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October 11, 2024

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS ON THE 2022 ENVIRONMENTAL STATUS AND PLANNING REPORT

PROJECT NAME	: L.G. Hanscom Field 2022 Environmental Status and Planning Report (ESPR)
PROJECT MUNICIPALITY	: Bedford, Concord, Lexington, and Lincoln
PROJECT WATERSHED	: Shawsheen River
EEA NUMBER	: 5484/8696
PROJECT PROPONENTS	: Massachusetts Port Authority (Massport)
DATE NOTICED IN MONITOR	: June 7, 2024

As Secretary of Environmental Affairs, I hereby determine that the 2017 Hanscom Field Environmental Status and Planning Report (ESPR) **adequately and properly complies** with the Massachusetts Environmental Policy Act (M.G.L. c.30, ss. 61-62L) and with its implementing regulations (301 CMR 11.00). However, as detailed below, prior to filing the next ESPR in 2027, Massport should submit a Supplemental ESPR with updated forecasts of aviation activity and associated air quality and noise impacts which take into account the proposed design of North Airfield Development project (EEA# 16654), which is currently under MEPA review. The Supplemental ESPR should also provide additional data on the energy use of terminals, hangars, and other buildings at Hanscom Field. As noted below, future ESPRs should also expand on environmental justice and public health outreach and analysis, and consider Massport's obligation under MEPA to avoid or minimize, and, where appropriate, to mitigate, environmental impacts, and, under recently promulgated rules and regulations, to consider environmental justice principles through MEPA reviews. A formal Scope for the 2027 ESPR will be issued prior to the filing of the 2027 ESPR, with a draft Scope to be submitted by Massport for publication in the Environmental Monitor for a public comment period. Massport may submit the Supplemental ESPR together with the Proposed Scope for the 2027 ESPR.

Project Description

Hanscom Field comprises approximately 1,300 acres of land, located approximately 20 miles northwest of Boston, within the municipalities of Bedford, Concord, Lexington, and Lincoln. The Massachusetts Port Authority (Massport) assumed ownership of the facility in 1974. The airport has primarily accommodated private general aviation (GA) activity, commercial, and cargo service. The Federal Aviation Administration (FAA) identifies Hanscom Field as a reliever airport to Logan Airport, whereby Hanscom Field provides substantial airside relief by annually serving approximately 125,000 GA operations.

Consistent with prior ESPRs, the 2022 ESPR inventoried Hanscom's facilities and infrastructure, identified airport and aviation activity levels, described the regional ground transportation network and traffic generated by the airport, and reviewed environmental conditions in and around Hanscom Field and the ongoing cumulative impacts of airport operations, including noise and air quality levels and impacts to cultural, historic, conservation and recreational resources. The 2022 ESPR compared current conditions (as of end of 2022) to those documented and forecasted in previous ESPRs and provided forecasts for airport and aviation activity and associated environmental impacts through 2030 and 2040. The 2022 ESPR also surveyed measures that Massport has undertaken, and will continue to undertake, to reduce the environmental impacts of airport operations. For the first time, the 2022 ESPR included a section on Environmental Justice (EJ), in response to the Scope issued on December 16, 2022. As discussed below, the EJ and Public Health section and associated outreach and analysis should continue to be expanded through future ESPRs. Consistent with the overarching purposes of MEPA, future ESPRs should more clearly describe (and quantify, wherever possible) all practicable measures to avoid or minimize and, where appropriate, to mitigate the environmental impacts of airport operations within the limits of Massport's legal authority. Consistent with the 2021 Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy ("Climate Roadmap Act"), St. 2021, c. 8, §§ 55-60, these measures should also consider environmental justice principles by fostering the equitable distribution of environmental benefits and burdens in impacted neighborhoods, while considering any identified unfair or inequitable environmental burdens borne by surrounding EJ populations. More specific analysis required for the 2027 ESPR will be set forth in a formal Scope to be issued prior to the filing of the 2027 ESPR.

History and Purpose of ESPR

This is the fifth ESPR Massport has prepared, following ESPRs filed for the years 2000, 2005, 2012, and 2017. Prior to 2000, Massport prepared filings titled, "Generic Environmental Impact Reports" (GEIRs), dating back to 1985. As reiterated in prior ESPR certificates, preparation of ESPRs is intended to provide Agencies and the public with planning data and information on an on-going basis. It provides an analysis of past trends in the environmental impacts of Hanscom Field and analyzes future conditions based on projected operations. As a result, these documents serve as a planning tool to guide Massport in the development of policy and programs. The ESPR presents an overview of the operational environment and planning status of Hanscom Field, including a cumulative review of the environmental impacts of airport operations, and provides long-range projections of environmental conditions, against which the effects of future individual projects can be compared. The ESPR includes important data on airport facility planning and environmental impacts that are of interest to the surrounding communities and organizations, and provides a basis for ongoing discussions between Massport and its neighbors.

I acknowledge, as stated in the 2022 ESPR, that this document does not analyze the impacts of specific projects proposed at Hanscom. However, the ESPR itself is a form of environmental review, and is prepared to comply with the overarching directive of MEPA that Agencies, including state authorities such as Massport, review and evaluate the impact on the natural environment of all works, projects or activities conducted by them, and to "use all practicable means and measures to minimize damage to the environment."[1] To that end, ESPR filings should include, in addition to a cumulative inventory of all airport operations and associated impacts, a description of all practicable measures planned to avoid or minimize, and where appropriate, to mitigate such impacts within the confines of Massport's legal authority. And, as noted, ESPRs should now reflect EJ principles consistent with M.G.L. c. 30, § 62J and 301 CMR 11.01(1)(b)-(c).

The ESPR does not replace MEPA review of specific projects at Hanscom that meet or exceed regulatory thresholds, with the exception of Routine Maintenance and Replacement Projects that are not subject to MEPA review pursuant to 310 CMR 11.01(2)(b)(3). For any project that does exceed thresholds, Massport must submit an Environmental Notification Form (ENF) and, if necessary, an Environmental Impact Report (EIR), that analyzes impacts, reviews alternatives, and identifies measures to avoid, minimize, and mitigate impacts. The ESPR serves as a vehicle for ensuring that long-term, broad-scope planning informs the review and implementation of individual actions at Hanscom Field. As discussed below, one project that is currently undergoing review is the L.G. Hanscom Field North Airfield Development (EEA#16654), which proposes the addition of 17 new hangars and renovation of a former U.S. Navy hangar. Review of the Draft EIR (DEIR) for EEA#16654 has raised questions about the extent to which growth projections set forth in the 2022 ESPR relative to hangar capacity and "based aircraft" actually align with the extent of the hangar expansion proposed by the project. The DEIR Certificate also requires revisions of estimates related to increased flight activity and associated air emissions that would result from the project. Given these outstanding issues to be further explored in a Supplemental DEIR, it is reasonable to conclude that the cumulative inventory of impacts set forth in this ESPR, including projections of flight activity and emissions associated with the airport as a whole, could be inaccurate. To ensure accuracy of reporting of airport-wide impacts, I am therefore requiring the filing of a Supplemental ESPR together with Massport's next filing, which should also propose a Scope for the 2027 ESPR. Both documents will be issued for public comment, and a formal Scope will be issued in the corresponding MEPA certificate.

Review of the 2022 ESPR

The 2022 ESPR described the analysis framework for the environmental reporting and technical studies documenting changing conditions at the facility. It reviewed existing conditions at the airport and projects completed since 2017 or currently underway. The 2022 ESPR provided data on airport

[1] Past Massport filings show that GEIR reviews prior to 2000 were conducted in a similar manner as standard project reviews, including through the filing of Draft and Final EIRs and issuance of Section 61 Findings. However, with the 1998 revisions to MEPA regulations, GEIRs were phased out in favor of ESPRs, which would now be considered a form of Special Review Procedure under 301 CMR 11.09(4)(a) (Programmatic Review). It appears that Section 61 Findings were not required starting with the 2000 ESPR, and Draft and Final ESPRs were no longer required starting with the 2005 ESPR. Past MEPA certificates dating back to September 2009 are available through the current or legacy Environmental Monitor (see https://www.mass.gov/info-details/the-environmental-monitor), and certificates prior to September 2009 are available by request through the MEPA Office. Full project filings are available starting with the February 8, 2023 Environmental Monitor, or by request to MEPA.

operations and a broad range of environmental factors, including traffic, noise, air quality, cultural/historic resources, wetlands/water resources, wildlife habitat, air quality and greenhouse gas (GHG) emissions. Data for present conditions was compared to historic trends and projected airport operations and environmental conditions in the years 2030 and 2040. The 2022 ESPR presented policy considerations, an overview of the airport's current and potential role within the regional planning context, and a status report on proposed planning initiatives and projects. The 2022 ESPR reviewed the environmental review process for Hanscom Field, including public outreach. It identified issues of importance to key stakeholders, including the surrounding towns (Bedford, Concord, Lexington, and Lincoln), the MMNHP, and residents.

Public Comments

I received comments from officials and residents of the four towns surrounding Hanscom Field and other individuals and organization that identified impacts associated with operation of the airport on surrounding areas, and expressed concern that impacts will increase with the anticipated growth in aircraft operations and proposed infrastructure, including the North Airfield Development project (EEA# 16654). Many of the commenters took issue with the methodologies used in the ESPR to measure noise and air quality impacts. Among the key issues identified in comments are the following:

- Forecasts of aviation activity should take into account government climate change policies and increased use of virtual meetings, and analyze forecast scenarios in which aviation activity decreases over time
- ESPRs should provide a more comprehensive assessment of future aviation technology, such as electric aircraft
- The forecasts of aviation activity in the 2022 ESPR do not take into account increased infrastructure, including proposed hangars in the North Airfield Development project, and projected increases in based aircraft
- ESPRs should fully account for air emissions from all aspects of Hanscom Field operations, including aircraft emissions from the full flight
- Massport should take a greater role in ensuring that the environmental impacts associated with operation of Hanscom Field, including those of its tenants, are minimized and mitigated, particularly air emissions and noise
- ESPRs should measure emissions of ultrafine particulates (UFP) and provide a comprehensive assessment of UFPs building upon the methodologies and results of studies underway by Dr. Neelakshi Hudda of Tufts University
- Massport should acknowledge that aircraft using Hanscom Field are a significant source of lead and expedite the transition to lead-free aviation fuel
- Massport should transition away from the use of Aqueous Film Forming Foam (AFFF) to eliminate a potential source of per- and poly-fluoroalkyl substances (PFAS)
- The 65 decibel (dB) Day-Night Sound Level (DNL) (detailed below) noise standard is antiquated and does not reflect actual impacts to area residents, including human health impacts, and Massport should adopt a lower standard to assess impacts of the airfield
- The 65dB DNL standard, which averages noise levels over a long period of time, does not document impacts to visitors to the Minute Man National Historical Park (MMNHP) and other cultural and open spaces areas from actual noise levels

- The Time Above (TA) noise metric (detailed below) more accurately reflects impacts of noise levels to MMNHP visitors, and a larger area of the MMNHP is forecasted to be within the 55dB contour under future conditions
- ESPR data should reflect actual measurements of noise and air quality in the area surrounding Hanscom Field and rely less on modeling

MEPA is an environmental review process through which the Proponent will identify potential environmental impacts, consider alternatives to avoid impacts, and propose mitigation measures. It does not approve or deny a project and does not include performance standards by which project impacts are evaluated. A key purpose of MEPA is to "assist each Agency in using (in addition to applying any other applicable statutory and regulatory standards and requirements) all feasible means to avoid Damage to the Environment or, to the extent Damage to the Environment cannot be avoided, to minimize and mitigate Damage to the Environment to the maximum extent practicable" (301 CMR 11.01(1)(a)). The 2022 ESPR described maintenance and operational activities routinely conducted by Massport that would otherwise not require MEPA review based on the Review Thresholds listed in the MEPA regulations at 301 CMR 11.03.

Massport should consider these comments and suggestions in preparing the Scope for the 2027 ESPR. While responses to comments received on this ESPR must be provided in the 2027 ESPR, I encourage Massport to provide responses as part of its Scope for the 2027 ESPR to provide context to commenters on this document, and to explain how recommendations have been incorporated into the Scope or why they were not. I encourage Massport to evaluate feasible suggestions for increased analysis and monitoring of air emissions, noise and traffic impacts. The 2027 ESPR should include a review of regulatory, policy and operational responsibilities of entities operating at Hanscom, including Massport, the Air Force, the FAA, FBOs and other operators, and an explanation of how air space is regulated for general aviation and training purposes. Massport should continue to coordinate its activities and maintain its ongoing public process with the Hanscom Field Advisory Commission (HAFC) and Hanscom Area Towns (HATS) committee, including during preparation of the next ESPR.

Environmental Justice

A portion of Hanscom Field in Bedford is located within an EJ population designated as Minority and Hanscom Field is within one mile of five additional EJ populations designated as Minority located in Lexington and Lincoln. Hanscom Field is within five miles of additional EJ populations, all of which are designated as Minority, located in Acton, Arlington, Billerica, Burlington, Lexington, Waltham, and Woburn. Within the census tract containing the above EJ populations within one mile of the site, no languages are identified as those spoken by 5% of more of residents who also identify as not speaking English very well; Chinese identified as those spoken by 5% of more of residents who also identify as not speaking English very well within 5 miles of the site.

The 2022 ESPR reviewed Massport's public engagement efforts as required by the MEPA Public Involvement Protocol for Environmental Justice Populations ("MEPA EJ Public Involvement Protocol") and provided a baseline health assessment MEPA Public Involvement Protocol for Environmental Justice Populations ("MEPA EJ Public Involvement Protocol") as described in the MEPA Interim Protocol for Analysis of Project Impacts on Environmental Justice Populations ("MEPA Interim Protocol for Analysis of EJ Impacts").

Public Engagement

According to the 2022 ESPR, Massport's Community Relations and Governmental Affairs Department manages Massport's efforts to engage with communities around Hanscom Field. The 2022 ESPR was sent to an "EJ Reference List" provided by the MEPA Office and consisting of Community Based Organizations (CBOs) and tribes/indigenous organizations. Two technical meetings to review the content of the 2022 ESPR were held remotely on June 10 and June 11, both at 6:00 PM; notice of the meetings was posted on Massport's website and distributed to the EJ Reference List, previous commenters, and local municipal officials. Massport representatives also participated in meetings of the committees formed of representatives of local communities surrounding Hanscom Field, including Hanscom Field Advisory Commission (HFAC) and the Hanscom Area Towns (HATS) Committee.

The ESPR has indicated that the "designated geographic area" (DGA) (as defined in 301 CMR 11.02) should be defined as one mile for future filings. Because ESPRs are distinct from standard project reviews, it is not necessary to define a formal DGA. However, to be consistent with other MEPA reviews, I find it appropriate for Massport to continue public engagement efforts, at minimum, over a 1-mile radius around the outer perimeter of Hanscom Field. As noted below, analysis of noise impacts provided in the ESPR shows that potential impacts over the 2030 and 2040 planning horizon could extend out to over 2 miles from the runway ends, when considering the most conservative 55dB DNL and TA contours. In addition, comments have confirmed the existence of ongoing studies of UFP around Hanscom Field, and preliminary findings are stated to show high levels of UFP around the airport. Massport should identify any potential areas of additional impact around the airport based on these and other ongoing studies, and conduct additional focused outreach to such areas. Massport should continue to engage with the HAFC and the HATS Committee, and take recommendations for additional methods and areas of public engagement for future ESPRs.

Baseline Health Assessment

The 2022 ESPR included a baseline assessment of any existing "unfair or inequitable Environmental Burden and related public health consequences" impacting the EJ Population as set forth in the MEPA Interim Protocol for Analysis of EJ Impacts. The baseline assessment included a review of the data provided by the Department of Public Health (DPH) EJ Tool applicable regarding "vulnerable health EJ criteria"; this term is defined in the DPH EJ Tool to include any one of four environmentally related health indicators that are measured to be 110% above statewide rates based on a five-year rolling average. According to the 2022 ESPR, the data surveyed indicate that none of the three towns with EJ populations within one mile of Hanscom Field (Bedford, Lexington, and Lincoln) exceed any of the four vulnerable health EJ criteria, which include Childhood Lead Exposure, Childhood Asthma Emergency Department Visits, Low Birth Weight and Heart Attack Hospitalizations. However, the census tract containing the EJ population in Lincoln meets the criterion for Low Birth Weight.

The 2022 ESPR indicated that the following sources of potential pollution exist within 1 mile of Hanscom Field, based on data available in the DPH EJ Tool:

- Major air and waste facilities: 16
- M.G.L. c. 21E sites: 10

- "Tier II" toxics use reporting facilities: 24
- Sites with Activity and Use Limitations (AULs): 7
- Underground storage tanks (USTs): 19
- EPA facilities: 6
- MBTA bus and rapid transit: one MBTA bus route
- Other transportation infrastructure: 1 (Hanscom Field)

Finally, the 2022 ESPR surveyed environmental indicators tracked through the U.S. EPA's "EJ Screen," which compares the indicators by U.S. census block to the MA statewide average. According to explanatory guidance from the EPA, "environmental indicators [in EPA EJ Screen] are direct or proxy estimates of risk, pollution levels or potential exposure (e.g., due to nearby facilities)." The EJ Screen provided measures of the indicators for the identified EJ populations (census block groups) as percentiles as compared to the MA statewide average. According to the EJ Screen results, indicators which exceed the 80th percentile within one mile of the airport include Air Toxics Cancer Risk, Superfund Proximity, Traffic Proximity, and Hazardous Waste Proximity. Apart from Air Toxics Cancer Risk[2], no other air quality related indicator appears elevated above the 80th percentile. While the Air Toxics Cancer Risk is elevated above the 80th percentile, the lifetime cancer risk reported does not exceed 100 persons per million, which is considered elevated cancer risk. Moreover, Figures 11-8 through 11-13 show the percentiles of indicators in each individual EJ census block group, indicating that the EJ population that intersects with the airport and the bordering EJ population (i.e., block group 6, track 3593.03 and block group 5, tract 3603) do not exceed the 80th percentile of the statewide average. In addition, the 2022 ESPR indicates that Hanscom Field is exposed to potential climate risks, including the risk of urban and riverine flooding due to extreme precipitation and to extreme heat. EJ populations residing near the airport are likely also exposed to these climate risks.

As noted, the 2027 ESPR should expand on EJ outreach and analysis, in accordance with a Scope to be issued for the next ESPR. Additional public health and demographic data, such as youth/elderly and asthma rates, should be surveyed and focused measures considered in areas that may be shown to bear an unfair or inequitable environmental burden as reflected in environmental and public health indicators. As discussed below, airport activity levels show a clear upward trend over the planning horizon to 2030 and 2040, with overall flight activity projected to exceed pre-COVID 2017 levels but not reaching all-time highs recorded in 1985. Corresponding air emissions, especially NOx and VOCs, are projected to increase over the same time period, primarily due to projected increases in jet aircraft activity, though comparisons to historic levels are not available and all levels remain below NAAQS standards. The number of residences within the 55 to 65 dNL noise contours is projected to increase (but not above 65 dNL). Consistent with the Logan ESPR, Massport should continue to track these trends, and consider specific actions if activity levels exceed projections during a given reporting period. As indicated above, Massport should continue to identify EJ or other sensitive populations around the airport that may be subject to unfair or inequitable burdens based on available mapping data, and should take focused action to the extent targeted impacts are shown. Future ESPRs should provide more detailed information, including monitoring data where available, based on ongoing UFP exposure studies, and should propose appropriate mitigation measures based on the results of those findings.

[2] Note that Air Toxics Cancer Risk is no longer reported as a percentile and is instead only reported as persons per million over a 70-year lifetime. For screening purposes, cancer risks greater than or equal to100 persons per million is considered elevated (USEPA, 1999).

Airport Activity Levels

The 2022 ESPR provided an accounting of aviation activity at Hanscom Field by type (business, single-engine, military, and helicopter) in 2022; compared 2022 aviation activity to activity levels in 2012 and 2017 and projections previously included in the 2017 ESPR; and provided forecasts for each type of flight for the years 2030 and 2040. The ESPR also reviewed national and regional trends in aviation activity. According to the 2022 ESPR, all current aircraft operations at Hanscom Field except for military flights associated with Hanscom Air Force Base (HAFB), are designated as "general aviation" (GA) operations. Approximately 50.5% of all operations at Hanscom Field are by small single engine piston (SEP) used for training and personal use; 30.1% are by business jets; 8% are by helicopters; 6% are by turboprop aircraft; 4% by multi-engine piston (MEP) aircraft, and 1.4% by military aircraft. In 2022, Hanscom Field had approximately 30% more GA operations as the next busiest GA airport in Connecticut, Massachusetts, New Hampshire, and Rhode Island. According to 2022 data, June was the most active month at Hanscom Field and Sunday and Friday were the most active days. The majority of arrival flights occur on Sundays between 2:00 PM and 6:00 PM and Wednesdays, Thursdays, and Fridays between 3:00 PM and 6:00 PM; the majority of departures occur on Saturdays between 9:00 AM and 1:00 P, Sundays between 10:00 AM and 3:00 PM, and late morning/early afternoon on Wednesdays through Fridays.

According to the 2022 ESPR, aviation activity at Hanscom Field peaked at 247,000 operations in 1985; since then, operations dropped to 212,371 in 2000, and 128,777 operations in 2017. According to the 2022 ESPR, there were 124,867 total aircraft operations in 2022, of which 122,216 operations (approximately 98%) occurred between the hours of 7:00 AM and 11:00 PM ("daytime flights"), when the air traffic control tower is open, and 2,651 operations (approximately 2%) occurred when the air traffic control tower is closed ("nighttime flights"). As shown in Table 1, the overall number of operations decreased by a compound annual growth rate (CAGR) of -5% between 2012 and 2017, and by -1% from 2017 to 2022. The overall decrease is due to reductions in the number of single engine piston (SEP) airplanes for training and personal use, which currently make up approximately half of all operations. However, flights by jets, turboprops, and multi-engine piston aircraft (MEP), all of which are for business use and account for the next largest share of aircraft operations at Hanscom Field, increased annually by 4.4% from 2012 to 2017 and by 7.7% from 2017 to 2022. Furthermore, business jet activity has overtaken both Training SEP and Personal SEP as the largest single category of aircraft activity at Hanscom Field; as further described below, business jet activity is forecasted to continue to grow at a higher rate than any other GA category through 2040.

Table 1. Summary of Aircraft Activity at Hanscom Field (Table 3-1 in the 2022 ESPR)

Activity	Year			CAGR	
Aircraft Operations (7:00 a.m. to 11:00 p.m.)	2012	2017	2022	2012-2017	2017-2022
General Aviation					
Training SEP	70,196	46,014	36,370	-8.1%	-4.6%
Personal SEP	51,477	33,040	25,336	-8.5%	-5.2%
Business Non-Jet (MEP + Turboprop)	10,178	10,846	12,241	1.3%	2.4%
Business Jet	25,638	29,862	36,808	3.1%	4.3%
Helicopter	7,345	8,256	9,760	2.4%	3.4%
Subtotal GA	**164,834**	**128,018**	**120,515**	**-4.9%**	**-1.2%**
Military	745	759	1,701	0.4%	17.5%
Scheduled Commercial Airline	635	0	0	-100.0%	0.0%
Total Operations	**166,214**	**128,777**	**122,216**	**-5.0%**	**-1.0%**
Based Aircraft	**340**	**350**	**284**	**0.6%**	**-4.1%**
Note: Operations are between 7:00 a.m. and 11:00 p.m., the hours that the air traffic control tower is open. Source: *2017 ESPR* for Hanscom Field, Massport NOMS data					

According to the 2022 ESPR, other GA airports in the region have experienced CAGRs ranging from 8.57% to -4.42 % between 2017 and 2022; nationally, GA operations increased by 1.6% annually from 2017 to 2021.As shown in Table 2, total actual aircraft operations at Hanscom Field were approximately 6% lower in 2022 than forecasted in the 2017 ESPR.[3] However, while the 2017 ESPR forecasted higher numbers of training and personal SEP and business turboprop operations than were realized in 2022, it underestimated the future number of MEP and jet business operations and helicopter and military flights. Not shown in Table 2 are nighttime aircraft operations, which increased from 2,226 in 2017 to 2,651 in 2022 (a 16% increase); 61% of nighttime operations were by jets, 25% were by helicopters, 8% were by turboprops, and 6% were by SEPs/MEPs.

[3] The 2017 ESPR included forecasts of aircraft operations in 2025 and 2035. The 2017 forecast for 2022 shown in Table 2 was interpolated from the forecast for 2025.

Table 2. 2017 ESPR Forecast and Actual 2022 GA Daytime activity at Hanscom Field (Table 3-4 in the 2022 ESPR).

Activity	Actual 2022	*2017 ESPR* Forecast 2022	Difference Absolute	Difference Percent
Training SEP	36,370	43,319	-6,949	-19%
Personal SEP	25,336	30,635	-5,299	-21%
Business MEP	4,890	2,940	1,950	40%
Business Turboprop	7,351	9,211	-1,860	-25%
Business Jet	36,808	33,786	3,022	8%
Helicopter	9,760	9,026	734	8%
Military	1,701	759	942	55%
Total	**122,216**	**129,677**	**-7,461**	**-6%**

Note: Operations between 7:00 a.m.-11:00 p.m., the hours that the air traffic control tower is open.
Sources: Massport NOMS data, *2017 ESPR* for Hanscom Field

According to the 2022 ESPR, aviation activity decreased in the United States and at Hanscom between 2019 and 2022 due to the COVID-19 pandemic, which may explain why actual total aviation activity in 2022 was lower than projected in the 2017 ESPR. However, jet activity increased during this period. According to the 2022 ESPR, jet activity during the pandemic increased because passengers preferred to fly on aircraft with fewer other passengers. As shown below, total aviation activity at Hanscom Field is forecasted to increase on an annual basis and exceed 2017 levels by 2030.

Forecasts of Future Aviation Activity

The 2022 ESPR included separate forecasts of daytime and nighttime aviation activity at Hanscom Field in 2030 and 2040. The forecasts were generally based on historical trends at Hanscom Field and the FAA's Aerospace Forecast for GA through 2040. Activity levels for Training SEP, Personal SEP, and helicopters were calculated based on the FAA forecast of a 0.7% (CAGR) GA local growth rate through 2040. Because of the impacts of the COVID-19 pandemic on trends in aviation activity during the period from 2017 to 2022, recent trends were not used to develop forecasts for business aviation activity. Business aviation activity at Hanscom Field has historically tracked the local economy as reflected by the Massachusetts Gross Regional Product (GRP), which is forecast to grow at an annual rate of 2.3%. Future business jet activity (through 2040) is projected to grow at a CAGR of 1.2%; this forecast is based on the average of the forecasted 2.3% annual growth in GRP and the FAA's Aerospace Forecast for GA itinerant and local operations. However, other business aviation (turboprop and MEP) is projected to grow at the FAA's Aerospace Forecast for GA itinerant operations of 0.6% (CAGR) through 2040. Scheduled commercial service, which is not considered a General Aviation activity, has not been provided at Hanscom Field since 2012; however, limited commercial service has been included in the forecast as a potential scenario that could occur in the future.

As shown in Table 3, total daytime aviation operations are forecasted to increase from 122,216 in 2022 to 134,185 in 2030 (an annual increase of 1.17%) and to 143,767 in 2040 (an annual increase of 0.91% from 2030 to 2040). According to the 2022 ESPR, the forecasted scheduled commercial service could accommodate 35,372 passengers by 2030 and 73,892 passengers by 2040.The forecasted fleet mix

as shown in Table 3 (for daytime flight activity) forms the basis of the projections of future noise impacts and air emissions provided in the 2022 ESPR. In addition, the 2022 ESPR forecasted 2,889 nighttime operations in 2030 (an increase of 8% from 2022) and 3,393 operations in 2040 (a 22% increase from 2022). The proportion of nighttime flights in 2030 and 2040 are projected to be similar to those documented for 2022 (approximately 2%). Jets are forecasted to continue to comprise approximately 60% of nighttime operations; operations by SEPs/MEPs are forecasted to comprise approximately 14% of operations; commercial aircraft will account for approximately 8% of nighttime operations in 2040; turboprops will comprise approximately 5% of nighttime operations; and helicopters will account for approximately 17% to 19%.

Table 3. Forecasted Daytime Aviation Activity at Hanscom Field (Table 3-5 in the 2022 ESPR).

Daytime Activity	Actual		Forecast		Compound Annual Growth Rate			
	2017	2022	2030	2040	2017-22	2022-30	2030-40	2022-40
Training SEP	46,014	36,370	39,383	41,236	-4.60%	1.00%	0.46%	0.70%
Personal SEP	33,040	25,336	27,435	28,726	-5.17%	1.00%	0.46%	0.70%
Business MEP	3,015	4,890	5,212	5,446	10.16%	0.80%	0.44%	0.60%
Business Turboprop	7,831	7,351	7,835	8,187	-1.26%	0.80%	0.44%	0.60%
Business Jet	29,862	36,808*	41,030	45,624	4.27%	1.37%	1.07%	1.20%
Helicopter	8,256	9,760	10,569	11,066	3.40%	1.00%	0.46%	0.70%
Military	759	1,701	1,701	1,701	17.51%	0.00%	0.00%	0.00%
Scheduled Commercial Airline	0	0	1,019	1,783	0.00%	N/A	5.75%	N/A
Total	**128,777**	**122,216**	**134,185**	**143,767**	**-1.04%**	**1.17%**	**0.69%**	**0.91%**

* 2022 may be an anomalous year. Annualized total 2023 business jet operations (based on January through April TFMSC data) is anticipated to be 33,876. This results in a 2023-2040 CAGR of 1.77 percent.
Sources: *2017 ESPR* for Hanscom Field, Massport NOMS data, McFarland Johnson for forecast years

Aviation Infrastructure

The 2022 ESPR provided an inventory of airport facilities, including the terminal, runways and taxiways, hangars, air traffic control facilities, flight schools, fuel storage tanks, and maintenance and safety facilities. It listed aviation infrastructure projects completed since 2017, including:

- Facilities for the fixed base operator (FBO) Jet Aviation
- Repaving, repainting, and excess pavement removal on Runway 11/29
- Redevelopment of Hangar 12 to provide facilities for Boston MedFlight
- A replacement facility for the U.S. Customs and Border Protection agency was completed
- Rehabilitation of the East Ramp
- Completion of the Airport Rescue and Fire Fighting (ARFF) facility
- Replacement of three South T-Hangars

- The FBO Signature Flight Support began implementation of its campus redevelopment program, including replacement of its office and support space and repair and renovation of existing hangars
- Rehabilitation of Taxiway N and installation LED taxiway lighting
- Four box hangars with a combined area of 23,000 sf were constructed in the North Airfield area to replace T-Hangars located in the Pine Hill area
- Maintenance of Taxiway R pavement
- Construction of a new hangar at Pine Hill by the FBO Atlantic Aviation

Runways and Taxiways

Hanscom Field has two runways to accommodate take-offs and landings. Runway 11/29, which is oriented in an east-west configuration, is the primary runway. It is 150 ft wide and 7,011 ft (approximately 1.33 miles) long. As the primary runway, Runway 11/29 is equipped with a High Intensity Runway Lighting System, and each runway end is equipped with an Instrument Landing System, Distance Measuring Equipment, and Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights. Runway Safety Areas (RSAs) are located at each end with 200-ft wide by 1,000-ft long paved blast pads to help slow landing aircraft in emergency situations. The second runway, Runway 5/23, is the secondary crosswind runway. It is 150 ft wide and 5,107 ft (0.97 miles) long and oriented in a northeast-southwest alignment. It is equipped with a Medium Intensity Lighting System and runway end identifier lights. The RSA at the Runway 23 end includes a 200-ft wide by 200-ft long paved blast pad, and the Runway 5 end RSA includes a 200-ft wide by 645-ft long paved blast pad. All four runway ends are equipped with a four-light Precision Approach Path Indicator.

A system of 12 taxiways, ranging in width from 50 ft to 75 ft, provides access to the runways, aircraft parking aprons, hangars, and FBO facilities. Taxiways E, F, G, and N provide access to the ends of the runways; Taxiway R runs along the north side of Hanscom Field and connects runway ends 11 and 23; Taxiway M runs along the west side of Hanscom Field and connects runway ends 5 and 11 to the to the Pine Hill area and an FBO; Taxiways A, B, and C connect Taxiway E to the East Ramp at the southeast end of Hanscom Field; Taxiway T connects Taxiways E, J, and S; and Taxiway J provides access from Taxiway E to the West Ramp.

Airport Traffic Control Facilities and Navigational Aids

The FAA owns and operates the air traffic control tower (ATCT) and navigational aids (NAVAIDs). The ATCT is located on the south side of the airfield east of Taxiway J. The ATCT is operated by the FAA daily between 7:00 AM and 11:00 PM. The FAA's staff controls Hanscom's airspace within 5 miles of the airfield in coordination with the FAA's Boston Consolidated Terminal Radar Approach Control (TRACON) located in southern New Hampshire; TRACON controls Instrument Flight Rule arrivals, departures, and low-altitude (above 2,500 ft) over-flights in the controlled airspace around Hanscom Field. Aircraft are tracked by TRACON through direct communication with aircraft pilots and the use of radar. NAVAIDs operated by the FAA at Hanscom Field, such as the Instrument Landing System, provide pilots with electronic guidance for aircraft alignment, descent gradient, and aircraft position until pilots make visual contact with the runway. are located on and near the airport and are used to support instrument approach procedures.

Buildings, Hangars and Exterior Aircraft Parking Areas

The 2022 ESPR included a list of Hanscom Field's buildings and hangars, which were generally assessed to be in good condition. Apart from facilities owned and operated by the FAA (the ATCT and NAVAIDs) or the U.S. Air Force (including a hangar and the fire department for the airfield), the facilities are owned by Massport, including the Hanscom Field Terminal, the ARFF facility, maintenance facilities, and 83,900 sf of T-hangar space and 23,000 sf of box hangar space to accommodate smaller aircraft. Aircraft not stored within a hangar are parked on paved areas known as ramps (or aprons) which are equipped with anchors to which smaller aircraft can be attached ("tie-downs"). The East Ramp and West Ramp provide a total of 73 aircraft tie-downs for long-term exterior storage of aircraft.

Massport also owns facilities that are leased to private corporations and three Fixed Base Operators (FBOs), including Signature Flight Support, Jet Aviation, and Atlantic Aviation. The FBOs provide a range of services to based and transient aircraft, their operators, and their passengers, including fueling, cleaning, aircraft maintenance, aircraft parking, hangaring, flight planning, and assisting flight crews and passengers find ground transportation and overnight accommodations. Most FBO activity involves servicing corporate GA aircraft activity, but they may also service charter flights. According to the 2022 ESPR, Jet Aviation operates 24-hours per day, seven days a week, and Atlantic Aviation and Signature Flight Support typically operate from 6:00 AM to 10:00-11:00 PM.

Three flight schools are located at Hanscom Field. One of the schools operates out of the Hanscom Field Terminal, one leases space from an FBO, and one operates out of an Air Force hangar. Aircraft used for teaching purposes are tied down on the East and West Ramps.

Based Aircraft

As shown in Table 4, the number of based aircraft has decreased by 19% from 2017 to 2022 (a decline of 4.1% CAGR). According to the 2022 ESPR, the decline in based aircraft, especially in based personal aircraft, is due to the decrease in tie-downs, higher fuel prices, fewer new pilots, increased cost of maintenance of aircraft, and required changes in technology. As larger aircraft, such as jets, continue to increase in size, they cannot be accommodated by existing hangars which may be too small. Despite the decrease in the number of based aircraft, the shortage of storage space (hangars and tie-downs) was caused by the removal of tie-downs to create space for the construction of the ARFF and customs facility and the reduction in T-hangar space when they were relocated from Pine Hill to the North Airfield. All aircraft storage space at Hanscom Field is filled to capacity with waitlists for future customers. As with the forecasted increase in jet activity, the percentage of based aircraft that are jets is projected to increase from 27% in 2022 (77 based jets) to 39% in 2040 (122 based jets). According to the 2022 ESPR, future facility needs, as detailed below, are derived in part from the forecasted increase in the number of based aircraft and the demand for hangar space.

Table 4. Existing and forecasted based aircraft (Table 4-7 in the 2022 ESPR).

Aircraft Type	2017	2022	2030	2040
Single Engine	208	182	169	158
Multi Engine	33	11	11	11
Business Jet	93	77	97	122
Helicopter	16	14	16	18
Total	350	284	293	310
Sources: 2017 ESPR (2017), FAA ADIP (2022), McFarland Johnson for forecast years (2030 and 2040)				

Potential Development to Meet Demand

The 2022 ESPR identified five planning areas at Hanscom Field for the purpose of reviewing future development of aviation infrastructure to accommodate the forecasted increases in aircraft operations. It identified projects to be constructed prior to 2030 which are included in the 2030 forecast scenario, and projects in the 2040 forecast scenario that would be constructed between 2030 and 2040; except as noted below, the air, noise, and traffic impacts of these projects are included in the 2030 and 2040 forecasts. The projects below are also included in Massport's five-year capital improvement program for the fiscal years 2023 to 2027.

North Airfield

This planning area encompasses Massport's property northwest of Runway 11/29, which is accessible by Taxiway R. As noted above, construction of four box hangars with a combined area of 23,000 sf in the western part of this planning area was completed in 2022. The 2030 forecast scenario includes two additional box hangars next to the four recently-constructed hangars, and rehabilitation of Taxiway R pavement and geometric improvements in the taxiway alignment to conform to FAA requirements.

The eastern part of the North Airfield planning area is the site of the proposed development of 522,380 sf of aircraft hangar and aviation support space currently under MEPA review (L.G. Hanscom Field North Airfield Development, EEA#16654). The project is proposed on a 47-acre site consisting of an approximately 28-acre parcel owned by Massport and an adjacent approximately 19-acre parcel that is privately owned, and would include 17 hangars with the capacity to store up to 55 aircraft. The 2030 forecast scenario includes an unspecified level of hangar development in the North Airfield planning area in the 2030 forecast scenario; however, the proposed hangar space to accommodate up to 55 aircraft exceeds the 2022 ESPR forecast for an additional 9 based aircraft (293 total) in 2030 and additional 26 based aircraft (310 total) in 2040.

Northeast Airfield

Massport leases a large part of this planning area to the U.S. Air Force. The Air Force uses the area to maintain the FamCamp, a recreational vehicle (RV) campsite open to military personnel and employees of HAFB. Vehicular access to the area is provided by South Road, and the area has access to

the airfield via Taxiway G. The 2022 ESPR identified potential aeronautical use of part of this site in 2030, after the HAFB's lease ends in 2027, and aeronautical development on a second parcel in 2040.

East Ramp

This planning areas is located in the southeastern part of the airfield. Existing uses include the ARFF facility, aircraft-tie downs, the FAA Air Traffic Control Tower (ATCT), fueling facilities operated by Massport and an FBO, three hangars operated by Signature Flight Support, maintenance facilities, FAA storage, navigational aids, and HAFB hangars and other facilities. Under existing conditions, direct vehicular access to the area is available only through the HAFB and requires security vetting and credential checks.

Potential development in this planning area in the 2030 forecast scenario includes Signature Flight Support's planned renovation of the three hangars it currently operates and expansion of its fuel facility, Taxiway E rehabilitation and reconfiguration, expansion of a maintenance facility south of the ATCT, and relocation of the sand storage facility. Development of the area east of the East Ramp for aeronautical use is included in the 2040 forecast scenario. Additional planning concepts include vehicular access to the East Ramp through the HAFB, via escorted travel from the terminal building, or via a new roadway from Hartwell Avenue.

West Ramp

This planning area is located south of the ATCT and East Ramp, west of the HAFB, and east of the Runway 5 end of Runway 5-11. It is currently used for GA, including FBO facilities, hangars, the Hanscom Field Terminal, public parking, and maintenance and fueling facilities. According to the 2022 ESPR, near-term projects identified in the 2017 ESPR have commenced and are nearing completion, including a new hangar to be constructed by Signature Aviation Support, renovations of Hanscom Field Terminal, and relocation of the salt storage facility.

Potential development in the West Ramp planning area included in the 2030 forecast scenario includes renovation of existing hangars, rehabilitation of the West Ramp, Taxiway M (southern section) rehabilitation and geometric improvement, and non-aeronautical (but aviation compatible) development such as hotels, offices or museums close to the Hanscom Field Terminal. The potential non-aeronautical development near the West Ramp is conceptual and its noise, air, and traffic impacts are not included in the 2030 and 20040 impact forecasts. Additional parking will be provided, especially if scheduled commercial service resumes, as necessary in the 2030 and 2040 forecast scenarios, potentially including a parking garage in the 2040 forecast scenario. New Jet A fuel tanks will be added to both the Atlantic Aviation and Jet Aviation fuel farms in the 2030 and 2040 forecast scenarios.

Pine Hill

This 10-acre planning area is located at the west side of Hanscom Field with vehicular access from Virginia Road. It used for GA, including FBO facilities and hangars. Atlantic Aviation commenced construction of a new 60,000-sf hangar and 20,000 sf of guest and office space after the T-hangars formerly located here were replaced with new T-hangars in the North Arfield. Projects included in the 2030 forecast scenario include corporate facilities with new aircraft parking spaces, Taxiway E

rehabilitation, Runway 23 departure engineering materials arresting system, and rehabilitation of and geometry improvements to the northern section of Taxiway M.

Future MEPA Reviews

As noted above, the North Airfield Development Project ((EE# 16654) is currently undergoing MEPA review. According to the 2022 ESPR, the following projects may require MEPA review, either individually or bundled together in one or more filings.

- Maintenance of Taxiway R between Runways 11 and 23 and Taxiway G North (FY23)
- Geometric improvements to Taxiway R and construction of a Vehicle Service Road (FY30)
- Taxiway E rehabilitation and geometry improvements (FY 24-27)
- Taxiway M north section rehabilitation and geometry improvements (FY 30 or later)
- Runway 5/23 rehabilitation and geometry improvements (FY 23-27)
- Taxiway M south section rehabilitation and geometry improvements (FY 30 or later)

In addition to providing an alternatives analysis and describing the impacts and proposed mitigation measures, MEPA filings for any project at Hanscom Field should review the project in the context of forecasted conditions described in this ESPR and, as necessary, provide updates to relevant sections of the ESPR. The accounting of impacts and mitigation provided in individual project filings should be reflected in future ESPRs.

As noted above, the proposed hangar space to accommodate up to 55 aircraft in the North Airfield Development (EEA#16654) exceeds the 2022 ESPR forecast for an additional 9 based aircraft (293 total) in 2030 and additional 26 based aircraft (310 total) in 2040. The Scope for Supplemental DEIR issued for that project requires the Proponent to reconcile these numbers, and to revise the estimates of projected flights and associated emissions from what was originally presented in the DEIR, which characterized the North Airfield Development as meeting only the growth projections set forth in the ESPR, and, therefore, not creating any "new" impacts from flights that would occur with or without the project. Given that the scale of hangar development far exceeds the demand in the ESPR, estimates of new flights and emissions may be corrected in the filings for EEA#16654. In turn, the overall inventory of impacts for Hanscom Field should be amended and presented in a Supplemental ESPR.

Traffic and Transportation

The 2022 ESPR summarized the impacts of vehicular traffic associated with Hanscom Field. According to the 2022 ESPR, 100% of the respondents to a travel survey given to Hanscom Field employees and tenants indicated that they drive to work alone, an increase from 90% who responded this way in 2017. Public transportation options for employees and tenants are limited to the Massachusetts Bay Transportation Authority's (MBTA's) Bus Route 76, which provides service approximately every half-hour between the Alewife MBTA Red Line subway station in Cambridge and Hanscom Field, including stops at Lincoln Laboratories and the terminal building. The most recent MBTA ridership data for Bus Route 76 from 2019 identified 11 daily boardings and departures per day at Hanscom Field Terminal and 17 boardings and departures at the intersection of Hanscom Drive/Old Bedford Road. According to the 2022 ESPR, this route may not be an attractive travel option because it travels along local roads and requires a stop-over at Lincoln Laboratories before reaching Hanscom

Field. The ESPR discussed Transportation Demand Management (TDM) measures implemented at Hanscom Field to reduce single occupancy vehicle (SOV) trips. These measures include encouraging the use of Bus Route 76 and shuttle service operated by the Route 128 Business Council to access the site from the MBTA's Alewife subway station and promoting carpooling to the site by offering designated parking spaces and encouraging the use of ride-matching services. Future ESPRs should review options for extending the pedestrian and bicycle network beyond Hanscom Field.

The 2022 ESPR included a traffic analysis generally consistent with the *EEA/MassDOT Guidelines for EIR/EIS Traffic Impact Assessment (TIA)*. The study area was defined by the area bounded by Hartwell Road to the north, Routes 4/225 to the northeast, Route 128/I-95 to the east, Route 2A to the south and Old Bedford Road to the west, and included the same 10 intersections analyzed in previous ESPRs.

As shown in Table 5, the peak period trip generation associated with Hanscom Field (as measured through traffic counts at the main entrance) has increased by 35% in the AM peak period, from 110 trips in 2017 to 148 trips in 2022, and by 22% in the PM peak period, from 107 trips in 2017 to 130 trips in 2022. In addition, peak period trip generation was slightly higher in 2022 than the trip generation forecasted for 2025 in the 2017 ESPR. According to the 2022 ESPR, Hanscom Field is an off-peak traffic generator that contributes approximately 3.1% of the vehicle trips on Route 2A during the AM and PM peak periods.

Table 5. Hanscom Field Main Entrance Peak Period Trip Generation (Table 6-4 in the 2022 ESPR).

Traffic Count Data	Morning Peak Hour			Afternoon Peak Hour*		
	In	Out	Total	In	Out	Total
2002	109	52	161	47	112	159
2005	115	42	157	75	79	154
2012	136	29	165	37	84	121
2018	74	36	110	32	75	107
2022	110	38	148	48	82	130
***2017 ESPR* Scenarios**						
2025 Forecast	90	48	138	40	85	125
2035 Forecast	106	61	167	48	98	146

* Actual counts at Hanscom Field main entrance adjusted in accordance with the traffic volume adjustment section below.
Sources: *2017 ESPR* and McFarland Johnson, 2023

According to the 2022 ESPR, approximately 80% of peak hour trips associated with Hanscom Field use the use the main driveway on Hanscom Drive and 20% use the driveway to the Pine Hill area off Virginia Road. The 2022 ESPR included an analysis of traffic conditions under Existing 2022, No Build 2030, Build 2030, No Build 2040 and Build 2040 scenarios to evaluate the effect on area roadways of additional Hanscom-related traffic resulting from future aircraft operations and potential development listed above. It modeled level-of-service (LOS), delay and vehicle-to-capacity (v/c) ratios

at intersections at which Hanscom-related trips are projected to comprise 10% or more of the total peak period traffic. The following intersections three intersections (of the 10 intersections in the study area) were analyzed under existing conditions because Hanscom Field-generated traffic accounts for 10% or more of the peak period traffic at these locations:

- Hanscom Drive/Old Bedford Road
- Hanscom Drive/Route 2A
- Old Bedford Road/Virginia Road

Under Existing 2022 conditions, the southbound left turn movement from Hanscom Drive onto Route 2A operates at LOS F during both peak periods with delays exceeding 5 minutes and the southbound right turn from Hanscom Drive onto Route 2A operates at LOS F in the PM peak period with delays of nearly 4 minutes; however, all other turning movements at the intersections operate at LOS C or better during both peak periods, indicating acceptable operations without significant delays or congestion.

Future Conditions

The 2022 ESPR analyzed roadway operations under No Build and Build scenarios in 2030 and 2040. The No Build conditions include a background traffic growth rate of 0.5% per year and the traffic that will be generated by a proposed lab/office building on Hartwell Road in Bedford. Build 2030 and Build 2040 conditions include the increased number of trips generated by Hanscom Field consistent with the growth in aircraft operations and potential development described above added to the No Build scenarios. The No Build and Build scenarios for 2030 and 2040 incorporate the conversion of the intersection of the Hanscom Drive/Old Bedford Road intersection to a single lane roundabout, which is expected to be operational by 2030.

As shown in Table 6, peak period trips in 2030 will be approximately 21% to 25% higher than in 2022 and peak period trips in 2040 will be approximately 42% higher than in 2022. Build 2030 and Build 2040 conditions include development of hangars in the North Airfield planning area and other projects described above. As a result, approximately 6% to 9% of peak period trips will access Hanscom Field via Hartwell Road; approximately 80% of trips will continue to use the Hanscom Drive main entrance, and 8% to 17% will use the Pine Hill entrance off Virginia Road. The percentage of Hanscom-related trips on Route 2A during peak periods is expected to increase from approximately 3.1% in 2022 to 3.4% in 2030 and 3.8% to 4.2% in 2040.

Table 6. Hanscom Field Trip Generation under Existing and Future Conditions (Table 6-13 in the 2022 ESPR).

Scenario	Morning Peak Hour			Afternoon Peak Hour		
	In	Out	Total	In	Out	Total
2022	110	38	148	48	82	130
2030 Forecast	143	54	197	63	101	164
2040 Forecast	183	72	255	81	126	207
2017 ESPR Scenarios						
2025 Forecast	90	48	138	40	85	125
2035 Forecast	106	61	167	48	98	146
Sources: *2017 ESPR* and McFarland Johnson, 2023						

Capacity analyses of future roadway conditions were provided for the following five intersections, which were selected from among the 10 study area intersections because Hanscom Field-generated trips are projected to account for 10% or more of peak period trips under future scenarios:

- Hanscom Drive/Old Bedford Road
- Hanscom Drive/Route 2A
- Old Bedford Road/Virginia Road
- Route 2A/Old Massachusetts Avenue
- Lexington Road/Old Bedford Road

According to the 2022 ESPR, operations at study area intersections will remain essentially unchanged from Existing 2022 conditions. Turning movements at the five intersections will operate at LOS C or better under No Build and Build conditions, except for the southbound turns from Hanscom Drive onto Route 2A, which will continue to operate at LOS F under No Build and Build conditions in 2030 and 2040. According to the 2022 ESPR, the Hanscom Drive/Route 2A intersection may meet the criteria for installation of a traffic signal with the additional trip generation included in the 2030 Build and 2040 Build scenarios. Alternately, a single lane roundabout with channelized movements could improve operations at this intersection.

The Scope for the 2027 ESPR should include capacity analyses for all 10 study area intersections, including those in or adjacent to the MMNHP. The TIA Guidelines require that the transportation study area include any intersections where project-generated traffic accounts for 5% or more of the traffic volume, or add 100 or more vehicles per hour during peak hours; any additional intersections meeting these thresholds should be added to the traffic study in the 2027 ESPR.

Noise

The 2022 ESPR included models of noise levels generated by aircraft using Hanscom Field using the FAA's Aviation Environmental Design Tool (AEDT). The AEDT noise model incorporates physical characteristics of the airfield, flight tracks of aircraft arriving and departing from Hanscom Field, operational parameters (such as runway use and numbers of arrivals and departures) and aircraft-specific performance and noise data. The AEDT noise model data and outputs were used to evaluate noise impacts associated with Hanscom Field using the following indicators:

- Day-Night Average Sound Level (DNL), which is an average of 24-hour sound levels. The FAA uses annual average DNL is used to establish land use guidelines for determining where incompatibilities between the noise environment and human activities occur, and this metric is required to be used for airport noise studies funded by the FAA.
- Time-Above (TA) threshold contours, which map areas on the ground that exceed a certain decibel level (usually 55dB or 65dB) for a specified time period.
- Sound Exposure Level (SEL), which characterizes the duration of a sound and can be used to compare the noise of common aircraft types. SELs are correlated with sleep disturbance.
- Total Noise Exposure (EXP), which sums the SELs for each departure or arrival of an aircraft assuming it flies over a single point on the ground. Departures were historically the largest contributor to DNL, and changes in EXP were correlated with DNL. However, as aircraft engines have been designed and built to be quieter, aircraft arrival noise has become a relatively greater contributor to DNL and EXP does not align with DNL contours in areas where departures contribute a large share of the noise. Because similar aircraft types are grouped together when calculating EXP, changes in EXP over time reflect changes in the fleet mix of aircraft operating at Hanscom Field.

The 2022 ESPR compared DNL values modeled using the AEDT to measure noise levels at six permanent monitoring locations, including two monitoring stations within the airfield (the “Concord Localizer” and the “Bedford Localizer” locations in Table 7 below) and one in each of the four surrounding communities (located in line with each of the four runway ends approximately 0.75 to 1.5 miles from the end of each runway). Because the noise monitors measure noise levels from all sources, Massport calculated the portion of the total noise measured at each location that is associated with aircraft (“Measured Aircraft-Only DNL” in Table 7). As shown in Table 7, modeled and measured noise levels are within 3.5 dB of one another. The largest differences (2.4 dB and 3.5 dB) are instances where the modeled values are larger than the measured values, suggesting that he modeled results may be slightly conservative (overestimating noise levels).

Table 7. Measured and modeled DNL values (in dB) at permanent monitoring stations (Table 7-10 in the 2022 ESPR).

Site Number	Location	Measured Noise (Aircraft and Ambient Sources)[1]			Measured Aircraft-only DNL[2]	AEDT Modeled 2022 DNL (Aircraft Noise Only)	Measured Aircraft-only DNL Minus AEDT Modeled
		Minimum	Mean	Maximum			
31	Concord Localizer	52.5	62.9	70.4	61.5	60.6	0.9
32	Bedford Localizer	54.4	61.7	71.9	58.8	61.2	-2.4
33	Lincoln Brooks Road	47.1	55.6	61.7	54.8	53.2	1.6
34	Bedford De Angelo Road	57.7	61.3	69.1	52.4	52.3	0.1
35	Lexington Preston Road	51.2	59.1	69.8	52.1	55.6	-3.5
36	Concord Wastewater	54.7	60.6	71.5	47.2	50.2	-3

1. DNL values for each monitor are reported by the NOMS for each day of the year. These values include all sound occurring at the site, without regard to noise source.
2. Massport's system upgrades now allow calculation of aircraft-only DNL by summing the energy of all noise events identified with specific aircraft operations.
Source: Massport Noise and Operations Monitoring System, HMMH 2023

The 2022 ESPR included maps of the 55dB, 60dB, 65dB DNL contours based on 2022 data to assess the extent to which surrounding areas are subject to modeled average levels. The land area and shape of the 2022 contours were compared to DNL data from previous years and to modeled DNL contours associated with noise levels in 2030 and 2040 based on projected aviation activity. As shown in Table 8, the land area within each DNL contour was 5% to 18% smaller in 2022 than in 2017, and generally smaller than land areas in DNL contours in 2005 and 2012. The shape of DNL contours in 2022 were similar to those in 2017 and in previous years, except for an area south of the airfield where the 55dB DNL contours encircle a helipad which Boston Medflight helicopters began using in 2018. According to the 2022 ESPR, the 55dB contour around the helipad is located almost entirely within the Hanscom Field and Hanscom Air Force Base properties and does not extend into residential areas; the 65dB contour around the helipad is completely within the Hanscom Field and Hanscom Air Force properties.

Table 8 Comparison of the Areas within the 2022 DNL Contours to Previous ESPRs (Table 7-9 in the 2022 ESPR)

DNL Contours (dB)	Cumulative Area (Acres)[1]				Percent Change from 2017
	2005	2012	2017	2022	
70	311	181	216	177	-18%
65	635	391[2]	423[2]	363[2]	-14%
60	1,437	856	909	837	-8%
55	3,291	2,045	2,227	2,115	-5%

Notes:
1. Area within contour includes all greater DNL values.
2. All areas contained within Hanscom Field boundaries.
Source: HMMH 2023.

According to the 2022 ESPR, no people live in areas where DNLs have been modeled to be 65dB or higher in 2022 and in the previous 2012 and 2017 ESPRs, and the number of residents between the 60dB to 65dB contour is lower in 2022 than in either 2017 or 2012. However, the number of people living within the 55dB to 60dB contour, and the total number of people within the 55dB or greater contours, have increased by approximately 20% to 25% from 2012 to 2022. As previously reported in the 2017 ESPR, DNL values were higher in 2017 than in 2012 because aircraft were temporarily directed to Runway 5/23 while Runway 11/29 was closed for rehabilitation; as a result, the contours associated with Runway 5/23 encompassed a larger area than is typical when fewer aircraft use that runway.

The 2022 ESPR also compared the shape of the 30-minute, 60-minute, and 90-minute contours for both 55dB and 65dB TA values in 2017 and 2022, and the land area and population within each contour for the ESPR years of 2012, 2017, and 2022. For each scenario, TA values and the land area and population within each TA contour were lower in 2022 than in 2017 and 2012. According to the 2022 ESPR, slower aircraft, such as SEPs, contribute more to TA than fast moving aircraft due to the length of time the associated noise is audible; therefore, this result is consistent with the decrease in SEP operations in 2022 compared to previous years. With respect to EXP, the 2022 ESPR documented an overall trend of lower EXP associated with aircraft departures as aircraft engines have become quieter over time. However, the 2022 included EXP values for arrivals and combine values for arrivals and departures; these data indicate that, except for military aircraft, arrival EXP values are greater than departure EXP values for aircraft using Hanscom Field.

The 2022 ESPR included an analysis of daily departure SELs, grouped into 5-dB ranges from 70dB to 105dB, over time. The analysis excluded SEPs, which have SELS lower than jets and other aircraft, because their greater frequency of daily departures would obscure the impacts associated with louder aircraft. The analysis showed that operations by the noisiest aircraft types with SELs over 95dB are nearly absent at Hanscom Field. However, daily departure SELs between 80 B and 90dB have reached their highest levels, reflecting increased operations by jet aircraft.

Forecasted Noise Conditions

The 2022 ESPR included projected DNL and TA contours and EXP and SEL values for 2030 and 2040 based on the forecasts described above. In general, the projected noise levels reflect forecasted increases in aviation activity, particularly by jets. As detailed below, sites within Minute Man National Historical Park were also modeled under future conditions.

The 2022 ESPR provided the following forecasts of DNL noise levels compared to existing conditions:

- The land area within the 55dB, 60dB, 65dB, and 70dB DNL contour is projected to increase by approximately 5% to 6% from 2022 to 2030, and by approximately 10% to 12% from 2022 to 2040.
- No residents will live within the projected 2030 or 2040 65dB or greater DNL contour.
- The number of residents within the 60dB to 65dB contour will increase by 24% from 2022 to 2030 and by 44% from 2022 to 2040
- The number of residents within the 55dB to 60dB contour will increase by 12% from 2022 to 2030 and by 24% from 2022 to 2040.

With respect to TA, the land area in the 30-, 60-, and 90-minute contours for both 55dB and 65dB are expected to increase by at least 11% from 2022 to 2030 and by at least 19% from 2022 to 2040. The population within the 65dB TA contour is expected to show a decrease or minimal increase (0 to 10%) between 2022 and 2030 and between 2022 and 2040; however, the population within the 55dB TA contour will increase by 15% to 25% from 2022 to 2030 and by 24% to 44% from 2022 to 2040. The geographical radius within which any of the identified contours (55dB and upward) will be present in 2030 and 2040 is up to approximately 3 miles to the west of Hanscom Field. The above trends show that, while noise contours decreased generally from 2017 to 2022, they are projected to increase again in some areas (east and west of Runway by 2030 and 2040 due to projected increases in flight activity.

Air Quality

The 2022 ESPR reported on air quality conditions for the year 2022 and included projections for 2030 and 2040 based on forecasted activity levels. Emissions from both aircraft and motor vehicles were evaluated; however, motor vehicles account for well under 1% of total emissions at Hanscom Field. It evaluated emissions of the following air contaminants: carbon monoxide (CO), oxides of nitrogen (NOx), volatile organic compounds (VOCs), particulate matter (PM_{10} and $PM_{2.5}$) and carbon dioxide (CO_2)[4]. The 2022 ESPR compared 2022 emissions at Hanscom Field in 2022 to estimates of emissions in previous ESPRs and to projected emissions in 2030 and 2040. Emissions were reviewed in the context of regional air quality data and state and federal regulatory standards. The 2022 ESPR identified measures to reduce on-site emissions. As with noise contours, air emissions associated with airport activity, while showing some declines between 2017 and 2022, show projected increases in the 2030 and 2040 timeframe due to projected increases in flight activity, particularly for business aircraft.

[4] Greenhouse gas emissions, including CO_2, are reviewed in the Climate Change section of this Certificate.

As shown in Table 9, aircraft and motor vehicle emissions of CO, PM_{10}, $PM_{2.5}$, and CO_2 have generally decreased over time. However, emissions of NOx and VOCs from aircraft were higher in 2022 than in any previous year and increased by 32% and 8%, respectively, from 2017 to 2022. Lower emissions of CO, PM10, PM2.5, and CO_2 in 2022 correspond to the overall trend of decreasing aircraft operations between 2017 and 2022 (though, as noted above, business use aircraft increased operations in this time frame). According to the 2022 ESPR, the increases in NOx and VOC emissions are attributable to the 23% increase in jet aircraft operations and 19% decrease in SEP operations during this time period, as well as the use of more precise emissions factors used in the updated AEDT model.

Table 9. Air emissions in 2022 compared to Previous ESPRs (in thousands of kilograms per year, equivalent to Metric Tons)

Year	Source	CO[5]	NO_x[5]	VOC[6]	PM_{10}[6]	$PM_{2.5}$[6]	CO_2
		Emissions in thousands of kilograms per year					
2000	Aircraft	591.2	25.4	39.4	2.3	2.3	10,108
	Ground Vehicles	60.8	6.9	3	0.2	0.2	1496
	Total	**652.0**	**32.3**	**42.4**	**2.5**	**2.5**	**11604**
2005[1]	Aircraft	1670.0	34.1	112.7	13.5	13.5	19,233
	Ground Vehicles	36.1	4.1	1.6	0.1	0.1	1,312
	Total	**1706.1**	**38.2**	**114.3**	**13.6**	**13.6**	**20,545**
2012[2]	Aircraft	1123.0	31.9	80.4	9.9	9.9	16,356
	Ground Vehicles	19.1	2.18	0.9	0.1	0.1	1,555
	Total	**1142.1**	**34.1**	**81.3**	**10**	**10**	**17,911**
2017 (AEDT)[3]	Aircraft	1557.0	34.8	51.4	1.92	1.92	17,735
	Ground Vehicles	2.9	0.4	0.1	0.01	0.01	407
	Total	**1559.9**	**35.2**	**51.5**	**1.93**	**1.93**	**18,141**
2022 (AEDT)[4]	Aircraft	502.5	45.8	55.3	1.87	1.86	16,971
	Ground Vehicles	1.8	0.1	0.02	0.001	0.001	375
	Total	**504.3**	**45.9**	**55.4**	**1.87**	**1.86**	**17,346**

Notes:
1. The *2005 ESPR* used EDMS version 4.3, but the emissions were recalculated using EDMS version 5.1.4.1 when it was released for consistency with the *2012 ESPR*.
2. The *2012 ESPR* used EDMS 5.1.4.1.
3. The 2017 *ESPR* used AEDT 2d.
4. The 2022 *ESPR* used AEDT 3e.
5. Emissions of CO and NOx are calculated to the first decimal place.
6. Emissions for VOC and PM are calculated out to two significant figures.

According to the 2022 ESPR, air quality data collected by MassDEP shows that the regional air quality is good and background concentrations of contaminants are below National Ambient Air Quality Standards (NAAQS). Based on data in the 2020 National Emissions Inventory prepared by the EPA, emissions from Hanscom Field aircraft make up only 0.02% to 0.54% of the total emissions in Middlesex County. According to the 2022 ESPR, site specific monitoring for nitrogen dioxide (NO_2) was performed in 1995 to test the assumption that air quality data from MassDEP's Boston monitoring station represented local air quality around Hanscom Field. The results indicated that NO_2

concentrations collected close to the airport were in compliance with air quality standards and well below those measured at the Boston monitoring station.

Projected Air Emissions

The 2022 ESPR provided estimated levels of air emissions from aircraft and motor vehicles under the forecasted conditions in 2030 and 2040, which include increasing numbers of aircraft operations compared to 2022, particularly by jets. As shown in Table 10, emissions of CO, PM_{10}, $PM_{2.5}$, and CO_2 will decrease or stay the same from 2022 to 2030, and emissions of NOx and VOCs will increase during that period. In 2040, emissions of all pollutants will be higher than those in 2030 and, with the exception of CO, higher than 2022 emissions levels. This is attributable to the projected growth in flight activity as described above.

Table 10. Air emissions in 2022 compared to Previous ESPRs (in thousands of kilograms per year, equivalent to Metric Tons). (Table 8-9 in the 2022 ESPR).

Year	Source	CO[1]	NO_x[1]	VOC[1]	PM_{10}[1]	$PM_{2.5}$[1]	CO_2
		Emissions in thousands of kilograms per year					
2017	Aircraft	1,557.0	34.8	51.4	1.92	1.92	17,734
	Ground Vehicles[2]	2.9	0.3	0.1	<0.1	<0.1	407
	Total	**1,559.9**	**35.1**	**51.5**	**1.92**	**1.92**	**18,141**
2022	Aircraft	502.5	45.8	55.3	1.87	1.86	16,971
	Ground Vehicles[2]	1.8	0.096	0.020	0.0015	0.0013	375
	Total	**504.3**	**45.9**	**55.4**	**1.87**	**1.86**	**17,346**
2030	Aircraft	424.0	49.1	58.8	1.86	1.86	18,477
	Ground Vehicles[2]	1.6	0.028	0.015	0.0013	0.0012	420
	Total	**425.6**	**49.2**	**58.8**	**1.86**	**1.86**	**18,896**
2040	Aircraft	445.6	53.9	65.0	2.02	2.02	20,544
	Ground Vehicles[2]	1.0	0.0067	0.014	0.0012	0.0011	495
	Total	**446.7**	**53.9**	**65.0**	**2.02**	**2.02**	21,039

Notes:
1. Emissions levels for CO. NOx, VOC and PM were prior reported to one now reported to two significant figures.
2. Ground vehicle emissions are calculated to two significant figures.
Source: HMMH, 2024

The 2022 ESPR included an analysis of air quality under 2040 projections at 10 receptor sites near the airport. Six of the receptors are located at the closest downwind distance from the center of the airfield to residential or conservation land outside the boundary of the Massport's property. These locations are anticipated to represent "worst-case" conditions because concentrations of air contaminants areas further away from the airport should be lower. Concentrations at each receptor were calculated by scaling, using updated emissions rates for each pollutant, from the emissions calculated for those location for the year 2035 in the 2017 ESPR. The results of the analysis are presented in Table 11, which also shows that the modeled concentrations are below the applicable air quality standard from either the NAAQS or MassDEP guidelines.

Table 11. Modeled maximum air concentrations in 2040 at 10 community receptors (micrograms per cubic meter). (Table 8-10 in the 2022 ESPR.)

Source	Receptor	CO 1 Hour	CO 8 Hour	NO_2 1 Hour	NO_2 Annual	PM_{10} 24 Hour	PM_{10} Annual	$PM_{2.5}$ 24 Hour	$PM_{2.5}$ Annual
Concentration from Hanscom Operations[1]	1	1101.5	739.8	76.5	5.3	1.4	0.2	1.4	0.2
	2	913.8	639.5	65.3	4.6	1.4	0.2	1.4	0.2
	3	572.1	400.4	40.9	3.3	0.7	0.1	0.8	0.2
	4	554.0	387.5	37.6	3.3	0.7	0.1	0.8	0.2
	5	680.0	456.0	48.8	4.0	0.7	0.1	0.8	0.2
	6	394.5	276.1	27.7	1.9	0.4	0.1	0.4	0.1
	7	266.7	187.0	19.1	1.9	0.4	0.1	0.4	0.1
	8	521.7	365.2	35.6	3.3	0.7	0.1	0.8	0.1
	9	262.6	183.5	19.1	1.9	0.4	0.1	0.4	0.1
	10	269.1	188.8	19.1	1.9	0.4	0.1	0.4	0.1
Total Concentration Including Background[2]	1	2910.4	2004.8	179.9	27.0	35.4	14.5	20.7	9
	2	2722.8	1904.5	168.7	26.3	35.4	14.5	20.7	9
	3	2381.0	1665.4	144.3	24.9	34.7	14.4	20.1	9
	4	2362.9	1652.5	141.0	24.9	34.7	14.4	20.1	9
	5	2489.0	1721.0	152.2	25.6	34.7	14.4	20.1	9
	6	2203.4	1541.1	131.1	23.6	34.4	14.4	19.7	8.9
	7	2075.7	1452.0	122.5	23.6	34.4	14.4	19.7	8.9
	8	2330.7	1630.2	139.0	24.9	34.7	14.4	20.1	8.9
	9	2071.5	1448.5	122.5	23.6	34.4	14.4	19.7	8.9
	10	2078.0	1453.8	122.5	23.6	34.4	14.4	19.7	8.9
Air Quality Standard or Guideline ($\mu g/m^3$)		40,000	10,000	188/320[3]	100	150	50	35	12

Notes:
1. Air concentrations are derived from the SCREEN3 dispersion modeling from Hanscom Field operations that assumes all airborne emissions up to 3,000 feet are simulated as being released at ground level. Actual air concentrations will be less than these estimates because emissions above ground level will have a significantly reduced impact on ground-level locations.
2. Background levels measured at various MassDEP monitoring locations, see Table 8-2.
3. For NO_2, the 188 $\mu g/m^3$ represents the EPA 1-hour NAAQS, while the 320 µg/m3 represents the MassDEP 1-hour NO_2 Policy Guideline.

Wetlands/Wildlife/Water Resources

The 2022 ESPR described natural resource at Hanscom Field, including wetlands, rare species and water quality. It reviewed vegetation management practices, wellhead protection areas, stormwater management systems and areas with documented releases of contaminated material to soil or groundwater.

Wetlands

The 2022 ESPR described each wetland area at or adjacent to Hanscom Field and provided maps of wetlands based on MassGIS data. Wetland resource areas at Hanscom Field that are protected under the Massachusetts Wetlands Protection Act include Bordering Vegetated Wetlands (BVW), Land Under Water Bodies and Waterways (LUWW), Riverfront Area, Bordering Land Subject to Flooding

(BLSF), and Isolated Land Subject to Flooding (ILSF). The largest areas of wetlands are located within Massport property but outside of the most actively used portions of the airfield. Since the 2017 ESPR was completed, field delineations were completed of wetlands at and adjacent to four project sites, including the rehabilitation of Runway 11-29, the North Airfield Development (EEA#16654), reconstruction of Taxiway R, and construction of the Jet Aviation hangar near the West Ramp. The boundaries of the wetlands in these areas have been updated based on the new delineations. However, it is not clear if any of the project have or will directly impact wetland resource areas or required approvals from local Conservation Commissions; this information should be tracked and presented in future ESPRs.

Rare Species

Most of Hanscom Field, generally excluding developed areas around the East Ramp, West Ramp, the Airport Terminal, and Pine Hill area, is located within mapped Priority Habitat for Rare Species due to the presence of grassland and wetland habitat on the airfield and adjacent areas Hanscom Field includes Priority Habitat for six state-listed rare species, including Upland Sandpiper (*Bartramia longicauda*), designated as Endangered; Grasshopper Sparrow (*Ammodramus savannarum*), designated as Threatened; Eastern Meadowlark (*Sturnella magna*), designated as Special Concern; Blanding's Turtle (*Emydoidea blandingii*), designated as Threatened; Wood Turtle (*Glyptemys insculpta*), designated as Special Concern; and Midland Sedge (*Carex mesochorea*), designated as Endangered. The 2022 ESPR did not identify any projects proposed or undertaken within rare species habitat; however, a portion of the North Airfield Development Project is located within Priority Habitat and the MEPA Certificate on the DEIR required additional analysis of the project's impacts on rare species habitat.

Massport has developed and implemented a Grassland Management Plan (GMP) with input from NHESP, the U.S. Department of Agriculture Wildlife Service, and the FAA. The purpose of the GMP is to provide guidelines for maintenance of grassland in the infield areas between taxiways and runways and some approach areas, which are necessary to provide safe aviation operating conditions, in a manner that minimizes impacts to grassland species. Key features of the GMP include: conducting a bird survey in late April/early may; conducting pre-mowing reconnaissance to identify locations of nesting birds; maintaining grassland at a height of 4 to 14 inches; avoiding mowing, where practical, during the breeding season and otherwise minimize mowing during the breeding season; providing an annual report to NHESP; and continuing to evaluate alternative vegetation management strategies.

Water Resources

The 2022 ESPR identified portions of the airfield located within Zone II Wellhead Protection Areas (Zone II) associated with three Hartwell Road wells that were closed in 1984, reviewed Best Management Practices (BMPs) used at Hanscom Field to minimize pollutants in stormwater runoff, and described measures to avoid and minimize impacts associated with accidental spills of petroleum, deicing practices, and the use and storage of Aqueous Film Forming Foam (AFFF) used in firefighting activities. It described measures undertaken to remediate a release of AFF containing PFAS which occurred in 2021, and ongoing investigations of soil and groundwater to evaluate potential impacts of the release.

The stormwater management system at Hanscom Field is required to conform to the Stormwater Multi-sector General Permit for Airports, effective September 2021, issued pursuant to the Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES). In accordance with its NDPDES permit, Massport updated its Stormwater Pollution Prevention Plan (SWPPP) in 2023. The NPDES permit requires collection of samples from outfalls, follow-up analyses of samples if necessary, and annual testing of Total Suspended Solids (TSS), total phosphorous, and total nitrogen. In addition, biannual monitoring is conducted for polycyclic aromatic hydrocarbons (PHAs); samples collected in June 2022 did not indicate any water quality issues.

Climate Change

The 2022 ESPR reviewed potential climate risks to facilities and infrastructure at Hanscom Field, and provided an inventory of greenhouse gas emissions (GHG) at the airport.

Adaptation and Resiliency

The 2022 ESPR reviewed potential risks to Hanscom Field from extreme heat and from riverine and urban flooding associated with extreme precipitation under projected climate conditions. The airfield is at risk from flooding under existing conditions due to the large impervious area and proximity of the airfield to wetlands and floodplains. In 2017, a severe storm event caused the first floor of the Hanscom Field Terminal to flood with over 30 inches of water. In response to that event, Massport has adopted new floodproofing and resiliency measures, including designing new buildings and upgrades to buildings in accordance with a design flood elevation (DFE) and the use of floodproofing techniques. The ARFF building, which was constructed in 2019, was sited at a higher elevation to minimize damage from future flooding.

The 2022 ESPR did not include an output report from the MA Climate Resilience Design Standards Tool prepared by the Resilient Massachusetts Action Team (RMAT) (the "MA Resilience Design Tool"),[5] which was required in the Scope. According to Massport, the MA Resilience Design Tool was not used because it requires inputs related to new construction, which is not proposed in the ESPR. For the North Airfield Development project (EEA# 16654), the Tool recommended, based on the 40-year useful life identified for the hangars, a planning horizon of 2070 and a return period associated with a 25-year (four percent chance) storm event when designing for extreme precipitation and the 90th heat percentile when planning for extreme heat conditions. The 2070 25-year storm event is projected to have a total 24-hour precipitation depth of 8.4 inches. Given the large impervious area at Hanscom Field and the proximity of portions of the North Airfield and Northeast Airfield planning areas to the existing 100-year floodplain, Massport should consult the Tool to provide a preliminary analysis of climate risks associated with potential designs and locations of new hangars and infrastructure identified in the 2030 and 2040 forecast scenarios.

GHG Emissions

As noted above, GHG emissions from aircraft and ground vehicles are forecasted to increase in 2030 and 2040. The 2022 ESPR also included an inventory of stationary- and mobile-source GHG emissions at Hanscom Field using the methodology described in the Transportation Research Board's

[5] https://resilientma.org/rmat_home/designstandards/

(TRB's) Airport Cooperative Research Program (ACRP) and the World Resources Institute's Greenhouse Gas Protocol. The emissions, represented as carbon dioxide equivalents (CO2e) include CO_2, nitrous oxide (N_2O), and methane (CH_4). The inventory included emissions from Massport-owned and/or controlled sources; tenant-owned and/or controlled sources; and emissions from privately or publicly owned sources such as private automobiles owned by passengers or buses operating on off-airport roadways; these sources are denoted as Categories 1,2, and 3, respectively. In addition, the operational boundaries are categorized as Scope 1 (direct emissions from sources owned and controlled by Massport, such as stationary sources or fleet motor vehicles), Scope 2 (indirect emissions associated with the on-site use of electricity generated off-site), and Scope 3 (emissions associated with Hanscom Field activities by sources owned and controlled by others, such as aircraft emissions up to 3,000 feet). The GHG inventory is summarized in Table 12.

Table 12. Hanscom Field GHG Emissions Inventory (Table 8-12 in the 2022 ESPR which includes notes)

Massport Ownership Category	Source	Scope	CO_2[1]	N_2O[1]	CH_4[1]	Total CO_{2e}[2]
			Emissions Expressed in MT per year			
Category 1 – Massport Owned/ Controlled Emissions	GSE/APUs	1	1	0.000	0.000	1
	Stationary Sources	1	163	0.000	0.003	163
	Off-Airport Roadways[3]	3	135	0.001	0.001	135
	Electricity Consumption[4, 5]	2	326	0.006	0.046	329
	Total Massport Emissions		625	0.007	0.047	628
Category 2 - Tenant Owned and/or Controlled	Aircraft[6] – Ground Operations	3	7,058	0.223	0.033	7,120
	Aircraft[6] – Ground to 3000 ft.	3	9,913	0.314	0.149	10,003
	Stationary Sources[7]	3	1535	0.029	.003	1,543
	GSE/APUs	3	277	0.032	0.045	288
	Off-Airport Roadways[3]	3	979	0.006	0.006	981
	Electricity Consumption[4]	3	1,429	0.027	0.200	1,442
	Total Tenant Emissions		21,063	0.629	.436	21,248
Category 3 – Public Owned/ Controlled	Off-Airport Roadways[8]	3	339	0.002	0.002	339
Total Hanscom Field GHG Emissions			22,155	0.640	0.485	22,344
Massachusetts Statewide Totals (2019)[9]			62,909,067	714,047	1,640,629	71,667,107
Hanscom Field Emissions as a % of Statewide Totals			0.03%	<0.01%	<0.01%	0.03%

According to the 2022 ESPR, Massport-owned or controlled emissions (Category 1) account for less than 3% of total GHG emissions at Hanscom Field; tenant-owned or controlled sources, including aircraft moving on the ground and flying below 3,000 feet, account for approximately 95% of GHG emissions. Total emissions in 2022 (22,155 metric tons) were approximately 7% lower than emissions in 2017 (23,892 metric tons). If feasible, future ESPRs should document GHG emissions from cruising aircraft. As requested by the Department of Energy Resources (DOER), future ESPRs should include emissions from energy use by the buildings at Hanscom Field so that the energy use and GHG emissions from stationary sources can be tracked as buildings transition from fossil fuel heating sources to electric heat pumps and other high-efficiency electric systems. Stationary-source emissions from building heating and cooling systems contribute a small portion of the overall GHG emissions at Hanscom Field;

however, the Supplemental ESPR should provide the information requested in DOER's comment letter, which should form the basis of ongoing tracking of building-by-building energy use and the conversion to electric heating and cooling.

Cultural and Historical Resources

The ESPR reviewed historical and archeological resources in the vicinity of Hanscom Field and assessed potential traffic, noise and air quality impacts. It identified cultural and historical resources listed in the State Register and Massachusetts Cultural Resource Information System (MACRIS) maintained by the Massachusetts Historical Commission (MHC), and provided an update of the inventory at the MMNHP and resources in Bedford, Concord, Lexington, and Lincoln In addition to the MMNHP, there are 39 historic buildings and 21 historic districts in the vicinity of Hanscom Field. None of the cultural resources are located within the 65dB DNL noise contour under existing or any of the forecasted scenarios. However, DNL and TA contours will encompass greater areas within the MMNHP in 2030 and 2040 compared to 2022. According to the National Park Service (NPS), DNL is not the appropriate metric to use to assess impacts to the MMNHP because it reflects average noise levels over a year rather than the real-time impact to visitors in the MMNHP. In addition, the NPS believes that a 65dB threshold is too high and noise at that level interferes with visitors and park rangers at the MMNHP. Many commenters, including the NPC, recommend that Massport use a lower sound level threshold for evaluating the impacts of Hanscom Field aviation operations; the Scope for the 2027 ESPR should include a review of standards identified in comment letters and evaluate the use of a different noise standard.

Summary of Measures to Avoid, Minimize and Mitigate Environmental Impacts

The ESPR included a chapter identifying environmentally beneficial measures implemented at Hanscom Field to address environmental impacts. Massport has committed to adopt the following measures as to avoid, minimize, and mitigate environmental impacts:

- Provide transportation information on Massport website;
- Provide transit information in Civil Air Terminal;
- Provide information about transit and non-auto travel options in prominent locations throughout Hanscom Field;
- Maintain a bus shelter with transit information;
- Explore creation of a bikeshare network with communities and stakeholders;
- Implement a modified Fly Friendly Program using flight tracking software to direct pilots conducting touch-and-go procedures to fly over the airport rather that neighboring lands, including the MMNHP;
- Implement run-up procedures for the use of the East Ramp;
- Maintain four noise monitors in communities off each runway and two noise monitors on the airfield;
- Maintain the "Airport Activity Monitor" which allows the public to research a noise event or flight, log a noise disturbance, and track correspondence related to noise disturbance;
- Continue to assess a fee for nighttime field use;
- Encourage tenants to consider the purchase of alternatively fueled vehicles;

- Continue to prohibit use of Auxillary Power Units and Ground Power Units for most purposes during nighttime hours and encourage FBOs to minimize their use at all times;
- Use ultra low sulfur fuel in Massport fleet vehicles;
- Maintain a paved aircraft holding area at the head of Runway 23 to reduce minor aircraft delays;
- Consider alternative fuel vehicles for any new Massport vehicle purchase;
- Support industry transition to Sustainable Aviation Fuel (SAF) and unleaded avgas;
- Support the Shawsheen Watershed Initiative to improve water quality;
- Continue to implement BMPs for stormwater quality control;
- Continue to support Hanscom Field remediation by the Air Force;
- Continue water quality sampling in accordance with NPDES and MassDEP permits;
- Continue to balance new impervious surfaces with pavement removal where feasible;
- Avoid and minimize wetlands impacts where new infrastructure is proposed;
- Continue implementation of a Wildlife Hazard Management Plan;
- Manage airfield in a manner that does not disrupt breeding season for grassland birds listed under the Massachusetts Endangered Species Act;
- Consider potential impacts to cultural and historical resources when planning physical changes at and around Hanscom Field;
- Continue to use operational noise mitigation strategies and coordinate with the National Park Service to minimize noise at MMNHP;
- Implement Massport's Roadmap to Net Zero initiative with the goal of achieving net zero carbon emissions.

Massport should consider additional TDM measures to reduce single passenger trips to Hanscom Field, including promotion of ride-sharing and enhancing transit connections. Future ESPRs should identify mode share goals and report on the success of the TDM program. Massport should also consider instituting parking fees for single passenger vehicles with free or reduced parking fees for ridesharing at Hanscom Field.

As summarized above, the overall trends in flight activity and associated impacts show that, while some decreases were observed in 2017 to 2022, Hanscom Field is projected to see an increase in flight activity, particularly business jets, over the planning horizon to 2030 and 2040. This, in turn, will result in increases in area traffic, noise contours, and GHG/air emissions by 2030 and 2040. As noted above, Massport should continue to track these trends, and consider specific actions if activity levels exceed projections during a given reporting period. Massport should continue to identify EJ or other sensitive populations around the airport that may be subject to unfair or inequitable burdens based on available mapping data, and should take focused action to the extent targeted impacts are shown. Future ESPRs should provide more detailed information, including monitoring data where available, based on ongoing UFP exposure studies, and should propose appropriate mitigation measures based on the results of those findings.

In future ESPRs, Massport should also amend the above listing of mitigation measures to be presented in a tabular format organized by subject matter (traffic, noise, air quality, GHG emissions, environmental justice, etc.), and should indicate whether the measures are ongoing or planned (and if the latter, provide an estimated timeframe for implementation). To the extent specific mitigation results from an individual project review (for instance, the North Airfield Development), those commitments

should be listed separately with quantification, to the extent documented through the individual review, of the estimated reductions to applicable impacts (e.g., GHG reductions) that would result from the mitigation measure. If same or substantially same level of reduction was not actually achieved, or mitigation commitments have changed over time, those updates should be reflected in the ESPR and may require a further Notice of Project Change (NPC) filing for the individual project. This type of format aligns more closely with reporting of mitigation commitments for standard MEPA reviews, and would allow for better tracking and public transparency with respect to implementation of mitigation measures.

Supplemental ESPR

As discussed, the substantial increase in hangar capacity to accommodate 55 aircraft proposed by the North Airfield Development (EEA#16654) exceeds the based aircraft projection in the 2022 ESPR, and could induce more demand and flight activity than set forth in the ESPR. As indicated, Massport should submit a Supplemental ESPR together with the Proposed Scope for the 2027 ESPR to revise flight projections and impacts to align with the final certificate issued for EEA #16654. The Supplemental ESPR should also provide additional details on building energy use in the manner described in DOER's comment letter, as further clarified through pre-filing consultation.

Response to Comments

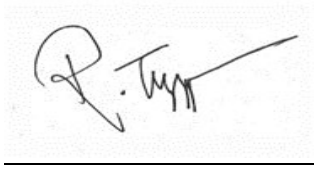
The Supplemental ESPR/Proposed Scope for the 2027 ESPR should include a copy of this Certificate. It should include copies of all comments received on the 2022 ESPR and provide responses to the comments and to this Certificate. In order to ensure that the issues raised by commenters are addressed, the Supplemental ESPR/Proposed Scope for the 2027 ESPR should include direct responses to comments to the extent that they are within MEPA jurisdiction.

Circulation

The Supplemental ESPR/Proposed Scope for the 2027 ESPR should be circulated in compliance with Section 11.16 of the MEPA regulations. Copies should be sent to those parties who commented on the 2022 ESPR. Massport should send a Notice of Availability of the 2017 ESPR to its mailing list for Hanscom Field. Copies should also be provided to the Bedford, Concord, Lexington and Lincoln public libraries.

Conclusion

The 2022 ESPR provided information regarding the facilities, infrastructure, operations, and airport activity levels at Hanscom Field and its potential effect on the surrounding communities, residents and resources. I therefore find that the 2022 ESPR adequately and properly complies with Massport's obligations under MEPA as further refined through prior MEPA certificate. However, given the significant new infrastructure proposed by the North Airfield Development which exceeds projected need for hangar space described in the ESPR, Massport should provide a Supplemental ESPR with updated projected activity levels and environmental impacts. The Supplemental ESPR should also provide additional details on building energy use as described above. Masssport may submit the Supplemental ESPR together with the Proposed Scope for the 2027 ESPR.



October 11, 2024
Date

Rebecca L. Tepper

Comments received:

06/11/2024 United States Air Force
07/17/2024 Hanscom Field Advisory Commission (HFAC)
07/23/2024 Town of Bedford
08/01/2024 Dilla Tingley
09/06/2024 Hanscom Area Towns Committee (HATS)
09/07/2024 Save Our Heritage
09/08/2024 Christopher Eliot
09/10/2024 Town of Lexington
09/11/2024 Amy McCoy
09/11/2024 David Eliades
09/11/2024 Groton Ayer Buzz
09/11/2024 Minute Man National Historical Park (MMNHP)
09/11/2024 Stop Private Jet Expansion at Hanscom or Anywhere
09/12/2024 Conservation Law Foundation
09/12/2024 Massachusetts Water Resources Authority (MWRA)
09/12/2024 Town of Concord
09/23/2024 Amy McCoy
10/04/2024 Ann Buxton Sobol
10/04/2024 Jennifer Boles
10/04/2024 National Trust for Historic Preservation
10/09/2024 Department of Energy Resources (DOER)

RLT/AJS/ajs

DEPARTMENT OF THE AIR FORCE
AIR FORCE CIVIL ENGINEER CENTER
HANSCOM AIR FORCE BASE, MA 01731-1905

11 June 2024

Matthew Greenberg
AFCEC/CZO
72 Dow Street
Hanscom AFB, MA 01731-1905

Mr. Alex Strysky
Secretary of Energy and Environmental Affairs
Executive Office of Energy and Environmental Affairs (EEA)
Attn: Massachusetts Environmental Policy Act Office
Mr. Alex Strysky, EEA No. 5484/8696
100 Cambridge Street, Suite 900
Boston, MA 02114

Subject: Comments on 2022 L.G. Hanscom Field, Environmental Status & Planning Report, Bedford, Massachusetts, EEA Number: 5484/8696, May 2024

Dear Mr. Strysky:

Attached please find Air Force comments on the 2022 L.G. Hanscom Field, Environmental Status & Planning Report, Bedford, Massachusetts.

A hardcopy can be provided upon request.

If you have any questions or require additional information, please contact me at 781-225-6148.

Sincerely

MATTHEW GREENBERG,
AFCEC/CZO
Remedial Project Manager

cc (electronic):
Curt Frye (AFCEC/CZO)
Shawn Lowry (USEPA)
Randi Augustine (MassDEP)

AIR FORCE CIVIL ENGINEER CENTER COMMENTS ON THE 2022 L.G. HANSCOM FIELD, ENVIRONMENTAL STATUS & PLANNING REPORT, BEDFORD, MASSACHUSETTS, EEA NUMBER: 5484/8696 DATED MAY 2024

Specific Comments

1. Section 4.2.4, page 4-31, Northeast Airfield subsection: In addition to clearing of the FamCamp RV campsite, Air Force also operates a groundwater treatment facility. Ongoing groundwater treatment may be required and should be accounted for in the 2030 planning concept.

2. Section 9.1, page 9-3 and Section 9.2.7, page 9-31, Hanscom Air Force Base (AFB) subsection: The statement "There have been no additional sites added to the IRP list at Hanscom Field since the 2017 ESPR" is incorrect. Two sites on Hanscom Field, where Air Force use of aqueous film-forming foam has led to the presence of per- and polyfluoroalkyl substances (PFAS) have been confirmed and were reported in the Final Site Inspections Report of Fire Fighting Foam Usage at Hanscom Air Force Base (July 2018). These sites include the Former Fire Training Area (also the location of an existing site with known volatile organic compound impacts) and the Taxiway Echo Release Area.

3. Section 9.2.7, page 9-31, Hanscom Air Force Base (AFB) subsection: Please provide a reference for the stated objectives of the Hanscom AFB IRP.

4. Section 9.2.7, page 9-31, Hanscom Air Force Base (AFB) subsection: The six remaining sites, grouped into three Operable Units (OU), are associated with Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) activities. However, a seventh petroleum release site is also present on Hanscom AFB and is being responded to under the Massachusetts Contingency Plan. Please add clarifying language on this point.

   In addition, three PFAS sites should be included in the site total count; two are located on Hanscom Field (see Comment 2) as part of OU-1, and one, the Motor Pool Release Site, is located on Hanscom AFB and is its own OU, OU-4.

5. Section 9.2.7, page 9-33, Operable Unit-1/IRP Sites 1, 2, 3 subsection: There are two milestone dates associated with the issue described in the Sixth Five-Year Review Report. Please rectify this discrepancy; the final version of the report will include the correct milestone date.

6. Section 9.2.7, page 9-33, Operable Unit-1/IRP Sites 1, 2, 3 subsection: The Land Use Control Implementation Plan is still undergoing edits and is not yet officially finalized. Please clarify this in the text.

7. Section 9.2.7, page 9-33, Operable Unit-1/IRP Sites 1, 2, 3 subsection: A Remedial Investigation, not a site investigation, is in progress for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA). This distinction should be made because a remedial investigation is a specific step in the CERCLA cleanup process.

8. Section 9.2.7, page 9-33, Operable Unit-2/IRP Site 4 subsection: The Air Force has initiated its Supplemental Remedial Investigation at IRP Site 4. Field activities were initiated in January 2024. Please make the appropriate updates in this section.

9. Section 9.2.7: A description of the in-progress Remedial Investigation for PFAS should be included in this section. Two of three PFAS release sites are located on Hanscom Field, as stated in Comment 4.

10. Figure 9-5: In addition to displaying OUs, it would be helpful to show the locations of the various sites within each OU, including the three PFAS sites mentioned in Comment 4.

11. Figure 9-5: The location of Building 1855 is incorrect. However, depicting building numbers of structures on Hanscom AFB on figures is currently a security concern. Please consider not including this building on Figure 9-5.

12. Section 9.2.7: Please consider including a detailed discussion of land use controls (LUCs) for each of the respective operable units. The Records of Decision for each respective operable unit provides a summary of the LUCs. Such a discussion would further support the ESPR's objective of informing future planning at Hanscom Field and avoiding adverse effects of disturbing in-place impacted soil and groundwater.

General Comments

1. For Massachusetts Policy Act reviews on future Environmental Status & Planning Report submittals, would you be able to ensure that the Hanscom Air Force Base Installation Restoration Program is provided an opportunity to comment?

July 17, 2024
Alex Strysky, alexander.strysky@mass.gov
Cc: rebecca.l.tepper@mass.gov

Re: Hanscom Field Advisory Commission comments on the Hanscom Field2022 Environmental Status & Planning Report Planning and Status Report (EEA #5484/8696)

Dear Mr. Strysky, Thank-you for the opportunity review the 2022 ESPR for Massport's Hanscom Field. The ESPR consolidates valuable information about operations, impacts, future scenarios, and variables affecting the airport. The Hanscom Field Advisory Commission (HFAC) having reviewed the ESPR offers the following commentary on its contents. Our comments are organized by topic areas, which may not directly reflect the section structure. An appendix of specific comments organized by document section follows

Sincerely,

Christopher Eliot, HFAC Chair
Barbara Katzenberg HFAC Lexington representative

General Comments

Definition of terms: As a technical document, it would help us if any term used as part of the document's analyses and predictions were used consistently throughout and defined within the text on initial use or at minimum in the Glossary. This is particularly important for words and phrases that have common sense meanings that are vulnerable to misunderstanding. Most importantly, the ESPR could improve understanding by spelling out what the terms "business jet" and "corporate jet" mean, or replacing these terms with ones that are more specific and neutral—noting that Massport representatives have stated that they have no data about how these aircraft are used or by whom. We also question the use of the adjective "premier" in the phrase "premier full-service general aviation facility" unless the characteristics that make it premier compared to other full-service GA facilities are spelled out.

Air Quality: The projected increase in emissions and total pollutants in both the 2030 and 2040 forecasts is of great concern. Beyond the emissions incorporated in the FAA's AEDT model, we now understand the role that ultrafine particles (UFPs) and lead play in overall health outcomes. New research demonstrating the extent to which UFPs are dispersed downwind of the airport make clear that the impact of airport pollution on areas that are even miles away is greater than once thought. The ESPR focuses primarily on those pollution-generating activities Massport directly controls, but the impact of the airport felt by our communities is not limited to these activities. We urge Massport to exercise greater authority and influence over its tenants and partners to reduce greenhouse gases (GHGs) and other pollutant emissions, if we are to have any hope of meeting local and state emissions reductions targets.

Noise Despite careful reporting on noise-related data in this section, there are many casual statements made about how adjoining communities experience noise that undermine the document's objectivity. The ESPR underreports the serious efforts being made by national and international agencies to address the problems of noise more scientifically. The FAA has sought commentary, and HFAC has contributed comments, on the adequacy of civil aviation noise policy and specifically the metrics which are used (Docket # FAA-2023-0855). The World Health Organization is among the organizations that recommend lower DNLs than current FAA guidelines. As written, the ESPR does not reflect any of the work currently being done by agencies to develop better standards. The ESPR's reliance on locations of the 65 DNL contour to demonstrate the safety of current and predicted noise levels thus does not reflect new knowledge about health risks of noise.

Comparing current and future states to noise levels in 2005 as a way to demonstrate improvement is not meaningful to the communities we represent, who have continued to log high numbers of complaints, particularly from Bedford and Concord. Jet operations, which contribute the most noise at Hanscom, are predicted to increase at Hanscom. The ESPR should acknowledge this increase will come with negative effects for neighboring communities, and describe any efforts being considered to mitigate those effects.

Global Greenhouse Gas (GHG) Emissions Associated with Hanscom Activities: The public has a growing awareness about the deleterious effects of GHGs on climate. It would be helpful if the document forthrightly acknowledged that aviation as a whole is a significant contributor to GHG production. This can be done even if it is necessary to remind the reader that the scope of GHG production analyzed in the ESPR is limited to emissions in the Hanscom study area. The omission of this 'elephant in the room' undermines what is otherwise useful reporting about on-site GHG production and efforts made by Massport to limit it.

The ESPR highlights that the contributions of Massport-owned or -controlled sources of GHGs is very small compared to Massachusetts totals, which is not surprising given that Massport does not operate aircraft. In the tenant-owned/controlled emissions section, it appears that only ground to 3000' emissions are considered. From this we assume that the GHGs emitted once the aircraft are at a higher altitude and outside of Hanscom's range are not included in the calculation. In the cited Mass Greenhouse Gas inventory, aviation was a significant contributor per passenger mile to CO2 production.

The reports of progress on obtaining LEED certification for buildings and clean vehicles are welcome.

Methodology to produce Sustainable Aviation Fuel needed to impact aviation is not yet proven, and its viability as an alternate fuel at scale has been broadly questioned. We question, therefore, the emphasis placed in the ESPR on its promise as a realistic solution for addressing the impacts of fossil fuel on climate.

Forecast Assumptions: The ESPR provides a forecast of aviation activity that is based on FAA forecasts for GA operations and the "commonly accepted relationship between the local economy and GA activity at Hanscom Field." The ESPR explicitly states that the scenarios represent "estimates of what could occur (not what will occur)." Despite this, the ESPR has been cited by proponents of the proposed North Airfield project as showing that expanded private jet hangar storage is necessary because of this expected growth. In order to present a more balanced picture, it would be helpful if the ESPR also examined scenarios which could cause that commonly accepted relationship with the local economy to be disrupted. Some factors which could be expected to dampen the rate of growth of aviation activity in the next 15 years are 1) increasing public demand for government policies enacted and enforced to combat climate change; 2) taxation policies that target use of private jets for personal use; and 3) stable or increased use of virtual meetings in place of business travel.

Adjoining Land Holdings as "Buffers": Great Meadows National Wildlife Sanctuary, Minuteman National Park, and Hanscom Air Force Base adjoin Hanscom Field. But to consider them as "buffers" (Section 1.2) underestimates the impact of aviation on those areas. The Air Force base is a location where many people work and live, and the National Park and Wildlife Sanctuary are popular recreational and educational sites. As such, these areas should be seen as resources that themselves need to be protected, rather than providing protection to residential areas.

Wetlands/Wildlife/Water Resources: We question the lack of actual data collection regarding wetlands boundaries and changes therein, as well as Massport's statement that its construction projects are required to follow state stormwater management practices "when feasible or applicable." We urge Massport to immediately discontinue the use of AFFF, as many alternative firefighting compounds exist that do not contain PFAS.

Sustainable Development: We reiterate our call for Massport to take a more active role in reducing all emissions at Hanscom Field, not solely those under its direct control. Otherwise, its claims of emission reductions and green building ring hollow, representing only a fraction of the true environmental impact of the airfield on its neighbors.

Appendix-Detailed Comments

	Section/Page	Comment
1	Throughout	"P*remier full-service*" The ESPR should define what "premium" means above and beyond full-service in its first usage in the document or else replace with an objective term like "busiest regional GA airport"
2	1.5.6 Page 1-14	"*Land use compatibility guidelines generally consider aircraft noise greater than DNL 65 dB to be non-compatible with residential land uses."* Community groups believe this number is too high. The WHO uses a lower limit.
3	1.5.10 Page 1-17	"*Additionally, in early 2022, Massport committed to achieving net-zero carbon emissions across all of its properties, including Hanscom Field, through its Roadmap to Net Zero program by 2031*." Please clarify that this only applies to the Massport properties specifically and does not apply to the consequences of the operations such as aviation and shipping.
4	2.2.7 Page 2-13	"*Corporate/conventional hangars at Hanscom Field are designed to accommodate turbo prop or jet aircraft that are used for business or commercial operations."* We have been told that Massport does not know who is using jet aircraft and for what purposes. If true, this last clause should be omitted.
5	Section 3.3	The muddiness around Training and Military category should be clarified in the discussion of activity numbers. For instance, in the Figure and the Table, the fact that Training does not include the Hanscom Aero Club and that Military does would ideally be annotated more prominently. Separately, information that shows the level of military flights that are part of the AFB's function versus training on non-military aircraft for AFB members and their families should be obtained if possible. As represented, the data gives the impression of significant military activity whereas elsewhere in the document this activity is described as "limited".
6	3.3 Page 3-7	The use of the term "business aviation" might be better replaced with a neutral phrase like "on-demand, private aviation" but in any case a full definition of what is intended should be included in the document.
7	3.4 page 3-13	There should be a discussion of future aviation technology, especially electric aircraft, eVtol, eCtol including expected year of introduction and forecast operation levels.
8	3.4.1 Page 3-15	"*Personal Flying Operations*" Please define.
9	3.4.1 Page 3-15	"*Business Aviation*" please define or rename. In a public meeting (May 30, 2024) to review the Northfield jet hangar project, Hanscom Field Director Sharon Williams acknowledged that Massport has no access to data about the passengers' purposes when taking private jet flights. As such this section should be rewritten to provide a more balanced picture of current trends in private aviation.
10	3.4.2 Page 3-16	"*Military Forecast Operations*" "*Since the military's function at Hanscom Field does not involve an active flying mission, annual military operations are approximately 1 percent of the total aircraft operations at the airport."* The paragraph is confusing. Does the 1% include the training club flights? We are aware of at least some military flights, e.g., occasional helicopters.

11	7.2 Page 7-5	"*Noise is unwanted sound*" frames noise as primarily a nuisance, whereas accepted definitions also incorporate the concept of noise as harmful sound. <https://apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2022/01/07/noise-as-a-public-health-hazard>
12	7.2 Page 7-5	"*Nevertheless, aircraft are readily identified by their noise and are typically singled out for special attention and criticism*." This frames the problem of aviation noise as one primarily of perception (and possibly people's attitudes) Suggest removing the sentence unless further cites are offered about the experience of noise.
13	7.2.1 Page 7-6	" *It is often true that one person's music is another person's noise."* This statement--in a technical document and in the context of a discussion of aviation noise--is unhelpful and minimizes the objective health risks associated with noise.
14	7.2.1 Page 7-6	"*Sound pressure levels above 120 dB begin to be felt inside the human ear as discomfort and eventually pain at still higher levels*" If physical problems associated with noise are to be covered in this section, fuller examples such as those reviewed here should be included https://www.asha.org/public/hearing/loud-noise-dangers/
15	7.2.3 7-7	""*While such metrics are often viewed as downplaying the importance of individual aircraft operations, they are extremely good indicators of community annoyance with complex noise environments, and they have become widely accepted as the most appropriate means of evaluating land use planning decisions."* Existing noise metrics may be valuable, but this statement of wide acceptance does not acknowledge the FAA's current effort to re-evaluate noise metrics and policy. (Docket # FAA-2023-0855).
16	7.2.4 Page 7-8	"*The U.S. Environmental Protection Agency (EPA) identified DNL as the most appropriate means of evaluating airport noise based on its criteria, as follows*:" Since 1982, the EPA is no longer funded to coordinate federal noise control activities and should not be used as the source of metric evaluation. The EPA website has warnings re the cited 1974 guidance that the content is not maintained and may no longer apply.
17	7.2.4 Page 7-8	"*Despite DNL meeting these criteria, the lay public often criticizes the use of DNL as an inaccurate representation of community annoyance and land use compatibility with aircraft noise. Much of that criticism stems from a lack of understanding of the measurement or calculation of DNL* " While it is true that noise metrics can be difficult to understand, this phrasing is undiplomatic. It could be argued that this should be a seen as a failure of communication by agencies who are providing this information to the public.
17	7.2.4 Page 7-9	"*In late 2021, the FAA initiated a review of its noise policy as part of their ongoing commitment to address aircraft noise*." This is an important sentence and would ideally be discussed under Key Findings.
18	Section 7.5	In analysis of future scenarios, there would ideally be a discussion of the potential impact on future noise levels from the expected introduction of electric aircraft.
19	Section 8-2	Although non-criteria pollutants are discussed, they are only introduced later in the section. Ideally the introduction would address and explain why these pollutants—known to cause adverse health effects but not yet regulated as NAAQs—are not being monitored at this time.

20	Section 8.2.1 Page 8-5	"*The main producers of lead in the atmosphere are generated from industrial sources including waste oil and solid waste incineration, iron and steel production, lead smelting, and battery and lead manufacturing."* Published statements contradict this sentence. See https://www.nationalacademies.org/news/2021/01/eliminating-lead-emissions-from-small-aircraft-will-require-concerted-efforts-across-the-aviation-sector-says-new-report which reports "Small gasoline-powered aircraft are the single largest emitter of lead in the United States, as other major emission sources such as automobile gasoline have been addressed."
21	Section 8.2.2 Page 8-9	"*Aircraft emissions at Hanscom Field are just one of the many sources that contribute to UFP concentrations in the study area. Other contributors of UFPs include, but are not limited to, motor vehicle exhaust and generators*." This statement implies that aviation is not one of the largest sources of UFPs in nearby communities-- but recent research reaches a different conclusion. A more balanced statement that acknowledges the risks more frankly and that the science is moving quickly would be helpful. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5822220/
22	Section 8.6.4 Page 8-37	"*As of writing, it is still unknown exactly when 100UL will become a readily available resource at all airports."* Our search has shown that the Vitol corporation has already made this fuel available to all airports. https://www.vitol.com/first-unleaded-octane-avgas-now-commercially-available/
23	Section 9.2.2 Table 9-1	The size of each wetland (sq acres or meters) would be helpful
24	Chapter 10 Tables 10-9, 10-10, 10-11, 10-12	The size of each site would be helpful

July 23, 2024

Bethany A. Card, Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office
Alex Strysky, EEA 5484/8697
100 Cambridge Street, Suite 900
Boston MA 02114

Re: EEA 5484/8696, 2022 L. G. Hanscom Field
Environmental Status & Planning Report

Dear Ms. Card and Mr. Strysky:

The Bedford Select Board submits the following comments to the above-referenced 2022 Hanscom Field Environmental Status & Planning Report. We note at the outset that few of these comments represent new concerns, but rather are continuing issues our residents raise regarding the impact of Hanscom Field as our southern neighbor.

Airport Activity Levels

The ESPR presents a decrease in overall operations between 2017 and 2022, due largely to the pandemic and its aftereffects. But total annual business aviation daytime operations are forecast to reach around 59,300 by 2040, an increase from approximately 49,000 in 2022 (p3-16). Business aviation is the main driver of forecasted growth in the ESPR, as this sector has grown faster than the state economy in the last five years (p3-3). "Business aviation remains an attractive option for corporations, given the greater flexibility of schedules, the ability to reach destinations without stops, the ability to avoid lengthy check-in and security screening times, and a way to fly separated from the general public, all of which allow corporate passengers to use their time more effectively" (p3-15). While we appreciate that corporate business travelers may prefer flying apart from the general public, the benefits to Bedford residents and the local workforce, given the significant environmental impacts such travel creates, remain elusive.

The type and size of aircraft responsible for the growth in operations is also of concern. The ESPR reports that as of April 2023, Hanscom Field has 284 based aircraft, with single-engine piston aircraft representing approximately 64% of the based aircraft, and business jets the next largest share at 27% (p3-19). On the same page, the ESPR notes that "business jet aircraft are increasing in length and wingspan, adding to the already constrained hangar capacity at Hanscom Field because larger aircraft require more hangar space." Adding hangar capacity means more jet aircraft, which—since jets are larger and louder than single-engine piston aircraft—increases the number of people within the DNL 55 contour.

Airport Planning

Much of the information in Chapter 4—Airport Planning is familiar to us, as part of Massport's monthly projects reports to HFAC, but a few details were new or surprising.

The ESPR refers to the Hanscom Noise Working Group (p4-16), which implies an additional layer of community input regarding noise than actually exists. According to Amber Goodspeed at the June 10 public webinar regarding this ESPR, this working group comprised of local electeds and residents existed decades ago, but has ceased to operate.

We also note that p4-16 states "operational and infrastructure improvements require the FAA's review." Given this assertion, though it is outside the scope of this ESPR, we question when FAA will be reviewing the proposed North Airfield development, and what opportunities will exist for local input and comment in that review.

Massport offers two tables outlining regional development goals and its responses thereto. In at least three instances, however, the response seems to sidestep or undercut the intent of the goal.

Table 4-5. Goals Applicable to Hanscom Field for Metro Boston's MetroFuture's Goal Statements:

- "D5: Air, heavy-duty freight, and marine transportation have significantly reduced carbon emissions, and are providing carbon offsets" (p4-19).
    - How is this reflected in the ESPR and Massport's projections?

Table 4-6. MAPC Smart Growth Principles and Their Applicability to Hanscom Field

"3) Promote regional equity and reduce local and regional disparities. Response: Hanscom Field offers air travel service for residents and businesses"

- Massport's clear priority stated elsewhere in the ESPR is business and corporate aviation, as the drivers of greatest growth. These fliers are not necessarily or primarily local residents. Since Massport and FAA do not require passenger manifests for business travel, it is impossible to know if and how many residents of Bedford, Lexington, Concord, or Lincoln fly out of Hanscom Field.

"9) Take advantage of compact development design and create walkable neighborhoods. Response: The Town of Bedford encourages assessing the feasibility of adding sidewalks and bike lanes on Hartwell Road"

- The North Airfield developers dismissed this request in their response to the Town's ENF comments as outside the scope of their project. Massport has also shown no interest in or willingness to pursue sidewalks and bike lanes

> along Hartwell Road in partnership with the Town, despite current employee comments from a survey as noted on page 6-34 that "there is no safe route for them to bike," and that "several locations in and near the study area [are] in need of pedestrian and bicycling improvements."

We were surprised to read that "Massport may build two additional hangars in the future" in the North Airfield section of the airport (p4-22). Where would these be located? How would they be integrated (or not) in the proposed development from NAV/RRV and/or the new hangars in the Pine Hill section? If even more hangars are planned for the Bedford side of the airfield, future increases in noise, emissions, and other impacts from taxiing aircraft will be concentrated within Bedford.

Section 4.2.2, Current Sustainability Initiatives (p4-24), offers information on building design, but nothing about environmental impacts from the aircraft during taxi, takeoff, flight, and landing. Hanscom Field is not an office park: its emissions and sustainability efforts cannot be fully quantified without including the impact of flight operations, as Massport itself notes elsewhere in the ESPR.

Forecasts of based aircraft at Hanscom Field seem to be a chicken-and-egg scenario: "With the expected growth in based aircraft of 20 business jets and two helicopters in 2030, approximately 160,000 additional SF of hangars would be required. Between 2030 and 2040, a projected increase of 25 more business jets and two more helicopters result in the need for an additional 198,000 additional SF *[sic]* of hangars" (p4-25). Presentations from the developers and Massport on the proposed North Airfield development have consistently stressed two concurrent but incompatible assertions: 1) that more hangar space is desperately needed at BED, and 2) that adding more hangars will not increase operations. That the projected increase in based aircraft—45 more planes in the next 18 years—would not by definition increase operations seems highly unlikely. And since Massport's stated expectation is that business aircraft operations will continue to increase, it would seem that new hangars are not simply intended to clear existing waitlists (p4-24), but are primarily intended to encourage additional operations by creating more opportunities for aircraft to live at Hanscom.

The possible development of the Northeast Airfield FamCamp RV campsite (p4-31) is addressed only briefly, but the assertion that access to a new development would necessarily be from South Road—which, at that point, is a narrow, unlined residential stub street, running past a heavily populated residential neighborhood and active playing fields for children's recreational programs—is worrisome.

Ground Transportation

The brief discussion of future traffic volumes and trip distribution in Chapter 6 makes almost no mention of the significant planned development of the North Airfield, adding 27 new hangars including redevelopment of the Navy Hangar. It is difficult to believe that a project of this size would have no impact on morning and afternoon peak hour trips, or on overall traffic to and from

the airfield, and yet the 2030 and 2040 forecast scenarios seem to imply this—and since Figures 6-17 through 6-28 include no actual numbers, comparisons to current volumes are impossible. Similarly, Tables 6-17 through 6-20 showing projected total levels of service do not list any of the proposed four new access points on Hartwell Road at all.

Noise

We have significant concerns about the expected increase in noise in both the 2030 and 2040 forecasts, as well as the documented increase in jet operations and nighttime flights between 2017 and 2022. Bedford residents consistently log the most noise complaints each month as reported to HFAC, and the proposed North Airfield development, as it rests within the Town of Bedford's borders, is likely to bring even more ground and air noise from planes taxiing between the hangars and the runway. While the ESPR notes that the expected noise levels are lower than those experienced in 2005, this comparison means little to the residents who are currently experiencing disruptions, annoyance, and health impacts from airport noise: the conditions from 20 years ago are really not part of their assessment. The ESPR's dismissal of resident noise complaints as stemming from a failure to understand the science behind the logarithmic models (p7-8) does not speak well to Massport's stated goal to be a good neighbor.

The lack of actual data on noise in Chapter 7 is surprising. While we understand the benefits of using consistent modeling to compare noise metrics from year to year, the statement that "no hard data on arrival and departure locations on the airfield are maintained by Massport or the FAA" beggars belief. This information could be very helpful in understanding which types of flights by which type of aircraft are the noisiest and/or spark the most complaints, which could prompt suggested changes in runway use by ATC when conditions allow.

Air Quality

The key findings in Chapter 8–Air Quality show a projected increase in total emissions for all reported pollutants due to expected increases in operations, with aircraft and vehicle GHG emissions in both the 2030 and 2040 forecasts also increasing (p8-3). Hanscom Field's share of total Massachusetts emissions, presented here as a softener to the above projections, is not particularly useful information: residents care about air quality where they live, and in this case, conditions are expected to get worse, not better, over time.

Section 8.2.2 claims that "aircraft emissions at Hanscom Field are just one of the many sources that contribute to UFP [ultrafine particle] concentrations." Professor Neelakshi Hudda of Tufts University is currently conducting a baseline study of UFP emissions around Hanscom Field, funded by the four adjacent towns. We hope that Prof. Hudda's results will provide specific data on which Massport can base future statements such as this, so we can understand with clarity how much of the total UFP emissions can be attributed to Hanscom.

We know that Hanscom Field is one of the sites in the state with consistent lead emissions, given the prevalence of single-engine piston aircraft that use leaded avgas. There is no safe level of lead, and while Section 8.6.4 points to potential replacements for leaded avgas, those new fuels are not available at Hanscom Field and are not expected to become available until 2030 at the earliest. We appreciate that Massport is committed to eliminating leaded avgas in the future, but our residents live with its consequences in the present, and there is no clear timeline for unleaded avgas to replace current fuels.

The inclusion of the GHG Emissions Inventory in Section 8.5 is a welcome addition to the 2017 and 2022 ESPRs. We understand that Massport has different levels of control and influence over emissions sources, depending on ownership. Per Table 8-12, 77% of total Hanscom Field GHG emissions come from aircraft operations. Figure 8-7 shows that 97% of GHG emissions come from tenants, and Figure 8-8 indicates 95% of GHG emissions are tenant owned or controlled. We urge Massport and FAA to take a stronger role in limiting and discouraging emissions from tenant sources, given their outsized impact on total emissions according to the data presented. Massport is not powerless in its relationships with tenants, and must use its influence and authority to reduce GHG emissions at Hanscom Field overall, not simply through the sources it controls directly.

Wetlands/Wildlife/Water Resources

The statement in 9.2.2—Wetlands that "No on-site field investigations or delineations were conducted as part of this wetland update" is unexpected. While certain elements of the ESPR have traditionally used modeling, the actual conditions of wetlands can easily be determined through visual and physical examinations. The ESPR goes on to state (p9-4) that "delineated wetland boundaries and jurisdictional determinations are typically valid for a period of five years," after which new boundaries must be drawn prior to any new construction. Does this mean that, if the ESPR timing is advantageous, Massport need never conduct an onsite physical examination of wetland borders?

Our collective understanding of the prevalence and dangers of PFAS is continually evolving, and we commend Massport for including information on current conditions regarding PFAS at Hanscom Field. We question the continued use of AFFF containing PFAS (p9-30), as this source has been one of the first-identified and most prevalent sources of PFAS. Many alternatives to AFFF are already available, and we strongly encourage Massport to immediately discontinue the use of AFFF at Hanscom Field.

We ask for clarification on the statement on p9-39 that "Massport requires all Hanscom Field site development, including that performed by tenants, to conform to the MassDEP Stormwater Management Standards **when feasible or applicable**" (emphasis added). Under what conditions would such a development not be applicable? The Town of Bedford has our own stormwater management standards, which we expect Hanscom Field developments within Town borders to follow. Why would Massport or its tenants be exempt from similar state standards?

Sustainable Development

We are pleased that Massport has committed to achieving net zero carbon emissions by 2031 (p11-6). As noted in our earlier comments on Chapter 8—Air Quality, however, we question how attainable this goal is, given that 98% of GHG emissions come from Scope 3 sources not under Massport's direct control. While Massport states they intend to purchase carbon offsets for non-controlled emissions until 2040, this plan does not seem financially viable, let alone effective in reducing actual GHG emissions between now and 2040.

We appreciate the opportunity to convey our thoughts and concerns about the environmental impacts of Hanscom Field as our neighbor, and we hope our comments will be helpful to Massport. We look forward to working with our partners in HFAC and HATS to ensure a mutually beneficial relationship between Massport and the Town of Bedford.

Sincerely,

The Select Board of Bedford
Shawn Hanegan, chair; Paul Mortenson, clerk; Emily Mitchell, liaison to and representative on Hanscom Field Advisory Commission and Hanscom Area Towns Committee; Daniel Brosgol, and Bopha Malone

cc: State Representative Kenneth Gordon
State Senator Michael Barrett
Christopher Eliot, Chair, Hanscom Field Advisory Commission
Mark Sandeen, Chair, Hanscom Area Towns Committee

Secretary Rebecca Tepper

EOEA
Attn: MEPA Office

Alex Strysky, EEA No. 54984/8696100 Cambridge Street, Suite 900

Boston MA02114

RE: Project 2022 L.G. Hansom FieldEnvironmental Status and Planning Report (2022 ESPR)

Dear Secretary Tepper,

In this time of environmental catastrophe related to climate change, it is vitally important that the **Environmental Status and Planning Report (ESPR)** provides a tool that will support our State's aggressive and important climate goals.

The aviation industry and their lobbyists have too long had a pass (no tax on aviation fuel and no sales tax on the sale of private jets).

And Massport's emphasis on the need for growth must be curtailed.

If we do not do all we can to reduce emissions, we will destroy the livability of our planet.

Chapter 3. 1. Rather than project a growth in business jet operations we should establish a goal to **reduce these operations**. Average citizens are buying electric cars, cutting back on travel and installing heat pumps. There is no reason that owners and potential buyers of private jets should not be alerted to their contributions to emissions and curtailed in their activity.

2. Future emission and noise polluting aircraft that could come to Hanscom (eVOTL, Ectol, AAM) need to be addressed in the Planning Report.

Chapter 7. Noise impacts of aircraft are minimized in the current draft. **NOISE IS A PUBLLIC HEALTH PROBLEM** and should be addressed as such.

Chapter 8. Unleaded fuel is available (Vitol Corp), but sustainable aviation fuel **(SAF)** is ten to twenty years away from being widely available and **should not be cited as a possible mitigating factor.**

Please take the ESPR seriously and ensure that it becomes a tool to aid Massachusetts and we its citizens in maintaining a healthy environment. **It is time to address the contribution of the aviation sector to our warming planet.**

Dilla Tingley

Dilla Tingley

140 Lincoln Road, Unit 11, Lincoln Ma 01773

Rebecca Tepper, Secretary
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office

September 6, 2024

Alexander Strysky, MEPA Environmental Analyst
100 Cambridge Street, Suite 900
Boston MA 02114

Re: Draft 2022 Environmental Status and Planning Report (ESPR)

Dear Secretary Tepper and Mr. Strysky:

Thank you for the opportunity to submit public comments on the Draft 2022 Environmental Status and Planning Report (ESPR). We also extend our appreciation for the bold climate and environmental protection goals you have set forth for our Commonwealth.

The Hanscom Area Towns Committee (HATS) coordinates the policies and activities of the four towns (Bedford, Concord, Lexington, and Lincoln) that contain Hanscom Field and their relationship with the major organizations that operate in the Hanscom Field area. The four towns coordinate their efforts in planning, growth management, land use, traffic control, and environmental protection. HATS seeks to protect and preserve the physical and environmental attributes of the area in the face of expanding institutional and commercial development, increasing traffic and airport noise and other threats to the environment.

We write to highlight some pressing environmental concerns regarding the draft ESPR and its potential contradiction with the state's climate and environmental objectives.

1. Criteria Pollutants and Greenhouse Gas Emissions: The Draft ESPR does not propose to include measurement or analysis of the full impact of greenhouse gases or ultrafine particulate matter ($PM_{0.1}$) from aircraft operations departing from Hanscom Airport. The draft ESPR discusses six criteria pollutants, which include carbon monoxide (CO), lead (Pb), nitrogen oxides, ozone (O_3), particulate matter [PM_{10} and $PM_{2.5}$], and sulfur dioxide (SO_2), which are generated from aircraft operations and vehicular traffic. The draft ESPR states that Massport only considers emissions from aircraft operations occurring up to 3,000 feet above ground level.

We respectfully request that the final ESPR include the expected greenhouse gas emissions (CO_2e) and ultrafine particulate matter emissions ($PM_{0.1}$) for the entire flight of any aircraft operations departing from Hanscom Airfield, not just for the portion of the flight below 3,000 feet, which is typically only 1 minute of an average 100 minute flight time.

The draft ESPR presents the impact of air pollution produced from highly local Hanscom Airfield aircraft operations (up to 3,000 feet) compared to the emissions from the entire Middlesex County of 1.6 million people. A more valid comparison would be to compare local aircraft emissions (up to 3,000 feet) to the emissions from a much smaller study area. A smaller study area of 9 square miles, such as the study area used in ESPR Section 8.4.2 for considering motor vehicle emissions, would be more appropriate. Additionally, the ESPR should report the total operational emissions for any flight departing from Hanscom Field.

2. Ultrafine Particles: Jet engine exhaust is a significant source of ultrafine particles and aviation-related emissions can adversely impact air quality over large areas surrounding airports.[1] Studies have shown that ultrafine particulate matter ($PM_{0.1}$) can cross biological boundaries (entering the circulatory system) due to their extremely small size. Exposure to $PM_{0.1}$ is associated with inflammation biomarkers, oxidative stress and cardiovascular disease.[2] Additional research documents the adverse health effects of aviation related ultrafine particles ranging from pre-term birth[3] to toxicity assessments[4]. The EPA adopted a particle number based regulatory standard in the US for aircraft engines.[5] Preliminary measurements already show that concentrations experienced by residents near Hanscom Field exceed WHO guidelines.[6] We thus respectfully request that a comprehensive and accurate ESPR include a full assessment of $PM_{0.1}$ emissions for aircraft operations departing from Hanscom Airport.

3. Lead pollution: We respectfully request that the ESPR section on lead pollution begin by acknowledging the EPA's recent endangerment finding in the first paragraph, rather than placing that important information at the end of the section. Please also acknowledge the EPA's statement that "major sources of lead in the air are ore and metals processing and piston-engine aircraft operating on leaded aviation fuel."[7] Given that Hanscom Airfield is the largest general aviation airport in New England, it is highly likely that Hanscom Airfield is also the largest Massachusetts source of lead in the atmosphere, given the small amount of ore and metal processing in the state. This should also be acknowledged in the ESPR.

4. Future Scenarios: The draft ESPR presents scenarios anticipating increased operations by 2030 and 2040. However, those scenarios project considerably smaller growth than is currently being proposed by the proponents of the Hanscom Field North Airfield expansion.

The ESPR estimates that 160,000 square feet of hangar space is needed to meet demand in 2030 (page 4-25). The proposed Hanscom Field North Airfield expansion would build 500,000 square feet of new hangar space, not including the 60,000 square feet of jet hangar space currently under construction. This is 3.5 times the hangar space shown in the ESPR plan. The ESPR estimates 7,500 square feet of hangar space is required for each jet aircraft. Please amend the ESPR to reflect the expected noise and environmental impact of the additional 75 jet aircraft that will be based in those new hangars.

In Section 4.2.1, regarding North Airfield, we request that the ESPR be updated to state that Secretary Tepper has determined that the Draft Environmental Impact Report did not adequately and properly comply with the Massachusetts Environmental Policy Act and its implementing regulations. Please also update the ESPR to include a statement that the proponent has been required to submit a Supplemental Draft Environmental Impact Report to address the deficiencies in the DEIR.

Section 4.2.3 states that the lack of hangar space causes ferry flights. This assertion was rejected in Secretary Tepper's comments on the DEIR and by an independent 3rd party report. We request that the ESPR be amended to remove the statements regarding an expected reduction in ferry flights.

5. Air pollution measurement locations: The ESPR states that air quality measurements for Hanscom Airfield take place in Chelmsford (11 miles north of Hanscom) and Boston (14 miles southwest of Hanscom). It is not possible that air quality measurements taken so far away from Hanscom can in any meaningful way measure the actual air pollution emissions from Hanscom Airfield. We would request that Massport measure and report actual emissions on the airfield to validate the theoretically calculated emissions reported in the ESPR. The draft ESPR mentions that site specific monitoring for NO_2

was performed in 1995. Measurements conducted almost 30 years ago do not accurately reflect the conditions of today.

6. Sustainability: In Section 4.1 of the ESPR Massport states that it considers the State Sustainability Program Executive Order 438, issued July 23, 2002, as its guidance for sustainability initiatives. Please update the ESPR and Massport's procedures to include compliance with the many significant state climate and environmental legislative mandates and administration targets that have been adopted in the last 20 years.

Regarding electric aircraft, the draft ESPR states that "Massport predicts that up to 10 percent of the aircraft servicing Hanscom field may be electric powered by 2030, reducing the forecasted aircraft emissions for each criteria pollutant presented above."

This prediction is highly unlikely. Please remove this assumption from any calculations of forecasted aircraft emission reductions unless it is accompanied by current data showing viable electric aircraft certification and production schedules, and including the business plans from any aircraft operators at Hanscom Airfield that plan to purchase and operate at least 10% electric aircraft by 2030.

The current generation of battery technology will only allow for electric aircraft with quite limited range. This means electric aircraft would only be viable replacements for small piston aircraft. It is highly unlikely that any jet aircraft based at Hanscom Airfield will be replaced by electric aircraft by 2030.

7. Noise: We respectfully request that Massport update the ESPR to reflect the current science on the health impacts of noise.

The EPA states that noise pollution is "a growing danger to the health and welfare of the Nation's population." The Federal Noise Control Act declares that "it is the policy of the United States to promote an environment for all Americans free from noise that jeopardizes their health or welfare." The American Public Health Association defines noise as follows: "Noise is unwanted and/or harmful sound, first recognized as a public health hazard in 1968." According to World Health Organization (WHO) findings, noise is the second largest environmental cause of health problems, after the impact of air pollution (particulate matter).[10]

Please remove the ESPR statement "Sound pressure levels above 120 dB begin to be felt inside the human ear as discomfort." The EPA and World Health Organization have determined that noise levels must be less than 70 dBA to prevent hearing loss. According to the CDC, sound levels of 80 to 85 dB can create permanent hearing loss after 2 hours of exposure, sound levels of 95 dBA can create permanent hearing loss within 50 minutes of exposure, and sound levels of 100 dBA can create permanent hearing loss after just 15 minutes of exposure. The World Health Organization states that sound levels of 120 dBA can create permanent hearing loss after just 12 seconds of exposure. The WHO recommends sound pressure levels of less than 45 dB L_{den} for average noise exposure to aircraft noise and sound pressure levels of less than 40 dB L_{den} for night noise exposure to aircraft noise.[10] 60 dBA is the maximum recommended exposure limit for babies, infants, and toddlers.[11]

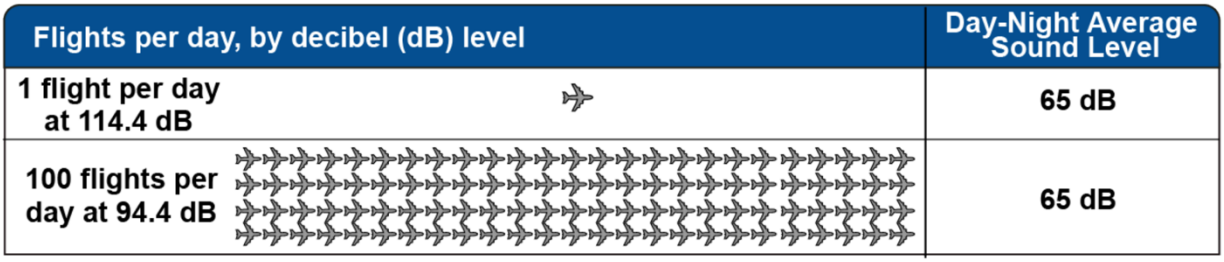
Research has shown that nighttime and early morning aviation noise that disrupts sleep is especially harmful to health. Particularly dramatic are studies demonstrating the link between night-time aviation noise and death from acute cardiovascular events.[12] This is particularly concerning given the rapidly

increasing numbers of nighttime jet operations. We request that Massport consider new initiatives to limit nighttime operations as the nighttime usage fee has been ineffective.

The 65 DNL metric used in the ESPR to define "residential compatibility" with aviation noise is now 50 years old and is 2-4 times louder than established safety levels.[8]

The Government Accountability Office (GAO) found that "…this metric does not provide a clear picture of the flight activity or noise levels at a given location." "As a result, information on potential noise impacts FAA provided during outreach efforts—which was grounded in DNL—was not clear enough for communities to understand the planned changes."

We respectfully request that the ESPR clearly communicate that the DNL 65 standard allows 100 jet flights per day at 94 dBA to overfly a residential neighborhood (as shown in this GAO graphic).[9]



Source: GAO analysis of Federal Aviation Administration information. | GAO-22-105844

8. Housing: We request that any housing unit projections presented in the ESPR take into consideration the impact of the recently adopted MBTA Community Zoning in the surrounding communities. As one example, Table 4-4 of the ESPR projects that the number of housing units in Lexington will decline by 2030 and 2040. Lexington is currently reviewing proposals for over 1,100 new units of housing after just the first year of the MBTA Community Zoning. The amount of housing units in HATS towns is rising rapidly.

There are also two errors in Table 4-4 Housing Unit Projections:

- The MAPC 2030 column shows the numbers of housing units as 5,595 + 7,177 + 12,066 + 2,777 which equals 27,615 housing units – not the total shown of 29,195 housing units.

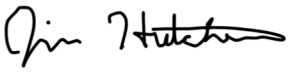
- The MAPC 2040 column shows the numbers of housing units as 5,650 + 7,274 + 12,121 + 2,803 which equals 27,848 housing units – not the total shown of 31,608 housing units.

9. Conclusion: Our towns have been diligently working hand-in-hand with the State government to achieve our greenhouse gas emission reduction targets. The Commonwealth should require that the full impact of aircraft operations at Hanscom Airfield be considered, as we believe those emissions directly impact the ability of our towns, the Commonwealth, and the nation to meet its climate and health goals.

We respectfully request your support in updating the ESPR to address these concerns, emphasizing the urgent need for all sectors, in all locations, to work collaboratively towards reducing CO_2 emissions and meeting our critical climate, health, and environmental goals.

Sincerely yours,

Mark Sandeen
Town of Lexington Select Board Member
Chair, Hanscom Area Towns Committee



Jim Hutchinson
Town of Lincoln Select Board Member
Member, Hanscom Area Towns Committee

Emily Mitchell
Town of Bedford Select Board Member
Member, Hanscom Area Towns Committee

Terri Ackerman
Town of Concord Select Board Member
Member, Hanscom Area Towns Committee

Footnotes:

1. **Aviation-Related Impacts on Ultrafine Particle Number Concentrations Outside and Inside Residences near an Airport**
   N. Hudda, M.C. Simon, W. Zamore, and J. L. Durant
   Environmental Science & Technology **2018** *52* (4), 1765-1772
   DOI: 10.1021/acs.est.7b05593 https://www.sciencedirect.com/science/article/pii/S0360132322002347
2. Schraufnagel, D.E. **The health effects of ultrafine particles.** *Exp Mol Med* **52**, 311–317 (2020). https://doi.org/10.1038/s12276-020-0403-3
3. Wing SE, Larson TV, Hudda N, Boonyarattaphan S, Fruin S, Ritz B. **Preterm Birth among Infants Exposed to *in Utero* Ultrafine Particles from Aircraft Emissions.** Environ Health Perspect. 2020 Apr;128(4):47002. doi: 10.1289/EHP5732. Epub 2020 Apr 2. PMID: 32238012; PMCID: PMC7228090. https://pubmed.ncbi.nlm.nih.gov/32238012/
4. Hulda R. Jonsdottir, Mathilde Delaval, Zaira Leni, Alejandro Keller, Benjamin T. Brem, Frithjof Siegerist, David Schönenberger, Lukas Durdina, Miriam Elser, Heinz Burtscher, Anthi Liati, Marianne Geiser. **Non-volatile particle emissions from aircraft turbine engines at ground-idle induce oxidative stress in bronchial cells**. *Communications Biology*, 2019; 2 (1) DOI: 10.1038/s42003-019-0332-7 https://pubmed.ncbi.nlm.nih.gov/30854482/
5. https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-control-air-pollution-aircraft-engines
6. https://www.ncbi.nlm.nih.gov/books/NBK574595/box/ch4.box15/?report=objectonly
7. https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution#how
8. https://www.icben.org/2023/presenting181.pdf
9. GAO-22-105844 https://www.gao.gov/assets/720/719569.pdf
10. https://cdn.who.int/media/docs/default-source/who-compendium-on-health-and-environment/who_compendium_noise_01042022.pdf?sfvrsn=bc371498_3
11. Center for Disease Control and Prevention (2022) - https://www.cdc.gov/nceh/hearing_loss/what_noises_cause_hearing_loss.html
12. Nighttime Aircraft Noise Triggers Cardiovascular Death - https://academic.oup.com/eurheartj/article/42/8/844/6046141

CC:
Richard Davey, CEO, Massport
Amber Goodspeed, Massport
Michael Vatalaro, Massport

Melissa Hoffer, Climate Chief, Office of Climate Innovation and Resilience

Sen. Michael J. Barrett
Sen. Cindy F. Friedman
Rep. Michelle L. Ciccolo
Rep. Kenneth I. Gordon
Rep. Alice H. Peisch
Rep. Simon J. Cataldo
Rep. Carmine L. Gentile
Rep. Thomas M. Stanley

Senator Elizabeth Warren
Senator Edward Markey
Congresswoman Katherine M. Clark
Congresswoman Lori A. Trahan
Congressman Seth W. Moulton

Town of Lexington Select Board
Town of Bedford Select Board
Town of Concord Select Board
Town of Lincoln Select Board

Save Our Heritage

Protecting the birthplace of the American Revolution, the cradle of the American Environmental Movement, and the home of the American Literary Renaissance.

September 7, 2024

Rebecca Tepper, Secretary
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office
Alexander Strysky, EEA No. 5484/8696
100 Cambridge Street, Suite 900
Boston MA 02114

Re: Draft 2022 Hanscom Environmental Status and Planning Report

Dear Secretary Tepper and Mr. Strysky:

We appreciate the opportunity to submit public comment on the Draft 2022 Hanscom Field ESPR. The Commonwealth and its many municipalities have commitments to reduce their environmental impacts, and the Quasi-public agency Massport cannot be excused from reducing its impacts. Nevertheless, Massport at Hanscom Field plans to increase its negative environmental impacts. While increasing impact might be excused for critical municipal functions, in this case there is no justification for increased impact because the central purpose of Hanscom Field (and virtually all of the described plans) is to serve private luxury jet aircraft which have no legitimate public purpose.

The ESPR report excludes impacts due to private luxury jets that occur above 3,000 feet. The effects of some types of emissions are concentrated and local, such as VOC or particulates, so this limitation may usefully represent the community impact in those cases. However, for Greenhouse Gas Emissions (GHG) the limitation of the recognition of effects to below 3,000 ft is completely arbitrary and has no legitimate scientific purpose. A comprehensive report should not have such a restriction, as it only serves to grossly understate the impacts of the aircraft emissions enabled by the airport and, therefore, provides a false disclosure of the planned impact.

In disclosing GHG impacts, it is crucial that reporting CO2 alone does not accurately represent jet aircraft emissions. GHG impacts are measured in CO2e, which for jet aircraft is significantly greater than CO2 due to other effects. Although the science of these effects is still in development, it is

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generally accepted that CO2e is approximately 2X CO2 for jet aircraft.[1] Therefore, any disclosure of GHG (as CO2e) must incorporate a multiplier of 2 from the raw CO2 values to ensure accurate and transparent reporting.

Hanscom can report total estimated CO2e emissions. The airport has flight plans and all the data necessary to estimate the total GHG emissions of its flight operations. Reporting of total emissions at the airport level is the only method or reporting system that properly accounts for total aircraft emissions, or can quantify the relationship between airport infrastructure capacity and total emissions. The public has the right to know how airport expansion plans will contribute to GHG emissions. Such impact is not disclosed without including total flight emissions in environmental disclosures.

As a complement to this method of reporting CO2e, and requiring less data analysis, the airport can supplement the prior approach by making a calculation by assuming that the annual gallons of pumped jet fuel approximately represent fuel consumed in outgoing flights.[2] This could then be doubled to account for incoming flights. The resultant gallons can be directly converted to CO2e by multiplying by 19.75. [3] Therefore:

(1) We request that the arbitrary 3,000 ft limitation of emissions disclosures be eliminated for GHG emissions and that the total aircraft GHG emissions, in terms of CO2e, of both incoming and outgoing flights be estimated and disclosed as part of environmental impact reports.

The operations forecasts of the ESPR are misleading and do not relate to the expected GHG emissions growth because a) they do not properly correspond to the growth in total emissions, and b) they understate the growth of the highest emitters.

The ESPR notes on page 3.3 that private jet operations have grown at a CAGR of 4.3% since the last report. During the same period, the larger volume of small propeller aircraft operations declined at a CAGR of approximately -5%, resulting in total operations declining by approximately a CAGR of -1%. The implication of presenting such data in summary form is that environmental impacts must be declining when, in fact, those impacts are dominated by private jets, which have been growing at 4.3% per year. To disclose environmental impact, the focus must be on private jets and not masked by including the propeller and training aircraft decline.

Growth projections for private jet operations have been consistently understated in prior ESPRs. In the 2012 ESPR, growth was projected at 4% CAGR but was exceeded. The projections of the 2017 ESPR for 2022 were exceeded by 8% (p 3-13). Current industry forecasts project an ongoing CAGR of at least 5%. The plans of the ESPR projects describe a nearly 50% short-term increase in jet hangar capacity. Yet the ESPR, without reconciling any of these facts, projects only 1.37% growth in private jet operations (p 3-14). The difference between 1.37% and the

[1] IPCC Report "Aviation and the Atmosphere" IPCC, 1999, p8-9
[2] For outgoing trips, some aircraft will depart with some residual fuel on board obtained at a prior stop, and some will reach their destination without consuming all fuel pumped at Hanscom. On balance, these two effects are presumed to approximately cancel each other out.
[3] 19.75 CO2e/Gal = 9.88 (kg CO2 per Gallon jet fuel, from basic chemistry) x 2 (radiative forcing factor per IPCC)

current rate of 4.3% corresponds to a compounded 10-year difference in jet operations and associated emissions of approximately 33%, which is masked and unexplained by the discussions in the ESPR.

(2) We request that the growth of private jet operations be clearly separated from the decline of small propeller aircraft operations (and not combined) in all disclosures of growth projections due to the vastly different GHG contributions of the two classes. In addition, all discussions of private jet growth should be reconciled with industry projections and the projected increase of infrastructure of the airport. Furthermore, all reported operations volumes should include nighttime operations, as reported in the Annual noise reports.

Massport attempts to alleviate concerns about the growth of emissions by making the bold assertion that "Massport predicts that up to 10 percent of the aircraft servicing Hanscom field may be electrically powered by 2030, reducing the forecasted aircraft emissions for each criteria pollutant presented above." This grossly misleading statement suggests that electric aircraft will replace operations now served by other aircraft.

The National Federal Aviation Plan indicates that electric aircraft will not displace any type of jet aircraft before 2037,[4] much later than the 2030 claim by Massport. Since jet aircraft dominate the GHG emissions of the airport, there is no scenario where the emissions of jet aircraft are reduced through substitution by electric aircraft. In fact, the plans of the ESPR are to increase the volume of jet aircraft and associate GHG emissions.

Substituting existing jet aircraft with electric aircraft is not even feasible. Jet fuel has 20 X the energy capacity of the lightest known lithium batteries by weight. Therefore, electric aircraft will be limited to very short range and can only replace small propeller aircraft and helicopters. All industry projections estimate that such electric aircraft will provide additional incremental short-hop services and will not displace fossil fuel jet aircraft or their emissions. Therefore:

(3) We request that Massport not make speculative claims in the ESPR about emissions reductions due to electric aircraft for which no factual basis has been provided.

Another issue relates to the disclosure of airport noise. The ESPR continues to utilize DNL as the primary metric to disclose noise impacts. The statement is made that no residences are within the 65db DNL contour, and therefore all residences are "compatible with residential land use." This is a misleading statement. FAA regulations state that levels above 65DNL are "incompatible with residential land use" or *unsuitable for human habitation*. This does not suggest that levels below 65dbDNL are not impacted. Massport's own noise consultant has said "It does not follow from the history of the (FAA) levels document or from common experience, that once all incompatibilities, as identified by 65db DNL, are eliminated, all adverse effects will be eliminated. But that is the implication of any noise analysis that ignores land uses exposed to below 65db DNL….we judge it folly to stand before a room full of concerned citizens, show a map with noise

[4] *United States 2021 Aviation Climate Action Plan*, p 37

contours of only 65db DNL and above, and say that there is no adverse effect outside the contour."[5]

For purposes of evaluating impacts in an airport abutting both a National Park and a National Wildlife Refuge, where outdoor noise and duration of disturbance are of primary concern, the Time Above (TA) metric should be the primary metric, as was determined by the 2010 Hanscom Field Noise Workgroup. Helpfully, and in response to an earlier request by the Secretary, the ESPR also utilizes TA as a supplemental metric. The DNL metric, which mathematically is weighted toward the loudness of events and not their frequency or duration, does not appropriately relate to the public's experience around Hanscom Field. The ESPR correctly notes that the TA contours have been reduced since the 2017 ESPR, primarily because of the reduction in the number of small piston aircraft. Therefore:

(4) We request that Massport focus primarily on the more relevant Time Above metric in this and future disclosures and de-emphasize the DNL metric (and the associated 65db DNL threshold) since the DNL metric has little relation to the effects of noise on National Parks, National Wildlife Refuges, and outdoor suburban environments.

Sincerely

Neil Rasmussen
President, Save Our Heritage
neil@saveourheritage.com

[5] Miller, N, "LDN, Necessary But Not Sufficient," The International Congress on Noise Control Engineering, July, 1992

Town of Lexington

Town Manager's Office

James J. Malloy, Town Manager
Kelly E. Axtell, Deputy Town Manager

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September 10, 2024

Rebecca Tepper, Secretary
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office

Alexander Strysky, MEPA Environmental Analyst
100 Cambridge Street, Suite 900
Boston, MA 02114

Re: Draft 2022 Environmental Status and Planning Report (ESPR)

Dear Secretary Tepper and Mr. Strysky:

Please accept this letter on behalf of the Town of Lexington, we appreciate the opportunity to provide comments on the Draft 2022 Environmental Status and Planning Report (ESPR). We commend the Commonwealth's ambitious climate and environmental goals and appreciate your commitment to these crucial issues.

As a community that borders Hanscom Field, the Town is concerned that the draft ESPR may not fully align with state climate and environmental objectives and would like to address several key issues.

1. Greenhouse Gas and Particulate Matter Emissions

The draft ESPR fails to account for the full impact of greenhouse gases and ultrafine particulate matter from aircraft operations at Hanscom Airport. Currently, emissions are considered only up to 3,000 feet, which does not capture the full flight profile. We urge the inclusion of total greenhouse gas emissions for the entire flight duration. Additionally, comparisons of local aircraft emissions should use a more appropriate study area rather than the entire Middlesex County.

2. Ultrafine Particles

Aircraft engines are significant sources of ultrafine particles, which can have serious health implications, including cardiovascular issues and pre-term birth. Given that preliminary measurements

show concentrations near Hanscom Field exceed WHO guidelines, we request a thorough assessment of emissions in the final ESPR.

3. Lead Pollution

We recommend that the ESPR's section on lead pollution emphasize the EPA's recent endangerment finding and acknowledge that piston-engine aircraft operating on leaded fuel are a major source of atmospheric lead. Given Hanscom Airfield's size, it is likely a significant source of lead pollution in Massachusetts. This should be explicitly mentioned in the ESPR.

4. Future Development Scenarios

The draft ESPR's projections for increased operations by 2030 and 2040 appear to underestimate the impact of the proposed expansion at Hanscom Field. The draft estimates 160,000 square feet of hangar space needed by 2030, while the proposed expansion includes 500,000 square feet. We request updates to the ESPR to reflect the true impact of this development, including additional noise and environmental effects.

5. Air Pollution Measurement Locations

Current air quality measurements are taken too far from Hanscom Field to accurately reflect local emissions. We request
that Massport conduct on-site air quality measurements to validate theoretical emissions data and update the ESPR to reflect more recent monitoring data.

6. Sustainability and Electric Aircraft

The ESPR's assumptions about electric aircraft reducing emissions by 10% by 2030 are optimistic given current battery technology and production schedules. We recommend removing these assumptions unless supported by concrete data on electric aircraft viability and business plans from operators.

7. Noise Pollution

We urge that the ESPR incorporate updated science on noise pollution and its health impacts. The current metric of 65 DNL for residential compatibility is outdated and does not align with modern health standards. The ESPR should reflect recent research and consider measures to mitigate nighttime noise impacts, which have proven detrimental to health.

8. Housing Projections

The housing unit projections in the ESPR need to be updated to reflect recent developments under MBTA Community Zoning.

Lexington is committed to reducing greenhouse gas emissions and meeting climate goals. We request that the ESPR be revised to address these concerns, ensuring comprehensive assessment and alignment with state climate and health objectives.

Thank you for considering our requests. We look forward to your support in updating the ESPR to better reflect the environmental and health impacts of operations at Hanscom Field.

Sincerely,

James J. Malloy
Town Manager

Cc: Richard Davey, CEO, Massport
Amber Goodspeed, Massport
Michael Vatalaro, Massport
Melissa Hoffer, Climate Chief, Office of Climate Innovation and Resilience
Lexington Select Board
Sen. Michael J. Barrett
Sen. Cindy F. Friedman
Rep. Michelle L. Ciccolo
Rep. Kenneth I. Gordon
Matt Hanson, Town Manager, Bedford
Kerry LaFleur, Town Manager, Concord
Tim Higgins, Town Administrator, Lincoln

From:	mccoy4@verizon.net
To:	Strysky, Alexander (EEA)
Subject:	Comment regarding - 5484/8696 - Hanscom Field 2022 ESPR
Date:	Wednesday, September 11, 2024 2:03:10 PM
Attachments:	20231127at0825.. 36 loops low over former Ft Devens, N285MK (FltAwr, 5p).pdf 2022 Hanscom Field ESPR Appendices A-G page 46 flight training areas.pdf

Dear Mr. Strysky,

1. Away from Hanscom communities impacted by concentrated flight training maneuvers, and concentrated jet paths should be included in Massport's ESPR for Hanscom Field. I disagree with Massport's made in the ESPR (attached). Ayer, Groton, Townsend, Bolton, Chelmsford, Westford and others are impacted by noise and lead from flight schools based at Hanscom Field. See the attached example about Ayer written by aiReform. Residents under the DREEM2 approach and ZELKA2 approach should be included in the ESPR (overflight communities). All MA residents are impacted by Massport's tone deaf approach to the climate.

2. The impacts from leaded fuel should be sampled and measured at Hanscom, not just modeled. Noise should also be measured, not just modeled.

3. It was unclear to me in reviewing the appendices of the ESPR if AEDT used to model noise represented aircraft based at Hanscom Field. Were louder high powered, prop. planes, such as Cirrus and Beech, represented, or just Cessnas and Pipers? That would underestimate the noise impact of Hanscom operations.

4. Hanscom Aero Club operations should not be included in military aircraft counts for Hanscom Field.

5. Massport's public outreach regarding the ESPR was inadequate. I missed all of the public meetings.

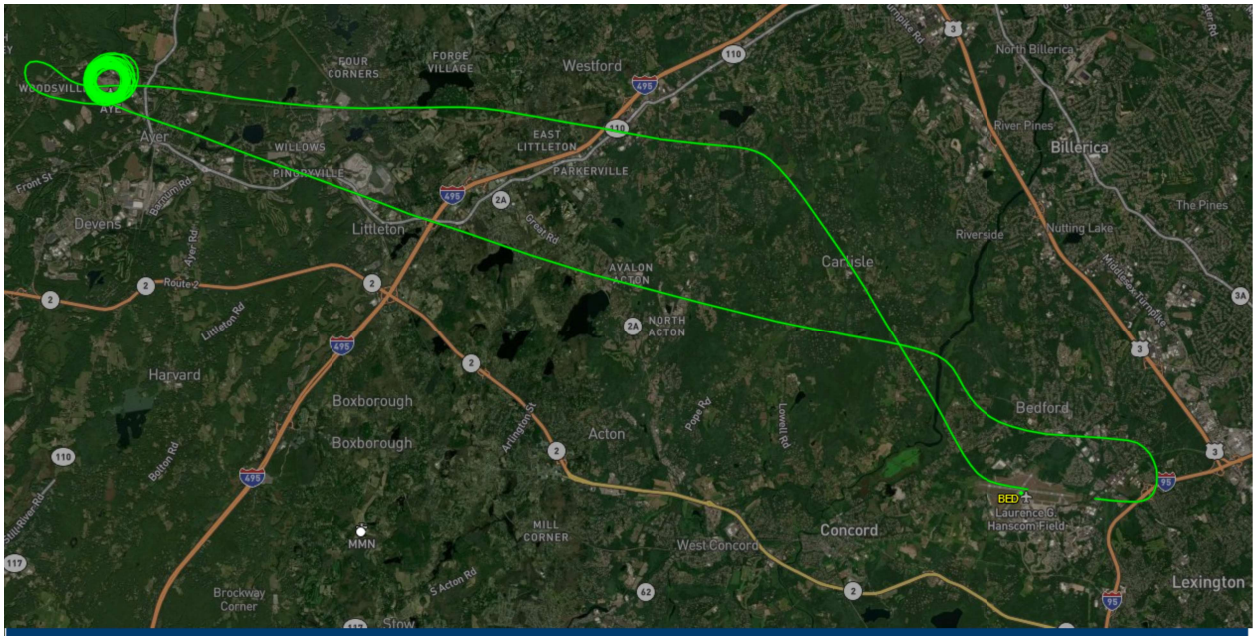
Thank you for reviewing my comments regarding 5484/8696 - Hanscom Field 2022 ESPR.

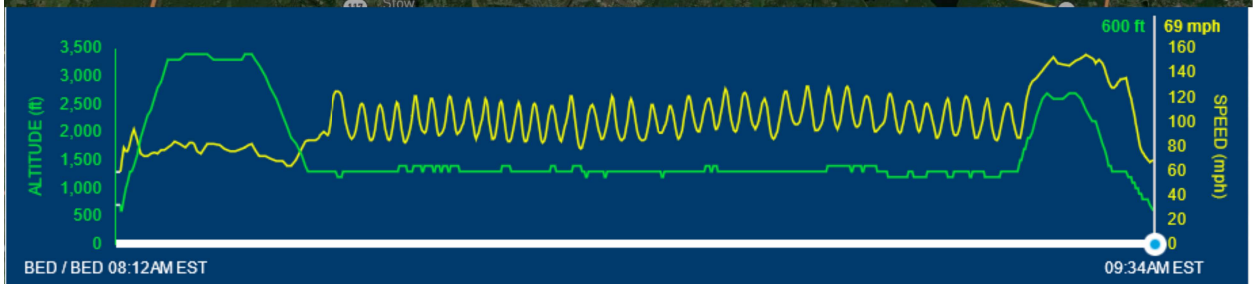
Amy McCoy

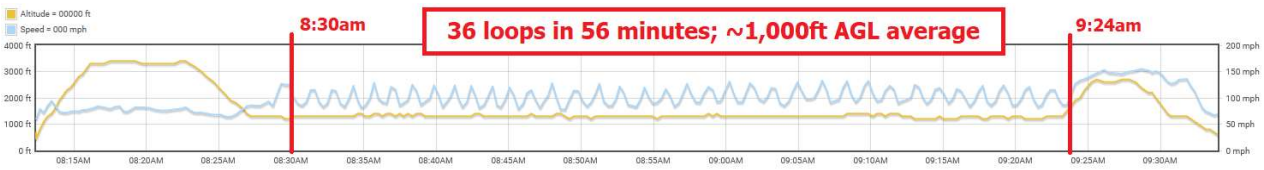
On Monday 11/27/2023, N285MK descended 2,000ft, then flew 36 continues loops, centered a mile northwest of Ayer, MA. N285MK is a single-prop Piper PA28 operated out of Bedford (KBED), by 'Plane Nonsense'. The loops averaged 3,400ft in diameter (~2-miles circumference), centered on the ATC tower site at former Moore Army Airfield (elev. 268ft MSL).

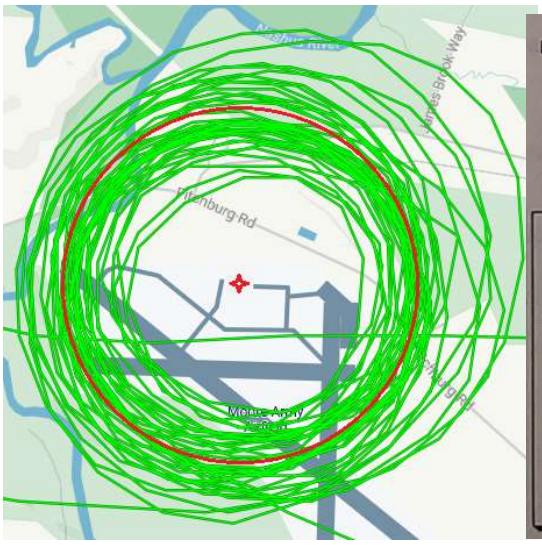
This is an example of how extreme aviation can be: one pilot impacted thousands of residents below, as well as wildilife reserves, while selfishly exercising his pilot privileges. Congress enables this injustice by failing to compel FAA to manage aviation impacts. Power between aviators and communities is wildly out of balance. The situation is worsened by FAA's pattern of nonregulation, enabling targeted impacts by a few rogue pilots. This is an extreme example.

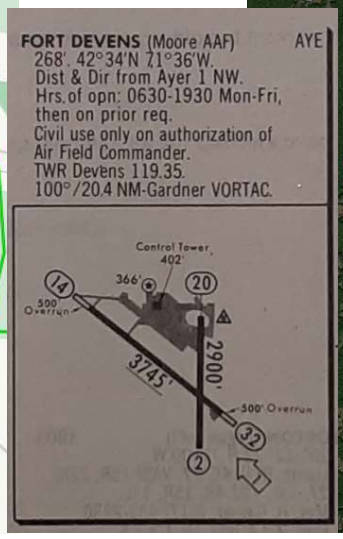
A bit of background: Moore AAF existed from 1929 to 1995, when it was closed under BRAC. It gained Superfund status in 1989, due to heavy metal and petroleum tank contamination. The area is being redeveloped for civilian use.

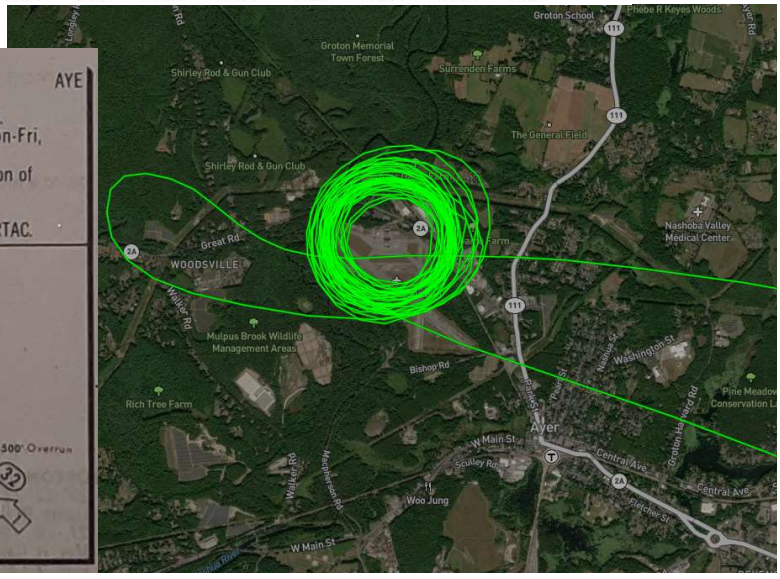













The General Field
Shirley Rod & Gun Club
Ayer Game Farm
2A
Great Rd
WOODSVILLE
Nashoba Valley Medical Center
Moore Army Airfield
N285MK P28A
1200 125
BED BED 09:34AM
Walker Rd
Mulpus Brook Wildlife Management Areas
Bishop Rd
111
Naskua St
Washington St
Pearl St
Park St
Rich Tree Farm
Ayer
W Main St
Central Ave
Groton Harvard Rd
Sculley Rd


Shirley Rod & Gun Club
Ayer Game Farm
N285MK P28A
1300 90
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Mulpus Brook Wildlife Management Areas
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Pearl St
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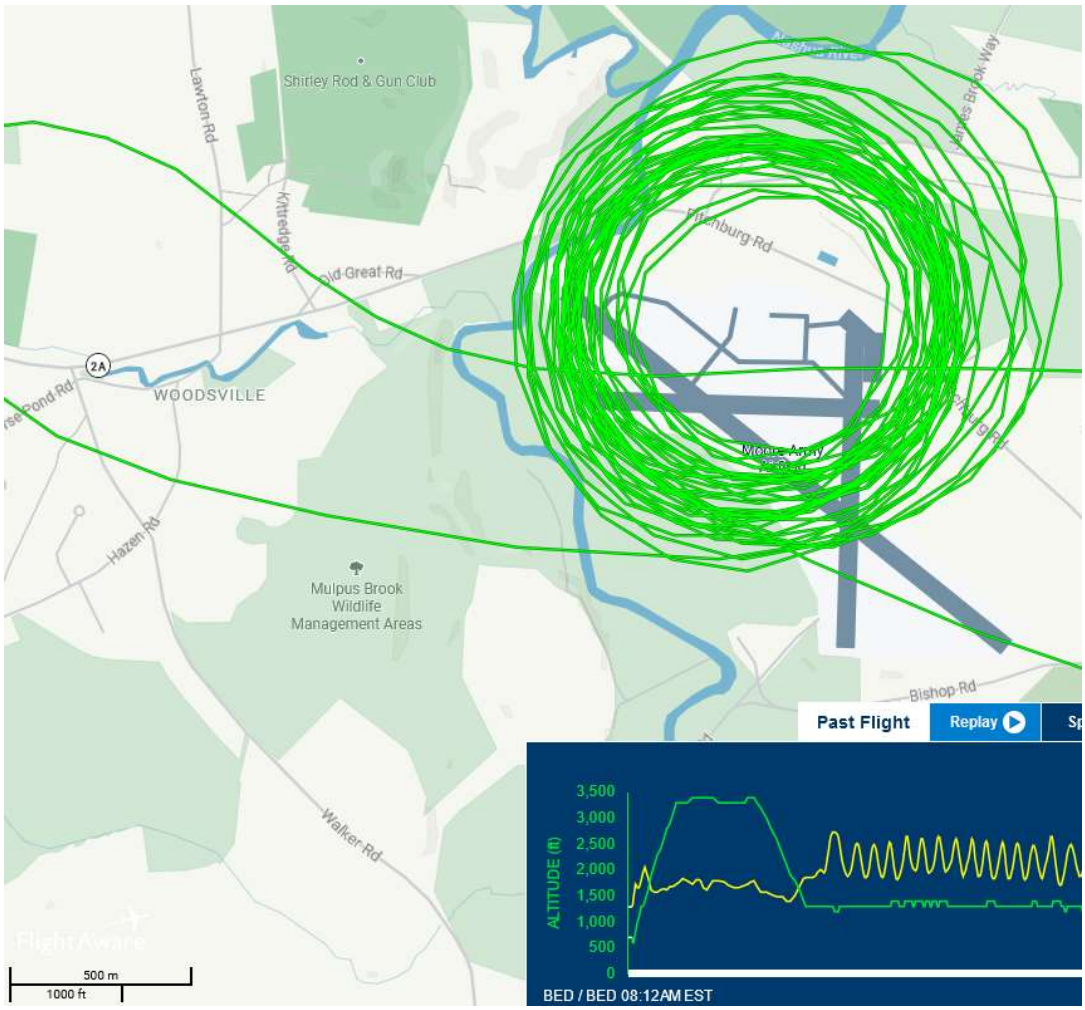
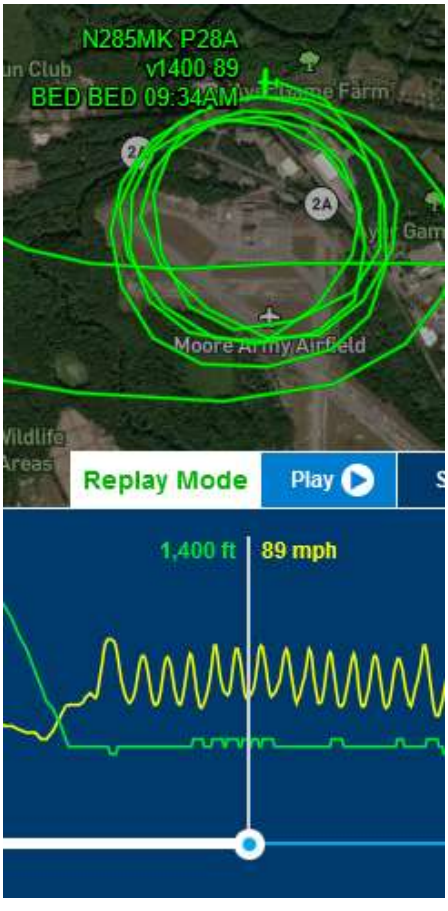
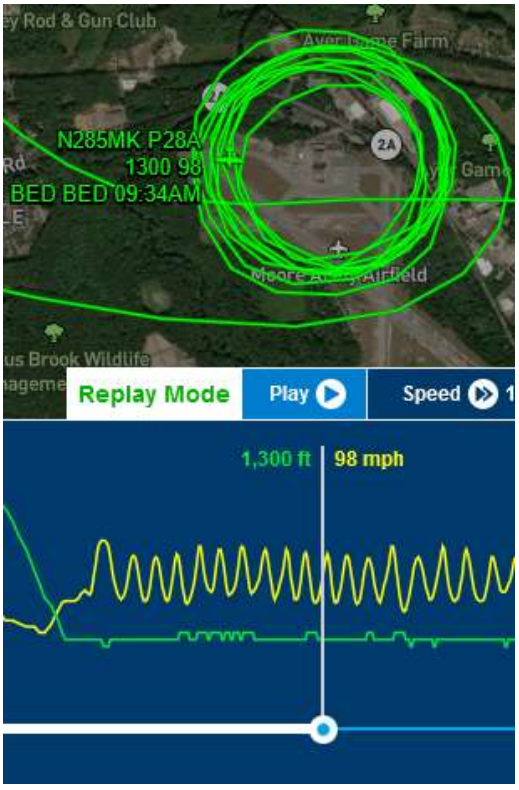
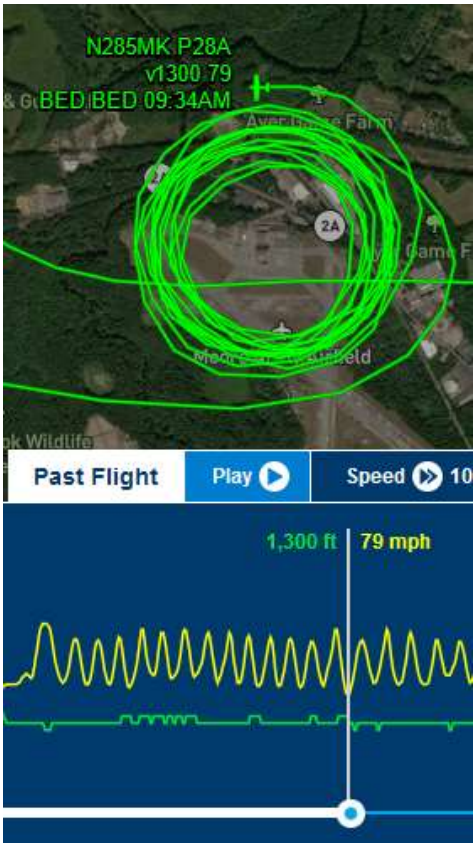
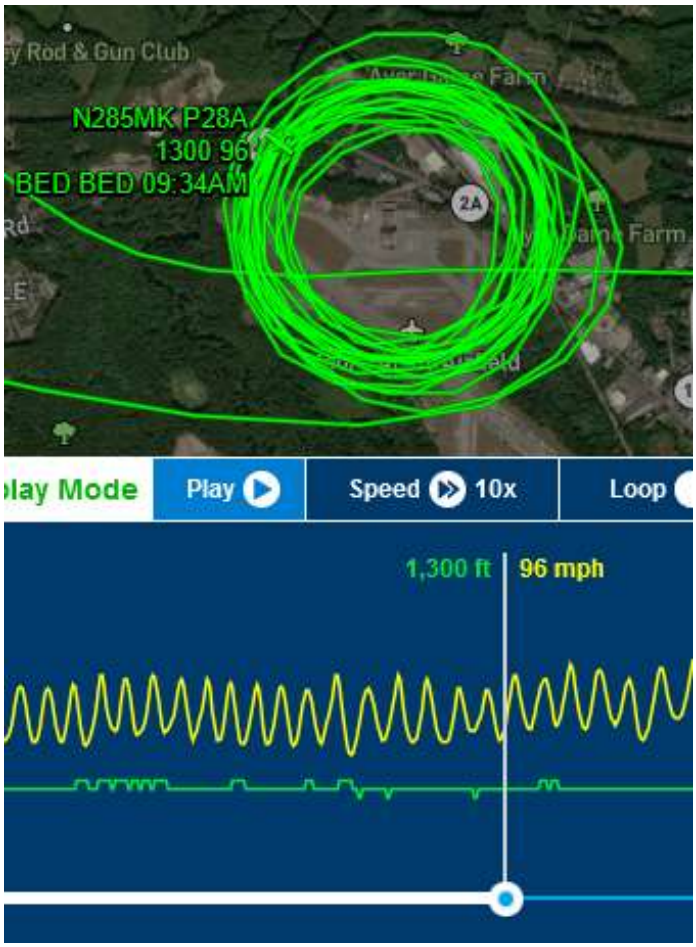
W Main St
Sculley Rd

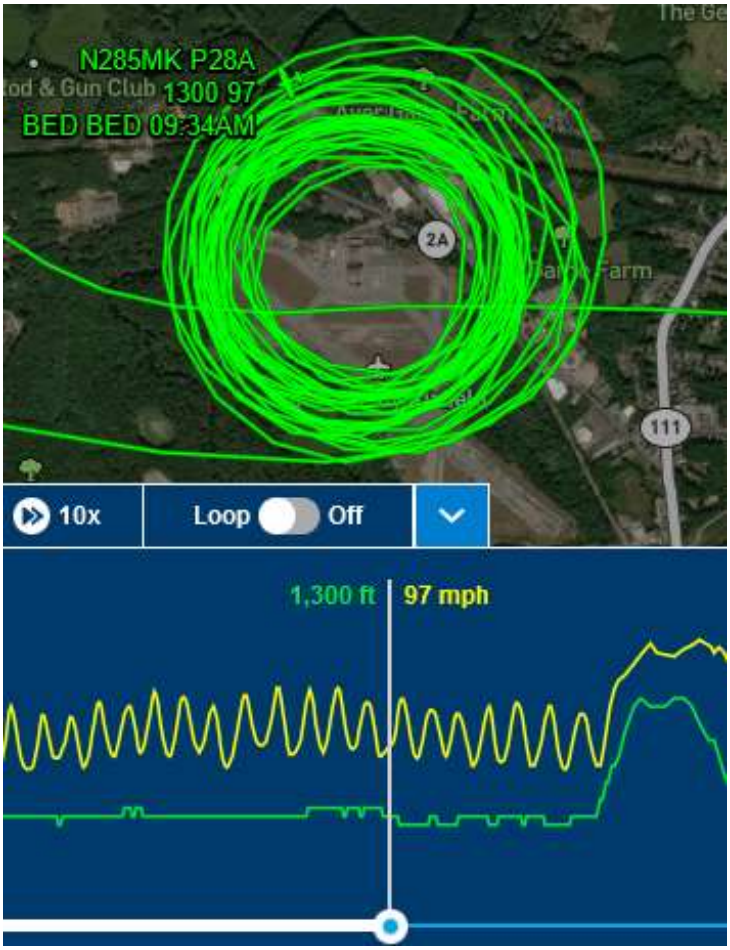

Shirley Rod & Gun Club
Lawton Rd
Kittredge Rd
Great Rd
Fifteenburg Rd
2A
WOODSVILLE
Hazen Rd
Mulpus Brook
Wildlife
Management Areas
Walker Rd
Bishop Rd
Past Flight
Replay
ALTITUDE (ft)
3,500
3,000
2,500
2,000
1,500
1,000
500
0
BED / BED 08:12AM EST
FlightAware
500 m
1000 ft

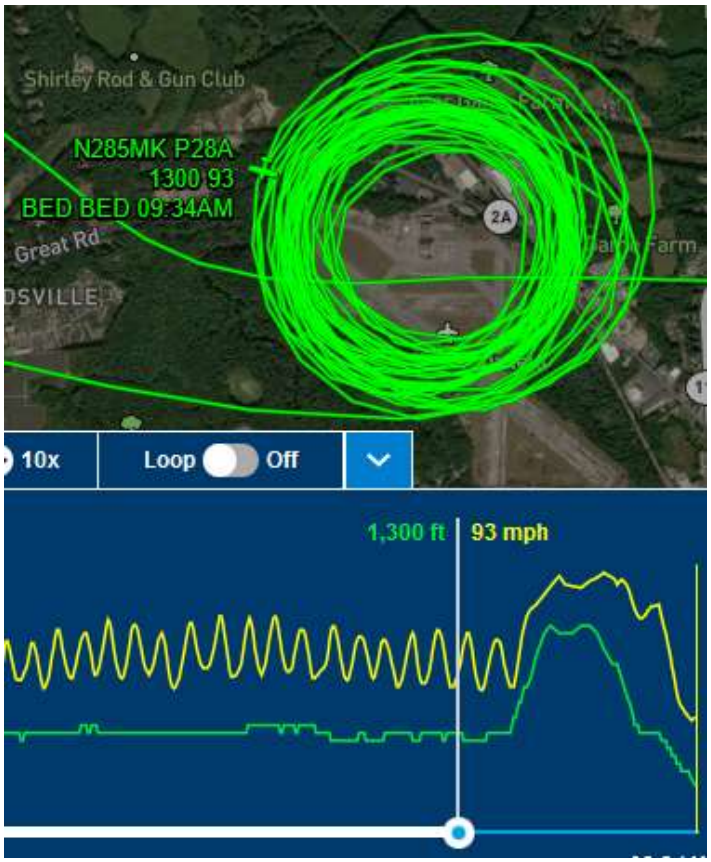

N285MK P28A
v1400 89
BED BED 09:34AM
2A
Moore Army Airfield
Replay Mode
Play
1,400 ft
89 mph

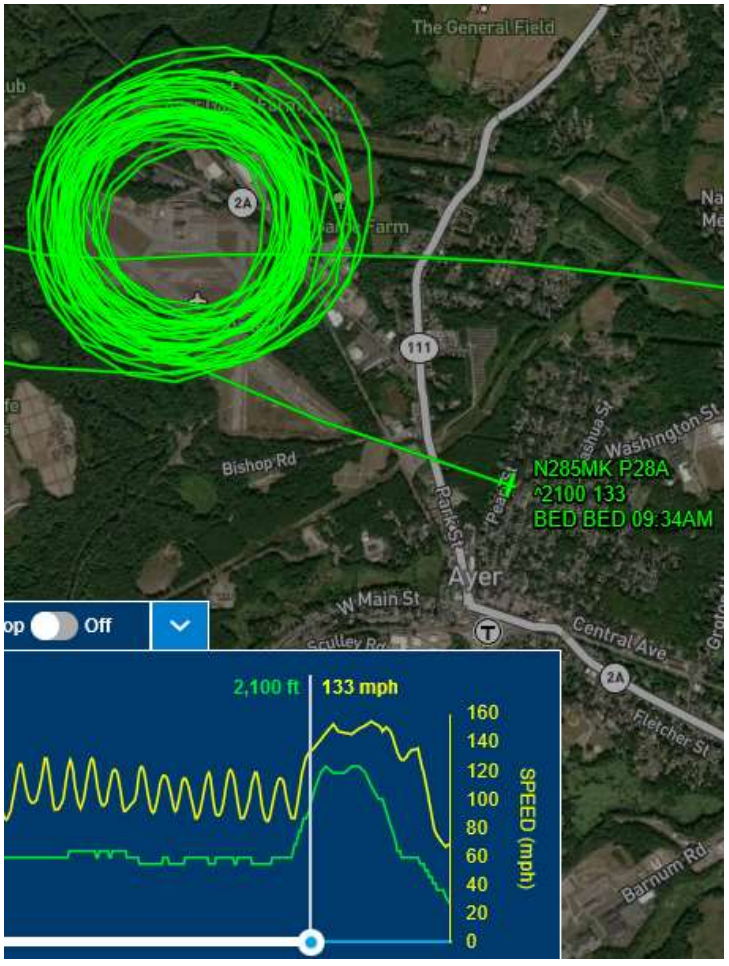

Rod & Gun Club
N285MK P28A
1300 98
BED BED 09:34AM
2A
Replay Mode
Play
Speed
1,300 ft
98 mph

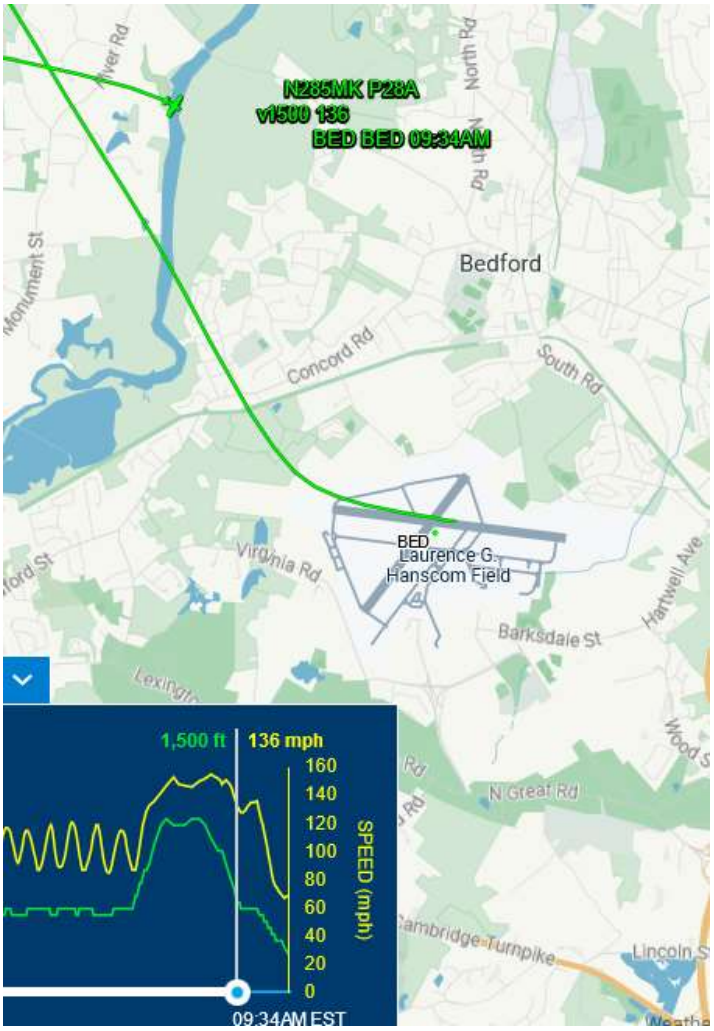

N285MK P28A
v1300 79
BED BED 09:34AM
2A
Past Flight
Play
Speed
1,300 ft
79 mph


N285MK P28A
1300 96
BED BED 09:34AM
Play Mode
Play
Speed 10x
Loop
1,300 ft
96 mph

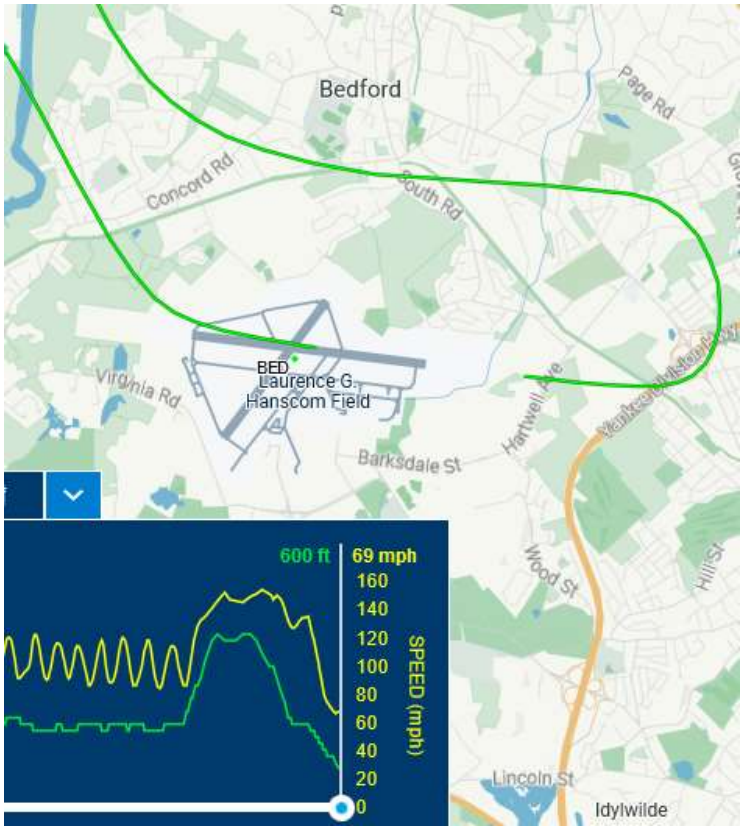

N285MK P28A
1300 97
BED BED 09:34AM
10x
Loop Off
1,300 ft
97 mph


Shirley Rod & Gun Club
N285MK P28A
1300 93
BED BED 09:34AM
10x
Loop Off
1,300 ft
93 mph

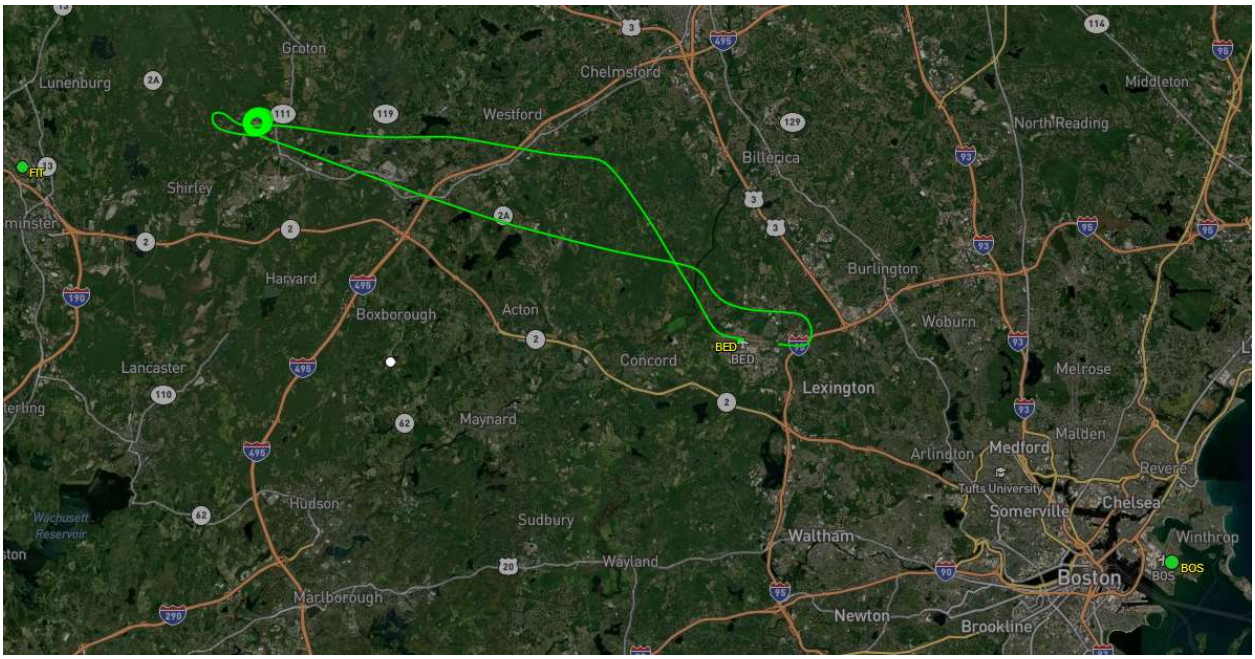

The General Field
N285MK P28A
^2100 133
BED BED 09:34AM
Bishop Rd
Park St
Ayer
W Main St
Central Ave
Washington St
Fletcher St
Barnum Rd
Off
2,100 ft
133 mph
SPEED (mph)



Departure westbound, from KBED, at 8:13am.



Downwind arrival to KBED, landing at 9:33am.



Regional context: Ayer and Former Fort Devens (and former Moore Army Airfield) are northwest of Boston. KBOS arrivals pass over the area for the NextGen arrival route. KBED is the largest general aviation (GA) airport serving the Boston area; ECAC and Plane Nonsense are based at KBED, and both send many flights to the Ayer region.

Comment Number	Comment	Response
David McCoy, December 5, 2022		
Operations		
P-18	Ayer residents continue to be plagued with noise from flight schools based at Hanscom Field, especially from Mark Holzwarth's East Coast Aero Club. The flight training areas that have been seized without any environmental impact since inception and need to be included in the Hanscom Field upcoming 2022 ESPR. Although not publicly disclosed, "Hanscom's standard training areas, A, B, and C '' affect residents' right to the quiet use and enjoyment of their homes.	Massport does not have any control over where pilots operate once they leave the airport. Massport provides the facilities, and the FAA and the pilot are in control of the aircraft. Concerns over flight training away from Hanscom Field should be directed to the FAA. Consistent with FAA guidelines, the ESPR evalutes conditions from aircraft operations near the airport. Massport does not have jurisdiction over airspace.
P-20	Former Secretary Kathleen Theoharides, Executive Office of Energy and Environmental Affairs, made comments regarding the 2017 Massport ESPR that support researching the airspace seized by private flight schools causing noise and environmental issues in Ayer. "The 2022 ESPR should include a review of regulatory, policy and operational responsibilities of entities operating at Hanscom, including Massport, the Air Force, the FAA, FBOs and other operators. The review should include an explanation of how airspace is regulated for general aviation and training purposes."	See response to Comment P-18.
Fuel		
P-19	The effect of leaded avgas emissions remains a health concern as well.	Lead emissions as a result of aircraft operations are reported in Section 8.6.4. See response to comment P-14.
Amy McCoy, December 5, 2022		
Operations		
P-21	Flight training areas are subjected to multiple concentrated flight training maneuver sessions. These areas are not charted or disclosed to the public.	See response to Comment P-18.
P-24	Planes take turns flying over our roof for seeking noise relief. Neither the FAA nor Massport will take responsibility for noise and targeted maneuvers.	See response to Comment P-18.

From: Lincoln Management
To: Strysky, Alexander (EEA)
Subject: 5484/8696 - Hanscom Field 2022 ESPR
Date: Wednesday, September 11, 2024 3:02:16 PM

Dear Mr. Strysky,

Away from Hanscom impacts such a flight training areas and flight paths should be included and evaluated in Massport's ESPR.

Thank you,
David Eliades

Re: EEA No. 5484/8696 L.G. HANSCOM FIELD ESPR
Public Comment: MEPA Analyst, Alex Strysky, alexander.strysky@mass.gov

The Groton Ayer Buzz is a local grassroots group working with aviation-impacted communities locally and nationally.

Thank you for the opportunity to comment on Massport's 2022 ESPR for Hanscom Field. The Groton Ayer Buzz concerns are:

1. Flight training areas and flight paths are not included in the ESPR. The FAA has an advisory on noise sensitive areas highlighting the need to address noise impacts away from the airport. Flight training areas need to be publicly disclosed. Overflight communities under flight paths need to be evaluated for noise and emission impacts. We would like to stress that noise is a public health issue. Flight schools at Hanscom Field choose less affluent areas to dump their noise and lead from concentrated maneuvers.

2. The ESPR should evaluate how technology, such as simulators, could lessen the pollution burden from concentrated flight training maneuvers.

3. Hanscom Aero Club operations should be counted as civilian operations, not military

4. An evaluation of how other MA airport expansions could impact Hanscom operations should be included in the ESPR. A discussion of the MA airport system as a whole should be part of the ESPR. The most common flight routes (Bedford to Nantucket) should be disclosed. https://xrboston.org/news/deep-dive-massachusetts-carbon-emissions-forced-up-by-airport-expansion/

5. Noise at Hanscom Field should be measured, not just modeled. Strict attention should be paid to modeling at Hanscom Field. AEDT should represent the fleet of aircraft based at Hanscom Field – helicopters, jets, and range of propellered aircraft (high powered, aerobatic, twin, turbo).

6. Public outreach for meetings hosted by Massport for this ESPR was not adequate. Attendance was very, very low.

7. Away from airport climate impacts – flight paths, flight training areas – should be evaluated and included in the ESPR.
.

The Groton Ayer Buzz supports comments made by others in the SPJE coalition.

9/11/2024

United States Department of the Interior
NATIONAL PARK SERVICE
Minute Man National Historical Park
174 Liberty Street
Concord, Massachusetts 01742

1.A.1 (MIMA)

September 11, 2024

Alexander Strysky, Environmental Analyst
Massachusetts Environmental Policy Act Office
100 Cambridge Street
Suite 900
Boston, MA 02114

Re: L.G. Hanscom Field 2022 Environmental Status & Planning Report (ESPR)-EEA #5484/8696

Dear Mr. Strysky,

The National Park Service (NPS) has reviewed the 2022 L.G. Hanscom Field ESPR submitted to your office by Massport. Minute Man National Historical Park (NHP), an adjacent landowner to Hanscom Field, has commented on earlier ESPR submissions by Massport and offer these comments on this edition for consideration.

Minute Man NHP was authorized in 1959 by P.L. 86-321 "to preserve for the benefit of the American people certain historic structures and properties of outstanding national significance associated with the opening of The War of the American Revolution." In 1992, P.L. 102-488 reaffirmed the congressional intent of Minute Man NHP to preserve and interpret "the historic landscape along the road between Lexington and Concord." Located within the Towns of Concord, Lincoln, and Lexington, Minute Man NHP and the Historic District are comprised of numerous historic buildings, archeological sites, and cultural landscapes that are nationally significant. Route 2A, which provides access to Hanscom Field via Hanscom Drive, is designated as the Battle Road Scenic Byway and is an All-American Road and Scenic Byway. On April 19, 1775, the Battle of Lexington and Concord was waged within this landscape and lands within Hanscom Field and Hanscom Air Force Base were part of the battlefield. Segments of the approximately three miles of Route 2A through Minute Man NHP incorporate the original alignment of the road that the British Regulars used as they retreated to Boston after the opening shots at North Bridge in Concord, MA. The Park attracts over one million visitors a year and contributes to the economic vitality of the region.

On page 1-1, under “Hanscom Field Fast Facts”, it states that there are two national parks in the vicinity of Hanscom Airfield. There is only one national park unit, Minute Man NHP, in this area. Great Meadows National Wildlife Refuge, while it is within the Department of Interior like Minute Man NHP, is a national wildlife refuge not a national park unit.

On page 1-1, under Section 1.2, it notes that Minute Man NHP is part of “large land holdings” which “provide a buffer between Hanscom Field and residential areas.” This claim is both inaccurate and dismissive of the role that national park units, along with national wildlife refuges, serve for the United States. Within Minute Man NHP, there are several residential units that are home to NPS employees as well as private citizens who are part of our residential leasing program. In addition, the lands within Minute Man NHP are nationally significant and provide an opportunity to reflect and foster an understanding of the events, causes, and consequences of the American Revolution. The park is not comprised of vacant fields, but rather battlefield landscapes, witness structures to the opening battle, wildlife habitat, recreational trails, burial sites, and memorials. It is inappropriate to characterize Minute Man NHP as a “buffer” when there are both residential homes and nationally significant sites within its boundary.

Table 10.1 on page 10-4 notes that there are no National Register of Historic Places (NRHP) listed historic districts within the DNL 55 contour. Please note that Minute Man National Historical Park is a NRHP listed historic district and, although captured separately on its own row, should also be listed under the NRHP historic district listing on this table (also on Figure 10-9 and Table 10-16). The park’s individually listed properties should also be captured under that row as labeled.

Vegetation and Grassland Management

The ESPR references in several places the 2019-2023 Vegetation Management Plan update. As an adjoining landowner, the opportunity to explore ways Massport and Minute Man NHP could work together in vegetation management of invasive plants is highly advantageous in meeting related goals. Further clarification as to the development of the next Vegetation Management Plan (pg. 9-22) would be appreciate as well as sharing of information including the aerial photogrammetric mapping that occurred in fall 2022. In addition, Minute Man NHP would appreciate reviewing the Grassland Management Plan that was developed in 2023.

Noise Impacts on Minute Man NHP and Analysis of the Touch-and-Go Pattern Program Land Use Compatibility

Minute Man NHP currently experiences noise impacts from aviation activity to and from Hanscom Airfield. This is an issue noted in our June 3, 2024 comment letter in regards to the recently released Draft Environmental Impact Report (DEIR) for expansion of the North Airfield (EEA #16654).

In Section 7.1, the ESPR notes that increase by jet aircraft operations and forecasted growth through 2040 will result in a “modest projected increase” in noise. Currently, noise impacts already affect Minute Man

NHP and were documented through acoustical monitoring formally conducted by the park (Formichella 2013) along with informal data submission initiated by park staff directly to Massport's noise complaint line (Noise Complaints - Hanscom | Massport). One area of concern is the ESPR does not appear to account for the potential North Airfield development and what is anticipated to be a significant increase of jet traffic (Industrial Economics, Inc. 2024), if constructed. The ESPR should consider this as part of the forecasting for 2030 and 2040. It is important to note that even if the North Airfield project does not move ahead, the current projection of a modest increase in aircraft operations and noise related to those operations through 2040 will further impact Minute Man NHP and the visitor experience within the park.

The NPS appreciates that Section 7.7 is specific to Minute Man NHP and analysis is focused on the park. In reviewing the findings in Chapter 7, Massport notes that the FAA threshold based on land use compatibility, particularly for residential areas, is DNL 65 dB (pg. 7-3) and that the ESPR's findings is there are no residential use areas currently in or forecasted to be within that contour. Keep in mind that the day-night average sound level (DNL) is a metric that reflects a person's cumulative exposure to sound over a 24-hour period, expressed as the noise level for the average day of the year on the basis of annual aircraft operations. The NPS believes this metric is not appropriate for determining actual real time impacts of noise levels on outdoor activities, since the metric is averaged over 24 hours. A visitor to Minute Man NHP could routinely be exposed to sound levels higher than 65 dB throughout the day from air traffic, and still be within the 65 dB zone because that impact is averaged over a 24-hour period. The ESPR also includes the 55 dB DNL as part of the analysis and the ESPR acknowledges that the 55 dB DNL does extend into Minute Man NHP lands. As a Section 4(f) property, Minute Man NHP would like to highlight that the FAA notes that special consideration needs to be given to noise sensitive areas including national parks and national wildlife refuges (FAA, 2020). It is unclear how the analysis takes this special designation into consideration and what those considerations mean for noise impacts forecasted in 2030 and 2040. This is also not clarified in Chapter 10, and we request additional discussion on this topic.

In the ESPR, Massport highlights the implementation of the touch-and-go program and its existence since 2009 to assist in minimizing aircraft noise over Minute Man NHP. However, with this program now at the 15-year mark, it would be beneficial to provide an analysis on whether this program is meeting the goals initially set out by Massport and the NPS and resulting in a meaningful reduction of aircraft activity over the park. Specifically, what is the quantifiable difference in aircraft activity over the 15-years of the program and where can further reductions be made. In the ESPR, Figure 7-8 identifies the Propeller Aircraft Flight Track Density and the above medium density directly over the Battle Road unit of Minute Man NHP. This concentration of flights is not seen anywhere else in the vicinity of the airfield outside of the runway approaches and departures. Confusingly, the ESPR notes that this demonstrates how "just north of MMNP [its] reflecting Massport's continued outreach to pilots operating at Hanscom." (pg.7-13). However, in looking at the graphic, the NPS would not characterize it in the same way as it instead suggests that Minute Man NHP is taking the brunt of local flight activity outside of takeoff and landing. It is unclear as to what data is being utilized to suggest the touch-and-go program is resulting in a reduction of flight activity over the park. It is also unclear what the noise impacts are from this concentration of propeller aircraft flights over the park and how these correlates to the 65 dB and 55dB contours. All of

this should be more clearly identified in the ESPR. Additional analysis of the program is warranted at this point. Re-invigorating coordination efforts between Massport and Minute Man NHP on how to avoid, minimize, and mitigate current noise issues in the park as a result of current and project flight activity would be welcome.

The analysis related to the time above contours for the Battle Road unit and the increase projected in 2030 and 2040 is particularly concerning for the park (pg. 10-69; Figure 10-12). The NPS is interested in better understanding what mitigation measures Massport will implement to address this incremental impact to park visitors and those employees and private citizens who live inside the park. Whereas we appreciate those of a "voluntary nature" as suggested on page 10-75, the park is more interested in understanding what actions Massport will be taking specifically to improve the situation. The suggestion that recommendations will be derived from a NPS soundscape plan for aircraft activity that originates outside of the park's boundary is puzzling and the exploration of further noise mitigation measures should be initiated by Massport.

Long-term Traffic Impacts and Route 2A

In Chapter 10, transportation is noted as a topic, but it is unclear from the analysis provided where the projection of 3% as a forecasted increase in traffic on Route 2A is based on. Please provide background information supporting this assertion. If the North Airfield project moves forward, it is unclear how this expansion of airport activity with additional hangars will also impact vehicular traffic in conjunction with the already forecasted growth in 2030 and 2040. The Draft Environmental Impact Report (DEIR) for the North Airfield identified as part of their proposal the transfer of land from the project proponent to Massport for the "continuation of the existing Vehicle Service Road (VSR) to the North Airfield" (Runway Realty Ventures, LLC. et al. 2024; Chapter 1.5.4.2). The NPS would like to have a better understanding of the implications of the service road if a transfer occurs and if it will increase traffic utilizing Route 2A to access the airfield. Even without the North Airfield development the long-term potential for an increase of vehicular traffic accessing Hanscom Drive via Route 2A because of the forecasted increase in aircraft activity could further exacerbate effects to the park's setting and visitor experience (pg. 10-5).

We look forward to continuing to work with Massport, and appreciate your attention to the comments the NPS has proved in this letter. If you have any questions on our comments, please do not hesitate to reach out to me by email at simone_monteleone@nps.gov or by phone at (978) 318-7811.

Sincerely,

Simone Monteleone
Superintendent

CC: Margie Coffin Brown, NPS-MIMA
Mark Eberle, NPS-NERO
Brona Simon, Massachusetts Historical Commission
Elizabeth Sherva, Massachusetts Historical Commission
Kerry Lafleur, Town of Concord
Tim Higgins, Town of Lincoln
Kim Bodnar, Lincoln Select Board
Jim Malloy, Town of Lexington
Mark Sandeen, HATS Chair and Town of Lexington
Matt Hanson, Town of Bedford
Grace Bottita, Great Meadows Wildlife Refuge-US Fish and Wildlife
Anna West Winter, Save Our Heritage
Nancy Nelson, Battle Road Scenic Byway Committee
Betsy Merritt, National Trust for Historic Preservation

Bibliography

Federal Aviation Agency (FAA), Office of Environment and Energy 2020. 1050.1F Desk Reference Version 2. Washington, DC.

Formichella, C. 2013. Minute Man National Historical Park: Acoustical monitoring 2008-2009. Natural Resource Technical Report NPS/NRSS/NRTR—2013/791. National Park Service, Fort Collins, Colorado.

Industrial Economics, Inc. and SC&A Inc. and Automation Science 2024. Analysis of Greenhouse Gas Emissions Impact of Proposed Expansion of Hangar Capacity at Hanscom Field. Cambridge, Massachusetts.

Runway Realty Ventures, LLC. and North Airfield Ventures, LLC. 2024. Draft Environmental Impact Report for L.G. Hanscom Field North Airfield Development. Massachusetts.

STOP PRIVATE JET EXPANSION
at **Hanscom** or **Anywhere**
www.spje.org

September 11, 2024

Rebecca Tepper, Secretary
Executive Office of Energy and Environmental Affairs (EEA)
Alexander Strysky, EEA No. 5484/8696
100 Cambridge Street, Suite 900
Boston MA 02114 Attn: MEPA Office

RE: EEA 5484/8696 - Draft 2022 ESPR - L.G. Hanscom Field

Dear Secretary Tepper and Mr. Strysky,

We appreciate the opportunity to submit public comments on Massport's Draft 2022 ESPR for Hanscom Field. This comment is submitted on behalf of the statewide Coalition to Stop Private Jet Expansion at Hanscom or Anywhere (SPJE), a growing coalition of nearly 100 civic groups, climate organizations and churches, and representing over 10,000 individual supporters that are focused on preventing the climate degradation that the proposed North Airfield private jet hangar expansion at Hanscom Field – a massive new fossil fuel infrastructure -- is expected to produce. SPJE opposes the expansion of the most carbon-intensive form of travel because it is in direct opposition to every Climate goal that our towns, cities, Commonwealth, and the nation are working to achieve.

The Draft 2022 ESPR is the first ESPR to be produced since our nation and state adopted climate goals and policies in 2021 to help set in motion aggressive carbon reduction plans for all sectors. One would have expected to observe major shifts in forecasts and planning, as new climate priorities based on the 2021 goals were incorporated in the 2022 ESPR.

Instead, this Draft ESPR demonstrates the same cavalier attitude that the Proposed North Airfield Development DEIR recently displayed in its absence of meaningful, substantive analysis of greenhouse gas emissions (GHG) impacts of the project, which should be a top environmental priority for all sectors, according to Climate Chief Hoffer's reports and MEPA's own standards.

In Section 1.5.7, the ESPR establishes its weak commitment to the Commonwealth's climate objectives when it invokes the argument that "GHG emissions also continue to represent a small fraction of statewide GHG totals". This line of argument has been roundly dismissed in NEPA's Guidance on Consideration of Greenhouse Gas Emissions and Climate Change (Federal Register, 1/9/23), and hopefully shared by MEPA:

> "…NEPA requires more than a statement that emissions from a proposed Federal action or its alternative represent only a small fraction of global or domestic emissions. Such a statement merely notes the nature of the climate change challenge, and is not a useful basis for deciding whether or to what extent to consider climate change effects under NEPA. Moreover, such comparisons and fractions also are not an appropriate method for

characterizing the extent of a proposed action's and its alternative's contributions to climate change because this approach does not reveal anything beyond the nature of the climate change challenge – the fact that diverse individual sources of emissions each make a relatively small addition to global atmospheric GHG concentrations that collectively have a large effect." (p. 1201)

"…Agencies also should discuss whether and to what extent the proposal's reasonably foreseeable GHG emissions are consistent with GHG reduction goals, such as those reflected in the U.S. nationally determined contribution under the Paris agreement." (p. 1203)

NEPA's Guidance (particularly pages 1201–1203) provide a number of bold and clear directives which we believe could assist the ESPR to align with current MA climate priorities. We invite Secretary Tepper and Mr. Strysky to review and consider their applicability to MEPA's state review process (See last bullet below for further details.)

Ways in which the ESPR does not provide an accurate accounting of the full GHG impacts:

- In Section 4.1, it states that Massport uses the State Sustainability Program Executive Order 432 as is its guidance for sustainability planning. This order was issued in July 23, 2002. **The ESPR should employ current state sustainability guidelines that reflect the new era of urgency.**

- The draft ESPR opts to use CO2 to measure GHG impacts from aircraft emissions instead of the more accurate CO2e, which includes additional chemicals produced by flights. By most standards, CO2e is considered to have 2x the GHG impact on the atmosphere than CO2. **The draft ESPR should consistently use CO2e measurements to provide an accurate reporting of GHG impacts.**

- The draft ESPR only reports emissions from aircraft up to 3,000 ft, which does not provide a full nor accurate reporting of aircraft emissions' impact on the atmosphere. **The ESPR should measure and include GHG impacts of the full duration of flights.**

- In Section 4.2.2, the draft ESPR touts Massport as a leader among MA agencies in promoting and implementing sustainable design for its buildings. While this is a laudable achievement under ordinary circumstances, the climate gains from such energy efficiency efforts are overshadowed by the hundreds of thousands of tons of CO2e emissions from Massport's airports' primary form of activity (aircraft operations). **The ESPR should explicitly acknowledge that green airport buildings and infrastructure do not eliminate or compensate for the polluting activity of aircraft. In fact, the reverse is true: the aircraft emissions negate the climate gains from the airports' green buildings.**

- Echoing the NEPA Guidance referenced earlier, we ask the Secretary to instruct Massport to incorporate the following guidance in the ESPR, if appropriate under MEPA:

  "Therefore, when considering GHG emissions and their significance, agencies should use appropriate tools and methodologies to quantify GHG emissions, compare GHG emission

quantities across alternative scenarios (including the no action alternative), and place emissions in relevant context, including how they relate to climate action commitments and goals. This approach allows an agency to present the environmental and public health effects of a proposed action in clear terms and with sufficient information to make a reasoned choice between no action and other alternatives and appropriate mitigation measures. This approach will also ensure the professional and scientific integrity of the NEPA review.[48]

As part of the NEPA documents they prepare, agencies should quantify the reasonably foreseeable gross GHG emissions increases and gross GHG emission reductions [49] for the proposed action, no action alternative, and any reasonable alternatives over their projected lifetime, using reasonably available information and data.[50] Agencies generally should quantify gross emissions increases or reductions (including both direct and indirect emissions) individually by GHG, as well as aggregated in terms of total CO_2 equivalence [51] by factoring in each pollutant's global warming potential (GWP), using the best available science and data.[52] Agencies also should quantify proposed actions' total net GHG emissions or reductions [53] (both by pollutant and by total CO_2 -equivalent emissions) relative to baseline conditions.[54] To facilitate readability, agencies should include an overview of this information in the summary sections of EISs and, when relevant, in the summary section of EAs. Agencies also may use visual tools, such as charts and figures, to help readers more easily comprehend emissions data and compare emissions across alternatives.

Where feasible, agencies should also present annual GHG emission increases or reductions. This is particularly important where a proposed action presents both reasonably foreseeable GHG emission increases and GHG emission reductions. The agency generally should present annual GHG emissions increases or reductions, as well as net GHG emissions over the projected lifetime of the action, consistent with existing best practices.[55] Agencies should be guided by a rule of reason and the concept of proportionality in undertaking this analysis, particularly for proposed actions with net beneficial climate effects, as described below.

Quantification and assessment tools are widely available and are already in broad use in the Federal Government and private sector, by state and local governments, and globally. CEQ maintains a GHG Accounting Tools website listing many such tools.[56] These tools are designed to assist agencies, institutions, organizations, and companies that have different levels of technical sophistication, data availability, and GHG source profiles. Agencies should use tools that reflect the best available science and data. These tools can provide GHG emissions estimates, including emissions from fossil fuel combustion and carbon sequestration [57] for many of the sources and sinks potentially affected by proposed resource management actions.[58] When considering which tools to employ, it is important to consider the proposed action's temporal scale and the availability of input data.[59] Furthermore, agencies should seek to obtain the information needed to quantify GHG emissions, including by requesting or requiring information held by project applicants or by conducting modeling when relevant. – under Section on “IV. Quantifying, Disclosing, and Contextualizing Climate Impacts, and Addressing the Potential Climate Change Effects of Proposed Federal Actions”

It is our hope that clear, specific directives similar to those from NEPA's Guidance above may help Massport truly awake to the climate emergency that is upon us, as well as Massport's considerable contributions to it. We respectfully ask the Secretary to consider the foregoing requests.

Sincerely,

Alex Chatfield, Steering Committee
SPJE Coalition

Conservation
Law Foundation

For a thriving New England

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BY ELECTRONIC DELIVERY ONLY

September 12, 2024

Secretary Rebecca Tepper
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, STE 900
Boston, Massachusetts 02114
alexander.strysky@mass.gov

Re: EEA No. 5484/8696—2022 L.G. Hanscom Field Environmental Status & Planning Report

Dear Secretary Tepper:

On behalf of the Conservation Law Foundation ("CLF") and its members, I am providing our comments regarding the Massachusetts Port Authority's ("Massport") L.G. Hanscom Field ("Hanscom") 2022 Environmental Status and Planning Report ("ESPR"). CLF has significant concerns surrounding Massport's presentation of air quality findings and limited scope of the environmental justice study area at Hanscom.

Annual Operational Air Emissions Comparisons

CLF has concerns regarding the presentation of annual operational air emissions data within the ESPR. A generalized conclusion is reached that aircraft emissions for carbon monoxide ("CO"), particulate matter ("PM") and carbon dioxide ("CO_2") decreased between 2017 and 2022.[1] This determination fails to account for the global COVID-19 pandemic, which had significant and unusual impacts on aviation operations both nationally and regionally. While, albeit, Table 8-3 acknowledges that aircraft emissions of CO, PM and CO2 decreased from 2017 to 2022 "primarily due to a reduction in operations" (*due to COVID-19*), taking into account general aviation operations for both the nation and Hanscom Field[2] would suggest increases in aircraft pollution across the board.

[1] Massport, *2022 L.G. Hancom Field Environmental Status & Planning Report, Bedford, Massachusetts, EEA Number: 5486/8696* (May 2024)(hereinafter "ESPR") at Chapter 8, available at https://www.massport.com/sites/default/files/2024-06/2022-Hanscom-ESPR-Final-062124.pdf.
[2] 2022 L.G. Hanscom Field Environmental Status & Planning Report, Public Information Session 1 Slide Deck (June 10, 2024) at 20; ESPR, Figure 8-6, *Actual and Forecast Aircraft Operations at Hanscom Field*, at 8-25.

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Further, we ask that the ESPR consider Dr. Neelakshi Hudda's study[3] analyzing the amount of ultrafine particle matter impacting air quality in the Hanscom region due to aircraft operations (data collection and analysis is anticipated to continue into July and August 2024, with a final report anticipated in the fall of 2024). This study is critical to understanding environmental and public health impacts of increased general aviation operations at Hanscom and should have significant implications for future air quality impacts.

Air Quality Analyses, Generally

Predictions of future air quality effects at Hanscom must realistically consider increased jet emissions, including ultrafine particulate matter. It is profoundly misleading for Massport to conclude that "2022 Hanscom Field aircraft emissions continue to comprise a very small portion (less than 1%) of total air emissions in Middlesex County. . . [greenhouse gas] emissions also continue to represent a fraction of statewide GHG totals."[4] Clearly, these statements are failing to account for greenhouse gas emissions resulting *from aviation operations* (emphasis added). The entire airport, including the construction and operation of facilities, ride shares, shuttles, and airport operated vehicles, and other essential activities for airport operations, is essential to support aircraft operations and should be accounted for in these calculations. Therefore, these statements are entirely inaccurate and should be clarified. To that end, Massport's phrasing in the ESPR that its "commit[ment] to achieving net-zero carbon emissions across all of its properties"[5] is also misleading since it fails to state that this does not include aircraft operations emissions – and should be clarified as well.

Environmental Justice Study Area

The environmental justice ("EJ") study area for Hanscom field is limited to a one-mile radius of the jetfield.[6] However, this study area fails to account for the amount of ferry flights taken between Hanscom and Boston Logan International Airport ("Boston Logan"), which is surrounded by numerous census block groups meeting EJ criteria. The EJ study area for Hanscom field should be expanded to include an analysis of indirect impacts shouldered by all environmental justice communities surrounding Boston Logan, especially since Hanscom serves as a "reliever"[7] airport to Boston Logan.

[3] Mike Rosenberg, *Researcher Probes Ultrafine Particles' Ties to Airfield Activity*, The Bedford Citizen (April 19, 2024).
[4] ESPR at 1.5.7, 1-15.
[5] ESPR at 1.1.10; 1-17.
[6] ESPR at 11.6.1, 11-35.
[7] ESPR at 1, 1-1.

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CLF respectfully requests that Secretary Tepper and the MEPA staff work with Massport to withdraw the ESPR and refile it in accordance with 301 CMR 11.08(5) to allow for accurate air quality and aircraft emissions analyses, and an expanded environmental justice study area, for another public comment period. Alternatively, the Secretary should find that the ESPR is inadequate and require Massport to file a supplemental EIR in accordance with 301 CMR. 11.07.

Sincerely,

Katherine Lee Goyette
Staff Attorney
Conservation Law Foundation

B. Seth Gadbois
Clean Transportation Staff Attorney
Conservation Law Foundation

MASSACHUSETTS WATER RESOURCES AUTHORITY
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September 12, 2024

Rebecca Tepper, Secretary
Executive Office of Energy and Environmental Affairs
100 Cambridge St, Suite 900
MEPA Office, Alexander Strysky
Boston, MA 02114

Subject: EOEEA #5484/8696 – Environmental Status & Planning Report
2022 L.G. Hanscom Field, Bedford, MA

Dear Secretary Tepper,

The Massachusetts Water Resources Authority (MWRA) appreciates the opportunity to comment on the Environmental Status & Planning Report (ESPR) submitted by the Massachusetts Port Authority (Massport) (the "Proponent") for L.G. Hanscom Field (the "Project") in Bedford, Massachusetts. Massport classifies Hanscom Field as a full-service general aviation airport and a reliever airport to Boston Logan International Airport (Logan). Hanscom Field is situated approximately 20 miles northwest of Boston, within the municipalities of Lincoln, Concord, Lexington, and Bedford, Massachusetts. This *2022 ESPR* provides updated forecasts centered on potential future scenarios for 2030 and 2040. Massport is committed to a multi-modal, multi-airport, multi-state regional transportation program that will satisfy future regional aviation demand. A key component of that transportation program is the use of regional airports to complement Logan.

The ESPR provides preparation of forecast scenarios for the two planning years (2030 and 2040) based on realistic development assumptions providing a practical and effective way to evaluate potential future environmental effects. The issues that are addressed in the *2022 ESPR* include airport facilities and infrastructure; aviation activity levels; airport planning; regional transportation context; ground transportation; noise; air quality; wetlands, wildlife, and water resources; historical and cultural resources; sustainability, environmental management, and a summary of potential beneficial measures. MWRA's comments on this ESPR relate to Toxic Reduction and Control (TRAC) discharge permitting.

<u>TRAC Discharge Permitting</u>

The Proponent currently holds a Sewer Use Discharge Permit and should continue to adhere to this permit. If the Project will change current operations and/or discharge(s) such as adding and/or

increasing its daily wastewater discharge flow, the Proponent must provide at least 30 days advanced written notification to Lanna Ng, Industrial Coordinator in the TRAC Department, at (617) 305-5641 or Lanna.Ng@mwra.com. This notification is required prior to any action which may substantially change the volume or nature of discharge, including an addition and/or increase of daily discharge flow or character of pollutants in discharge, from any compliance measurement location or any sewer connection. The Proponent should also contact Lanna Ng if a new MWRA Sewer Use Discharge Permit is required for the Project.

Any gas/oil separators in parking garages associated with Hanscom Field must comply with 360 C.M.R. 10.016 and State Plumbing Code. The installation of the proposed gas/oil separators may not be back filled until inspected and approved by the MWRA and the Local Plumbing Inspector. For assistance in obtaining an inspection, the Proponent should contact Peter J. Yarossi, Senior Program Manager, Field Operations and Permitting, at Peter.Yarossi@mwra.com or (617) 305-5671.

On behalf of the MWRA, thank you for the opportunity to provide comments on this Project. Please do not hesitate to contact Hillary Monahan of my staff at (857) 324-0554 or Hillary.Monahan@mwra.com with any questions or concerns.

Sincerely,

Colleen C. Rizzi

Colleen Rizzi, P.E.
Director
Environmental and Regulatory Affairs

cc: John Viola, MassDEP

Town of Concord

Office of the Select Board
22 Monument Square
Concord, Massachusetts 01742

September 12, 2024

Rebecca Tepper, Secretary
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office

Alexander Strysky, MEPA Analyst for the Project
100 Cambridge Street, Suite 900
Boston MA 02114

Re: Draft 2022 Environmental Status and Planning Report (ESPR)

Dear Secretary Tepper and Mr. Strysky:

Thank you for the opportunity to submit public comments on the Draft 2022 Environmental Status and Planning Report (ESPR). We write to highlight some pressing environmental concerns regarding the draft ESPR and its potential contradiction with the state's climate and environmental objectives. The Town of Concord has been working hand-in-hand with the State government to achieve our greenhouse gas emission reduction targets. The Commonwealth should require that the full impact of aircraft operations at Hanscom Airfield be considered, as we believe those emissions directly impact the ability of our towns, the Commonwealth, and the nation to meet its climate and health goals.

1. Greenhouse Gas Emissions: The Draft ESPR does not propose to include measurement or analysis of the full impact of greenhouse gases from aircraft operations departing from or arriving at Hanscom Airport.

The draft ESPR states that Massport only considers emissions from aircraft operations occurring up to 3,000 feet above ground level. We respectfully request that the final ESPR include the expected greenhouse gas emissions (CO_2e) for the entire flight of any aircraft operations departing from or arriving at Hanscom Airfield, not just for the portion of the flight below 3,000 feet, which is typically only 1 minute of an average 100-minute flight time.

The draft ESPR presents the impact of air pollution produced from highly local Hanscom Airfield aircraft operations (up to 3,000 feet) compared to the emissions from the entire Middlesex County of 1.6 million people. A more valid comparison would be to compare local aircraft emissions (up to 3,000 feet) to the emissions from a much smaller study area. A smaller study area of 9 square miles, such as the study area used in ESPR Section 8.4.2 for considering motor vehicle emissions, would be more appropriate. Additionally, the ESPR should report the total operational emissions for any flight arriving or departing at Hanscom Field.

2. Ultrafine Particles: Jet engine exhaust is a significant source of ultrafine particles and aviation-related emissions can adversely impact air quality over large areas surrounding airports.[1] Studies have shown that ultrafine particulate matter (PM0.1) can cross biological boundaries (entering the circulatory system) due to their extremely small size. Exposure to PM0.1 is associated with inflammation biomarkers, oxidative stress and cardiovascular disease.[2] Additional research documents the adverse health effects of aviation related ultrafine particles ranging from pre-term birth[3] to toxicity assessments[4]. The EPA adopted a particle number based regulatory standard in the US for aircraft engines.[5] Preliminary measurements already show that concentrations experienced by residents near Hanscom Field exceed WHO guidelines.[6] We thus respectfully request that a comprehensive and accurate ESPR include a full assessment of PM0.1 emissions for aircraft operations departing from or arriving at Hanscom Airport.

3. Lead pollution: We respectfully request that the ESPR section on lead pollution begin by acknowledging the EPA's recent endangerment finding in the first paragraph, rather than placing that important information at the end of the section. Please also acknowledge the EPA's statement that "major sources of lead in the air are ore and metals processing and piston-engine aircraft operating on leaded aviation fuel."[7] Given that Hanscom Airfield is the largest general aviation airport in New England, it is highly likely that Hanscom Airfield is also the largest Massachusetts source of lead in the atmosphere, given the low level of ore and metal processing in the state. This should also be acknowledged in the ESPR.

4. "Buffer Areas": In Section 1.2, the ESPR states that Great Meadows National Wildlife Sanctuary and Minuteman National Park are "large land holdings (that) provide a buffer between Hanscom Field and residential areas." While this is technically true, there is an implication that noise and aircraft emissions are not a problem in these areas. Events at Minuteman Park have been disrupted by aircraft noise; hikers seeking quiet in the Wildlife Sanctuary are often interrupted by this noise, and studies have shown that noise greatly disturbs wildlife. We respectfully request that you consider noise and emission restrictions for these areas and do not think of them as simply buffers.

5. Future Scenarios: The draft ESPR presents scenarios anticipating increased operations by 2030 and 2040. However, those scenarios project considerably smaller growth than is currently being proposed by the proponents of the Hanscom Field North Airfield expansion.
The ESPR estimates that 160,000 square feet of hangar space is needed to meet demand in 2030 (page 4-25). The proposed Hanscom Field North Airfield expansion would build 500,000 square feet of new hangar space, not including the 60,000 square feet of jet hangar space currently under construction. This is 3.5 times the hangar space shown in the ESPR plan. The ESPR estimates 7,500 square feet of hangar space is required for each jet aircraft. Please amend the ESPR to reflect the expected noise and environmental impact of the additional 75 jet aircraft that will be based in those new hangars.
In Section 4.2.1, regarding North Airfield, we request that the ESPR be updated to state that Secretary Tepper has determined that the Draft Environmental Impact Report did not adequately and properly comply with the Massachusetts Environmental Policy Act and its implementing regulations. Please also update the ESPR to include a statement that the proponent has been required to submit a Supplemental Draft Environmental Impact Report to address the deficiencies in the DEIR.
Section 4.2.3 states that the lack of hangar space causes ferry flights. This assertion was rejected in Secretary Tepper's comments on the DEIR and by an independent 3rd party report. We request that the ESPR be amended to remove the statements regarding an expected reduction in ferry flights.

6. Location of air pollution measurements: The ESPR states that air quality measurements for Hanscom Airfield take place in Chelmsford (11 miles north of Hanscom) and Boston (14 miles southwest of Hanscom). It is not possible that air quality measurements taken so far away from Hanscom can in any meaningful way measure the actual air pollution emissions from Hanscom Airfield. We would request that Massport measure and report actual emissions on the airfield to validate the theoretically calculated emissions reported in the ESPR. The draft also ESPR mentions that site specific monitoring for NO_2 was performed in 1995. Measurements conducted almost 30 years ago do not accurately reflect the conditions of today.

7. Sustainability: In Section 4.1 of the ESPR, Massport states that it considers the State Sustainability Program Executive Order 438, issued July 23, 2002, as its guidance for sustainability initiatives. Please update the ESPR and Massport's procedures to include compliance with the many significant state climate and environmental legislative mandates and administration targets that have been adopted in the last 20 years.
Regarding Electric Aircraft, the ESPR states that "Massport predicts that up to 10 percent of the aircraft servicing Hanscom field may be electric powered by 2030, reducing the forecasted aircraft emissions for each criteria pollutant presented above." This prediction is highly unlikely. The current generation of battery technology will only allow for electric aircraft with quite limited range. This means electric aircraft would only be viable replacements for small piston aircraft. It is highly unlikely that any jet aircraft based at Hanscom Airfield will be replaced by electric aircraft by 2030.
Please remove this assumption from any calculations of forecasted aircraft emission reductions unless it is accompanied by current data showing viable electric aircraft certification and production schedules and including the business plans from any aircraft operators at Hanscom Airfield that plan to purchase and operate at least 10% electric aircraft by 2030.

8. Noise: We respectfully request that Massport update the ESPR to reflect the current science on the health impacts of noise.
The EPA states that noise pollution is "a growing danger to the health and welfare of the Nation's population." The Federal Noise Control Act declares that "it is the policy of the United States to promote an environment for all Americans free from noise that jeopardizes their health or welfare." The American Public Health Association defines noise as follows: "Noise is unwanted and/or harmful sound, first recognized as a public health hazard in 1968." According to World Health Organization (WHO) findings, noise is the second largest environmental cause of health problems, after the impact of air pollution (particulate matter).[10]
Please remove the ESPR statement "Sound pressure levels above 120 dB begin to be felt inside the human ear as discomfort." The EPA and World Health Organization have determined that noise levels must be less than 70 dBA to prevent hearing loss. According to the CDC, sound levels of 80 to 85 dB can create permanent hearing loss after 2 hours of exposure, sound levels of 95 dBA can create permanent hearing loss within 50 minutes of exposure, and sound levels of 100 dBA can create permanent hearing loss after just 15 minutes of exposure. The World Health Organization states that sound levels of 120 dBA can create permanent hearing loss after just 12 seconds of exposure. The WHO recommends sound pressure levels of less than 45 dB L_{den} for average noise exposure to aircraft noise and sound pressure levels of less than 40 dB L_{den} for night noise exposure to aircraft noise.[10] 60 dBA is the maximum recommended exposure limit for babies, infants, and toddlers.[11]
Research has shown that nighttime and early morning aviation noise that disrupts sleep is especially harmful to health. Particularly dramatic are studies demonstrating the link between night-time aviation noise and death from acute cardiovascular events.[9] This is particularly

concerning given the rapidly increasing numbers of nighttime jet operations. We request that Massport consider new initiatives to limit nighttime operations as the nighttime usage fee has been ineffective.
The 65 DNL metric used in the ESPR to define "residential compatibility" with aviation noise is now 50 years old and is 2-4 times louder than established safety levels.[8] The Government Accountability Office (GAO) found that "…this metric does not provide a clear picture of the flight activity or noise levels at a given location." "As a result, information on potential noise impacts FAA provided during outreach efforts—which was grounded in DNL—was not clear enough for communities to understand the planned changes."
We respectfully request that the ESPR clearly communicate that the DNL 65 standard allows 100 jet flights per day at 94 dBA to overfly a residential neighborhood.

We respectfully request your support in updating the ESPR to address these concerns, emphasizing the urgent need for all sectors, in all locations, to work collaboratively towards reducing CO_2 emissions and meeting our critical climate, health and environmental goals.

Sincerely yours,

Select Board
Town of Concord, Massachusetts

CC:
Edward C. Freni, Interim CEO, Massport
Melissa Hoffer, Office of Climate Innovation and Resilience
Senator Elizabeth Warren
Senator Ed Markey
Congresswoman Katherine M. Clark
Sen. Michael J. Barrett
Rep. Simon Cataldo
Rep. Carmine Gentile
Concord Town Manager
Concord Board of Health

Footnotes:

1. N. Hudda, M.C. Simon, W. Zamore, and J. L. Durant **Aviation-Related Impacts on Ultrafine Particle Number Concentrations Outside and Inside Residences near an Airport** *Environmental Science & Technology* **2018** *52* (4), 1765-1772 DOI: 10.1021/acs.est.7b05593 https://www.sciencedirect.com/science/article/pii/S0360132322002347

2. Schraufnagel, D.E. **The health effects of ultrafine particles.** *Exp Mol Med* **52**, 311–317 (2020). https://doi.org/10.1038/s12276-020-0403-3

3. Wing SE, Larson TV, Hudda N, Boonyarattaphan S, Fruin S, Ritz B. **Preterm Birth among Infants Exposed to *in Utero* Ultrafine Particles from Aircraft Emissions.** Environ Health Perspect. 2020 Apr;128(4):47002. doi: 10.1289/EHP5732. Epub 2020 Apr 2. PMID: 32238012; PMCID: PMC7228090. https://pubmed.ncbi.nlm.nih.gov/32238012/

4. Hulda R. Jonsdottir, Mathilde Delaval, Zaira Leni, Alejandro Keller, Benjamin T. Brem, Frithjof Siegerist, David Schönenberger, Lukas Durdina, Miriam Elser, Heinz Burtscher, Anthi Liati, Marianne Geiser. **Non-volatile particle emissions from aircraft turbine engines at ground-idle induce oxidative stress in bronchial cells**. *Communications Biology*, 2019; 2 (1) DOI: 10.1038/s42003-019-0332-7 https://pubmed.ncbi.nlm.nih.gov/30854482/
5. https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-control-air-pollution-aircraft-engines
6. https://www.ncbi.nlm.nih.gov/books/NBK574595/box/ch4.box15/?report=objectonly
7. https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution#how
8. https://www.icben.org/2023/presenting181.pdf
9. Nighttime Aircraft Noise Triggers Cardiovascular Death - https://academic.oup.com/eurheartj/article/42/8/844/6046141
10. https://cdn.who.int/media/docs/default-source/who-compendium-on-health-and-environment/who_compendium_noise_01042022.pdf?sfvrsn=bc371498_3
11. Center for Disease Control and Prevention (2022) - https://www.cdc.gov/nceh/hearing_loss/what_noises_cause_hearing_loss.html

From: mccoy4@verizon.net
To: Strysky, Alexander (EEA)
Cc: James Eldridge; Sen. Mike Barrett
Subject: Additional comments - 5484/8696 - Hanscom Field 2022 ESPR
Date: Monday, September 23, 2024 9:17:05 AM

Dear Mr. Strysky,

This email comment is in addition to my earlier comments regarding Massport's 2022 ESPR for Hanscom Field.

1. Another study has been released regarding elevated blood lead levels of children living near airports. Hanscom Field is the largest general aviation airport in New England. An study of local lead impacts should have be included in the ESPR. Below is a newsletter from the Oregon Aviation Watch describing the latest North Carolina study.

2. A letter to DOT and FAA, signed by 40 members of Congress in September, described airport-adjacent communities as far away as 20 miles, yet Massport excludes away from airport impacts in their ESPR. The Airport Noise Report covered the September letter in their latest issue. I've included a link to the report below, and here is an excerpt: 'Members of airport-adjacent communities as far as 20 miles away from a major airport have long known what the FAA has only recently acknowledged: that aviation noise poses a far greater daily nuisance and health risk than originally anticipated. Studies show that aviation noise disrupts sleep, causes chronic stress, and leads to higher risk of cardiovascular disease, hypertension, and mental illness. These risks, combined with the FAA's past failures to recognize the effects of its aviation noise policies, underscore the importance of incorporating community feedback into policy conversations.' https://aviationimpactedcommunities.org/wp-content/uploads/2024/09/ANR36-29_excerpt.pdf

Thank you for adding this information to the comments I have already submitted regarding the 2022 ESPR for Hanscom Field.

Best regards,
Amy McCoy

---- Forwarded Message -----
From: Oregon Aviation Watch <miki@oregonaviationwatch.org>

Sent: Saturday, September 21, 2024 at 01:38:36 PM EDT
Subject: Statewide North Carolina Study Finds Elevated Blood Lead Levels in Children Living Near Airports

View this email in your browser

Statewide North Carolina Study Finds Elevated Blood Lead Levels in Children Living Near Airports

Miki Barnes
September 21, 2024

On 8/9/2024 an article entitled Association between Residential Distance to Airport and Blood Lead Levels in Children under 6 Living in North Carolina, 1992–2015 was published in the *Environmental Health Perspectives* journal. This research builds on an earlier study by Marie Lynn Miranda, Rebecca Anthopolos, and Douglas Hastings published in June of 2011. This is the fifth study to find elevated blood lead levels in children living in proximity to airports where piston-engine aircraft continue to use leaded fuel.

The study, which considered the blood lead levels of 943,602 children living

within 10 kilometers [6.21 miles] of airports across 100 North Carolina counties, found a “significant adverse effect of avgas use on children’s BLLs [Blood Lead Levels]…”

The Introduction to the article appears below.

> Even with progress in lead poisoning prevention, research has consistently shown there is no safe blood lead level (BLL) for children. Behavioral and cognitive deficits are associated with lead exposure, even at low levels. Unfortunately, many piston-engine aircraft are still fueled by leaded aviation gas (avgas).
>
> The US Environmental Protection Agency (EPA) estimates that ~5.2 million people live within 500m of an airport where avgas is used. Our past research in six North Carolina (NC) counties indicates that children living within 500m of airports where avgas is used have ~4% higher BLLs than children who lived beyond 2,000m (reference group); the association between avgas and children’s BLLs was still detectable at 1,000m. Building on this work, this study investigates the relationship between avgas and BLLs in children across all 100 NC counties.
>
> In October 2023, the EPA finalized an endangerment finding as the first step in using its authority to regulate the use of avgas. EPA is now required by the Clean Air Act to propose and promulgate regulatory standards for lead emissions from certain aircraft engines. Moreover, the Federal Aviation Administration (FAA) must propose avgas that will control or eliminate lead emissions. In this paper, we provide evidence that is relevant to the EPA’s future regulatory proposals.
>
> To access the entire article click here.

Previous Airport Studies on the Effects of Leaded Avgas on Children’s Blood Lead Levels

Reid-Hillview Airport Lead Study (2021)

An 8-3-2021 lead study was commissioned by Santa Clara County in response to concerns about the toxic lead emissions generated by aviation activity at the Reid-Hillview Airport (RHV). The study included an analysis of data from January 1, 2011 to December 31, 2020 of over 17,000 blood lead level

samplings of children residing within one and a half miles of the airport at the time the blood draws were taken. The researchers found that **"Under periods of high piston-engine aircraft traffic, children proximate to Reid-Hillview airport experience an increase in BLLs [blood lead levels] in excess of what the children of Flint experienced during the FWC [Flint Water Crisis]."** The study also revealed that the volume of piston-engine air traffic and the amount of leaded fuel sold on a monthly basis to RHV fixed based operators also contributed to increased blood lead levels.

In the words of Dr. Sammy Zahran, a leading researcher on the study, **"The Flint water crisis from start to finish unfolded in less than a year and a half. By contrast at Reid-Hillview, the release of lead into the lived environment is a continuous, non-stop, daily unabated flow of an undeniably harmful toxicant. I remind you that we are talking about more than a thousand pounds of lead released annually on nearby populations."**

Michigan Airport Lead Study (2017)

The Effect of Leaded Aviation Gasoline on Blood Lead in Children, published in 2017, involved over 1 million children and 448 airports in Michigan. Dr. Sammy Zahran et al. found that “child BLLs: 1) increased dose-responsively in proximity to airports, 2) declined measurably among children sampled in the months after the tragic events of 9-11, resulting from an exogenous reduction in PEA [piston-engine aircraft] traffic, 3) increased dose-responsively in the flow of piston-engine aircraft traffic across a subset of airports, 4) increased in the percent of prevailing wind days drifting in the direction of a child’s residence and 5) behave intuitively and significantly when considering two-way and three-way interactions of our main treatment variables.”

As stated in the report, **"The consequences of lead exposure in childhood are lasting. Neural-imaging studies find that adults exposed to lead as children have reduced gray matter in regions of the brain known to govern executive judgment, impulsivity and mood regulation... Economists have convincingly linked these intellectual and socio-emotional traits of judgment and impulsivity to long-term life outcomes... persons exposed to lead in early life experience ‘an unfolding series of adverse behavioral outcomes: behavior problems as a child, pregnancy and aggression as a teen, and criminal behavior as a young adult.’"**

North Carolina Airport Lead Study (2011)

A Geospatial Analysis on the Effects of Aviation Gasoline on Childhood Blood Lead Levels by Marie Miranda et al was published in October of 2011. This study involved the observation of 125,000 blood lead levels (BLLs) in 6 North Carolina counties in proximity to the 66 airports located in these jurisdictions. According to the authors of the study, “Our results suggest that children living within 500 m of an airport at which planes use leaded avgas have higher blood lead levels than other children. This apparent effect of avgas on blood lead levels was evident also among children living within 1,000 m of airports. The estimated effect on blood lead levels exhibited a monotonically decreasing dose–response pattern, with the largest impact on children living within 500 m.” In their conclusion they stated, **“Our analysis indicates that living within 1,000 m of an airport where avgas is used may have a significant effect on blood lead levels in children.”**

Colorado Airport Lead Study (2024)

The Association Between Childhood Blood Lead Levels and Proximity to Airports in Colorado published by *Springer Link* on May 22, 2024, examined blood lead levels in children age 18 years and younger over a 10-year period from January 1, 2011, to December 31, 2020, in relation to 12 unidentified Colorado airports. When comparing their findings to some of the earlier studies discussed above, the researchers pointed out that, “One notable difference between the present study and the three previously published studies is Colorado’s relatively smaller sample size of blood lead tests near airports. Low blood lead testing rates, especially in rural areas, are Colorado’s most significant challenge to lead poisoning prevention.”

Despite the smaller sample size and other limitations discussed in the study, it is significant that researchers found a correlation between blood lead levels and proximity to airports. The report went on to recommend an increase in blood lead testing, **“Lowering exposure to lead lowers the risk of health effects, and new research emphasizes the danger of even low levels of exposure. Testing is critical not only to protect children who might have lead exposure but also because it provides valuable public health data needed to investigate less well-studied exposure pathways and how they affect BLLs.”**

Our mailing address is:
Oregon Aviation Watch
PO Box 838
Banks, OR 97106-0838

Date: October 4, 2024

From: Anne Buxton Sobol
Lincoln, MA

Re: Public Comment
Massport's 2022 Hanscom Field Environmental Status and Planning Report
EA # 5484/8696

Dear Secretary Tepper and Mr. Strysky:

SCOPE

In her certificate establishing the scope for Massport's 2022 Hanscom Field Environmental Status and Planning Report (ESPR) for Hanscom Field, your predecessor Secretary Bethany Card directed that the ESPR should "present an overview of the operational environment and planning status of Hanscom Field and provide long-range projections of environmental conditions against which the effects of future individual projects can be compared." (1-2). She further directed that the "ESPR should describe the proposed North Hangar development project and incorporate this project in projections of future operations at Hanscom." (3, see also at 4).

Secretary Card also directed that the ESPR should provide an emissions inventory for, among other pollutants, "carbon dioxide (CO2) and other Greenhouse Gasses (GHG)." (6). She noted that Governor Baker's Executive Order 569 recognized the "serious threat presented by climate change" and that the then recent passage of An Act Creating a Next Generation Roadmap for Massachusetts Climate Policy sets a goal of Net Zero emissions by 2050. (9). She noted that "the MEPA statute directs all Agencies to consider reasonably foreseeable climate change impacts, including additional greenhouse gas emissions, and effects, such as predicted sea level rise, when issuing permits, licenses and other administrative approvals and decisions." (9).

2022 ESPR

Massport's 2022 ESPR (titled "Executive Summary") includes text of 576 pages and nine appendices A-G of 674 pages for an overwhelming total of 1,250 pages. The report is a hodge podge, a scatter gun, of incoherently presented data seemingly designed to obscure among other things what is going on in terms of growth at Hanscom.

Massport's ESPRs are supposed to come out every five years. Massport takes its own time on issuance and the 2017 ESPR came out in 2019 and the 2022 ESPR has now come out in 2024.

Private Jet Traffic[1]

To understand the climate implications of the proposed North Airfield hangar expansion, it is important to understand the pace at which Hanscom private jet operations have been increasing in the past and what that bodes for the future. The more private jet operations, the more jet fuel is burned. The more fuel burned, the greater the greenhouse gas emissions, and the greater the climate damage.

On the basic point of increase in private jet operations, the ESPR fails to provide a coherent statement of the increase since 2017. Table 3-4 in Massport's 2022 ESPR states that 2022 private jet daytime[2] operations exceeded the forecasts in the 2017 ESPR by 8 percent. According to the 2022 ESPR, the 2017 ESPR forecast for 2022 was 33,786 operations, Table 3-4.

In fact, the 2017 ESPR gives no forecast for 2022, but does forecast 36,515 operations in **2025**. The 2022 ESPR shows 2022 daytime operations of 36,808, Table 3-4, and private jet **nighttime** operations of 1,617, Table 3-2, for a total 2022 private jet operations of 38,425, a number 5 percent higher than the 2017 ESPR estimate for **2025** of 33,786 operations.

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[1] Massport refers to business jets, but I am going to refer to private jets because studies have shown as much as half of private jet flights are not business-related.

[2] The footnote to Table 3-4

Regarding 2023, Massport's 2022 ESPR asserts that "business jet operations are less than 2 percent different from the 2017 ESPR forecast . . .." 3-13. However, Massport's April 2024 State of Hanscom reports that in 2023 there were 36,432 **daytime** jet operations and a total of 2,384 **nighttime** operations of all kinds. (Not the daytime total of 33,876 reported in the footnote to Table 3-5 of the 2022 ESPR.) If about 60% of the 2023 nighttime operations were private jets, see 2022 ESPR at 3-8, the total private jet operations for 2023 were 36,432 daytime plus 1,430 nighttime operations for 37,862 private jet operations, less than 2022's 38,425 operations, but still 12% higher than the 36,515 the 2017 ESPR forecast for **2025**.

The 38,425 private jet operations in 2022 and the 37,862 in 2023 are close to the 2022 ESPR's forecast of 41,030 operations in **2030**. Table 3-5.

Massport's 2022 ESPR acknowledges the vigor of the private jet business.

> The mid- and long-term outlook for business aviation . . . is strong. The FAA projects that business aviation will continue to grow nationally. Business aviation remains an attractive option for corporations, given the greater flexibility of schedules, the ability to reach destinations without stops, the ability to avoid lengthy check-in and security screening times, and **a way to fly separately from the general public**, all of which allow corporate passengers to use their time more effectively.

2022 ESPR at 3-15 (emphasis added).

Greenhouse Gas Emissions

The 2022 ESPR gives short shrift to the greenhouse gas (GHG) emissions that cause climate change.

Finding Appendix E at page 629 of the Appendices is a feat in itself. Once there one finds little regarding the GHG emissions stemming the private jet flights at Hanscom. Massport acknowledges 2,337,633 gallons of jet A fuel burned by "tenant" aircraft. Table E-5, Appendix E. This only takes account of fuel burned up to 3,000 feet on takeoff and landing.

Using the method I described in my comment on the North Field DEIR (p. 11), the 2,337,633 gallons of jet A fuel would account for 46,192 metric tons of CO2e. Massport's limitation on the amount of jet fuel up to 3,000 feet fails to acknowledge the full scope of GHG emissions from the flights of the jet planes using Hanscom.

Massport concludes its extremely limited discussion of GHG emissions by falling back on the possible future availability of Sustainable Aviation Fuel (SAF). There is currently no SAF available at Hanscom. There is no SAF currently available in the eastern half of the United States. https://www.4air.aero/saf-map.

Conclusion

I wasn't going to write a public comment about Massport's 2022 ESPR, but at the last minute I had to register in some small way what I see as the duplicitous presentation of the environmental issues connected with the proposed expansion of Hanscom Field. Massport's 2022 ESPR is a cumbersome, probably deliberately opaque hodge podge. It does not provide a proper basis for evaluating the North Airfield expansion.

With respect,

Anne Buxton Sobol

October 4, 2024

Dear Mr. Strysky,

Please accept this public comment regarding Massport's 2022 Hanscom ESPR.

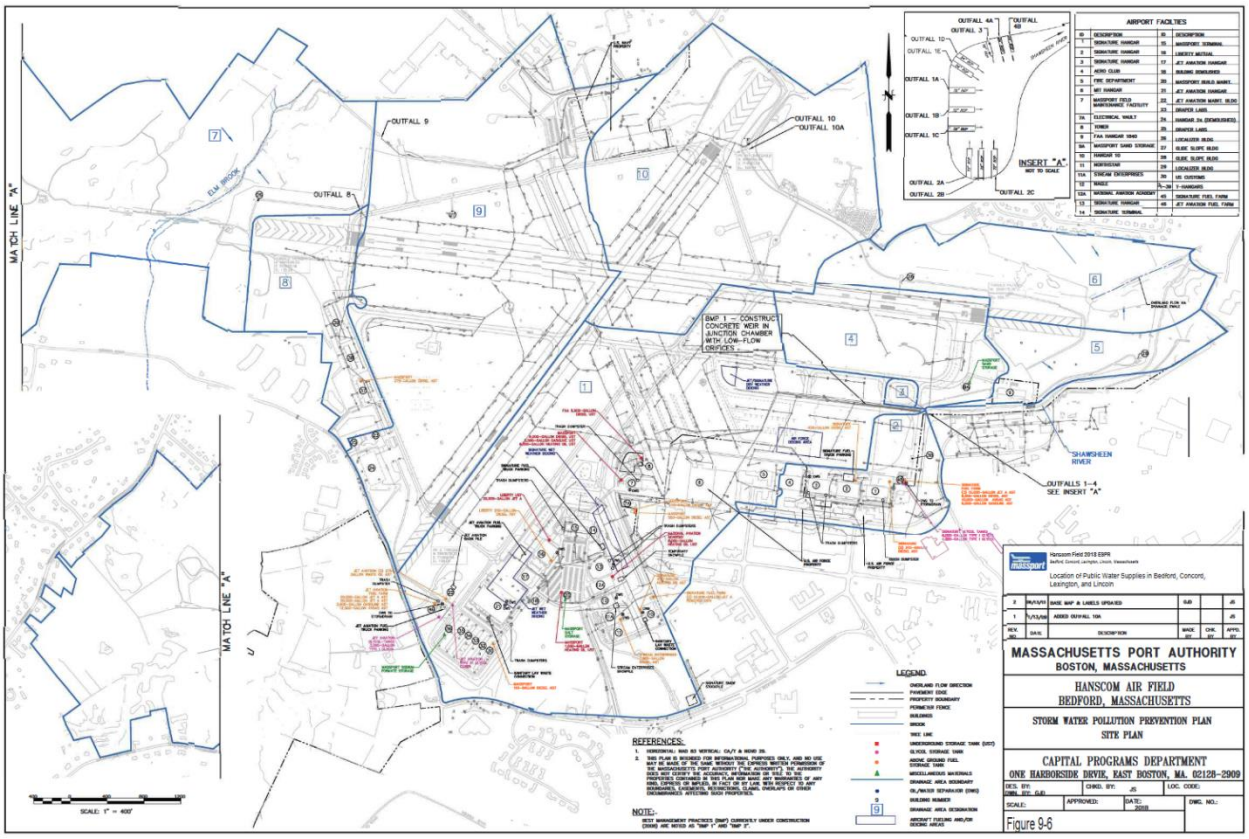
I am concerned that there is not enough detailed information in the current version of the 2022 Hanscom ESPR about airfield storm water drainage and jet fuel spill management – especially with regard to the three FBOs at Hanscom Field: Signature Aviation, Jet Aviation, and Atlantic Aviation.

For instance, the 2017 Hanscom ESPR contains an extremely useful map (titled Figure 9-6, *Storm Water Pollution Prevention Site Plan*, page 9-49), showing:

- details of airfield storm drain grate locations;
- the connecting subsurface stormwater pipes and water flow directions;
- the location of important jet fuel spill cleanup oil/water separator units;
- and the proximity and capacity of storage tanks for various fuels and chemicals used by the FBOs and Massport.

Please see maps below and on next page:

2017 Hanscom ESPR Figure 9-6, *Storm Water Pollution Prevention Site Plan* (p. 9-49)

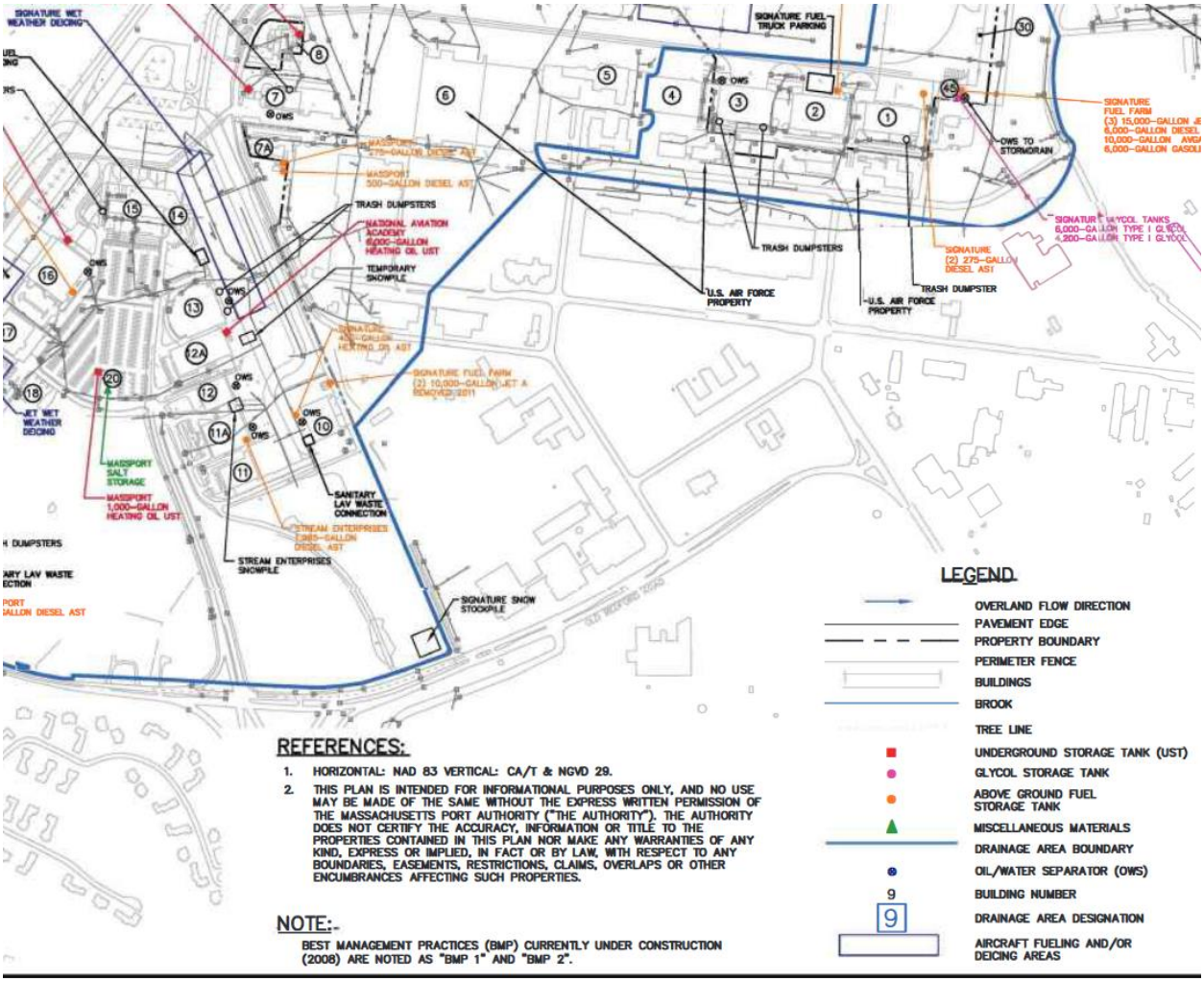


Magnified area of interest re: the March 2024 Signature FBO jet fuel spill incident at the tie-down site north of the Massport terminal:

Note: this section of **2017 ESPR Figure 9-6** shows:

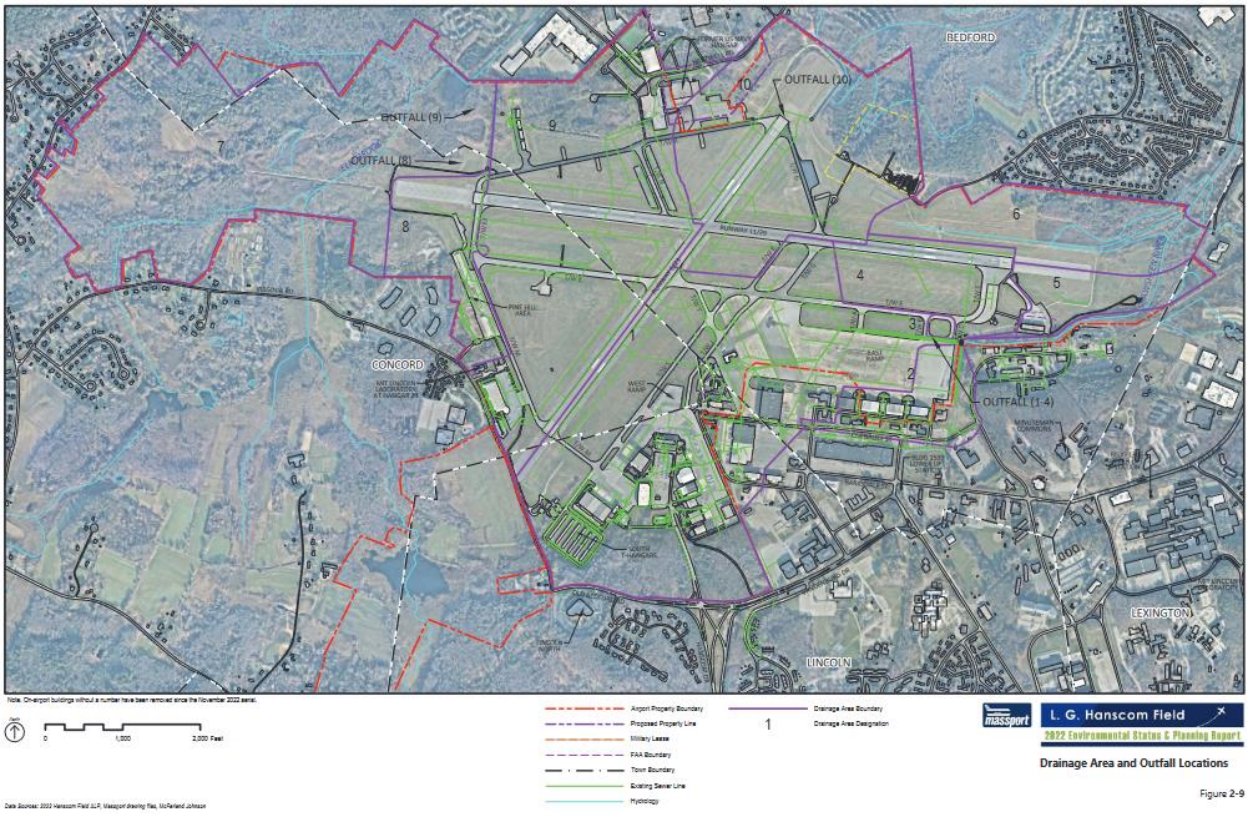
- pale gray squares = stormwater drain grates
- pale gray arrows = connecting buried infrastructure with stormwater flow direction
- crossed circles = oil/water separator units
- tie-down pavement north of the Massport terminal where the jet fuel spill occurred

All can be very useful ESPR details for officials and other interested parties to help evaluate the conflicting reports of the incident discussed at the July 16, 2024 Hanscom Field Advisory Commission meeting and in a subsequent media account – or for jet fuel spill incidents in the future.



Contrast that level of useful detail in the 2017 ESPR with the minimal information shown in the closest approximation I was able to find within the new 2022 ESPR:

2022 Hanscom ESPR, Figure 2-9, Drainage Area and Outfall Locations (page 2-31)



Note: the green lines labeled "Sewer" = the storm drainage

I am also very concerned that the jet fuel spill reporting system at Hanscom Field seems to rely heavily on the honor system. FBO management is trusted to contact the excellent Massport environmental spill response team about incidents in a timely manner and give a full account of the accident and an accurate estimate of the magnitude of the spill.

Everyone else (the Massport response team; the Massport media and community relations staff; local, state and federal environmental agencies; local and state public health departments; as well as residents of the surrounding communities) must rely on this initial information provided about the jet fuel spill provided by the FBO management.

I offer two suggestions about this 2022 Hanscom ESPR and the future of jet fuel spill reporting at this airfield:

1) **Massport should update the excellent 2017 Hanscom ESPR Figure 9-6 *Storm Water Pollution Prevention Site Plan* and then add it to the 2022 Hanscom ESPR.**

   If anything, Massport and its FBO tenants need to **add more information** about the location of airfield storm drain grates; oil/water separator types, capacities, and locations; and provide detailed information on the placement, number, and capacity of jet fuel spill clean-up kits and carts at the FBO facilities and everywhere else at the airfield.

2) **More importantly, it's far past the time for us (and Massport) to still be relying on the honor system for FBOs to accurately assess, document, and report jet fuel spills to the authorities and the public.** Although the honor system works (most of the time) for children preparing reports and doing homework, it is inappropriate for the present situation.

Although Bedford took its airfield-origin PFAS-contaminated Shawsheen municipal well-field offline several years ago (which used to provide 15% of the town's water), other **people downstream of this airfield still rely on the waters of the Shawsheen (and its tributary Elm Brook) to augment their municipal water supply.**

For instance, when the Shawsheen River level and flow permits, Burlington - if needed - sometimes helps fill its reservoir using water from the Shawsheen River diversion station. At times, Shawsheen River water may supplement the reservoir water by 50% or more.

There really is no excuse now (or in years past) for not requiring that monitoring equipment be put in place to independently, automatically and continuously sample both the Shawsheen River and Elm Brook to instantly detect and accurately identify any level of contamination by jet fuel that may make it into those streams. Whether the spill is over or under the current reportable 10-gallon limit, and whether it has or has not been accurately reported in a timely manner. (Frequent unreported small spills of aviation fuel can also add up to harm for people and wildlife downstream and the environment.)

Such continuous automated sampling and analysis can do three important things:

- Provide (for the first time ever) accurate and objective data for future Massport ESPRs (as well as for all the rest of us) about actual types and levels of airfield contaminants draining into the Shawsheen River and Elm Brook.
- Generate an extra layer of safety for people and wildlife who must rely on the Shawsheen and/or Elm Brook for use.
- Remove any incentive for FBO management to under-report jet fuel spill frequency or magnitude to avoid potential remediation expense or fines or bad publicity during proposed expansion projects.

Thank you for allowing this opportunity for members of the public to comment on the 2022 Massport ESPR.

Sincerely,

Jennifer Boles

Bedford, MA

National Trust *for* Historic Preservation®

October 4, 2024

Rebecca Tepper, Secretary
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office
Alexander Strysky
100 Cambridge Street, Suite 900
Boston MA 02114

Re: EEA No. 5484/8696 Draft 2022 Hanscom Environmental Status and Planning Report

Dear Secretary Tepper and Mr. Strysky:

We greatly appreciate the opportunity to submit comment on the Draft 2022 Hanscom Field Environmental Status and Planning Report (ESPR), on behalf of the National Trust for Historic Preservation.[1]

In 2003, the National Trust listed Minute Man National Historical Park and Environs (Concord, Lexington, Lincoln and Bedford) as one of ***America's 11 Most Endangered Historic Places,*** in response to the negative environmental impacts of the Hanscom Field Airport and plans for its further expansion. As we stated, "The noise, visual intrusions, and vehicular traffic generated by the Hanscom Field airport are already having a severe negative impact on these priceless, beloved historic sites, and on the experience of more than 1.6 million annual visitors from all over the world. Additional growth proposed by Massport would devastate them." Twenty-one years later, in 2024, the National Trust has once again included Minute Man National Historical Park, Walden and Nearby Landmarks on our list of ***America's 11 Most Endangered Historic Places,*** due to the current proposal for a major expansion of Hanscom Field Airport -- which would significantly increase private jet air traffic over the Minute Man National Historical Park and nearby landmarks, leading to increased noise, vehicular traffic, and negative environmental and climate impacts.

[1] The National Trust for Historic Preservation in the United States is a private nonprofit organization chartered by Congress in 1949 to "facilitate public participation" in the preservation of our nation's heritage, and to further the historic preservation policy of the United States. *See* 54 U.S.C. § 312102(a). With more than one million members and supporters around the country, the National Trust works to protect significant historic sites and to advocate historic preservation as a fundamental value in programs and policies at all levels of government. In addition, the National Trust has been designated by Congress as a member of the Advisory Council on Historic Preservation, which is responsible for working with federal agencies to implement compliance with Section 106 of the National Historic Preservation Act. *Id.* §§ 304101(8), 304108(a).

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Since the National Trust's 2003 *Most Endangered* listing, and within the last decade,

> "Massport data shows the gross private jet hangar space at Hanscom Field has increased from 283,000 sq. feet to 478,614 sq. ft, representing a 70% increase. The proposed project, at 522,380 gross square feet, represents more than doubling of the airport private jet hangar capacity. This single project would add the same level of jet hangar capacity that was built at Hanscom incrementally over the prior 60 years."[2]

The Runway Reality Venture North Airfield development project alone could increase jet overflights by approximately 6,000,[3] which represents a 16% increase of jet operation impacts over these already endangered historic sites. In addition, the ESPR states that between 2030 and 2040, four other sites will be slated for development (and or rehabilitation), including: "Northeast Airfield, East Ramp, West Ramp, Pine Hill and other."[4]

These Massport ESPR plans and projections for future additional infrastructure development unfortunately ignore the current environmental impacts reported by Minute Man National Historical Park:

> "The park is currently impacted by the constant sound of aircraft flying over the park during interpretative events, especially in some of our most sensitive areas for the visitor experience including the North Bridge unit, the Hartwell Tavern area, and along the Battle Road Trail. Any project which could further exacerbate these current noise issues will result in a cumulative degradation to the park."[5]

The ESPR illustrates that Massport's objective is to accommodate demand *and induce additional demand* for the use of Hanscom Field as the largest "premier" jetport facility in New England.[6] Massport's ESPR projects an increase of environmental impacts on the abutting, and already negatively impacted, national historic resources as both inevitable and acceptable. Massport states:

> "Though total operations decreased between 2017 and 2022, as shown in Figure 7-1, operations by jet aircraft and the number of nighttime flights increased which resulted in some increase in noise under the main flight

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[2] IEc Report: Analysis of Greenhouse Gas Emissions Impact of Proposed Expansion of Hangar Capacity at Hanscom Field (Apr. 4, 2024), at p.4 (available at https://drive.google.com/file/d/10GDtx7tZgpk-H4PM0_5jAM1APfnRKE_c/view).

[3] *Id.* at p.2.

[4] ESPR, section 4.2.5 (Five-Year Capital Improvements, p.4-45 and Table 4-8, p.4-27).

[5] Minute Man National Historical Park, public comment to MEPA re DEIR for North Airfield Development project (June 3, 2024).

[6] ESPR, at p.5-3.

> paths. . . . With an increase in the forecasted level of aircraft operations, noise is anticipated to increase from 2022 to 2030 and then again to 2040."[7]

Minute Man National Historical Park, Great Meadows, and numerous National Historic Landmarks are located directly under the "main flight paths" of Hanscom Field Airport.

Massport's ESPR depicts no historic resources within the 65 DNL contours (the FAA defines 65 DNL as incompatible with human residences).[8] However, DNL measurements fail to relate to the actual experience of visitors to national parks where the ambient soundscape levels are low, and where the ability to hear interpreters and reenactors outdoors is integral to a meaningful experience. The DNL metric is merely an *average* of the noise levels over a 24-hour day and night period. But that average, in this case, includes both extremely high single-event noise levels from the jets, and extremely low ambient noise levels without the jets. So the metric conveying an average of those two extremes is not a meaningful measure for evaluating noise impacts under these circumstances.

It is the Time-Above (TA) contours[9] that show the duration of outdoor disturbances. These contours provide more relevant information about the true impacts on Minute Man National Historical Park due to the expansion plans projected in the ESPR. Both the North Bridge Unit and well over half of the Battle Road Unit of the Park are depicted as fully encompassed by the 55 dBA 30-minute contour by 2040. At 55 dBA, it is expected that Park Service interpreters and reenactors will be increasingly drowned out by aircraft noise, rendering their presentations inaudible to visitors. Great Meadows National Wildlife Refuge, at an even closer proximity to runway 11/29, is depicted as approaching the 60-minute TA 55 dBA contour, corresponding to expected noise impacts nearly double those at the Minute Man National Historical Park.

What the ESPR fails to acknowledge is that, within a historic area reminiscent of an 18th century soundscape, where ambient sound levels range from 30-35 dBA, jet aircraft noise accounts for significant, jarring, and negative impacts. Although the ESPR states that the EPA has identified DNL as an "appropriate" measure of noise, that appropriateness was based on criteria such as: "The single measure of noise at a given location should be predictable, within an acceptable tolerance, from knowledge of the physical events producing the noise."[10] None of the criteria justifying the use of the DNL relate to outdoor disturbance experiences.

To the millions who visit the 18th century-commemorative Minute Man National Historical Park, jet noise events are unexpected, unsettling, and antithetical to experiencing a national park that imparts the living history story of the events of April 19, 1775. In fact, the noise

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[7] ESPR, at p.7-3.

[8] ESPR, Figure 10-9.

[9] ESPR, at p.7-21.

[10] ESPR, at p.7-8.

projections shown in the TA figure on page 7-21 are probably unrealistically low -- as they are based on an assumption that the annual growth in jet operations will be only 1.37% per year. This level of operations growth does not appear consistent with either the very large planned increases in the North Airfield hangar capacity described earlier, or with the recent growth at the Airfield, or with industry projections, which assume a Compound Annual Growth Rate of approximately 5%.

As we approach the 250th Anniversary of the "shot heard round the world," we are reminded that the landscape and sites that define the beginning of our nation are finite, vulnerable, and irreplaceable. When their environment is degraded, our history is degraded. We look forward to a future Massport ESPR that more appropriately reflects the foresight called for to protect these resources from further negative impacts. We also look forward to a future ESPR that acknowledges the critical role that the Federal Interagency Working Group,[11] established during the Clinton administration in 2001, can and must play in establishing proper limits to unnecessary Hanscom Field development plans that threaten the preservation of these iconic, inspirational, and hallowed American landscapes. Finally, we look forward to the day when Minute Man National Historical Park and its historic and natural environs are no longer considered one of ***America's 11 Most Endangered Historic Places***.

Sincerely,

Elizabeth Merritt

Elizabeth S. Merritt
Deputy General Counsel

cc: Simone Monteleone, Superintendent, Minute Man National Historical Park
Brona Simon, Massachusetts SHPO

[11] ESPR, at p.10-47.

CHRISTOPHER ELIOT PHD

Rebecca Tepper, Secretary
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office

September 8, 2024

Alexander Strysky, MEPA Analyst for the Project
100 Cambridge Street, Suite 900
Boston MA 02114

Re: Draft 2022 Environmental Status and Planning Report (ESPR)

Dear Secretary Tepper and Mr. Strysky:

Thank you for the opportunity to submit public comments on the Draft 2022 Environmental Status and Planning Report (ESPR). We also extend our appreciation for the bold climate and environmental protection goals you have set forth for our Commonwealth.

The 2022 Hanscom ESPR is an excellent source of factual information. The many maps, tables, figures and descriptions are very helpful to everyone interested or concerned about the airport. However, there are areas where the document relates to issues of opinion, judgement or prediction that require qualification or revision. In particular, the predictions of future growth for private jet travel are in direct conflict with the expressed goals of citizens in the region and the state because of the undesirable climate impacts. The section on noise also contains value judgements regarding acceptable levels of noise that are out of date and contradicted by recent research.

The predicted growth in private jet travel is troubling. Over 1,300 letters concerning the North Airfield DEIR were sent to MEPA, almost all opposed to the project for environmental reasons. The Massachusetts House and Senate have both approved changed to the Massport Charter (currently subject to legislative reconciliation). The modified charter would require Massport to consider climate impacts for all projects and is directly aimed at the North Airfield project. Together these facts document the desire of the regional population and State Legislature to reduce or avoid growth in private jet travel. It can be expected that this sentiment will continue and will be at least partly effective in reducing growth in this sector. The predictions in the 2022 ESPR do not take these factors into account and should be revised downward. Furthermore, the predictions should be shown as a range to capture the uncertainty of future predictions. The current document provides one number as a prediction implying an unreadable level of certainty. The North Airfield DEIR used predictions from a previous edition of the ESPR as if it were a factual description of the future activity level, and then assumed that level as a baseline for further predictions. The language of the ESPR should make that these predictions cannot be used as a known fact.

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The description on noise and noise metrics also contains flaws, which were detailed in the MassportCAC letter responding to the FAA Noise Polity Review last year. I participated in drafting that letter, which includes the following paragraph:

“The FAA adopted 65 dBA DNL as the threshold for significant aviation noise, below which residential land uses are compatible. This was based on the Schultz curve, which showed that 12.3% of the population was “highly annoyed” at this 65 DNL. Subsequent research (the NES) has shown that many more people are highly annoyed at much lower DNL levels than was estimated in the 1970s by the Schultz curve. If the same logic was to be applied to that research (that 12.3% of the population being highly annoyed is where the regulatory threshold should be set), the regulatory DNL threshold would be set at approximately 45 DNL instead of 65 (a higher percentage of people are “highly annoyed” at that level than were at 65 DNL when the Schultz curve was created).”

I respectfully request your support in updating the ESPR to address these concerns, emphasizing the urgent need for all sectors, in all locations, to work collaboratively towards reducing CO_2 emissions and meeting our critical climate, health and environmental goals.

Sincerely yours,

Christopher Eliot, PhD.

Lincoln, Massachusetts

Additional Concerns:

In Section 1.2 the ESPR states of the Great Meadows National Wildlife Sanctuary, Minuteman National Park and Hanscom Air Force Base that “These large land holdings provide a buffer between Hanscom Field and residential areas.” While this is technically true, there is an implication that noise and aircraft emissions are OK in these areas, which is false. The Air Force base is the location where many people work and live - they should be protected - and the National Park and Wildlife Sanctuary are popular recreational and educational sites. Noise disturbs the wildlife and park visitors so it is inaccurate to call these “buffer areas” even if they are not residential areas.

Section 1.5.6 “Land use compatibility guidelines generally consider aircraft noise greater than DNL 65 dB to be non-compatible with residential land uses.” There should be a prominent note that community groups challenge this conclusion. The WHO uses a lower limit and the EPA recommends a lower limit. See the attached letter from MassportCAC elaborating on this point.

In section 1.5.7 the ESPR states “GHG emissions also continue to represent a small fraction of statewide GHG totals.” I believe this only includes direct, i.e., ground sourced GHG emissions and does not include GHG resulting from aviation activities. Since the whole purpose of an airport is to support aviation, this is misleading and needs to be clarified. Furthermore, GHG emission reductions are meant to be calculated separately for each industry so it is incorrect to compare Hanscom GHG emissions with the statewide totals. Instead, Hanscom should show a steady decrease from now until 2050 when compared with itself.

Section 1.5.10 "Additionally, in early 2022, Massport committed to achieving net-zero carbon emissions across all of its properties, including Hanscom Field, through its Roadmap

to Net Zero program by 2031." Please clarify that this only applies to the Massport properties specifically and does not apply to the consequences of the operations such as aviation and shipping. When the predicted increase in jet operations is fully included in these calculations (including whole trip emissions) Hanscom should show steady decrease in GHG emissions from now until it achieves net zero at 2050.

Section 3.4 page 3-13 There should be a discussion of future aviation technology, especially electric aircraft, eVtol, eCtol including expected year of introduction and forecast operation levels. Currently, this information is only available in piecemeal form from various companies that do not provide reliable or uniform information.

Section 7.2 Page 7-5 "Noise is unwanted and/or harmful sound" <https://apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2022/01/07/noise-as-a-public-health-hazard>

Page 7-5 "Nevertheless, aircraft are readily identified by their noise and are typically singled out for special attention and criticism. " This sentence is misleading. There is research showing that aircraft noise is objectively worse than other sources of noise. It is not just perception.

Page 7-6 "It is often true that one person's music is another person's noise." Please add "However, there are involuntary reactions to noise that harm human health including both physical damage to the ears and stress reactions that cause systemic problems including cardiovascular impacts and increased risk of death." The systematic attempt to minimize the harm from noise throughout this chapter is troubling and conflicts with recent research showing noise to increase mortality.

Page 7-6 "sound pressure levels above 120 dB begin to be felt inside the human ear as discomfort and eventually pain at still higher levels." Please add "Sounds at 85 dBA can lead to hearing loss. … Impulse noise greater than 140 dBP will hurt your hearing right away." <https://www.asha.org/public/hearing/loud-noise-dangers/>

Page 7-7 "While such metrics are often viewed as downplaying the importance of individual aircraft operations, they are extremely good indicators of community annoyance with complex noise environments, and they have become widely accepted as the most appropriate means of evaluating land use planning decisions." Please delete this sentence. These noise metrics are not generally accepted and have been widely criticized by the scientific community.

Page 7-6 "The U.S. Environmental Protection Agency (EPA) identified DNL as the most appropriate means of evaluating airport noise based on its criteria, as follows:" The citation is from 1974 and is out of date. The EPA position has changed and never fully enforced the FAA conclusions. The original EPA recommendation was for a DNL limit of 55 DNL.

Page 7-6 "Despite DNL meeting these criteria, the lay public often criticizes the use of DNL as an inaccurate representation of community annoyance and land use compatibility with aircraft noise" This sentence is offensive since it dismisses the fact that many well-respected scientists offer the same criticism. The whole paragraph is wrong. The fact that the FAA is reviewing its own noise policy (ESPR Page 7-9) shows that there is significant doubt about the metrics.

Page 7-9 "In late 2021, the FAA initiated a review of its noise policy as part of their ongoing commitment to address aircraft noise." This should be discussed on page 7-2 under "Key Findings", not buried in the text.

Page 8-11 Please clarify if the Massport plan includes indirect GHG emissions caused by in-flight emissions and maritime operations. This information is given later on page 8-30 but needs to be discussed earlier in the chapter.

Page 8-20 Analysis of aircraft emissions should include a cross check based on the quantity of fuel sold multiplied by the carbon content of the fuel.

Page 8-37 “As of writing, it is still unknown exactly when 100UL will become a readily available resource at all airports.243” Please update to reflect that Vitol corporation has already made this fuel available to all airports. <https://www.vitol.com/first-unleaded-octane-avgas-now-commercially-available/> Please consider revising the lead-free plan to improve the schedule based on using this source.

Page 8-38 “Because SAF production and use is still in its infancy, there is significant uncertainty in the feedstock and production processes that will be used to deliver future fuel to Hanscom Field.” please add “Critics of this plan question the viability of producing SAF in the quantities required and also dispute its environmental benefits. The production of SAF using corn or soybeans may disrupt food production. The amount of used-cooking oil available for production of SAF is minuscule in comparison with the quantity required. Production of SAF from seaweeds or algae has not been demonstrated and has unknown risks to the ocean environment.”

Page 9-30 A PFAS-free firefighting foam has been approved for airport use. Is there a plan to convert to PFAS free firefighting foam at Hanscom Airport?

Page 9-33 “as well as conducting a plume stability study to determine if potential optimization or alternative remedial actions are required.” If the North Airfield project proceeds, wouldn’t it disrupt the plume stability study?

Table 10-9 Page 10-29 This table would be more useful is the approximate size of each site was included. Also for Table 10-10, 10-11, 10-12.

Page 11-39 There should be a section describing public health statistics for the region. For example, the area around Hanscom field has a significantly elevated cancer rate. This information should be available for all populations, not just EJ and then overlayed with EJ census tracts.

MCAC
Massport Community Advisory Committee

September 29, 2023

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

Submitted via: Federal eRulemaking Portal

Re: Docket # FAA-2023-0855 FAA Request for Comments on Review of Civil Aviation Noise Policy

To Whom It May Concern:

Please accept this comment letter from the Massachusetts Port Authority Community Advisory Committee (MCAC) on the Review of the Federal Aviation Administration's (FAA) Civil Aviation Noise Policy pursuant to the notice published in the Federal Register on May 1, 2023. The MCAC is a legislatively created committee (See 2013 Mass. Acts Ch. 46, §§ 55, 82, as amended) comprised of representatives from thirty-five communities impacted by the Massachusetts Port Authority's (Massport) operations. Our statutory purpose is to provide oversight to Massport in order to minimize and mitigate the impacts that Massport has on our member communities. The MCAC appreciates the opportunity to comment on this important initiative and looks forward to working collaboratively with the Federal Aviation Administration, Massport, local, state, and federal elected officials to ensure that the federal noise regulations appropriately consider and mitigate **the adverse health impacts of aviation noise** on communities across the country.

Noise has been recognized as a public health problem for decades, though even today far too many people remain exposed to harmful levels of aviation noise. The Noise Control Act of 1972 declared that "it is the policy of the United States to promote an environment for all Americans free from noise that jeopardizes their health or welfare."[1] Noise from all transportation sources including air, rail, and surface transportation is rightly covered by this law. The health impacts from each source are linked biologically in how we experience and react to noise. For purposes of this response, however, we are addressing aviation noise specifically. **We agree that the paramount reason for regulating aviation noise must be to protect the health of the people on the ground**. The FAA has recognized in creating flight paths that it has the authority and, in fact, the obligation to do so. [2] That promise remains unfulfilled to this day.

[1] Noise_Control_Act_of_1972.pdf (gsa.gov)

[2] The FAA has broad authority and responsibility to regulate the operation of aircraft, the use of the navigable airspace and to establish safety standards for and regulate the certification of airmen, aircraft, and air carriers. (49 U.S.C. 40104 *et seq.,* 40103(b)). The FAA's authority for this rule is contained in 49 U.S.C. 40103 and 44715. Under section 40103, the Administrator of the FAA has authority to "prescribe

Though some progress has been made in aircraft technology that has made airplanes quieter over the past several decades, people in communities near airports as well as overflight communities continue to be affected by persistent aviation noise that negatively impacts their health. The FAA represents that one flight by a typical commercial aircraft in the 1950's is roughly equivalent to the noise produced from 30 flights by a typical jet today. [3] Unfortunately, the number of aviation operations that occur today and Performance Based Navigation (PBN) flightpaths erase any benefits from this quieter technology. Though the concentration of flight paths by the RNAV system implemented nationally means that fewer people are exposed to aviation noise levels above the current regulatory threshold (**which we assert is inadequate to protect public health**), there remains by the FAA's own estimates over 400,000 people who are experiencing unhealthy aviation noise levels. Those people are also exposed to more flights because the RNAV system also reduces the required horizontal spacing between aircraft.

Despite these facts, even this estimate of the number of people exposed to unhealthy aviation noise masks the truth on the ground. As is clear from the Neighborhood Environmental Survey (NES), many more people are highly annoyed at DNL levels between 45 DNL and 65 DNL than are annoyed (and thus subject to negative health effects) above the current 65 DNL regulatory threshold. Even so, above the FAA's current noise threshold (65 DNL), the adverse noise impacts are borne by far fewer people even as the number of operations particularly at night has increased dramatically. It stands to reason that these people are constantly subjected to the adverse effects of aviation noise from early in the morning until late at night. Indeed, many of our member communities complain of being awakened during the night by flights out of Logan International Airport on a regular basis. So, even if we accept that fewer people are exposed to aviation noise at 65+ DNL today than fifty years ago, the number of flights that they are experiencing at all sound levels is much greater resulting in persistent harmful noise.

The FAA has been regulating noise impacts since the 1970's. The Aviation Safety and Noise Abatement Act of 1979 required FAA to develop a system for analyzing aircraft noise exposure that must have a high degree of correlation between the projected noise exposure levels and the surveyed reactions of people to those noise levels and must account for the intensity, duration, frequency, and tone of noise-producing activity as well as the time of occurrence. [4] A review of the literature shows that when the FAA initially established 65 DNL as the level at which residential land use was incompatible with airport operations, this noise threshold was not in accordance with the recommendation from the Environmental Protection Agency which served as part of the federal working group researching this issue. In 1974, as mandated by Congress in the Noise Control Act of 1972 and before the implementation of NextGen technologies, the Environmental Protection Agency calculated that the safe noise level to prevent outdoor activity interference and annoyance was Ldn =<55 dB and to prevent indoor activity interference and annoyance in residential areas was only Ldn =< 45 dB (Ldn = DNL).[5] From the beginning,

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air traffic regulations on the flight of aircraft (including regulations on safe altitudes) for * * * (B) protecting individuals and property on the ground. (49 U.S.C. 40103(b)(2)). In addition, section 44715(a), provides that to "relieve and protect the public health and welfare from aircraft noise," the Administrator of the FAA, "as he deems necessary, shall prescribe * * * (ii) regulations to control and abate aircraft noise * * *"

From: Federal Register :: The New York North Shore Helicopter Route

[3] Based on an average of approach and takeoff certificated noise levels as defined in 14 CFR part 36.

[4] 49 U.S.C. 47502 (2).

[5] EPA, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (1974) https://www.nonoise.org/library/levels74/levels74.htm

the 65 DNL level contradicted the best science available (as well as the recommendation of the Environmental Protection Agency) and ignores the health impacts of aviation noise on people on the ground and does so to this day.

The FAA adopted 65 dBA DNL as the threshold for significant aviation noise, below which residential land uses are compatible. [6] As discussed later in more detail, this was based on the Schultz curve, which showed that 12.3% of the population was "highly annoyed" at this 65 DNL. Subsequent research (the NES)[7] has shown that many more people are highly annoyed at much lower DNL levels than was estimated in the 1970s by the Schultz curve. If the same logic was to be applied to that research (that 12.3% of the population being highly annoyed is where the regulatory threshold should be set), the regulatory DNL threshold would be set at approximately 45 DNL instead of 65 (a higher percentage of people are "highly annoyed" at that level than were at 65 DNL when the Schultz curve was created). If the FAA were to determine as a result of this noise policy review that DNL will remain the sole metric for regulating noise (which we do not recommend), then 45 DNL would be a more appropriate threshold to protect human health. That level is consistent with the results published in the World Health Organization Europe's Systematic Review in 2018. That body recommended a level of approximately 45 DNL as the proper regulatory threshold.[8] We support this conclusion.

For almost fifty years, the FAA has recognized that aviation noise poses a public health problem. The FAA's 1976 Aviation Noise Abatement Policy states: "Aircraft noise disturbs the normal activities of airport neighbors--their conversation, sleep, and relaxation and degrades their quality of life. Depending on the use of land contiguous to an airport, noise may also affect education, health services, and other public activities."[9] Since that time, an enormous body of research suggests just how pervasive are the health effects of aviation noise. Chronic noise, even at low levels, can cause annoyance (as reflected in the Schultz curve and the NES cited above), sleep disruption, and stress that contributes to cardiovascular disease, cerebrovascular disease, metabolic disturbances, exacerbation of psychological disorders, and premature mortality.[10] It is imperative that the FAA's noise policy protects against these health effects.

Using only the DNL metric has not accurately reflected the lived experience of community members on the ground, particularly those beneath the concentrated flight paths post-RNAV. As an averaging metric, DNL is not appropriate for measuring annoyance or health impacts from noise. As discussed more fully in our response to specific questions, we must approach the noise problem for what it is, a **public health issue**. Using annoyance as an indicator minimizes and trivializes the lived experience of people living near airports and in overflight communities who experience persistent and repetitive noise day and night.[11] As former U.S. Surgeon General William H. Stewart said in 1978, "[c]alling noise a nuisance is like calling smog an inconvenience. Noise must be considered a hazard to the health of people everywhere." In order to fully address this issue, FAA will need to rely on the expertise of the public health, medical, and epidemiological communities in determining the appropriate way(s) to measure aviation noise impacts. Just as a doctor would not rely only on blood pressure to diagnose a patient, so the FAA must

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[6] FAA History of Noise, https://www.faa.gov/regulations_policies/policy_guidance/noise/history#
[7] Analysis of the Neighborhood Environmental Survey, HMMH Report No. 308520.004.001, January 2021, page xi.
[8] World Health Organization. Environmental Noise Guidelines for the European Region. Copenhagen: World Health Organization Regional Office for Europe: 2018.
[9] Aviation Noise Abatement Policy, Department of Transportation, November 18, 1976 (p.12)
[10] Noise as a Public Health Hazard (apha.org) (accessed August 31, 2023).
[11] See letter attached as Appendix 1, Letter from Medford, MA resident

not rely solely on DNL to understand and fix the aviation noise problem. We strongly recommend a National Academies Division of Medicine consensus report on aviation noise effects on public health to provide an independent, scientific, expert opinion. In addition, other metrics, like N-above which indicates the number of noise events above a certain dBA level, and T-above which measure persistent noise must be used to determine significant noise impacts. Additional metrics and risk equations that go with these metrics are required to develop a full understanding of the health implications of aviation noise.

Over the past 50 years significant progress has been made in understanding the correlations between aviation noise and health outcomes. Unfortunately, none of the expertise required to understand and apply this research is represented at the FAA. The FAA should rely on federal agencies with expertise in health to develop a holistic and defensible approach to aviation noise. Toward this end, we support Congressman Steven Lynch's Air Traffic Noise and Pollution Expert Consensus Act, H.R. 2562 which would require such a committee.[12] Health experts are needed to address health problems. We further support a National Academies consensus report on aviation metrics and thresholds that includes the Division of Medicine. Here again, Congressman Lynch's Peer-Reviewed Report on Measuring Metrics and Thresholds, H.R. 2561, mandates such a report.[13] The research exists to support the use of alternative metrics and lower noise thresholds; the FAA should use this expertise to **develop a more robust and health-protective noise policy**.

Additionally, whatever metric or metrics are chosen as a result of this process, the FAA must ensure that there are some teeth to the regulation. DNL has been used for planning purposes only; enforcement when these levels are "violated" are non-existent. The only outcome is eligibility for sound insulation or other mitigation. The FAA must be willing to adopt remedies like a noise surcharge which will push the industry in the direction of using quieter aircraft. Enforcement of more stringent regulations is a powerful form of communication with the airline industry and should be used by the FAA to protect the health of people on the ground. **In addition, noise must be added to safety and efficiency as measurable stated goals for aircraft operations**. Flights from Logan International Airport to Paris are among the quietest that use the airport precisely because the Paris airports impose a noise-based landing fee. This option should be available at domestic airports around the country. [14] Seattle-Tacoma International Airport recently worked with a carrier, EVA Airlines, to ensure that nighttime flights used the quietest planes in the fleet to reduce noise impact.[15] The FAA must also have increased funding to implement a more robust noise policy. Money must be available to support airports in their efforts to mitigate the health-impacting noise that results from aviation operations. These interventions will help the FAA to truly achieve its mission of protecting the safety of not only the flying public but also the people on the ground who are subject to persistent aviation noise which affects their quality of life and health.

Thank you for the opportunity to submit these comments on the FAA's Noise Policy. Our answers to the specific questions asked in the Federal Register are enumerated below. If you have any questions, or

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[12] Actions - H.R.2562 - 118th Congress (2023-2024): Air Traffic Noise and Pollution Expert Consensus Act of 2023 | Congress.gov | Library of Congress

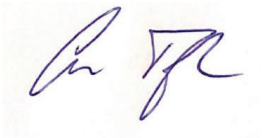
[13] Text - H.R.2561 - 118th Congress (2023-2024): Peer-Reviewed Report on Measuring Metrics and Thresholds | Congress.gov | Library of Congress

[14] ADP (parisaeroport.fr) (accessed August 15, 2023).

[15] Why Seattle Asked EVA Air To Change From A Boeing 777 To A 787 For Night Flights (simpleflying.com)

would like more information from the Massport Community Advisory Committee, please feel free to contact Aaron Toffler at atoffler@massportcac.org.

Very truly yours,



Aaron Toffler, Executive Director
Massport Community Advisory Committee

cc: Senator Edward Markey
Senator Elizabeth Warren
Representative Stephen Lynch
Representative Ayanna Pressley
Representative Katherine Clark
Representative Jake Auchincloss
Representative William R. Keating
Representative Seth Moulton
Representative James McGovern
Representative Lori Trahan
Representative Richard Neal
MCAC Members