of the Perceived Loudness of Sonic Booms*, https://www researchgate net/publication/330207985_Procedure_for_the_Calculation_of_the_Perceived_Loudness_of_Sonic_Booms).

[40] *See* FAA-2026-6935-0009, Larry J. Cliatt, Michael A. Hill, & Edward A. Haering Jr., *Mach Cutoff Analysis and Results from NASA's Farfield Investigation of No-boom Thresholds* 11 (2016), https://downloads.regulations.gov/FAA-2026-6935-0009/attachment_1.pdf (hereinafter "FaINT Study"); *see also* ICCT Comments at 3.

threshold.[41] Two aircraft could generate sonic booms that produce the same peak overpressure value while causing materially different levels of annoyance or disturbance because the shapes of the pressure waves differ.[42] It is unsurprising, then, that ICAO rejected using peak overpressure as a metric for regulating sonic boom in 2014.[43]

The Proposal's 0.11 psf peak overpressure standard is inappropriately technology-driven, not health-driven. The Proposal appears to derive the 0.11 psf threshold from manufacturers' statements about what is achievable when employing a technique known as Mach cutoff operations ("MCO"), which "uses a combination of operational factors (e.g., altitude and Mach speed) and specific atmospheric conditions along the flight path" to create refractions that "prevent potential sonic boom with an overpressure greater than 0.11 psf from reaching the surface." *See* 91 Fed. Reg. at 40473. FAA selected a level reportedly associated with successful boom-abatement scenarios because those scenarios produced little or no measurable boom at the ground, but FAA does not—and cannot—say that its chosen metric corresponds to acceptable levels of annoyance, sleep disturbance, vibration, startle response, property rattle, or any other public-health outcome. 91 Fed. Reg. at 40475. FAA offers no explanation for why a metric that does not reliably predict human impacts satisfies its statutory obligation to protect public health and welfare.

2. The Proposed Standard Is Not Supported by the Studies FAA Cites Nor Any Other Publicly Available Data.

The Proposal acknowledges that the scientific questions central to this rulemaking remain unresolved. As the Proposal explains, in 1973, FAA adopted the prohibition on overland flights because researchers were "unable to identify an acceptable level of sonic boom exposure." 91 Fed. Reg. at 40472. The Proposal acknowledges that "concerns about potential adverse impacts of sonic boom to people on the surface . . . remain true today" and notes that "ongoing research is working to address the characterization of sonic booms and how to limit their impacts." *Id.* at 40474. Indeed, the Proposal explains that NASA's ongoing Quesst mission exists to better understand "the effects of sonic booms on communities" and to gather data capable of correlating sonic-boom characteristics with acceptable noise outcomes, and the agency concedes that "additional research is needed" before the viability of these concepts can be fully assessed. *Id*. at 40474; *see also id.* at 40475 (acknowledging a lack of "integrated metric data available to determine a tolerable level of sonic boom at the surface"). Strikingly, FAA then claims—without providing any additional data or research—that it selected the 0.11 psf standard because it

[41] *See* ICCT Comments at 3.
[42] See ICCT Comments at 3; *see also* Kevin P Shepard, Brenda M. Sullivan, *A Loudness Calculation Procedure Applied to Shaped Sonic Booms*, NASA (Nov. 1991), https://ntrs.nasa.gov/citations/19920002547 ("The loudness of N-waves is controlled by overpressure and the associated rise time. The loudness of shaped booms is highly dependent on the characteristics of the initial shock.").
[43] *See* ICCT Comments at 3-4.

determined that sonic booms were "sufficiently abated by MCO" at that limit. *Id.* at 40475. The agency does not explain how it determined, without new data or research, that sonic booms were "sufficiently abated" to protect public health and welfare so long as their peak overpressure did not exceed 0.11 psf. Instead, FAA purports to rely on two inapposite government studies—a 2016 NASA study entitled "Mach Cutoff Analysis and Results from NASA's Farfield Investigation of No-boom Thresholds (FaINT)"[44] and a 1980 study called "Detection and Assessment of Secondary Sonic Booms in New England" conducted by U.S. DOT's John A. Volpe National Transportation Systems Center ("NTSC")[45]—as well as unsupported statements from manufacturers. Those sources are inadequate to justify FAA's chosen threshold for protecting public health and welfare.

a) *NASA's FaINT Study*

NASA's FaINT study was a research project conducted in 2012 by NASA's Armstrong Flight Research Center and Langley Research Center in collaboration with industry and academic partners to improve understanding of acoustic propagation in the MCO "shadow zone," which NASA describes as "a field of subsonic waves with exponentially decreasing magnitude (evanescent waves)."[46] The study's key goals were to "develop and execute the methods to measure shadow zone acoustics below [cutoff altitude], and to collect a comprehensive database of the resulting evanescent waves," as well as to research "an appropriate metric for describing sonic boom waveforms in the shadow zone" and "an empirical model for noise levels in the [MCO] shadow zone"—not to evaluate human impacts at different overpressure levels or to identify an acceptable level of exposure to sonic booms or evanescent waves.[47] To accomplish its objectives, NASA flew an F-18 airplane six times over three days at Mach numbers between 1.128 and 1.174 and altitudes between 34,400 and 39,300 feet while collecting acoustic measurements.[48] The study did not collect any data about human impacts related to those acoustic measurements. The study proposed Perceived Sound Exposure Level (PL_{SEL}) as a potentially useful metric for "further study of sonic boom signatures of the type experienced in the Mach cutoff shadow zone," and developed an "empirical relationship between airplane flight conditions and sound exposure levels in the shadow zone."[49]

Nothing in the FaINT study suggests that overpressure can be used as a metric to ensure protection of public health and welfare from sonic boom at all, much less that 0.11 psf is an acceptable regulatory overpressure level to replace the ban on civil overland supersonic flight.

---

[44] *See* FaINT Study (full citation in n. 40 *supra*).
[45] *See* FAA-2026-6935-0010, Edward J. Rickley & Allan D. Pierce, *Detection and assessment of secondary sonic booms in New England*, Report No. FAA-AEE-80-22 (May 1980), https://www regulations.gov/document/FAA-2026-6935-0010 (hereinafter "NTSC Study").
[46] FaINT Study at 4, 1.
[47] *Id.* at 3, 11.
[48] *Id.* at 10.
[49] *Id.* at 21, 22.

Critically, NASA chose a *different* metric for measuring noise impacts from sonic boom: PL_{SEL}. FAA says it based its 0.11 psf threshold in part on the FaINT datasets, but never explains how that data supports such a threshold. *See* 91 Fed. Reg. at 40475. In fact, the FaINT study expressly rejected using overpressure alone as an appropriate metric for analyzing Mach cutoff acoustics, explaining that:

> Overpressure alone is not sufficient for all sonic boom analysis, because peak values do not offer insight into characteristics such as frequency content, rise time and signature length. Capturing these characteristics is essential to understanding sonic booms in the shadow zone.[50]

The study also states that "a comprehensive, validated understanding of the noise levels in the shadow zone" for MCO was necessary, and future noise regulations would depend on maintaining sound levels below a "yet-to-be-defined threshold," making clear that the study itself did not establish such a threshold.[51] FAA's analysis also attempts to portray MCO as a technique that can prevent sonic booms from reaching the surface at all because all that remains is evanescent waves, *see* 91 Fed. Reg. at 40475, but the FaINT study makes clear that, even when MCO causes only evanescent waves to reach the ground, "the evanescent waves caused by [Mach cutoff] are still classified as sonic booms."[52] Accordingly, the study provides no evidentiary basis for concluding that overpressure is an acceptable metric for protecting public health and welfare from sonic booms, much less that an overpressure of 0.11 psf is an appropriate regulatory limit.

b) NTSC Study

The objective of the second study on which FAA relies, the 1980 NTSC study, was to investigate and assess reports of "secondary sonic booms" in New England and to determine their source and propagation and disturbance mechanisms.[53] The researchers took acoustic measurements at monitoring sites in Massachusetts and Pennsylvania and compared those measurements with Concorde flight information.[54] The report concluded that secondary sonic booms frequently reported by New England residents were generated by Concorde flights operating offshore en route to John F. Kennedy International Airport and that atmospheric conditions strongly influenced whether, where, and with what intensity such booms reached the ground, with secondary booms reaching New England communities more often in summer months.[55] The study further found substantial variability in measured pressure amplitudes from

[50] *Id.* at 11.
[51] *Id.* at 2.
[52] *Id.* at 2.
[53] NTSC Study at xii, 1.
[54] *Id.* at 7-10.
[55] *Id.* at 24, 31-32.

flight to flight, day to day, and location to location.[56] The authors observed that sonic booms from offshore Concorde flights generally became audible to technicians at approximately 0.1 psf peak-to-peak overpressure and, on several days, these "secondary booms" recorded sound level meter measurements up to 58 dBA and, in one instance, exceeded 60 dBA.[57] Like NASA's FaINT study, the report was not designed to establish a regulatory threshold for sonic-boom exposure and did not evaluate human impacts from exposure to sonic booms and evanescent waves.[58]

The NTSC study also fails to support FAA's chosen standard. The study's purpose was to detect and characterize secondary sonic booms associated with *offshore* Concorde supersonic flight and to assess the atmospheric mechanisms responsible for those events—not to identify a safe or acceptable level of exposure to sonic booms. The study found substantial variability in measured pressures, with maximum pressure changes for a given waveform ranging from as low as 0.01 psf to as high as 0.69 psf, but it offers no analysis establishing that 0.11 psf represents a threshold for anything, much less human impacts.[59] Moreover, the authors emphasized the difficulty of predicting where atmospheric focusing would concentrate sonic-boom energy, stating that it is "virtually impossible to predict precisely where the energy will be most concentrated," underscoring that the report characterized certain secondary booms without identifying—nor seeking to identify—a specific human exposure standard.[60] FAA provides no explanation for why this study supports its chosen threshold—only that it "included data" from the study to select its arbitrary, unsupported limit. *See* 91 Fed. Reg. at 40475.

c) Manufacturer Statements

In the Proposal, FAA states that it held listening sessions in August 2025 with six original equipment manufacturers—including Boom Supersonic, Pivotal SST, Gulfstream, Spike SST, Boeing, and Hermeus—and two trade associations—General Aviation Manufacturers Association and Aerospace Industries Association. 91 Fed. Reg. at 40473 & n.24. FAA asserts that manufacturers "have demonstrated it is *possible* to fly supersonic aircraft without sonic booms reaching the surface by using sonic boom abatement techniques," including MCO. *Id.* at 40473 (emphasis added). Despite the limited data available, FAA next declares, without qualification, that the refractions created through MCO "prevent[] potential sonic boom with an overpressure greater than 0.11 psf from reaching the surface." *Id.* FAA next states that "[m]anufacturers have stated that it *may be possible* with avionics technologies to scale MCO such that operators can use the technique to operate at supersonic speeds and abate sonic booms at the surface." *Id.* (emphasis added). FAA says this technique was demonstrated in the NASA

[56] *Id.* at 12-13.
[57] *Id.* at 17.
[58] *Id.* at 32.
[59] *Id.* at xii, 32-33.
[60] *Id.* at 4.

FaINT study—which, as explained above, does not support setting a 0.11 psf regulatory threshold for sonic booms—and "by Boom Supersonic on February 10, 2025, under an SFA authorized by" FAA. *Id*. To support that representation by Boom Supersonic, FAA cites a press release on the company's website. *Id.* at 40473 n. 22 (citing "Boom Supersonic Announces Boomless Cruise" (Feb. 10, 2025), available at https://boomsupersonic.com/press-release/boom-supersonic-announces-boomless-cruise). The link to the press release included in the Proposal is broken, leading to a webpage saying the page no longer exists.

FAA appears to be establishing the 0.11 psf standard in part based on Boom Supersonic's February 10, 2025 test flight. To the extent FAA is basing its standard off mere representations from a manufacturer (captured for the public in a press release to which the link is broken), it is undoubtedly arbitrary and capricious. To the extent FAA is basing its standard off other representations or data from manufacturers like Boom Supersonic, it must disclose that data and make it available to the public for notice and comment. Under the APA, to "allow for useful criticism, it is especially important for the agency to identify and make available technical studies and data that it has employed in reaching the decisions to propose particular rules." *Connecticut Light & Power Co. v. Nuclear Regul. Comm'n*, 673 F.2d 525, 530 (D.C. Cir. 1982); *see also Am. Radio Relay League, Inc. v. F.C.C.*, 524 F.3d 227, 237 (D.C. Cir. 2008) ("It would appear to be a fairly obvious proposition that studies upon which an agency relies in promulgating a rule must be made available during the rulemaking in order to afford interested persons meaningful notice and an opportunity for comment."); *Window Covering Manufacturers Ass'n v. Consumer Prod. Safety Comm'n*, 82 F.4th 1273 (D.C. Cir. 2023) (holding agency violated the APA's notice-and-comment requirements by "failing to disclose internally compiled injury-incident data on which [the] proposed rule and final rule relied"). Because FAA appears to base its 0.11 psf threshold off what is achievable through MCO as demonstrated by the FaINT Study and Boom Supersonic's test flight on February 10, 2025, it must disclose any materials and data from Boom Supersonic upon which it is relying for the rule.

***

As stated above, FAA acknowledges that it selected the 0.11 psf threshold despite "the lack of integrated metric data available to determine a tolerable level of sonic boom at the surface." 91 Fed. Reg. at 40475. That admission alone demonstrates that the Proposal is not based on a determination that 0.11 psf protects public health and welfare. Rather, FAA selected the threshold because it corresponds to a level that MCO may be capable of achieving under certain circumstances. That does not adhere to Congress's mandate that FAA protect public health and welfare. Previously, FAA has admitted that—despite the FaINT and NTSC studies—the agency lacks sufficient data to create an overpressure threshold for sonic booms that is protective of the public. In a 2021 rulemaking updating SFA procedures for supersonic flights, well after both studies were completed and available, FAA expressly rejected calls to set an

overpressure standard because "[t]here are no accepted means of measuring supersonic noise, nor are there any noise limits that have been deemed acceptable as a community standard, whether expressed in decibels or as sonic overpressure," 86 Fed. Reg. 3782, 3788-89 (Jan. 15, 2021).[61] The Proposal arbitrarily and unlawfully does not explain how those two studies suddenly support arriving at a different conclusion, nor how a single 2025 test flight—for which no data is referenced or available—could do so. Because these studies and representations offer no support for FAA's chosen standard, there can be no "rational connection" between the facts on which FAA relies and the choices it has made, and it has not explained its change in position. *State Farm*, 463 U.S. at 43. FAA must withdraw the Proposal.

3. The Proposed Standard Does Not Adequately Consider Whether MCO is Consistently Achievable Enough to Protect Public Health and Welfare.

Even assuming the 0.11 psf standard were protective of public health and welfare, the Proposal fails to comply with FAA's statutory duty because it assumes MCO could satisfy that standard without acknowledging that it lacks data demonstrating MCO is regularly achievable in practice. FAA acknowledges that achieving MCO requires "specific atmospheric conditions," *id.* at 40473, and that operators must account for "uncertainty in the terrain, actual weather, and atmospheric parameters that ensure MCO are achievable along the flight path." 91 Fed. Reg. at 40476. But the Proposal fails to acknowledge that small deviations from modeled atmospheric conditions may alter sonic-boom propagation, failing to ensure protection of public health and welfare.

Indeed, both studies on which FAA relies for its standard indicate that a 0.11 psf threshold may not be regularly achievable in practice. The NTSC study expressly states "the locations where strongest focusing occur vary significantly with meteorological conditions," and that it is "virtually impossible to predict precisely where the energy will be most concentrated."[62] The authors repeatedly emphasize that secondary sonic boom amplitudes vary dramatically from flight to flight, day to day, and location to location because of meteorological conditions and atmospheric focusing effects.[63] NASA's more recent FaINT study does not indicate that more modern technology has solved these issues, explaining that "incorrect estimates of [MCO speeds] on the order of only 0.005 can result in a difference of +/- 15 decibels or more" and "variations in atmospheric conditions on the order of 3 knots in wind speed, 10-degrees in wind direction, and 3-degrees Celsius in temperature could result in [perceived sound levels] of over 20 dB higher than the mean."[64] Part of its results showed "wide dispersion of noise levels due to relatively small changes in atmospheric conditions," including "some cases" that "resulted in PL_{SEL} greater than 80 dB," which is equivalent to the PL_{SEL} of some normal, non-cutoff sonic

[61] https://www.regulations.gov/document/FAA-2019-0451-0209.
[62] NTSC Study at xii, 4.
[63] *Id.* at 12-13, 24, 31-32.
[64] FaINT Study at 22; *see also* ICCT Comments at 5.

booms.[65] In fact, the FaINT study concludes by stating that its "simulations also showed that adding realistic perturbations in flight conditions could result in a much wider, harder-to-predict dispersion of PL_{SEL}."[66]

FAA claims that NASA's modeling program, PCBoom, has a "proven record of utility in predicting MCO conditions when actual atmospheric conditions are known" and provided the "necessary" information for flight demonstrations of MCO as part of the FaINT study. 91 Fed. Reg. at 40476. But, as ICCT explains in its comments, PCBoom is used for post-flight applications and studies, analyzing MCO under "idealized assumptions"—not to regularly evaluate flight-by-flight conditions such to ensure that MCO is operationally achieved.[67]

The risks of slipping out of these narrow flight conditions is significant. As ICCT explains in its comments, falling outside of the precise conditions necessary to maintain MCO may result in a concentrated "super boom" resulting in an overpressure that is three times more powerful than a normal sonic boom.[68] Indeed, researchers at Pennsylvania State University found that such booms can occur "with only a 1% change in cruise speed for certain windspeeds and headings."[69] By failing to acknowledge the uncertainties and risks associated with MCO, and the tools used to ensure MCO achievability, FAA fails to satisfy its statutory obligation under 49 U.S.C. § 44715, and to address important aspects of the "problem" the Proposal is trying to address. *State Farm*, 463 U.S. at 43.

4. The Proposal Fails to Establish Adequate Enforcement and Verification Measures Necessary to Protect Public Health and Welfare.

Even if the proposed standard were scientifically justified, the rule lacks the enforcement framework necessary to ensure compliance. FAA does not establish mandatory monitoring requirements, real-time verification procedures, independent auditing mechanisms, public reporting obligations, complaint-resolution procedures, community-based validation systems, or any other mechanism that could independently ensure compliance with its standard. Rather, the Proposal seeks to give operators "flexibility . . . regarding methods of compliance to meet the standard," *id.* at 40475, potentially including proprietary methodologies approved by FAA. 91 Fed. Reg. at 40476. Indeed, the Proposal—which establishes an operational standard—suggests that operators could eventually "make certain demonstrations of compliance to the FAA, rather

[65] FaINT Study at 18.
[66] FaINT Study at 22.
[67] *See* ICCT Comments at 6.
[68] *Id.* at 5 (citing Domenic J. Maglieri, Percy J. Bobbitt, Kenneth J. Plotkin, Kevin P. Shepherd, Peter G. Coen, & David M. Richwine, *Sonic Boom: Six decades of Research*, NASA Langley Research Center (2014), https://ntrs nasa.gov/citations/20150006843).
[69] ICCT Comments at 5 (citing Victor W. Sparrow, *Project 042 Acoustical Model of Mach Cut-off Flight*, FAA Center of Excellence (2019), https://ascent.aero/documents/2019/07/ascent-project-042-2018-annual-report.pdf/).

than complying in an operational sense" at all. 91 Fed. Reg. at 40476. Such an enforcement mechanism could not ensure protection of the public health and welfare from sonic booms.

Further demonstrating that the proposed standard lacks adequate data, FAA admits that using MCO to prevent sonic booms from reaching the surface is a "concept," *id.* at 40475, and for that reason anticipates that compliance will primarily be demonstrated through "flight testing" at first and then, "as the data pool grows and develops," manufacturers may develop "reusable mathematical models and analyses, validated through test data, that can confidently estimate the sonic boom overpressure at the surface without the need for additional flight testing," *id.* at 40476-77.

For each flight enabled by the Proposal, then, FAA does not appear to require that compliance be independently verifiable. It does not explain whether any operational compliance reports would be publicly available, whether communities could challenge the adequacy of a company's compliance, whether any remedies would be available when residents experience disruptive sonic-boom events, or how FAA will detect and enforce violations. In other words, the Proposal's compliance measures are no more reassuring than a trust fall exercise, and it provides no recourse for the public it is obligated to protect when operators fall short.

These omissions are particularly concerning given FAA's estimate that making the required certification finding will require relatively limited agency resources compared with the existing SFA review process, as explained further below. *See* Section III.C *infra*. The Proposal provides little basis for concluding that a less resource-intensive review framework will adequately protect the public once routine nationwide operations begin.

5. The Proposal Departs from Long-Held Agency Policy Without Sufficient Explanation.

The Proposal represents an unexplained departure from longstanding FAA policy concerning supersonic aircraft noise. For nearly five decades, FAA repeatedly maintained that future supersonic aircraft should not impose greater community noise impacts than contemporary subsonic aircraft and that it lacked sufficient data to determine a level of exposure to sonic booms that would protect public health and welfare. In the Proposal, recognizing it still lacks that data, FAA decides it can permit overland supersonic flight anyway. The agency fails to adequately explain its complete policy reversal.

For decades, consistent with its statutory obligations, the agency has prioritized protecting the public health and welfare from sonic booms over commercial supersonic flight. In the 1973 rulemaking prohibiting civil overland supersonic flight, FAA explained that it did not intend for "any of the burden of environmental risk be shifted to the general public in the form of

an uncertain probability of sonic boom annoyance." Civil Aircraft Sonic Boom, 38 Fed. Reg. 8051, 8052 (Mar. 28, 1973).[70] FAA rejected comments encouraging the use of "regular air carrier routes" as "experimental sonic boom corridors" because of this "policy against causing the public at large to bear the risk of annoyance caused by sonic boom experimentation." *Id.* FAA has continued to adhere to this policy throughout the years when:

- requiring, in 1978, all civil supersonic airplanes except certain Concorde flights to comply with noise limits originally applicable to subsonic airplanes in order to operate in the United States, *see* 43 Fed. Reg. 28406 (June 29, 1978) ("These provisions respond to the public need for the control of sonic boom and SST noise in accordance with § 611 of the Federal Aviation Act of 1958, as amended by the Noise Control Act of 1972.");[71]
- rescinding a 1990 proposed amendment to type certification noise standards and noise operating rules for future-generation supersonic airplanes as "premature," 59 Fed. Reg. 39679, 39679-80 (Aug. 4, 1994) (noting that, in any future rulemaking, "FAA would propose that any future SST airplane shall produce no greater noise impact on a community than a subsonic airplane certified to Stage 3 noise limits");[72]
- updating the FAA's policy statement on noise limits for civil supersonic aircraft in 2008, reiterating that "[b]efore the FAA can address a change in operational restrictions, it needs thorough research to serve as a basis for any regulatory decisions" and "[p]ublic involvement will be essential in defining an acceptable sonic boom requirement," 73 Fed. Reg. 62871, 62782 (Oct. 22, 2008);[73] and,
- as mentioned above, updating SFA procedures in 2021 while rejecting calls to set an overpressure standard, *see* 86 Fed. Reg. 3782, 3788-89 (Jan. 15, 2021).

And yet, with no more definitive data about the human impacts of sonic booms and other supersonic aircraft noise, such as secondary booms, FAA repeals its protections of the public with little more than cursory references to commercial interest. This departure from past policy is unexplained and unlawful. *See Fox Television Stations*, 556 U.S. at 515-16; *see also Wages & White Lion Invs.*, 604 U.S. at 568; *Encino Motorcars*, 579 U.S. at 222.

Similarly, FAA has recognized for decades that *data* about human impacts must enforce whatever sonic boom limits it sets, and those limits must be enforceable. In the 1973 rulemaking, FAA explained that "under the current state of the art of sonic boom control, there is no basis for establishing an 'acceptable' overpressure limit, nor is there any assurance that a regulation that addresses only the sonic boom 'signature' can provide a predictable basis for protecting the public from sonic boom of any given intensity." 38 Fed. Reg. at 8053. FAA thus concluded that its speed limitation was "necessary in order to insure effective control of sonic boom generation

[70] https://www.govinfo.gov/content/pkg/FR-1973-03-28/pdf/FR-1973-03-28.pdf.
[71] https://www.govinfo.gov/content/pkg/FR-1978-06-29/pdf/FR-1978-06-29.pdf.
[72] https://www.govinfo.gov/app/details/FR-1994-08-04.
[73] https://www.govinfo.gov/content/pkg/FR-2008-10-22/pdf/E8-25052.pdf.

at the source." *Id.* In response to comments that such a limitation would limit investment in supersonic development, FAA explained that "until a truly acceptable and controllable sonic boom signature can be conservatively demonstrated, the aircraft industry must weigh [that] risk against the market-potential for the aircraft," and the risk should not be "shifted to the general public in the form of an uncertain and uncontrolled probability of disturbance from sonic boom." *Id.*; *see also id.* at 8054 (explaining that a full ban was necessary because of inadequate "prediction capability" to ensure sonic booms did not reach the surface under different atmospheric conditions). FAA noted that industry had not provided any "evidence that would support a definition of 'acceptability' in terms of specific overpressures, any evidence that industry has developed means of controlling those overpressures, or indeed, any evidence that overpressure itself is a proper index of annoyance." *Id.*

All of this has remained true for decades and remains true today. Because of this longstanding position, FAA has consistently declined to soften regulations of civil supersonic overland flights. *See, e.g.*, 43 Fed. Reg. at 28414 (finding the agency lacked "adequate technical information at this time to use as a basis for establishing type certification noise standards for future design SST's"); 59 Fed. Reg. at 39679 (concluding that "further investigation and research is necessary" before new noise standards for supersonic aircraft can be developed); 73 Fed. Reg. at 62872 (stating that "[n]oise standards for supersonic operation will be developed as the unique operational flight characteristics of supersonic designs *become known* and the *noise impacts* of supersonic flight are *shown to be acceptable*") (emphasis added); 86 Fed. Reg. at 3789 ("the circumstances have not changed, and there is no current data to support either eliminating the rule or determining a level of acceptable measurable sonic boom overpressure other than zero, which would be necessary before flights outside a test area could be considered"). And yet, FAA's Proposal completely reverses course with no more than unsupported, conclusory statements about what "manufacturers" have purportedly achieved in recent testing and citations to studies that fail to support its conclusions.

The Proposal never explains why these longstanding policies should be abandoned. Under settled administrative law, the agency must explain why the prior approach was wrong or unsupported. *See Fox Television Stations*, 556 U.S. at 515-16. The Proposal fails to do so. Put another way, FAA determined in 1973, and then again in 1978, 1994, 2008, and 2021 that uncertainty regarding acceptable levels of human exposure to sonic boom justified a nationwide ban of civil supersonic flight overland. In 2026, FAA acknowledges substantially the same uncertainty but proposes that an arbitrary peak overpressure level is sufficient to protect public health and welfare. That is inconsistent with the reasoned decision-making required by the APA.

B. The Proposal Fails to Adequately Consider its Environmental Impacts.

1. FAA Failed to Produce an Environmental Impact Statement for the Proposal in Accordance with NEPA.

The National Environmental Policy Act (NEPA) requires the federal government to identify and assess in advance the likely environmental impact of its proposed actions, including its authorization or permitting of private actions. 42 U.S.C. § 4321 *et seq.*; *Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 756-57 (2004). These requirements serve the twin purposes of ensuring that (1) agency decisions include informed and careful consideration of environmental impact and (2) agencies inform the public of that impact and enable interested persons to participate in deciding what projects agencies should approve and under what terms. *Id.* at 768.

At the heart of NEPA is the procedural requirement that federal agencies prepare and make publicly available, in anticipation of proposed "major Federal actions significantly affecting the quality of the human environment," an Environmental Impact Statement (EIS) that assesses the action's anticipated direct and indirect environmental effects, and that the agencies consider alternatives that might lessen any adverse environmental impact. 42 U.S.C. § 4332(C); FAA Order 1050.1G § 1.2. When it is uncertain whether a proposed federal action will "significantly affect" the environment so as to require an EIS, FAA policy calls for the agency to prepare an Environmental Assessment (EA)—a preliminary consideration of potential environmental effects in a "concise" public document designed to analyze "whether the environmental effects of the action or project *at hand* are significant". FAA Order 1050.1G § 1.5(a), (d); *see Pub. Citizen*, 541 U.S. at 757-58. If, informed by the EA, the agency finds no need for an EIS, it must prepare a "finding of no significant impact" (FONSI) that includes or summarizes the EA and briefly explains why the agency believes the action will not have a significant effect on the environment. FAA Order 1050.1G § 1.6(a). FAA has failed to comply with these statutory obligations and its own procedures.

a) The Proposal Does Not Fall Within a Categorical Exclusion.

FAA claims that "this proposed rulemaking is categorically excluded pursuant to FAA Order 1050.1G § 1.4(f)," 91 Fed. Reg. at 40483, which serves as the agency's procedures and policy for compliance with NEPA.[74] The Order provides that FAA will not prepare an EA for an action it deems to fall into a categorical exclusion unless there are extraordinary circumstances. FAA Order 1050.1G § 1.4(f). In the Proposal, FAA specifically invokes the

[74] Though FAA is also governed by a DOT Order establishing department-wide NEPA implementing procedures with which the FAA procedures must conform, DOT Order 5610.1D § 1, the DOT Order empowers agency-specific NEPA rules on issues like categorical exclusions. *See* DOT Order 5610.1D § 9, https://www regulations.gov/document/FAA-2026-6935-0008.

categorical exclusion addressing implementation of existing regulatory programs. 91 Fed. Reg. at 40483; FAA Order 1050.1G, App. B–2.6. FAA asserts that it "does not anticipate any environmental impacts, and there are no extraordinary circumstances present in connection with this rulemaking." 91 Fed. Reg. at 40483.

To properly invoke a categorical exclusion, an agency must provide adequate justification, include documentation, and explain why there are no extraordinary circumstances. "Before applying a [categorical exclusion], FAA must prepare 'concise' supporting documentation citing the [categorical exclusion] used, describing why its application is appropriate, and explaining that there are no relevant extraordinary circumstances." *City of Burien v. Elwell*, 790 Fed. App'x 857, 858-59 (9th Cir. 2019). FAA has not provided this documentation or explained why application of the categorical exclusion is appropriate. Not only did FAA fail to justify the categorical exclusion, it is evident that this proposed rule to repeal the ban on overland civil supersonic flight does not qualify for a categorical exclusion for at least three reasons.

First, the Proposal does not qualify for the invoked categorical exemption because it does not involve the implementation of an existing regulatory program. The FAA invokes a categorical exclusion in Appendix B–2.6, which covers categorical exclusions "for FAA actions *involving compliance with, or exemptions* to, regulatory programs or requirements." 91 Fed. Reg. at 40483; FAA Order 1050.1G, App. B–2.6 (emphasis added). The categorical exclusions in this section include, among other items, "[a]uthorizations and waivers for infrequent or one-time actions, such as an air show or aviation-related exposition/event"; denials of certain "routine petitions"; and the "[i]ssuance of regulatory documents (e.g., Notices of Proposed Rulemaking and issuance of Final Rules) covering administrative or procedural requirements." FAA Order 1050.1G, App. B–2.6. These categorical exclusions do not include FAA actions involving supersonic flight or aviation certification rulemakings. Indeed, Order 1050.1G expressly provides "[a]uthorization to exceed Mach 1 flight under 14 CFR § 91.817, Civil Aircraft Sonic Boom," the current supersonic flight regime involving special flight authorizations, normally requires an environmental assessment. *Id.* at § 1.5(c)(4). In lieu of a more specific provision, the FAA cites to a catch-all categorical exclusion at the end of the appendix, which applies to "[r]egulations, standards, and exemptions (*excluding those that if implemented may cause a significant impact on the human environment*)." *Id.* at App. B–2.6(f) (emphasis added).

FAA's Proposal does not fall within the Appendix B–2.6(f) exemption because it does not involve the implementation of an existing regulatory program—the focus of the categorical exclusions in Appendix B–2.6—but instead the establishment of an entirely new regulatory scheme. Indeed, that new regulatory scheme governs an area where the FAA's own

rules indicate EAs are normally required[75] even for special flight authorization permits, which are authorizations under an existing regulation. *Id.* at § 1.5(c)(4). SFAs authorize actions that are much more limited than the proposed rule, as described in further detail below.

Second, even if the Proposal were among the "regulations, standards, and exemptions" contemplated by Appendix B–2.6, this rule would likely result in significant environmental impacts, as outlined in Section I and below, and thus be exempted from exclusion by Appendix B–2's own text. *Id.* at App. B–2.6(f) (emphasis added) (applies to "[r]egulations, standards, and exemptions (*excluding those that if implemented may cause a significant impact on the human environment*).")

Third, even if the Proposal fell within the text of Appendix B–2.6(f), it involves several "extraordinary circumstances" and would likely have significant environmental impact, likewise precluding it from categorical exclusion. FAA Order 1050.1G App. B–1(a). The FAA Order provides that categorical exclusions do not apply if there are "extraordinary circumstances" and the proposed action will have a "significant impact." *Id.* at § 1.4(f), § 1.5(c)(19), App. B–1(a). "Extraordinary circumstances are factors or circumstances that indicate a normally categorically excluded action may have a significant [environmental] effect." *Id.* at App. B–1(a). An extraordinary circumstance exists if a proposed action involves any of twelve specified circumstances. *See id.*[76] The proposed action—repealing the ban on civil supersonic flight—involves at least the following extraordinary circumstances specified in the Order:

> (3) An effect on natural, ecological, or scenic resources of Federal, state, Tribal (including Tribal trust or treaty protected resources), or local significance (e.g., federally listed or proposed endangered, threatened, or candidate species, or designated or proposed critical habitat under the Endangered Species Act, 16 U.S.C. §§ 1531-1544);
>
> . . .
>
> (7) An effect on noise levels of noise sensitive areas;

---

[75] *See, e.g.*, Federal Aviation Administration, *Final Environmental Assessment for Boom Technology XB-1 Supersonic Test Flights* at 1 (Feb. 2024), https://www.faa.gov/media/74461; Federal Aviation Administration, *Federal Aviation Administration Reliance on and Adoption of Environmental Impact Statement and Record of Decision for the Hermeus Special Flight Authorization to Conduct Testing of the Supersonic (Greater than Mach 1.0) Quarterhorse Mark 2.1 Unmanned Aircraft System Over Land at White Sands Missile Range, New Mexico* (Feb. 2026), https://www.faa.gov/about/office_org/headquarters_offices/apl/aee/env_policy/sfa_supersonic/Reliance-on-Env%20Docs-clean-Hermeus-signed.pdf; Federal Aviation Administration, *SpaceX Starship Super Heavy Project at the Boca Chica Launch Site* (July 13, 2026), https://www.faa.gov/space/stakeholder_engagement/spacex_starship.

[76] *See also* DOT Order 5610.1D § 9(b) (providing that, when a categorical exclusion is promulgated by a specific agency within the DOT, the extraordinary circumstances provisions promulgated by that agency govern, rather than the DOT's general provision).

(8) An effect on air quality or violation of Federal, state, tribal, or local air quality standards under the Clean Air Act, 42 U.S.C. §§ 7401-7671q; . . .

(10) Effects on the quality of the human environment that are likely to be highly controversial on environmental grounds. . . .

. . .

(12) Likelihood to create a significant impact on the human environment . . . .

FAA Order 1050.1G App. B–1(b). FAA does not explain how the Proposal could possibly not involve these extraordinary circumstances. For all these reasons, FAA's invocation of a categorical exclusion is inappropriate and unlawful.

b) FAA Issues Extensive Environmental Assessments for Limited Supersonic Flight Authorizations.

FAA's application of a categorical exclusion is inconsistent with its own prior evaluations of supersonic flight and sonic booms. As noted above, FAA's own NEPA implementing rules state that supersonic flight authorization normally requires an environmental assessment. *Id.* at § 1.5(c)(4). In February 2024, FAA released an 84-page environmental assessment for a supersonic flight authorization for Boom Technology, a supersonic aircraft developer.[77] Boom Technology sought permission for a flight test program involving "limited supersonic flight operations within the confines of the pre-existing supersonic corridors within [areas already] used for daily military aircraft supersonic testing."[78] Specifically, Boom's test program was "expected to include approximately 10-20 supersonic tests, with each supersonic test including up to 2 aircraft."[79] All tests were expected to be conducted within one year after FAA issued an airworthiness approval.[80]

Even for these comparatively limited operations underneath a pre-existing regulatory scheme, FAA conducted an extensive environmental assessment, evaluating ten categories of potential impact: air quality; biological resources; climate; Department of Transportation Section 4(f) lands; hazardous materials, solid waste, and pollution prevention; historical, architectural, archeological, and cultural resources; natural resources and energy supply, noise and noise compatible land use; socioeconomic, environmental justice, and children's environmental health and safety risks; and cumulative impacts.[81]

[77] Federal Aviation Administration, *Final Environmental Assessment for Boom Technology XB-1 Supersonic Test Flights* at 1 (Feb. 2024), https://www.faa.gov/media/74461.
[78] *Id.* at 1.
[79] *Id.* at 2.
[80] *Id.* at 7.
[81] *Id.* at 12.

The EA first looked at air pollution emissions under Clean Air Act (CAA) standards, noting that supersonic flight emits all six major air pollutants.[82] FAA ultimately determined that emissions from Boom Technology's limited operations would not exceed the de minimis emissions standards under the CAA.[83]

Next, FAA turned to biological resources—flora, fauna, and their associated habitats—under an array of federal statutes.[84] Boom Technology's proposed operations were limited to a small geographic area in the Mojave Desert, where wildlife is comparatively simple and birds in particular are less abundant.[85] But even in this relatively sparse environment, the U.S. Fish and Wildlife Service (USFWS), when consulted with as required by the Endangered Species Act, indicated that there were 6 endangered or threatened species, 2 critical habitats, and numerous migratory bird species.[86] Additionally, USFWS concluded that there were potentially dozens of species protected under California law in the area.[87] FAA ultimately determined that the proposed action would not impact these species because it did not involve any construction and because the possibility of bird strikes at the altitude where flights would occur was low.[88] FAA noted existing research from the U.S. Air Force outlining potential psychological impact from noise on wildlife.[89] However, FAA ultimately concluded that, because the proposal would only add a small number of flights in an area where the military already conducted such flights, wildlife populations were already adapted to existing conditions.[90] Additionally, Boom Technology agreed to comply with several best practices to minimize impact, including compliance with Air Force plans on bird avoidance and desert tortoise guidelines.[91]

FAA then looked at potential climate impacts, specifically from greenhouse gas emissions. The agency acknowledged that the proposal would increase GHG emissions by up to 284 metric tons of carbon dioxide.[92] The agency concluded the impacts of the Boom proposal would be minimal because of the one-year limited duration, and because Boom agreed to implement emission mitigation strategies, including a commitment to "evaluate the usage of sustainable aviation fuel (SAF) for a portion of the flight testing," and to "purchase carbon removal or high-quality nature-based offsets to cover residual greenhouse gas emissions that are not otherwise reduced as part of their broader commitment to carbon neutrality."[93]

---

[82] *Id.* at 18.
[83] *Id.* at 19.
[84] *Id.* at 20.
[85] *Id.* at 21.
[86] *Id.*
[87] *Id.* at 23.
[88] *Id.*
[89] *Id.*
[90] *Id.* at 24.
[91] *Id.*
[92] *Id.* at 25.
[93] *Id.* at 26.

In multiple areas, FAA found the Boom proposal would not have any significant impact over existing operations because it would "add less than 5 percent more operations (between 10-20 supersonic tests) to an area already receiving 345-414 annual supersonic tests."[94]

FAA's noise analysis and insignificance conclusion was also based on the airport's existing supersonic military flights. FAA's noise significance test is based on noise increases over existing conditions. FAA's noise analysis determined that increases in noise contours from the Boom proposal's landing and takeoff would be less than 1%—well below the FAA's significance criteria of 17%—and noise levels would thus increase by much less than the 1.5 dB standard. *Id.* at 40, 43. FAA also found the effects of noise on local communities is abated by controlling minimum allowable altitude near the closest city, and that that city has implemented "land use plans, public notification of aircraft testing airspace, zoning, and other efforts to ensure public awareness of the corridor and the potential noise effects from aircraft flights."[95] FAA's analysis of the natural resources and energy supply found that the proposed action would not significantly affect the available supply since it would consume approximately 2.8% of the total annual jet fuel consumption at the airport.[96]

FAA was only able to conclude that these specific Boom flights in this specific area would result in no significant environmental impact *after* conducting this thorough analysis of a proposal that was limited to 10-20 flights in a single year in and out of a sparsely-populated desert airport already operating supersonic flights. Here, FAA has not conducted *any* analysis of the Proposal, which is unconstrained by any of those conditions. In stark contrast to the limited Boom proposal, FAA is proposing to allow unlimited supersonic flights for an unlimited amount of time unconstrained by any geographic limitations. 91 Fed. Reg. at 40477 ("FAA does not intend that these conditions and limitations would address operation-by-operation specific items, such as geographical limitations . . . ."); *id*. at 40471("Once the Administrator makes the finding, the operator would not need to seek approval for individual flights or to specific operational areas, as is required under an SFA . . ."); *id*. at 40470 (FAA claims the Proposal "would enable safe, efficient, and commercially viable operation of civil supersonic aircraft in the United States."). FAA therefore must evaluate the potential impacts of commercial supersonic travel in every category of potential impact, including climate, air pollution, biological resources, noise, and energy supply.

ICCT has modeled the potential impacts of a supersonic commercial fleet at scale. As discussed in Section I, one ICCT working paper modeled the potential impacts of commercial supersonic travel at scale in 2035 and found such a fleet would emit an estimated 96 (88 to 114)

[94] *Id*. at 30 (impacts on Section 4(f) land, which include public parks, recreation areas, or wildlife refuges of significance.), *id*. at 32 (historical, architectural, archeological, and cultural resources); *id.* at 46 (socioeconomic, environmental justice, and children's environmental health and safety risks).
[95] *Id*. at 43.
[96] *Id.* at 33.

million metric tons (MMT) of CO_2 annually, approximately the same level as the combined emissions of American, Delta, and Southwest Airlines in 2017.[97] Over the 25-year lifetime of the fleet, it would emit an additional 1.6 to 2.4 gigatonnes of CO_2.[98] That working paper shows the potential flight paths could occur widely throughout the United States, including over many areas that do not regularly experience sonic boom due to military aircraft, making the added sonic boom much more impactful due to the lower baseline.[99]A more conservative ICCT model estimated a supersonic fleet would add 64 MMT CO_2 annually, which roughly equals the combined CO_2 emissions of American and Southwest Airlines in 2017.[100]

Additionally, in nearly every category of potential impact, the effects of Boom Technology's supersonic flights were less disruptive to the status quo for both humans and animals in the area because of ongoing military supersonic operations. Because the baseline for the current Proposal is an existing overland ban, and commercial supersonic operations likely would occur widely throughout the U.S., including over many areas that do not regularly experience sonic booms from military aircraft, the background sonic boom levels will be much lower, and the added sonic boom much more impactful. Thus, the impact of FAA's Proposal is far more likely to be significant across every metric considered in the Boom Technology EA, and the Proposal requires a full environmental impact statement.

Boom also agreed to adopt mitigation measures, including evaluation of SAF, purchasing carbon offsets, and implementing best practices to avoid wildlife impacts. There is no requirement for operators to similarly mitigate their impacts under the Proposal.

The Boom Technology EA is not an outlier. FAA has repeatedly indicated that, under NEPA, actions increasing supersonic flight operations require an environmental analysis. For a proposed test of supersonic aircraft developed for the military, FAA relied upon an existing EIS, rather than invoking a categorical exception.[101] Similarly, in the context of spacecraft development involving sonic booms, FAA is in the process of conducting an environmental assessment.[102] A prior mitigated environmental assessment for testing new SpaceX rockets included a commissioned study about possible noise impacts and analyzed extensive literature about the potential impacts of noise and lighting on birds and wildlife, and included 75

---

[97] Rutherford et al. (2019), at 1.
[98] *Id.*
[99] *Id.* at 10 (Figure 6).
[100] *Id.* at 10.
[101] Federal Aviation Administration, *Federal Aviation Administration Reliance on and Adoption of Environmental Impact Statement and Record of Decision for the Hermeus Special Flight Authorization to Conduct Testing of the Supersonic (Greater than Mach 1.0) Quarterhorse Mark 2.1 Unmanned Aircraft System Over Land at White Sands Missile Range, New Mexico* (Feb. 2026), https://www faa.gov/about/office_org/headquarters_offices/apl/aee/env_policy/sfa_supersonic/Reliance-on-Env%20Docs-clean-Hermeus-signed.pdf.
[102] Federal Aviation Administration, *SpaceX Starship Super Heavy Project at the Boca Chica Launch Site* (July 13, 2026), https://www faa.gov/space/stakeholder_engagement/spacex_starship.

mitigation measures aimed at reducing those impacts. *See Ctr. for Biological Diversity v. Fed. Aviation Admin.*, 804 F. Supp. 3d 86, 97-101 (D.D.C. 2025). FAA's conclusion that no environmental assessment is necessary here is asynchronous with past practice, unexplained, and unlawful. *See Fox Television Stations*, 556 U.S. at 515-16; *see also Wages & White Lion Invs.*, 604 U.S. at 568; *Encino Motorcars*, 579 U.S. at 222.

c) FAA's Proposal Will Likely Have Significant Environmental Impact.

Under the DOT's NEPA implementing rules, whether a proposed action's environmental impact is significant is made by comparing the impacts of the proposed action to the no-action alternative. DOT Order 5610.1D § 6(c). The agency should consider:

(a) Both short- and long-term environmental impacts
(b) Both beneficial and adverse environmental impacts
(c) Impacts on public health and safety
(d) Economic Impacts
(e) Impacts on the quality of life of the American people

Id.

Here, as is made clear in Section I and by the discussion in the previous subsection about the environmental assessment conducted for Boom Technology's supersonic flight authorization, supersonic flight has a wide range of significant environmental and public health and welfare impacts. FAA has indicated that five operators intend to take advantage of the Proposal, and that their operations would not be limited in scope or geography as Boom Technology's operations under the special flight authorization. Notably, the Office of Management and Budget (OMB) determined that FAA's proposed rule is a significant regulatory action. 91 Fed. Reg. at 40479. "Significant regulatory action" is an action likely to result in a rule with significant economic, budgetary, policy, or legal impacts—including a rule likely to "adversely affect in a material way . . . the environment." *See* Exec. Order No. 12,866 § 3(f), *Regulatory Planning and Review*, 58 Fed. Reg. 51735 (Sept. 30, 1993). [103]

The Proposal is likely to have a significant environmental impact. As discussed at length in Section I, supersonic flight burns about seven times as much fuel as comparable subsonic aircraft, could significantly increase climate and air pollution impacts, and pose a public health concern due to the noise pollution caused by the production of a "sonic boom" and other types of noise including evanescent waves. As such, the Proposal does not fall within the Appendix B–2.6 categorical exclusion and, additionally, involves "extraordinary circumstances" that would preclude it from categorical exclusion even if it qualified. FAA must prepare an EIS for the

[103] https://www regulations.gov/document/MSHA-2023-0001-0445.

Proposal.

d) FAA's Environmental Impact Statement Must Include the Environmental Impacts of Supersonic Aviation.

Before acting on this Proposal, FAA must prepare an EIS that evaluates the impacts of allowing civil supersonic flight, including the environmental and climate impacts of increased fuel burn. According to FAA in its Proposal, removal of the ban on civil supersonic flight would directly lead to commercial supersonic flights. The direct effects of allowing civil supersonic flights are significant increases in fuel burn, combustion emissions, and the associated environmental and climate impacts. *See Seven Cnty. Infrastructure Coal. v. Eagle Cnty*., *Colo.,* 605 U.S. 168, 182 (2025) ("The agency therefore will obviously seek to assess significant effects from the project at issue.")

As a key component of the EIS, FAA must include an assessment of the climate impacts of supersonic flight. According to the UN Environment Program's Emission Gap Report from 2025, the world is on track for a 2.3-2.5°C global temperature increase above pre-industrial levels even if countries successfully implement their Paris commitments—a degree above the 1.5°C goal.[104] As explained above, a fleet of 2,000 supersonic aircraft—the number of jets just one aspiring manufacturer aims to sell—would produce "96 (88 to 114) million metric tons (MMT) of CO_2 per year, roughly the combined emissions of American, Delta, and Southwest Airlines in 2017, and an additional 1.6 to 2.4 gigatonnes of CO_2 over their 25-year lifetime."[105]

To ensure that supersonic aircraft do not further delay progress towards GHG emission reduction commitments and goals, FAA must consider the impacts that supersonic aircraft would have on the global climate and work collaboratively with EPA to ensure that standards to limit greenhouse gas emissions from supersonic aircraft are in place before certification. *See* 42 U.S.C. §§ 7571(a)(2)(B)(i)-(a)(2)(B)(ii). This is particularly crucial given that FAA intends to open the door to civil supersonic flight without any authorization for a particular operation. FAA should also adhere to its past practice in an EIS for the Proposal and consider all the categories of potential impact it considered in the Boom EA.

2. FAA Failed to Comply with the Endangered Species Act.

FAA violated the Endangered Species Act (ESA) by failing to conduct an effects determination and failing to consult under Section 7 of the ESA. When an agency carries out a non-ministerial action that may affect federally listed threatened or endangered species, or their

[104] UN Environment Program, *Emissions Gap Report 2025* (Nov. 4, 2025), https://www.unep.org/resources/emissions-gap-report-2025.
[105] Rutherford et al. (2019) at 1.

critical habitats, Section 7 requires consultation with USFWS and/or National Marine Fisheries Service. The threshold for consultation is low and is clearly met here where FAA predicts that its rulemaking will enable overland flights to produce some degree of sonic booms. These sonic booms, even when they do not reach the "surface," may impact birds in flight. As explained above, *see* Section I *supra*, sonic booms have been shown to harm listed species like the California Condor. And given the risk of super booms, *see* Section III.A.3 *supra*, and the lack of proper compliance measures, *see* Section III.A.4 *supra*, the risk to protected species is even greater and consultation under the ESA is required.

The FAA must complete an ESA consultation because the Proposal may affect listed species or critical habitats. Section 7 of the ESA requires federal agencies like FAA to complete a formal consultation if the agency determines that any action on its part "may affect" any listed species or critical habitat. "'May affect' purposefully sets a low bar: 'Any possible effect, whether beneficial, benign, adverse or of an undetermined character, triggers the formal consultation requirement.'" *Growth Energy v. EPA*, 5 F.4th 1, 30 (D.C. Cir. 2021) (citation omitted); *see also Karuk Tribe of Cal. v. United States Forest Serv*., 681 F.3d 1006, 1027 (9th Cir. 2012). In the consultation process, federal agencies must use the "best scientific and commercial data available." 16 U.S.C. § 1536(a)(2). A federal agency can skip the consultation process only when it finds that its proposed action "will not affect any listed species or critical habitat in any way," or, in other words, makes a "no effect" determination. *In re Ctr. for Biological Diversity*, 53 F.4th 665, 668 (D.C. Cir. 2022) (citation omitted).

Scientific evidence shows that the Proposal may adversely affect federally listed species. *See* Section I *supra*. FAA's Proposal promises to "enable" overland civil supersonic flight producing some degree of sonic boom. Boom Supersonic, an operator which the Proposal says has demonstrated the achievability MCO (once), promotes its supersonic aircraft by claiming as follows:

> Boomless Cruise enables Overture to fly at speeds up to Mach 1.3 without an audible boom, reducing U.S. coast-to-coast flight times by up to 90 minutes. International routes with overland segments can also benefit from increased speeds. [106]

Boom Supersonic has not publicly identified exact flight paths it hopes to develop for commercial supersonic flight but, in 2025, the busiest domestic flight route in the United States was the coast-to-coast flight from New York City to Los Angeles. [107] Sonic booms along a JFK-LAX flight path may affect California condor habitats in Southern California, particularly the Sespe Condor Sanctuary, the Hopper Mountain National Wildlife Refuge, and the Bitter Creek

[106] Boom, *Boom Supersonic Announces Boomless Cruise* (Feb. 10, 2025), https://boomsupersonic.com/press-release/boomless-cruise-announcement.
[107] TravelPulse, *The Busiest Flight Routes of 2025 Revealed* (Dec. 29, 2025), https://www.travelpulse.com/news/airlines-airports/these-were-the-busiest-flight-routes-of-2025.

National Wildlife Refuge.[108] As described in Section I, California condors are endangered and negatively impacted by sonic booms.

Other coast-to-coast routes and international routes with overland segments may affect even more protected bird species by exposing them to sonic booms, either at the surface or near it while birds are in flight. ICCT has identified a number of such corridors.[109] This is notable when compared to FAA's assessment of Boom Technology's proposed operations in a small geographic area in the Mojave Desert, where USFWS still indicated that there were 6 endangered or threatened species, 2 critical habitats, and numerous migratory bird species.[110] The potential impacts to endangered species and critical habitats from enabling commercial supersonic flight broadly across the United States would be much larger. By failing to consider these impacts, FAA's Proposal violates the Endangered Species Act and is contrary to law under the APA.

3. *The Proposal Fails to Meet the Consideration and Consultation Requirements of 49 U.S.C. § 44715(b).*

FAA is required to consult with both EPA and NASA before proposing any aircraft noise or sonic boom regulations, and FAA must provide evidence that the required consultations took place in the docket. The Proposal fails to meet these requirements.

The statute explicitly requires FAA to consult with EPA. 49 U.S.C. § 44715(a)(2). Likewise, as FAA itself has recognized,[111] the agency must consult with NASA because it must consult with "appropriate departments, agencies, and instrumentalities of the United States Government and State and interstate authorities" when prescribing a standard or regulation under the statute. 49 U.S.C. § 44715(b)(2).

Agencies must follow statutory procedural requirements to comply with the APA. *See* 5 U.S.C. § 706(2)(D) (directing courts set aside agency action taken "without observance of procedure required by law"). This extends to consultation requirements. *Campanale & Sons, Inc. v. Evans*, 311 F.3d 109, 116, 121 (1st Cir. 2002) (holding there was "insufficient evidence in the

---

[108] U.S. Fish & Wildlife Service, *Gymnogyps californianus*, https://www fws.gov/species/california-condor-gymnogyps-californianus; U.S. Forest Service, Sespe Wilderness, https://www.fs.usda.gov/r05/lospadres/recreation/sespe-wilderness; U.S. Fish & Wildlife Service, Hopper Mountain National Wildlife Refuge: What We Do, https://www.fws.gov/refuge/hopper-mountain/what-we-do; U.S. Fish & Wildlife Service, Bitter Creek National Wildlife Refuge: What We Do, https://www fws.gov/refuge/bitter-creek/what-we-do.

[109] *See* Rutherford et al. (2019) at Figure 6.

[110] *Id.*; Federal Aviation Administration, *Final Environmental Assessment for Boom Technology XB-1 Supersonic Test Flights* at 21 (Feb. 2024), https://www.faa.gov/media/74461.

[111] Karen Petronis, Federal Aviation Administration, *Applicability of Part 36 to New Supersonic Aircraft*, 5 (Feb. 21, 2018), https://www faa.gov/media/11081 (referring to "NASA, with whom the FAA has a significant historical working relationship regarding aircraft noise, and with whom the FAA is required to consult under § 44715(b)(2)").

record to show that the Secretary complied with Congress' explicit procedural requirement [of interagency consultation]."). Courts have interpreted similar consultation requirements to be "affirmative dut[ies]" requiring "meaningful opportunities for dialogues." *California Wilderness Coal. v. U.S. Dep't of Energy*, 631 F.3d 1072, 1086, 1088 (9th Cir. 2011). Consultation requirements provide opportunity for agency decision-making to be shaped by interagency expertise. *Campanale & Sons*, 311 F.3d at 120 ("Consultation . . . is key in the [agency's] development of effective regulations because the [outside agencies] have valuable expertise and insight."); *see also Lujan v. Defs. of Wildlife*, 504 U.S. 555, 585 (1992) (Stevens, J., concurring) (describing congressionally required consultation between agencies and explaining that "if Congress has required consultation . . . we must presume that such consultation will have a serious purpose that is likely to produce tangible results").

In its proposed rule, FAA claims that it consulted with EPA pursuant to section 44715. 91 Fed. Reg. at 40473. However, nothing in the Proposal or docket reflects any comments from EPA. *See id.* at 40470-86. Likewise, there is no indication that FAA consulted with NASA. *Id.* While FAA refers to ongoing NASA research on sonic boom abatement, it cites a NASA report that predates the proposed rule by roughly a decade and does not reflect any input from NASA specific to the Proposal. *Id.* at 40473-74 (citing FaINT Study).

FAA must supplement the docket materials for the proposed rule to demonstrate its EPA and NASA consultations, if any, took place. As outlined above, interagency consultation is intended to shape the rulemaking process. The APA's notice-and-comment requirements "afford[] interested parties a reasonable opportunity to participate in the rulemaking process" and thus requires that an agency disclose the information it relies upon for "public evaluation," including "technical studies and data." *Am. Radio Relay League, Inc. v. F.C.C.*, 524 F.3d 227, 236 (D.C. Cir. 2008) (citations omitted). "It is the agency's affirmative obligation to make this material publicly available and expose it to refutation during the rulemaking proceeding." *FBME Bank Ltd. v. Lew*, 125 F. Supp. 3d 109, 122 (D.D.C. 2015). To the extent that EPA and NASA consultations informed FAA's rulemaking, those consultations must be disclosed. FAA's bare assertion in the Proposal that it consulted with EPA is insufficient as a matter of law. *See FBME Bank Ltd. v. Lew*, 209 F. Supp. 3d 299, 323 (D.D.C. 2016) (finding "the administrative record should contain some evidence that such a consultation took place" and a "plain statement" that the agency has "engaged in the 'required consultations' will not do"). FAA must update the docket materials to provide evidence that the required consultations took place.

4. *The Proposal Fails to Follow Requirements of Section 44715(c), which Require EPA to First Propose Noise Control Standards That FAA May Adopt.*

The Proposal violates the mandatory interagency process established by Congress under 49 U.S.C. § 44715. This statutory framework requires the EPA to first propose aircraft noise regulations before the FAA can act. The FAA should not finalize the proposed repeal unless and until the proper interagency sequence is completed, as mandated by law.

Section 44715(c) expressly requires that "[t]he Administrator of the Environmental Protection Agency shall submit to the Administrator of the Federal Aviation Administration proposed regulations to control and abate aircraft noise and sonic boom." *Id.* § 44715(c) (emphasis added); *accord People of the State of Ill. v. F.A.A.*, 832 F.2d 168, 169 (D.C. Cir. 1987) (recognizing EPA's duty to submit such noise control regulations to the FAA). The FAA then "shall consider those proposed regulations" and "publish them in a notice of proposed regulations not later than 30 days after they are received." 49 U.S.C. § 44715(c). FAA must hold a hearing within 60 days and provide interested persons an opportunity for oral and written comment. *Id*. This process ensures that the FAA's regulatory actions are informed by EPA's expertise in environmental and public health matters related to noise and sonic boom.

The FAA's Proposal is indisputably a regulation "to control and abate aircraft noise and sonic boom," 49 U.S.C. § 44715, however, it has failed to adhere to this statutorily prescribed process. FAA is proceeding with a proposed regulation although EPA has not submitted any proposed regulations for the FAA to consider. FAA's Proposal to repeal the supersonic ban bypasses the statutory role Congress assigned to EPA for the protection of public health and welfare from aircraft noise and sonic boom. *Id.*

Despite the closure of EPA's noise control office in the 1980s, EPA's mandatory statutory duties to regulate and study noise remain firmly in effect, as confirmed in a recent court ruling in *Quiet Communities, Inc. v EPA*, No. 23-cv-1649, 2026 WL 2056862, at *12 (D.D.C. July 16, 2026) ("all agree that the Noise Control Act is still in effect and the EPA has expressly disavowed any suggestion that 'Congress explicitly or implicitly repealed any of the powers or duties' the Act bestows on the Agency") (citation omitted); *see id.* at *1 (citing EPA's website stating EPA's noise control duties "remain in effect today").

The *Quiet Communities* decision also reinforces the principle that statutory mandates cannot be disregarded, even in the absence of specific appropriations or active implementation by the agency. The Court unequivocally held that "the EPA's choice to ignore altogether the statutory mandates imposed by the Noise Control Act is not reasonable." *Id*. at *2. Similarly, the FAA cannot ignore the statutory requirement that the EPA must first propose an aviation noise

control regulation before the FAA can act. The FAA's failure to comply with this mandatory interagency process undermines the integrity of the statutory framework and risks exposing the public to significant environmental and health harms without the benefit of EPA's expertise. The FAA must halt its proposed repeal until the EPA fulfills its statutory duty to propose aircraft noise regulations, and the FAA completes the required interagency process.

5. The Proposal Does Not Adequately Consider The Impact on Energy Supply.

FAA failed to adequately consider the impact of the Proposal under Executive Order 13211. EO 13211 requires agencies to prepare a Statement of Energy Effects (SEE) for any agency action identified as a significant energy action. Exec. Order No. 13211, *Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use*, 66 Fed. Reg. 28355 (2001). In its Proposal, FAA stated that "it would not be a 'significant energy action' under the E.O. and would not be likely to have a significant adverse effect on the supply, distribution, or use of energy." 91 Fed. Reg. at 40483. However, FAA did not include any discussion of how or why it reached that conclusion. As outlined throughout these comments and below, the Proposal potentially has a significant adverse effect on the use of energy: a massive increase in jet fuel consumption by civil supersonic flight operations. Especially in light of the current severe jet fuel supply crisis due to the Iran War, FAA must update its Proposal to adequately address this potential impact.

Under EO 13211, an action is a significant energy action if (a) OMB deems the action a significant regulatory action under EO 12866 and (b) the action is "likely to have a significant adverse effect on the supply, distribution, or use of energy." 66 Fed. Reg. at 28355-56.[112] "Although EO 13211 permits significant agency discretion in determining what is an 'adverse energy effect,' . . . the agency's finding must be grounded in fact."[113] OMB has identified "material adverse impacts on productivity, competition, or prices in the energy sector" as an example of an adverse energy effect.[114] An agency should consult with the Office of Information and Regulatory Affairs (OIRA) when determining if an action satisfies this prong of the test.[115]

[112] OIRA can independently determine that an action is a significant energy action, *see* 66 Fed. Reg. at 28355-56, though it does not appear it has yet done so here.
[113] Elizabeth Glass Gettlemen, Guntwant Gill & Miriam Jovanovic, *Inquiry into the Implementation of Bush's Executive Order 13211 and the Impact on Environmental and Public Health Regulation*, 27 Fordham Envtl. L. Rev. 225, 229 (2015).
[114] Office of Mgmt. and Budget, OMB M-21-12*, Furthering Compliance with Executive Order 13211, Titled "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use"* (Jan. 13, 2021), https://whitehouse.gov/wp-content/uploads/2021/01/M-21-12.pdf.
[115] *Id.*; Office of Mgmt. and Budget, OMB M-01-27, *Guidance for Implementing E.O. 13211* (July 13, 2001), https://obamawhitehouse.archives.gov/omb/memoranda_m01-27.

As an initial matter, there is no indication that FAA consulted with OIRA. Under OMB guidance, FAA should have discussed with OIRA whether the Proposal is likely to have significant adverse energy effects. OMB guidance cautions agencies against ignoring OIRA's role in significant energy action determinations.[116] FAA should update the docket material to reflect its discussions with OIRA, if any took place.

Further, FAA did not justify its own determination that the Proposal is not a significant energy action. OMB determined that FAA's proposed rule is a significant regulatory action. 91 Fed. Reg. at 40479. Thus, the crucial question that FAA must answer is whether the Proposal is likely to have a significant adverse effect on the supply, distribution, or use of energy. FAA does not engage in this analysis, even though the Proposal would potentially result in a large increase in energy usage.

The increase in jet fuel consumption under this Proposal could be substantial. In issuing one supersonic flight authorization to Boom Supersonic for "limited supersonic flight operations" including "10-20 supersonic tests," FAA estimated that the operations would burn up to 198,100 lbs of jet fuel—2.8% of the total annual jet fuel consumption at the airport at which these operations took place.[117] Again, FAA estimates that at least five supersonic aircraft operators would take advantage of the Proposal to operate supersonic aircraft, 91 Fed. Reg. at 40482, and even if these five operators conduct limited operations similar to ones contemplated in the SFA, the increase in fuel consumption would be at least fivefold: nearly 1,000,000 lbs of jet fuel.

The actual increase is likely to be even larger. The Proposal is aimed at "enabl[ing] the safe, efficient, and commercially viable operation of civil supersonic aircraft," not just limited test flights by supersonic aircraft developers. 91 Fed. Reg. at 40470. It allows unlimited flights for unlimited duration for any approved operator. 91 Fed. Reg. at 40477 (disclaiming any "operation-by-operation specific" limitations on supersonic flight). And Boom Supersonic estimates that, once in commercial service, a seat on their supersonic aircraft would consume seven to ten times more fuel than an economy seat on a widebody aircraft like the Boeing 787.[118] As mentioned in Section I, ICCT working papers estimate commercial supersonic travel could significantly increase global fuel burn.

---

[116] Office of Mgmt. and Budget, OMB M-21-12, *Furthering Compliance with Executive Order 13211, Titled "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use"* (Jan. 13, 2021), https://whitehouse.gov/wp-content/uploads/2021/01/M-21-12.pdf.

[117] Federal Aviation Administration, *Final Environmental Assessment for Boom Technology XB-1 Supersonic Test Flights* at 1, 2, 33 (Feb. 2024), https://www.faa.gov/media/74461.

[118] International Council on Clean Transportation, *Supersonic Aircraft: Twice as Nice, or Double the Trouble?* (Dec. 13, 2024), https://theicct.org/supersonic-aircraft-dec24/.

A large increase in jet fuel consumption could impact an already destabilized jet fuel market. The 2026 Iran war, including the closure of the Strait of Hormuz, has led to "the largest supply disruption in the history of the global oil market."[119] The price impacts on jet fuel have been dramatic—U.S. jet fuel prices have risen by 106% year-over-year, compared with 42% for gasoline.[120] A sharp increase in demand might cause prices to spike even higher.

Yet FAA fails to address this likely increase in jet fuel usage. The Proposal includes only a bare assertion that its Proposal is not likely to have a significant adverse effect, without any attempt to estimate the increase in jet fuel consumption. 91 Fed. Reg. at 40483. At minimum, to adequately consider the Proposal's impact on energy supply, FAA must evaluate the increased amount of fuel that the Proposal would authorize, and the effects on the ongoing Iran War on jet fuel supply and cost.

C. The Proposal's Analysis of its Costs and Benefits is Flawed.

The Proposal's analysis of costs and benefits is fundamentally flawed in two respects. First, it is incomplete and arbitrary because it fails to fairly consider the full scope of potential costs and benefits. It entirely fails to consider the Proposal's costs to public health and welfare, or to evaluate what segment of the public would benefit from supersonic flight. Instead, the Proposal assumes it would provide benefit to the public without any analysis or support. Second, the limited cost analysis the Proposal does offer is logically deficient. FAA's exclusive focus on benefits to a handful of interested manufacturers while disregarding harms to the general public and the narrow slice of the population that could realistically benefit, is not only arbitrary and capricious but renders the Proposal inconsistent with FAA's statutory obligation to "protect the public health and welfare from aircraft noise and sonic boom." 49 U.S.C. § 44715(a)(1)(A).

FAA claims that its cost benefit analysis supports the Proposal and acknowledges that agencies must make a "reasoned determination that the benefits of the intended regulation justify its costs," and develop regulations that "impose the least burden on society." 91 Fed. Reg. at 40479. A cost-benefit analysis that the FAA uses to justify its action must be reasonable. *See Window Covering Mfrs. Ass'n v. Consumer Prod. Safety Comm'n*, 82 F.4th 1273, 1288 (D.C. Cir. 2023) ("'an unreasonable assessment of social costs and benefits' can render a rule arbitrary and capricious" (citing *Thompson v. Clark*, 741 F.2d 401 (D.C. Cir. 1984)).

FAA's cost benefit analysis is not reasonable because it does not provide an unbiased or complete assessment of its potential costs and benefits. FAA emphasizes the benefit to industry

[119] International Energy Agency, *Oil Market Report* (Mar. 12, 2026), https://www.iea.org/reports/oil-market-report-march-2026.
[120] Bipartisan Policy Center, *Why the Iran Conflict is Affecting Diesel and Jet Fuel Prices More than Gasoline* (June 2, 2026), https://bipartisanpolicy.org/explainer/why-the-iran-conflict-is-affecting-diesel-and-jet-fuel-prices-more-than-gasoline/

of increasing "regulatory certainty," 91 Fed. Reg. at 40471, *see also id*. at 40480, but entirely ignores the Proposal's impacts on public health and welfare, including noise, environmental and climate impacts. These omissions render the Proposal unreasonable and arbitrary. By ignoring the impacts on public health and welfare, FAA "entirely fail[s] to consider an important aspect of the problem" *Motor Vehicles Mfrs. Ass'n v. State Farm Mutual Auto. Ins. Co*., 463 U.S. 29, 43 (1983). FAA must complete a full cost benefit analysis and evaluate the potential costs on public health and welfare of increased air, climate and noise pollution and associated adverse environmental and health effects. *See* Section I (detailing supersonic public health and welfare impacts) & Section III.B.1 (describing the categories of potential environmental impacts).

1. The FAA Must Evaluate Available Evidence on the Benefits of Supersonic Flight.

The Proposal assumes that commercial supersonic flight would benefit the American public, but FAA does not provide any evidence to support this assertion and all evidence points to the contrary. The FAA concludes, without any analysis, that the public will benefit "from significantly reduced travel times and more efficient global connectivity." *Id*. at 40479. At the same time, FAA claims it cannot evaluate "economic factors of operations" such as the seat count or ticket price, *id*. at 40481, Tbl, 5. That position is untenable. Relevant evidence exists, and the FAA is obligated to evaluate it in the Proposal.

Available evidence shows that supersonic flight will be accessible only to a narrow segment of the public since supersonic tickets will cost substantially more than subsonic business class fares. Expert studies estimate that supersonic airfares on a New York-to-London route would need to be at least 38% higher than current business class prices to be profitable. [121]

FAA must consider the abundant information about the Concorde's clientele and ticket prices. Due to exorbitant ticket prices, Concorde clientele were generally limited to the "super-rich and super-powerful." [122] In 1986, round-trip trans-Atlantic tickets were priced at over $5,000; by 2000, this number had risen to an average of £8,000 per ticket, or $10,000 USD in 2025, [123] which was almost twice the price of flying first-class on a Boeing 747 at the time. [124] One article from 2000 priced a round trip ticket at $10,000, which would be roughly equivalent

[121] Edward Russell, *America's skies may soon open up to supersonic travel. But there's still a big problem*, CNN (Jun. 5, 2025) https://www.cnn.com/2025/06/05/travel/supersonic-travel-american-skies-still-big-problem (citing https://www.sciencedirect.com/science/article/abs/pii/S0969699724000462).
[122] *Jetliner is symbol of luxury, national pride*, The Blade (Jul. 26, 2000).
[123] Caleb S. Dorris, *Roaring Skies: The Law of Supersonic Commercial Flight and Arguments for its Return*, 90 J. of Air L. and Com. 1, 75, 78 (2025), https://doi.org/10.25172/jalc.90.1.4 (citing Jonathan Glancey, *Concorde: The Rise and Fall of the Supersonic Airliner*, at 5 (2015)).
[124] *Id.*

to almost $20,000 today.[125] As a result, the passenger mix was restricted to "high wage earners" such as "celebrities, royalty, politicians and business tycoons."[126] In 1986, the vast majority—80%—of supersonic commercial travel was business-related.[127] While few Americans could afford a round-trip ticket on the Concorde, "[i]t [made] sense for the businessman…who [could] go to his London office in the morning and be in New York in time for a luncheon meeting the same day."[128] Indeed, FAA considered the disproportionate costs and benefits of the Concorde in a 1978 rulemaking requiring it to comply with new noise regulations. *See* 43 Fed. Reg. at 28408-09. The agency noted that a "considerable number" of commenters noted that "the Concorde will benefit far fewer persons than it will adversely impact," and its flights "would reduce property values in communities surrounding airports." *Id.* at 28408. After "careful review" of these and other comments, FAA concluded that "the unrestricted introduction of Concorde operations cannot be justified." *Id.* at 28409.

The main factor contributing to the Concorde's exorbitant ticket price was fuel. The Concorde required a huge amount of fuel—about half its total weight of 400,000 lbs—to operate.[129] Coupled with the aircraft's cap on 128 passengers at a time (a number which, in practice, was generally closer to 100 passengers per flight[130]), this made the Concorde extremely fuel-inefficient compared to other airlines. For instance, the Concorde used four times the amount of fuel to carry one quarter of the passengers carried by a Boeing 747,[131] and seven times the amount of fuel as the Airbus A320 (which could seat 186 passengers).[132]

FAA must also consider that fare prices have increased as fuel prices have risen since the start of the Iran War.[133] Jet fuel prices rose from $2.50 per gallon the day before the war began and peaked at $4.88 per gallon at the beginning of April, leading to a 15% increase in fare

---

[125] Jill Lawless, *Concord flights epitomize speed, luxury*, The Bangor Daily News (July 26, 2000); CPI Inflation Calculator, Official Data Foundation, https://www.in2013dollars.com/us/inflation/2000?amount=10000 (accessed July 27, 2026).
[126] Jill Lawless, *Concorde flights epitomize speed, luxury*, The Bangor Daily News (July 26, 2000).
[127] Phyllis Mera, *The Concorde transatlantic flight is all it's cracked up to be*, The Kingston Whig-Standard (May 10, 1986).
[128] *Id.*
[129] Lauren Terrazzano, *Concorde Could Be Finished, Newsday* (Nassau Edition), (Aug. 17, 2000).
[130] Caleb S. Dorris, *Roaring Skies: The Law of Supersonic Commercial Flight and Arguments for its Return*, 90 J. Of Air Law and Commerce 1, 75, 78 (2025), https://doi.org/10.25172/jalc.90.1.4 (citing Eli Dourado & Samuel Hammond, *Make America Boom Again: How to Bring Back Supersonic Transport*, at 13 (2016)); Phyllis Mera, *The Concorde transatlantic flight is all it's cracked up to be*, The Kingston Whig-Standard (May 10, 1986).
[131] *Jetliner is symbol of luxury, national pride*, The Blade (Jul. 26, 2000).
[132] Caleb S. Dorris, *Roaring Skies: The Law of Supersonic Commercial Flight and Arguments for its Return*, 90 J. of Air L. and Com. 1, 75, 78 (2025), https://doi.org/10.25172/jalc.90.1.4 (citing Trevin Casinader, *Airbus A320 Guide and Specs: The World's Highest-Selling Narrowbody*, AVIATOR INSIDER, https://aviatorinsider.com/airplane-brands/airbus-a320/).
[133] Camila Domonoske, *Jet fuel prices double, leading airlines to increase baggage fees, raise fares*, NPR (Apr. 16, 2026), https://www npr.org/2026/04/16/nx-s1-5785258/jet-fuel-airline-cost-iran-war-oil.

prices.[134] According to data from Kayak, as of July 20, 2026, the average domestic fare price was $360 compared to $270 at the same time last year, while the average international fare price was $881 compared to last year's $702.[135]

This likely exorbitant commercial seat pricing for supersonic flight must be considered alongside the reality that air travel is not universal: a 2025 airline industry study found that only 45% of Americans flew commercially in that year, and that ticket price is the dominant factor in flight selection.[136]

To fairly evaluate the segment of the public that would benefit from the Proposal, FAA must consider information about the average cost of a subsonic business class ticket, the average income of passengers who purchase those tickets, and consider the time value of supersonic travel along with current census data. In a 2022 study, experts estimated that customers must value their time at a minimum of $300 per hour in order to consider paying the steep price for the time savings of a supersonic airplane flight.[137] According to the 2024 U.S. Census report, the Median household income is $83,730.[138] Assuming a 40 hour work week over 50 weeks (assuming 2 weeks of paid vacation), that translates to earnings of approximately $42 per hour.[139] In comparison, earning $300 per hour with a 40 hour work week over 50 weeks translates to an annual salary of $600,000 per year. ICCT has also estimated that only consumers making more than $500,000 a year would consider flying supersonic.[140] While a customer may consider spending more per hour to save time on a supersonic flight than what they earn, the gap between the threshold required for supersonic travel and the median American income makes clear that the vast majority of Americans would be priced out of supersonic airplane travel. Even Boom's CEO acknowledges that most passengers would not be able to afford seats on its planned Overture plane.[141]

---

[134] Tiago Ventura, Olivia-Anne Cleary, & Callum Sutherland, *Why Summer Travelers May Still Be Met With High Airfares Despite the U.S.-Iran Deal*, Time Magazine (June 26, 2026), https://time.com/article/2026/06/26/why-summer-travelers-still-met-with-high-airfares-after-us-iran-peace-deal/.

[135] *Domestic and international airfare trends*, Kayak (accessed July 29, 2026), https://www.kayak.com/c/airfare-trends/.

[136] *Air Travelers in America Key Findings of a Survey Conducted by Ipsos*, Airlines for America, (Mar. 2026), at 5, 12, https://www.airlines.org/dataset/air-travelers-in-america-annual-survey/.

[137] Rutherford et. al (2022).

[138] *Income in the United States: 2024*, U.S. Census Bureau (Sept. 9, 2025), https://www.census.gov/library/publications/2025/demo/p60-286.html.

[139] *Hourly to Salary Calculator for Employers*, Indeed (2026), https://www.indeed.com/hire/hourly-to-salary-calculator-for-employers.

[140] Dan Rutherford, LinkedIn (Aug. 2026), https://www.linkedin.com/posts/dan-rutherford-b179652_let-them-eat-boom-this-sentiment-expressed-activity-7488337759758200832-troF/.

[141] *See supra* n.121.

2. The Costs the FAA Did Consider Are Internally Flawed.

The limited costs that the FAA did consider in its analysis are flawed in several respects.

First, the FAA estimates that the costs for operators to prepare, and for the agency to review and approve, unlimited flight authorizations are significantly less than the costs of applying for and issuing a limited special flight authorization. That conclusion is illogical on its face.

As discussed throughout these comments, an unlimited flight authorization under the Proposal would permit an operator to conduct an unlimited number of flights, for an unlimited duration, anywhere in the United States. An SFA, by contrast, authorizes only a limited number of flights, within a defined geographic area, for a limited period of time. FAA estimates that processing an application under the Proposal would require 80 FAA engineer hours at a cost of $6,492 per application. 91 Fed. Reg. at 40480. Processing a single SFA costs the agency $58,973 and requires 520 cumulative hours. *Id*. at 40480 n.56. The disparity on the operator side is equally striking. FAA assumes each SFA application costs an operator $110,928 in administrative costs, *id.* at 40480, while an application for an unlimited authorization, which would require a unique proposal for compliance, would cost operators only $19,257.

FAA's cost estimates are arbitrary and unsupported. Given the far greater scope and permanence of an unlimited authorization—and the fact that the Proposal would additionally require each operator to propose, and the FAA to evaluate and approve, an entirely new method of compliance—it is unreasonable for the FAA to assume that an unlimited authorization would require less preparation time for operators and less review time for the agency than an SFA. Logic and basic administrative practice dictate the opposite. FAA must explain why a permanent certification unconstrained by time or place would require less agency time to prepare and process than a one-year, place-constrained SFA. The potential impacts of the permanent certification are obviously much greater and require the agency's careful inspection and consideration. Also, the FAA must explain why the open-ended verification and compliance process for an unlimited permanent approval will not require more evaluation time from the agency than the limited special flight authorization approval process. FAA's 80-hour evaluation time assumption does not provide the public with confidence that FAA plans to conduct a thorough and critical review of operator applications or compliance data.

The FAA's cost analysis also assumes that the Proposal would generate no additional flight testing costs. This assumption is directly at odds with the FAA's stated rationale for the rulemaking, which is to provide regulatory certainty in order to "encourage the advancement of new supersonic aircraft." *Id*. at 40480. If the Proposal achieves its stated purpose—as the FAA's cost-benefit analysis must presume it will—then more companies will develop supersonic

technology, and those companies will incur costs in obtaining SFAs. A cost analysis that assumes the rule will succeed in stimulating industry development while simultaneously assuming no associated increase in flight testing costs is internally inconsistent. The FAA should model costs based on the assumption that the Proposal accomplishes what it sets out to accomplish.

***

For the foregoing reasons, the FAA's cost-benefit analysis fails to satisfy the legal standard for reasoned agency decision-making: it ignores the Proposal's significant costs to public health and welfare, overstates the public benefits of commercial supersonic flight by failing to account for the narrow segment of Americans who could realistically afford it, and relies on internally inconsistent cost estimates that defy logic and contradict the Proposal's own stated purpose. The FAA should therefore withdraw the Proposal or, at minimum, substantially revise it to conduct a complete, unbiased, and legally sufficient cost-benefit analysis before proceeding with any final rulemaking.

D. The Proposal Fails to Adequately Consider Alternatives.

FAA's Proposal is arbitrary because it does not provide any support for diverging from agency's long held position to maintain consistency with globally harmonized international standards, and fails to provide a reasoned basis for dismissing the alternative of continuing to issue special flight authorizations to collecting testing data.

An alternatives analysis is the "heart of reasoned decisionmaking," and requires agencies "consider responsible alternatives to its chosen policy and to give a reasoned explanation for its rejection of such alternatives." *Spirit Airlines, Inc. v. United States DOT*, 997 F.3d 1247, 1255 (D.C. Cir. 2021) (citing *Am. Radio Relay League, Inc. v. FCC*, 524 F.3d 227, 242 (D.C. Cir. 2008). FAA cannot reject the ICAO and SFA alternatives on the basis of a "threadbare explanation." *Spirit Airlines,* 997 F.3d at 1255.

The Proposal offers only vague, biased, and unsupported rationale for dismissing waiting for ICAO standards. After explaining that the FAA expects ICAO to finalize an en route supersonic noise standard in 2031, the Proposal states "[g]iven this timetable and the current stage of development of low-boom civil supersonic aircraft, FAA does not consider it appropriate to wait for finalization of the ICAO en route low- boom standard." 91 Fed. Reg. at 40474.

The FAA also asserts that waiting for the ICAO standard would:

> hinder the supersonic industry's ability in the more immediate term to be innovative. This alternative would not be appropriate to meet the needs of the industry. It would not provide for advancements in technology and development of flight techniques that prevent sonic booms from reaching the surface.

91 Fed. Reg. at 40481.

First, by wrongfully focusing on the "needs of the industry," the agency completely ignores its statutory requirements to consider the needs of public health and welfare, which would benefit from an alternative that is developed over a longer time frame, with more testing data, and input from outside a limited number of U.S. companies.

Second, the explanation is entirely unsupported. It does not explain why the ICAO alternative would hinder industry's ability to innovate or advancements in technology and development of flight techniques. It does not explain why the current stage of development would be hindered if the FAA continued to grant special flight authorizations. It does not provide any support for the underlying assumption that industry could deliver a supersonic aircraft before 2031.[142] To the contrary, the Proposal states that two companies are "actively developing civil supersonic aircraft for passenger carrying operations in the NAS," and that even "[u]nder this proposed rule, these manufacturers would continue to use the existing SFA process to conduct flight tests." 91 Fed. Reg. 40479.

FAA's threadbare explanation here is especially egregious given that FAA and the EPA have a long history of deferring to ICAO on aviation standard setting, and have refused to enact more stringent unilateral aviation standards in reliance on that rationale. *See, e.g.*, 43 Fed. Reg. at 28411 (noting that proposed rulemaking was "[c]onsistent with" an ICAO proposed amendment); 59 Fed. Reg. at 39680 (noting that any future rulemaking would be consistent with an ICAO recommendation); 86 Fed. Reg. at 3791 (stating "it is FAA policy to conform to [ICAO] Standards and Recommended Practices to the maximum extent practicable" and noting no differences between those standards and the rule). As FAA notes in the Proposal itself, it recently decided not to issue unilateral supersonic LTO standards and focus on working with ICAO. 91 Fed. Reg. 40474. Courts have recognized that "EPA has consistently harmonized aircraft emission standards under section 231 with the ICAO standards." *California v. EPA*, 72 F.4th 308, 312 n.1, 316 (D.C. Cir. 2023) (citing a list of prior rules), and that the FAA and the EPA must coordinate domestic rules to harmonize with ICAO standards because aircraft certificates of airworthiness must comply with ICAO standards to be recognized internationally. *Id*. at 312.

[142] ICCT Comments at 11.

That court also favorably cited EPA's reasoning that:

> a unified set of domestic and international standards would be beneficial for the aircraft industry by "decreas[ing] administrative complexity for airplane manufacturers and air carriers." *Id*. Such uniformity would be "key" for "manufacturers as they become familiar with adhering to [ICAO's] standards." *Id*. at 2,158. The EPA has noted in other section 231 rules the importance of international regulatory uniformity for manufacturers and consumers. *See* Control of Air Pollution From Aircraft Engines: Emission Standards and Test Procedures, 87 Fed. Reg. 72,312, 72,314 (Nov. 23, 2022) (finding that uniformity "helps reduce barriers in the global aviation market, benefiting both U.S. aircraft engine manufacturers and consumers").

California, 72 F.4th at 316. The court also expressed concern that implementing uncoordinated domestic regulations could undermine international confidence or complicate future efforts to coordinate global standards. *Id*. at 317.

FAA should continue to rely on the SFA process until the ICAO en route supersonic standard is completed.[143] If the FAA decides to finalize the Proposal, it must provide a well-supported and reasoned basis for departing from its long-held position of maintaining consistency with international standards. *Fox Television Stations*, 556 U.S. at 515-16; *see also Wages & White Lion Invs.*, 604 U.S. at 568 (2025); *Encino Motorcars*, 579 U.S. at 222.

E. The Proposal Is Procedurally Deficient Because It Fails to Consider the Interests of Many Stakeholders.

DOT regulations establish as a Department priority that "full public participation should be encouraged in rulemaking actions, primarily through written comment *and engagement in public meetings*." 49 C.F.R. § 5.5(i) (emphasis added); DOT Order 2100.6B § 6(i). Pursuant to this priority, DOT procedure allows personnel to meet with interested members of the public concerning an informal rulemaking so long as that meeting is adequately disclosed. DOT Order 2100.6B § 13(a)(1).

DOT issued guidance to agency personnel who engage in such *ex parte* communications with members of the public.[144]

---

[143] *See also* ICCT comments at 10-12.

[144] *See generally* U.S. Dept. of Transportation, *Guidance on Communication with Parties outside of the Federal Executive Branch (Ex Parte Communications)* (Apr. 19, 2022), https://www.transportation.gov/sites/dot.gov/files/2022-04/Guidance-on-Communication-with-Parties-outside-of-the-Federal-Executive-Branch-%28Ex-Parte-Communications%29.pdf.

In the guidance, DOT cautions that:

> [T]he Department must treat parties equitably in administrative proceedings by making every reasonable effort to afford interested parties an equal opportunity to be heard through *ex parte* communications. The Department must, therefore, ensure that these contacts are conducted and documented in a way that ensures that all members of the public are given adequate knowledge of and ability to engage in allowable *ex parte* communications in the context of administrative proceedings.[145]

Accordingly, the guidance repeatedly states that the agency "shall . . . ensure, *through appropriate affirmative outreach where necessary*, that the opportunity to engage in *ex parte* communications is *equitable* to all parties, including stakeholders who might otherwise be less represented in DOT rulemakings or other matters."[146] The guidance further indicates that, where there are multiple requests for *ex parte* meetings, additional public engagement may be necessary and the agency "should consider holding a public meeting."[147]

The need for FAA to ensure equal opportunity in public engagement is heightened where, as here, FAA is regulating in a field in which Congress has previously directed the agency to engage in public outreach and consider the needs of stakeholders beyond industry actors. In instructing FAA to establish procedures for high-speed flight testing in 2024, Congress required FAA to consider "the safety of the uninvolved public" and "community outreach, education, and engagement." FAA Reauthorization Act of 2024, H.R. 3935, 118th Cong. § 1009(c). Congress also directed FAA to consider "methods and opportunities for community outreach, education, and engagement" in studying the actions "necessary to facilitate the safe operation and integration of high-speed aircraft." *Id.* §§ 1010(a)(1), (a)(3)(C). In 2018, Congress declared FAA must "consider the needs of the aerospace industry *and other stakeholders* when creating policies, regulations, and standards that enable the safe commercial deployment of civil supersonic aircraft technology and the *safe* and efficient operation of civil supersonic aircraft." FAA Reauthorization Act of 2018, Pub. L. No. 115-254, § 181(b)(1), 132 Stat. 3186, 3230 (emphasis added).

Notwithstanding these congressional directives and departmental priorities, FAA met only with industry actors when conducting public engagement while developing its Proposal. Over a two-week period in August 2025, FAA held listening sessions with "original equipment manufacturers and trade association stakeholders." 91 Fed. Reg. at 40473. These industry representatives shared feedback indicating their support for a transition away from the current prohibition on civil supersonic flight. *Id.* FAA did not hold listening sessions with other

[145] *Id.* at 4.
[146] *Id.* at 4, 5, 12 (emphasis added).
[147] *Id.* at 13.

interested stakeholders in aviation regulation like ICCT, environmental and wildlife organizations, noise citizen advocacy groups like Quiet Communities, Inc., or members of the public, despite stating that their industry listening sessions were held in accordance with DOT Order 2100.6B and the DOT guidance on *ex parte* communications. *Id.* There is also no indication that FAA consulted with ICAO, the international organization to which it normally defers in establishing these sorts of standards. Nor is there any indication from FAA that it conducted affirmative outreach to ensure that "opportunity to engage in *ex parte* communications is equitable to all parties, including stakeholders who might otherwise be less represented in DOT rulemakings or other matters."[148]

Because of FAA's failure to provide equitable opportunity to engage in listening sessions with the broader public, and corresponding failure to consider the interests of stakeholders other than supersonic equipment manufacturers and trade associations, FAA's Proposal is arbitrarily inconsistent with its own policies and is procedurally deficient. FAA should withdraw its Proposal until it undertakes equitable public engagement and revises the Proposal with the interests of the public at large in mind.

[148] U.S. Department of Transportation, *Guidance on Communication with Parties outside of the Federal Executive Branch (Ex Parte Communications)* at 4 (Apr. 19, 2022), https://www.transportation.gov/sites/dot.gov/files/2022-04/Guidance-on-Communication-with-Parties-outside-of-the-Federal-Executive-Branch-%28Ex-Parte-Communications%29.pdf.

CONCLUSION

For the foregoing reasons, Sierra Club and Earthjustice request that FAA withdraw the Proposal enabling supersonic overland flight. The Proposal is legally flawed and cannot be justified as sound policy, as enabling commercial supersonic flight overland will result in dangerous emissions that exacerbate the climate crisis and endanger public health and welfare while only serving the wealthiest of customers. FAA must withdraw the Proposal.

Thank you for considering these comments,

/s/ Andrea Issod
Andrea Issod
Senior Attorney
Eden Knoop
Legal Intern
Sierra Club Environmental Law Program
2101 Webster St., Suite 1300
Oakland, CA 94612
415.977.5544
andrea.issod@sierraclub.org

/s/ Amanda Lineberry
Amanda Lineberry
Senior Attorney
Robyn Winz
Sr. Research & Policy Analyst
Earthjustice
1400 L St. NW
Lobby 2, Unit 34117
Washington, DC 20005
202.797.5257
alineberry@earthjustice.org

Exhibit List

Please note: in order to meet file size restrictions, the comments and exhibits have been uploaded to regulations.gov in 4 submissions.

Submission 1

Ex. 1	National Oceanic and Atmospheric Administration, *Aviation is responsible for 3.5 percent of climate change, study finds*, NOAA.gov (Sept. 3, 2020)
Ex. 2	M. Klöwer, M.R. Allen, D.S. Lee, S.R. Proud, L. Gallagher, and A. Skowron, *Quantifying Aviation's Contribution to Global Warming*, 16 Envtl. Res. Lett. 104027, 4 (2021)
Ex. 3	Congressional Research Service, *Aviation, Air Pollution, and Climate Change* (Apr. 26, 2024)
Ex. 4	Dan Rutherford, Sebastian Eastham, Inés Sanz-Morère, Joonhee Kim, & Ray Speth, *Environmental limits on supersonic aircraft in 2035* (Jan. 2022),
Ex. 5	Dan Rutherford, Brandon Graver, & Chen Chen, *Noise and climate impacts of an unconstrained commercial supersonic network* (Jan. 2019)
Ex. 6	D. Rutherford, *Zero Cheers for the Supersonic Renaissance: Blog* (July 11, 2022)
Ex. 7	Sebastian D. Eastham, Thibaud Fritz, Inés Sanz-Morère, Prakash Prashanth, Florian Allroggen, Ronald G. Prinn, Raymond L. Speth, & Steven R. H. Barrett, *Impacts of a near-future supersonic aircraft fleet on atmospheric composition and climate*, 2:3 Environ. Sci.: Atmos. 388, 389 (May 2022)
Ex. 8	Sebastian D. Eastham, Thibaud Fritz, Inés Sanz-Morère, Prakash Prashanth, Florian Allroggen, Ronald G. Prinn, Raymond L. Speth, & Steven R. H. Barrett, *Correction: Impacts of a near-future supersonic aircraft fleet on atmospheric composition and climate,* 2 Environ. Sci.: Atmos. 3 (Apr. 2022)
Ex. 9	U.S. EPA, *Basic Information about NO_2* (last updated June 24, 2026)
Ex. 10	Usman Sagheer, Sadeer Al-Kindi, Shady Abohashem, Colin T. Phillips, Jamal S. Rana, Aruni Bhatnagar, Martha Gulati, Sanjay Rajagopalan, & Dinesh K. Kalra, *Environmental Pollution and Cardiovascular Disease: Part 1 of 2: Air Pollution*, 3:2 JACC Adv. (Feb. 2024)
Ex. 11	Irene van Kamp & Lex Brown, *A systematic review of evidence of the effect of transport noise interventions on human health,* Inter-Noise Conference (2016)
Ex. 12	Staffan Hygge, Gary W. Evans, & Monika Bullinger, *A prospective study of some effects of aircraft noise on cognitive performance in schoolchildren*, 13 Psychological Sci. 469 (2002)
Ex. 13	World Health Organization, *Environmental noise guidelines for the European region* (2018)
Ex. 14	Aviation Environment Federation, *Aircraft noise and public health: the evidence is loud and clear* (2016)
Ex. 15	World Health Organization, *Compendium of WHO and other UN guidance on health and environment, Chapter 11: Environmental noise* (2022)
Ex. 16	National Aeronautics and Space Administration, *NASA Low Boom Flight Demonstration (LBFD) Project Overview. Presentation at Aviation Noise & Emissions Symposium in Long Beach, California* (Feb. 27, 2018)

Ex. 17	National Aeronautics and Space Administration, *NASA Instruments Will Listen for Supersonic X-59's Quiet 'Thump'* (Feb. 22, 2024)
Ex. 18	International Civil Aviation Organization, *CAEP/13 Complementary Supersonic Study: Estimating Noise and Emissions of Supersonic Aviation Out to 2050* (2025)
Ex. 19	Sanford R. Wilbur, *The California condor, 1966-1976: a look at its past and future* 38-39 (Excerpt), U.S. Fish and Wildlife Service, Washington, D.C., North American Fauna No. 72. (1978)

Submission 2

Ex. 20	T.K. Kler, P. Sharm, G.S. Sekhon, & R.K. Aulakh, *Meta-analysis of avian behavioural responses to aircraft noise*, Eco. Env. & Cons. 29 (1): 2023, 426-32
Ex. 21	Douglas N. Gladwin & Karen M. Manci, *Effects of aircraft noise and sonic booms on fish and wildlife: results of a survey of U.S. Fish and Wildlife Service Endangered Species and Ecological Services Field Offices, Refuges, Hatcheries, and Research Centers*, U.S. Fish and Wildlife Service, National Ecology Research Center, Fort Collins, Co., NERC-88/30 (1987)
Ex. 22	Jack Mitchell, *20 years ago, the supersonic passenger jet Concorde flew for the last time*, NPR (Nov. 24, 2023)
Ex. 23	Karen M. Manci, Douglas N. Gladwin, Rita Villella, & Mary G. Cavendish, *Effects of aircraft noise and sonic booms on domestic animals and wildlife: a literature synthesis*, U.S. Fish and Wildlife Service, National Ecology Research Center, Ft. Collins, Co. NERC-88/29, 47-48 (1988)
Ex. 24	Y. Espmark et al., *Behavioral responses in cattle and sheep exposed to sonic booms and low-altitude subsonic flight noise*, 94 Vet. Rec. 106 (1974)
Ex. 25	J. Brouček, *Effect of noise on performance, stress, and behavior of animals*, 47 Slovak J. Anim. Sci. 111 (2014)
Ex. 26	Martin Kaltenbach, Christian Maschke, & Rainer Klinke, *Health Consequences of Aircraft Noise*, 105(31-32) Deutsches Arzteblatt International, 548-556 (Aug. 2008)
Ex. 27	Press Release Not Found | Boom Supersonic (last visited Aug. 13, 2026)
Ex. 28	Kevin P Shepard, Brenda M. Sullivan, *A Loudness Calculation Procedure Applied to Shaped Sonic Booms*, NASA (Nov. 1991)
Ex. 29	Christian R. Bolander, Douglas F. Hunsaker, Hao Shen, & Forrest L. Carpenter, *Procedure for the Calculation of the Perceived Loudness of Sonic Booms*
Ex. 30	Domenic J. Maglieri, Percy J. Bobbitt, Kenneth J. Plotkin, Kevin P. Shepherd, Peter G. Coen, & David M. Richwine, *Sonic Boom: Six decades of Research*, NASA Langley Research Center (2014), Part 1
Ex. 31	Domenic J. Maglieri, Percy J. Bobbitt, Kenneth J. Plotkin, Kevin P. Shepherd, Peter G. Coen, & David M. Richwine, *Sonic Boom: Six decades of Research*, NASA Langley Research Center (2014), Part 2
Ex. 32	Domenic J. Maglieri, Percy J. Bobbitt, Kenneth J. Plotkin, Kevin P. Shepherd, Peter G. Coen, & David M. Richwine, *Sonic Boom: Six decades of Research*, NASA Langley Research Center (2014), Part 3

Ex. 33	Domenic J. Maglieri, Percy J. Bobbitt, Kenneth J. Plotkin, Kevin P. Shepherd, Peter G. Coen, & David M. Richwine, *Sonic Boom: Six decades of Research*, NASA Langley Research Center (2014), Part 4
Ex. 34	Domenic J. Maglieri, Percy J. Bobbitt, Kenneth J. Plotkin, Kevin P. Shepherd, Peter G. Coen, & David M. Richwine, *Sonic Boom: Six decades of Research*, NASA Langley Research Center (2014), Part 5
Ex. 35	Victor W. Sparrow, *Project 042 Acoustical Model of Mach Cut-off Flight*, FAA Center of Excellence (2019)
Ex. 36	Federal Aviation Administration, *Final Environmental Assessment for Boom Technology XB-1 Supersonic Test Flights* (Feb. 2024)
Ex. 37	Federal Aviation Administration, *Federal Aviation Administration Reliance on and Adoption of Environmental Impact Statement and Record of Decision for the Hermeus Special Flight Authorization to Conduct Testing of the Supersonic (Greater than Mach 1.0) Quarterhorse Mark 2.1 Unmanned Aircraft System Over Land at White Sands Missile Range, New Mexico* (Feb. 2026)
Ex. 38	Federal Aviation Administration, *SpaceX Starship Super Heavy Project at the Boca Chica Launch Site* (July 13, 2026)
Ex. 39	UN Environment Program, *Emissions Gap Report 2025* (Nov. 4, 2025)

Submission 3

Ex. 40	Boom, *Boom Supersonic Announces Boomless Cruise* (Feb. 10, 2025)
Ex. 41	TravelPulse, *The Busiest Flight Routes of 2025 Revealed* (Dec. 29, 2025)
Ex. 42	U.S. Fish & Wildlife Service, *Gymnogyps californianus*
Ex. 43	U.S. Forest Service, Sespe Wilderness
Ex. 44	U.S. Fish & Wildlife Service, Hopper Mountain National Wildlife Refuge: What We Do
Ex. 45	U.S. Fish & Wildlife Service, Bitter Creek National Wildlife Refuge: What We Do
Ex. 46	Karen Petronis, Federal Aviation Administration, *Applicability of Part 36 to New Supersonic Aircraft* (Feb. 21, 2018)
Ex. 47	Elizabeth Glass Gettlemen, Guntwant Gill & Miriam Jovanovic, *Inquiry into the Implementation of Bush's Executive Order 13211 and the Impact on Environmental and Public Health Regulation*, 27 Fordham Envtl. L. Rev. 225 (2015)
Ex. 48	Office of Mgmt. and Budget, OMB M-21-12*, Furthering Compliance with Executive Order 13211, Titled "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use"* (Jan. 13, 2021)
Ex. 49	Office of Mgmt. and Budget, OMB M-01-27, *Guidance for Implementing E.O. 13211* (July 13, 2001)
Ex. 50	International Council on Clean Transportation, *Supersonic Aircraft: Twice as Nice, or Double the Trouble?* (Dec. 13, 2024)
Ex. 51	International Energy Agency, *Oil Market Report* (Mar. 12, 2026)
Ex. 52	Bipartisan Policy Center, *Why the Iran Conflict is Affecting Diesel and Jet Fuel Prices More than Gasoline* (June 2, 2026)

Ex. 53	Edward Russell, *America's skies may soon open up to supersonic travel. But there's still a big problem*, CNN (Jun. 5, 2025)
Ex. 54	*Jetliner is symbol of luxury, national pride*, The Blade (Jul. 26, 2000)
Ex. 55	Caleb S. Dorris, *Roaring Skies: The Law of Supersonic Commercial Flight and Arguments for its Return*, 90 J. of Air L. and Com. 1 (2025)
Ex. 56	Jill Lawless, *Concord flights epitomize speed, luxury*, The Bangor Daily News (July 26, 2000)
Ex. 57	CPI Inflation Calculator, Official Data Foundation (accessed July 27, 2026)
Ex. 58	Phyllis Mera, *The Concorde transatlantic flight is all it's cracked up to be*, The Kingston Whig-Standard (May 10, 1986)
Ex. 59	Lauren Terrazzano, *Concorde Could Be Finished, Newsday* (Nassau Edition), (Aug. 17, 2000)

Submission 4

Ex. 60	Camila Domonoske, *Jet fuel prices double, leading airlines to increase baggage fees, raise fares*, NPR (Apr. 16, 2026)
Ex. 61	Tiago Ventura, Olivia-Anne Cleary, & Callum Sutherland, *Why Summer Travelers May Still Be Met With High Airfares Despite the U.S.-Iran Deal*, Time Magazine (June 26, 2026)
Ex. 62	*Domestic and international airfare trends*, Kayak (accessed July 29, 2026)
Ex. 63	*Air Travelers in America Key Findings of a Survey Conducted by Ipsos*, Airlines for America (Mar. 2026)
Ex. 64	*Income in the United States: 2024*, U.S. Census Bureau (Sept. 9, 2025)
Ex. 65	Dan Rutherford, LinkedIn (Aug. 2026)
Ex. 66	U.S. Dept. of Transportation, *Guidance on Communication with Parties outside of the Federal Executive Branch (Ex Parte Communications)* (Apr. 19, 2022)