2020 Airport Noise Zone Update

Martin State Airport

December 2020

MARYLAND DEPARTMENT OF TRANSPORTATION

MARYLAND AVIATION ADMINISTRATION

MARTIN STATE AIRPORT

2020 Airport Noise Zone Update

Martin State Airport

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Executive Summary

Introduction

Martin State Airport (MTN) is owned by the State of Maryland and operated by the Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA). MTN is located in Middle River, Maryland.

Maryland law requires the protection of citizens from the impact of transportation related noise. MDOT MAA is required to adopt an Airport Noise Zone (ANZ) that minimizes the impact of aircraft noise on people living near MTN and prevents incompatible land development around the airport. MTN is also required to implement a Noise Abatement Plan (NAP) if an impacted land use area exists within the noise zone. Although there are no impacted land uses within the MTN noise zone, MTN has adopted a NAP in the past and will continue to do so.

Noise analysis required to complete the ANZ study results in a better understanding of current and future noise conditions at the airport for both MDOT MAA and MTN stakeholders, including communities surrounding MTN. The ANZ update intends to account for changes in total annual aircraft operations, aircraft types, and aircraft flight paths, which may result in changes in overall aircraft noise levels. Updating the ANZ involves studying airport noise and developing noise contours for both existing and future conditions at MTN necessary for local land use planning. The ANZ provides a means for MDOT MAA to identify, control, and prevent incompatible land development around the airport. The study also includes a review of the MTN NAP. The NAP prescribes measures to monitor and reduce or eliminate impacted land use areas to the extent feasible, while maintaining efficient airport operations.

Public Engagement

The ANZ update process includes multiple public consultation efforts to ensure that MTN stakeholder input is reflected in the resulting ANZ contour and NAP documentation. This public involvement component included two major initiatives: voluntarily forming and convening a Stakeholder Advisory Committee (SAC); and conducting a public workshop and hearing.

The SAC convened representatives of stakeholder groups affected by airport activities to ensure that these groups were informed of the 2020 MTN ANZ update process and methodology. Members of the SAC were invited to participate throughout the MTN ANZ update process by reviewing study inputs, assumptions, analyses, and documentation. They were also encouraged to provide input, advice, and guidance related to the NAP. They were invited to share pertinent MTN ANZ update information with the groups or any interested citizens that they represent.

The SAC convened twice during the ANZ update process. SAC members served in an advisory role to the MDOT MAA solely for purposes of the MTN ANZ update process. The SAC is composed of stakeholders representing all significant interests at MTN:

- Local government planning staff
- Community organizations
- MTN tenants and users
- Aviation trade associations

As required by Maryland law, a public workshop and hearing were held concerning the 2020 MTN ANZ on January 26, 2021. The public workshop and hearing afforded all interested persons with an opportunity to comment on proposed revisions to the MTN ANZ and NAP.

Airport Noise Zone

The ANZ is an area specified by noise level contours in terms of the Day-Night Average Sound Levels, abbreviated DNL or Ldn. The study process considered existing conditions (2019) and forecast conditions in 2025 and 2030.

This 2020 MTN ANZ document includes the DNL noise contours for the following three conditions:

- Base year 2019 conditions with the current runway layout;
- Five-year post certification, forecast 2025 conditions, with the updated runway layout as identified in the MTN Airport Layout Plan (ALP);
- Ten-year post certification, forecast 2030 conditions, with the updated runway layout as identified in the MTN ALP.

The ANZ, as shown in Figure ES-1 is a composite of the three contours described above. The 2020 ANZ represents the largest extent of the annual DNL contours for each of the three study years (2019, 2025 and 2030) and is defined to provide the largest area of the existing or future noise exposure contours for planning purposes. The noise contours are presented in five-decibel increments, from 65 dB to 75 dB.

The 65 dB DNL contour for the 2020 ANZ is 411 acres in size and remains almost entirely on airport property (approximately 96%). The noise contour extends beyond airport property in three areas:

- An area approximately nine acres in size on the north side of the airport off of the approach end of Runway 15 over compatible land uses including portions of the Amtrak railroad track and Eastern Boulevard due to military maintenance runups of A10 aircraft on the Maryland Air National Guard ramp area;
- An area approximately one acre in size on the northwest side of the airport along Wilson Point Road off of the approach end of Runway 15 due to the Baltimore City Police helipad location and the addition of a civilian aircraft runup location; and
- An area approximately seven acres in size on the south side of the airport over Frog Mortar Creek off of the approach end of Runway 33 due to fixed wing arrival operations and helicopter activity at the Maryland State Police Helipad.

The 2030 forecast year contour dominates the overall extent of the 2020 ANZ contour due to projected higher operations levels. The one exception to this is the area immediately off the departure end of Runway 33 where aircraft operations are projected to shift to the northwest due to the changes in the future configuration of the runway layout for Runway 15/33 that currently is dominated by the 2019 base year contour.

In conjunction with development of the 2020 ANZ DNL contour, land use within the contour boundary as well as land use in the vicinity surrounding MTN was analyzed. Maryland law considers all land uses compatible below 65 dB DNL. The 2020 ANZ represents a 4% increase from the 394 acres contained within the previous ANZ. This increase is attributed in part to increased operations and the future configuration of the runway layout for Runway 15/33, which may reconfigure each end of the existing runway for civilian aircraft. The 2020 ANZ does not include any noise-sensitive land uses (such as residential or educational), as shown in Figure ES-1.

Noise Abatement Plan

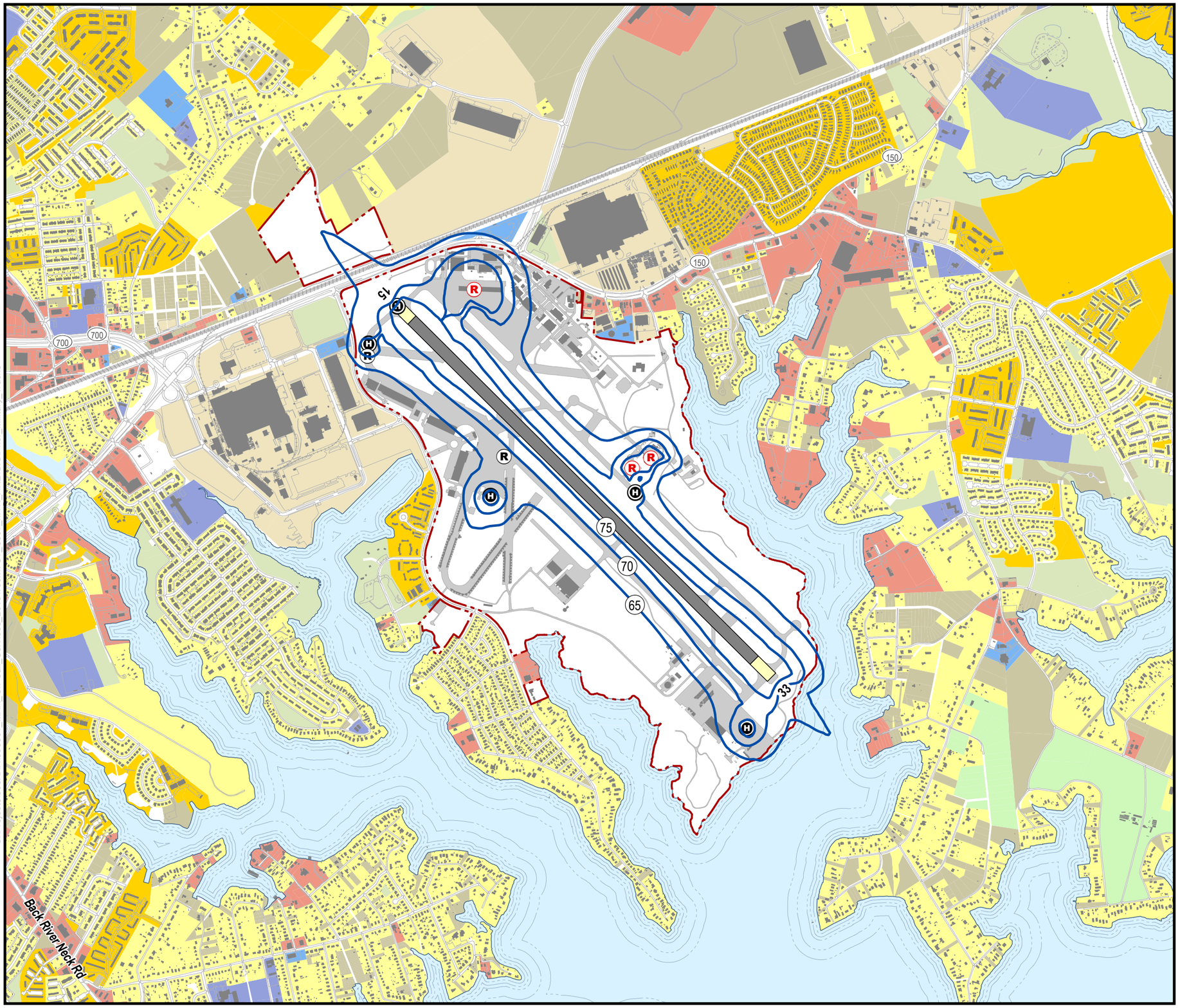
MDOT MAA has a long history of noise abatement at MTN. The NAP[1] is designed to minimize the noise of aircraft operations within the constraints of the Federal Air Traffic Control System and ensure aircraft safety. The NAP was developed with the cooperation of Maryland Air National Guard (MDANG), airport users, the aviation industry, and local governments. The NAP was reviewed and updated as part of the 2020 MTN ANZ update process in order to accurately reflect current operating conditions at MTN.

The NAP is formulated to minimize noise disturbance to neighboring communities while maintaining safe and efficient MTN Airport operations. The MDOT MAA Division of MTN Airport Operations is responsible for the overall administration of the MTN NAP.

Per COMAR Section 11.03.02.10C(3)(b), the Maryland Air National Guard, the Maryland State Police, and local law enforcement agencies are exempt from the provisions of this regulation when operational necessity dictates noncompliance, or in the event of a State or national emergency.

The NAP is comprised of two parts; (1) the efforts MDOT MAA is taking to mitigate noise in the areas surrounding MTN, and (2) aircraft operating procedures.

[1] The MTN NAP is established pursuant to the Maryland Environmental Noise Act of 1974 (Transportation Article, §§ 5-805, 5-806, and 5-819, Annotated Code of Maryland) and COMAR Section 11.03.02.10. http://mdrules.elaws.us/comar/11.03.02.10



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Airport Noise Zone Update

Figure ES-1

MTN ANZ Update 2020 ANZ Contours

- 2020 Airport Noise Zone DNL Contours
- Airport Boundary
- Helicopter Operation Area
- Military Runup Location
- Civilian Runup Locations
- Civilian Runway (Future)
- Additional Runway Available for Military Operations
- Roads
- Railroad
- Stream / Creek
- Buildings
- Residential Use
- Recreational / Open Space
- Multi-Family Residential Use
- Commercial Use
- Mixed Use
- Manufacturing / Production
- Public Use (Non-Compatible)
- Vacant / Undeveloped
- Public Use (Compatible)
- Transportation / Utility
- Agriculture
- Water
- School
- Library
- Place of Worship
- Hospital / Health Care

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH

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Acronyms

AAD	Average Annual Day
AEDT	Aviation Environmental Design Tool
AFCEC	Air Force Civil Engineer Center
ALP	Airport Layout Plan
ANOMS	Airport Noise and Operations Monitoring System
ANZ	Airport Noise Zone
BAZA	Board of Airport Zoning Appeals
BRAC	Base Realignment and Closure Actions Act
COMAR	Code of Maryland Regulations
dB	Decibel
dBA	A-Weighted Decibel
DNL/Ldn	Day-Night Average Sound Level
FAA	Federal Aviation Administration
GA	General Aviation
HMMH	Harris Miller Miller & Hanson Inc.
HBPD	Baltimore City Police Helipad
HML	Military Helipad
HMU	Multi-Use Helipad
HPC	Practice Helipad
HSPD	Maryland State Police Helipad
IFR	Instrument flight rules
L_{eq}	Equivalent A-Weighted Sound Level
L_{max}	Maximum A-Weighted Sound Level
MDANG	Maryland Air National Guard
MDOT MAA	Maryland Department of Transportation Maryland Aviation Administration

MSL	Mean Sea Level
MTN	Martin State Airport
NAD 83	North American Datum 1983
NAP	Noise Abatement Plan
NCEI	National Centers for Environmental Information
Nm	Nautical Miles
NOAA	National Oceanic and Atmospheric Administration
OES	Office of Environmental Services
SAC	Stakeholder Advisory Committee
SEL	Sound Exposure Level
TA	Time Above
SEL	Sound Exposure Level
SPL	Sound Pressure Level
TAF	Terminal Area Forecast
TFMSC	Traffic Flow Management System Counts
USGS	United States Geological Survey
VFR	Visual flight rules

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1 Introduction and Background

Maryland law requires the protection of citizens from the impact of transportation related noise. MDOT MAA is required to adopt an ANZ that minimizes the impact of aircraft noise on people living near MTN and prevents incompatible land development around the airport. Noise analysis required to complete the ANZ study results in a better understanding of current and future noise conditions at the airport for both MDOT MAA and MTN stakeholders, including communities surrounding MTN. Specifically, the ANZ provides a means for MDOT MAA to identify, control, and prevent incompatible land development around the airport. The NAP prescribes measures to monitor and reduce or eliminate impacted land use areas to the extent feasible, while maintaining efficient airport operations.

The State of Maryland uses the Day-Night Average Sound Level, abbreviated DNL or Ldn[2], as the measure of cumulative noise exposure required to develop an ANZ. The ANZ, as defined by Maryland law, represents a composite of the 65, 70, and 75 DNL noise level contours for three study years: the base year, five-year, and ten-year forecast contours. The 2020 ANZ, as presented in this document, represents the largest extent of the annual DNL contours for all three years included in this study (2019, 2025, and 2030).

The resulting ANZ contour map designates the greatest extent of the existing and/or future noise exposure contours overprinted on county tax maps, to be utilized for land-use planning purposes. Maryland law requires MDOT MAA to regularly update the ANZ for MTN, in order to ensure it remains an accurate representation of noise conditions at the airport. The ANZ was last updated and certified in 2012. Once certified, the ANZ represents composite noise contours at specified levels of exposure intended to control incompatible land development around MTN. Maryland law dictates that an applicant be denied approval if the proposed land use development is found to be incompatible with the ANZ. An applicant may petition the Board of Airport Zoning Appeals (BAZA) for a variance from the regulations. BAZA may issue conditions such as the addition of sound insulation components to buildings within the certified ANZ.

Work on the 2020 MTN ANZ update began in 2019. MDOT MAA retained Harris Miller Miller & Hanson Inc. (HMMH) to support the Office of Environmental Services (OES) in preparing the 2020 MTN ANZ document. In coordination and collaboration with MDOT MAA, HMMH designed and conducted the public participation program, developed the DNL contours, compiled the composite ANZ contour, conducted a land-use inventory, reviewed and updated the NAP, and prepared ANZ documentation.

Section 2 of this report describes the methodology used in modeling the noise contours. Section 3 describes the inputs to the noise model in detail for the base year and forecast years. Section 4 presents DNL contours for the base year and forecast years, and finally the composite 2020 MTN ANZ contour and land use inventory. The 2020 NAP is presented in Section 5.

[2] For the purposes of this document Day-Night Average Sound Level is referred to as DNL. DNL describes 24-hour exposure, noise from 10 pm to 7 am is considered nighttime, and is factored up by 10 dB, this “penalty” is equal to counting each nighttime event 10 times.

The ANZ update process includes multiple public consultation efforts to ensure that MTN stakeholder input is reflected in the resulting ANZ contour and NAP documentation. This public involvement component includes two major initiatives: voluntarily forming and convening a SAC; and conducting a public workshop and hearing. Section 6 discusses the public consultation process undertaken for the study. Assedo Consulting, LLC assisted with logistics and facilitation of the public participation program, as well as creation and maintenance of the Administrative Record.

The Appendices to this document provide supplemental information. Appendix A includes an overview of aircraft noise terminology. Appendix B includes the ANZ overlaid on Baltimore County tax maps. Appendix C includes the MTN SAC committee roster and materials from both the September 12, 2019 and January 14, 2020 SAC Meetings, including the invitations, sign-in sheets, meeting minutes, and presentations. Appendix D includes Maryland Aviation Commission materials. Appendix E includes information related to the public workshop and hearing, including the invitations, documentation of public notices, attendance information, presentation materials, and hearing transcript. Appendix F includes documentation of public comments.

2 Noise Modeling Methodology

The State of Maryland uses DNL as the measure of cumulative noise exposure required to develop an ANZ. The DNL metric describes the total noise exposure produced by aircraft operations during a 24-hour period. The aircraft operations used to calculate DNL are those of an average day during a particular year, in this case 2019. The DNL measurement includes a 10-decibel (dB) penalty for noise generated between 10:00 p.m. and 7:00 a.m. because studies have shown that human response to sound is intensified during nighttime hours. In other words, DNL accounts for noise exposure in a 24-hour period, with the exception that it treats each aircraft operation occurring in the nighttime (between 10 p.m. and 7 a.m.) as equivalent to ten operations during the daytime.

The noise environment around an airport is described by contours of equal noise exposure, representing the noise that occurs during an average 24-hour day. The MTN ANZ is depicted by a series of lines (noise contours) surrounding the airport. These lines connect points of equal noise exposure and represent DNL 65 dB, 70 dB, and 75 dB noise contours. The ANZ contours represent the boundaries for determining incompatible activities or land uses with airport operations. The State uses the noise contours adopted in the ANZ to restrict new development that would be incompatible with the cumulative noise exposure level acceptable for an area. The noise compatibility or land use standards are shown in Table 1 below.

Table 1. State of Maryland Noise Compatibility Standards

Land Use	Area of Compatibility (Noise Levels)
Residences, schools, hospitals, libraries, churches, auditoriums, rest homes, nursing homes, concert halls	Up to DNL 65
Transient lodging, hotels, motels, sports arenas, outdoor spectator sports, playgrounds, neighborhood parks, noise sensitive manufacturing and communications	Up to DNL 70
Golf courses, riding stables, water recreation, cemeteries, office buildings, retail and wholesale establishments, movie theaters, restaurants, industry, manufacturing, utilities, livestock farming, animal breeding	Up to DNL 75
Agriculture (except livestock), mining, fishing, aviation related uses	All
Source: COMAR 11.03.03.03, Limits for Cumulative Noise Exposure. http://mdrules.elaws.us/comar/11.03.03.03	

Maryland law requires noise modeling as a prediction method to create ANZ noise contours.[3] As described above, noise modeling software creates computer-generated DNL estimates depicted as equal-exposure noise contours (much like topographic maps that indicate contours of equal elevation). DNL contours reflect average annual daily operating conditions, also referred to as an Average Annual Day (AAD) of operations, taking into account the type of aircraft, average number of flights each day, time of day, how often each runway is used throughout the year, and where, over the surrounding communities, the aircraft normally fly.

This 2020 MTN ANZ document presents DNL noise contours for the following three conditions:

- Base year 2019 conditions with the current runway layout;
- Five-year post-certification, forecast 2025 conditions, with the updated runway layout as identified in the MTN Airport Layout Plan (ALP); and
- Ten-year post-certification, forecast 2030 conditions, with the updated runway layout as identified in the MTN ALP.

[3] COMAR 11.03.03.02. Methods for Calculation and Measurement of Levels of Cumulative Noise Exposure. http://mdrules.elaws.us/comar/11.03.03.02

3 Noise Model Inputs

The 2019, 2025, and 2030 DNL contours were developed using Federal Aviation Administration (FAA) Aviation Environmental Design Tool (AEDT) version 2d and HMMH's RealContours software for AEDT™ in a manner consistent with section 11.03.03 of COMAR.

AEDT requires noise model input data in three categories:

1. Airport physical inputs
   - Runway layout (including displaced landing or takeoff thresholds)
   - Flight track geometry and use
   - Terrain data
   - Meteorological conditions

2. Aircraft noise and performance data
   - Aircraft performance profiles
   - Noise level vs. distance curves

3. Aircraft operational inputs
   - Number of aircraft operations
   - Aircraft fleet mix
   - Day-night split of operations
   - Runway utilization
   - Flight track geometry and utilization

This section describes AEDT inputs used in developing the base year and future year noise contours as organized in subsequent sections 3.1 through 3.7.

3.1 Physical Description of the Airport Layout

There is one runway at MTN, Runway 15/33. Figure 1 presents the existing MTN runway layout and notations for the airport property line, helicopter operational areas, as well as civilian and military aircraft run-up locations. Currently, civil aircraft are permitted to use 6,996 feet of the runway for arrival and departure operations; military aircraft use 8,100 feet or the full extent of the runway for all departures and for Runway 33 arrivals; Runway 15 military arrivals have a displaced landing threshold of 1,113 feet.

MTN has five helicopter operational areas at the airport, which serve corporate, law enforcement, and flight training organizations:

- The Baltimore City Police operate at the end of the abandoned runway adjacent to Runway 15.
- The Baltimore County Police and the majority of corporate helicopters operate from a multi-use helipad west of the midpoint of Runway 15.
- The Maryland State Police operate in an area south of the end of Runway 33.

- Transient military helicopters operate at the end of Runway 15 near the Maryland Air National Guard (MDANG) ramp.
- Flight training helicopters operate on the east side of the airport on the taxiway north of the midpoint of Runway 33.

MTN has five maintenance runup locations at the airport, which serve MTN based military and civilian aircraft maintenance operations:

- The MDANG conducts maintenance runups for A10 aircraft at:
  - The MDANG ramp near the end of Runway 15.
  - A trim pad and test cell located northeast of Runway 15/33.
- MTN based civilian operators conduct maintenance runups at:
  - The apron adjacent to the abandoned runway near the end of Runway 15.
  - The main apron area south of Runway 15/33.

Table 2 presents the latitude and longitude inputs and configurations for each runway, helicopter operational area, and runup location used for modeling in AEDT.

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Figure 1
Existing (2019) Runway Layout

Helicopter Operation Area
Civilian Runup Locations
Civilian Runway
Military Runup Location
Additional Runway Available for Military Operations
Airport Boundary
Roads
Railroad
Stream / Creek

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH

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Table 2. Existing (2019) MTN Runway and Helipad Data

Runway	Latitude (deg)	Longitude (deg)	Length (feet)	Modeled Elevation (feet)	Displaced Landing Threshold (feet)	Approach Slope (degrees)	Threshold Crossing Height (feet)	Runway Width (feet)
Fixed-Wing Runways								
15	39.332447	-76.422450	6,996	21.3	0	4.0	37	180
33	39.318848	-76.405047	6,996	9.2	0	2.9	44	180
15 (Military)	39.334642	-76.425272	8,100	23.5	1,113	3.1	55	180
33 (Military)	39.318848	-76.405047	8,100	9.2	0	2.9	44	180
Helicopter Operations Areas								
Baltimore City Police (HBPD)	39.332839	-76.426898	N/A	21.0	N/A	N/A	N/A	N/A
Multi-Use Helipad (HMU)	39.326586	-76.420273	N/A	21.0	N/A	N/A	N/A	N/A
Maryland State Police (HSPD)	39.316714	-76.406410	N/A	21.0	N/A	N/A	N/A	N/A
Practice Pad (HPC)	39.326683	-76.412404	N/A	21.0	N/A	N/A	N/A	N/A
Military Helipad (HML)	39.334642	-76.425272	N/A	23.5	N/A	N/A	N/A	N/A
Runup Locations								
Ramp	39.335324	-76.421102	N/A	21.0	N/A	N/A	N/A	N/A
Trim Pad	39.327734	-76.412556	N/A	21.0	N/A	N/A	N/A	N/A
Test Cell	39.328166	-76.411542	N/A	21.0	N/A	N/A	N/A	N/A
Maintenance Runup 1	39.328256	-76.419532	N/A	21.0	N/A	N/A	N/A	N/A
Maintenance Runup 2	39.332839	-76.426898	N/A	21.0	N/A	N/A	N/A	N/A

Notes:
Latitude and Longitude coordinates reference to North American Datum 1983 (NAD 83)
Elevations referenced to Mean Sea Level (MSL)
Sources:
Runway coordinates: MDOT MAA, 2019
Helicopter Operations Areas: MTN staff and HMMH
Runup Areas: MTN staff, MDANG, HMMH, and MTN Operators

The five-year and ten-year forecast airport layout configurations include proposed improvements to the airfield as identified in the MTN ALP. The MTN ALP identifies Phase I improvements that include changes needed to meet FAA standards and to accommodate anticipated general aviation demand. In the MTN ALP, the Runway 15 end for civilian aircraft would be relocated approximately 291 feet from the existing runway end with a displaced threshold of 225 feet. The Runway 33 end would be relocated approximately 380 feet from the existing runway end with a displaced threshold of 390 feet. Military aircraft would be able to utilize the full 8,100 feet of runway, which is the same as used for the base year configuration. Table 3 presents the latitude and longitude inputs and configurations for each runway for the five-year and ten-year forecast configurations. Helicopter operational areas and runup locations are the same as for the base year as detailed above.

Figure 2 depicts the MTN runway layout that was used to develop the five-year and ten-year forecast contours. It includes notations for the airport property line, helicopter operational areas, as well as civilian and military aircraft run-up locations.

Table 3. Five-year (2025) and Ten-year (2030) Forecast MTN Runway Configuration Inputs

Runway	Latitude (deg)	Longitude (deg)	Length (feet)	Modeled Elevation (feet)	Displaced Landing Threshold (feet)	Approach Slope (degrees)	Threshold Crossing Height (feet)	Runway Width (feet)
15	39.334050	-76.424500	7,430	22.8	225	4.0	37	180
33	39.319583	-76.405986	7,430	9.5	390	2.9	44	180
15 (Military)	39.334642	-76.425272	8,100	23.5	516	3.1	55	180
33 (Military)	39.318848	-76.405047	8,100	9.5	770	2.9	44	180

Notes:
Latitude and Longitude coordinates reference to North American Datum 1983 (NAD 83)
Elevations referenced to Mean Sea Level (MSL)
Sources:
Runway coordinates: MTN ALP, MDOT MAA, March 2011

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Figure 2

Five-year (2025) and Ten-year (2030) Runway Layout

- Helicopter Operation Area
- Military Runup Location
- Civilian Runup Locations
- Civilian Runway (Future)
- Additional Runway Available for Military Operations
- Airport Boundary
- Roads
- Railroad
- Stream / Creek

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH

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3.2 Aircraft Operations and Runups

To create the noise contours, AEDT requires details related to AAD operations as well as aircraft maintenance runups be included as inputs. AAD operations and runup estimates were developed for the base year and future years.

The 2019 base year AAD operations are based on calendar year 2018 radar data as derived from the MDOT MAA Airport Noise and Operations Monitoring System (ANOMS)[4], calendar year 2018 MTN aircraft activity, surveys from airport operators, and the FAA's TAF. The TAF represents the official FAA forecast of aviation activity for U.S. airports. It separates forecasts into categories of major airspace users. As a General Aviation (GA) airport, forecast data related to MTN is available for categories including Air Taxi (AT), Military (ML), and GA.

Itinerant and local operations[5] for 2019 were derived from the 2018 edition of the TAF (released by FAA in February 2019) and are reported in Table 4. AAD operations were developed for the five-year and ten-year forecast contours using the 2018 edition of the TAF based on the TAF forecast years of 2025 and 2030[6]. Itinerant and local operations for the future years are also reported in Table 4.

The detailed breakdown of operations by aircraft type for fixed-wing and helicopter civil aircraft at MTN was determined using a calendar year 2018 sample of radar data that originated from the MDOT MAA ANOMS. The aircraft fleet mix distributions determined from the radar data were then applied to the operational totals shown in Table 4.

Military operations and fleet data were estimated from information validated by the MDANG which was derived from the 2012 MTN ANZ document, along with an analysis of calendar year 2018 FAA Traffic Flow Management System Counts (TFMSC). These operations were then applied to the forecast 2019, five-year and ten-year totals of the military operations identified in Table 4.

Keeping in line with the 2018 TAF, the Air Taxi and Military total operations remain unchanged between the 2019 base year and future years, as shown in Table 4. As illustrated by the general aviation total operations, the five-year modeled average daily aircraft operations are expected to increase from the 2019 base year by 3.4 percent. The general aviation total operations for the ten-year modeled average daily aircraft operations are expected to increase from the 2019 base year by 6.4 percent.

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[4] Data as downloaded by HMMH from MDOT MAA ANOMS on August 29, 2019.

[5] The *Glossary for the 2018 Terminal Area Forecast (TAF),* available at: https://taf.faa.gov/Downloads/Glossaryfor2018TAF.pdf, defines itinerant and local operations. Itinerant operations are performed by an aircraft, using either instrument flight rules (IFR) or visual flight rules (VFR), that land at an airport arriving from outside the airport area, or depart from an airport and leave the airport area. While local operations are performed by an aircraft that remain in the local traffic pattern, execute simulated instrument approaches or low passes at the airport, and operations to or from the same airport within a designated practice area within a 20-mile radius of the airport.

[6] The FAA TAF reports operations relative to the federal fiscal year. Data is available at https://www.faa.gov/data_research/aviation/taf/.

Table 4. Base Year (2019), Five-year (2025), and Ten-year (2030) Forecast Operations Levels

Year	Itinerant Operations				Local Operations		Total
	Air Carrier	Air Taxi	General Aviation	Military	General Aviation	Military	
2019	0	2,173	37,153	1,893	38,756	645	80,620
2025	0	2,173	38,021	1,893	40,506	645	83,238
2030	0	2,173	38,761	1,893	42,023	645	85,495
Source: FAA, 2018 Terminal Area Forecast (TAF)							

The AAD operations are reported in Table 5 through Table 7, for 2019, 2025 and 2030, respectively. The operations are reported by aircraft category and their associated arrivals, departures, and circuits separated by both day and night activity.

Table 5. Modeled Base Year (2019) Average Daily Aircraft Operations

Aircraft Category	Engine	AEDT Type	Aircraft Description	Arrivals		Departures		Circuits		Total
				Day	Night	Day	Night	Day	Night	
Air Taxi	Jet	BD-700-1A10	Bombardier Global Express	0.0131	-	0.0131	-	-	-	0.0262
		CIT3	Cessna 650 Citation III	0.0033	-	0.0033	-	-	-	0.0066
		CL600	Bombardier Challenger 600	0.1953	0.0178	0.2098	0.0033	-	-	0.4262
		CL601	Bombardier Challenger 601	0.0164	-	0.0131	0.0033	-	-	0.0328
		CNA510	Cessna Citation Mustang	0.0131	-	0.0087	0.0044	-	-	0.0262
		CNA525C	Cessna 525 CitationJet	0.0656	-	0.0656	-	-	-	0.1311
		CNA55B	Cessna 550 Citation II	0.1967	0.0066	0.2000	0.0033	-	-	0.4065
		CNA560E	Cessna 560 Citation V	0.0164	-	0.0164	-	-	-	0.0328
		CNA560U	Cessna 560 Citation V	0.3377	0.0033	0.3343	0.0066	-	-	0.6819
		CNA560XL	Cessna 560 Citation XLS	0.0721	-	0.0688	0.0033	-	-	0.1442
		CNA680	Cessna 680 Citation Sovereign	0.1471	0.0070	0.1508	0.0033	-	-	0.3082
		CNA750	Cessna 750 Citation X	0.1377	-	0.1304	0.0072	-	-	0.2754
		GIV	Gulfstream IV	0.0459	-	0.0426	0.0033	-	-	0.0918
		GV	Gulftsream V	0.0098	-	0.0098	-	-	-	0.0197
		IA1125	Gulfstream G150	0.0098	-	0.0098	-	-	-	0.0197
		LEAR35	LearJet 35	0.2065	0.0066	0.2024	0.0107	-	-	0.4262
		MU3001	Raytheon Beechjet 400	0.2065	0.0066	0.2131	-	-	-	0.4262
	Piston Prop	BEC58P	Beechcraft Baron	0.0164	-	0.0164	-	-	-	0.0328
		CNA172	Cessna 172 Skyhawk	0.0361	-	0.0328	0.0033	-	-	0.0721
		CNA182	Cessna 182 Skylane	0.1115	-	0.1115	-	-	-	0.2229
		COMSEP	Generic Composite Single - Engine Piston Propeller General Aviation Aircraft	0.0229	-	0.0229	-	-	-	0.0459
		GASEPF	Generic General Aviation Single- Engine Fixed Pitch Propeller	0.0033	-	0.0033	-	-	-	0.0066
		GASEPV	Generic General Aviation Single- Engine Variable Pitch Propeller	0.1574	0.0066	0.1572	0.0067	-	-	0.3278
		PA28	Piper PA-28 Cherokee	0.0033	-	0.0033	-	-	-	0.0066
	Turboprop	1900D	Raytheon Beech 1900	0.1180	0.0131	0.1208	0.0104	-	-	0.2623
		CNA208	Cessna Caravan	0.1798	0.0038	0.1770	0.0066	-	-	0.3672
		DHC6	DeHaviland Twin Otter	0.5605	0.0033	0.5475	0.0164	-	-	1.1277
Air Taxi Total				**2.9022**	**0.0745**	**2.8849**	**0.0918**	**-**	**-**	**5.9534**
Military	Helicopter	B212	Bell 212 Twin Huey	0.0023	-	0.0023	-	-	-	0.0047
		B429	Bell 429 GlobalRanger	0.0352	-	0.0352	-	-	-	0.0704
		CH47D	Boeing CH-47 Chinook	0.0141	-	0.0141	-	-	-	0.0282
		EC130	Eurocopter EC-130	0.0047	-	0.0047	-	-	-	0.0094
		H500D	MD Helicopters MD 500	0.0047	-	0.0047	-	-	-	0.0094
		S70	Sikorsky UH-60 Black Hawk	0.1033	-	0.1033	-	-	-	0.2066
		SA365N	Eurocopter AS365 Dauphin	0.0023	-	0.0023	-	-	-	0.0047
	Jet	737800	Boeing 737-800 Series	0.0047	-	0.0047	-	-	-	0.0094
		A10A	Fairchild A-10A Thunderbolt II	2.1918	-	2.1918	-	1.7671	-	6.1507

Aircraft Category	Engine	AEDT Type	Aircraft Description	Arrivals		Departures		Circuits		Total
				Day	Night	Day	Night	Day	Night	
		A7D	LTV A-7 Corsair II	0.0023	-	0.0023	-	-	-	0.0047
		C17	Boeing C-17A	0.0282	-	0.0282	-	-	-	0.0563
		CL600	Bombardier Challenger 600	0.0047	-	0.0047	-	-	-	0.0094
		CNA55B	Cessna 550 Citation II	0.0047	-	0.0047	-	-	-	0.0094
		CNA560U	Cessna 560 Citation V	0.0047	-	0.0047	-	-	-	0.0094
		F16A	Lockheed Martin F-16 Fighting Falcon	0.0094	-	0.0094	-	-	-	0.0188
		F-18	Boeing F/A-18 Hornet	0.0117	-	0.0117	-	-	-	0.0235
		LEAR25	Learjet 25	0.0023	-	0.0023	-	-	-	0.0047
		LEAR35	Learjet 35	0.0094	-	0.0094	-	-	-	0.0188
	Piston Prop	CNA172	Cessna 172 Skyhawk	0.0023	-	0.0023	-	-	-	0.0047
		GASEPV	Generic General Aviation Single- Engine Variable Pitch Propeller	0.0047	-	0.0047	-	-	-	0.0094
		PA28	Piper PA-28 Cherokee Series	0.0023	-	0.0023	-	-	-	0.0047
	Turboprop	C130	Lockheed C-130H Hercules	0.0164	-	0.0164	-	-	-	0.0329
		C130AD	Lockheed C-130 Hercules	0.0141	-	0.0141	-	-	-	0.0282
		CNA208	Cessna Caravan	0.0211	-	0.0211	-	-	-	0.0422
		DHC6	DeHaviland Twin Otter	0.0141	-	0.0141	-	-	-	0.0282
		DHC830	DeHaviland Dash 8-300 Series	0.0775	-	0.0775	-	-	-	0.1549
Military Total				**2.5932**	**-**	**2.5932**	**-**	**1.7671**	**-**	**6.9534**
General Aviation	Helicopter	B206L	Bell 206 JetRanger	0.4126	-	0.4126	-	-	-	0.8251
		B407	Bell 407	0.0625	-	0.0625	-	-	-	0.1250
		B429	Bell 429 GlobalRanger	0.1375	0.0500	0.1172	0.0703	-	-	0.3751
		B430	Bell 430	0.1586	0.0227	0.1188	0.0625	-	-	0.3626
		EC130	Eurocopter EC-130	0.1594	0.0656	0.1875	0.0375	-	-	0.4501
		H500D	MD Helicopters MD 500	0.0375	-	0.0281	0.0094	-	-	0.0750
		R22	Robinson R22	0.0802	0.0073	0.0875	-	20.6191	-	20.7941
		R44	Robinson R44 Raven	0.0563	-	0.0563	-	-	-	0.1125
		S61	Sikorsky SH-3 Sea King	0.0188	-	0.0063	0.0125	-	-	0.0375
		S76	Sikorsky S-76 Spirit	0.1113	0.0074	0.1000	0.0188	-	-	0.2375
		SA330J	Aerospatiale SA-330 Puma	3.1129	0.8126	3.3570	0.5685	-	-	7.8511
		SA341G	Aerospatiale SA-341G/342 Gazelle	0.5813	0.2813	0.7564	0.1063	-	-	1.7252
		SA350D	Aerospatiale SA-350D Astar	2.0940	0.2125	2.0818	0.2247	-	-	4.6131
		SA355F	Aerospatiale SA-355F Twin Star	0.0375	-	0.0375	-	-	-	0.0750
		SA365N	Eurocopter AS365 Dauphin	0.0063	0.0063	-	0.0125	-	-	0.0250
	Jet	BD-700-1A10	Bombardier Global Express	0.2285	0.0403	0.2375	0.0313	-	-	0.5376
		BD-700-1A11	Bombardier Global 5000 Business	0.0313	-	0.0313	-	-	-	0.0625
		CIT3	Cessna 650 Citation III	0.0500	-	0.0500	-	-	-	0.1000
		CL600	Bombardier Challenger 600	0.3548	0.0077	0.3375	0.0250	-	-	0.7251
		CL601	Bombardier Challenger 601	0.5245	0.0506	0.5563	0.0188	0.0326	-	1.1827
		CNA500	Cessna 500 Citation I	0.0188	-	-	0.0188	0.0543	-	0.0918
		CNA510	Cessna Citation Mustang	0.2052	0.0073	0.2125	-	-	-	0.4251

Aircraft Category	Engine	AEDT Type	Aircraft Description	Arrivals		Departures		Circuits		Total
				Day	Night	Day	Night	Day	Night	
		CNA525C	Cessna 525 CitationJet	1.5877	0.0875	1.5892	0.0861	-	-	3.3505
		CNA55B	Cessna 550 Citation II	2.8297	0.6520	2.8754	0.6063	0.9234	-	7.8869
		CNA560E	Cessna 560 Citation V	0.0125	-	0.0125	-	-	-	0.0250
		CNA560U	Cessna 560 Citation V	0.3438	0.0125	0.3563	-	-	-	0.7126
		CNA560XL	Cessna 560 Citation XLS	0.3063	0.0063	0.3125	-	-	-	0.6251
		CNA680	Cessna 680 Citation Sovereign	0.1813	-	0.1813	-	-	-	0.3626
		CNA750	Cessna 750 Citation X	1.5627	0.0875	1.5596	0.0906	0.1521	-	3.4525
		ECLIPSE500	Eclipse 500	0.0625	-	0.0556	0.0069	-	-	0.1250
		EMB145	Embraer ERJ145	0.0313	-	0.0313	-	-	-	0.0625
		FAL20	Dassault Falcon 20	0.1247	0.0066	0.1188	0.0125	0.0217	-	0.2843
		GIIB	Gulfstream II-B	0.0188	-	0.0188	-	-	-	0.0375
		GIV	Gulfstream IV	0.2749	0.0064	0.2688	0.0125	0.0109	-	0.5734
		GV	Gulfstream V	0.6001	0.1250	0.7001	0.0250	-	-	1.4502
		IA1125	Gulfstream G100	1.0927	0.1137	1.1502	0.0563	0.1412	-	2.5541
		LEAR25	LearJet 25	0.0188	-	0.0188	-	-	-	0.0375
		LEAR35	LearJet 35	2.6394	0.1609	2.6066	0.1938	0.2390	-	5.8398
		MU3001	Mitsubishi MU-300/Raytheon Beechjet 400	0.5126	0.0125	0.4895	0.0356	4.8234	-	5.8736
	Piston Prop	BEC58P	Beechcraft Baron	4.7819	0.1188	4.8352	0.0655	20.2497	-	30.0511
		CNA172	Cessna 172 Skyhawk	6.4696	0.1938	6.5717	0.0917	30.9287	-	44.2555
		CNA182	Cessna 182 Skylane	1.4183	0.1194	1.5190	0.0188	1.7056	-	4.7810
		CNA206	Cessna 206 Stationair	0.1235	0.0077	0.1313	-	0.0217	-	0.2843
		COMSEP	Generic Composite Single - Engine Piston Propeller General Aviation Aircraft	1.6502	0.0438	1.6393	0.0546	0.5432	-	3.9311
		GASEPF	Generic General Aviation Single- Engine Fixed Pitch Propeller	1.0751	0.0063	1.0695	0.0119	9.3644	-	11.5272
		GASEPV	Generic General Aviation Single- Engine Variable Pitch Propeller	5.7820	0.1188	5.7631	0.1377	14.8723	-	26.6739
		PA28	Piper PA-28 Cherokee	1.1689	0.0313	1.1769	0.0232	-	-	2.4003
		PA30	Piper PA-30 Twin Comanche	0.8048	0.0640	0.6563	0.2125	-	-	1.7377
	Turboprop	1900D	Raytheon Beech 1900	0.0938	-	0.0938	-	-	-	0.1875
		CNA208	Cessna Caravan	1.8315	0.0625	1.8433	0.0507	1.1407	-	4.9287
		CNA441	Cessna 441 Conquest	0.1188	-	0.1188	-	0.0760	-	0.3136
		DHC6	DeHaviland Twin Otter	1.2377	0.0250	1.1780	0.0847	0.2607	-	2.7861
		DHC830	DeHaviland Dash 8-300 Series	0.0250	-	0.0250	-	-	-	0.0500
General Aviation Total				**47.2608**	**3.6337**	**47.8008**	**3.0937**	**106.1808**	**-**	**207.9699**
Grand Total				**52.7561**	**3.7083**	**53.2788**	**3.1855**	**107.9479**	**-**	**220.8767**

Notes:
Totals may not match exactly due to rounding
Circuits are counted as two operations

Table 6. Modeled Five-year (2025) Forecast Average Daily Aircraft Operations

Aircraft Category	Engine	AEDT Type	Aircraft Description	Arrivals		Departures		Circuits		Total
				Day	Night	Day	Night	Day	Night	
Air Taxi	Jet	BD-700-1A10	Bombardier Global Express	0.0131	-	0.0131	-	-	-	0.0262
		CIT3	Cessna 650 Citation III	0.0033	-	0.0033	-	-	-	0.0066
		CL600	Bombardier Challenger 600	0.1953	0.0178	0.2098	0.0033	-	-	0.4262
		CL601	Bombardier Challenger 601	0.0164	-	0.0131	0.0033	-	-	0.0328
		CNA510	Cessna Citation Mustang	0.0131	-	0.0087	0.0044	-	-	0.0262
		CNA525C	Cessna 525 CitationJet	0.0656	-	0.0656	-	-	-	0.1311
		CNA55B	Cessna 550 Citation II	0.1967	0.0066	0.2000	0.0033	-	-	0.4065
		CNA560E	Cessna 560 Citation V	0.0164	-	0.0164	-	-	-	0.0328
		CNA560U	Cessna 560 Citation V	0.3377	0.0033	0.3343	0.0066	-	-	0.6819
		CNA560XL	Cessna 560 Citation XLS	0.0721	-	0.0688	0.0033	-	-	0.1442
		CNA680	Cessna 680 Citation Sovereign	0.1471	0.0070	0.1508	0.0033	-	-	0.3082
		CNA750	Cessna 750 Citation X	0.1377	-	0.1304	0.0072	-	-	0.2754
		GIV	Gulfstream IV	0.0459	-	0.0426	0.0033	-	-	0.0918
		GV	Gulftsream V	0.0098	-	0.0098	-	-	-	0.0197
		IA1125	Gulfstream G150	0.0098	-	0.0098	-	-	-	0.0197
		LEAR35	LearJet 35	0.2065	0.0066	0.2024	0.0107	-	-	0.4262
		MU3001	Raytheon Beechjet 400	0.2065	0.0066	0.2131	-	-	-	0.4262
	Piston Prop	BEC58P	Beechcraft Baron	0.0164	-	0.0164	-	-	-	0.0328
		CNA172	Cessna 172 Skyhawk	0.0361	-	0.0328	0.0033	-	-	0.0721
		CNA182	Cessna 182 Skylane	0.1115	-	0.1115	-	-	-	0.2229
		COMSEP	Generic Composite Single - Engine Piston Propeller General Aviation Aircraft	0.0229	-	0.0229	-	-	-	0.0459
		GASEPF	Generic General Aviation Single- Engine Fixed Pitch Propeller	0.0033	-	0.0033	-	-	-	0.0066
		GASEPV	Generic General Aviation Single- Engine Variable Pitch Propeller	0.1574	0.0066	0.1572	0.0067	-	-	0.3278
		PA28	Piper PA-28 Cherokee	0.0033	-	0.0033	-	-	-	0.0066
	Turboprop	1900D	Raytheon Beech 1900	0.1180	0.0131	0.1208	0.0104	-	-	0.2623
		CNA208	Cessna Caravan	0.1798	0.0038	0.1770	0.0066	-	-	0.3672
		DHC6	DeHaviland Twin Otter	0.5605	0.0033	0.5475	0.0164	-	-	1.1277
Air Taxi Total				**2.9022**	**0.0745**	**2.8849**	**0.0918**	**-**	**-**	**5.9534**
Military	Helicopter	B212	Bell 212 Twin Huey	0.0023	-	0.0023	-	-	-	0.0047
		B429	Bell 429 GlobalRanger	0.0352	-	0.0352	-	-	-	0.0704
		CH47D	Boeing CH-47 Chinook	0.0141	-	0.0141	-	-	-	0.0282
		EC130	Eurocopter EC-130	0.0047	-	0.0047	-	-	-	0.0094
		H500D	MD Helicopters MD 500	0.0047	-	0.0047	-	-	-	0.0094
		S70	Sikorsky UH-60 Black Hawk	0.1033	-	0.1033	-	-	-	0.2066
		SA365N	Eurocopter AS365 Dauphin	0.0023	-	0.0023	-	-	-	0.0047
	Jet	737800	Boeing 737-800 Series	0.0047	-	0.0047	-	-	-	0.0094
		A10A	Fairchild A-10A Thunderbolt II	2.1918	-	2.1918	-	1.7671	-	6.1507

Aircraft Category	Engine	AEDT Type	Aircraft Description	Arrivals		Departures		Circuits		Total
				Day	Night	Day	Night	Day	Night	
		A7D	LTV A-7 Corsair II	0.0023	-	0.0023	-	-	-	0.0047
		C17	Boeing C-17A	0.0282	-	0.0282	-	-	-	0.0563
		CL600	Bombardier Challenger 600	0.0047	-	0.0047	-	-	-	0.0094
		CNA55B	Cessna 550 Citation II	0.0047	-	0.0047	-	-	-	0.0094
		CNA560U	Cessna 560 Citation V	0.0047	-	0.0047	-	-	-	0.0094
		F16A	Lockheed Martin F-16 Fighting Falcon	0.0094	-	0.0094	-	-	-	0.0188
		F-18	Boeing F/A-18 Hornet	0.0117	-	0.0117	-	-	-	0.0235
		LEAR25	Learjet 25	0.0023	-	0.0023	-	-	-	0.0047
		LEAR35	Learjet 35	0.0094	-	0.0094	-	-	-	0.0188
	Piston Prop	CNA172	Cessna 172 Skyhawk	0.0023	-	0.0023	-	-	-	0.0047
		GASEPV	Generic General Aviation Single- Engine Variable Pitch Propeller	0.0047	-	0.0047	-	-	-	0.0094
		PA28	Piper PA-28 Cherokee Series	0.0023	-	0.0023	-	-	-	0.0047
	Turboprop	C130	Lockheed C-130H Hercules	0.0164	-	0.0164	-	-	-	0.0329
		C130AD	Lockheed C-130 Hercules	0.0141	-	0.0141	-	-	-	0.0282
		CNA208	Cessna Caravan	0.0211	-	0.0211	-	-	-	0.0422
		DHC6	DeHaviland Twin Otter	0.0141	-	0.0141	-	-	-	0.0282
		DHC830	DeHaviland Dash 8-300 Series	0.0775	-	0.0775	-	-	-	0.1549
Military Total				**2.5932**	**-**	**2.5932**	**-**	**1.7671**	**-**	**6.9534**
General Aviation	Helicopter	B206L	Bell 206 JetRanger	0.4222	-	0.4222	-	-	-	0.8444
		B407	Bell 407	0.0640	-	0.0640	-	-	-	0.1279
		B429	Bell 429 GlobalRanger	0.1407	0.0512	0.1199	0.0720	-	-	0.3838
		B430	Bell 430	0.1623	0.0232	0.1215	0.0640	-	-	0.3710
		EC130	Eurocopter EC-130	0.1631	0.0672	0.1919	0.0384	-	-	0.4606
		H500D	MD Helicopters MD 500	0.0384	-	0.0288	0.0096	-	-	0.0768
		R22	Robinson R22	0.0821	0.0075	0.0896	-	21.5502	-	21.7293
		R44	Robinson R44 Raven	0.0576	-	0.0576	-	-	-	0.1151
		S61	Sikorsky SH-3 Sea King	0.0192	-	0.0064	0.0128	-	-	0.0384
		S76	Sikorsky S-76 Spirit	0.1139	0.0076	0.1024	0.0192	-	-	0.2431
		SA330J	Aerospatiale SA-330 Puma	3.1857	0.8316	3.4354	0.5818	-	-	8.0345
		SA341G	Aerospatiale SA-341G/342 Gazelle	0.5949	0.2879	0.7740	0.1087	-	-	1.7655
		SA350D	Aerospatiale SA-350D Astar	2.1430	0.2175	2.1305	0.2300	-	-	4.7209
		SA355F	Aerospatiale SA-355F Twin Star	0.0384	-	0.0384	-	-	-	0.0768
		SA365N	Eurocopter AS365 Dauphin	0.0064	0.0064	-	0.0128	-	-	0.0256
	Jet	BD-700-1A10	Bombardier Global Express	0.2338	0.0413	0.2431	0.0320	-	-	0.5501
		BD-700-1A11	Bombardier Global 5000 Business	0.0320	-	0.0320	-	-	-	0.0640
		CIT3	Cessna 650 Citation III	0.0512	-	0.0512	-	-	-	0.1024
		CL600	Bombardier Challenger 600	0.3631	0.0079	0.3454	0.0256	-	-	0.7420
		CL601	Bombardier Challenger 601	0.5368	0.0517	0.5693	0.0192	0.0341	-	1.2111
		CNA500	Cessna 500 Citation I	0.0192	-	-	0.0192	0.0568	-	0.0952
		CNA510	Cessna Citation Mustang	0.2100	0.0075	0.2175	-	-	-	0.4350

Aircraft Category	Engine	AEDT Type	Aircraft Description	Arrivals		Departures		Circuits		Total
				Day	Night	Day	Night	Day	Night	
		CNA525C	Cessna 525 CitationJet	1.6248	0.0896	1.6263	0.0881	-	-	3.4287
		CNA55B	Cessna 550 Citation II	2.8958	0.6673	2.9426	0.6205	0.9651	-	8.0912
		CNA560E	Cessna 560 Citation V	0.0128	-	0.0128	-	-	-	0.0256
		CNA560U	Cessna 560 Citation V	0.3518	0.0128	0.3646	-	-	-	0.7292
		CNA560XL	Cessna 560 Citation XLS	0.3134	0.0064	0.3198	-	-	-	0.6397
		CNA680	Cessna 680 Citation Sovereign	0.1855	-	0.1855	-	-	-	0.3710
		CNA750	Cessna 750 Citation X	1.5992	0.0896	1.5961	0.0927	0.1590	-	3.5365
		ECLIPSE500	Eclipse 500	0.0640	-	0.0569	0.0071	-	-	0.1279
		EMB145	Embraer ERJ145	0.0320	-	0.0320	-	-	-	0.0640
		FAL20	Dassault Falcon 20	0.1276	0.0067	0.1215	0.0128	0.0227	-	0.2914
		GIIB	Gulfstream II-B	0.0192	-	0.0192	-	-	-	0.0384
		GIV	Gulfstream IV	0.2813	0.0065	0.2751	0.0128	0.0114	-	0.5871
		GV	Gulfstream V	0.6141	0.1279	0.7165	0.0256	-	-	1.4841
		IA1125	Gulfstream G100	1.1183	0.1163	1.1770	0.0576	0.1476	-	2.6168
		LEAR25	LearJet 25	0.0192	-	0.0192	-	-	-	0.0384
		LEAR35	LearJet 35	2.7011	0.1647	2.6675	0.1983	0.2498	-	5.9814
		MU3001	Mitsubishi MU-300/Raytheon Beechjet 400	0.5245	0.0128	0.5009	0.0364	5.0412	-	6.1159
	Piston Prop	BEC58P	Beechcraft Baron	4.8936	0.1215	4.9482	0.0670	21.1641	-	31.1945
		CNA172	Cessna 172 Skyhawk	6.6208	0.1983	6.7252	0.0939	32.3252	-	45.9634
		CNA182	Cessna 182 Skylane	1.4515	0.1222	1.5544	0.0192	1.7826	-	4.9299
		CNA206	Cessna 206 Stationair	0.1264	0.0079	0.1343	-	0.0227	-	0.2914
		COMSEP	Generic Composite Single - Engine Piston Propeller General Aviation Aircraft	1.6888	0.0448	1.6776	0.0559	0.5677	-	4.0348
		GASEPF	Generic General Aviation Single- Engine Fixed Pitch Propeller	1.1003	0.0064	1.0945	0.0122	9.7873	-	12.0006
		GASEPV	Generic General Aviation Single- Engine Variable Pitch Propeller	5.9171	0.1215	5.8977	0.1410	15.5438	-	27.6212
		PA28	Piper PA-28 Cherokee	1.1962	0.0320	1.2044	0.0238	-	-	2.4564
		PA30	Piper PA-30 Twin Comanche	0.8237	0.0655	0.6717	0.2175	-	-	1.7783
	Turboprop	1900D	Raytheon Beech 1900	0.0960	-	0.0960	-	-	-	0.1919
		CNA208	Cessna Caravan	1.8743	0.0640	1.8864	0.0519	1.1922	-	5.0687
		CNA441	Cessna 441 Conquest	0.1215	-	0.1215	-	0.0795	-	0.3226
		DHC6	DeHaviland Twin Otter	1.2666	0.0256	1.2055	0.0867	0.2725	-	2.8568
		DHC830	DeHaviland Dash 8-300 Series	0.0256	-	0.0256	-	-	-	0.0512
General Aviation Total				**48.3649**	**3.7186**	**48.9176**	**3.1660**	**110.9753**	**-**	**215.1425**
Grand Total				**53.8603**	**3.7932**	**54.3956**	**3.2578**	**112.7425**	**-**	**228.0493**

Notes:
Totals may not match exactly due to rounding
Circuits are counted as two operations

Table 7. Modeled Ten-year (2030) Forecast Average Daily Aircraft Operations

Aircraft Category	Engine	AEDT Type	Aircraft Description	Arrivals		Departures		Circuits		Total
				Day	Night	Day	Night	Day	Night	
Air Taxi	Jet	BD-700-1A10	Bombardier Global Express	0.0131	-	0.0131	-	-	-	0.0262
		CIT3	Cessna 650 Citation III	0.0033	-	0.0033	-	-	-	0.0066
		CL600	Bombardier Challenger 600	0.1953	0.0178	0.2098	0.0033	-	-	0.4262
		CL601	Bombardier Challenger 601	0.0164	-	0.0131	0.0033	-	-	0.0328
		CNA510	Cessna Citation Mustang	0.0131	-	0.0087	0.0044	-	-	0.0262
		CNA525C	Cessna 525 CitationJet	0.0656	-	0.0656	-	-	-	0.1311
		CNA55B	Cessna 550 Citation II	0.1967	0.0066	0.2000	0.0033	-	-	0.4065
		CNA560E	Cessna 560 Citation V	0.0164	-	0.0164	-	-	-	0.0328
		CNA560U	Cessna 560 Citation V	0.3377	0.0033	0.3343	0.0066	-	-	0.6819
		CNA560XL	Cessna 560 Citation XLS	0.0721	-	0.0688	0.0033	-	-	0.1442
		CNA680	Cessna 680 Citation Sovereign	0.1471	0.0070	0.1508	0.0033	-	-	0.3082
		CNA750	Cessna 750 Citation X	0.1377	-	0.1304	0.0072	-	-	0.2754
		GIV	Gulfstream IV	0.0459	-	0.0426	0.0033	-	-	0.0918
		GV	Gulftsream V	0.0098	-	0.0098	-	-	-	0.0197
		IA1125	Gulfstream G150	0.0098	-	0.0098	-	-	-	0.0197
		LEAR35	LearJet 35	0.2065	0.0066	0.2024	0.0107	-	-	0.4262
		MU3001	Raytheon Beechjet 400	0.2065	0.0066	0.2131	-	-	-	0.4262
	Piston Prop	BEC58P	Beechcraft Baron	0.0164	-	0.0164	-	-	-	0.0328
		CNA172	Cessna 172 Skyhawk	0.0361	-	0.0328	0.0033	-	-	0.0721
		CNA182	Cessna 182 Skylane	0.1115	-	0.1115	-	-	-	0.2229
		COMSEP	Generic Composite Single - Engine Piston Propeller General Aviation Aircraft	0.0229	-	0.0229	-	-	-	0.0459
		GASEPF	Generic General Aviation Single- Engine Fixed Pitch Propeller	0.0033	-	0.0033	-	-	-	0.0066
		GASEPV	Generic General Aviation Single- Engine Variable Pitch Propeller	0.1574	0.0066	0.1572	0.0067	-	-	0.3278
		PA28	Piper PA-28 Cherokee	0.0033	-	0.0033	-	-	-	0.0066
	Turboprop	1900D	Raytheon Beech 1900	0.1180	0.0131	0.1208	0.0104	-	-	0.2623
		CNA208	Cessna Caravan	0.1798	0.0038	0.1770	0.0066	-	-	0.3672
		DHC6	DeHaviland Twin Otter	0.5605	0.0033	0.5475	0.0164	-	-	1.1277
Air Taxi Total				**2.9022**	**0.0745**	**2.8849**	**0.0918**	**-**	**-**	**5.9534**
Military	Helicopter	B212	Bell 212 Twin Huey	0.0023	-	0.0023	-	-	-	0.0047
		B429	Bell 429 GlobalRanger	0.0352	-	0.0352	-	-	-	0.0704
		CH47D	Boeing CH-47 Chinook	0.0141	-	0.0141	-	-	-	0.0282
		EC130	Eurocopter EC-130	0.0047	-	0.0047	-	-	-	0.0094
		H500D	MD Helicopters MD 500	0.0047	-	0.0047	-	-	-	0.0094
		S70	Sikorsky UH-60 Black Hawk	0.1033	-	0.1033	-	-	-	0.2066
		SA365N	Eurocopter AS365 Dauphin	0.0023	-	0.0023	-	-	-	0.0047
	Jet	737800	Boeing 737-800 Series	0.0047	-	0.0047	-	-	-	0.0094
		A10A	Fairchild A-10A Thunderbolt II	2.1918	-	2.1918	-	1.7671	-	6.1507

Aircraft Category	Engine	AEDT Type	Aircraft Description	Arrivals		Departures		Circuits		Total
				Day	Night	Day	Night	Day	Night	
		A7D	LTV A-7 Corsair II	0.0023	-	0.0023	-	-	-	0.0047
		C17	Boeing C-17A	0.0282	-	0.0282	-	-	-	0.0563
		CL600	Bombardier Challenger 600	0.0047	-	0.0047	-	-	-	0.0094
		CNA55B	Cessna 550 Citation II	0.0047	-	0.0047	-	-	-	0.0094
		CNA560U	Cessna 560 Citation V	0.0047	-	0.0047	-	-	-	0.0094
		F16A	Lockheed Martin F-16 Fighting Falcon	0.0094	-	0.0094	-	-	-	0.0188
		F-18	Boeing F/A-18 Hornet	0.0117	-	0.0117	-	-	-	0.0235
		LEAR25	Learjet 25	0.0023	-	0.0023	-	-	-	0.0047
		LEAR35	Learjet 35	0.0094	-	0.0094	-	-	-	0.0188
	Piston Prop	CNA172	Cessna 172 Skyhawk	0.0023	-	0.0023	-	-	-	0.0047
		GASEPV	Generic General Aviation Single- Engine Variable Pitch Propeller	0.0047	-	0.0047	-	-	-	0.0094
		PA28	Piper PA-28 Cherokee Series	0.0023	-	0.0023	-	-	-	0.0047
	Turboprop	C130	Lockheed C-130H Hercules	0.0164	-	0.0164	-	-	-	0.0329
		C130AD	Lockheed C-130 Hercules	0.0141	-	0.0141	-	-	-	0.0282
		CNA208	Cessna Caravan	0.0211	-	0.0211	-	-	-	0.0422
		DHC6	DeHaviland Twin Otter	0.0141	-	0.0141	-	-	-	0.0282
		DHC830	DeHaviland Dash 8-300 Series	0.0775	-	0.0775	-	-	-	0.1549
Military Total				**2.5932**	**-**	**2.5932**	**-**	**1.7671**	**-**	**6.9534**
General Aviation	Helicopter	B206L	Bell 206 JetRanger	0.4304	-	0.4304	-	-	-	0.8608
		B407	Bell 407	0.0652	-	0.0652	-	-	-	0.1304
		B429	Bell 429 GlobalRanger	0.1435	0.0522	0.1223	0.0734	-	-	0.3913
		B430	Bell 430	0.1655	0.0236	0.1239	0.0652	-	-	0.3782
		EC130	Eurocopter EC-130	0.1663	0.0685	0.1956	0.0391	-	-	0.4695
		H500D	MD Helicopters MD 500	0.0391	-	0.0293	0.0098	-	-	0.0783
		R22	Robinson R22	0.0837	0.0076	0.0913	-	22.3572	-	22.5398
		R44	Robinson R44 Raven	0.0587	-	0.0587	-	-	-	0.1174
		S61	Sikorsky SH-3 Sea King	0.0196	-	0.0065	0.0130	-	-	0.0391
		S76	Sikorsky S-76 Spirit	0.1162	0.0077	0.1043	0.0196	-	-	0.2478
		SA330J	Aerospatiale SA-330 Puma	3.2477	0.8478	3.5023	0.5931	-	-	8.1909
		SA341G	Aerospatiale SA-341G/342 Gazelle	0.6065	0.2935	0.7891	0.1109	-	-	1.7999
		SA350D	Aerospatiale SA-350D Astar	2.1847	0.2217	2.1719	0.2345	-	-	4.8128
		SA355F	Aerospatiale SA-355F Twin Star	0.0391	-	0.0391	-	-	-	0.0783
		SA365N	Eurocopter AS365 Dauphin	0.0065	0.0065	-	0.0130	-	-	0.0261
	Jet	BD-700-1A10	Bombardier Global Express	0.2384	0.0421	0.2478	0.0326	-	-	0.5608
		BD-700-1A11	Bombardier Global 5000 Business	0.0326	-	0.0326	-	-	-	0.0652
		CIT3	Cessna 650 Citation III	0.0522	-	0.0522	-	-	-	0.1043
		CL600	Bombardier Challenger 600	0.3702	0.0080	0.3522	0.0261	-	-	0.7565
		CL601	Bombardier Challenger 601	0.5472	0.0527	0.5804	0.0196	0.0353	-	1.2353
		CNA500	Cessna 500 Citation I	0.0196	-	-	0.0196	0.0589	-	0.0980
		CNA510	Cessna Citation Mustang	0.2141	0.0076	0.2217	-	-	-	0.4435

Aircraft Category	Engine	AEDT Type	Aircraft Description	Arrivals		Departures		Circuits		Total
				Day	Night	Day	Night	Day	Night	
		CNA525C	Cessna 525 CitationJet	1.6564	0.0913	1.6579	0.0898	-	-	3.4955
		CNA55B	Cessna 550 Citation II	2.9522	0.6803	2.9998	0.6326	1.0012	-	8.2661
		CNA560E	Cessna 560 Citation V	0.0130	-	0.0130	-	-	-	0.0261
		CNA560U	Cessna 560 Citation V	0.3587	0.0130	0.3717	-	-	-	0.7434
		CNA560XL	Cessna 560 Citation XLS	0.3195	0.0065	0.3261	-	-	-	0.6521
		CNA680	Cessna 680 Citation Sovereign	0.1891	-	0.1891	-	-	-	0.3782
		CNA750	Cessna 750 Citation X	1.6304	0.0913	1.6271	0.0945	0.1649	-	3.6082
		ECLIPSE500	Eclipse 500	0.0652	-	0.0580	0.0072	-	-	0.1304
		EMB145	Embraer ERJ145	0.0326	-	0.0326	-	-	-	0.0652
		FAL20	Dassault Falcon 20	0.1301	0.0068	0.1239	0.0130	0.0236	-	0.2975
		GIIB	Gulfstream II-B	0.0196	-	0.0196	-	-	-	0.0391
		GIV	Gulfstream IV	0.2868	0.0067	0.2804	0.0130	0.0118	-	0.5987
		GV	Gulfstream V	0.6261	0.1304	0.7304	0.0261	-	-	1.5130
		IA1125	Gulfstream G100	1.1400	0.1186	1.1999	0.0587	0.1531	-	2.6704
		LEAR25	LearJet 25	0.0196	-	0.0196	-	-	-	0.0391
		LEAR35	LearJet 35	2.7537	0.1679	2.7194	0.2022	0.2591	-	6.1023
		MU3001	Mitsubishi MU-300/Raytheon Beechjet 400	0.5348	0.0130	0.5107	0.0371	5.2300	-	6.3256
	Piston Prop	BEC58P	Beechcraft Baron	4.9889	0.1239	5.0445	0.0683	21.9567	-	32.1823
		CNA172	Cessna 172 Skyhawk	6.7497	0.2022	6.8561	0.0957	33.5359	-	47.4395
		CNA182	Cessna 182 Skylane	1.4797	0.1245	1.5847	0.0196	1.8494	-	5.0579
		CNA206	Cessna 206 Stationair	0.1289	0.0081	0.1369	-	0.0236	-	0.2975
		COMSEP	Generic Composite Single - Engine Piston Propeller General Aviation Aircraft	1.7217	0.0456	1.7103	0.0570	0.5890	-	4.1236
		GASEPF	Generic General Aviation Single- Engine Fixed Pitch Propeller	1.1217	0.0065	1.1158	0.0124	10.1538	-	12.4102
		GASEPV	Generic General Aviation Single- Engine Variable Pitch Propeller	6.0323	0.1239	6.0125	0.1437	16.1259	-	28.4384
		PA28	Piper PA-28 Cherokee	1.2195	0.0326	1.2279	0.0242	-	-	2.5042
		PA30	Piper PA-30 Twin Comanche	0.8397	0.0668	0.6847	0.2217	-	-	1.8129
	Turboprop	1900D	Raytheon Beech 1900	0.0978	-	0.0978	-	-	-	0.1956
		CNA208	Cessna Caravan	1.9108	0.0652	1.9231	0.0529	1.2368	-	5.1888
		CNA441	Cessna 441 Conquest	0.1239	-	0.1239	-	0.0825	-	0.3303
		DHC6	DeHaviland Twin Otter	1.2912	0.0261	1.2290	0.0884	0.2827	-	2.9174
		DHC830	DeHaviland Dash 8-300 Series	0.0261	-	0.0261	-	-	-	0.0522
General Aviation Total				**49.3063**	**3.7910**	**49.8697**	**3.2276**	**115.1315**	**-**	**221.3260**
Grand Total				**54.8016**	**3.8655**	**55.3477**	**3.3194**	**116.8986**	**-**	**234.2329**

Notes:
Totals may not match exactly due to rounding
Circuits are counted as two operations

In addition to aircraft flight operations, aircraft maintenance runups occur at MTN. AEDT requires aircraft maintenance runup details be included as inputs, including location, direction, aircraft type, power settings, and frequency of maintenance runups. The detailed breakdown of maintenance runups for civilian operators at MTN was determined based on surveys completed by MTN operators. Military runups were estimated from information supplied and validated by the MDANG. Civilian and military maintenance runup activity at MTN for 2019 are reported in Table 8.

Anticipated five-year and ten-year MTN civilian and military maintenance runup activity is not expected to change from the 2019 base year inputs and future year contours also utilize the values in Table 8.

Table 8. Modeled Average Daily Aircraft Runups for 2019, 2025, and 2030

AEDT Type	Aircraft Description	Site Name	Latitude (degrees)	Longitude (degrees)	Magnetic Heading (degrees)	Number of Runups	Duration per Runup (sec.)	Approximate Power Setting (% of Takeoff Thrust/RPM)
A-10A	Fairchild A-10A Thunderbolt II	Ramp	39.335324	-76.42110	360º	2.9014	150	85%
		Trim pad	39.327734	-76.41256	330º	0.0493	300	94%
		Test cell	39.328166	-76.41154	330º	0.0192	900	100%
CNA172	Cessna 172 Skyhawk	Maintenance Runup 1	39.328256	-76.41953	015º	0.1370	60	80%
CNA172	Cessna 172 Skyhawk	Maintenance Runup 2	39.328256	-76.41953	205º	0.1425	60	80%
Source: MDANG and MTN Operators								

3.3 Aircraft Noise and Performance Characteristics

Specific noise and performance data must be entered into AEDT for each aircraft type operating at MTN. Noise data are included in the form of Sound Exposure Level (SEL) at a range of distances (from 200 feet to 25,000 feet) from a particular aircraft with engines at a specific thrust level. SEL is a measure of the total "noisiness" of an event, that takes duration of the event into account. Performance data includes thrust, speed and altitude data for takeoff and landing operations often referred to as aircraft profiles. The AEDT database contains standard noise and performance data for over 300 different aircraft types, which includes both civilian and military aircraft. AEDT automatically accesses the noise and performance data for takeoff, landing, and circuit operations by aircraft included in the database.

All civilian fixed-wing aircraft, helicopter arrivals and departures, and military arrivals and departures modeled for the MTN ANZ update utilized the standard aircraft noise and performance data contained within the AEDT database. For helicopter circuit operations, a custom profile for the R22 helicopter type was developed because the AEDT database does not contain a standard profile for R22 circuit operations. The custom profile combines the standard AEDT R22 arrival and departure profiles. For military circuit operations, the A-10 aircraft circuit profile as developed by the Air Force Civil Engineer Center (AFCEC) was utilized. This profile was originally developed using a different noise modeling software, NOISEMAP, for the 2005 MTN Base Realignment and Closure Actions Act (BRAC) Study. The 2005 BRAC study was also used as the basis for modeling A-10 circuit operations in the prior 2012 MTN ANZ update. After validation by MDANG, the same inputs were derived from the NOISEMAP standard A-10 circuit profiles from the 2012 MTN ANZ update. These inputs were then used in AEDT to model A-10 circuit operations for this MTN ANZ update.

Within the AEDT database, aircraft takeoff or departure profiles are usually defined by a range of trip distances identified as "stagelengths." A longer trip distance or higher stagelength is associated with a heavier aircraft due to the increase in fuel requirements for the flight. For example, a departure aircraft with a trip distance less than 500 Nautical Miles (Nm) would be assigned a stagelength value of one, where a departure aircraft with a trip distance of 3,000 Nm would be assigned a stagelength value of five. Stagelength determinations were obtained from aircraft departure data obtained from the MDOT MAA ANOMS. Table 9 gives the stagelength classifications by their associated trip distances. Stagelength distributions are only applied to General Aviation and Air Taxi aircraft. Military aircraft were assigned a stagelength value of one, as there was insufficient data to determine trip distances for military operations and these operations were not included in data obtained from the MDOT MAA ANOMS. Table 10 presents the modeled stagelength use percentages for departures for the 2019 base year. Anticipated five-year and ten-year MTN civilian and military performance characteristics are not expected to change from the 2019 base year and therefore also reflect the values listed in Table 10.

Table 9. Stagelengths by Trip Distance

Stagelength	Trip Distance (Nm)
1	0-500
2	501-1,000
3	1,001-1,500
4	1,501-2,500
5	2,501-3,500
6	3,501-4,500
7	4,501-5,500
8	5,501-6,500
9	6,501+

Table 10. Modeled Air Taxi and General Aviation Departure Stagelength Usage by Aircraft Type

AEDT Type	Aircraft Description	Stagelength						
		Day				Night		
		1	2	4	5	1	2	4
1900D	Raytheon Beech 1900	100.0%	-	-	-	100.0%	-	-
BD-700-1A10	Bombardier Global Express	58.5%	9.8%	17.1%	14.6%	83.3%	-	16.7%
BD-700-1A11	Bombardier Global 5000 Business	60.0%	20.0%	-	20.0%	-	-	-
BEC58P	Beechcraft Baron	100.0%	-	-	-	100.0%	-	-
CIT3	Cessna 650 Citation III	100.0%	-	-	-	-	-	-
CL600	Bombardier Challenger 600	100.0%	-	-	-	100.0%	-	-
CL601	Bombardier Challenger 601	100.0%	-	-	-	100.0%	-	-
CNA172	Cessna 172 Skyhawk	100.0%	-	-	-	100.0%	-	-

AEDT Type	Aircraft Description	Stagelength						
		Day				Night		
		1	2	4	5	1	2	4
CNA182	Cessna 182 Skylane	100.0%	-	-	-	100.0%	-	-
CNA206	Cessna 206 Stationair	100.0%	-	-	-	100.0%	-	-
CNA208	Cessna Caravan	100.0%	-	-	-	100.0%	-	-
CNA441	Cessna 441 Conquest	100.0%	-	-	-	100.0%	-	-
CNA500	Cessna 500 Citation I	-	-	-	-	100.0%	-	-
CNA510	Cessna Citation Mustang	100.0%	-	-	-	100.0%	-	-
CNA525C	Cessna 525 CitationJet	100.0%	-	-	-	100.0%	-	-
CNA55B	Cessna 550 Citation II	100.0%	-	-	-	100.0%	-	-
CNA560E	Cessna 560 Citation V	100.0%	-	-	-	-	-	-
CNA560U	Cessna 560 Citation V	100.0%	-	-	-	100.0%	-	-
CNA560XL	Cessna 560 Citation XLS	100.0%	-	-	-	100.0%	-	-
CNA680	Cessna 680 Citation Sovereign	100.0%	-	-	-	100.0%	-	-
CNA750	Cessna 750 Citation X	100.0%	-	-	-	100.0%	-	-
COMSEP	Generic Composite Single - Engine Piston Propeller General Aviation Aircraft	100.0%	-	-	-	100.0%	-	-
DHC6	DeHaviland Twin Otter	100.0%	-	-	-	100.0%	-	-
DHC830	DeHaviland Dash 8-300 Series	100.0%	-	-	-	-	-	-
ECLIPSE500	Eclipse 500	100.0%	-	-	-	50.0%	50.0%	-
EMB145	Embraer ERJ145	100.0%	-	-	-	-	-	-
FAL20	Dassault Falcon 20	100.0%	-	-	-	100.0%	-	-
GASEPF	Generic General Aviation Single-Engine Fixed Pitch Propeller	100.0%	-	-	-	100.0%	-	-
GASEPV	Generic General Aviation Single-Engine Variable Pitch Propeller	100.0%	-	-	-	100.0%	-	-
GIIB	Gulfstream II-B	100.0%	-	-	-	-	-	-
GIV	Gulfstream IV	100.0%	-	-	-	100.0%	-	-
GV	Gulfstream V	100.0%	-	-	-	100.0%	-	-
IA1125	Gulfstream G100	100.0%	-	-	-	100.0%	-	-
LEAR25	LearJet 25	100.0%	-	-	-	-	-	-
LEAR35	LearJet 35	100.0%	-	-	-	100.0%	-	-
MU3001	Mitsubishi MU-300/Raytheon Beechjet 400	100.0%	-	-	-	100.0%	-	-

AEDT Type	Aircraft Description	Stagelength						
		Day				Night		
		1	2	4	5	1	2	4
PA28	Piper PA-28 Cherokee Series	100.0%	-	-	-	100.0%	-	-
PA30	Piper PA-30 Twin Comanche	100.0%	-	-	-	100.0%	-	-

3.4 Runway Utilization

The primary factor affecting runway and helipad use at airports is weather, in particular, the wind direction and wind speed. Additional factors that may affect runway use include the position of the facility or ramp relative to the runways or operational proficiency training for military units.

Based on calendar year 2018 data derived from the MDOT MAA ANOMS and information supplied by the MDANG, the overall runway usage tables for MTN were compiled by operation types: arrival, departure, or circuit; and time of day: day or night. Since actual radar tracks are used in the modeling process, these utilization rates were adapted and applied in the AEDT modeling process. Table 11 and Table **12** present the runway and helipad utilization rates used for modeling the 2019 base year operations. Military helicopters exclusively use the HML helipad. Anticipated five-year and ten-year MTN civilian and military runway or helipad utilization are not expected to change from the 2019 base year percentages as shown in Table 11 and Table 12.

Table 11. Fixed Wing Runway Utilization Percentages

Aircraft Category	Operation Mode	Runway	
		15	33
Air Taxi	Arrivals	44.8%	55.2%
	Departures	42.1%	57.9%
General Aviation	Arrivals	46.5%	53.5%
	Departures	42.4%	57.6%
	Circuits	47.8%	52.2%
Military	Arrivals	44.4%	55.6%
	Departures	44.4%	55.6%
	Circuits	100.0%	0.0%

Table 12. Helipad Utilization Percentages

Aircraft Category	Operation Mode	Helipad				
		HBP	HCP	HSP	HPC	HML
General Aviation	Arrivals	10.3%	42.7%	47.0%	0.0%	0.0%
	Departures	14.8%	38.7%	46.6%	0.0%	0.0%
	Circuits	0.0%	0.0%	0.0%	100.0%	0.0%
Military	All	0.0%	0.0%	0.0%	0.0%	100.0%

3.5 Flight Track Geometry and Use

To develop the MTN ANZ update flight tracks a preprocessor, RealContours software for AEDT™, was used to convert radar flight tracks to AEDT flight tracks. RealContours software for AEDT™ used individual flight tracks taken directly from the MDOT MAA ANOMS rather than relying on consolidated, representative flight track data like common modeling methodologies do. The RealContours software for AEDT™ approach essentially eliminated the approximation associated with the use of a limited set of prototypical modeling tracks by applying the AEDT's modeling capabilities on a flight-by-flight basis. This provides the advantage of modeling each aircraft operation on the specific runway it used and at the actual time of day of the arrival or departure. RealContours software for AEDT™ created an AEDT study using the AEDT standard data in combination with operations to produce an AAD DNL contour. The methodology followed for the MTN ANZ update, including the use of RealContours software for AEDT™, has been used for a variety of FAA-funded and reviewed airport noise studies.

Figure 3 and Figure 4 provide density plots of all modeled fixed-wing arrival and departure flight tracks. Flight track density plots represent generalized depictions of the flight tracks and operations used to develop both the base year and future year contours. The plots demonstrate where the majority of aircraft typically fly when arriving or departing MTN. They also allow for the presentation of comparative information over an extended period of time by using thousands of actual aircraft flight tracks. Rather than presenting every individual track, the plots use color gradations to depict the frequency of aircraft operations over extended time periods. The figures summarize the flight track geometry, dispersion, and the frequency of aircraft operations by using a uniform color gradient scheme based on the relative density of the traffic. The "warmer" red colors indicate areas where the most aircraft operations occurred and the "cooler" blue colors indicate the areas where the fewest aircraft operations occurred given the flight track data described above.

For all helicopter and fixed-wing circuit operations at MTN, model tracks were developed using a standard method. Model tracks were developed due to an insufficient amount of radar data available for these aircraft types in the MDOT MAA ANOMS and inconsistency in the track data nearby the airport at low altitudes due to limited radar coverage. The method requires analysis of calendar year 2018 radar data, as derived from the MDOT MAA ANOMS, in order to split the flight tracks into similar and manageable groups. Model tracks were created by first separating radar tracks by phase of flight (e.g., arrival or departure) and then by runway end. Following this step, the flights were separated by destination direction, such as northeast, south, or west. Finally, radar flight tracks were analyzed and split into groups according to their degree of similar geometry.

For military operations at MTN, model tracks were estimated from information supplied and validated by the MDANG. Figure 5 through Figure 11 show the developed model tracks layered over the airport base map for fixed-wing circuit, all helicopter, and all military operations, respectively.

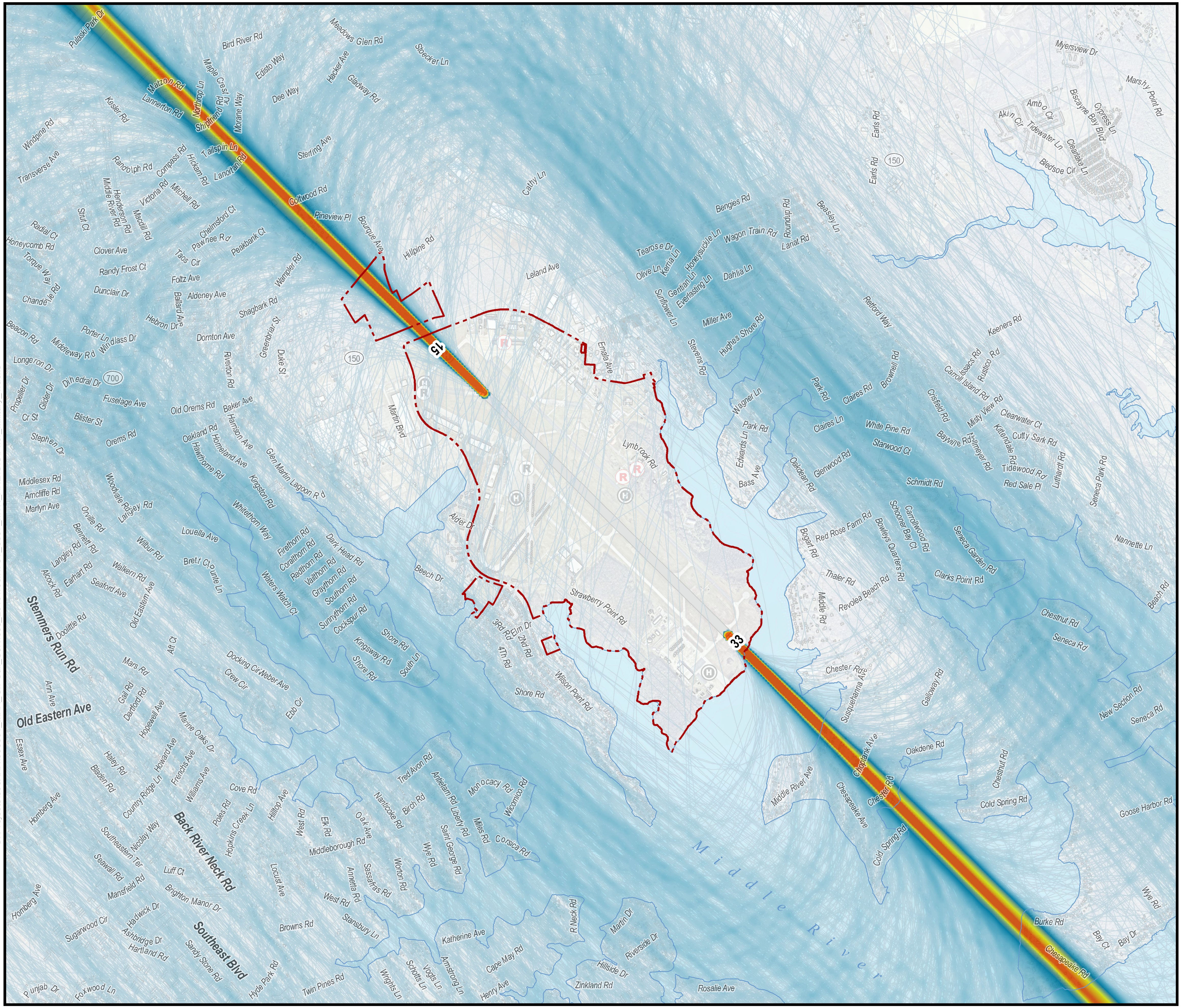
Each model track was assigned a unique name based on the associated runway or helipad, aircraft type, type of operation, and direction associated with each model track. The relative ratio of flight track usage was preserved according to those ratios in the entire radar dataset for fixed-wing circuit and helicopter operations. For military operations, track utilization was estimated from information validated by the MDANG. Anticipated five-year and ten-year MTN civilian and military flight track geometry and utilization are not expected to change from the 2019 base year.

MARTIN STATE AIRPORT

Airport Noise Zone Update

Figure 3

Modeled Civilian Fixed-Wing Arrival Flight Tracks



Helicopter Operation Area

Military Runup Location

Civilian Runup Locations

Civilian Runway

Additional Runway Available for Military Operations

Airport Boundary

Roads

Railroad

Stream / Creek

Buildings

Flight Track Density - 7,531 Flight Tracks

Low | Medium | High

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH; MDOT MAA ANOMS

0 | 2,000 | 4,000 Feet

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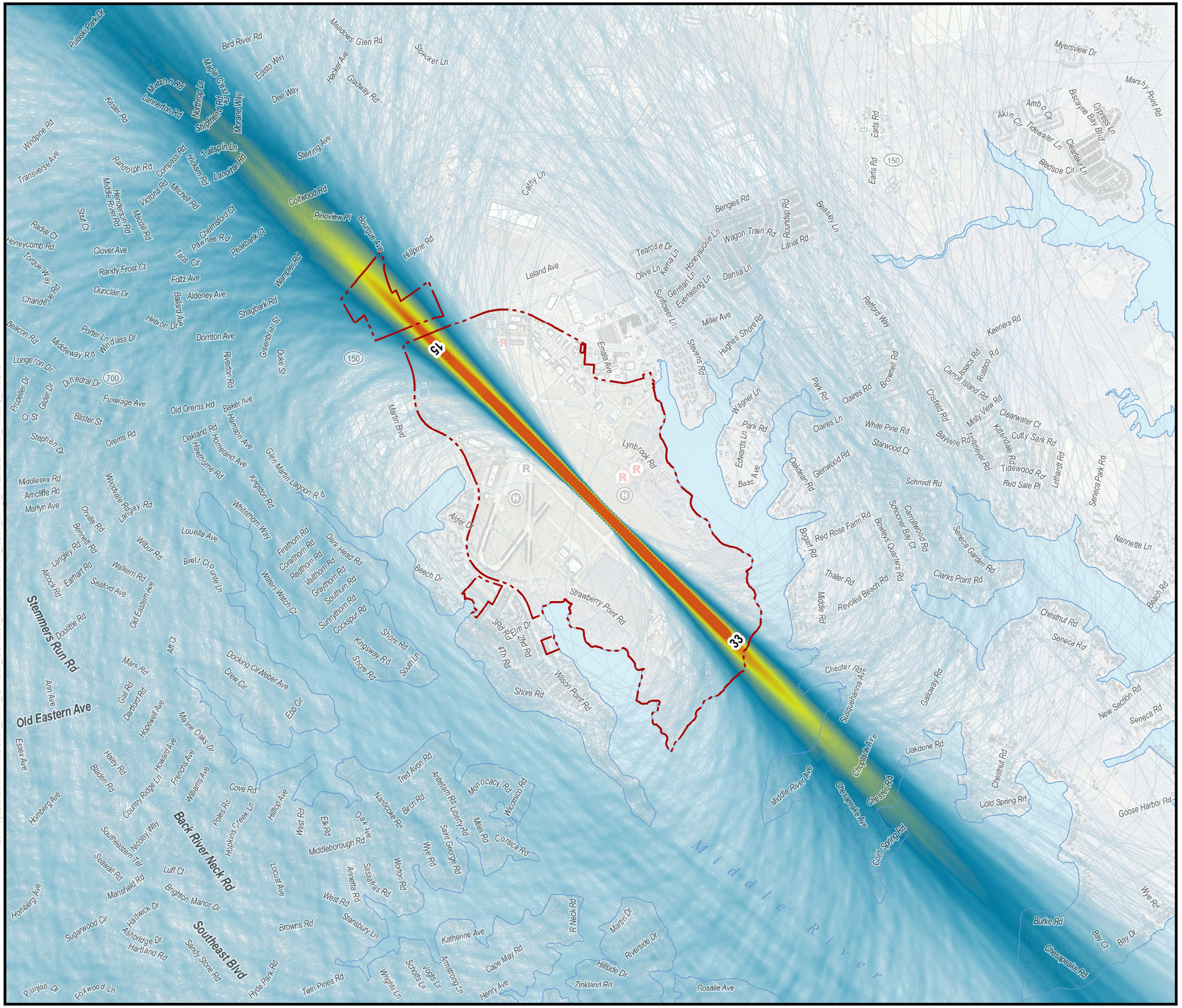

MARTIN STATE AIRPORT

Airport Noise Zone Update

Figure 4

Modeled Civilian Fixed-Wing Departure Flight-Tracks

- Helicopter Operation Area
- Military Runup Location
- Civilian Runup Locations
- Civilian Runway
- Additional Runway Available for Military Operations
- Airport Boundary
- Roads
- Railroad
- Stream / Creek
- Buildings

Flight Track Density - 6,768 Flight Tracks

Low — Medium — High

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH; MDOT MAA ANOMS

0 — 2,000 — 4,000 Feet

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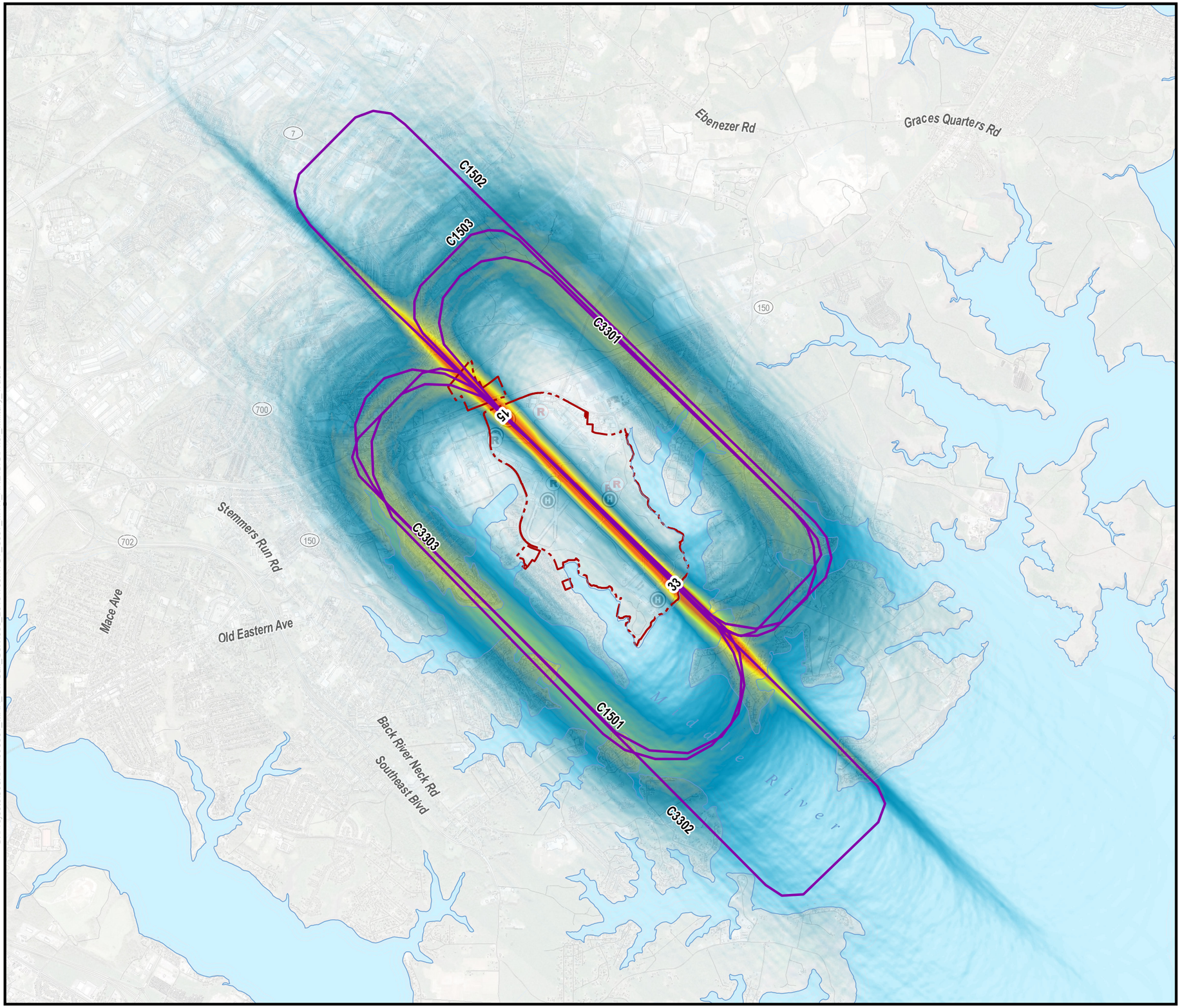

MARTIN STATE AIRPORT

Airport Noise Zone Update

Figure 5

Modeled Civilian Fixed-Wing Circuit Flight Tracks

- Modeled Civilian Fixed-Wing Circuit Flight Tracks
- Airport Boundary
- Helicopter Operation Area
- Military Runup Location
- Civilian Runup Locations
- Civilian Runway
- Additional Runway Available for Military Operations
- Roads
- Railroad
- Stream / Creek
- Buildings

Flight Track Density - 10,098 Flight Tracks

Low — Medium — High

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH; MDOT MAA ANOMS

0 — 4,000 — 8,000 Feet

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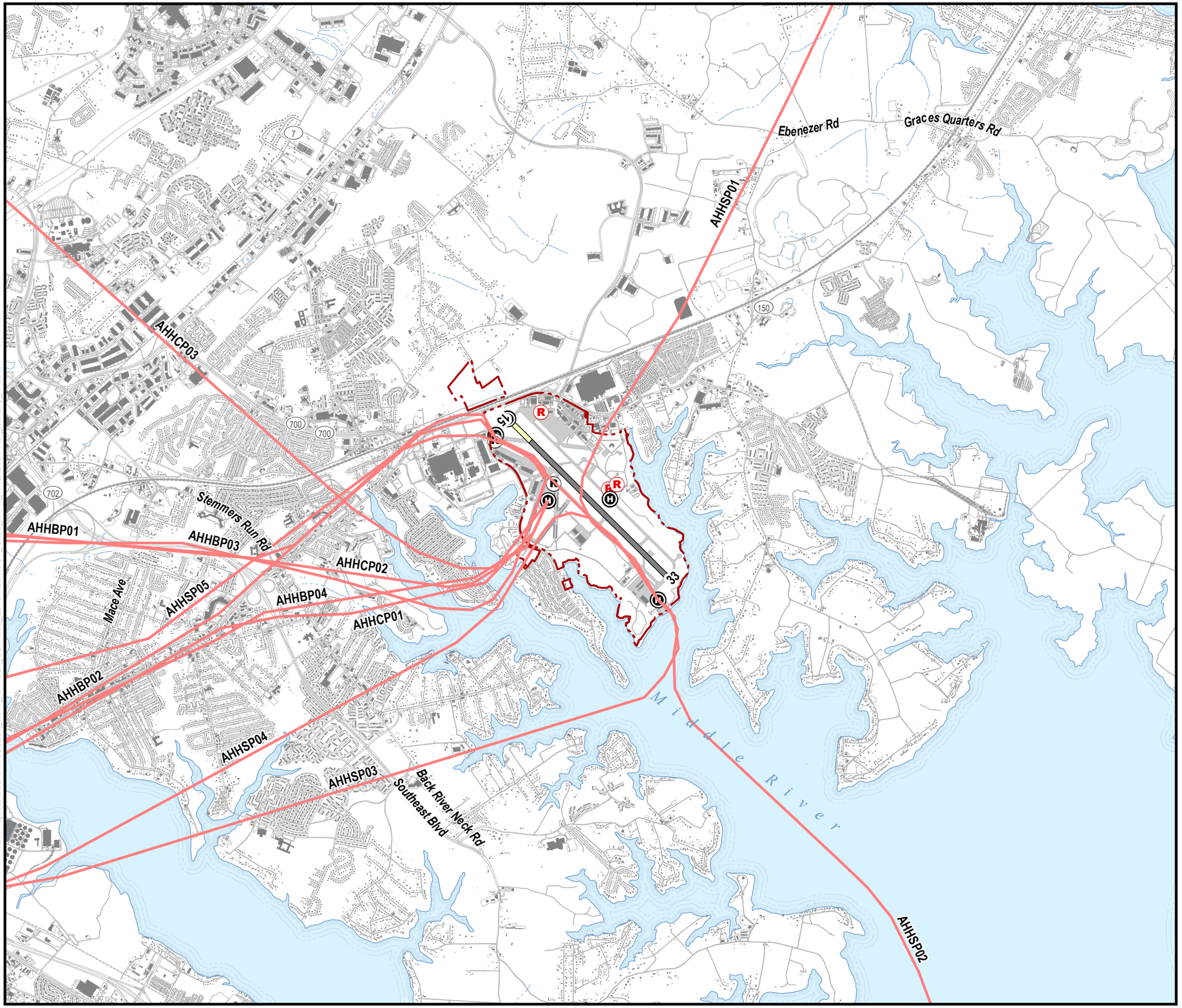

MARTIN STATE AIRPORT

Airport Noise Zone Update

Figure 6

Modeled Civilian Helicopter Arrival Flight Tracks

- Modeled Civilian Helicopter Arrival Flight Tracks
- Airport Boundary
- Helicopter Operation Area
- Military Runup Location
- Civilian Runup Locations
- Civilian Runway
- Additional Runway Available for Military Operations
- Roads
- Railroad
- Stream / Creek
- Buildings

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH

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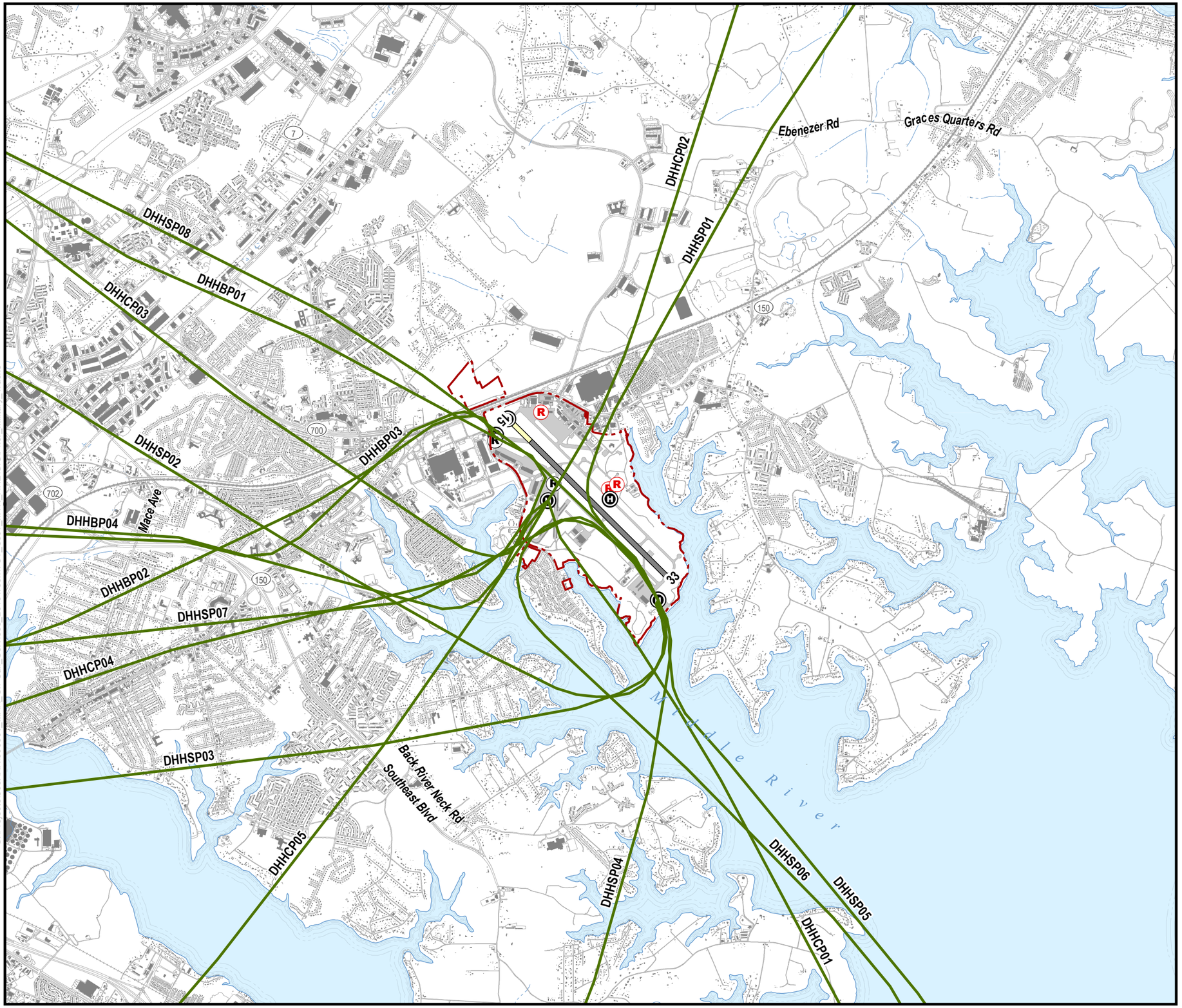


MARTIN STATE AIRPORT

Airport Noise Zone Update

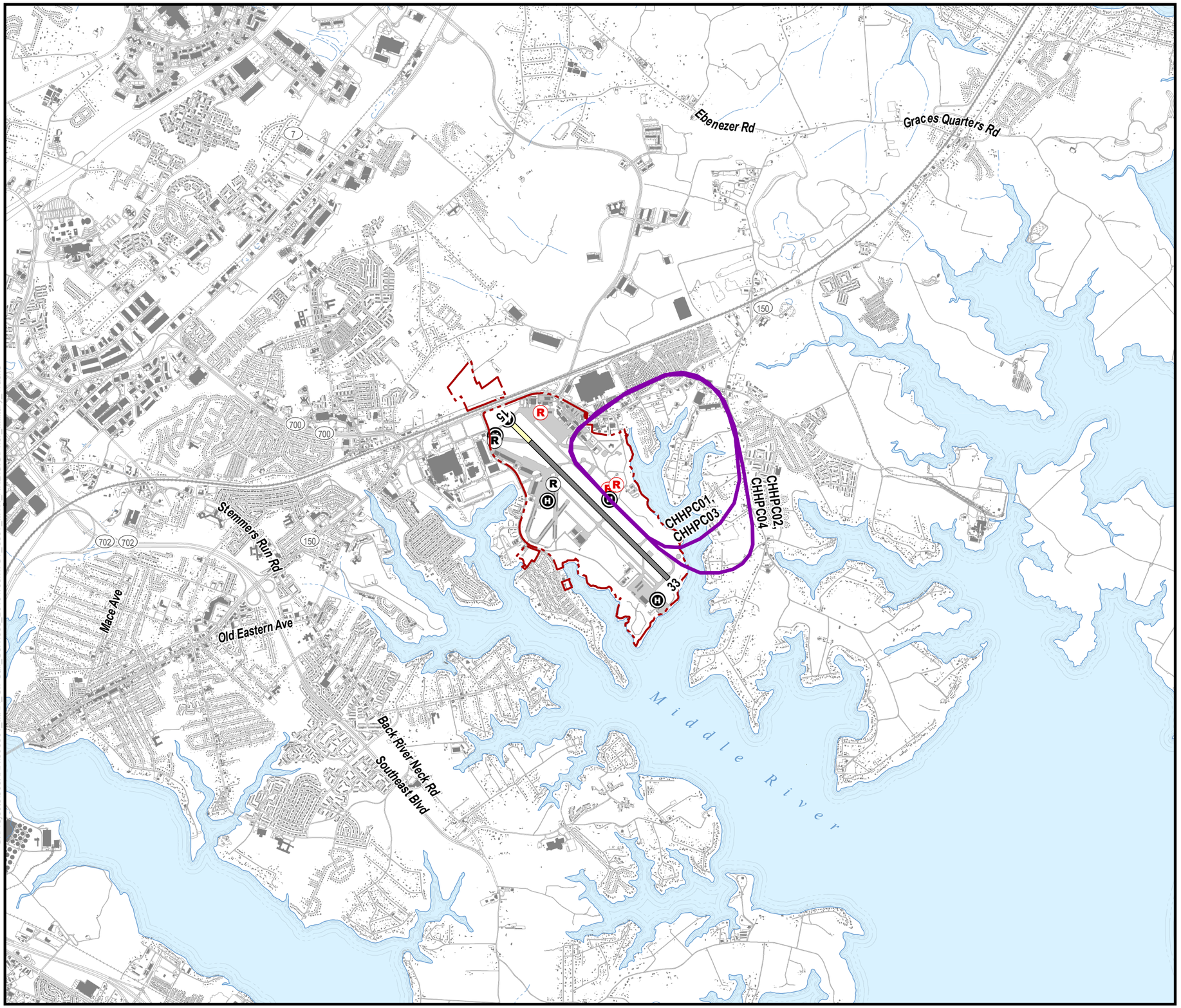
Figure 7

Modeled Civilian Helicopter Departure Flight Tracks

- Modeled Civilian Helicopter Departure Flight Tracks
- Airport Boundary
- Helicopter Operation Area
- Military Runup Location
- Civilian Runup Locations
- Civilian Runway
- Additional Runway Available for Military Operations
- Roads
- Railroad
- Stream / Creek
- Buildings

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH

0 4,000 8,000 Feet



MARTIN STATE AIRPORT

Airport Noise Zone Update

Figure 8

Modeled Civilian Helicopter Circuit Flight Tracks

Modeled Civilian Helicopter Circuit Flight Tracks

Airport Boundary

Helicopter Operation Area

Military Runup Location

Civilian Runup Locations

Civilian Runway

Additional Runway Available for Military Operations

Roads

Railroad

Stream / Creek

Buildings

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH

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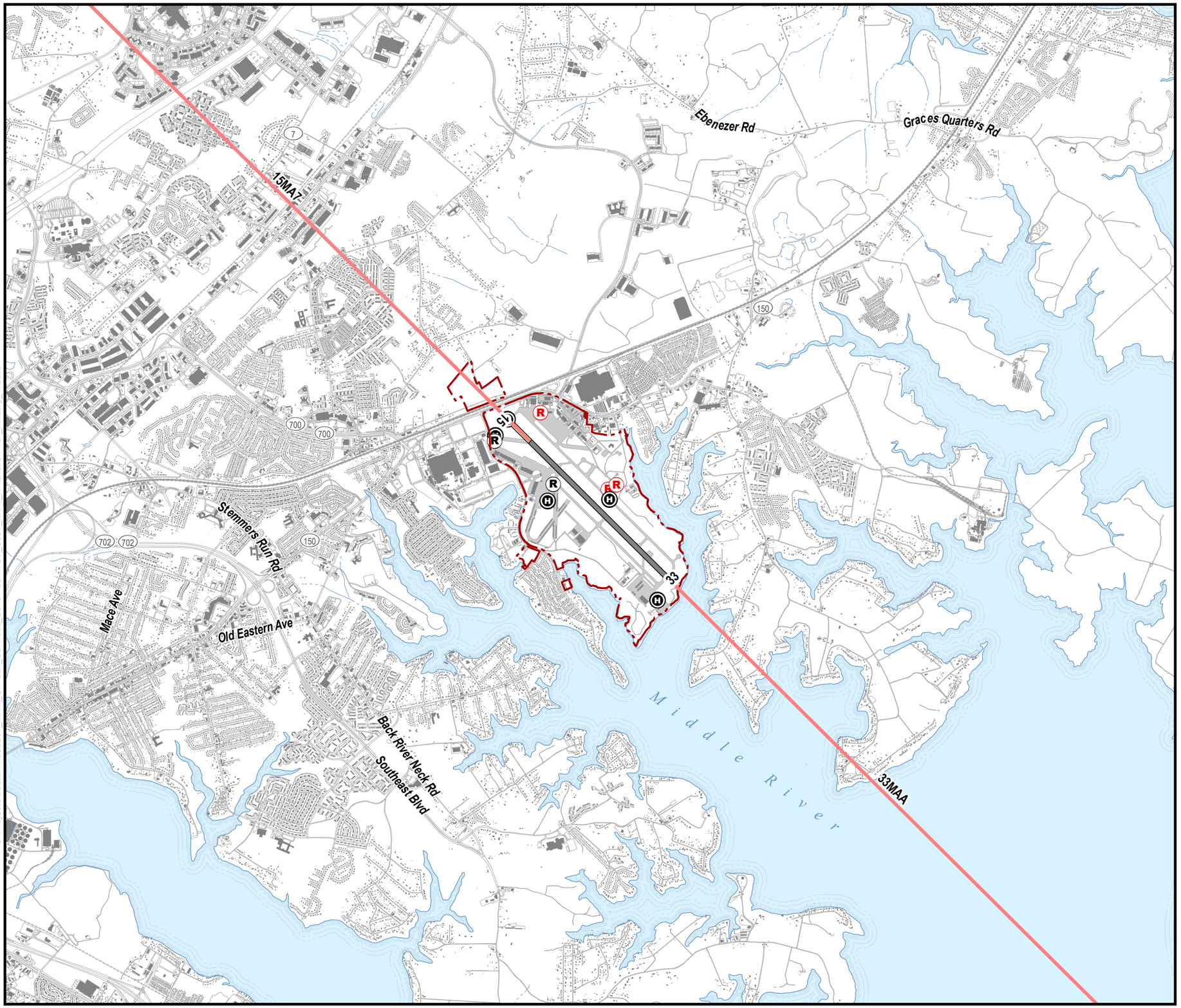

MARTIN STATE AIRPORT

Airport Noise Zone Update

Figure 9

Modeled Military Fixed-Wing and Helicopter Arrival Flight Tracks

- Modeled Military Fixed-Wing and Helicopter Arrival Flight Tracks
- Airport Boundary
- Helicopter Operation Area
- Military Runup Location
- Civilian Runup Locations
- Civilian Runway
- Additional Runway Available for Military Operations
- Roads
- Railroad
- Stream / Creek
- Buildings

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH

0 4,000 8,000 Feet

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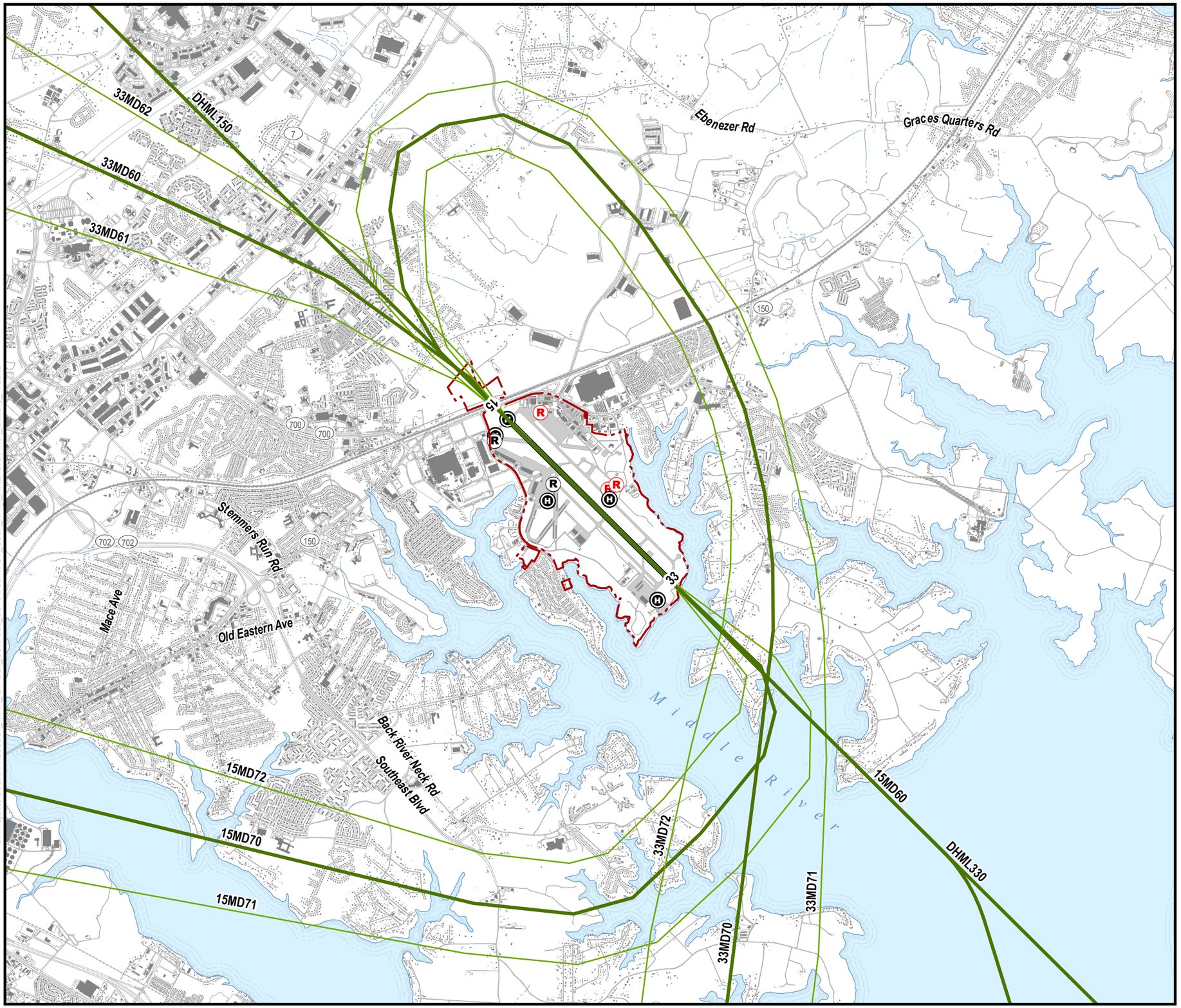

MARTIN STATE AIRPORT

Airport Noise Zone Update

Figure 10

Modeled Military Fixed-Wing and Helicopter Departure Flight Tracks

- Modeled Military Fixed-Wing and Helicopter Departure Flight Tracks (Backbone)
- Modeled Military Fixed-Wing and Helicopter Departure Flight Tracks (Dispersed)
- Airport Boundary
- Helicopter Operation Area
- Military Runup Location
- Civilian Runup Locations
- Civilian Runway
- Additional Runway Available for Military Operations
- Roads
- Railroad
- Stream / Creek
- Buildings

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH

0 4,000 8,000 Feet

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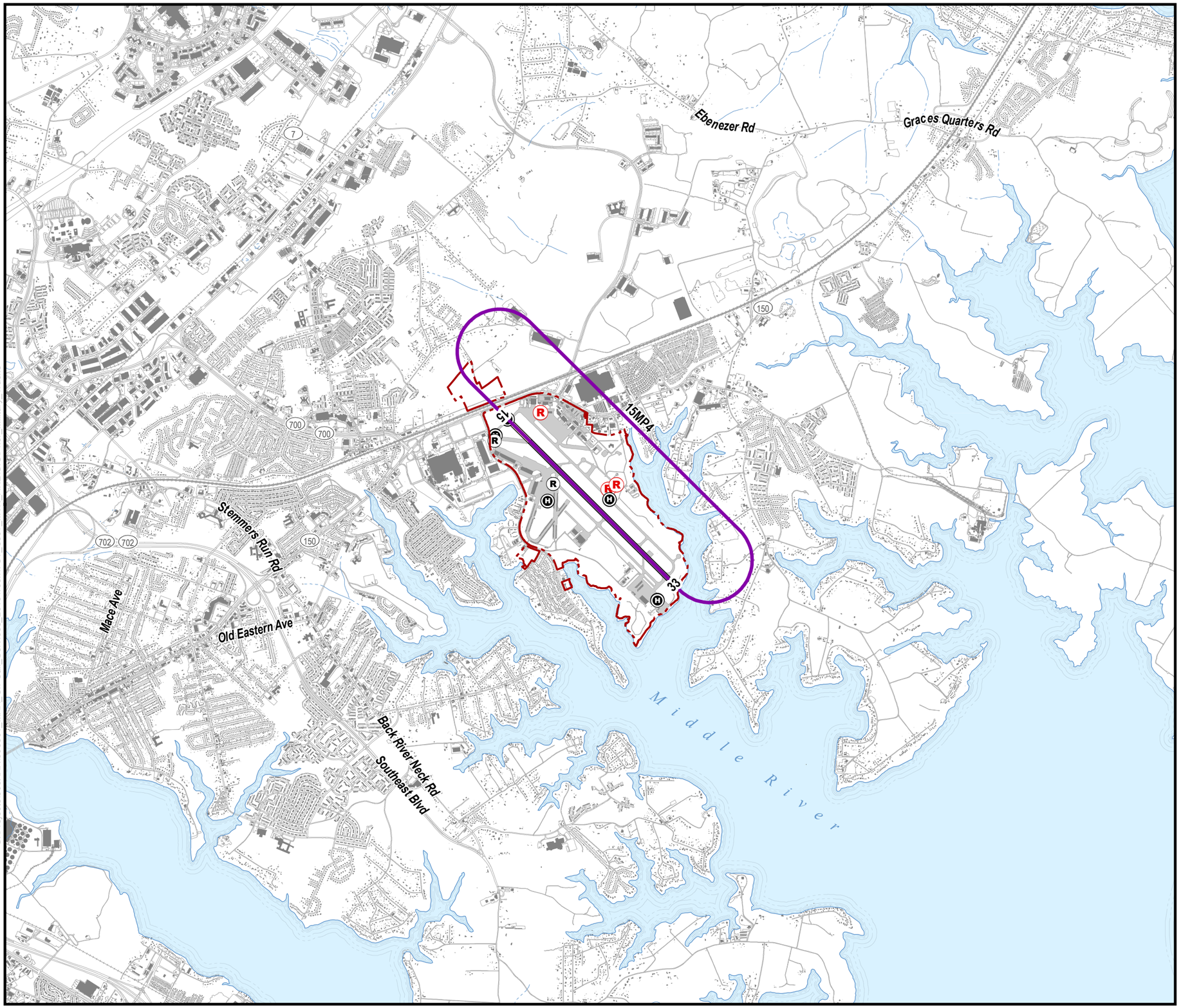

MARTIN STATE AIRPORT

Airport Noise Zone Update

Figure 11

Modeled Military Fixed-Wing Circuit Flight Tracks

Modeled Military Fixed-Wing Circuit Flight Tracks

Airport Boundary

Helicopter Operation Area

Military Runup Location

Civilian Runup Locations

Civilian Runway

Additional Runway Available for Military Operations

Roads

Railroad

Stream / Creek

Buildings

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH

0 4,000 8,000 Feet

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3.6 Meteorological Conditions

AEDT has several settings that affect aircraft performance profiles and sound propagation based on meteorological data. Meteorological settings include average annual temperature, barometric pressure, and relative humidity at the airport. AEDT utilizes the following values for annual average weather conditions at MTN which are based on a 30-year average from the National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information (NCEI)[7]:

- Temperature: 55° F
- Sea-level Pressure: 1017.75 millibars
- Relative Humidity 66.76%
- Dew Point: 45.82° F
- Wind Speed: 5.87 Knots

The AEDT annual average weather conditions values detailed above were used in AEDT for generating the base year noise contours for MTN. Since meteorological conditions are based on a 30-year average, the same values were used for the 2025 and 2030 inputs.

3.7 Terrain Data

Terrain data describes the elevation of the ground surrounding the airport and on airport property. AEDT uses terrain data to set the ground level under the flight paths. The terrain data does not affect the aircraft's performance or noise levels, but it does affect the vertical distance between the aircraft and a noise "receiver" on the ground. This in turn affects noise propagation assumptions about how noise propagates over ground. The terrain data were obtained from the United States Geological Survey (USGS) National Map Viewer and were used in conjunction with the terrain feature of AEDT to generate the base year and future year noise contours for MTN.

[7] 1981-2010 U.S. Climate Normals, National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information (NCEI), https://www.ncdc.noaa.gov/data-access/land-based-station-data/land-based-datasets/climate-normals/1981-2010-normals-data

4 Study Results

4.1 2019 Contours

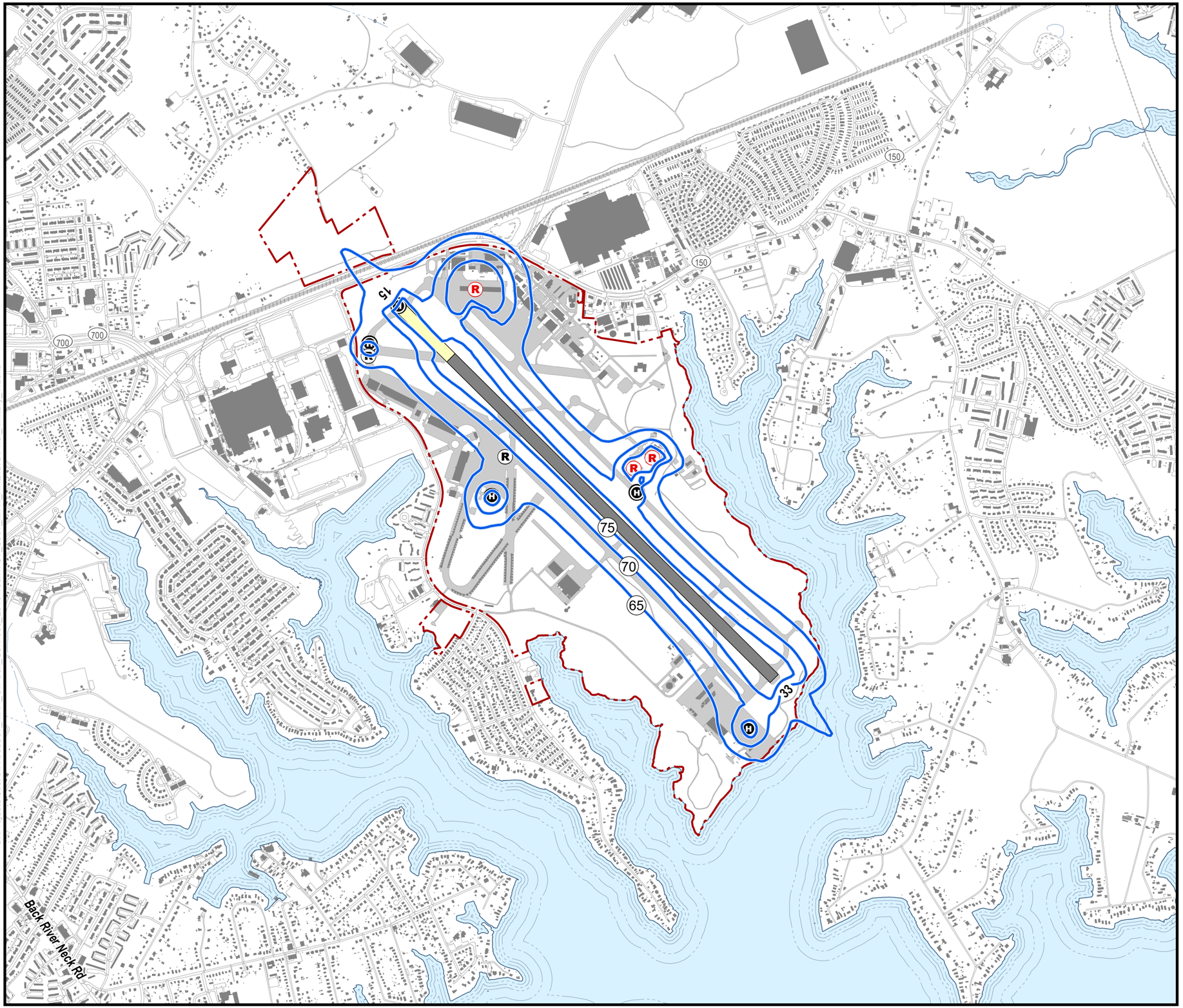
Figure 12 presents the MTN 65, 70, and 75 dB DNL contours for the 2019 base year.

MARTIN STATE AIRPORT

Airport Noise Zone Update

Figure 12

2019 Base Year DNL Contours



- 2019 Base Year DNL Contours
- Airport Boundary
- Helicopter Operation Area
- Military Runup Location
- Civilian Runup Locations
- Civilian Runway
- Additional Runway Available for Military Operations
- Roads
- Railroad
- Stream / Creek
- Buildings

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH

0 1,500 3,000 Feet

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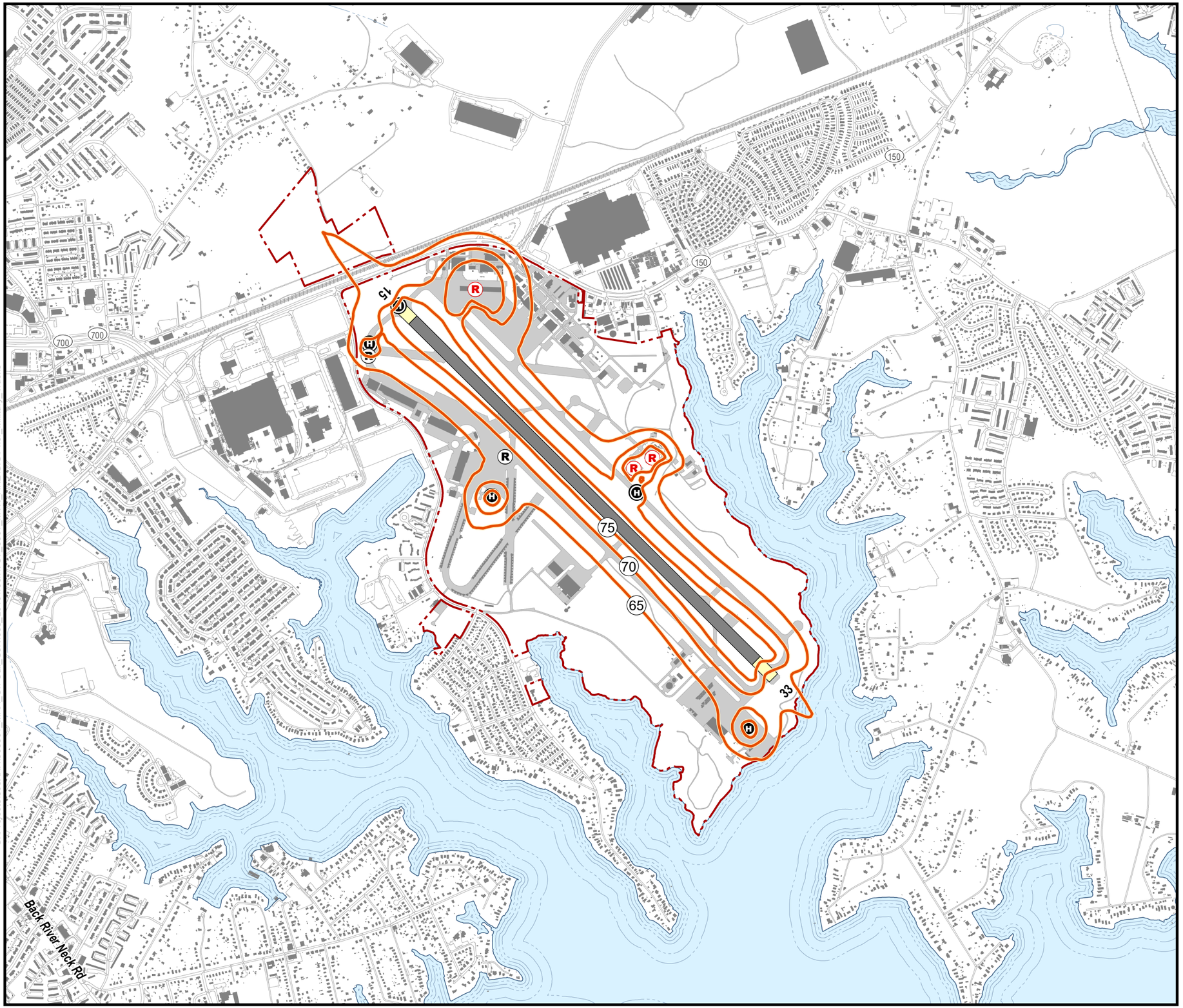
4.2 2025 and 2030 Forecast Contours

The MTN five-year (2025) and ten-year (2030) forecast contour sets were generated using AEDT 2d based on the input parameters detailed in Section 3, Noise Model Inputs. Figure 13 presents the 65, 70, and 75 dB DNL contours for the 2025 five-year forecast. Figure 14 presents the 65, 70, and 75 dB DNL contours for the 2030 ten-year forecast.

The 2025 and 2030 forecast contours shift to the northwest due to the changes in the future configuration of the Runway layout for Runway 15/33. The 65 dB DNL contour for the 2025 and 2030 forecast years continue to remain mostly on airport property consistent with the 2019 base-year.

As described in Section 3.2, the operations and fleet mix are comparable between the 2025 and 2030 forecast years with the 2030 forecast year having approximately six more AAD operations than 2025, respectively. As such, the resulting contours appear similar for both forecast years.



MARTIN STATE AIRPORT

Airport Noise Zone Update

Figure 13

2025 Five-Year Forecast DNL Contours

- 2025 Five-Year Forecast DNL Contours
- Airport Boundary
- Helicopter Operation Area
- Military Runup Location
- Civilian Runup Locations
- Civilian Runway (Future)
- Additional Runway Available for Military Operations
- Roads
- Railroad
- Stream / Creek
- Buildings

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH

0 1,500 3,000 Feet

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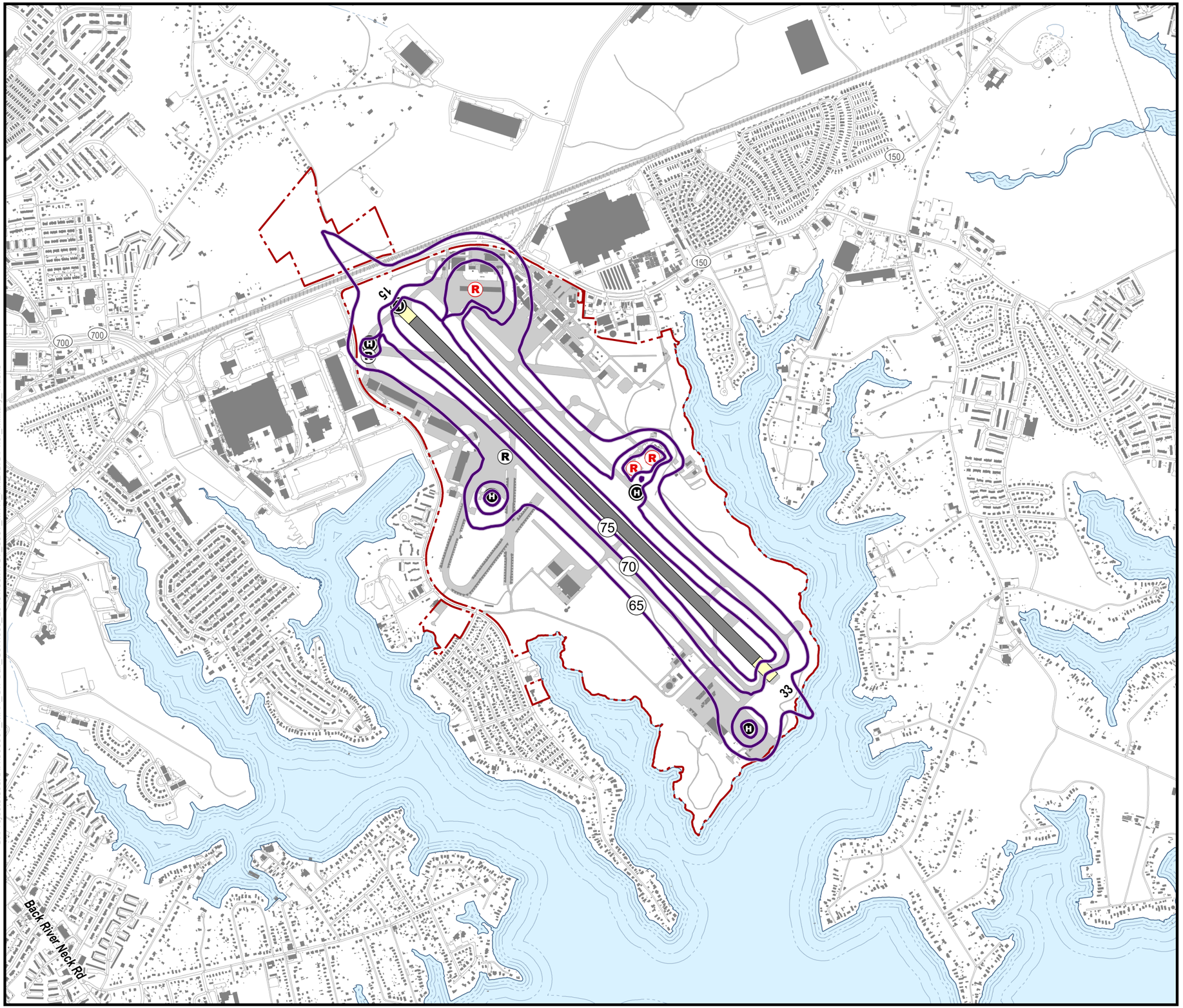

MARTIN STATE AIRPORT

Airport Noise Zone Update

Figure 14

2030 Ten-Year Forecast DNL Contours

- 2030 Ten-Year Forecast DNL Contours
- Airport Boundary
- Helicopter Operation Area
- Military Runup Location
- Civilian Runup Locations
- Civilian Runway (Future)
- Additional Runway Available for Military Operations
- Roads
- Railroad
- Stream / Creek
- Buildings

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH

0 1,500 3,000 Feet

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4.3 2020 ANZ Contours

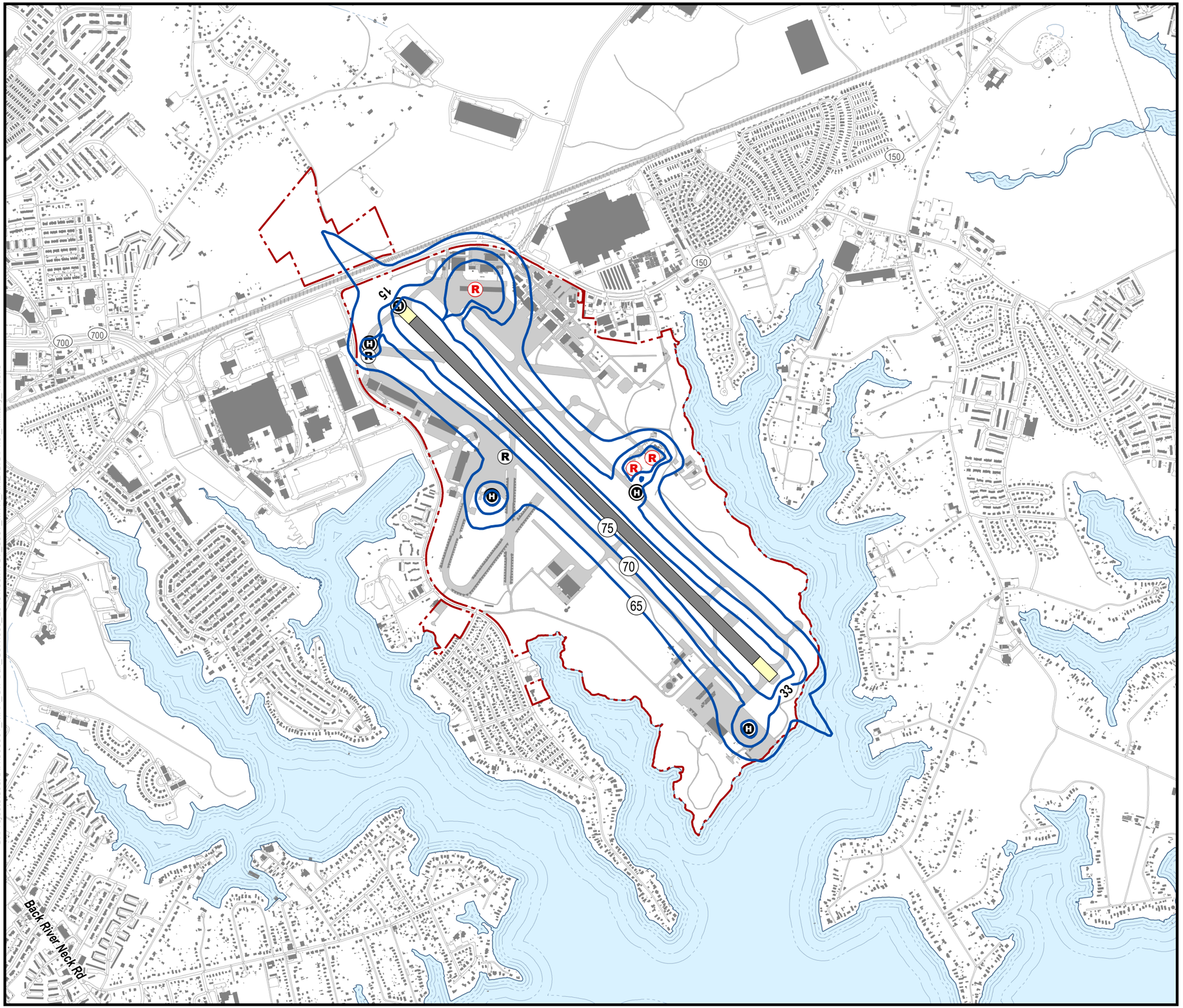
The 2020 MTN ANZ represents a composite of the 65, 70, and 75 dB DNL noise contours for three study years: the base year (2019) and two future years (2025 and 2030). The ANZ represents the outermost extent of the annual DNL contours for each of the three study years. As described in Section 1, the ANZ defines the largest area of the existing or future noise exposure contours for planning purposes.

Figure 15 presents the 65, 70, and 75 dB DNL contours for the 2020 ANZ DNL contour.

As was the case with the base and forecast contours, the 65 dB DNL contour for the 2020 ANZ continues to remain almost entirely on airport property (approximately 96%). The entire 411 acres of the 65 dB DNL contour for the 2020 ANZ remain over compatible land uses. The noise contour extends beyond airport property in three areas:

- An area approximately nine acres in size on the north side of the airport off of the approach end of Runway 15 over compatible land uses including portions of the Amtrak railroad track and Eastern Boulevard due to military maintenance runups of A10 aircraft on the Maryland Air National Guard ramp area,
- An area approximately one acre in size on the northwest side of the airport along Wilson Point Road off of the approach end of Runway 15 due to the Baltimore city Police helipad location and the addition of a civilian aircraft runup location; and
- An area approximately seven acres in size on the south side of the airport over Frog Mortar Creek off of the approach end of Runway 33 due to fixed wing arrival operations and helicopter activity at the Maryland State Police Helipad.

The 2030 forecast year contour dominates the overall extent of the 2020 ANZ contour due to projected higher operations levels. The one exception to this is the area immediately off the departure end of Runway 33 where aircraft operations are projected to shift to the northwest due to the changes in the future configuration of the runway layout for Runway 15/33 that currently is dominated by the 2019 base year contour.



MARTIN STATE AIRPORT

Airport Noise Zone Update

Figure 15

MTN ANZ Update 2020 ANZ Contours

- 2020 Airport Noise Zone DNL Contours
- Airport Boundary
- Helicopter Operation Area
- Military Runup Location
- Civilian Runup Locations
- Civilian Runway (Future)
- Additional Runway Available for Military Operations
- Roads
- Railroad
- Stream / Creek
- Buildings

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH

0 1,500 3,000 Feet

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4.4 Land Use Inventory

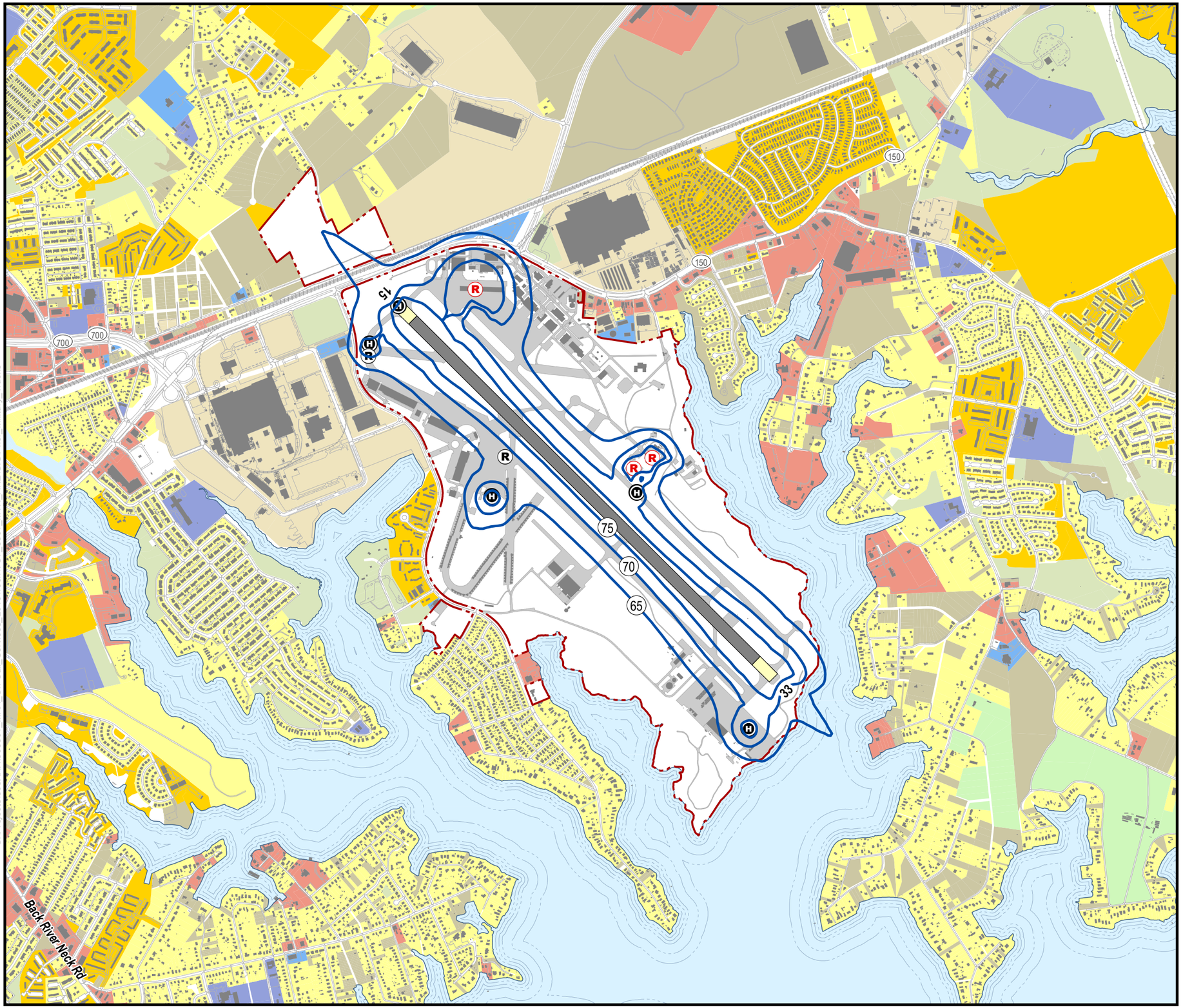
Land use within the 2020 ANZ DNL contour boundary as well as land use in the vicinity surrounding MTN was evaluated using geographic information system (GIS) analysis. Maryland law considers all land uses compatible below 65 dB DNL.

Land use analysis was based on data and graphics including, aerial photography, airport layout and property boundaries, and identification of undeveloped land acquired by MDOT MAA. Land use and zoning data was obtained from Baltimore County. HMMH overlaid the 2020 ANZ contours on the land use data within the study boundary to ensure accuracy. The total acreage within each noise contour interval was then calculated based on this information.

Figure 16 presents the 2020 ANZ DNL contour in relation to land use surrounding MTN. The 2020 ANZ contour does not expose any residential population or acreage to noise levels at or greater than 65 dB DNL as presented in Table 13. The 2020 ANZ contains 411 acres, a 4% increase from the 394 acres contained within the 2012 ANZ. This can be attributed in part to increased operations and the future configuration of the Runway layout for Runway 15/33.

Table 13. Residential Population and Acreage within 2020 ANZ contour

DNL Contour Interval	Residential Population	Residential Housing Units	Area (acres)
65-70 dB	0	0	198
70-75 dB	0	0	114
>75 dB	0	0	99
Total	0	0	411
Source: HMMH 2019			



MARTIN STATE AIRPORT

Airport Noise Zone Update

Figure 16

2020 MTN ANZ Contours Compared to Land Use

- 2020 Airport Noise Zone DNL Contours
- Airport Boundary
- Helicopter Operation Area
- Military Runup Location
- Civilian Runup Locations
- Civilian Runway (Future)
- Additional Runway Available for Military Operations
- Roads
- Railroad
- Stream / Creek
- Buildings
- Residential Use
- Multi-Family Residential Use
- Mixed Use
- Public Use (Non-Compatible)
- Public Use (Compatible)
- Agriculture
- Recreational / Open Space
- Commercial Use
- Manufacturing / Production
- Vacant / Undeveloped
- Transportation / Utility
- Water
- School
- Library
- Place of Worship
- Hospital / Health Care

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH

0 1,500 3,000 Feet

G:\Projects\308XXX\308801_MAA_On-Call_Services_2019\Tech\T07_8807_MTN_ANZ\GIS\Prior_Military_Tracks

5 Noise Abatement Plan

MARTIN STATE AIRPORT
NOISE ABATEMENT PLAN

Martin State Airport (MTN) is owned by the State of Maryland and operated by the Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA). Regulations regarding the Airport Noise Zone (ANZ) process indicate that if an impacted land use area exists within a noise zone, the airport operator shall develop a noise abatement plan (NAP) to reduce the size of or eliminate the impacted land use area by altering the coverage of the noise zone through the application of the best available technology, at a reasonable cost and without impairing safety of flight. The MTN NAP is established pursuant to the Maryland Environmental Noise Act of 1974 (Transportation Article, §§ 5-805, 5-806, and 5-819, Annotated Code of Maryland) and COMAR Section 11.03.02.10.

In 1984 MTN adopted a NAP designed to minimize the noise of aircraft operations within the constraints of the Federal Air Traffic Control System and aircraft safety. The NAP was developed with the cooperation of Maryland Air National Guard (MDANG), airport users, the aviation industry, and local governments. It was updated in 1987 and reviewed with no changes as part of 2012 MTN ANZ Update. The NAP was reviewed and updated as part of the 2020 MTN ANZ update process in order to accurately reflect current operating conditions at MTN.

The NAP is formulated to minimize noise disturbance to neighboring communities while maintaining safe and efficient MTN Airport operations. The MDOT MAA Division of MTN Airport Operations is responsible for the overall administration of the MTN NAP, and the noise abatement procedures are reproduced in Martin State Airport Tenant Directive 501.1, which is distributed to all MTN tenants and is publicly available on MTN's website[8].

Per COMAR Section 11.03.02.10C(3)(b), the Maryland Air National Guard, the Maryland State Police, and local law enforcement agencies are exempt from the provisions of this regulation when operational necessity dictates noncompliance, or in the event of a State or national emergency.

The NAP is comprised of two parts; (1) the efforts MDOT MAA is taking to mitigate noise in the areas surrounding MTN, and (2) aircraft operating procedures.

NOISE MITIGATION EFFORTS

A. Airport Noise Zone (ANZ)

Maryland law requires the protection of citizens from the impact of transportation related noise. MDOT MAA is required to adopt an Airport Noise Zone (ANZ) that minimizes the impact of aircraft noise on people living near MTN and prevents incompatible land development around the airport.

[8] https://www.martinstateairport.com/content/airserv/directives.html

The MTN ANZ is depicted by noise contours surrounding MTN. These lines connect points of equal noise exposure and represent DNL 65 dB, 70 dB, and 75 dB noise contours. These contours represent the boundaries for determining incompatible activities or land uses under Maryland law. The State uses the noise contours adopted in the MTN ANZ to restrict new development that would be incompatible with the cumulative noise exposure level acceptable for an area.

B. Control of Incompatible Development:

The State of Maryland regulates land use within the MTN ANZ. Anyone desiring to construct or modify a structure or land use is required to obtain an Airport Zoning Permit. An application can be obtained from the Baltimore County Office of Planning and Zoning or the MDOT MAA Office of Planning[9]. MDOT MAA is required by law to approve or deny zoning permits based on the location relative to the MTN ANZ and the compatibility standards listed in the chart below.

NOISE COMPATIBILITY STANDARDS	
Land Use	**Areas of Compatibility (Noise Levels)**
Residences, schools, hospitals, libraries, churches, auditoriums, rest homes, nursing homes, concert halls.	Up to 65 DNL
Transient lodging, hotels, motels, sports arenas, outdoor spectator sports, playgrounds, neighborhood parks, noise sensitive manufacturing.	Up to 70 DNL
Golf courses, riding stables, water recreation, cemeteries, office buildings, retail and wholesale establishments, movie theaters, restaurants, industry, manufacturing, utilities, livestock farming, animal breeding.	Up to 75 DNL
Agriculture (except livestock), mining, fishing, aviation related uses.	All
Source: COMAR 11.03.03.03, Limits for Cumulative Noise Exposure. http://mdrules.elaws.us/comar/11.03.03.03	

For example, a person may wish to build a new housing development within the DNL 65 dB noise contour (i.e. within the ANZ). As the maximum limit for new residential land use is DNL 65 dB, the applicant would be denied a permit by MDOT MAA. In the event a permit application is denied by MDOT MAA, the applicant may appeal to the Board of Airport Zoning Appeals (BAZA) for a variance. The BAZA may deny an appeal or grant a variance requiring construction standards designed to reduce noise exposure to future occupants. The BAZA was created in 1974 by the Maryland General Assembly and is composed of 10 citizen members appointed by the Governor.

Under the current procedures, a house built within the ANZ would require a variance from BAZA. If the Board approves a variance, the applicant is typically required to meet the following conditions:

[9] https://www.marylandaviation.com/content/permitsandforms/constructionzoning/index.html

- Provide a report from an acoustical engineer demonstrating that the proposed construction will provide adequate sound insulation and achieve an interior noise level of 45 dB.
- Agree to complete a post construction noise test to demonstrate that the house meets the required interior noise level of 45 dB.
- Agree not to apply for a Use and Occupancy Permit until BAZA approves the results of the post construction test.
- Agree to grant an avigation easement to the MDOT MAA that includes a provision relinquishing any right to receive remuneration or any other compensation or benefit under any program designed to allay, abate, or compensate for the effects of aircraft noise and emissions in connection with the operation of MTN Airport.

C. Noise Concerns:

MTN maintains telephone service to enable citizens to register noise-related complaints at any time 24 hours per day, 7 days a week. The telephone number is 410-682-8802. Complaints are investigated if appropriate and the complainant is provided with any relevant information.

Additionally, citizens can monitor MTN aircraft operations and register complaints utilizing MDOT MAA's WebTrak system (https://webtrak.emsbk.com/bwi3). WebTrak provides an interactive portal for the viewing of aircraft in the vicinity MTN as well as BWI Marshall and provides the opportunity to file noise complaints directly to MDOT MAA. WebTrak users can geolocate a place of interest (home, work, etc.) and view either current (30-minute delayed) or historical aircraft overflights. WebTrak includes an aircraft's type, altitude, origin & destination airports, and flight identification. Inquiries and complaints about aircraft flights at MTN submitted through WebTrak are passed to MTN Operations and Maintenance staff for review and follow-up. Note: WebTrak does not include data on military aircraft flights or operations due to reasons of national security.

D. Maryland Air National Guard (MDANG) Noise Barriers:

In 1989, MDANG erected noise barriers to provide reductions in noise impacts from engine maintenance activity for areas east and northeast of MTN.

E. Aircraft Maintenance Engine Run-up Areas

Aircraft maintenance engine run-ups are to be accomplished only in areas designated by the Chief, MTN Operations & Maintenance in accordance with MTN Tenant Directive 200.2.

MTN NOISE ABATEMENT PROCEDURES

A. Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) Departures

1. VFR Piston-engine Aircraft:

   Runway 15/33 – Unless otherwise instructed by Air Traffic Control (ATC), aircraft fly runway heading to 1000' Mean Sea Level (MSL) prior to turning to the ATC approved on-course heading or crosswind leg of the traffic pattern.

2. VFR Turbine Powered Aircraft:

Runway 15/33 – Unless otherwise instructed by ATC, aircraft shall fly runway heading to 1,500' MSL prior to turning to the ATC approved, on-course heading or crosswind leg of the traffic pattern.

3. VFR Helicopter Departures:

   Unless operating under a Letter of Agreement (LOA) with MTN ATC specifying otherwise, helicopters shall climb to 500' AGL on initial departure heading before turning on-course.

4. All IFR Departures

   IFR departures shall be accomplished in accordance with ATC direction or clearance.

B. VFR and IFR Arrivals and Traffic Patterns

VFR and IFR aircraft approach should, to the maximum extent feasible, maintain the highest practical altitude, commensurate with flight and ATC procedures in order to minimize aircraft noise exposure to communities underlying the final approach courses.

C. Closed Traffic Patterns

A left-hand traffic pattern shall be used at MTN unless otherwise directed by ATC. Piston fixed-wing aircraft should fly runway heading until reaching 1,000' MSL prior to turning to the crosswind leg of the traffic pattern. Turbine aircraft should fly runway heading until reaching 1,500'MSL prior to turning to the crosswind leg of the traffic pattern.

Traffic pattern altitudes are:

Fixed Wing	Piston engine	1,000' MSL
	Civil turbine and military turboprop	1,500' MSL
	Military Jet	2,000' MSL
Rotary Wing		500' MSL

D. Touch-and-Go or Practice Approaches

1. No touch-and-go and/or practice approaches or practice landings are permitted between 10:00 p.m. to 6:00 a.m. daily unless approved by MTN Operations and Maintenance staff.

2. Between 6:00 a.m. – 10:00 p.m. daily:

FAA Weight Class	Description	Weight	Limitation
Small	Small Single Engine/Twin Engine Aircraft, Helicopters, and Transient Military (e.g. Cessna 172, Piper Cherokee)	12,500 lbs. or less	No restrictions
Medium	Medium Aircraft and Transient Military* (e.g. military fighter jets, Learjet 35, Bombardier CRJ-200LR)	Between 12,500 and 41,000 lbs	Limit of two practice approaches
Large	Large Jet/Large Commuter/757/Heavy Aircraft	More than 41,000 lbs.	Practice approaches and landings are not authorized without prior permission from MTN Operations and Maintenance staff.
* Military aircraft shall be limited to two practice landings/take-offs or approaches unless additional operations are approved by MTN Operations and Maintenance staff. https://aspmhelp.faa.gov/index.php/Weight_Class			

6 Public Consultation

The ANZ update process included multiple public consultation efforts to ensure that MTN stakeholder input is reflected in the resulting ANZ contour and NAP documentation. This public involvement component included two major initiatives: voluntarily forming and convening a Stakeholder Advisory Committee (SAC); and conducting a public workshop and hearing.

6.1 Stakeholder Advisory Committee (SAC)

The SAC included representatives of stakeholder groups affected by airport activities to ensure that these groups were informed of the 2020 MTN ANZ update process and methodology. Members of the SAC were invited to participate throughout the MTN ANZ update process by attending meetings and providing input. They were encouraged to share pertinent MTN ANZ update information with the groups or any interested citizens that they represent.

The SAC served in an advisory role to the MDOT MAA solely for purposes of the MTN ANZ update process. The SAC is composed of stakeholders representing all significant interests at MTN:

- Local government planning staff
- Community organizations
- MTN tenants and users
- Aviation trade associations

MDOT MAA encouraged SAC members to review study inputs, assumptions, analyses, and documentation. They were also encouraged to provide input, advice, and guidance related to the NAP. SAC members were asked to review the land use inventory and planning considerations.

The SAC was convened twice during the ANZ update process. Both meetings were held in Hangar 4 at MTN. The first meeting was held September 12, 2019. During the first meeting MDOT MAA presented the purpose and objectives of the update process, along with preliminary planning parameters and noise modeling inputs. At the second meeting, held January 14, 2020, additional background information was presented to the SAC. The presentation covered results of the modeling process, including the resulting contours and land use inventory, as well as a review of the NAP. Prior to the second meeting, ANZ noise contours and the related land-use inventory, along with the NAP, were shared with all SAC members for review. All meeting materials, including the SAC committee roster, meeting invitations, sign-in sheets, meeting minutes, and presentations are included in Appendix B.

6.2 Public Workshop and Hearing

As required by Maryland law, a public workshop and hearing were held concerning the 2020 MTN ANZ. The public workshop and hearing afforded all interested persons with an opportunity to comment on proposed revisions to the MTN ANZ and NAP.

The public workshop and hearing were held virtually, due to the COVID-19 pandemic, on January 26, 2021 from 6:00 to 8:00 PM EST. During the workshop, MDOT MAA staff and HMMH staff were available

to discuss the MTN ANZ update process and outcomes. Public comments on MDOT MAA's 2020 MTN ANZ and NAP were accepted during the hearing via a court reporter. Additional public comments were accepted via email or postal mail until February 16, 2021. Information concerning the public workshop and hearing was available at the MAA community relations website: https://maacommunityrelations.com/

Public Hearing and Workshop Information		
Date: January 26, 2021	Time: 6:00 – 8:00 PM EST	Location: Virtual via GoToWebinar

MDOT MAA considered all oral and written comments received during the public comment period. Notification in the Maryland Register formally adopts the 2020 ANZ and NAP into Maryland law. MDOT MAA will then certify and submit the adopted ANZ to the Baltimore County Land Record Officer for use in land-use planning and development.

Appendix A Aircraft Noise Terminology

Noise is a complex physical quantity. The properties, measurement, and presentation of noise involve specialized terminology that can be difficult to understand. To provide a basic reference on these technical issues, this section introduces fundamentals of noise terminology, the effects of noise on human activity, and noise propagation.

A.1 Introduction to Noise Terminology

Analyses of potential impacts from changes in aircraft noise levels rely largely on a measure of cumulative noise exposure over an entire calendar year, expressed in terms of a metric called the Day-Night Average Sound Level (DNL/ldn). However, DNL does not provide the only metric for measuring noise. A variety of metrics, which are further described in subsequent sub-sections, are used to describe noise, including:

- Sound Pressure Level, SPL, and the Decibel, dB
- A-Weighted Decibel, dBA
- Maximum A-Weighted Sound Level, L_{max}
- Time Above, TA
- Sound Exposure Level, SEL
- Equivalent A-Weighted Sound Level, L_{eq}
- Day-Night Average Sound Level, DNL/Ldn

A.1.1 Sound Pressure Level, SPL, and the Decibel, dB

All sounds come from a sound source – a musical instrument, a voice speaking, an airplane passing overhead. It takes energy to produce sound. The sound energy produced by any sound source travels through the air in sound waves – tiny, quick oscillations of pressure just above and just below atmospheric pressure. The ear senses these pressure variations and – with much processing in our brain – translates them into “sound.”

Our ears are sensitive to a wide range of sound pressures. The loudest sounds that we can hear without pain contain about one million times more energy than the quietest sounds we can detect. To allow us to perceive sound over this very wide range, our ear/brain “auditory system” compresses our response in a complex manner, represented by a term called sound pressure level (SPL), which we express in units called decibels (dB).

Mathematically, SPL is a logarithmic quantity based on the ratio of two sound pressures, the numerator being the pressure of the sound source of interest (P_{source}), and the denominator being a reference pressure ($P_{reference}$).[10]

[10] The reference pressure is approximately the quietest sound that a healthy young adult can hear.

$$\textit{Sound Pressure Level (SPL)} = 20 * Log\left(\frac{P_{source}}{P_{reference}}\right) dB$$

The logarithmic conversion of sound pressure to SPL means that the quietest sound that we can hear (the reference pressure) has a sound pressure level of about 0 dB, while the loudest sounds that we hear without pain have sound pressure levels of about 120 dB. Most sounds in our day-to-day environment have sound pressure levels from about 40 to 100 dB[11].

Because decibels are logarithmic quantities, we cannot use common arithmetic to combine them. For example, if two sound sources each produce 100 dB operating individually, when they operate simultaneously, they produce 103 dB -- not the 200 dB we might expect. Increasing to four equal sources operating simultaneously will add another three decibels of noise, resulting in a total SPL of 106 dB. For every doubling of the number of equal sources, the SPL goes up another three decibels.

If one noise source is much louder than another is, the louder source "masks" the quieter one and the two sources together produce virtually the same SPL as the louder source alone. For example, a 100 dB and 80 dB sources produce approximately 100 dB of noise when operating together.

Two useful “rules of thumb” related to SPL are worth noting: (1) humans generally perceive a six to 10 dB increase in SPL to be about a doubling of loudness,[12] and (2) changes in SPL of less than about three decibels for an particular sound are not readily detectable outside of a laboratory environment.

A.1.2 A-Weighted Decibel

An important characteristic of sound is its frequency, or "pitch.” This is the per-second oscillation rate of the sound pressure variation at our ear, expressed in units known as Hertz (Hz).

When analyzing the total noise of any source, acousticians often break the noise into frequency components (or bands) to consider the “low,” “medium,” and “high” frequency components. This breakdown is important for two reasons:

- Our ear is better equipped to hear mid and high frequencies and is least sensitive to lower frequencies. Thus, we find mid- and high-frequency noise more annoying.
- Engineering solutions to noise problems differ with frequency content. Low-frequency noise is generally harder to control.

The normal frequency range of hearing for most people extends from a low of about 20 Hz to a high of about 10,000 to 15,000 Hz. Most people respond to sound most readily when the predominant frequency is in the range of normal conversation – typically around 1,000 to 2,000 Hz. The acoustical community has defined several “filters,” which approximate this sensitivity of our ear and thus, help us to judge the relative loudness of various sounds made up of many different frequencies.

[11] The logarithmic ratio used in its calculation means that SPL changes relatively quickly at low sound pressures and more slowly at high pressures. This relationship matches human detection of changes in pressure. We are much more sensitive to changes in level when the SPL is low (for example, hearing a baby crying in a distant bedroom), than we are to changes in level when the SPL is high (for example, when listening to highly amplified music).

[12] A “10 dB per doubling” rule of thumb is the most often used approximation.

The so-called "A" filter ("A weighting") generally does the best job of matching human response to most environmental noise sources, including natural sounds and sound from common transportation sources. "A-weighted decibels" are abbreviated "dBA." Because of the correlation with our hearing, the U. S. Environmental Protection Agency (EPA) and nearly every other federal and state agency have adopted A-weighted decibels as the metric for use in describing environmental and transportation noise. Figure A-1 depicts A-weighting adjustments to sound from approximately 20 Hz to 10,000 Hz.

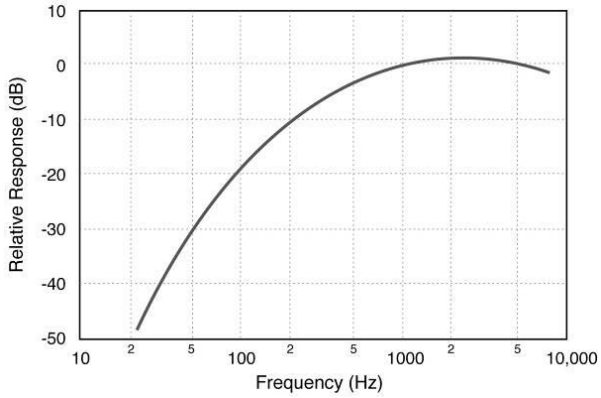


Figure A-1 A-Weighting Frequency Response

Source: Extract from Harris, Cyril M., Editor, "Handbook of Acoustical Measurements and Control," McGraw-Hill, Inc., 1991, pg. 5.13; HMMH

As the figure shows, A-weighting significantly de-emphasizes noise content at lower and higher frequencies where we do not hear as well, and has little effect, or is nearly "flat," in for mid-range frequencies between 1,000 and 5,000 Hz. All sound pressure levels presented in this document are A-weighted unless otherwise specified.

Figure A-2 depicts representative A-weighted sound levels for a variety of common sounds.

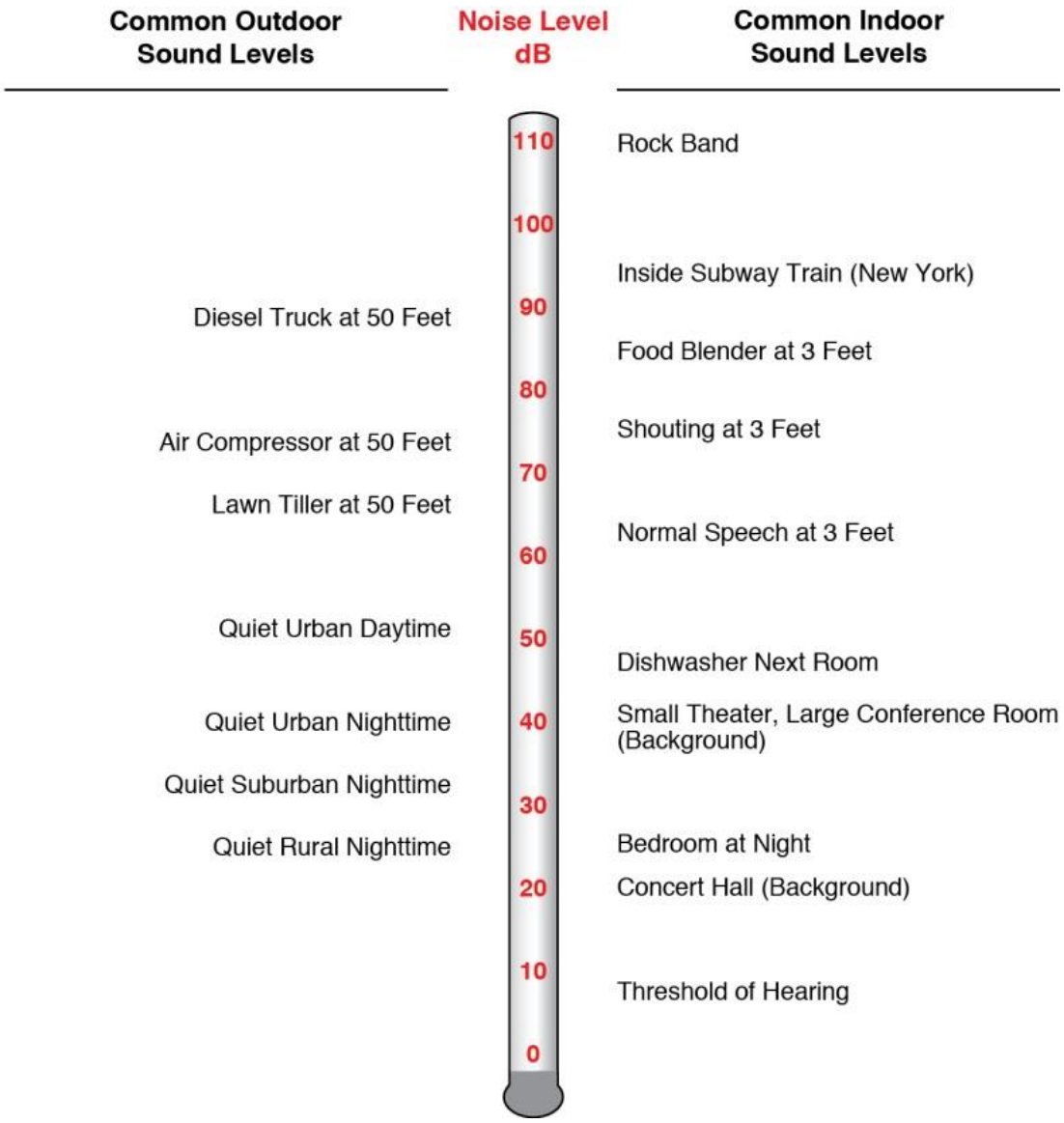


Figure A-2 A-Weighted Sound Levels for Common Sounds

A.1.3 Maximum A-Weighted Sound Level, L_{max}

An additional dimension to environmental noise is that A-weighted levels vary with time. For example, the sound level increases as a car or aircraft approaches, then falls and blends into the background as the aircraft recedes into the distance. The background or “ambient” level continues to vary in the absence of a distinctive source, for example due to birds chirping, insects buzzing, leaves rustling, etc. It is often convenient to describe a particular noise "event" (such as a vehicle passing by, a dog barking, etc.) by its maximum sound level, abbreviated as L_{max}.

Figure A-3 depicts this general concept, for a hypothetical noise event with an L_{max} of approximately 102 dB.

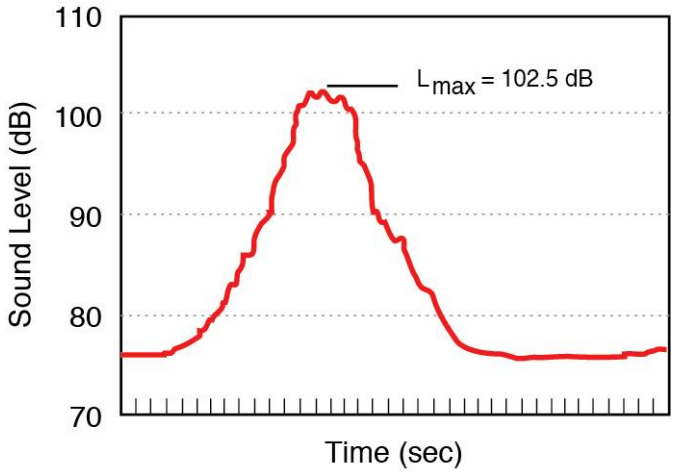


Figure A-3 Variation in A-Weighted Sound Level over Time and Maximum Noise Level

Source: HMMH

While the maximum level is easy to understand, it suffers from a serious drawback when used to describe the relative "noisiness" of an event such as an aircraft flyover; i.e., it describes only one dimension of the event and provides no information on the event's overall, or cumulative, noise exposure. In fact, two events with identical maximum levels may produce very different total exposures. One may be of very short duration, while the other may continue for an extended period and be judged much more annoying. The next section introduces a measure that accounts for this concept of a noise "dose," or the cumulative exposure associated with an individual "noise event" such as an aircraft flyover.

A.1.4 Sound Exposure Level, SEL

The most commonly used measure of cumulative noise exposure for an individual noise event, such as an aircraft flyover, is the Sound Exposure Level, or SEL. SEL is a summation of the A-weighted sound energy over the entire duration of a noise event. SEL expresses the accumulated energy in terms of the one-second-long steady-state sound level that would contain the same amount of energy as the actual time-varying level.

SEL provides a basis for comparing noise events that generally match our impression of their overall "noisiness," including the effects of both duration and level. The higher the SEL, the more annoying a noise event is likely to be. In simple terms, SEL "compresses" the energy for the noise event into a single second. Figure A-4 depicts this compression, for the same hypothetical event shown in Figure 3. Note that the SEL is higher than the L_{max}.

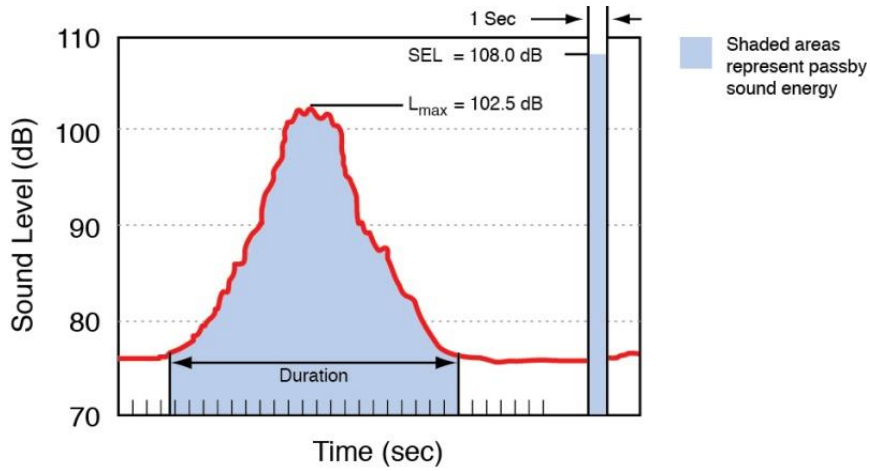


Figure A-4 Graphical Depiction of Sound Exposure Level

Source: HMMH

The "compression" of energy into one second means that a given noise event's SEL will almost always will be a higher value than its L_{max}. For most aircraft flyovers, SEL is roughly five to 12 dB higher than L_{max}. Adjustment for duration means that relatively slow and quiet propeller aircraft can have the same or higher SEL than faster, louder jets, which produce shorter duration events.

A.1.5 Equivalent A-Weighted Sound Level, L_{eq}

The Equivalent Sound Level, abbreviated L_{eq}, is a measure of the exposure resulting from the accumulation of sound levels over a particular period of interest; e.g., one hour, an eight-hour school day, nighttime, or a full 24-hour day. L_{eq} plots for consecutive hours can help illustrate how the noise dose rises and falls over a day or how a few loud aircraft significantly affect some hours.

L_{eq} may be thought of as the constant sound level over the period of interest that would contain as much sound energy as the actual varying level. It is a way of assigning a single number to a time-varying sound level. Figure A-5 illustrates this concept for the same hypothetical event shown in Figure A-3 and Figure A-4. Note that the L_{eq} is lower than either the L_{max} or SEL.

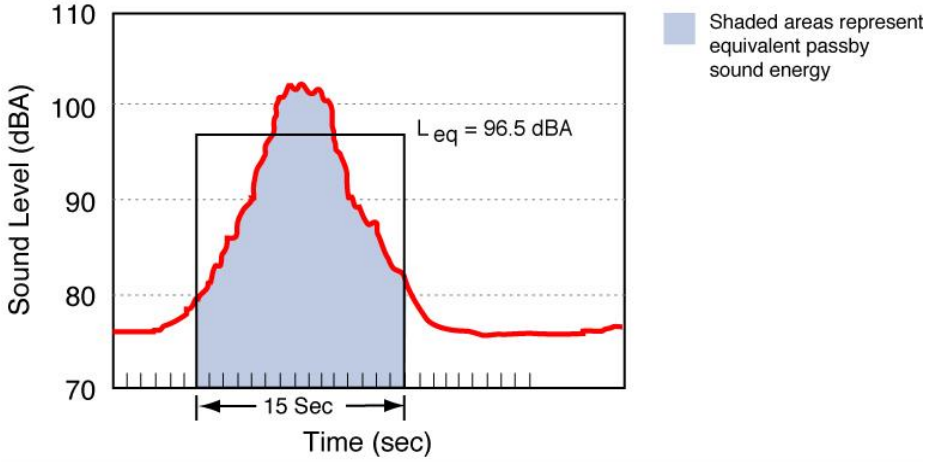


Figure A-5 Example of a 15-Second Equivalent Sound Level

Source: HMMH

A.1.6 Day-Night Average Sound Level, DNL or L_{dn}

The FAA requires that airports use a measure of noise exposure that is slightly more complicated than L_{eq} to describe cumulative noise exposure – the Day-Night Average Sound Level, DNL.

The U.S. Environmental Protection Agency identified DNL as the most appropriate means of evaluating airport noise based on the following considerations[13].

- The measure should be applicable to the evaluation of pervasive long-term noise in various defined areas and under various conditions over long periods.
- The measure should correlate well with known effects of the noise environment and on individuals and the public.
- The measure should be simple, practical, and accurate. In principal, it should be useful for planning as well as for enforcement or monitoring purposes.
- The required measurement equipment, with standard characteristics, should be commercially available.
- The measure should be closely related to existing methods currently in use.
- 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.
- The measure should lend itself to small, simple monitors, which can be left unattended in public areas for long periods.

Most federal agencies dealing with noise have formally adopted DNL. The Federal Interagency Committee on Noise (FICON) reaffirmed the appropriateness of DNL in 1992. The FICON summary report stated: "There are no new descriptors or metrics of sufficient scientific standing to substitute for the present DNL cumulative noise exposure metric."

In simple terms, DNL is the 24-hour L_{eq} with one adjustment; all noises occurring at night (defined as 10 p.m. through 7 a.m.) are increased by 10 dB, to reflect the added intrusiveness of nighttime noise events when background noise levels decrease. In calculating aircraft exposure, this 10 dB increase is mathematically identical to counting each nighttime aircraft noise event ten times.

DNL can be measured or estimated. Measurements are practical only for obtaining DNL values for limited numbers of points, and, in the absence of a permanently installed monitoring system, only for relatively short periods. Most airport noise studies use computer-generated DNL estimates depicted as equal-exposure noise contours (much as topographic maps have contours of equal elevation).

The annual DNL is mathematically identical to the DNL for the average annual day; i.e., a day on which the number of operations is equal to the annual total divided by 365 (366 in a leap year). Figure A-6 graphically depicts the manner in which the nighttime adjustment applies in calculating DNL. Figure A-7 presents representative outdoor DNL values measured at various U.S. locations.

[13] "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," U. S. EPA Report No. 550/9-74-004, March 1974.

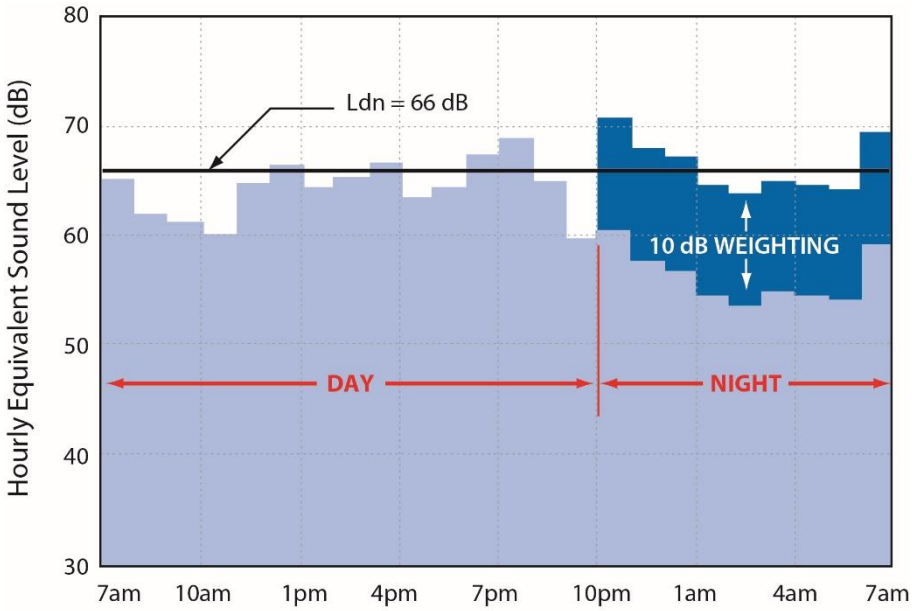


Figure A-6 Example of a Day-Night Average Sound Level Calculation

Source: HMMH

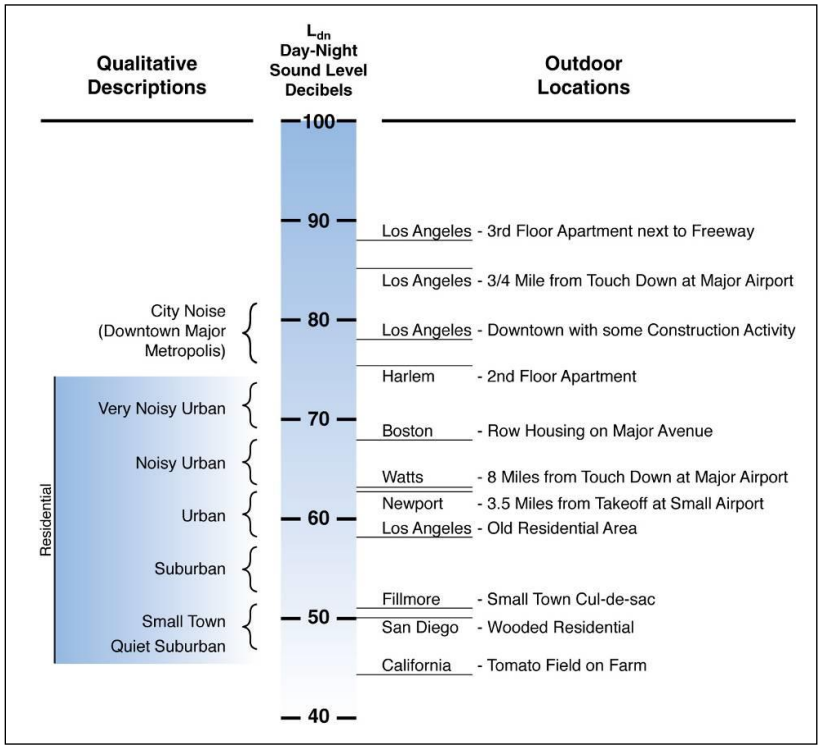


Figure A-7 Examples of Measured Day-Night Average Sound Levels, DNL

Source: U.S. Environmental Protection Agency, "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," March 1974, p.14.

A.2 Aircraft Noise Effects on Human Activity

Aircraft noise can be an annoyance and a nuisance. It can interfere with conversation and listening to television, disrupt classroom activities in schools, and disrupt sleep. Relating these effects to specific noise metrics helps in the understanding of how and why people react to their environment.

A.2.1 Speech Interference

One potential effect of aircraft noise is its tendency to "mask" speech, making it difficult to carry on a normal conversation. The sound level of speech decreases as the distance between a talker and listener increases. As the background sound level increases, it becomes harder to hear speech.

Figure A-8 presents typical distances between talker and listener for satisfactory outdoor conversations, in the presence of different steady A-weighted background noise levels for raised, normal, and relaxed voice effort. As the background level increases, the talker must raise his/her voice, or the individuals must get closer together to continue talking.

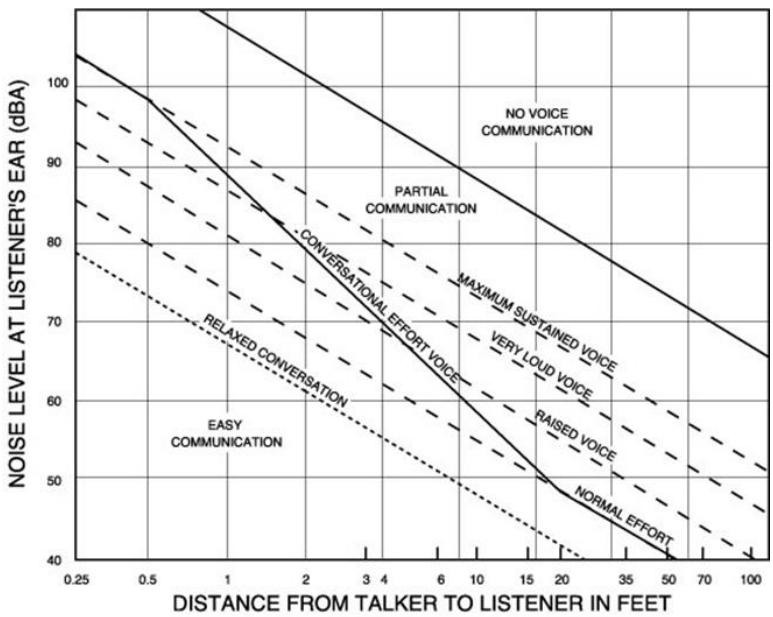


Figure A-8 Outdoor Speech Intelligibility

Source: U.S. Environmental Protection Agency, "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," March 1974, p.D-5.

Satisfactory conversation does not always require hearing every word; 95% intelligibility is acceptable for many conversations. In relaxed conversation, however, we have higher expectations of hearing speech and generally require closer to 100% intelligibility. Any combination of talker-listener distances and background noise that falls below the bottom line in the figure (which roughly represents the upper boundary of 100% intelligibility) represents an ideal environment for outdoor speech communication. Indoor communication is generally acceptable in this region as well.

One implication of the relationships in Figure A-8 is that for typical communication distances of three or four feet, acceptable outdoor conversations can be carried on in a normal voice as long as the background noise outdoors is less than about 65 dB. If the noise exceeds this level, as might occur when

an aircraft passes overhead, intelligibility would be lost unless vocal effort were increased or communication distance were decreased.

Indoors, typical distances, voice levels, and intelligibility expectations generally require a background level less than 45 dB. With windows partly open, housing generally provides about 10 to 15 dB of interior-to-exterior noise level reduction. Thus, if the outdoor sound level is 60 dB or less, there is a reasonable chance that the resulting indoor sound level will afford acceptable interior conversation. With windows closed, 24 dB of attenuation is typical.

A.2.2 Sleep Interference

Research on sleep disruption from noise has led to widely varying observations. In part, this is because (1) sleep can be disturbed without awakening, (2) the deeper the sleep the more noise it takes to cause arousal, (3) the tendency to awaken increases with age, and other factors. Figure A-9 shows a summary of findings on the topic.

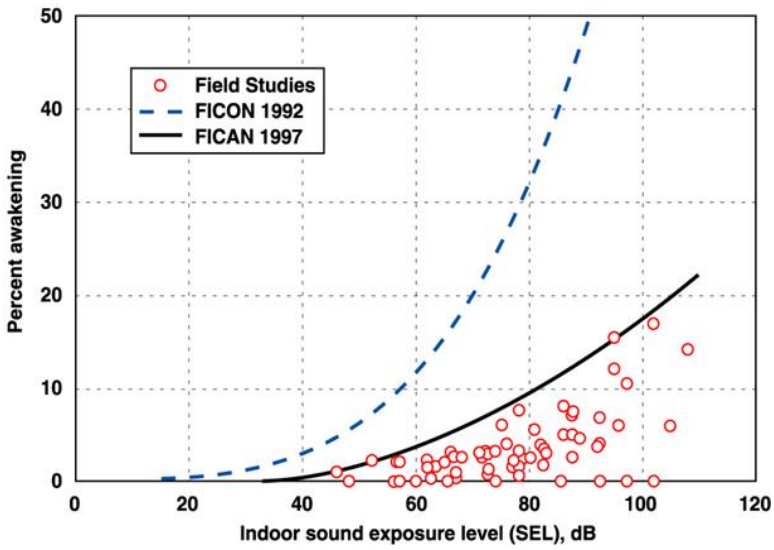


Figure A-9 Sleep Interference

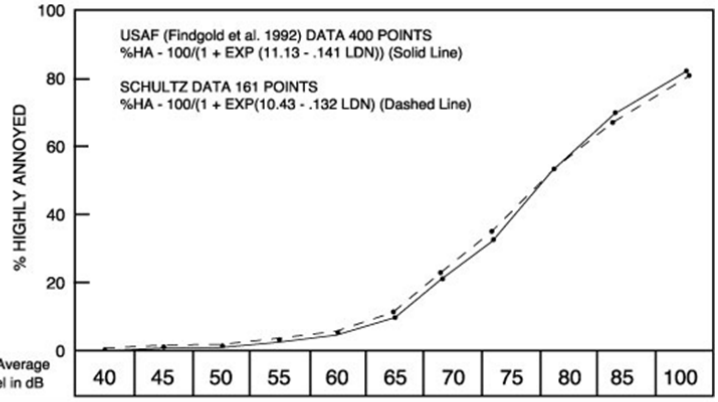
Source: Federal Interagency Committee on Aircraft Noise (FICAN), "Effects of Aviation Noise on Awakenings from Sleep," June 1997, pg. 6

Figure A-9 uses indoor SEL as the measure of noise exposure; current research supports the use of this metric in assessing sleep disruption. An indoor SEL of 80 dBA results in a maximum of 10% awakening.[14]

[14] The awakening data presented in Figure A-9 apply only to individual noise events. The American National Standards Institute (ANSI) has published a standard that provides a method for estimating the number of people awakened at least once from a full night of noise events: ANSI/ASA S12.9-2008 / Part 6, "Quantities and Procedures for Description and Measurement of Environmental Sound – Part 6: Methods for Estimation of Awakenings Associated with Outdoor Noise Events Heard in Homes." This method can use the information on single events computed by a program such as the FAA's Aviation Environmental Design Tool, to compute awakenings.

A.2.3 Community Annoyance

Numerous psychoacoustic surveys provide substantial evidence that individual reactions to noise vary widely with noise exposure level. Since the early 1970s, researchers have determined (and subsequently confirmed) that aggregate community response is generally predictable and relates reasonably well to cumulative noise exposure such as DNL. COMAR provides methods for the calculation of noise exposure including metrics and measurement methods.[15] Figure A-10 depicts the widely recognized relationship between environmental noise and the percentage of people "highly annoyed," with annoyance being the key indicator of community response usually cited in this body of research.



Day - Night Average Sound Level in dB	40	45	50	55	60	65	70	75	80	85	100
Calculated %HA Points: USAF	0.41	0.831	1.66	3.31	6.48	12.29	22.1	36.47	53.74	70.16	82.64
Calculated %HA Points: SCHULTZ	0.576	1.11	2.12	4.03	7.52	13.59	23.32	37.05	53.25	68.78	81

Figure A-10 Percentage of People Highly Annoyed

Source: FICON, "Federal Agency Review of Selected Airport Noise Analysis Issues," September 1992

Separate work by the EPA has shown that overall community reaction to a noise environment is also dependent on DNL. Figure A-11 depicts this relationship.

[15] Code of Maryland Regulations Title 11. Department of Transportation Subtitle 03. MARYLAND AVIATION ADMINISTRATION Chapter 11.03.03. Airport Noise Control Program Sec. 11.03.03.02. Methods for Calculation and Measurement of Levels of Cumulative Noise Exposure. http://mdrules.elaws.us/comar/11.03.03.02

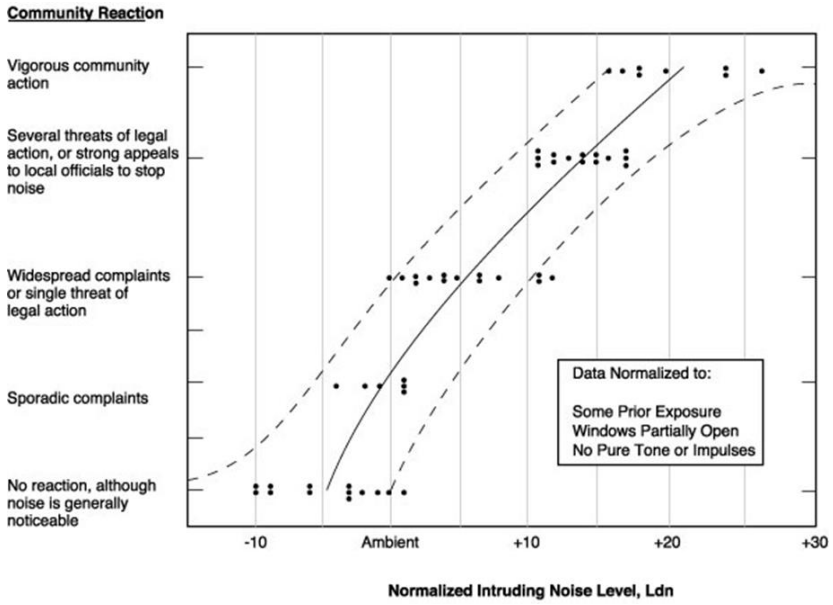


Figure A-11 Community Reaction as a Function of Outdoor DNL

Source: Wyle Laboratories, Community Noise, prepared for the U.S. Environmental Protection Agency, Office of Noise Abatement and Control, Washington, D.C., December 1971, pg. 63

Data summarized in the figure suggest that little reaction would be expected for intrusive noise levels five decibels below the ambient, while widespread complaints can be expected as intruding noise exceeds background levels by about five decibels. Vigorous action is likely when levels exceed the background by 20 dB.

A.3 Noise Propagation

This section presents information sound-propagation effect due to weather, source-to-listener distance, and vegetation.

A.3.1 Weather-Related Effects

Weather (or atmospheric) conditions that can influence the propagation of sound include humidity, precipitation, temperature, wind, and turbulence (or gustiness). The effect of wind – turbulence in particular – is generally more important than the effects of other factors. Under calm-wind conditions, the importance of temperature (in particular vertical "gradients") can increase, sometimes to very significant levels. Humidity generally has little significance relative to the other effects.

A.3.1.1 Influence of Humidity and Precipitation

Humidity and precipitation rarely effect sound propagation in a significant manner. Humidity can reduce propagation of high-frequency noise under calm-wind conditions. This is called "Atmospheric absorption." In very cold conditions, listeners often observe that aircraft sound "tinny," because the dry air increases the propagation of high-frequency sound. Rain, snow, and fog also have little, if any

noticeable effect on sound propagation. A substantial body of empirical data supports these conclusions.[16]

A.3.1.2 Influence of Temperature

The velocity of sound in the atmosphere is dependent on the air temperature.[17] As a result, if the temperature varies at different heights above the ground, sound will travel in curved paths rather than straight lines. During the day, temperature normally decreases with increasing height. Under such "temperature lapse" conditions, the atmosphere refracts ("bends") sound waves upwards and an acoustical shadow zone may exist at some distance from the noise source.

Under some weather conditions, an upper level of warmer air may trap a lower layer of cool air. Such a "temperature inversion" is most common in the evening, at night, and early in the morning when heat absorbed by the ground during the day radiates into the atmosphere.[18] The effect of an inversion is just the opposite of lapse conditions. It causes sound propagating through the atmosphere to refract downward.

The downward refraction caused by temperature inversions often allows sound rays with originally upward-sloping paths to bypass obstructions and ground effects, increasing noise levels at greater distances. This type of effect is most prevalent at night, when temperature inversions are most common and when wind levels often are very low, limiting any confounding factors.[19] Under extreme conditions, one study found that noise from ground-borne aircraft might be amplified 15 to 20 dB by a temperature inversion. In a similar study, noise caused by an aircraft on the ground registered a higher level at an observer location 1.8 miles away than at a second observer location only 0.2 miles from the aircraft.[20]

A.3.1.3 Influence of Wind

Wind has a strong directional component that can lead to significant variation in propagation. In general, receivers that are downwind of a source will experience higher sound levels, and those that are upwind will experience lower sound levels. Wind perpendicular to the source-to-receiver path has no significant effect.

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[16] Ingard, Uno. "A Review of the Influence of Meteorological Conditions on Sound Propagation," *Journal of the Acoustical Society of America*, Vol. 25, No. 3, May 1953, p. 407.
[17] In dry air, the approximate velocity of sound can be obtained from the relationship:
$c = 331 + 0.6T_c$ (c in meters per second, T_c in degrees Celsius). Pierce, Allan D., *Acoustics: An Introduction to its Physical Principles and Applications.* McGraw-Hill. 1981. p. 29.
[18] Embleton, T.F.W., G.J. Thiessen, and J.E. Piercy, "Propagation in an inversion and reflections at the ground," *Journal of the Acoustical Society of America*, Vol. 59, No. 2, February 1976, p. 278.
[19] Ingard, p. 407.
[20] Dickinson, P.J., "Temperature Inversion Effects on Aircraft Noise Propagation," (Letters to the Editor) *Journal of Sound and Vibration.* Vol. 47, No. 3, 1976, p. 442.

The refraction caused by wind direction and temperature gradients is additive. [21] One study suggests that for frequencies greater than 500 Hz, the combined effects of these two factors tends towards two extreme values: approximately 0 dB in conditions of downward refraction (temperature inversion or downwind propagation) and -20 dB in upward refraction conditions (temperature lapse or upwind propagation). At lower frequencies, the effects of refraction due to wind and temperature gradients are less pronounced. [22]

Wind turbulence (or "gustiness") can also affect sound propagation. Sound levels heard at remote receiver locations will fluctuate with gustiness. In addition, gustiness can cause considerable attenuation of sound due to effects of eddies traveling with the wind. Attenuation due to eddies is essentially the same in all directions, with or against the flow of the wind, and can mask the refractive effects discussed above. [23]

A.3.2 Distance-Related Effects

People often ask how distance from an aircraft to a listener affects sound levels. Changes in distance may be associated with varying terrain, offsets to the side of a flight path, or aircraft altitude. The answer is a bit complex, because distance affects the propagation of sound in several ways.

The principal effect results from the fact that any emitted sound expands in a spherical fashion – like a balloon – as the distance from the source increases, resulting in the sound energy being spread out over a larger volume. With each doubling of distance, spherical spreading reduces instantaneous or maximum level by approximately six decibels and SEL by approximately three decibels.

A.3.3 Vegetation-Related Effects

Sound can be scattered and absorbed as it travels through vegetation. This results in a decrease in sound levels. The literature on the effect of vegetation on sound propagation contains several approaches to calculating its effect. Though these approaches differ in some aspects, they agree on the following:

- The vegetation must be dense and deep enough to block the line of sight
- The noise reduction is greatest at high frequencies and least at low frequencies

The International Standard ISO 9613-2[24] provides a useful example of the types of calculations employed in these methods. Originally developed for industrial noise sources, ISO 9613-2 is well-suited for the evaluation of ground-based aircraft noise sources under favorable meteorological conditions for sound propagation. ISO 9613-2's methodology for calculating sound propagation includes geometric dispersion from acoustical point sources, atmospheric absorption, the effects of areas of hard and soft ground,

[21] Piercy and Embleton, p. 1412. Note, in addition, that as a result of the scalar nature of temperature and the vector nature of wind, the following is true: under lapse conditions, the refractive effects of wind and temperature add in the upwind direction and cancel each other in the downwind direction. Under inversion conditions, the opposite is true.
[22] Piercy and Embleton, p. 1413.
[23] Ingard, pp. 409-410.
[24] International Organization for Standardization, Acoustics – Attenuation of sound during propagation outdoors – Part 2: General Method of calculation, International Standard ISO9613-2, Geneva, Switzerland (15 December 1996).

screening due to barriers, and reflections. The attenuation provided by dense foliage varies by octave band and by distance as shown in Table A- 1.

For propagation through less than 10 m of dense foliage, no attenuation is assumed. For propagation through 10 m to 20 m of dense foliage, the total attenuation is shown in the first row of Table A- 1.

For distances between 20 m and 200 m, the total attenuation is computed by multiplying the distance of propagation through dense foliage by the dB/m values shown in the second row of Table A- 1.

Table A- 1 Dense Foliage Noise Attenuation

Source: ISO 9613-2, Table A.1

Propagation Distance	Nominal Midband Frequency (Hz)							
	63	125	250	500	1,000	2,000	4,000	8,000
10 m to 20 m (dB Attenuation)	0	0	1	1	1	1	2	3
20 m to 200 m (dB/m Attenuation)	0.02	0.03	0.04	0.05	0.06	0.08	0.09	0.12

ISO 9613-2 assumes a moderate downwind condition. The equations in the ISO Standard also hold, equivalently, for average propagation under a well-developed moderate ground-based temperature inversion, such as commonly occurs on clear, calm nights. In either case, the sound is refracted downward. The radius of this curved path is assumed to be 5 km. With this curved sound path, only portions of the sound path may travel through the dense foliage, as illustrated by Figure A-12. Thus the relative locations of the source and receiver, the dimensions of the volume of dense foliage, and the contours of the intervening terrain are essential to the estimation of the noise attenuation.

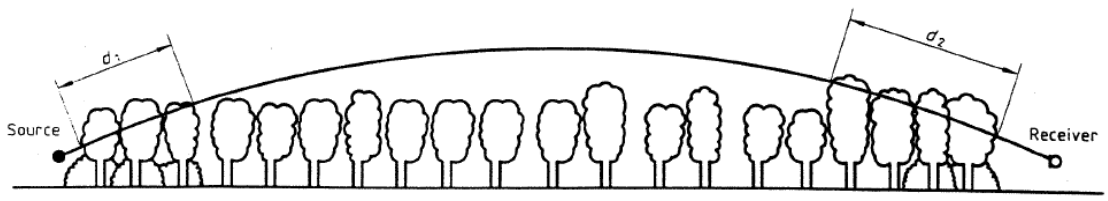


Figure A-12 Downward Refracting Sound Path (source: ISO 9613-2)

As illustrated in Figure A-12, the foliage only provides attenuation if the sound path passes through the foliage. For aircraft in the air, the sound will pass through little, if any foliage. Additionally, either the noise source or receiver must be near the foliage for it to have an effect.

Appendix B MTN 2020 Airport Noise Zone Overlaid on County Tax Maps

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION

MARTIN STATE AIRPORT

AIRPORT NOISE ZONE

MARTIN STATE AIRPORT

The Martin State (MTN) Airport Noise Zone, incorporated by reference at COMAR 11.03.01.01-1B(6) and displayed as the noise zone contours on this map, is hereby certified as the Noise Zone for MTN effective April 19, 2021.

RICKY D. SMITH SR.
Executive Director

COMAR 11.03.01.01-1B(6)

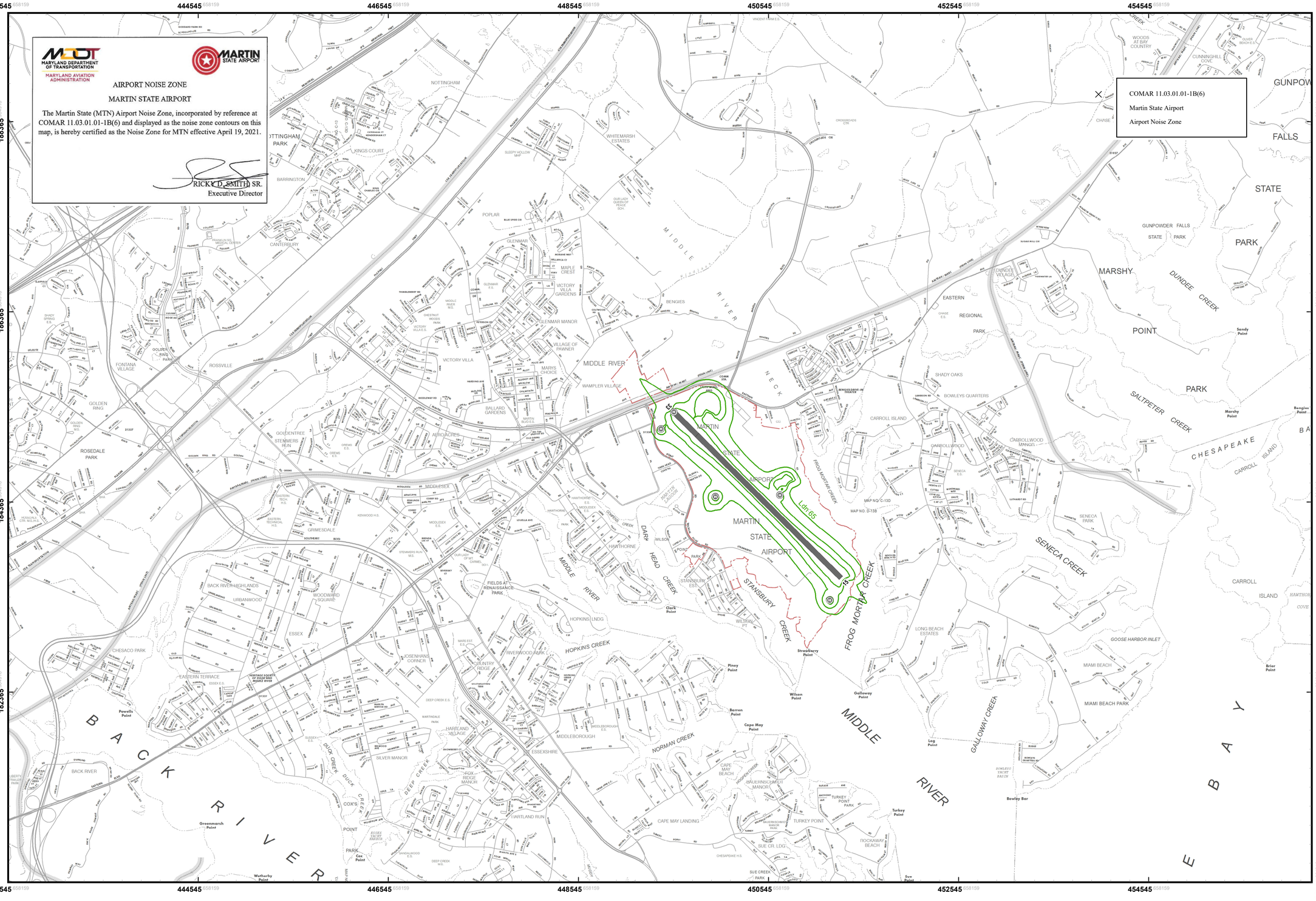
Martin State Airport

Airport Noise Zone

MARTIN STATE AIRPORT
AIRPORT NOISE ZONE

Prepared by:
Maryland Department of Transportation
Maryland Aviation Administration

Assisted by:
Harris Miller Miller & Hanson Inc.



Data Sources: Maryland Department of Transportation, Maryland Aviation Administration, Office of Environmental Services, Maryland Department of Planning; Maryland Department of Transportation, State Highway Administration; Environmental System Research Institute (ESRI), Inc.; HMMH Inc

0 3000 6000 Feet

2020 Airport Noise Zone

Baltimore County, Maryland

2020 Airport Noise Zone
Prepared May 14, 2020

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION

MARTIN STATE AIRPORT

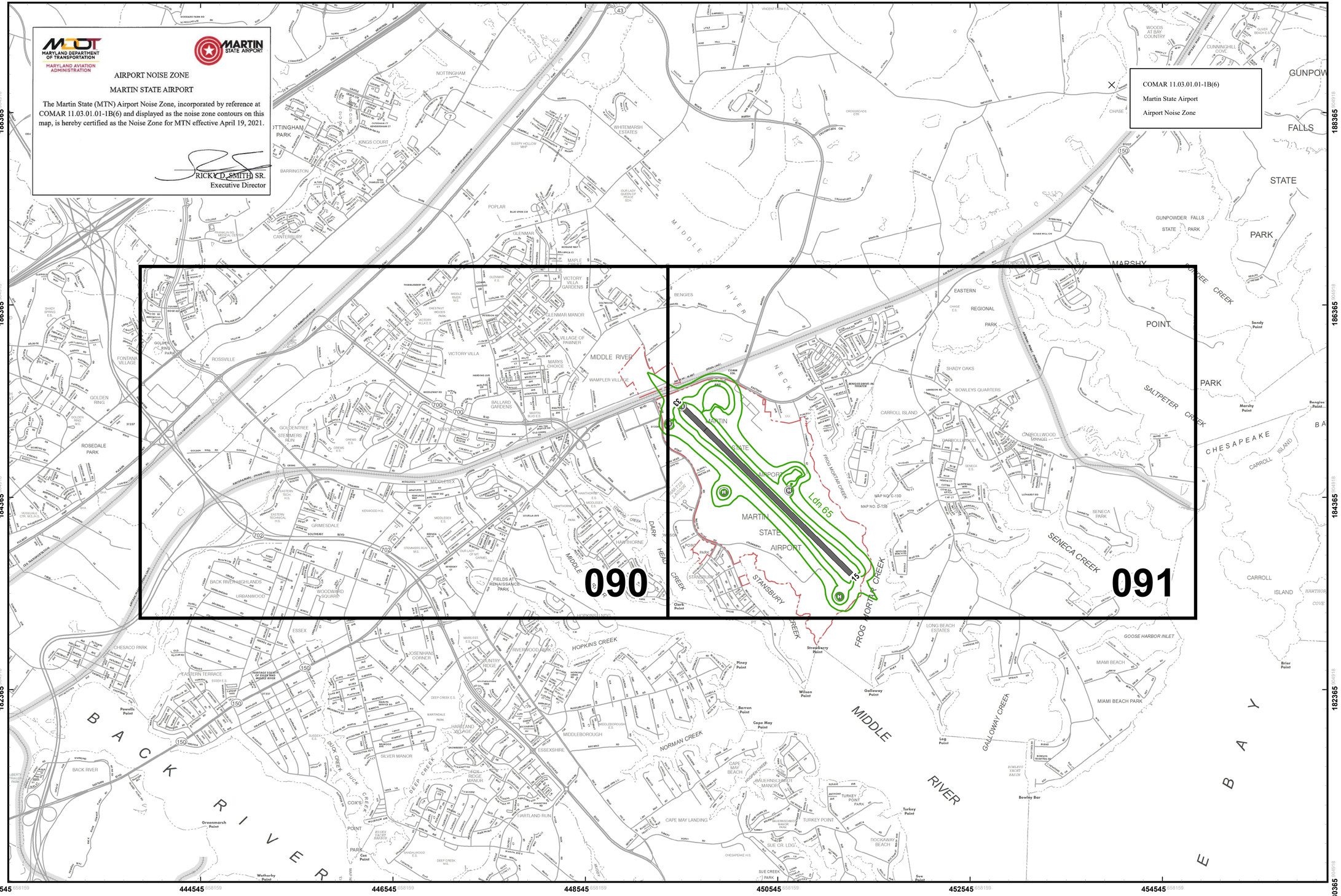
AIRPORT NOISE ZONE

MARTIN STATE AIRPORT

The Martin State (MTN) Airport Noise Zone, incorporated by reference at COMAR 11.03.01.01-1B(6) and displayed as the noise zone contours on this map, is hereby certified as the Noise Zone for MTN effective April 19, 2021.

RICKY D. SMITH SR.
Executive Director

COMAR 11.03.01.01-1B(6)
Martin State Airport
Airport Noise Zone



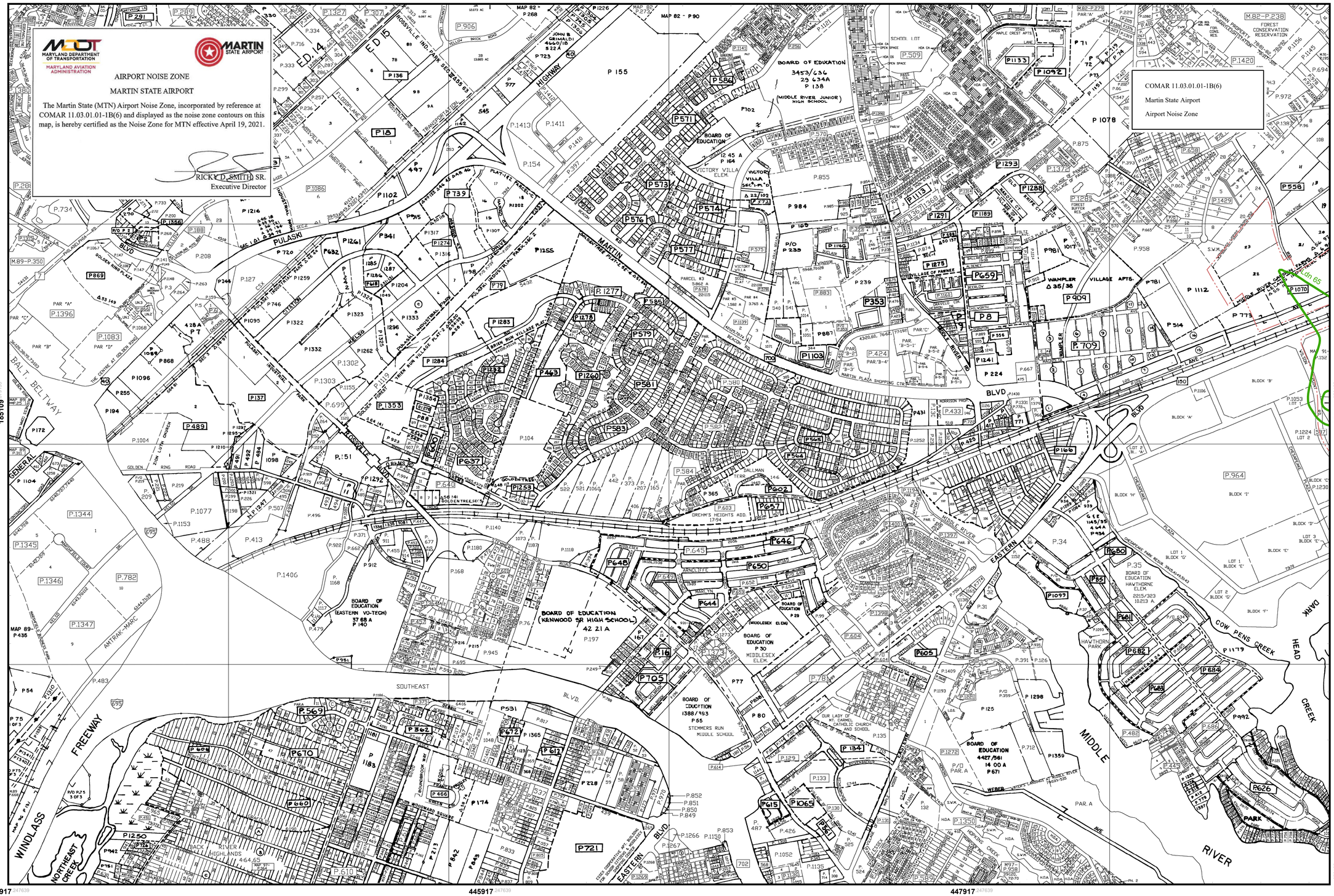
Data Sources: Maryland Department of Transportation, Maryland Aviation Administration, Office of Environmental Services, Maryland Department of Planning; Maryland Department of Transportation, State Highway Administration; Environmental System Research Institute (ESRI), Inc.; HMMH Inc

0 3000 6000 Feet

2020 Airport Noise Zone

Baltimore County, Maryland

Tax Map Grid
Prepared May 14, 2020



Data Sources: Maryland Department of Transportation, Maryland Aviation Administration, Office of Environmental Services; Maryland Department of Planning, Tax Map - March, 2016; Maryland Department of Transportation, State Highway Administration; Environmental System Research Institute (ESRI), Inc.; HMMH Inc

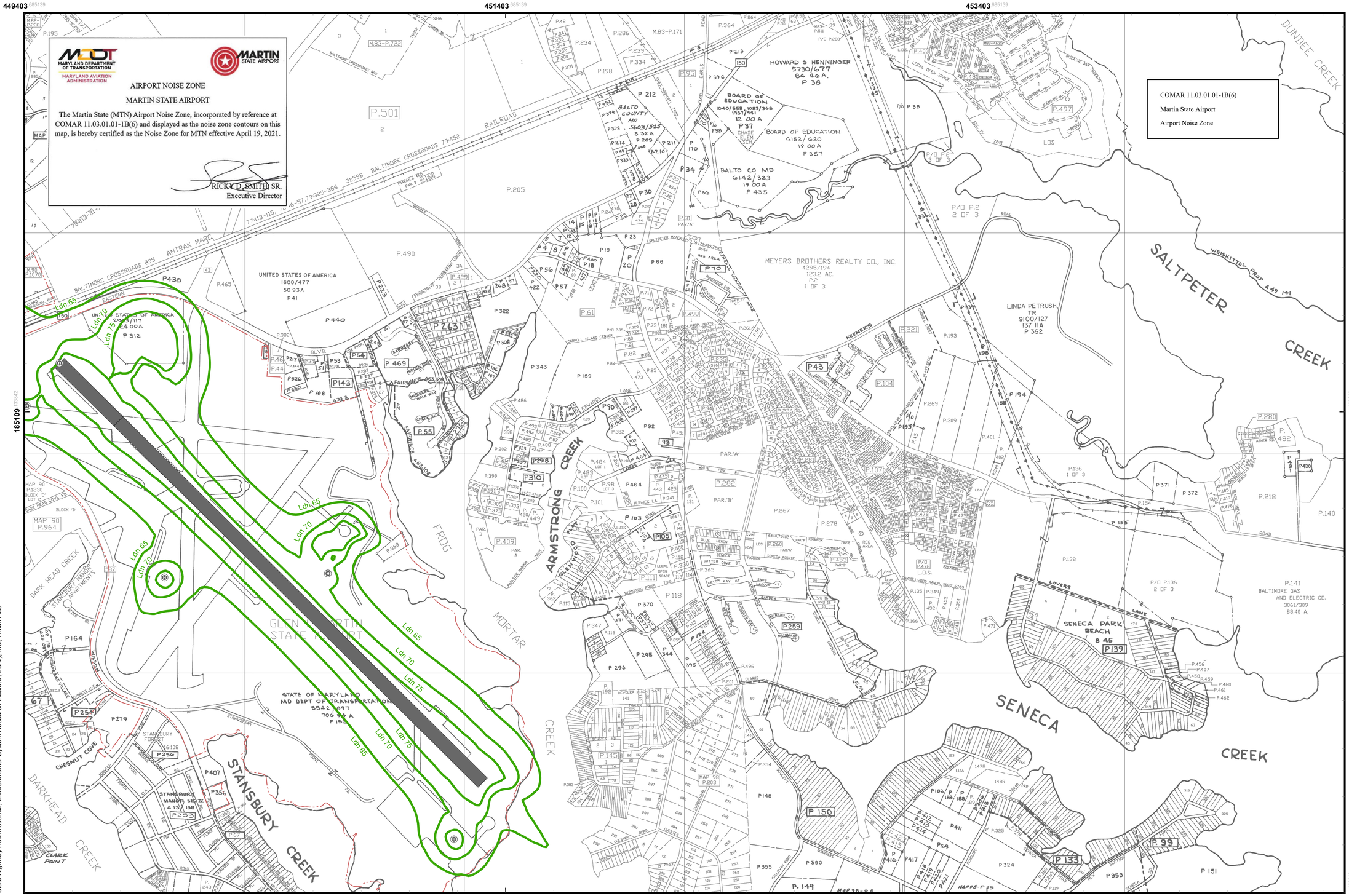
0 1200 2400 3600 Feet

2020 Airport Noise Zone

Baltimore County, Maryland

Tax Map
Prepared May 14, 2020

MAP NO.
090



Data Sources: Maryland Department of Transportation, Maryland Aviation Administration, Office of Environmental Services; Maryland Department of Planning, Tax Map - March, 2016; Maryland Department of Transportation, State Highway Administration; Environmental System Research Institute (ESRI), Inc.; HMMH Inc

0 1200 2400 3600 Feet

2020 Airport Noise Zone

Baltimore County, Maryland

Tax Map
Prepared May 14, 2020

MAP NO.
091

Appendix C MTN Stakeholder Advisory Committee (SAC) Meeting Materials

Appendix C includes the MTN SAC roster, along with materials from both the September and January SAC Meetings, including the invitations, sign-in sheets, presentations, and meeting minutes.

MTN ANZ Stakeholder Advisory Committee Roster

Notes:

For Community Association information, see:
https://www.baltimorecountymd.gov/Agencies/planning/communityplanning/community_associations.html
For Tenant information, see: https://www.martinstateairport.com/content/airserv/tenant_directory.html

Organization	Address	Point of Contact
AMAV, Inc.	701 Wilson Point Road, Box 29 Baltimore, MD 21220	Jane Toskes
AMAV, Inc.	701 Wilson Point Road, Box 29 Baltimore, MD 21220	Joseph M. Toskes, Chief Pilot
Baltimore City Police Department - Aviation Unit		Cory Grochowski
Baltimore County Department of Planning	105 W. Chesapeake Avenue Towson, MD 21204	Krystle Patchak, Planner
Baltimore County Department of Planning	105 W. Chesapeake Avenue Suite 101 Towson, MD 21204	Joseph Fraker, Community Planner
Baltimore County Police Department - Aviation Unit	701 Wilson Point Road Box 85 Baltimore, MD 21220	Sgt. Brandon Branham
Baltimore County Police Department - Aviation Unit	701 Wilson Point Road Box 85 Baltimore, MD 21220	Chris Roussey
Bowley's Quarters Community Association	PO Box 484 Chase, MD 21027	Ron Walper
Bowley's Quarters Community Association	PO Box 484 Chase, MD 21027	Paul Allen Paul Jr., President
Bowley's Quarters Improvement Association	1124 Bowleys Quarters Rd Baltimore, MD 21220	Marsha Ayres
Essex Middle River Civic Council	721 Rockaway Beach Avenue Baltimore, MD 21220	Rocky Jones
Essex Middle River Civic Council	721 Rockaway Beach Avenue Baltimore, MD 21220	Robert Bendler, President
Maryland Air National Guard	2701 Eastern Boulevard Baltimore, MD 21220	Brig. Gen. Ed Jones, Brigadier General
Maryland Air National Guard	2701 Eastern Boulevard Baltimore, MD 21220	Brig. Gen. Paul Johnson, Brigadier General
Maryland State Police - Aviation Command	3023 Strawberry Point Road Baltimore, MD 21220	Joseph Ireton, Aviation Safety Officer
Maryland State Police - Aviation Command	3023 Strawberry Point Road Baltimore, MD 21220	Major Michael Tagliaferri, Commander
Maryland State Police - Aviation Command	3023 Strawberry Point Road Baltimore, MD 21220	Captain Keith McMinn
Maryland State Police - Aviation Command	3023 Strawberry Point Road Baltimore, MD 21220	Michael Deruggiero, Chief Pilot
MDOT MAA - Division of Planning and Engineering	P.O. Box 8766 BWI Airport, MD 21240	Kevin Clarke, Director of Planning

MDOT MAA - Division of Planning and Engineering	P.O. Box 8766 BWI Airport, MD 21240	Paul L. Shank, Chief, Division of Planning & Engineering
MDOT MAA - Division of Planning and Engineering	P.O. Box 8766 BWI Airport, MD 21240	Shawn Ames, Deputy Director of Planning
MDOT MAA - Martin State Airport Operations and Maintenance	P.O. Box 8766 BWI Airport, MD 21240	Glenn DiSabatino, Director of Operations
MDOT MAA - Martin State Airport Operations and Maintenance	P.O. Box 8766 BWI Airport, MD 21240	Al Pollard, Chief of Operations and Maintenance
MDOT MAA - Martin State Airport Operations and Maintenance	P.O. Box 8766 BWI Airport, MD 21240	Ryan Agan
MDOT MAA - Noise Program	P.O. Box 8766 BWI Airport, MD 21240	Bruce Rineer, Manager, Noise Section
MDOT MAA - Noise Program	P.O. Box 8766 BWI Airport, MD 21240	Karen Harrell, Administrative Coordinator
MDOT MAA - Noise Program	P.O. Box 8766 BWI Airport, MD 21240	Royce Bassarab, Noise Program SME
MDOT MAA - Office of Environmental Services	P.O. Box 8766 BWI Airport, MD 21240	Robin Bowie, Director of Environmental Services
MDOT MAA - Office of Environmental Services	P.O. Box 8766 BWI Airport, MD 21240	Darline Terrell-Tyson, Deputy Director of Environmental Services
Middle River Aviation, LLC	701 Wilson Point Road Box 14 Baltimore, MD 21220	Kevin Walsh, President
Midwest Air Traffic Control	701 Wilson Point Road Baltimore, MD 21220	Nikolaus Wagenfeiler
Nottingham Improvement Association	9929 Philadelphia Road Rosedale, MD 21237	Judith Davies
The Aircraft Owners and Pilots Association		Gerard Uehlinger
The National Business Aviation Association	1200 G Street NW, Suite 1100 Washington, DC 20005	Paige Kroner
Wilson Point Civic Improvement Association	1452 Shore Rd Middle River, MD 21220	Doug Zeisel
Wilson Point Civic Improvement Association	1452 Shore Rd Middle River, MD 21220	Lynn Lanham

Larry Hogan
Governor
Boyd K. Rutherford
Lt. Governor
Pete K. Rahn
Secretary

Ricky D. Smith, Sr.
Executive Director

August 9, 2019

[Name]
[Title]
[Company]
[Address 1] [Address 2]
[City] [State] [Zip]

Dear [Name]:

The Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA) has begun the process of updating the Airport Noise Zone (ANZ) for Martin State Airport (MTN). Updating the ANZ involves studying airport noise and developing noise contours for both existing and future conditions at MTN, necessary for local land use planning. The study also includes a review of the existing MTN Noise Abatement Plan. Involvement from community stakeholders is critical to the success of the ANZ update. Therefore, we are seeking input from those impacted by airport activities and aircraft noise.

We invite you, or another representative of your organization, to join the MTN ANZ Stakeholder Advisory Committee (SAC). The purpose of the SAC is to convene stakeholders affected by airport activities and to present the preliminary noise zone contour planning parameters as we prepare for this MTN ANZ update. Members of the SAC will collaborate with MDOT MAA during the MTN ANZ update process and share pertinent information with the groups or impacted citizens that they represent. The SAC will include representatives of state and local government, the Maryland Air National Guard and Civil Air Patrol, local community organizations, tenants of MTN, industry organizations, and MDOT MAA staff.

We anticipate that the SAC will meet twice. The first meeting is scheduled for **September 12, 2019 from 6:00pm – 8:00pm.** The meeting will be held in Room 416, located in the lower level of Hangar 4 at MTN. Details on the second meeting (anticipated to occur 3-4 months from now) are forthcoming. The public involvement process will include a separate public hearing concerning the MTN ANZ update, anticipated to occur early next year (2020). We appreciate your interest in airport issues and look forward to working with you to update the MTN ANZ.

MARTIN STATE AIRPORT
701 Wilson Point Road – Box 1
Baltimore, Maryland 21220-4282
Telephone: 410-682-8800 • Fax: 410-682-8822 • TTY Users Call via MD Relay • www.martinstateairport.com

Please call Malcolm Mossman at 240-583-7920 or email MalcolmM@assedollc.com to RSVP or register online: https://mtnsac.eventbrite.com.

For reference, the previous MTN ANZ is available online: https://www.maacommunityrelations.com/content/anznoiseupdate/mtnanz.php.

Sincerely,

Bruce Rineer, Manager
Noise Program Section
Office of Environmental Services

Larry Hogan
Governor

Boyd K. Rutherford
Lt. Governor

Pete K. Rahn
Secretary

Ricky D. Smith, Sr.
Executive Director

Martin State Airport (MTN)
Airport Noise Zone (ANZ) Update
Stakeholder Advisory Committee (SAC) Meeting #1

AGENDA

Thursday, September 12, 2019, 6:00 PM – 8:00 PM
Martin State Airport
Hangar 4, Lower Level, Room 416
701 Wilson Point Road
Baltimore, Maryland 21220

Time	**Discussion Item**
6:00-6:10 pm	Welcome remarks and meeting agenda
6:10-6:15 pm	Safety briefing
6:15-6:20 pm	Meeting facilitation remarks
6:20-6:40 pm	Self-introductions
6:40-6:50 pm	Discussion of Maryland Airport Noise Zone (ANZ) regulations (COMAR) • Overview of Martin State Airport (MTN) Airport Noise Zone (ANZ) update scope and process
6:50-7:00 pm	Stakeholder Advisory Committee (SAC) makeup, roles, and responsibilities • Overview of invited SAC participants
7:00-7:10 pm	Review existing MTN ANZ
7:10-7:30 pm	Discussion of noise model input needs and modeling process
7:30-7:40 pm	Review of existing MTN Noise Abatement Plan
7:40-7:50 pm	Discussion of project schedule and contacts
7:50-8:00 pm	Wrap-up and Q&A

MARTIN STATE AIRPORT
701 Wilson Point Road – Box 1
Baltimore, Maryland 21220-4282
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Maryland Aviation Administration

MARTIN STATE AIRPORT

Please Sign In

Martin State Airport Noise Zone Update – Stakeholder Advisory Committee (SAC)				September 12, 2019	
	Name/Title	Organization	Phone	Email	Initials
1.	Adam Scholten – Consultant	HMMH	(781) 229-0707	ascholten@hmmh.com	ARS
2.	Al Pollard* – Chief of Operations and Maintenance	MDOT MAA – Martin State Airport Operations and Maintenance	(410) 682-8826	apollard@bwiairport.com	
3.	Brig. Gen. Ed Jones*	Maryland Air National Guard		edward.s.jones.mil@mail.mil	
4.	Bruce Rineer* – Manager	MDOT MAA – Noise Program	(410) 859-7813	brineer@bwiairport.com	BRR
5.	Chris Roussey*	Baltimore County Police Department – Aviation Unit		croussey@baltimorecountymd.gov	CR
6.	Darline Terrell-Tyson* – Deputy Director of Environmental Services	MDOT MAA - Office of Environmental Services	(410) 859-7370	dterrell-tyson@bwiairport.com	
7. JF	Joseph Fraker* – Community Planner	Baltimore County Department of Planning	(410) 887-3480	jfraker@baltimorecountymd.gov	JF
8.	Joy Hamilton – Facilitator	Assedo Consulting	(240) 583-7925	joyh@assedollc.com	
9.	Judith Davies*	Nottingham Improvement Association	(410) 687-7794	bixfan@aol.com	
10.	Julia Nagy – Consultant	HMMH	(781) 229-0707	jnagy@hmmh.com	
11.	Karen Harrell* – Administrative Coordinator	MDOT MAA – Noise Program	(410) 859-7550	kharrell@bwiairport.com	
12.	Kevin Clarke* – Director of Planning	MDOT MAA – Division of Planning and Engineering	(410) 859-7787	kclarke@bwiairport.com	
13.	Kevin Walsh* – President	Middle River Aviation	(410) 574-3897	kevin@middleriveraviation.com	
14.	Krystle Patchak* – Eastern Sector Planner	Baltimore County Department of Planning		kpatchak@baltimorecountymd.gov	KP
15.	Lynn Lanham*	Wilson Point Civic Improvement Association		lynn.lanham18@gmail.com	
16.	Malcolm Mossman – Consultant	Assedo Consulting	(240) 583-7920	malcolmm@assedollc.com	
17.	Michael Deruggiero* – Chief Pilot	Maryland State Police – Aviation Command		michael.deruggiero@maryland.gov	
18.	Nikolaus Wagenfeiler*	Midwest Air Traffic Control	(410) 682-8807	nikolaus.wagenfeiler@midwestatcs.com	
19.	Paige Kroner*	The National Business Aviation Association	(202) 783-9000	pkroner@nbaa.org	
20.	Rhea Gundry - Consultant	HMMH	(916) 368-0707	rgundry@hmmh.com	
21.	Robin Bowie* – Director of Environmental Services	MDOT MAA - Office of Environmental Services	(410) 859-7103	rbowie@bwiairport.com	

* Stakeholder Advisory Committee Member

	Name/Title	Organization	Phone	Email	Initials
22.	Rocky Jones*	Essex Middle River Civic Council	(410) 971-7859	16redrose@comcast.net	WHG
23.	Ron Walper*	Bowley's Quarters Community Association		ronwalper@gmail.com	RAW.
24.	Royce Bassarab* – Noise Program SME	MDOT MAA - Noise Program	(410) 859-7925	rbassarab@bwiairport.com K	KZ
25.	Sgt. Brandon Branham*	Baltimore County Police Department - Aviation Unit	(410) 887-0280	bbranham@baltimorecountymd.gov	
26.	JANE TOSKES	AmAv, Inc	410-391-1738	jane@flyamav.com	JMT
27.	Cory Grochowski	Baltimore City Police Dept. Aviation Unit	(443)984 7042	cory.grochowski@baltimorepolice.org	CMG
28.	Marsha Ayres	Bowleys Quarters Improvement Assn.	410 335 2973	mayres1022@gmail.com	MLA
29.	Glenn DiSabatino	MAA OPS	410 682 8805	GDiSabatino@BWIAIRPORT.com	GD
30.	Ryan Agan	MAA OPS	410 682 8801	ragan@martinstateairport.com	RA
31.	Joe Toskes	Am Av Inc	410 340 7721	Joe@flyamav.com	JMT.
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* Stakeholder Advisory Committee Member

Martin State Airport
Airport Noise Zone Update
Stakeholder Advisory Committee (SAC) Meeting

MARTIN STATE AIRPORT

September 12, 2019
6:00 PM – 8:00 PM

MARYLAND | MDOT MARYLAND DEPARTMENT OF TRANSPORTATION | Maryland Aviation Administration

Welcome to Martin State Airport (MTN)

Source: MTN State Airport Photo Gallery

Time	Discussion Item
6:00-6:10 pm	Welcome remarks and meeting agenda
6:10-6:15 pm	Safety briefing
6:15-6:20 pm	Meeting facilitation remarks
6:20-6:40 pm	Self-introductions
6:40-6:50 pm	Discussion of Maryland Airport Noise Zone (ANZ) regulations (COMAR) • Overview of Martin State Airport (MTN) Airport Noise Zone (ANZ) update scope and process
6:50-7:00 pm	Stakeholder Advisory Committee (SAC) makeup, roles, and responsibilities • Overview of invited SAC participants
7:00-7:10 pm	Review existing MTN ANZ
7:10-7:30 pm	Discussion of noise model input needs and modeling process
7:30-7:40 pm	Review of existing MTN Noise Abatement Plan
7:40-7:50 pm	Discussion of project schedule and contacts
7:50-8:00 pm	Wrap-up and Q&A

BWI BALTIMORE/WASHINGTON INTERNATIONAL THURGOOD MARSHALL AIRPORT | MARTIN STATE AIRPORT

Safety Briefing

- Follow Emergency Exits
- Call 911
- Assist those who need assistance
- Be sure to take a head count during the emergency event
- Nearest AED – Entryway #4 (Hangar 5)
- Nearest Fire Extinguisher – Room 527 (Hangar 5)
- **Accountability Site:** Parking lot outside of Hangar 4
- Always… report any hazards in the "Meeting Room"

BWI BALTIMORE/WASHINGTON INTERNATIONAL THURGOOD MARSHALL AIRPORT | MARTIN STATE AIRPORT

Meeting Facilitation

- The meeting facilitator is responsible for ensuring SAC meetings:
  - Run efficiently, respectfully, and effectively
  - Focus on the published agenda
  - Provide appropriate opportunities for all members to participate
  - Result in consensus conclusions to the maximum extent feasible
  - Are documented through preparation of accurate meeting notes

Introductions

Thank you for joining us!

Around the room please:

- State your name
- Which organization you represent
- Whether you are familiar with the ANZ process

Maryland Airport Noise Zone (ANZ) Regulations

- Maryland Environmental Noise Act of 1974
  - Intended to minimize aircraft noise impacts and prevent incompatible land development around airports
- Code of Maryland Regulations (COMAR) requires MDOT MAA to complete an ANZ update for MTN approximately every five years
- Noise impact determined by Day-Night Average (DNL/Ldn) composite contours:
  - Base year
  - 5-year post certification forecast
  - 10-year post certification forecast
- The ANZ represents the largest extent of the annual contours for each study year

Airport Noise Zone Update Scope and Process

- Form and engage with Stakeholder Advisory Committee (SAC)
- Prepare base year, 5-year, 10-year forecast contours
- Compile composite Airport Noise Zone (ANZ)
- Conduct land use inventory
- Conduct public hearing/ workshop
- Incorporate ANZ into Code of Maryland Regulations (COMAR)

Stakeholder Advisory Committee (SAC) Makeup

The SAC is composed of stakeholders representing all significant interests at Martin State Airport (MTN):

- State and local agencies
- Airport tenants and users
- Community organizations
- Aviation trade associations

Members serve on a voluntary basis without compensation

SAC Roles and Responsibilities

- The SAC serves in an advisory role to the MDOT MAA solely for purposes of the MTN ANZ update process
  - Review of study inputs, assumptions, analyses, documentation, etc.
  - Input, advice, and guidance related to Noise Abatement Plan
- SAC members are expected to provide two-way communication between the SAC and their organizations / constituents
- MDOT MAA shall respect and consider SAC input, but retains overall responsibility for the MTN ANZ update

Stakeholder Advisory Committee: Invited Participants

Organization Category	Organization	Representative
State/Local Agencies and MDANG	Baltimore City Police Department, Helicopter Unit	Lt. George Hauf Sgt. Matthew Cloud
	Baltimore County Police Department, Aviation Unit	Ofc. Chris Roussey
	Baltimore County Department of Planning	Krystle Patchak
	Maryland State Police, Aviation Unit	Maj. Michael Tagliaferri Capt. Keith McMinn
	Civil Air Patrol (CAP)	Lt. Col. John Henderson
	Maryland Air National Guard (MDANG)	Brig. Gen. Paul Johnson
	Maryland Department of Transportation, Maryland Aviation Administration	- Al Pollard, A. A. E., Chief, Martin State Airport, Division of Operations & Maintenance - Shawn Ames, Deputy Director, Office of Planning - Robin Bowie, Director, Office of Environmental Services - Darline Terrell-Tyson, Deputy Director, Office of Environmental Services - Bruce Rineer, Manager, Noise Section - Karen Harrell, Administrative Coordinator, Noise Section - Royce Bassarab, Noise Program SME, HNTB

Stakeholder Advisory Committee: Invited Participants

Organization Category	Organization	Representative
Community Organizations	Baltimore County Mobile Homeowners Association	James W. Oates
	Bowleys Quarters Community Association	Paul Allen Paul Jr.
	Bowleys Quarters Improvement Association	Dave Conrad
	Essex Middle River Civic Council	Robert Bendler
	Hawthorne Civic Association	Edith Schott
	Nottingham Improvement Association	Judith Davies
	Oliver Beach Improvement Association	
	Wilson Point Civic Improvement Association	Doug Zeisel
	Windlass Run Improvement Association	William Kammer

Stakeholder Advisory Committee: Invited Participants

Organization Category	Organization	Representative
MTN Tenants and Aviation Representatives	Midwest Air Traffic Control	Nikolaus Wagenfeiler
	AMAV, Inc.	Joseph M. Toskes
	Executive Flight Solutions	James Baran
	PHI Air Medical Maryland	Michael McCabe
	Helicopter Transport Services, Inc.	Joseph Cavallaro
	Middle River Aviation, LLC	Kevin Walsh
	Skytech, Inc.	John Foster
	Brett Aviation	Helen Frado James Hardwick
	The National Business Aviation Association (NBAA)	Paige Kroner
	The Aircraft Owners and Pilots Association (AOPA)	Jon Gandy

Existing MTN Airport Noise Zone (2012)

Existing MTN Airport Noise Zone

- 2012 MTN ANZ is a composite of the 65, 70, and 75 Day-Night Average (DNL/Ldn) noise contours for:
  - Base year 2012
  - Future years of 2017 and 2022
- Represents the largest extent of the annual Ldn contours for each of the three study years (2012, 2017, and 2022)
- Defined to provide the largest area of the existing or future noise exposure contours for planning purposes

Noise Model Inputs

- Aviation Environmental Design Tool (AEDT)- noise modeling software
- AEDT requires input data in three categories:
  1. Aircraft noise and performance data
  2. Airport layout
  3. Aircraft operational data
     - Number of aircraft operations
     - Aircraft fleet mix
     - Day-night split of operations
     - Runway utilization
     - Flight track geometry and utilization

Noise Modeling Process

- Study years: 2019, 2025, 2030
- Analyze existing radar data
- Base Year (2019)
  - Determine base year AEDT inputs
  - Develop base year conditions and DNL/Ldn contours
- Forecast Years
  - Determine 5 and 10-year forecast AEDT inputs
    - Use of operations forecasts as published in the 2018 FAA Terminal Area Forecast
  - Develop 5-year and 10-year forecast DNL/Ldn Contours

MTN Noise Abatement Plan

- Originally adopted in 1984, updated in 1987, reviewed and approved with no changes in 2012.
- Includes multiple elements
  - Traffic procedures
  - Taxiing aircraft procedures
  - "Touch-and-Go" restrictions
  - Helicopter procedures
  - Complaint procedures
  - Zoning permit and appeals process
  - MDANG noise barriers
  - Piston aircraft fly runway heading for one mile before turning on course

Proposed Project Schedule

Date	Item
July 2019	Project Start
September 12, 2019	Stakeholder Advisory Committee (SAC) Meeting #1 • Introductions • Overview of ANZ Update scope and process • Schedule
Fall 2019	Develop draft ANZ contours • Distribute compiled study information to SAC members for review and comment
December 2019	Stakeholder Advisory Committee (SAC) Meeting #2 • Present draft ANZ contours & review Noise Abatement Plan
Early 2020	Prepare draft ANZ document
Early 2020	Public Workshop/ Public Hearing • Present draft ANZ document and contours
Spring 2020	Incorporate ANZ into Code of Maryland Regulations (COMAR)

Project Contacts and Resources

- MDOT MAA Project Manager
  - Bruce Rineer, Manager, Office of Environmental Services, Noise Section, BRineer@bwiairport.com
- HMMH Project Manager
  - Julia Nagy, Senior Consultant, jnagy@hmmh.com
- MTN ANZ website: https://www.maacommunityrelations.com/content/anznoiseupdate/mtnanz.php
- 2012 MTN ANZ document, including existing Noise Abatement Plan (NAP): https://www.maacommunityrelations.com/_media/client/anznoiseupdate/MTN_ANZ_20120508.pdf

Thank you for attending!

Martin State Airport (MTN) Airport Noise Zone (ANZ) Update
Stakeholder Advisory Committee (SAC) Meeting #1

MEETING MINUTES

Thursday, September 12, 2019, 6:00 PM – 7:00 PM

Martin State Airport, Hangar 4, Lower Level, Room 416

701 Wilson Point Road Baltimore, Maryland 21220

5:59-6:02 pm Welcome remarks and meeting agenda
Joy Hamilton (Assedo) made welcome remarks. She acknowledged that everyone registered for the event was in attendance except for one representative, so the meeting could begin. She ran through the agenda and introduced Al Pollard (MDOT MAA).

6:02-6:05 pm Safety briefing
Al Pollard introduced himself and Martin State Airport. He made welcome remarks to all attendees. He covered the safety briefing that included the location of emergency exits (Hangar 4, entries one and two), a reminder to assist those who may need assistance, the location of the nearest AED (Hangar 5), the location of the nearest fire extinguisher location (Hangar 5, down the hall to the left), and a reminder to report any hazards observed in the meeting room.

Al Pollard reiterated that MDOT MAA wants participants to be aware of safety procedures in the event of an emergency.

6:05-6:10 pm Meeting facilitation remarks
Joy Hamilton introduced herself as the facilitator tasked with keeping the meeting running smoothly. She ensured attendees that anyone who wanted to make a comment would have an opportunity to participate. Joy suggested that attendees raise their hand or turn their tent card to the side if they want to be heard and she would call on them accordingly. Joy requested that any attendees with questions or comments should table those until the end of the meeting so that presenters have time to get through the presentation content. She instructed that if attendees had a burning question, she would try to accommodate it in the moment. Joy asked that attendees turn their phones to silent and to step out of the room to take a call if needed.

6:10-6:15 pm Self-introductions
Joy Hamilton suggested that SAC members should get to know each other since the committee will be meeting again and it is helpful to know who is in the room. Joy asked that each member state their name, which stakeholder group they are representing and whether they have been involved with an ANZ update process before. Many of the SAC members had not previously been involved with an ANZ update in the past. Introductions proceeded around the room as follows:

Bruce Rineer – MDOT MAA Noise Program
Darline Terrell-Tyson – MDOT MAA Environmental Services

Karen Harrell – MDOT MAA Noise Program
Kevin Clarke – MDOT MAA Division of Planning and Engineering
Paige Kroner – The National Business Aviation Association
Nik Wagenfeiler – Midwest Air Traffic Control
Judith Davies – Nottingham Improvement Association
Lynn Lanham – Wilson Point Civic Improvement Association
Ron Walper – Bowley's Quarters Community Association
Rocky Jones – Essex Middle River Civic Council
Krystle Patchak – Baltimore County Department of Planning
Joe Fraker – Baltimore County Department of Planning
Ed Jones – Maryland Air National Guard
Chris Roussey – Baltimore County Police Department Aviation Unit
Kevin Walsh – Middle River Aviation
Adam Scholten – HMMH
Rhea Gundry – HMMH
Julia Nagy – HMMH
Jane Toskes – AMAV, Inc
Marsh Aryes – Bowley's Quarters Improvement Association
Cory Grochowski – Baltimore County Police Department Aviation Unit
Royce Bassarab – MDOT MAA Noise Program
Robin Bowie – MDOT MAA Environmental Services
Ryan Agan – Martin State Airport Operations
Glenn DiSabatino – Martin State Airport Operations

6:15-6:25 pm Discussion of Maryland Airport Noise Zone (ANZ) regulations (COMAR) and overview of Martin State Airport (MTN) Airport Noise Zone (ANZ) update scope and process
Rhea Gundry (HMMH) explained that the Maryland Environmental Noise Act of 1974 is why everyone is in attendance to update the ANZ. She stated that the purpose of the ANZ is to get a snapshot of the airport's noise footprint and the associated land use around the airport so that MDOT MAA could minimize aircraft noise impacts and restrict incompatible land uses within the noise zone, such as residential buildings, hospitals, and schools. She reiterated that the process aims to minimize noise and its impacts on people.

Rhea explained that the Code of Maryland Regulations, or COMAR, dictates how MDOT MAA follows the ANZ update process. She stated that MDOT MAA seeks to undertake a dynamic ANZ update process that also follows COMAR requirements. She stated that MDOT MAA wants stakeholder advisory committee input so that MTN will have the best plan at the end of this process. She clarified that the ANZ is a map showing noise contours, which is updated every five years. She explained that it includes Day-Night Average sound level (DNL) contours, which are a calculation of the annual noise of all airport operations averaged over a 24-hour period. She described that the calculation weights nighttime operations higher, as they are more disruptive. Rhea emphasized that MDOT MAA is not simply sticking a noise monitor off the runway but rather that the ANZ represents cumulative noise effects, taking into account three different study years – a base year, five-year future scenario and 10-year future scenario. She described how MDOT MAA will consult with the operators to understand their current fleet mix and their use of

the airport, including any future fleet or operational changes. She described the resulting ANZ contour as a composite of the furthest extent of the three study year contours.

Rhea reiterated that SAC participation is critical to the ANZ process. She stated that operator feedback is needed as inputs for the noise modeling efforts related to the ANZ creation and residents can provide information on land use and plans for future land use changes. She stated that MDOT MAA will hold a public hearing and workshop related to the MTN ANZ in early 2020 and encouraged SAC members to invite others to that meeting. She explained that once the ANZ has been reviewed by SAC and the public, a final version will be adopted and then incorporated into COMAR to become Maryland law.

6:25-6:30 pm Stakeholder Advisory Committee (SAC) makeup, roles, and responsibilities; overview of invited SAC participants
Rhea listed the groups represented on the SAC and stated that members are all serving on a voluntary basis without compensation.

Rhea detailed the expected roles and responsibilities of SAC members. She stated that MDOT MAA seeks their input during the ANZ process, which will also include reviewing and possibly updating the Noise Abatement Plan (NAP). She explained that the NAP helps MDOT MAA consider airport noise compatibility with surrounding land uses. She reminded SAC members that they are expected to take the information shared at these meetings and communicate it with the groups that they represent. She stated that the ANZ is an MDOT MAA document and that input will be considered but MDOT MAA has the final say on what is included. She reiterated that all groups invited to this first SAC meeting will also be invited to the second meeting.

6:30-6:32 pm Review existing MTN ANZ
Adam Scholten (HMMH) explained that the 2012 ANZ map is not the sole product for the ANZ but it can give the SAC an idea of what the contours look like. He explained that the ANZ is a composite of multiple years of contours, over three different study years. He described in the most recent ANZ update, the base year was 2012 and future study years were 2017 and 2022. He stated that the ANZ is a composite of the maximum extent of noise exposure.

6:32-6:37 pm Discussion of noise model input needs and modeling process
Adam stated that the Aviation Environmental Design Tool (AEDT) software is used to model the ANZ contours. This is the same software tool mandated by FAA for use in other similar environmental noise studies. He explained that the AEDT requires input from three categories. To validate aircraft noise and performance data, Adam stated that MTN operators will provide fleet information and MDOT MAA will match that information with the AEDT database of over 200 different airplane types and noise. Related to airport layout, Adam explained that the input data will include runway and helipad locations, and whether any of these locations are expected to change in the future. Adam explained that aircraft operational data is obtained from actual radar data.

Adam explained that all of these data are inputs for the AEDT model. He explained that this new ANZ will include study years 2019, 2025 and 2030. Adam stated that the next step is to analyze existing radar

data, then to verify operator data, and then obtain input from the SAC. He explained that the SAC should help verify if the data MDOT MAA collects is in line with what people are reporting. Adam explained that some operations may not show up in radar data (such as military traffic) so MDOT MAA wants to work with operators directly to ensure accuracy. He stated that the ANZ update process will use the Terminal Area Forecast (TAF) released by FAA to understand how operations are forecast to change in future years and compare that with operator information at MTN.

6:37-6:40 pm Review of existing MTN Noise Abatement Plan
Adam stated that the MTN Noise Abatement Plan (NAP) was originally adopted in 1984 and was approved with no changes in 2012. He listed the multiple elements in the NAP that aim to mitigate noise impacts.

6:40-6:45 pm Discussion of project schedule and contacts
Julia Nagy (HMMH) stated that the project kicked off in July 2019, when MDOT MAA started preparing for the first SAC meeting. She stated that the fall months will mainly involve data collection, noise modeling, and data analysis. She stated that the next SAC meeting is expected to be in December and at that meeting the draft contours and land use analysis results will be shared with the SAC. Julia stated that SAC members will receive materials for review prior to the next meeting. She stated that comments will be accepted following discussion at the second SAC meeting. She stated that MDOT MAA will then prepare an updated draft ANZ document in early 2020, considering SAC comments. She reminded the group that there will be a public workshop and hearing in early 2020. She stated that public comments will be accepted then and a final document will be submitted to COMAR in Spring 2020. Julia provided project team contact information for SAC members.

6:45-7:00 pm Wrap-up and Q&A
Rocky Jones (Essex Middle River Civic Council) asked how residents can learn about where the flight patterns are and asked what rules are currently in place so that they know if those rules are being followed. Rhea responded that MDOT MAA has an Airport Noise Monitoring and Management System (ANOMS) which monitors operations and Al Pollard or Bruce Rineer (MDOT MAA) may be able to answer specific questions using that radar data. She explained that, as far as what goes into the noise model, flight routes are drawn on maps based on radar data and input from operators and will be provided at the next meeting for the SAC to review.

Judith Davies (Nottingham Improvement Association) asked how much the county planning office takes the ANZ and NAP into account when zoning and issuing permits. Krystle Patchak (Baltimore County Department of Planning) said that when BCDP gets permit requests in the airport zone they are flagged but explained that this is her first time being part of the ANZ process. Kevin Clarke (MDOT MAA) explained that the airport zone includes a 3 ½ mile radius around the airport. He stated that any development projects in that zone get flagged and BCDP will coordinate that permit process with MDOT MAA. He explained that the noise zone is different – it is informational for BCDP and mostly on airport property. Kevin explained that if a property is two miles away, it is in an airport zoning district but can be any property type. He then explained that if the updated ANZ contour extends off of airport property, MDOT MAA would go to BCDP and work to get that area rezoned. He stated that residential properties

are noise sensitive and should not be within the ANZ or off the runway, but commercially zoned properties are compatible.

Ron Walpers (Bowley's Quarters Community Association) asked if flight paths were preferred over water rather than over homes. Nik Wagenfeiler (Midwest Air Traffic Control) stated that operators do have checkpoints that help monitor air traffic. He explained that when helicopters take off from the south pad, they are not able to see anything to the northwest until they hit altitude. He stated that they are very aware of the noise sensitivity and try to mitigate it but cannot always succeed since safety is the number one priority. Kevin Walsh (Middle River Aviation) acknowledged that his flight school is a major contributor to the noise. He offered to put together a workshop for the community to discuss how the helicopters and aircraft operate and better explain their flight patterns. He explained that the workshop can educate the community on what operators are doing and the limitations of the aircraft. Kevin Walsh explained that operators are not averse to trying to address community problems, but unfortunately there is only so much they can do due to traffic pattern limitations. He promised to provide his business cards to community representatives if they were interested coordinating a workshop. Al Pollard added that state police and medivac will take the most direct route possible to answer an emergency call.

Jane Toskes (AMAV, Inc) asked where the one mile from takeoff point starts, as listed in the Noise Abatement Plan. She stated that it could start from takeoff or the end of runway and that she has never been given clear direction on it so that she can turn on course at the correct moment. Nik Wagenfeiler said he was not completely sure but guessed that it is one mile from the point of departure off the runway. Kevin Walsh suggested that pilots use landmarks. Rhea Gundry stated that this is the type of comment MDOT MAA will consider when reviewing the NAP. She suggested that there might be something better than a landmark. Marsha Ayres (Bowley's Quarters Improvement Association) added that this would be useful information for people in the community to know.

Lynn Lanham (Wilson Point Civic Improvement Association) asked if MDOT MAA will make an adjustment if the updated noise contour goes out into the neighborhood. Rhea Gundry explained that the first thing MDOT MAA will need to do is see where heavy traffic patterns are. She stated that this will determine the noise footprint and then MDOT MAA can determine what to do. She reiterated that good data is the first step. Lynn asked in response if she could see that data. Rhea responded in the affirmative, reminding the SAC that members will have a chance to review the inputs prior to the second meeting.

Joe Toskes (AMAV, Inc) asked operators if the pilots use a localizer to determine how far they are. Some operators said their pilots could use distance measuring equipment (DME).

Rocky Jones asked how MDOT MAA will measure the noise. Rhea explained that AEDT models the noise but won't measure it. She explained that MDOT MAA wants to forecast the future in addition to the current conditions. She reassured the group that FAA has used AEDT for years and that it is accurate as long as inputs on the front end are accurate. Rocky asked for confirmation related to whether modeling is more accurate than his own microphone and Rhea responded in the affirmative.

Joy Hamilton reminded SAC members that they plan to meet again in December to have another dialogue and adjourned the meeting an hour early since there were no additional comments from SAC members or other meeting attendees.

Larry Hogan
Governor
Boyd K. Rutherford
Lt. Governor
Pete K. Rahn
Secretary

Ricky D. Smith, Sr.
Executive Director

November 21, 2019

[Name]
[Company]
[Address 1] [Address 2]
[City] [State] [Zip]

Dear [Name]:

The Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA), invites you, or another representative of your organization, to attend the second, and final, Stakeholder Advisory Committee (SAC) meeting for the Airport Noise Zone (ANZ) update for Martin State Airport (MTN). At this meeting, SAC members will have an opportunity to discuss the draft ANZ noise contours and related land-use inventory. Read-ahead materials will be shared with all SAC members prior to the meeting. At the meeting, questions related to the materials will be addressed so that you are able to share pertinent information with the stakeholders that you represent.

The second SAC meeting is scheduled for **Tuesday, January 14, 2020 from 6:00pm – 8:00pm.** The meeting will be held at MTN in meeting room 416, located in the lower level of Hangar 4. *See inclement weather scheduling information on the following page.*

As a reminder, the MTN ANZ update includes a public involvement process through a public workshop. The public workshop is anticipated to occur in the second quarter of 2020. Additional representatives of your organization and all members of the public are welcome to participate in the public workshop. We appreciate your interest in MTN and look forward to working with you to update the MTN ANZ.

Please call Malcolm Mossman at 240-583-7920 or email MalcolmM@assedollc.com to RSVP or register online: https://mtnstakeholder.eventbrite.com. If you have questions about the ANZ process, please email Bruce Rineer at BRineer@bwiairport.com or Julia Nagy at jnagy@hmmh.com.

For reference, the previous MTN ANZ is available online:
https://www.maacommunityrelations.com/content/anznoiseupdate/mtnanz.php.

Sincerely,

Bruce Rineer, Manager
Noise Program Section
Office of Environmental Services

MARTIN STATE AIRPORT
701 Wilson Point Road – Box 1
Baltimore, Maryland 21220-4282
Telephone: 410-682-8800 • Fax: 410-682-8822 • TTY Users Call via MD Relay • www.martinstateairport.com

Larry Hogan
Governor
Boyd K. Rutherford
Lt. Governor
Pete K. Rahn
Secretary

Ricky D. Smith, Sr.
Executive Director

Inclement Weather Scheduling Information

If inclement weather exists or is forecast, MDOT MAA will make every effort to make a determination to postpone the meeting on the day prior (January 13, 2020). MDOT MAA will alert attendees only if the meeting is postponed. If you are unsure as to the status of the meeting, please call Malcolm Mossman at 240-583-7920 on the day of the meeting for updated information. The alternate date is Tuesday, January 28, 2020 from 6:00pm – 8:00pm in the same location, please mark your calendar accordingly.

MARTIN STATE AIRPORT
701 Wilson Point Road – Box 1
Baltimore, Maryland 21220-4282
Telephone: 410-682-8800 • Fax: 410-682-8822 • TTY Users Call via MD Relay • www.martinstateairport.com

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Lt. Governor
Pete K. Rahn
Secretary

Ricky D. Smith, Sr.
Executive Director

Martin State Airport (MTN)
Airport Noise Zone (ANZ) Update
Stakeholder Advisory Committee (SAC) Meeting #2

AGENDA

Tuesday, January 14, 2020, 6:00 PM – 8:00 PM
Martin State Airport
Hangar 4, Lower Level, Room 416
701 Wilson Point Road
Baltimore, Maryland 21220

Time	**Discussion Item**
6:00-6:10 pm	Welcome, safety briefing, overview of meeting agenda
6:10-6:15 pm	Meeting facilitation remarks
6:15-6:20 pm	Self-introductions and welcome remarks
6:20-6:25 pm	SAC Meeting #1 Recap
6:25-6:30 pm	Discussion of Code of Maryland Regulations (COMAR) Airport Noise Zone (ANZ) requirements and related MTN ANZ update scope and process
6:30-6:35 pm	Stakeholder Advisory Committee (SAC) input, makeup, roles, and responsibilities
6:35-6:45 pm	Noise fundamentals
6:45-7:00 pm	Discussion of noise modeling process and noise model input needs
7:00-7:30 pm	Presentation of draft noise modeling results, contours, and land use inventory
7:30-7:50 pm	Review of existing MTN Noise Abatement Plan
7:50-7:55 pm	Discussion of project schedule, contacts, and resources
7:55-8:00 pm	Wrap-up and Q&A

MARTIN STATE AIRPORT
701 Wilson Point Road – Box 1
Baltimore, Maryland 21220-4282
Telephone: 410-682-8800 • Fax: 410-682-8822 • TTY Users Call via MD Relay • www.martinstateairport.com

Maryland Aviation Administration

Please Sign In

Martin State Airport Noise Zone Update – Stakeholder Advisory Committee (SAC)				January 14, 2020	
	Name/Title	Organization	Phone	Email	Initials
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* Stakeholder Advisory Committee Member

	Name/Title	Organization	Phone	Email	Initials
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* Stakeholder Advisory Committee Member

Martin State Airport
Airport Noise Zone Update
Stakeholder Advisory Committee (SAC) Meeting 2

MARTIN STATE AIRPORT

January 14, 2020
6:00 PM – 8:00 PM

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION

Welcome to Martin State Airport (MTN)

Safety Briefing

- Follow Emergency Exits
- Call 911
- Assist those who need assistance
- Be sure to take a head count during the emergency event
- Nearest AED – Entryway #4 (Hangar 5)
- Nearest Fire Extinguisher – Room 527 (Hangar 5)
- **Accountability Site:** Parking lot outside of Hangar 4
- Always… report any hazards in the "Meeting Room"

Source: MTN State Airport Photo Gallery

Slide 2

SAC Meeting 2 Agenda
• Welcome remarks and overview of meeting agenda
• Safety briefing
• Meeting facilitation remarks
• Self-introductions
• Discussion of Code of Maryland Regulations (COMAR) Airport Noise Zone (ANZ) requirements and related MTN ANZ update scope and process
• Stakeholder Advisory Committee (SAC) makeup, roles, responsibilities, Meeting #1 Summary
• Noise 101
• Discussion of noise modeling process and noise model input needs
• Presentation of draft noise modeling results, contours, and land use inventory
• Review of existing MTN Noise Abatement Plan (NAP)
• Discussion of project schedule and contacts
• Wrap-up and Q&A

Slide 3

Meeting Facilitation

- The meeting facilitator is responsible for ensuring SAC meetings:
  - Run efficiently, respectfully, and effectively
  - Focus on the published agenda
  - Provide appropriate opportunities for all members to participate
  - Result in consensus conclusions to the maximum extent feasible
  - Are documented through preparation of accurate meeting notes

Slide 4

Introductions and Welcome Remarks

Introductions

- Stakeholder Advisory Committee (SAC) members
- Maryland Department of Transportation, Maryland Aviation Administration (MDOT MAA) representatives
- Consultant team

Slide 5

Meeting 1 Recap

- What is an Airport Noise Zone?
- What is MDOT MAA doing?
- Why do we need you?
- Why are you here?
- What are the end results?

MARTIN STATE AIRPORT

Airport Noise Zone and Noise Abatement Plan

2012

MARYLAND DEPARTMENT OF TRANSPORTATION

Paul J. Wiedefeld
Executive Director
Maryland Aviation Administration

A public hearing will be held on Wednesday, September 26, 2012 at Martin State Airport located at 701 Wilson Point Road, Baltimore, MD, Hangar 4, Room 412. Public review area opens at 6pm. Public hearing begins at 7pm. Public comments on MAA's proposed 2012 Martin State Airport Noise Zone and Noise Abatement Plan maybe submitted using the form provided at the public hearing or by writing to:

Maryland Aviation Administration
Director, Noise, Real Estate, and Land Use Compatibility Planning
Post Office Box 8766
BWI Airport, MD 21240-0766

Written comments must be received by 5:00 p.m. on October 9, 2012 to be considered. After consideration of all oral and written comments, MAA will formally adopt the Airport Noise Zone and Noise Abatement Plan with notification in the Maryland Register. MAA will then certify and submit the adopted Airport Noise Zone to the Baltimore County Land Record Office for use in land use planning and development.

Purpose of Meeting

The public hearing affords all interested persons with an opportunity to comment on proposed revisions to the Martin State Airport Noise Zone and Noise Abatement Plan. Maryland State law requires the Maryland Aviation Administration (MAA) to revise the Airport Noise Zone and Noise Abatement Plan at Martin State Airport regularly to account for changes in total annual aircraft operations, aircraft types, and aircraft flight paths, which may result in changes in overall aircraft noise levels.

MAA monitors airport-related noise at specific locations near the airport to determine any significant changes in noise exposure. The current proposed 2012 Airport Noise Zone (ANZ) contours were compared to the previous 2000 ANZ contours. The 2012 ANZ contains 294 acres, an 11% reduction from 441 acres contained within the currently adopted ANZ. The reduced coverage of the ANZ is due to decreased operations, Maryland Air National Guard's (MANG) shift to a quieter C 27J aircraft, as well as a general shift to quieter corporate jets. There are a few areas in the current ANZ that are bigger than the 2000 ANZ. These reflect changes in helicopter noise modeling. The 2000 ANZ was modeled using INM version 6.0, at that time, the INM did not incorporate helicopter modeling. Beginning with INM version 7.0 and continuing in INM version 7.0b, the introduction of a standard helicopter database has dramatically improved the accuracy of helicopter noise resulting in the larger contour areas centered on the Maryland State and Baltimore County police helipads. Variations in the placement of the helipads and military maintenance run-up areas are due to better data obtained through coordination with MTN airport staff and MANG. The large shift in the location of the Baltimore County Police helicopter activity is due to the use of a new helipad near Taxiline B across from their updated hangar facilities.

Background

The Maryland Environmental Noise Act of 1974 provides for the protection of citizens from the impact of transportation-related noise. The aviation portion of the Act requires MAA to adopt an Airport Noise Zone and Noise Abatement Plan that minimizes the impact of aircraft noise on people living near Martin State Airport and prevents incompatible land development around the airport.

MAA established an Airport Noise Zone and Noise Abatement Plan for Martin State Airport in 1977, following public hearings. The ANZ was last updated in 2000. The Noise Abatement Plan was last updated in 1987. This brochure presents the 2012 Airport Noise Zone and Noise Abatement Plan.

Airport Noise Zone

The Airport Noise Zone is based on an assessment of aircraft noise levels at Martin State Airport during 2012 and aircraft noise levels anticipated in the years 2017 and 2022. MAA conducted

Slide 6

Maryland Airport Noise Zone (ANZ) Regulations

- Maryland Environmental Noise Act of 1974
  - Intended to minimize aircraft noise impacts and prevent incompatible land development around airports
- Code of Maryland Regulations (COMAR) requires MDOT MAA to complete an ANZ update for MTN approximately every five years
- Noise impact determined by Day-Night Average (DNL/Ldn) composite contours:
  - Base year
  - 5-year post certification forecast
  - 10-year post certification forecast
- The ANZ represents the largest extent of the annual contours for each study year

Slide 7

Scope and Process

- Form and engage with Stakeholder Advisory Committee (SAC)
- Prepare base year, 5-year, 10-year forecast contours
- Compile composite Airport Noise Zone (ANZ)
- Conduct land use inventory
- Conduct public hearing/ workshop
- Incorporate ANZ into Code of Maryland Regulations (COMAR)

We are here

Slide 8

Why we need you!

- To understand ANZ effects on all stakeholders
- To review land use inventory and planning considerations
- To share information with your neighbors and organizations
- To review Noise Abatement Plan (NAP) and provide insight to MDOT MAA
- To spread the word about the public workshop in early 2020

Slide 9

Stakeholder Advisory Committee (SAC) Makeup

The SAC is composed of stakeholders representing all significant interests at Martin State Airport (MTN):

- State and local agencies
- Airport tenants and users
- Community organizations
- Aviation trade associations

Members serve on a voluntary basis without compensation

Slide 10

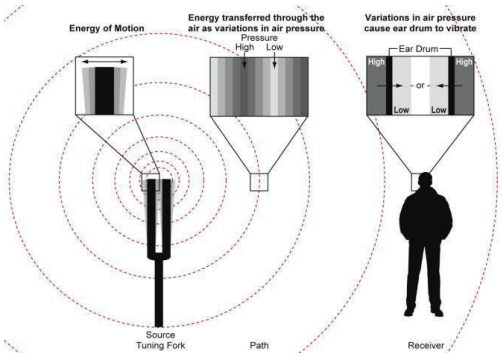
SAC Roles and Responsibilities

- The SAC serves in an advisory role to the MDOT MAA solely for purposes of the MTN ANZ update process
  - Review of study inputs, assumptions, analyses, documentation, etc.
  - Input, advice, and guidance related to Noise Abatement Plan
- SAC members are expected to provide two-way communication between the SAC and their organizations / constituents
- MDOT MAA shall respect and consider SAC input, but retains overall responsibility for the MTN ANZ update

Slide 11

Noise Fundamentals: Sound vs. Noise

- Sound is pressure variation our ears can detect
  - An objective quantity
- Noise is "unwanted sound"
  - A subjective quantity
- We relate sound and noise by considering effects
  - Annoyance
  - Speech interference
  - Sleep disruption



Slide 12

Noise Fundamentals: The Decibel Scale

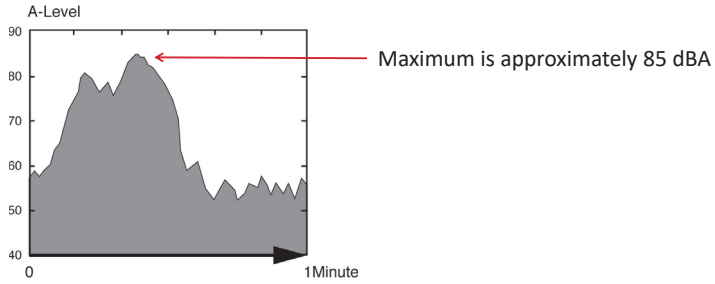
- We use a *logarithmic* scale – *decibels, or dB* to express sound levels and noise levels
- *Why?*
  - We hear sound pressures over a HUGE range
  - Decibels compress this range to match the way we interpret sound pressures
    - 0 to 140 dB
    - -00000003 to -03 lbs. per sq. inch (psi)
  - *We "hear" in decibels*.

"Energy"	dB	Common sounds
100,000,000,000,000	140	Near a jet engine at start of takeoff
10,000,000,000,000	130	Threshold of pain
1,000,000,000,000	120	On stage at a loud rock concert
100,000,000,000	110	
10,000,000,000	100	Jack hammer at 6 feet
1,000,000,000	90	
100,000,000	80	Vacuum cleaner at user's ear
10,000,000	70	Vacuum cleaner at 10 feet
1,000,000	60	Normal speech
100,000	50	
10,000	40	Quiet residential area
1,000	30	
100	20	Whisper
10	10	
1	0	Threshold of hearing
0.1	-10	

Slide 13

Noise Fundamentals: Single Event Noise Metrics

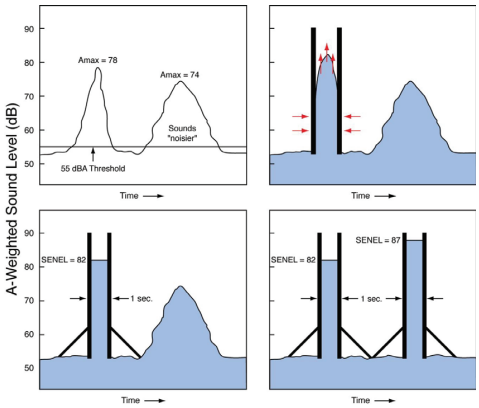
- The simplest way to describe a discrete noise "event" is its maximum sound level, abbreviated as Lmax



Slide 14

Noise Fundamentals: Single Event Noise Metrics

- Sound Exposure Level (SEL) measures the total "noisiness" of an event by taking duration into account
- Duration matters: A longer event may seem "noisier," even if it has a lower or equal maximum level

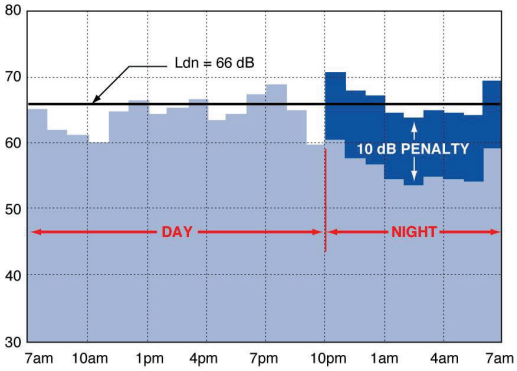


Slide 15

Noise Fundamentals: Cumulative Exposure Metric

Day-Night Average Level (DNL)

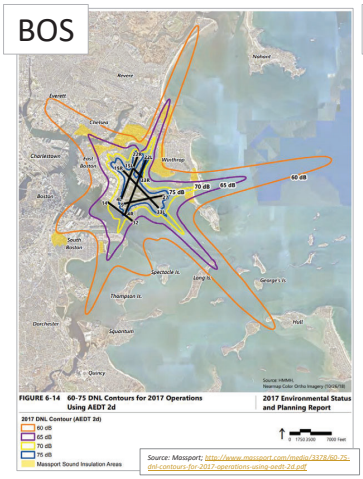
- Describes 24-hour exposure
- Noise from 10 pm to 7 am is factored up by 10 dB
  - "Penalty" is equal to counting each night aircraft 10 times
- DNL is abbreviated as Ldn (as defined in COMAR)



Slide 16

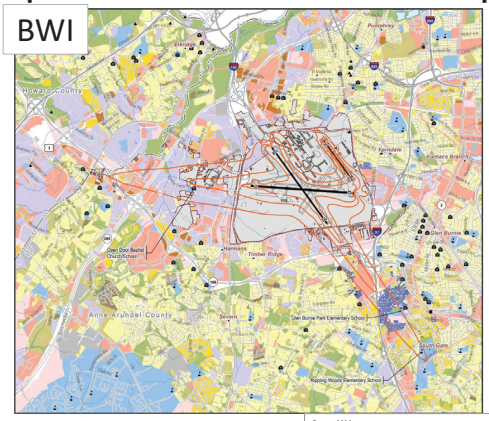
Commercial Airport DNL Contour Examples

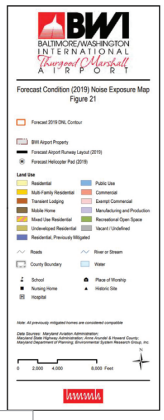
BOS



Source: Massport; http://www.massport.com/media/3378/60-75-dnl-contours-for-2017-operations-using-aedt-2d.pdf

BWI



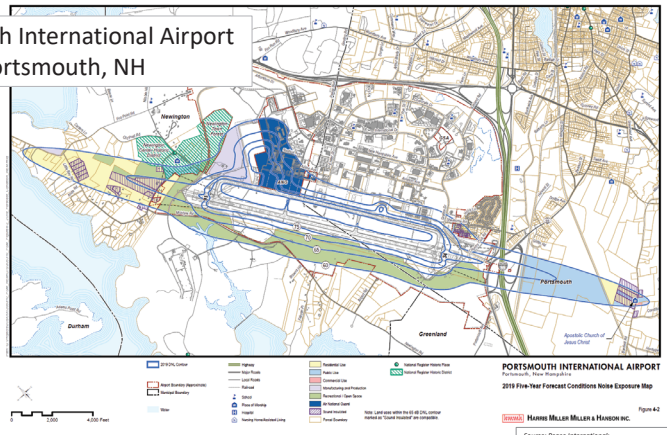


Source: MAA; https://www.maacommunityrelations.com/_media/client/anzu-planupdate/2018/2019%20Noise%20Exposure%20Map.pdf

Slide 17

Single Runway DNL Contour Example

Portsmouth International Airport
Portsmouth, NH

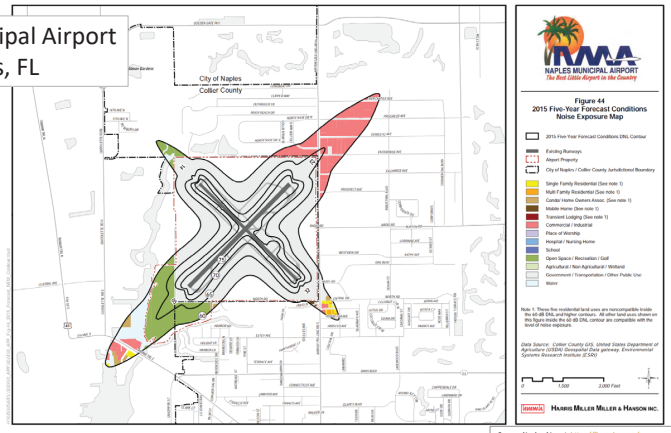


Source: Pease International; http://peasedev.org/documents/PSMPart150Update.pdf

Slide 18

General Aviation Airport DNL Contour Example

Naples Municipal Airport
Naples, FL



Source: Naples Airport; https://flynaples.com/wp-content/uploads/2018/06/3new-Final-APP_2040_2015_NEM_Update.pdf

Slide 19

ANZ Noise Modeling Process

- Study years: 2019, 2025, 2030
- Analyze existing radar data
- Base Year (2019)
  - Determine base year AEDT inputs
  - Develop base year conditions and DNL/Ldn contours
- Forecast Years
  - Determine 5 and 10-year forecast AEDT inputs
    - Use of operations forecasts as published in the 2018 FAA Terminal Area Forecast
  - Develop 5-year and 10-year forecast DNL/Ldn Contours

Slide 20

Noise Model Inputs

- Federal Aviation Administration (FAA) Aviation Environmental Design Tool (AEDT)- noise modeling software was utilized
- AEDT requires input data in three categories:
  1. Aircraft noise and performance data
  2. Airport layout
  3. Aircraft operational data
     - Number of aircraft operations
     - Aircraft fleet mix
     - Day-night split of operations
     - Runway utilization
     - Flight track geometry and utilization

Slide 21

Baseline and Future Operations Levels

Year	Itinerant Operations				Local Operations		Total
	Air Carrier	Air Taxi	General Aviation	Military	General Aviation	Military	
2019	0	2,173	37,153	1,893	38,756	645	80,620
2025	0	2,173	38,021	1,893	40,506	645	83,238
2030	0	2,173	38,761	1,893	42,023	645	85,495

Source: FAA, 2018 Terminal Area Forecast (TAF)

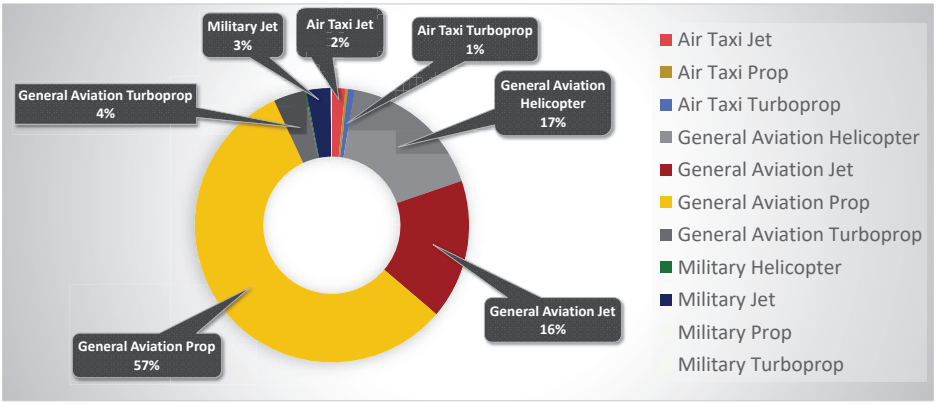
Slide 22

Baseline (2019) Average Daily Operations

Aircraft Group		Day			Night			Total
		Arrivals	Departures	Circuits	Arrivals	Departures	Circuits	
Air Taxi	Jet	1.7	1.7	-	-	-	-	3.5
	Prop	0.4	0.3	-	-	-	-	0.7
	Turboprop	0.9	0.8	-	-	-	-	1.8
General Aviation	Helicopter	7.1	7.4	20.6	1.5	1.1	-	37.7
	Jet	13.6	13.8	6.4	1.4	1.2	-	36.4
	Prop	23.3	23.4	77.7	0.7	0.6	-	125.6
	Turboprop	3.3	3.3	1.5	0.1	0.1	-	8.3
Military	Helicopter	0.2	0.2	-	-	-	-	0.3
	Jet	2.3	2.3	1.8	-	-	-	6.3
	Prop	-	-	-	-	-	-	-
	Turboprop	0.1	0.1	-	-	-	-	0.3
Total		**52.8**	**53.3**	**107.9**	**3.7**	**3.2**	**-**	**220.9**

Slide 23

Distribution of Operations by Aircraft Type



Slide 24

2025 Average Daily Operations

Aircraft Group		Day			Night			Total
		Arrivals	Departures	Circuits	Arrivals	Departures	Circuits	
Air Taxi	Jet	1.7	1.7	-	-	-	-	3.5
	Prop	0.4	0.3	-	-	-	-	0.7
	Turboprop	0.9	0.8	-	-	-	-	1.8
General Aviation	Helicopter	7.2	7.6	21.6	1.5	1.1	-	39.0
	Jet	13.9	14.1	6.7	1.4	1.2	-	37.4
	Prop	23.8	23.9	81.2	0.7	0.6	-	130.3
	Turboprop	3.4	3.3	1.5	0.1	0.1	-	8.5
Military	Helicopter	0.2	0.2	-	-	-	-	0.3
	Jet	2.3	2.3	1.8	-	-	-	6.3
	Prop	-	-	-	-	-	-	-
	Turboprop	0.1	0.1	-	-	-	-	0.3
Total		**53.9**	**54.4**	**112.7**	**3.8**	**3.3**	**-**	**228.0**

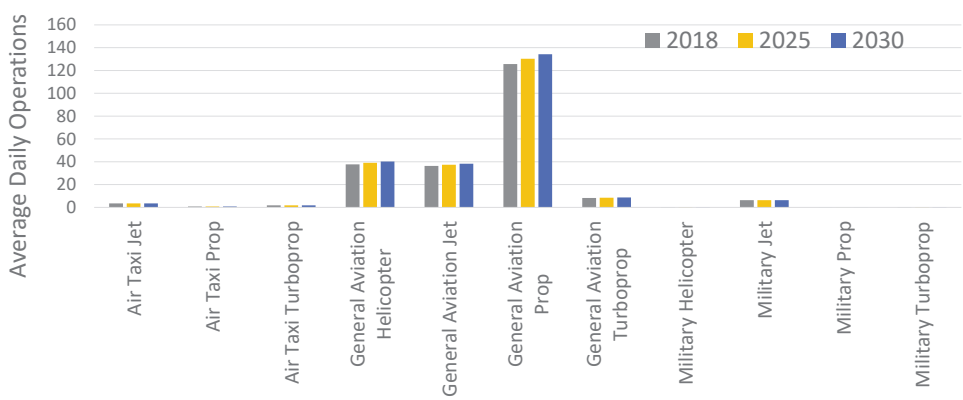
Slide 25

2030 Average Daily Operations

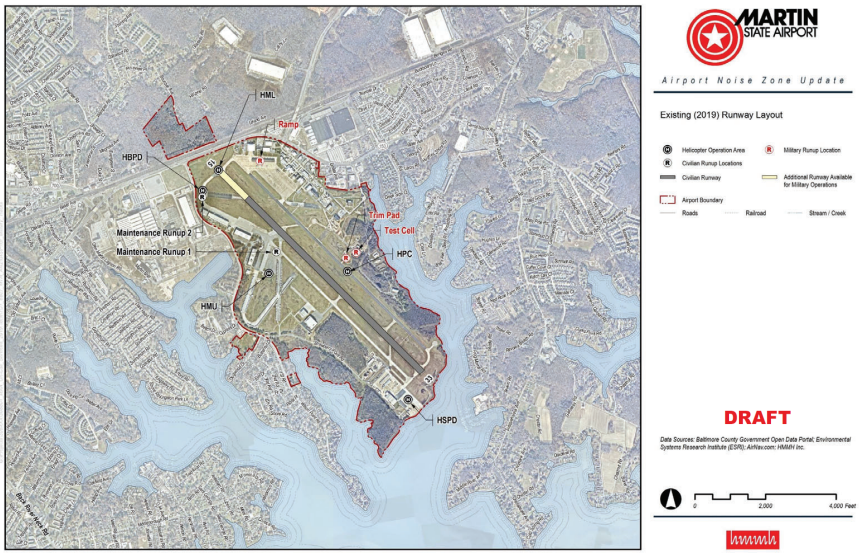
Aircraft Group		Day			Night			Total
		Arrivals	Departures	Circuits	Arrivals	Departures	Circuits	
Air Taxi	Jet	1.7	1.7	-	-	-	-	3.5
	Prop	0.4	0.3	-	-	-	-	0.7
	Turboprop	0.9	0.8	-	-	-	-	1.8
General Aviation	Helicopter	7.4	7.7	22.4	1.5	1.2	-	40.2
	Jet	14.2	14.4	6.9	1.4	1.3	-	38.2
	Prop	24.3	24.4	84.2	0.7	0.6	-	134.3
	Turboprop	3.4	3.4	1.6	0.1	0.1	-	8.7
Military	Helicopter	0.2	0.2	-	-	-	-	0.3
	Jet	2.3	2.3	1.8	-	-	-	6.3
	Prop	-	-	-	-	-	-	-
	Turboprop	0.1	0.1	-	-	-	-	0.3
Total		**54.8**	**55.3**	**116.9**	**3.9**	**3.3**	**-**	**234.2**

Slide 26

Comparison of Forecast Operations



Slide 27



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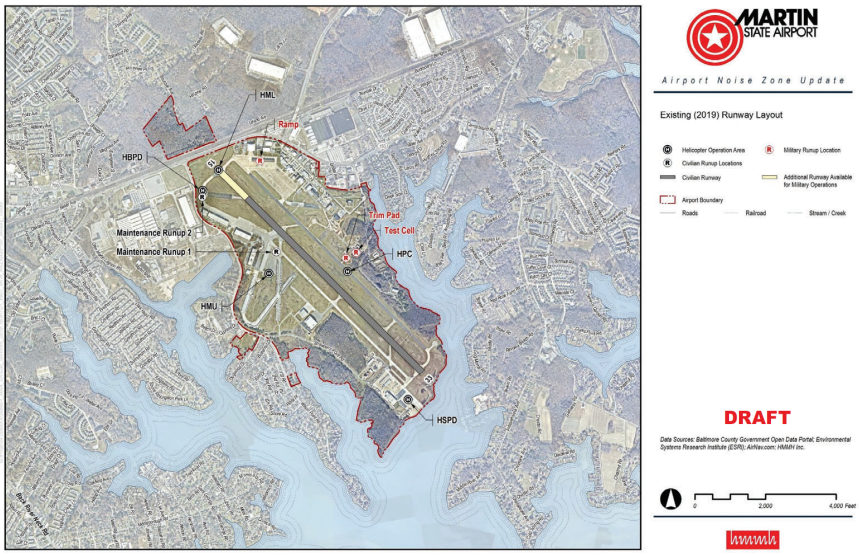
Runway Utilization

Category	Operation Mode	Time of Day	Runway/Helipad								
			Fixed Wing			Helicopters					
			15	33	Total	HBP	HMU	HML	HPC	HSP	Total
Air Taxi	Arrivals	Day	44.8%	55.2%	**100%**	-	-	-	-	-	-
		Night	44.8%	55.2%	**100%**	-	-	-	-	-	-
	Departures	Day	42.1%	57.9%	**100%**	-	-	-	-	-	-
		Night	42.1%	57.9%	**100%**	-	-	-	-	-	-
General Aviation	Arrivals	Day	46.5%	53.5%	**100%**	10.3%	42.7%	-	-	47.0%	**100%**
		Night	46.5%	53.5%	**100%**	10.3%	42.7%	-	-	47.0%	**100%**
	Departures	Day	42.4%	57.6%	**100%**	14.8%	38.7%	-	-	46.5%	**100%**
		Night	42.4%	57.6%	**100%**	14.8%	38.7%	-	-	46.5%	**100%**
	Circuits	Day	47.8%	52.2%	**100%**	-	-	-	100%	-	**100%**
		Night	-	-	-	-	-	-	-	-	-
Military	Arrivals	Day	44.4%	55.6%	**100%**	-	-	100%	-	-	**100%**
		Night	-	-	-	-	-	-	-	-	-
	Departures	Day	44.4%	55.6%	**100%**	-	-	100%	-	-	**100%**
		Night	-	-	-	-	-	-	-	-	-
	Circuits	Day	100%	-	**100%**	-	-	-	-	-	-
		Night	-	-		-	-	-	-	-	-

Slide 29

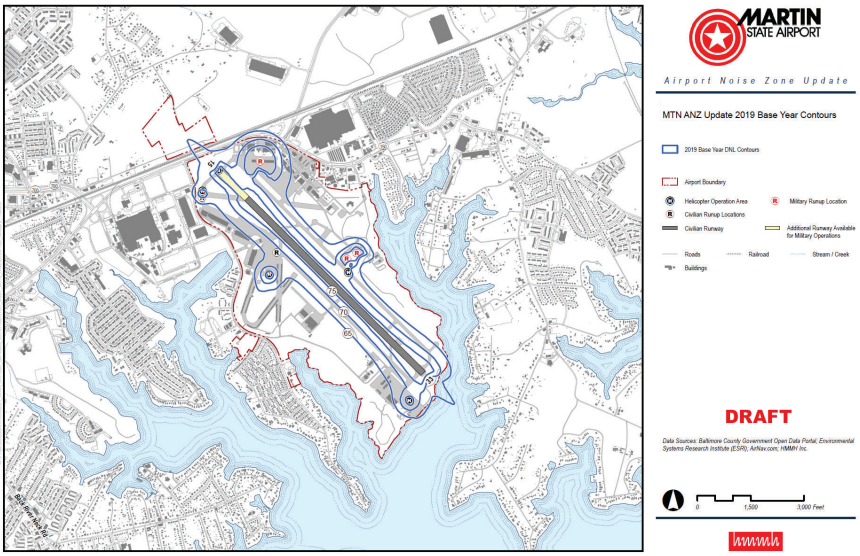


30

Run-up Operations

Modeled Aircraft	Run-up Location	Daily Operations	Heading (degrees)	Thrust (%)	Duration (sec)
Fairchild A-10A Thunderbolt II	Ramp	2.9014	0	85	150
Fairchild A-10A Thunderbolt II	Trim Pad	0.0493	330	94	300
Fairchild A-10A Thunderbolt II	Test Cell	0.0192	330	100	900
Cessna 172 Skyhawk	MR Pad 1	0.1370	15	80	60
Cessna 172 Skyhawk	MR Pad 2	0.1425	205	80	60
Note: An engine ground run-up is a routine aircraft maintenance test that generates noise					

Slide 31



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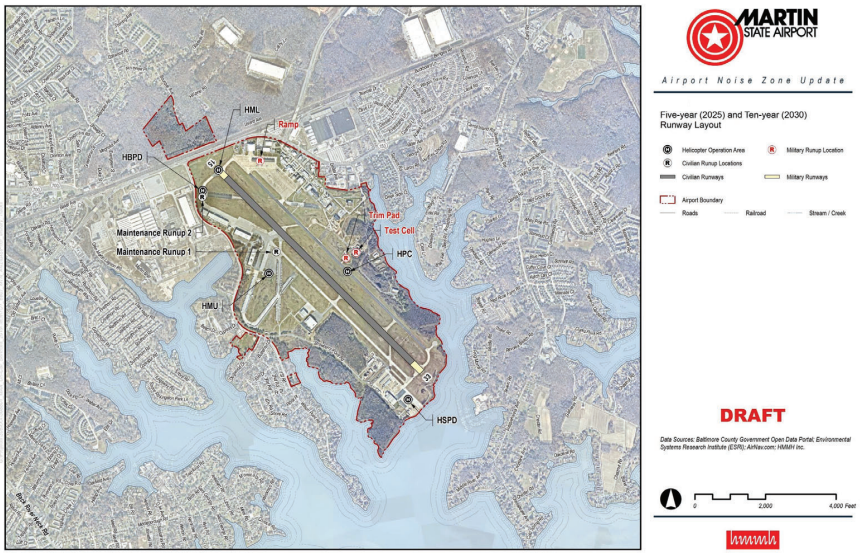

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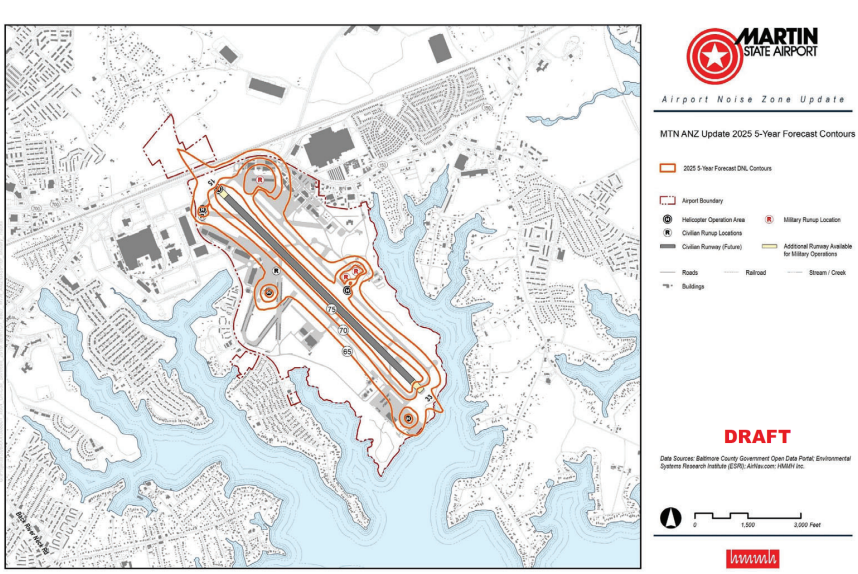
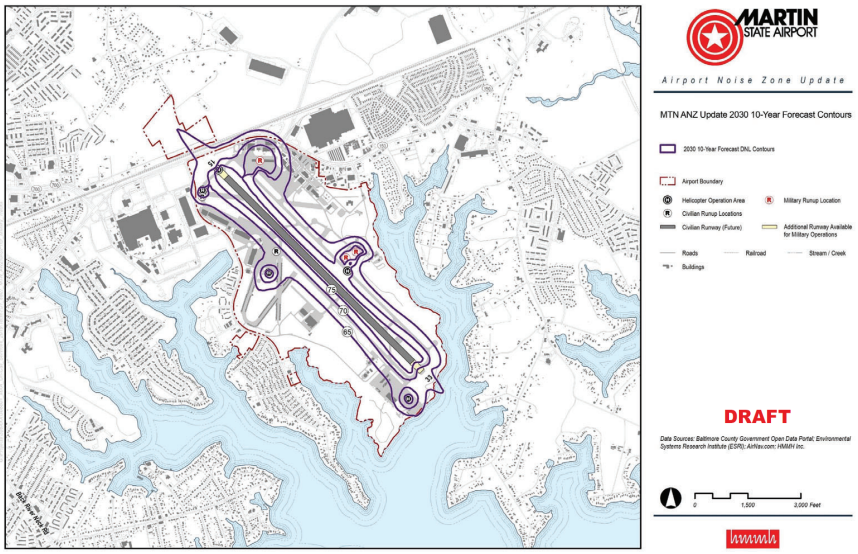
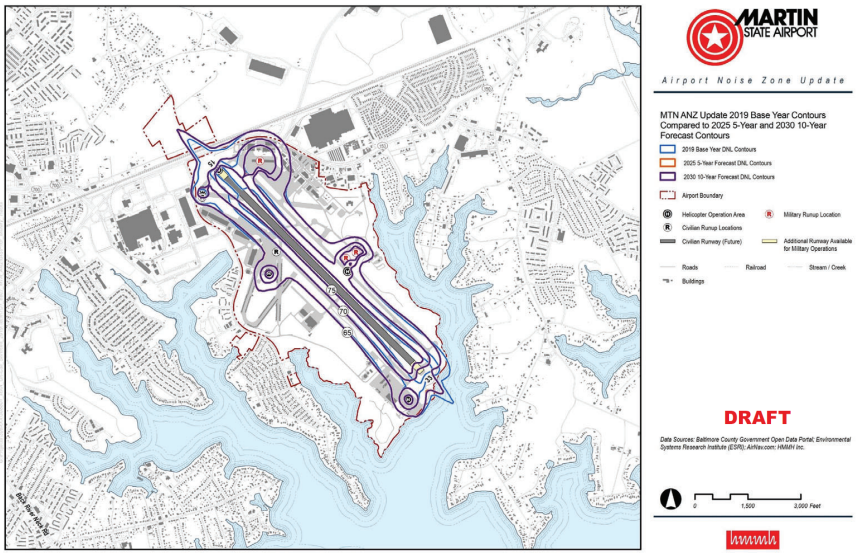

MARTIN STATE AIRPORT
Airport Noise Zone Update
MTN ANZ Update 2025 5-Year Forecast Contours
2025 5-Year Forecast DNL Contours
Airport Boundary
Helicopter Operation Area
Military Runup Location
Civilian Runup Locations
Civilian Runway (Future)
Additional Runway Available for Military Operations
Roads
Railroad
Stream / Creek
Buildings
DRAFT
Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH Inc.
0
1,500
3,000 Feet
hmmh

34


MARTIN STATE AIRPORT
Airport Noise Zone Update
MTN ANZ Update 2030 10-Year Forecast Contours
2030 10-Year Forecast DNL Contours
Airport Boundary
Helicopter Operation Area
Military Runup Location
Civilian Runup Locations
Civilian Runway (Future)
Additional Runway Available for Military Operations
Roads
Railroad
Stream / Creek
Buildings
DRAFT
Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH Inc.
0
1,500
3,000 Feet
hmmh

35


MARTIN STATE AIRPORT
Airport Noise Zone Update
MTN ANZ Update 2019 Base Year Contours Compared to 2025 5-Year and 2030 10-Year Forecast Contours
2019 Base Year DNL Contours
2025 5-Year Forecast DNL Contours
2030 10-Year Forecast DNL Contours
Airport Boundary
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Civilian Runup Locations
Civilian Runway (Future)
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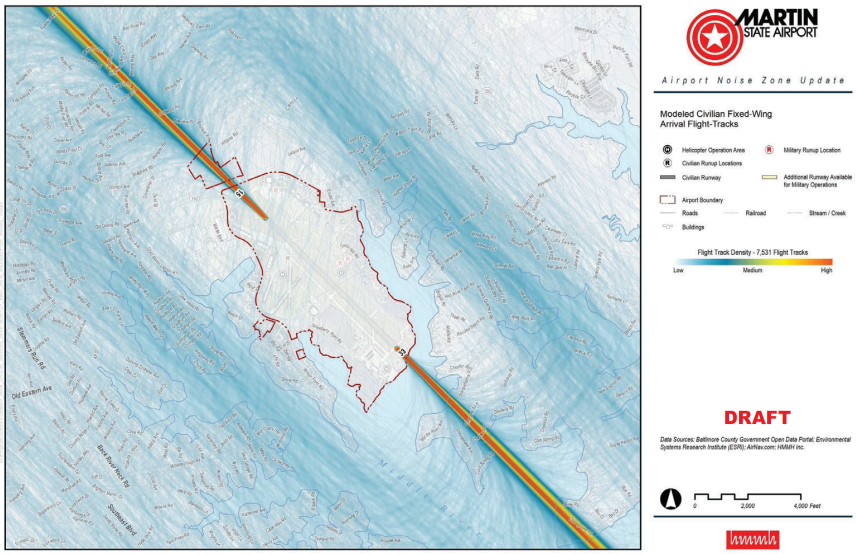
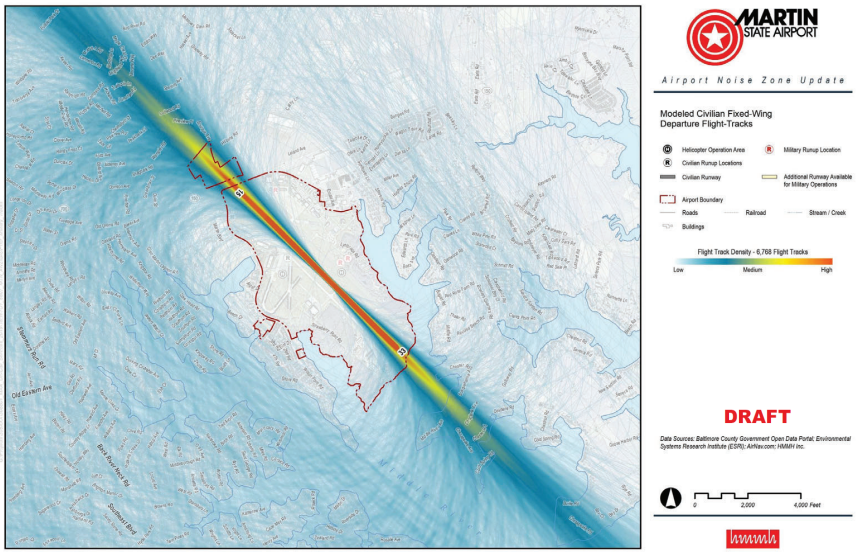
Railroad
Stream / Creek
Buildings
DRAFT
Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH Inc.
0
1,500
3,000 Feet
hmmh

36


MARTIN STATE AIRPORT
Airport Noise Zone Update
Modeled Civilian Fixed-Wing Arrival Flight-Tracks
Helicopter Operation Area
Military Runup Location
Civilian Runup Locations
Civilian Runway
Additional Runway Available for Military Operations
Airport Boundary
Roads
Railroad
Stream / Creek
Buildings
Flight Track Density - 7,531 Flight Tracks
Low
Medium
High
DRAFT
Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH Inc.
0
2,000
4,000 Feet

37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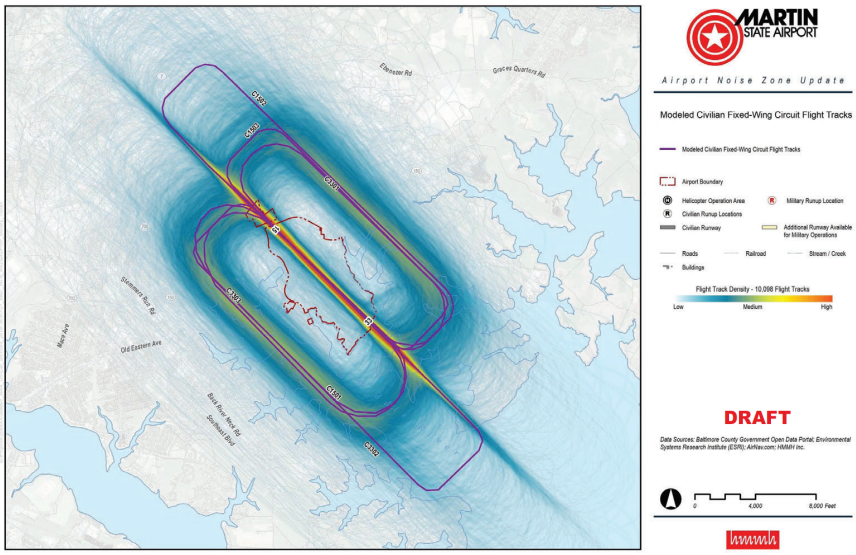
Modeled Civilian Fixed-Wing Departure Flight-Tracks
Helicopter Operation Area
Military Runup Location
Civilian Runup Locations
Civilian Runway
Additional Runway Available for Military Operations
Airport Boundary
Roads
Railroad
Stream / Creek
Buildings
Flight Track Density - 6,768 Flight Tracks
Low
Medium
High
DRAFT
Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH Inc.
0
2,000
4,000 Feet

38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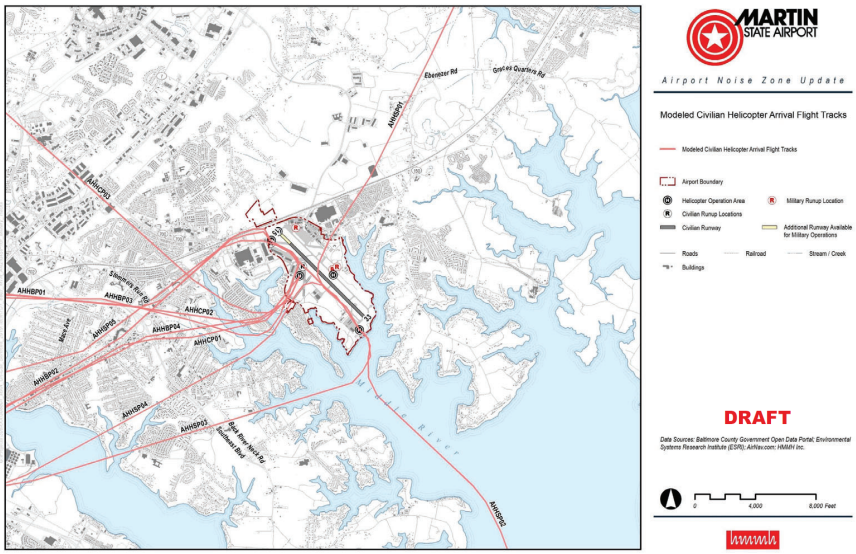
Modeled Civilian Fixed-Wing Circuit Flight Tracks
Airport Boundary
Helicopter Operation Area
Military Runup Location
Civilian Runup Locations
Civilian Runway
Additional Runway Available for Military Operations
Roads
Railroad
Stream / Creek
Buildings
Flight Track Density - 10,098 Flight Tracks
Low
Medium
High
DRAFT
Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH Inc.
0
4,000
8,000 Feet

39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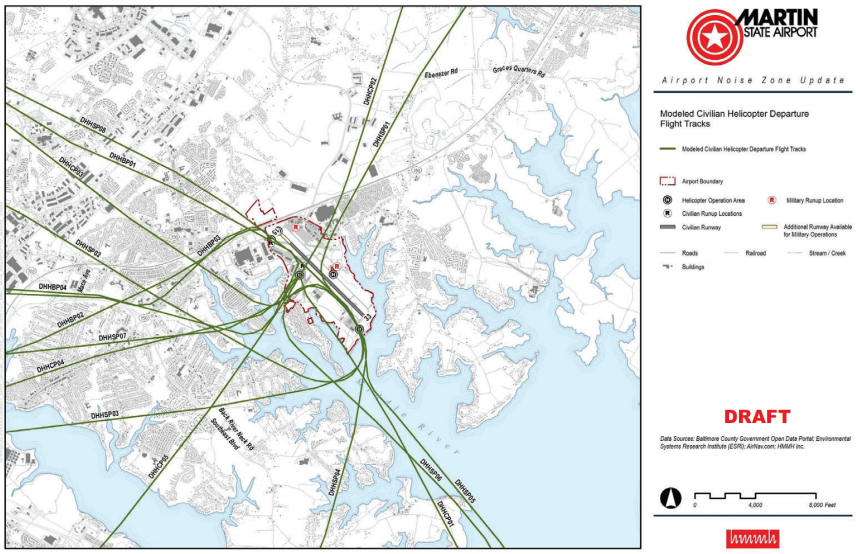
Civilian Runway
Additional Runway Available for Military Operations
Roads
Railroad
Stream / Creek
Buildings
DRAFT
Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH Inc.
0
4,000
8,000 Feet
Ebenezer Rd
Graces Quarters Rd
Middle River
AHHBP01
AHHBP02
AHHBP03
AHHBP04
AHHBP05
AHHCP01
AHHCP02
AHHCP03
Stemmers Run Rd
Mace Ave
Back River Neck Rd
Southeast Blvd

40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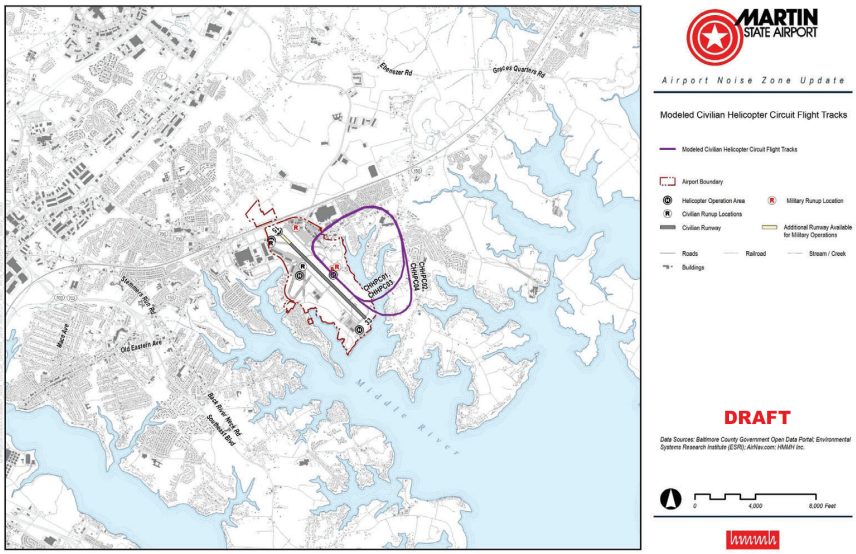
Civilian Runup Locations
Civilian Runway
Additional Runway Available for Military Operations
Roads
Railroad
Stream / Creek
Buildings
DRAFT
Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH Inc.
0
4,000
8,000 Feet
Ebenezer Rd
Graces Quarters Rd
Middle River
DHHBP01
DHHBP02
DHHBP03
DHHBP04
DHHBP05
DHHBP06
DHHBP07
DHHCP01
DHHCP02
DHHCP03
DHHCP04
DHHCP05
DHHCP06
DHHCP07
Mace Ave
Back River Neck Rd
Southeast Blvd

41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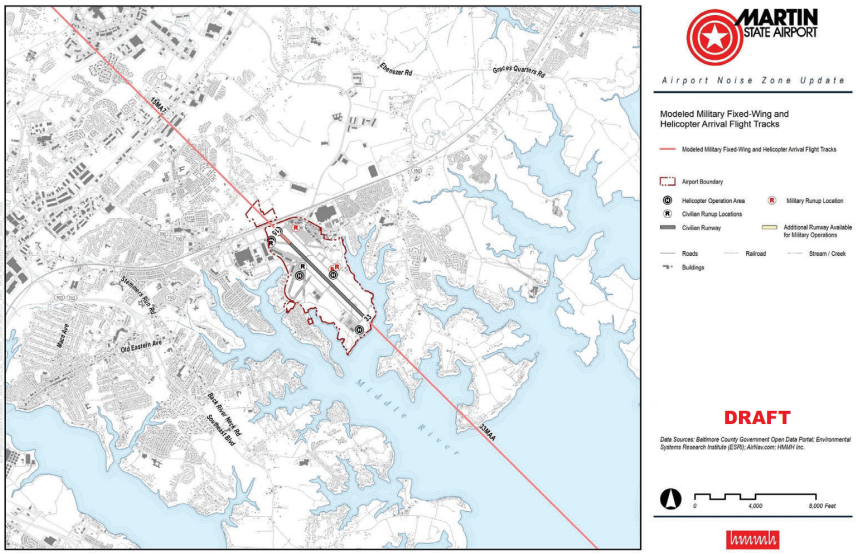
Railroad
Stream / Creek
Buildings
DRAFT
Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH Inc.
0
4,000
8,000 Feet
Ebenezer Rd
Graces Quarters Rd
Middle River
DHHCP08
DHHCP09
DHHP02
DHHP08
Mace Ave
Old Eastern Ave
Back River Neck Rd
Southeast Blvd

42



MARTIN STATE AIRPORT

Airport Noise Zone Update

Modeled Military Fixed-Wing and Helicopter Arrival Flight Tracks

Modeled Military Fixed-Wing and Helicopter Arrival Flight Tracks

Airport Boundary

Helicopter Operation Area

Military Runup Location

Civilian Runup Locations

Civilian Runway

Additional Runway Available for Military Operations

Roads

Railroad

Stream / Creek

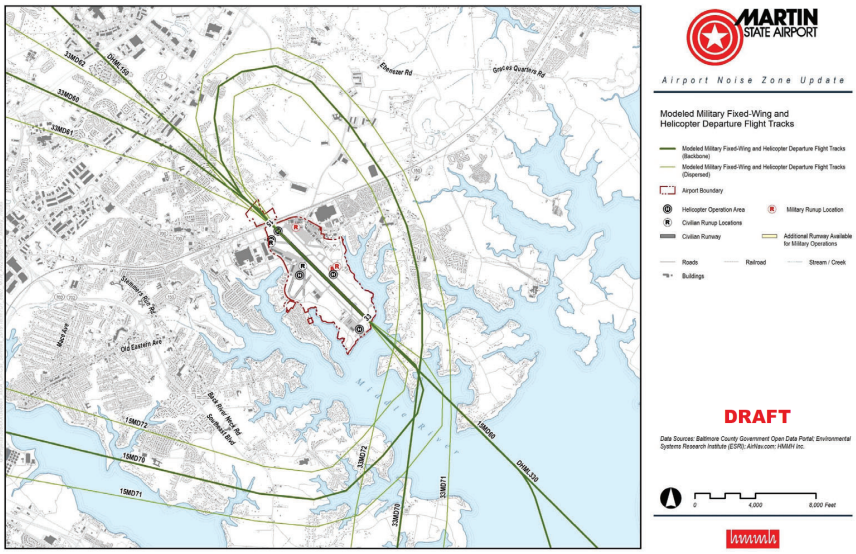
Buildings

DRAFT

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH Inc.

0 4,000 8,000 Feet

43



MARTIN STATE AIRPORT

Airport Noise Zone Update

Modeled Military Fixed-Wing and Helicopter Departure Flight Tracks

Modeled Military Fixed-Wing and Helicopter Departure Flight Tracks (Backbone)

Modeled Military Fixed-Wing and Helicopter Departure Flight Tracks (Dispersed)

Airport Boundary

Helicopter Operation Area

Military Runup Location

Civilian Runup Locations

Civilian Runway

Additional Runway Available for Military Operations

Roads

Railroad

Stream / Creek

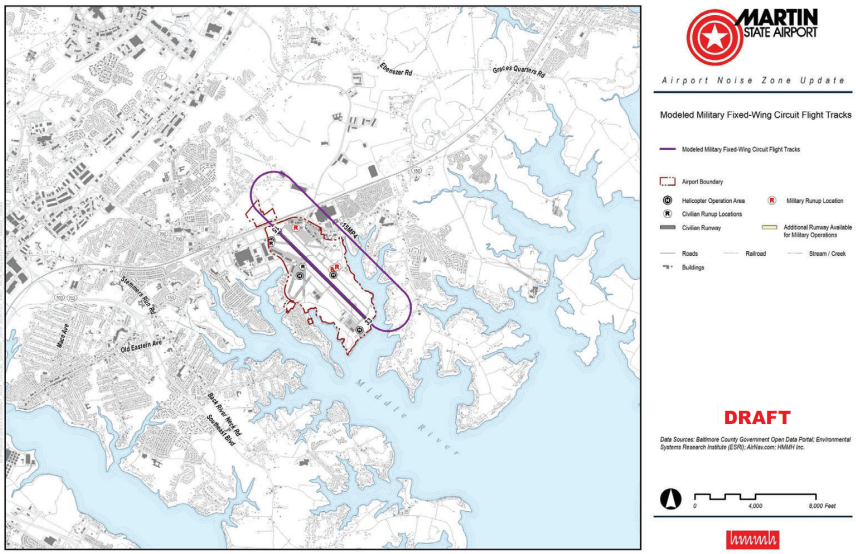
Buildings

DRAFT

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH Inc.

0 4,000 8,000 Feet

44



MARTIN STATE AIRPORT

Airport Noise Zone Update

Modeled Military Fixed-Wing Circuit Flight Tracks

Modeled Military Fixed-Wing Circuit Flight Tracks

Airport Boundary

Helicopter Operation Area

Military Runup Location

Civilian Runup Locations

Civilian Runway

Additional Runway Available for Military Operations

Roads

Railroad

Stream / Creek

Buildings

DRAFT

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH Inc.

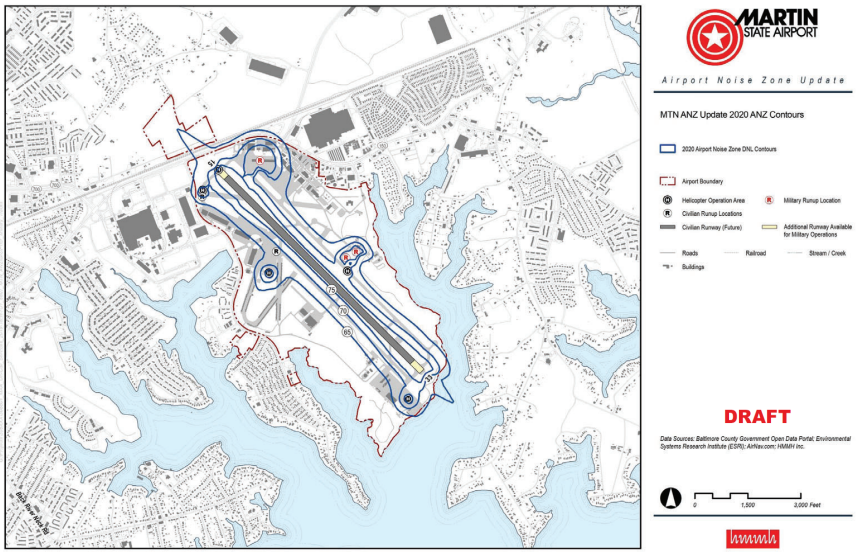
0 4,000 8,000 Feet

45

Draft 2020 MTN Airport Noise Zone

- 2020 MTN ANZ is a composite of the 65, 70, and 75 Day-Night Average (DNL/Ldn) noise contours for:
  - Base year 2019
  - Future years of 2025 and 2030
- Represents the largest extent of the annual DNL/Ldn contours for each of the three study years (2019, 2025, and 2030)
- Defined to provide the largest area of the existing or future noise exposure contours for planning purposes

Slide 46



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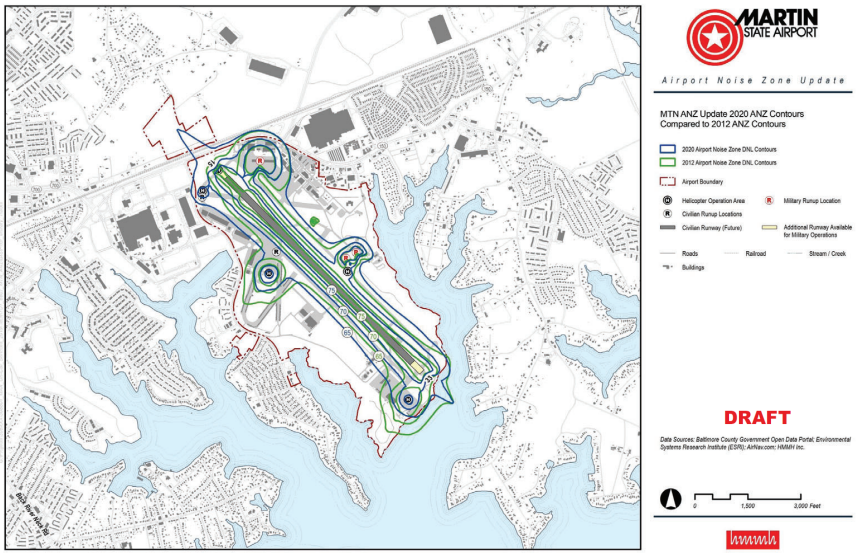

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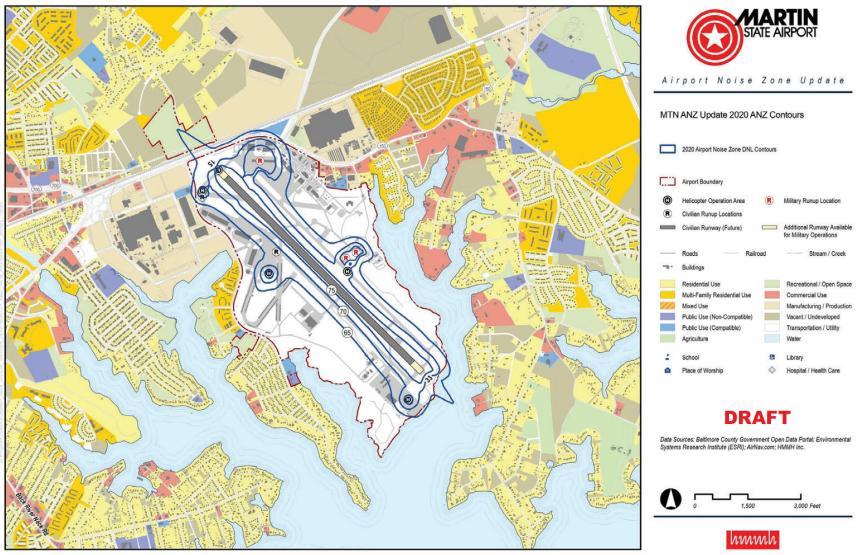


Land Use Analysis – Draft 2020 ANZ Contour

DNL/Ldn Contour Interval	Residential Population	Residential Housing Units	Area in Acres
65-70 dB	0	0	198
70-75 dB	0	0	114
> 75 dB	0	0	99
Total	0	0	411

Slide 50

MTN Noise Abatement Plan

- Originally adopted in 1984, updated in 1987, reviewed and approved with no changes in 2012.
- Includes multiple elements
  - Visual Flight Rules (VFR) (or “Good Weather” Noise Abatement Procedures)
  - Noise Concerns
  - Zoning Permit and Appeal Procedure
  - MANG Noise Barriers

Slide 51

MTN Noise Abatement Plan

- Visual Flight Rules (VFR)
  (“Good Weather” Noise Abatement Procedures)
  - Departures
  - Arrivals
  - Closed traffic patterns
  - Taxiing aircraft
  - Touch and Go and/or Practice Approach Restrictions
  - Helicopter Special VFR Arrival/Departure Procedures

Slide 52

MTN Noise Abatement Plan: Visual Flight Rules (VFR)

Departures

1. Piston engine aircraft shall fly runway heading for one mile prior to turning to the tower approved on-course heading.
2. Turbine powered aircraft shall climb on runway heading for one mile or leaving 1,500’ MSL prior to turning to the tower-approved on-course heading.
3. Helicopters shall climb to 500' MSL on departure heading before turning on-course, unless operating under a Letter of Agreement specifying otherwise.

Note: IFR departures will be accomplished in accordance with Air Traffic Control (ATC) direction or clearance.

Slide 53

MTN Noise Abatement Plan: Visual Flight Rules (VFR)

Arrivals

1. Aircraft conducting a visual approach should, to the maximum extent feasible, remain at or above the ILS or PLASI glide slope. Aircraft should intercept the ILS or PLASI glideslope at the highest feasible altitude, commensurate with flight and air traffic procedures, to minimize aircraft noise exposure to communities underlying the final approach course.
2. A left hand traffic pattern shall be used at MTN unless otherwise directed by Air Traffic Control (ATC). Traffic pattern altitudes are 1,000' MSL for piston engine, 1,500' MSL for civil turbine and military turboprop, 2,000' MSL for military jet , and 500' MSL for rotary wing aircraft.

Slide 54

MTN Noise Abatement Plan: Visual Flight Rules (VFR)

Closed Traffic Patterns

1. Aircraft remaining in closed traffic under VFR conditions will not turn crosswind until reaching the airport boundary unless cleared otherwise by Martin Tower (left closed traffic Runway 15 excepted).
2. Fixed Wing remaining in left closed traffic Runway 15 (VFR) shall fly runway heading for one mile before turning crosswind at the western shore of Galloway Creek, and fly crosswind leg until abeam the western shore of Seneca Creek prior to beginning a turn to downwind. The downwind leg should be entered level at the appropriate pattern altitude for aircraft type. Fly the downwind leg until north of the large government warehouse prior to turning base leg.

Slide 55

MTN Noise Abatement Plan: Visual Flight Rules (VFR)

Taxiing Aircraft

All taxiing C-130 aircraft shall perform engine run-up on Tango Taxiway abeam Delta Taxiway prior to departing Runway 33.

"Touch and Go" and/or Practice Approach Restrictions

1. No touch and go operations permitted for aircraft having a maximum gross landing weight in excess of 12,500 pounds without the permission of the Airport Manager.
2. No practice approaches or practice landings permitted from 9:45 p.m. to 6:15 a.m. local time.
3. Military Aircraft (Transient and/or Military) shall be limited to two (2) practice landings/takeoffs, or approaches unless additional operations are approved by Airport Management personnel.

Slide 56

MTN Noise Abatement Plan: Visual Flight Rules (VFR)

Helicopter Special VFR Arrival / Departure Procedures

- The NAP also includes a Tenant Directive, revised in June of 1994, which outlines Helicopter Special VFR or “marginal weather” arrival / departure procedures.
- These procedures reduce noise exposure in local communities by keeping helicopter operations over less populated areas.
- A copy of the Tenant Directive is on file in Airport Operations.

Slide 57

MTN Noise Abatement Plan

- Other Elements
  - Noise Concerns can be reported via telephone hotline
  - Zoning Permit and Appeal Procedure
    - MAA regulates land use within the Airport Noise Zone.
    - Anyone desiring to construct or modify a structure or land use is required to obtain an Airport Zoning Permit.
  - MDANG Noise Barriers
    - MANG erected two noise barriers, both located between the MANG's engine maintenance area and the homes northeast of the Airport.

Slide 58

Proposed Project Schedule

Date	Item
July 2019	Project Start
September 12, 2019	Stakeholder Advisory Committee (SAC) Meeting #1 • Introductions • Overview of ANZ Update scope and process • Schedule
Fall 2019	Develop draft ANZ contours • Distribute compiled study information to SAC members for review and comment
January 14, 2020	Stakeholder Advisory Committee (SAC) Meeting #2 • Present draft ANZ contours & review Noise Abatement Plan
Early 2020	Prepare draft ANZ document
Spring 2020	Public Workshop/ Public Hearing • Present draft ANZ document and contours
Spring 2020	Incorporate ANZ into Code of Maryland Regulations (COMAR)

Slide 59

Project Contacts and Resources

- MDOT MAA Project Manager
  - Bruce Rineer, Manager, Office of Environmental Services, Noise Section, BRineer@bwiairport.com
- HMMH Project Manager
  - Julia Nagy, Senior Consultant, jnagy@hmmh.com
- MTN ANZ website: https://www.maacommunityrelations.com/content/anznoiseupdate/mtnanz.php
- 2012 MTN ANZ document, including existing Noise Abatement Plan (NAP): https://www.maacommunityrelations.com/_media/client/anznoiseupdate/MTN_ANZ_20120508.pdf

Slide 60

Thank you for attending!

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION

Supplemental Information

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION

Stakeholder Advisory Committee: Invited Participants

Organization Category	Organization	Representative
State/Local Agencies and MDANG	Baltimore City Police Department, Helicopter Unit	Lt. George Hauf Sgt. Matthew Cloud
	Baltimore County Police Department, Aviation Unit	Ofc. Chris Roussey
	Baltimore County Department of Planning	Krystle Patchak
	Maryland State Police, Aviation Unit	Maj. Michael Tagliaferri Capt. Keith McMinn
	Civil Air Patrol (CAP)	Lt. Col. John Henderson
	Maryland Air National Guard (MDANG)	Brig. Gen. Paul Johnson
	Maryland Department of Transportation, Maryland Aviation Administration	- Al Pollard, A. A. E., Chief, Martin State Airport, Division of Operations & Maintenance - Shawn Ames, Deputy Director, Office of Planning - Robin Bowie, Director, Office of Environmental Services - Darline Terrell-Tyson, Deputy Director, Office of Environmental Services - Bruce Rineer, Manager, Noise Section - Karen Harrell, Administrative Coordinator, Noise Section - Royce Bassarab, Noise Program SME, HNTB

Slide 63

Stakeholder Advisory Committee: Invited Participants

Organization Category	Organization	Representative
Community Organizations	Baltimore County Mobile Homeowners Association	James W. Oates
	Bowleys Quarters Community Association	Paul Allen Paul Jr.
	Bowleys Quarters Improvement Association	Dave Conrad
	Essex Middle River Civic Council	Robert Bendler
	Hawthorne Civic Association	Edith Schott
	Nottingham Improvement Association	Judith Davies
	Oliver Beach Improvement Association	
	Wilson Point Civic Improvement Association	Doug Zeisel
	Windlass Run Improvement Association	William Kammer

Slide 64

Stakeholder Advisory Committee: Invited Participants

Organization Category	Organization	Representative
MTN Tenants and Aviation Representatives	Midwest Air Traffic Control	Nikolaus Wagenfeiler
	AMAV, Inc.	Joseph M. Toskes
	Executive Flight Solutions	James Baran
	PHI Air Medical Maryland	Michael McCabe
	Helicopter Transport Services, Inc.	Joseph Cavallaro
	Middle River Aviation, LLC	Kevin Walsh
	Skytech, Inc.	John Foster
	Brett Aviation	Helen Frado James Hardwick
	The National Business Aviation Association (NBAA)	Paige Kroner
	The Aircraft Owners and Pilots Association (AOPA)	Jon Gandy

Slide 65

Martin State Airport (MTN) Airport Noise Zone (ANZ) Update
Stakeholder Advisory Committee (SAC) Meeting #2

MEETING MINUTES

Tuesday, January 14, 2020, 6:00 PM – 8:00 PM
Martin State Airport, Hangar 4, Lower Level, Room 416
701 Wilson Point Road
Baltimore, Maryland 21220

TIME	DISCUSSION ITEM	PRESENTER
6:00-6:05 pm	**Welcome, safety briefing, overview of meeting agenda** Al Pollard (MDOT MAA) introduced himself and welcomed all Stakeholder Advisory Committee (SAC) members on behalf of the Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA). He provided introductory remarks and welcomed SAC members back to have some additional conversations and updates concerning where we are in the Martin State Airport (MTN) Airport Noise Zone (ANZ) update process. He also provided a safety briefing, that included the location of emergency exits (Hangar 4, entries one and two), a reminder to assist those who may need assistance, the location of the nearest AED (Hangar 5), the location of the nearest fire extinguisher location (Hangar 5, down the hall to the left), and a reminder to report any hazards observed in the meeting room. Finally, he confirmed that all attendees had copies of the agenda before he reviewed it briefly with everyone.	Al Pollard
6:05-6:10 pm	**Meeting facilitation remarks** Joy Hamilton (Assedo) explained that once again, she will facilitate the meeting and she is tasked with sharing meeting etiquette. She emphasized that the combined MDOT MAA and consulting team presenters plan to stay on topic, sharing updates on the ANZ update process. The meeting is intended to provide an opportunity for the team to obtain input on the process from SAC members. She added that the team wants to hear from residents, airport operators, emergency personnel, and all other SAC members at the table. SAC members were instructed to raise their hand if they had a question. Joy assured SAC members that she would be keeping an eye out for raised hands throughout the meeting and informed SAC members that the presenters would do their best to answer any questions during the presentation, as long as they had adequate time to cover the material. She said that there would also be an opportunity for questions at the end of the presentation. Joy requested that, before asking a question, the attendee state their name in order to ensure Malcolm Mossman (Assedo) can capture who is speaking in the meeting minutes. Joy reminded attendees of restroom locations and asked that everyone please silence their phones and step out of the room if a call is required.	Joy Hamilton
6:10-6:15 pm	**Self-introductions and welcome remarks** Joy Hamilton instructed attendees to go around the room and state their name and the organization that they represent. Members of the SAC, MDOT MAA staff, and the consultant team introduced themselves and the organizations they represented.	Joy Hamilton
6:15-6:20 pm	**SAC Meeting #1 Recap** Bruce Rineer (MDOT MAA) informed the group that the meeting is intended to discuss what the Airport Noise Zone (ANZ) is, what the MDOT MAA and consulting team have been working on since the previous SAC meeting, and why MDOT MAA is looking to the SAC for input. He also said he wanted SAC members to be aware of expected results and next steps. He reminded SAC members that this is our last SAC meeting related to this ANZ update process.	Bruce Rineer
6:20-6:25 pm	**Discussion of Code of Maryland Regulations (COMAR) Airport Noise Zone (ANZ) requirements, MTN ANZ update scope and process, and SAC** Bruce Rineer explained the Maryland ANZ Regulations, as identified in COMAR. He stated that MDOT MAA seeks to understand the impact noise has on the areas surrounding Baltimore/Washington International Thurgood Marshall Airport (BWI) and MTN in order to identify and prevent incompatible land use. He reminded SAC members that the ANZ documentation includes current 2019 base year conditions, as well as what is expected to occur in the future study years (2025 and 2030). Bruce summarized the scope and process for the ANZ. He said that MDOT MAA was currently in the process of preparing noise contours, compiling the ANZ, and conducting the land use inventory. He said that draft versions of these items will be presented today and then again at the public meeting. Bruce explained why MDOT MAA needs SAC participation throughout this process. He corrected the slide (Slide 9) to say that the ANZ affects more than homeowners – it affects all stakeholders, in general. He said that MDOT MAA wants to know how it affects all local land users. He explained that MDOT MAA looks to the SAC to help review the land use inventory and alert MDOT MAA of other developments and land uses that they may not be aware of. He stated that the SAC should also review the Noise Abatement Plan and share information about the ANZ study with their neighbors and organizations. He reminded SAC members that there will be an opportunity for public input during the public workshop related to the MTN ANZ study, which will be held in the spring of 2020. Doug Zeisel (Wilson Point Civic Improvement Association) asked how the ANZ becomes law. Bruce explained that the final ANZ document, including the Noise Abatement Plan (NAP), must be certified by Ricky Smith (Executive Director/Chief Executive Officer, Baltimore/Washington International Thurgood Marshall Airport and MDOT MAA). It requires prior review and approval by the Airports Commission. Once approved, he said the document is then submitted to Annapolis to be incorporated by reference in COMAR.	Bruce Rineer

TIME	DISCUSSION ITEM	PRESENTER
6:25-6:30 pm	**Stakeholder Advisory Committee (SAC) input, makeup, roles, and responsibilities** Bruce Rineer briefly summarized the various groups that make up the SAC. Bruce urged SAC members to ask questions because they will be briefed on technical subject matter throughout the meeting. He stated that Rhea Gundry (HMMH) will begin by summarizing what "noise" is and how it is measured. Bruce stated that the SAC provides an opportunity for two-way communication between the community and MTN. He encouraged SAC members to bring information from this meeting back to their groups. Bruce emphasized that MDOT MAA has the final responsibility regarding the ANZ.	Bruce Rineer
6:30-6:40 pm	**Noise fundamentals** Rhea Gundry (HMMH) introduced herself and HMMH. She explained that HMMH is an environmental consulting company that regularly undertakes noise studies for airports across the country. The work focuses on understanding the noise "footprint" around an airport. Rhea said that she would first explain noise as it is defined under COMAR and then Adam Scholten (HMMH) would explain more details concerning the inputs for modeling the draft ANZ. She said that she wanted everyone to be on the same page concerning noise fundamentals before reviewing the technical outputs of the study. Rhea began by explaining the difference between noise and sound. She stated that sound is the pressure variation we detect whereas noise is unwanted sound. She explained that unwanted sound could be considered speech interference or sleep disruption, noting that there is often a difference between level of annoyance during the day versus at night. Unwanted sound is what we are concerned with in the case of aircraft noise. Rhea explained that sound is measured according to a receiver, whether that is a person or a microphone. Microphones measure pressure variation. Rhea stated that sound energy has a huge range and explained the decibel scale, which goes from 0 to 140. This is a logarithmic scale that goes from the threshold of hearing to the threshold of pain. She pointed out that normal speech is approximately 65 decibels (dB). Rhea explained that sound over a minute can vary wildly. She explained that a fundamental aspect to understanding noise is the effect that duration versus maximum level has on perception. She posed a question about which sound is more annoying: a quick burst or something that lasts longer? Rhea explained that this is considered when measuring and studying noise. Rhea explained the Sound Exposure Level (SEL) metric, which compresses all the sound energy into a set amount of time to compare the overall "noisiness" of an event. SEL takes duration of the event into account. Rhea explained that the Day-Night Average Level (DNL) metric describes the average noise exposure over 24 hours. Nighttime is defined as 10pm to 7pm. She stated that noise occurring at night is more annoying and thus is weighted more heavily, gaining a 10 dB penalty. DNL is used as the metric to create a footprint of sound around the airport. Bruce Rineer (MDOT MAA) added that single events do not occur over a cumulative time period and therefore are not included when determining noise contours, for example, an air show. Rhea confirmed that they are not measuring and forecasting (i.e. modeling) an average day and night. Rhea showed SAC members some DNL contour examples of other airports. She stated that the maps show DNL contours of 65, 70 and 75 dB around the airport. She reiterated that time of day is taken into account. Marsha Ayres (Bowley's Quarters Improvement Association) asked what DNL stands for. Rhea confirmed that it stands for day-night average sound level. Nik Wagenfeiler (Midwest Air Traffic Control) asked if there is a DNL contour map ready for Martin State Airport. Rhea confirmed that there is, which will be covered later in the presentation, but first they are reviewing the basics so people knew what they were looking at. Rhea asked if there were any questions and there were no questions from the group. She offered to talk more about sound versus noise, and the related metrics, with anyone that has additional questions after the meeting.	Rhea Gundry
6:40-7:00 pm	**Discussion of noise modeling process and noise model input needs** Adam Scholten (HMMH) introduced himself as the person in charge of the noise modeling effort. Jane Toskes (AmAv, Inc.) asked if the 2020 forecast from the 2012 ANZ document was accurate compared to what is being currently measured at Martin State Airport. Adam said that the Terminal Area Forecast (TAF), as published by the Federal Aviation Administration (FAA), is now used as an input to the noise model to determine operations forecasts. Bruce Rineer (MDOT MAA) clarified Jane's question and asked Royce Bassarab (MDOT MAA) if the 2012 ANZ forecast for 2020 had been compared to current actual operations and Royce responded in the negative. Kevin Clarke (MDOT MAA) stated that forecasts are updated every year and said that there are fewer operations at Martin State Airport now than what was forecast five years ago due to multiple factors, which follows a national trend at General Aviation (GA) airports. Kevin explained that for this ANZ update, MDOT MAA is considering additional factors, such as frequency of trips and the fleet mix. Adam confirmed that a variety of data inputs went into developing the contours. Adam stated that the ANZ models current year conditions, along with five years, and ten years out. He explained that the team used existing radar data to determine how runways are used and where the aircraft are flying. He said they also talked to the operators. Fleet-mix is representative of what is going on at the	Adam Scholten

TIME	DISCUSSION ITEM	PRESENTER
	airport, since it is derived from radar data covering 2018. He also noted HMMH and the MDOT MAA conducted operator surveys in order to confirm fleet-mix inputs. Adam explained that the team first developed base year (2019) inputs from base year conditions using the data collected. He explained that after all inputs are put into the model, it produces the DNL contours that Rhea introduced earlier. Adam said that once the base year is done, the team moves onto developing the forecast year contours. He explained that the forecast models consider any changes in operations, fleet mix, or traffic. The process ends up with three sets of contours which will be covered later in the presentation. Adam stated that the Aviation Environmental Design Tool (AEDT) is the noise modeling software used to develop the noise contours. AEDT includes a database of aircraft operational data, including data on hundreds of aircraft and information on how they perform and other data necessary to develop noise contours. He stated that it requires information on airport layout, operations, runway utilization, and flight tracks. He reiterated how it is important to understand the type of aircraft that are operating. They take into account how the runways are used, how flight tracks are utilized and how that skews the noise contours. He reemphasized that nighttime operations are weighted more heavily. Bruce Rineer confirmed that to MDOT MAA, air traffic control, and operators, MTN is considered to have two runways, one for civilian use and one for military use. Also, the direction in which the traffic flies is important to consider. Adam summarized how operations are expected to change at Martin State Airport. The modeling team first looked at high level operation levels, taken from the 2018 Terminal Area Forecast. Adam explained that the FAA categorizes operations into two different types: itinerant, meaning traffic coming from or headed elsewhere, and local, meaning traffic that departs and lands in the same place, also referred to as closed patterns or circuits. He explained that each of those categories are then boiled down and divided into general categories of aircraft. Aircraft categories that include Air Carrier (AC), Air Taxi (AT), General Aviation (GA), and Military (ML). He noted that only GA operations are expected to increase. Doug Zeisel (Wilson Point Civic Association) asked how FAA determines these numbers for Martin State Airport specifically. Kevin Clarke (MDOT MAA) explained that the TAF operations are determined using historical data from the air traffic control tower, but less effort is put into MTN as a GA airport than a commercial airport such as BWI Marshall. Kevin added that FAA considers nationwide and regional trends in aviation, such as fuel price and population increases, before they release an annualized forecast looking forty years ahead. Kevin stated that the FAA does not often change the military information unless MDOT MAA informs them that it is expected to change. Kevin said that the strong economy in Maryland makes projected growth in GA a little higher than the national average. MTN is the busiest GA airport in Maryland.	

TIME	DISCUSSION ITEM	PRESENTER
	Jane Toskes (AmAv, Inc.) asked if all law enforcement is categorized under military. Adam responded that they are included in the GA operations levels. Al Pollard (MDOT MAA) reminded everyone that back in the 1980's there used to be four flight schools at Martin State Airport. He added that prior to 9/11, Martin State Airport had 130,000-150,000 operations – then fuel prices went through the roof. Al explained that a lot of the operations at Martin are dependent on the economy in Baltimore. He said that those numbers are climbing back slowly due to a strengthening economy but have not hit 100,000 yet. Military operations remain steady. Royce Bassarab (MDOT MAA) said he consulted the previous ANZ as a result of previous discussion and stated that Martin State Airport operations are currently at 80,000 and were forecast in the 2012 ANZ to be 60,000 by 2020. Adam explained the Average-Annual Day (AAD) metric and how it affects average daily operations. AAD takes into account whether operations occur during daytime or nighttime. He summarized the average daily operations for MTN. He reminded SAC members that to get the average daily operations for DNL, it takes the annual operations and averages them out over an entire year – 365 days. He stated that this AAD information ultimately goes into the model. Adam summarized the fleet mix at MTN, showing the distribution of operations by aircraft type and showing primary operators on a high level. He highlighted that the predominant aircraft type is a GA prop followed by GA helicopter and GA jet. He said the summary gives a good idea of who is operating at Martin State Airport. Adam compared the 2019 baseline average daily operations to the 2025 and 2030 projected daily operations averages. He highlighted the slight expected increase in GA operations. Adam showed SAC members the runway layout and how the runways are currently used. He explained that runway lengths are different depending on who is operating. He stated that the runway is 7,000 feet for civilian operations and 8,100 feet for military operations. This determines where aircraft can start their takeoff roll. Military operators can use the whole length of the runway. Adam identified the five helipads used by county police, state police, or civilian operators. He noted that runway 33 is used slightly more than runway 15 and that the Baltimore County Police helipad and civilian pad are used the most. Adam said that maintenance run-ups occur at the airport which are important to capture. This information was obtained through consultation with operators, operator surveys, and MDOT MAA staff, in order to determine the run-up locations used for aircraft maintenance. He showed a table of run-up operation data for several aircraft, which included how powerful the engines are and how long each run-up event typically occurs. He explained that a run-up is usually conducted for maintenance, to make sure the engine is safe for flying.	
7:00-7:30 pm	**Presentation of draft noise modeling results, contours, and land use inventory**	Adam Scholten

TIME	DISCUSSION ITEM	PRESENTER
	Adam Scholten presented the DNL contours for the base year. He highlighted that most noise occurs along the runways, helipads, and run-up areas. He showed how the contour does not extend far beyond the airport boundary. Adam highlighted how expected changes to the airport layout impacts the forecast year contours. The primary change is that the runway will shift a bit for the civilian operators. He explained that Runway 15 will shift to the northwest and be extended by 1455 feet and therefore the contour around Runway 15 shifts northwest and shrinks from the area over the water. Runup areas and helicopter locations will not change in future years. He said that the contour does not change much between 2025 and 2030 because forecast operations changes are not very large. Adam showed where the aircraft are flying around the airport. He mentioned that flight tracks are the same for all the base and forecast contours. He explained that the slides show various flight paths for each type of aircraft. He highlighted the flight tracks for civilian fixed-wing aircraft, circuit operations, and helicopter flight tracks. He explained the figures that show flight track density, in which more frequently used tracks are represented by warmer colors, and less frequently used tracks are represented by cooler colors (less concentrated). He explained that flight tracks were determined using radar data and through consultation with Al Pollard and various MTN operators. Thousands of tracks were modeled based on radar data, and Geographic Information System (GIS) analysis, with each line representing a single flight path that was modeled. He explained that military operations are scrubbed from radar data due to security concerns, so the military flight tracks were created from consultation with the military. Doug Zeisel (Wilson Point Civic Improvement Association) asked what the letters on the helicopter arrival flight tracks map represented. Adam said that those are flight track numbers used mainly for internal bookkeeping. Marsha Ayres (Bowley's Quarters Improvement Association) asked what a modeled civilian helicopter is. Adam responded that it is a helicopter used for training or other non-Military relate helicopter operations, such as the county police. Adam showed the draft updated ANZ. He explained that the ANZ is a composite contour defined by the largest area of the existing and future year contours. It represents the outermost extent of all three contours for 60, 65 and 75 day-night average levels. He noted that the base year contour stretches southeast and forecast contours stretch northwest so the composite ANZ is larger than any single year contour. The future years shifted the contour towards the northwest due to the runway layout changes. As a result, the 2020 ANZ is approximately 4% larger than 2012 ANZ. He stated that most of the ANZ remains within the airport boundary.	

TIME	DISCUSSION ITEM	PRESENTER
	Adam showed SAC members the draft 2020 ANZ contour map with land use data and asked for feedback, since the land use data comes from the Baltimore County GIS database and may not be completely reflective of all current knowledge in the room. MDOT MAA seeks SAC input to ensure the accuracy of land uses. He pointed out there is an area identified as industrial, but it is actually a ball field and there is an area identified as multi-family residential, but it has not been developed yet. These updates will be modified on the map accordingly. Kevin Clarke (MDOT MAA) added that the 65 DNL contour is important because from a land use zoning perspective, if development of residential was encroaching on the ANZ boundary, stakeholders would want to plan accordingly and prevent incompatible land uses near the airport. State regulations, such as the ANZ study requirements, intend to keep residential zoning outside of the 65 ldn/DNL contour. He explained that the state wants to make sure that new development does not encroach on the contour. He said that MDOT MAA seeks smart land use planning and will work with the county to do so. Rhea Gundry (HMMH) confirmed that the 65 DNL contour does not indicate where noise events end completely; rather, it represents average conditions over 365 days. She explained that the contour will help MDOT MAA make smart planning decisions. She said that the team is not claiming that there are not noise issues outside of the contour, or single events that exceed 65 dB. Joe Fraker (Baltimore County Planning Department) asked if there are any contour maps that show anything below 65 dB. Rhea said it only goes down to 65 dB for this study, as required by Maryland regulations. Rocky Jones (Essex Middle River Civic Council) asked if there are microphones used for noise measurements at all. Adam explained that the noise contour is entirely modeled and no microphones are used. Kevin Clarke (MDOT MAA) added that the DNL is averaged. Kevin explained that a microphone may catch a single event noise at 90 or 100 dB but MDOT MAA wants the entire average over one year. The team emphasized that you cannot measure future noise. Kevin Clarke (MDOT MAA) corrected a previous statement he had made. He explained that the previous ANZ was based off of 2010 forecasts, which was the end of the recession and therefore likely forecast lower operations. He said Martin State is currently at 80,000 operations and previous forecast was at 65,000 for 2020 but contours have not changed much. Rhea Gundry (HMMH) added that noise level is logarithmic, meaning that if operations double it only results in a 3 dB increase. Al Pollard (MDOT MAA) added that fleet mixes change, and aircraft technology is constantly updated, resulting in less noise over time. The fleet mix reflect quieter aircraft.	
7:30-7:50 pm	**Review of existing MTN Noise Abatement Plan (NAP)** Bruce Rineer said the NAP has been around since 1984 and was approved with no	Bruce Rineer

TIME	DISCUSSION ITEM	PRESENTER
	changes in 2012. Bruce explained the elements included in the NAP. He said that Visual Flight Rules (VFR) are "good weather" operational tactics. He said that safety is the primary consideration, so these noise abatement procedures are not mandatory. He wants the group to consider how can we implement procedures to minimize noise impacts around the area. Bruce listed the VFR procedures for departures. Jane Toskes (AmAv, Inc.) asked from which point were operators supposed to measure one mile in order to determine when to turn. Jane mentioned potentially a GPS waypoint. Nik Wagenfeiler (Midwest Air Traffic Control) said it could be measured as 1 mile from the end of runway but GPS should be able to show you 1 mile from takeoff. Jane noted that some aircraft do not use GPS measurements. Bruce expressed that he wants to get together with the consultant team and MDOT MAA staff to determine a set way to measure this. He stated that SAC input is important to consider edits to the NAP. Kevin Clarke (MDOT MAA) asked if these "good neighbor" actions are mandatory and if information is made readily available to pilots. Bruce responded that they are not mandatory, due to safety considerations and judgement, but are made available to pilots. Judith Davies (Nottingham Improvement Association) asked where the one-mile point is at ground level – specifically, if it was before Philadelphia Road. Bruce said he was not sure but acknowledged that the team needs to create a visual of that procedure for stakeholders. We need to create a map to define this item. Al Pollard (MDOT MAA) said that he knows this tactic in particular would help minimize noise impacts on Bowley's Quarters. Doug Zeisel (Wilson Point Civic Improvement Association) asked what is MSL? Bruce replied that it stands for Mean Sea-Level, or feet above sea level. Bruce listed the VFR procedures for arrivals. He mentioned that pilots should stay as high as possible before descending into airport and use left-hand traffic patterns. Louder aircraft are instructed to remain higher as long as possible. Al Pollard (MDOT MAA) stated that trainees may have difficulty making certain turns into crosswinds, so some VFR procedures cannot be followed. Marsha Ayres (Bowley's Quarters Improvement Association) asked if trainees know about these noise abatement procedures. Al Pollard (MDOT MAA) confirmed that they should. Jane Toskes (AmAv, Inc.) said that itinerant pilots are not aware of these rules. Bruce listed the VFR procedures for closed traffic patterns and "touch and go" operations. Al noted that Martin is a fairly heavy flight training facility, which affects the ability to meet procedures in some cases. Jane Toskes (AmAv, Inc.) said that she cannot follow the NAP restricting practice approaches or landings between 9:45 pm and 6:15 am during the summer because she has to do takeoffs at night in order to remain current. Nik Wagenfeiler (Midwest Air Traffic Control) said that these hours are not being publicized anywhere at the airport. Jane clarified that the issue might be with the wording since it says, "NO practice approaches permitted" and there is no mention that this is recommended. Al Pollard (MDOT MAA) stressed that MDOT MAA does not want circuit operations between 10 pm and 6 am. Jane responded that this would make it impossible to takeoff one hour after summer sunset in order to maintain night currency. Kevin Clarke (MDOT MAA) said that this is great input and that this ANZ update process is an opportunity to update the language. He reminded SAC members to submit full comments to Bruce Rineer after this meeting. Rocky Jones (Essex Middle River Civic Council) asked if the VFR procedures impact noise contours and neighborhoods. Bruce confirmed that they do not because the VFR procedures are about mitigating noise. Bruce listed the Helicopter VFR procedures. He said that the main objective is to keep helicopter operations over less populated areas. Bruce listed the other elements included in the NAP. He explained how to report noise concerns if you are a community member or neighbor. He said that complaints go to Al Pollard who then works with tower chief to solve the issue as best they can. Bruce said that these other elements are not specific noise abatement procedures but are included as part of the NAP.	
7:50-7:55 pm	**Discussion of project schedule, contacts, and resources** Bruce reviewed the proposed project schedule. He highlighted the public workshop scheduled to occur in spring 2020. He encouraged SAC members to attend and to help publicize it to neighbors. Bruce explained that the plan is to get a draft ANZ and NAP to SAC members before the public meeting. Bruce said that the public meeting is for everyone concerned about airport noise to come look at the documents, ask questions to the project team and understand the materials.	Bruce Rineer
7:55-8:00 pm	**Wrap-up and Q&A** Lynn Lanham (Wilson Point Civic Improvement Association) said that information about the public meeting should be shared with community associations so that they can publicize it in their newsletters. Lynn stated that the public will be most concerned about single noise events and whether aircraft are following the noise abatement procedures, specifically aircraft reaching the correct height before turning. Nik Wagenfeiler (Midwest Air Traffic Control) said that, below 400 feet, height is hard to detect with radar. Nik explained that transponders on aircraft report their height, but have a margin of error of 300 feet so he is not concerned about aircraft registering an elevation less than 400 feet because they could be above that. Nik reminded everyone that the pilot's safety is the number one concern. Doug Zeisel (Wilson Point Civic Improvement Association) asked what the tower operation hours are. Nik Wagenfeiler (Midwest Air Traffic Control) confirmed that	Bruce Rineer

TIME	DISCUSSION ITEM	PRESENTER
	they are 6 am to 10 pm.	
	Marsha Ayres (Bowley's Quarters Improvement Association) said that the biggest concern within the community is with training flight patterns over business areas. She mentioned concerns at night that are impacting businesses.	
	Rocky Jones (Essex Middle River Civic Council) asked how subjectivity of unwanted noise is accounted for when deciding acceptable DNL. Rhea Gundry (HMMH) responded that the COMAR DNL level selected is consistent with national regulations and historical data. Rhea said that regulators are interested in what is generally acceptable levels of annoyance. Rhea explained that there are directives for the FAA to evaluate decibel level impacts but those studies are still underway. Kevin Clarke (MDOT MAA) said that it comes back to sound versus noise. Kevin explained that noise is subjective, and the NAP can help mitigate certain annoyances, but not all of them. He said that the choice of 65 DNL is made at the state level and would have to be decided outside of this ANZ process.	
	Doug Zeisel (Wilson Point Civic Improvement Association) said that noise contours for helicopters cannot be realistic because the helicopters do not go up to 500 feet and turn – they go horizontal. Doug said he measured sound levels at 75 decibels over his home 17 times in one day. He said that there is no accountability since the NAP is not required. He said he has reported this to Al Pollard many times, who is sympathetic to his concerns. Doug expressed disappointment in the fact that not much can be done.	
	Joy Hamilton (Assedo) thanked Doug Zeisel for his feedback. She said that she needs to ensure that the meeting ends on time and thanked everyone for attending.	
	Bruce Rineer asked SAC members to send comments to him, provided his contact information, and again thanked them for coming to the meeting.	

Appendix D Maryland Aviation Commission Materials

MDOT MAA staff presented a Decision Paper to the Maryland Aviation Commission in November 2020. The November 2020 Decision Paper discussed the update of the ANZ and NAP. At that meeting, the Maryland Aviation Commission approved that MDOT MAA could proceed with the update to the ANZ and NAP.

MDOT MAA staff presented a second Decision Paper to the Maryland Aviation Commission in March 2021. The March 2021 Decision Paper discussed the results of the ANZ update; comments received and summarized the public hearing. It also recommended approving the adoption of regulations establishing the updated ANZ and/or making revisions to the NAP. The Maryland Aviation Commission approved the MTN Airport Noise Zone and Noise Abatement Plan as proposed.

Materials presented at the Maryland Aviation Commission meetings are presented in this Appendix.

MARYLAND AVIATION ADMINISTRATION
Decision Paper

Airport Noise Zone and Noise Abatement Plan Update
Martin State Airport

1. SUBJECT/ISSUE

The Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA) proposes to establish an updated Airport Noise Zone (ANZ) and Noise Abatement Plan (NAP) for Martin State Airport (MTN) as required by Maryland Law. See Annotated Code of Maryland, Transportation §§ 5-805, 5-806, and 5-819 and COMAR Section 11.03.02.10 – *Certified Martin State Airport (MTN) Noise Zone*. The current certified ANZ and NAP for MTN are incorporated into COMAR by sections 11.03.01.01-1 (B) (6) and 11.03.02.10.

In accordance with the Annotated Code of Maryland, Transportation §5-201 (b)(2), the Maryland Aviation Commission is required to approve MDOT MAA regulations prior to their adoption by the Executive Director.

2. DISCUSSION

Review of ANZ for MTN

Maryland law requires that an assessment of the noise environment created by the operation and projected future use of the airport be regularly undertaken, which includes the delineation of an airport noise zone and identification of any impacted land use area.

The ANZ contour is determined by a composite of three Day Night Average Sound Level (DNL) contours: a base year contour, a 5-year post certification forecast contour (2025), and a 10-year post certification forecast contour (2030). The largest of the three contours in any area around the Airport determines the ANZ. The 2020 ANZ is shown on Attachment 1.

The 2020 ANZ contains 411 acres, a 4% increase from the 394 acres contained within the previous ANZ. This increase is attributed in part to increased operations and the future condition of the runway layout for Runway 15/33, which may reconfigure each end of the existing runway for civilian aircraft. A comparison of the previous and proposed ANZ contours are shown on Attachment 2.

Review of NAP for MTN

MDOT MAA is required to implement a NAP at MTN if an impacted land use area exists within the ANZ. Currently, there are no impacted land use areas within the ANZ for MTN, however, MDOT MAA has updated the NAP to accurately reflect current operating conditions at MTN.

The MTN NAP prescribes measures to monitor and reduce or eliminate impacted land use areas around MTN to the extent feasible, while maintaining safe and efficient airport operations. The NAP is designed to minimize the noise of aircraft operations within the constraints of the Federal

Air Traffic Control System and ensure aircraft safety. The NAP update was done with cooperation of Maryland Air National Guard (MDANG), airport users, the aviation industry, and local governments.

Review of Potential Need for Noise Assistance Programs

As indicated above, there are no incompatible land uses within the draft 2020 MTN ANZ. Therefore, a Federal Aviation Administration Part 150 Study is not warranted, as there is no need to pursue federal funding for noise assistance programs.

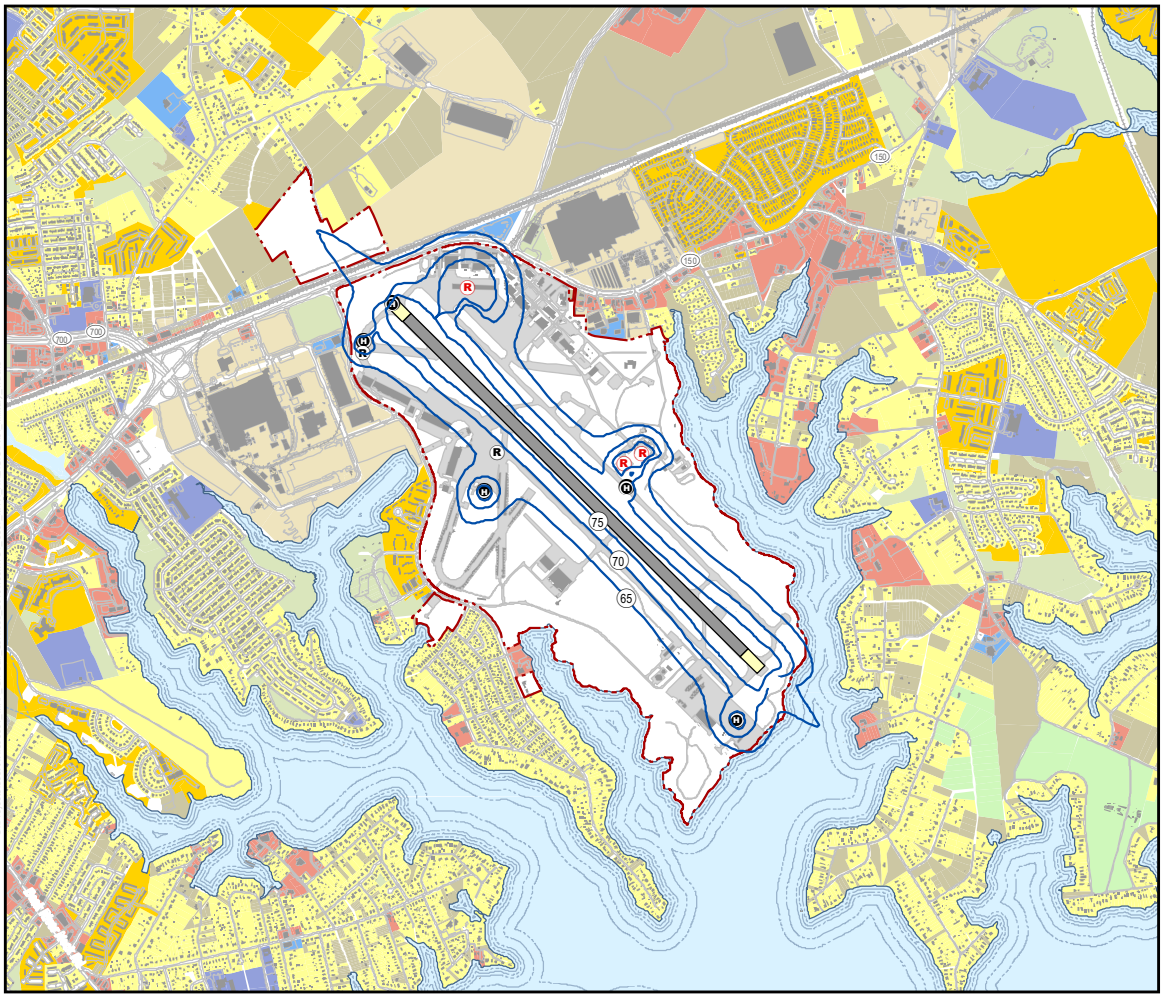
3. CONCLUSION

The MDOT MAA proposes to proceed with the update of the ANZ and NAP for MTN in COMAR. MDOT MAA will publish both the proposed ANZ and NAP as a proposed action in the Maryland Register. MDOT MAA will hold a public hearing on the proposed action. The public will be able to comment on the proposed action at the public hearing. Prior to finally adopting the regulation and incorporating the 2020 MTN ANZ and NAP updates, MDOT MAA will request the approval of the Commission.

4. RECOMMENDATION

MDOT MAA recommends that the Maryland Aviation Commission approve the revised and proposed updated ANZ and NAP for MTN as to be provided for in amendments to COMAR 11.03.02.10 Certified Airport Noise Zone and COMAR 11.03.01.01-1 Incorporation by Reference.

Approved APPROVED Disapproved_____ Date 11/18/2020



MARTIN STATE AIRPORT

Airport Noise Zone Update

Attachment 1
MTN ANZ Update 2020 ANZ Contours

2020 Airport Noise Zone DNL Contours

Airport Boundary

Helicopter Operation Area
Military Runup Location
Civilian Runup Locations
Civilian Runway (Future)
Additional Runway Available for Military Operations

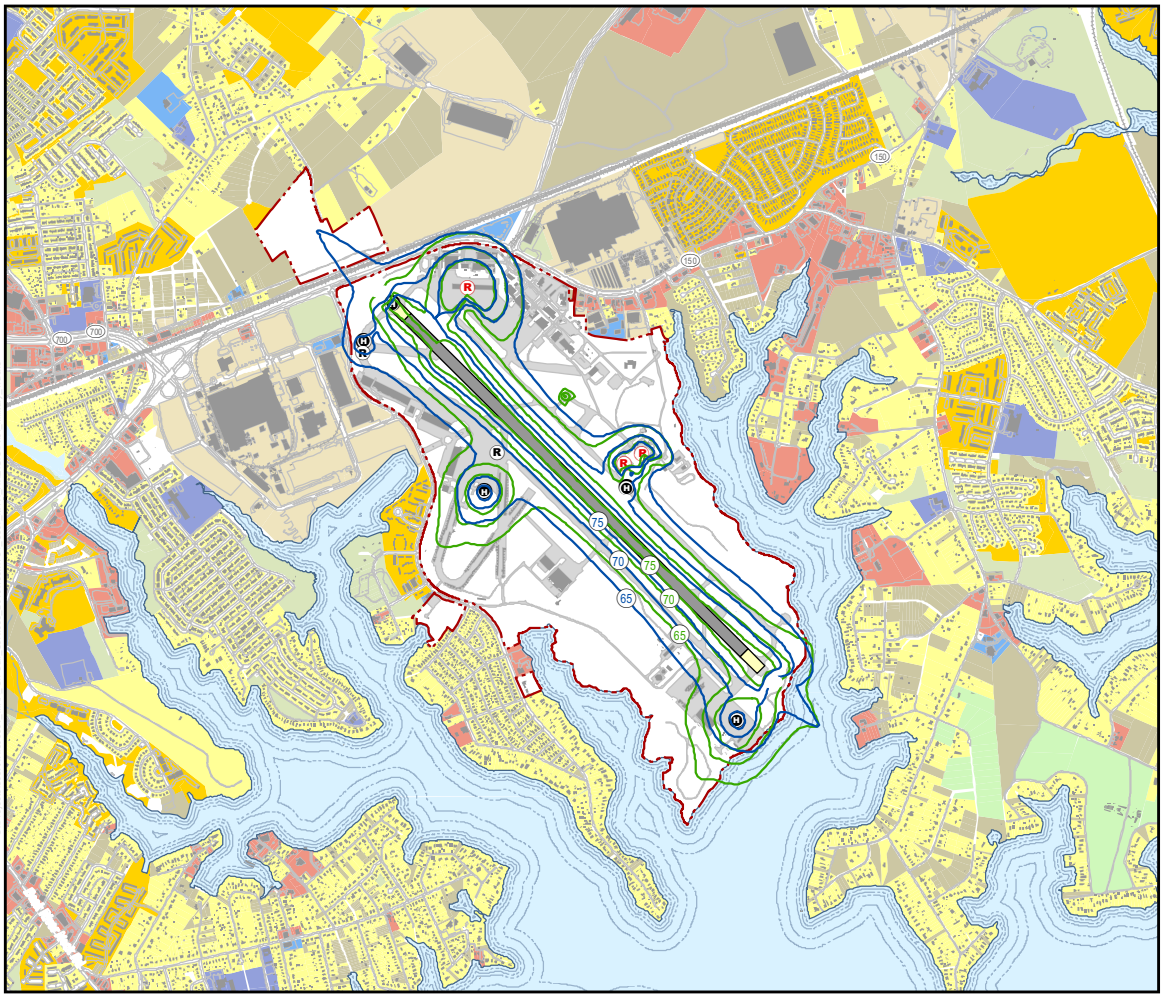
Roads
Railroad
Stream / Creek
Buildings

Residential Use
Multi-Family Residential Use
Mixed Use
Public Use (Non-Compatible)
Public Use (Compatible)
Agriculture
Recreational / Open Space
Commercial Use
Manufacturing / Production
Vacant / Undeveloped
Transportation / Utility
Water

School
Library
Place of Worship
Hospital / Health Care

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH

0 1,500 3,000 Feet



MARTIN STATE AIRPORT

Airport Noise Zone Update

Attachment 2

MTN ANZ Update 2020 ANZ Contours
Compared to 2012 ANZ Contours

- 2020 Airport Noise Zone DNL Contours
- 2012 Airport Noise Zone DNL Contours
- Airport Boundary
- Helicopter Operation Area
- Military Runup Location
- Civilian Runup Locations
- Civilian Runway (Future)
- Additional Runway Available for Military Operations
- Roads
- Railroad
- Stream / Creek
- Buildings
- Residential Use
- Recreational / Open Space
- Multi-Family Residential Use
- Commercial Use
- Mixed Use
- Manufacturing / Production
- Public Use (Non-Compatible)
- Vacant / Undeveloped
- Public Use (Compatible)
- Transportation / Utility
- Agriculture
- Water
- School
- Library
- Place of Worship
- Hospital / Health Care

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH

0 1,500 3,000 Feet

Martin State Airport Noise Zone Update Proposed Action

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION

ANZ Update Required by COMAR

COMAR Requirements:

- The Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA) proposes to establish an updated Airport Noise Zone (ANZ) and Noise Abatement Plan (NAP) for Martin State Airport (MTN) per COMAR Section 11.03.02.10 – Certified Martin State Airport (MTN) Noise Zone.
- The MDOT MAA develops and certifies the MTN ANZ pursuant to the Maryland Environmental Noise Act of 1974 (See Md Code Annotated, Transportation, §§ 5-805, 5-806, and 5-819).
- The current certified ANZ for MTN is incorporated by reference in COMAR Section 11.03.01.01-1 (B) (6).
- Required to be updated every five years.

In accordance with Transportation Article §5-201 (b)(2), Annotated Code of Maryland, the Maryland Aviation Commission is charged with the approval of regulations prior to their adoption by the MDOT MAA Executive Director.

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ANZ Update Scope and Process

- Establish Stakeholder Advisory Committee (SAC)
- Prepare base year, 5-year, 10-year forecast contours
- Compile composite Airport Noise Zone (ANZ)
- Prepare inventory of existing land use
- Update the Noise Abatement Plan

Completed

- **Obtain approval from MAC to circulate proposed ANZ Update**
- Conduct public workshop/hearing
- Obtain approval from MAC to submit Certified ANZ Update for incorporation into COMAR

Establish SAC → Prepare Contours → Composite ANZ → Inventory of Existing Land Use → Update NAP → Coordinate with MAC → Public Workshop/ Hearing → Certify ANZ, Update COMAR

3

Stakeholder Advisory Committee Members

Community Members

Ron Walper	Bowley's Quarters Community Association
Paul Allen Paul Jr.	Bowley's Quarters Community Association
Marsha Ayres	Bowley's Quarters Community Association
Rocky Jones	Essex Middle River Civic Council
Robert Bendler	Essex Middle River Civic Council
Judith Davies	Nottingham Improvement Association
Doug Zeisel	Wilson Point Civic Improvement Association
Lynn Lanham	Wilson Point Civic Improvement Association
Krystle Patchak	Baltimore County Department of Planning
Joseph Fraker	Baltimore County Department of Planning

Industry Members

Jane Toskes	AMAV, Inc
Joseph M. Toskes	AMAV, Inc
Cory Grochowski	Baltimore City Police Department - Aviation Unit
Sgt. Brandon Branham	Baltimore County Police Department - Aviation Unit
Chris Roussey	Baltimore County Police Department - Aviation Unit
Brig. Gen. Ed Jones	Maryland Air National Guard
Brig. Gen. Paul Johnson	Maryland Air National Guard
Joseph Ireton	Maryland State Police – Aviation Command
Major Michael Tagliaferri	Maryland State Police – Aviation Command
Captain Keith McMinn	Maryland State Police – Aviation Command
Michael Deruggiero	Maryland State Police – Aviation Command
Kevin Walsh	Middle River Aviation, LLC
Nikolaus Wagenfeiler	Midwest Air Traffic Control
Gerard Uehlinger	Aircraft Owners and Pilots Association
Paige Kroner	National Business Aviation Association

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2020 MTN ANZ Decision

MARYLAND AVIATION ADMINISTRATION
Decision Paper

Airport Noise Zone and Noise Abatement Plan Update
Martin State Airport

1. SUBJECT/ISSUE

The Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA) proposes to establish an updated Airport Noise Zone (ANZ) and Noise Abatement Plan (NAP) for Martin State Airport (MTN) as required by Maryland Law. See Annotated Code of Maryland, Transportation §§ 5-805, 5-806, and 5-819 and COMAR Section 11.03.02.10 – *Certified Martin State Airport (MTN) Noise Zone*. The current certified ANZ and NAP for MTN are incorporated into COMAR by sections 11.03.01.01-1 (B) (6) and 11.03.02.10.

In accordance with the Annotated Code of Maryland, Transportation §5-201 (b)(2), the Maryland Aviation Commission is required to approve MDOT MAA regulations prior to their adoption by the Executive Director.

2. DISCUSSION

Review of ANZ for MTN

Maryland law requires that an assessment of the noise environment created by the operation and projected future use of the airport be regularly undertaken, which includes the delineation of an airport noise zone and identification of any impacted land use area.

The ANZ contour is determined by a composite of three Day Night Average Sound Level (DNL) contours: a base year contour, a 5-year post certification forecast contour (2025), and a 10-year post certification forecast contour (2030). The largest of the three contours in any area around the Airport determines the ANZ. The 2020 ANZ is shown on Attachment 1.

The 2020 ANZ contains 411 acres, a 4% increase from the 394 acres contained within the previous ANZ. This increase is attributed in part to increased operations and the future condition of the runway layout for Runway 15/33, which may reconfigure each end of the existing runway for civilian aircraft. A comparison of the previous and proposed ANZ contours are shown on Attachment 2.

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2020 MTN ANZ Decision

Review of NAP for MTN

MDOT MAA is required to implement a NAP at MTN if an impacted land use area exists within the ANZ. Currently, there are no impacted land use areas within the ANZ for MTN, however, MDOT MAA has updated the NAP to accurately reflect current operating conditions at MTN.

The MTN NAP prescribes measures to monitor and reduce or eliminate impacted land use areas around MTN to the extent feasible, while maintaining safe and efficient airport operations. The NAP is designed to minimize the noise of aircraft operations within the constraints of the Federal Air Traffic Control System and ensure aircraft safety. The NAP update was done with cooperation of Maryland Air National Guard (MDANG), airport users, the aviation industry, and local governments.

Review of Potential Need for Noise Assistance Programs

As indicated above, there are no incompatible land uses within the draft 2020 MTN ANZ. Therefore, a Federal Aviation Administration Part 150 Study is not warranted, as there is no need to pursue federal funding for noise assistance programs.

3. CONCLUSION

The MDOT MAA proposes to proceed with the update of the ANZ and NAP for MTN in COMAR. MDOT MAA will publish both the proposed ANZ and NAP as a proposed action in the Maryland Register. MDOT MAA will hold a public hearing on the proposed action. The public will be able to comment on the proposed action at the public hearing. Prior to finally adopting the regulation and incorporating the 2020 MTN ANZ and NAP updates, MDOT MAA will request the approval of the Commission.

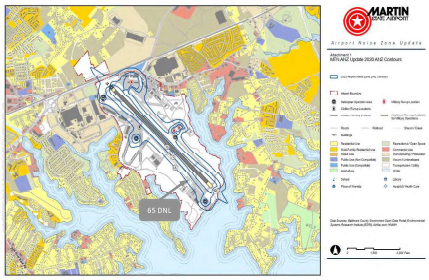
4. RECOMMENDATION

MDOT MAA recommends that the Maryland Aviation Commission approve the revised and proposed updated ANZ and NAP for MTN as to be provided for in amendments to COMAR 11.03.02.10 Certified Airport Noise Zone and COMAR 11.03.01.01-1 Incorporation by Reference.

Approved_____ Disapproved_____ Date_____

6

2020 MTN ANZ Contours



Noise contours modeled for existing (2019) and future (2025 and 2030) scenarios

2020 ANZ is 411 acres

- 96% on MDOT MAA property
- Remains entirely over compatible land uses (no impacts to noise-sensitive land uses)

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2020 MTN ANZ

2020 Airport Noise Zone DNL Contours

Airport Boundary

Helicopter Operation Area

Military Runup Location

Civilian Runup Locations

Civilian Runway (Future)

Additional Runway Available for Military Operations

Roads

Railroad

Stream / Creek

Buildings

Residential Use

Multi-Family Residential Use

Mixed Use

Public Use (Non-Compatible)

Public Use (Compatible)

Agriculture

School

Place of Worship

Recreational / Open Space

Commercial Use

Manufacturing / Production

Vacant / Undeveloped

Transportation / Utility

Water

Library

Hospital / Health Care

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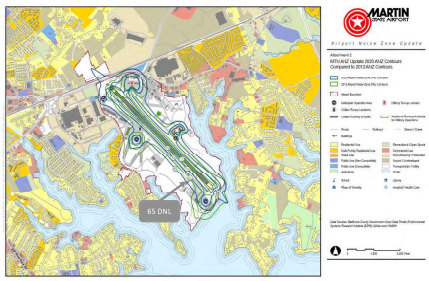
Comparison of 2020 ANZ to Previous ANZ



- 2020 ANZ is 4% larger than 2012 ANZ

Changes attributable to:

- Increased operations
- Future configuration of the runway layout for Runway 15/33 (may reconfigure each end of the existing runway for civilian aircraft)
- Noise model updates

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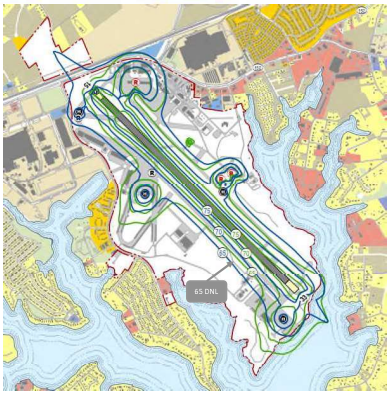

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Commercial Use
Mixed Use
Manufacturing / Production
Public Use (Non-Compatible)
Vacant / Underdeveloped
Public Use (Compatible)
Transportation / Utility
Agriculture
Water
School
Library
Place of Worship
Hospital / Health Care

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MTN Noise Abatement Plan

- The NAP is comprised of two parts
  - Efforts MDOT MAA is taking to mitigate noise
  - Voluntary aircraft operating procedures
- Includes multiple elements
  - Proscribed noise abatement procedures
  - Process for addressing community noise complaints
  - Airport Zoning Permitting and Board of Airport Zoning Appeals* Procedure
  - MDANG Noise Barriers

** BAZA Members appointed by the Governor*

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Public Notice and Review

Proposed Action (updating COMAR) will be published in advance in the Maryland Register

Public notice will be provided via posting in:
- Dundalk Eagle
- East County Times
- Baltimore Sun
- The Avenue News

SAC members and Maryland State and Local elected officials will be notified directly

Document will be available for public review at the following locations:
- Electronically at MDOT MAA Community Relations website: maacommunityrelations.com
- Baltimore County Library, 1110 Eastern Blvd
- Baltimore County Library, 1716 Merritt Blvd

Public Workshop and Hearing (to be held virtually)

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MARYLAND AVIATION ADMINISTRATION
Decision Paper

Airport Noise Zone and Noise Abatement Plan Update
Martin State Airport
COMAR Final Action

1. SUBJECT/ISSUE

The Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA) proposes to update the Code of Maryland Regulations (COMAR) to reflect an updated Airport Noise Zone (ANZ) and Noise Abatement Plan (NAP) for Martin State Airport (MTN). The MDOT MAA develops and certifies the MTN ANZ pursuant to the Maryland Environmental Noise Act of 1974 (See Transportation Article, §§5-805, 5-806, and 5-819, Annotated Code of Maryland). MDOT MAA proposes to establish the updated ANZ and NAP for MTN by amending Regulation .10 under COMAR 11.03.02 and incorporated by reference in COMAR Section 11.03.01.01-1B(6).

In accordance with the Annotated Code of Maryland, Transportation §5-201 (b)(2), the Maryland Aviation Commission (Commission) is required to approve regulations prior to their adoption by the Executive Director of MDOT MAA.

2. DISCUSSION

The Maryland Environmental Noise Act of 1974 provided for the protection of citizens from the impact of transportation related noise. The aviation portion of the Act requires the MDOT MAA to adopt an ANZ and NAP to control incompatible land development around MTN and to reduce or eliminate impacted land uses around the Airport. The ANZ is determined by a composite of three noise contours: a base year contour, a five-year forecast contour and a ten-year forecast contour. The largest of the three contours in any area around MTN determines the ANZ. For this 2020 ANZ update, the study process considered existing conditions for the base year of 2019 and the forecast conditions in 2025 and 2030.

A comparison of the 2012 ANZ with the proposed 2020 ANZ shows that the contours are similar in shape but vary in some locations due to a number of operational details: increased operations, the future configuration of the runway layout for Runway 15/33, and updates that have been made by the Federal Aviation Administration (FAA) in the Aviation Environmental Design Tool (AEDT) and its databases. MDOT MAA utilized the FAA's AEDT for the calculation of cumulative noise exposure as it is the industry standard.

The table below presents a comparison of acreage, estimated population, and estimated housing unit counts for the proposed 2020 ANZ and the 2012 ANZ. As shown, there is an increase in total acreage within the proposed ANZ of 17 acres (approximately 4%) and there remains no housing units or estimated population within the proposed 2020 ANZ.

Comparison of Noise Exposure for 2020 ANZ with current 2012 ANZ

Airport Noise Zone	Acreage	Estimated Housing Units	Estimated Population
Current 2012	394	0	0
Proposed 2020	411	0	0
Changes	+17	0	0

On November 18, 2020, the proposed ANZ and NAP were presented to the Commission. The presentation provided an overview of MDOT MAA's requirements to prepare an update to the ANZ, reviewed the scope and process, presented the 2020 MTN ANZ noise contours, and provided an overview of the NAP.

Upon completion of the presentation, the Commission authorized MDOT MAA to proceed with updating both the ANZ and NAP and to publish the proposed amendment to the Regulations in the Maryland Register. The Notice of Proposed Action, including the proposed changes to COMAR, were published in the Maryland Register, Volume 48, Issue 2, January 15, 2021 (see Attachment 1).

Public Workshop and Public Hearing

On January 26, 2021, a virtual public workshop and public hearing was held. There were eighteen (18) people in attendance. Following the public workshop, the public hearing commenced. During the public hearing portion of the meeting no comments were received.

Written comments were accepted January 15, 2021 through February 16, 2021. MDOT MAA received no written comments during this comment period.

Public notice was provided in three newspapers via legal notice: the Baltimore Sun, the Avenue News and the Dundalk Eagle. Subscribers to MDOT MAA's eNews Express were notified directly. Elected and public officials were notified directly via email and hard copy letter. Consistent with requirements under COMAR, the Chief Executive Officer, Zoning Board and Planning Director of Baltimore County were given an opportunity to comment. Additionally, email notifications were sent directly to members of the Stakeholder Advisory Committee. The full ANZ document and related maps and materials were posted on MDOT MAA's Community Relations Website for review and download by anyone wishing to do so.

3. CONCLUSION

The proposed MTN Airport Noise Zone and Noise Abatement Plan should be adopted as proposed.

4. RECOMMENDATION

MDOT MAA recommends that the Maryland Aviation Commission approve the proposed amendment to Regulation .10 under COMAR 11.03.02 Martin State Airport and 01-1 under COMAR 11.03.01.

Approved ____**X**_____ Disapproved _____ Date_____**March 17, 2021**___

BWI Marshall & Martin State Airports
Airport Noise Zone Updates
Proposed Action

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION

Airport Noise Zone Updates

- MDOT MAA presented the Draft 2020 ANZs for BWI Marshall and Martin State Airports to this Commission on November 18, 2020; Commission approved MDOT MAA moving forward.
- Draft Documents and notice of Public Workshop and Public Hearing published on January 15.
- Comment period – January 15 – February 16
- Notice was provided via:
  - Maryland Register
  - MAA Community Relations website
  - Multiple local newspaper legal notices
  - Emails to the ANZ Stakeholder Advisory Committees
  - Letters and emails to elected officials and Baltimore, Howard, and Anne Arundel County Executives, among others

2

Public Workshops/Hearings & Comments

- Due to Covid-19, workshops and hearings were held virtually
- 67 people attended the BWI Marshall ANZ workshop and hearing; and two comments were received after the hearing.
  - Public comments received do not require changes to the ANZ/NAP document.
  - Comments noted that "MDOT MAA produced an updated ANZ that appears to be in accordance with Maryland law and regulation".
  - Comments noted differences between FAA Part 150 and State ANZ noise modeling. MAA will study the consolidation of federal and state noise studies into one coordinated document that is federally eligible for funding.
  - Public Comments received were included in the Final ANZ/NAP document.
- 18 people attended the MTN ANZ workshop and hearing, and no comments were received.

3

Recommendation

- **Baltimore/Washington International Thurgood Marshall Airport**: MDOT MAA recommends that the Maryland Aviation Commission approve the proposed amendment to Regulation .01 and .12 under COMAR 11.03.01 and COMAR 11.03.01.01-1 Incorporation by Reference
- **Martin State Airport:** MDOT MAA recommends that the Maryland Aviation Commission approve the revised and proposed updated ANZ and NAP for MTN as to be provided for in amendments to COMAR 11.03.02.10 Certified Airport Noise Zone and COMAR 11.03.01.01-1 Incorporation by Reference.

4

Title 11
DEPARTMENT OF TRANSPORTATION

Subtitle 03 MARYLAND AVIATION ADMINISTRATION

Notice of Final Action

[21-014-F-I]

On March 2, 2021, the Executive Director of the Maryland Aviation Administration adopted amendments to:

(I) Regulations **.01-1** and **.12** under **COMAR 11.03.01 Baltimore/Washington International Thurgood Marshall Airport;** and

(2) Regulation **.10** under **COMAR 11.03.02 Martin State Airport.**

This action, which was proposed for adoption in 48:2 Md. R. 6 0 - 62 (January 15, 202 I), has been adopted as proposed.

Effective Date: April 19, 2021.

RICKY **D.** SMITH, R

Title 13B
MARYLAND HIGHER EDUCATION COMMISSION:

Subtitle 08 FINANCIAL AID

13B.08.ll Richard W. Collins III Leadership with Honor Scholarship Program

Authority: Education Article,§§! 1-IOS(u), 18-204(c), and 1 5fe)-
Annotated Code of Maryland

Notice of Final Action

[21-020-F]

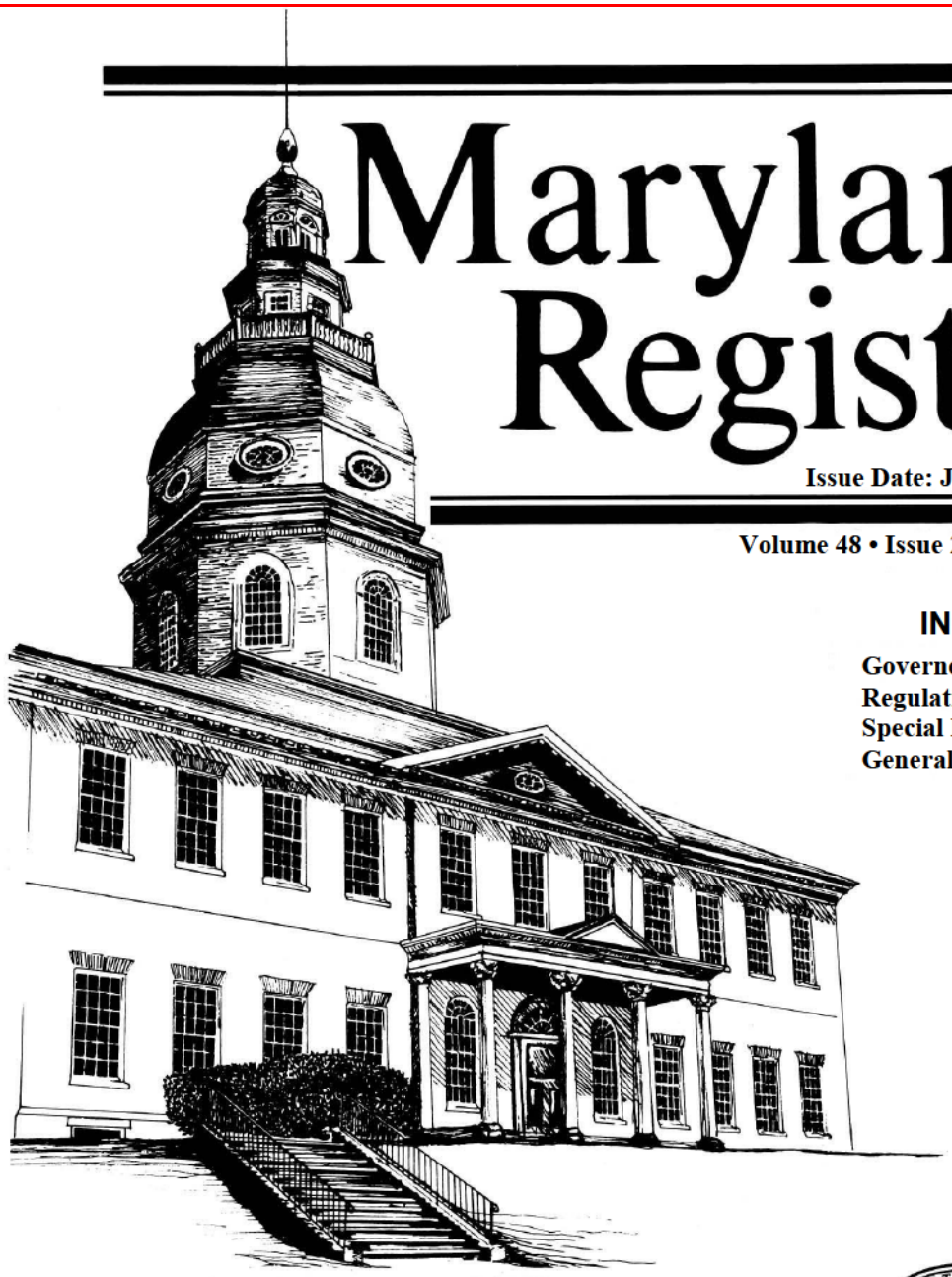
On March 24, 2021, the Maryland Higher Education Commission adopted amendments to Regulations **.02-.04** under **COMAR 13B.08.11 Richard W. Collins III Leadership with Honor Scholarship Program.** This action, which was proposed for adoption in 48:2 Md. R. 62 (January 15, 2021), has been adopted as proposed.

Effective Date: April 19, 2021.

JAMES D. FIELDER, JR., Ph.D.
Secretary of Higher Education

Appendix E Public Workshop and Hearing Materials

Appendix E includes information related to the public workshop and hearing, including the invitations, documentation of public notices, attendance information, presentation materials, and hearing transcript.



Maryland Register

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Pursuant to State Government Article, §7-206, Annotated Code of Maryland, this issue contains all previously unpublished documents required to be published, and filed on or before December 28, 2020, 5 p.m.

Pursuant to State Government Article, §7-206, Annotated Code of Maryland, I hereby certify that this issue contains all documents required to be codified as of December 28, 2020.

Gail S. Klakring
Administrator, Division of State Documents
Office of the Secretary of State

Information About the Maryland Register and COMAR

MARYLAND REGISTER

The Maryland Register is an official State publication published every other week throughout the year. A cumulative index is published quarterly.

The Maryland Register is the temporary supplement to the Code of Maryland Regulations. Any change to the text of regulations published in COMAR, whether by adoption, amendment, repeal, or emergency action, must first be published in the Register.

The following information is also published regularly in the Register:

- Governor's Executive Orders
- Attorney General's Opinions in full text
- Open Meetings Compliance Board Opinions in full text
- State Ethics Commission Opinions in full text
- Court Rules
- District Court Administrative Memoranda
- Courts of Appeal Hearing Calendars
- Agency Hearing and Meeting Notices
- Synopses of Bills Introduced and Enacted by the General Assembly
- Other documents considered to be in the public interest

CITATION TO THE MARYLAND REGISTER

The Maryland Register is cited by volume, issue, page number, and date. Example:

• 19:8 Md. R. 815—817 (April 17, 1992) refers to Volume 19, Issue 8, pages 815—817 of the Maryland Register issued on April 17, 1992.

CODE OF MARYLAND REGULATIONS (COMAR)

COMAR is the official compilation of all regulations issued by agencies of the State of Maryland. The Maryland Register is COMAR's temporary supplement, printing all changes to regulations as soon as they occur. At least once annually, the changes to regulations printed in the Maryland Register are incorporated into COMAR by means of permanent supplements.

CITATION TO COMAR REGULATIONS

COMAR regulations are cited by title number, subtitle number, chapter number, and regulation number. Example: COMAR 10.08.01.03 refers to Title 10, Subtitle 08, Chapter 01, Regulation 03.

DOCUMENTS INCORPORATED BY REFERENCE

Incorporation by reference is a legal device by which a document is made part of COMAR simply by referring to it. While the text of an incorporated document does not appear in COMAR, the provisions of the incorporated document are as fully enforceable as any other COMAR regulation. Each regulation that proposes to incorporate a document is identified in the Maryland Register by an Editor's Note. The Cumulative Table of COMAR Regulations Adopted, Amended or Repealed, found online, also identifies each regulation incorporating a document. Documents incorporated by reference are available for inspection in various depository libraries located throughout the State and at the Division of State Documents. These depositories are listed in the first issue of the Maryland Register published each year. For further information, call 410-974-2486.

HOW TO RESEARCH REGULATIONS

An Administrative History at the end of every COMAR chapter gives information about past changes to regulations. To determine if there have been any subsequent changes, check the "Cumulative Table of COMAR Regulations Adopted, Amended, or Repealed" which is found online at http://www.dsd.state.md.us/PDF/CumulativeTable.pdf. This table lists the regulations in numerical order, by their COMAR number, followed by the citation to the Maryland Register in which the change occurred. The Maryland Register serves as a temporary supplement to COMAR, and the two publications must always be used together. A Research Guide for Maryland Regulations is available. For further information, call 410-260-3876.

SUBSCRIPTION INFORMATION

For subscription forms for the Maryland Register and COMAR, see the back pages of the Maryland Register. Single issues of the Maryland Register are $15.00 per issue.

CITIZEN PARTICIPATION IN THE REGULATION-MAKING PROCESS

Maryland citizens and other interested persons may participate in the process by which administrative regulations are adopted, amended, or repealed, and may also initiate the process by which the validity and applicability of regulations is determined. Listed below are some of the ways in which citizens may participate (references are to State Government Article (SG), Annotated Code of Maryland):

- By submitting data or views on proposed regulations either orally or in writing, to the proposing agency (see "Opportunity for Public Comment" at the beginning of all regulations appearing in the Proposed Action on Regulations section of the Maryland Register). (See SG, §10-112)
- By petitioning an agency to adopt, amend, or repeal regulations. The agency must respond to the petition. (See SG §10-123)
- By petitioning an agency to issue a declaratory ruling with respect to how any regulation, order, or statute enforced by the agency applies. (SG, Title 10, Subtitle 3)
- By petitioning the circuit court for a declaratory judgment on the validity of a regulation when it appears that the regulation interferes with or impairs the legal rights or privileges of the petitioner. (SG, §10-125)
- By inspecting a certified copy of any document filed with the Division of State Documents for publication in the Maryland Register. (See SG, §7-213)

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Lawrence J. Hogan, Jr., Governor; **John C. Wobensmith**, Secretary of State; **Gail S. Klakring**, Administrator; **Mary D. MacDonald**, Senior Editor, Maryland Register and COMAR; **Elizabeth Ramsey**, Editor, COMAR Online, and Subscription Manager; **Tami Cathell**, Help Desk, COMAR and Maryland Register Online.

Front cover: State House, Annapolis, MD, built 1772—79.
Illustrations by Carolyn Anderson, Dept. of General Services

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CLOSING DATES AND ISSUE DATES THROUGH JULY 2021

Issue Date	Emergency and Proposed Regulations 5 p.m.*	Notices, etc. 10:30 a.m.	Final Regulations 10:30 a.m.
January 29	January 11	January 15**	January 20
February 12	January 25	February 1	February 3
February 26	February 8	February 12**	February 17
March 12	February 22	March 1	March 3
March 26	March 8	March 15	March 17
April 9	March 22	March 29	March 31
April 23	April 5	April 12	April 14
May 7	April 19	April 26	April 28
May 21	May 3	May 10	May 12
June 4	May 17	May 24	May 26
June 18	May 28**	June 7	June 9
July 2	June 14	June 21	June 23
July 16	June 28	July 2**	July 7
July 30	July 12	July 19	July 21

* Deadlines are for submissions to **DSD** for publication in the Maryland Register and do not take into account the 15-day AELR review period. Due date for documents containing 8 to 18 pages is 48 hours before the date listed; due date for documents exceeding 18 pages is 1 week before the date listed.

NOTE: ALL DOCUMENTS MUST BE SUBMITTED IN TIMES NEW ROMAN, 9-POINT, SINGLE-SPACED FORMAT. THE PAGE COUNT REFLECTS THIS FORMATTING.

** Note closing date changes.

*** Note issue date changes.

The regular closing date for Proposals and Emergencies is Monday.

COMAR Online

The Code of Maryland Regulations is available at www.dsd.state.md.us as a free service of the Office of the Secretary of State, Division of State Documents. The full text of regulations is available and searchable. Note, however, that the printed COMAR continues to be the only official and enforceable version of COMAR.

The Maryland Register is also available at www.dsd.state.md.us.

For additional information, visit www.dsd.state.md.us, Division of State Documents, or call us at (410) 974-2486 or 1 (800) 633-9657.

Availability of Monthly List of Maryland Documents

The Maryland Department of Legislative Services receives copies of all publications issued by State officers and agencies. The Department prepares and distributes, for a fee, a list of these publications under the title ''Maryland Documents''. This list is published monthly, and contains bibliographic information concerning regular and special reports, bulletins, serials, periodicals, catalogues, and a variety of other State publications. ''Maryland Documents'' also includes local publications.

Anyone wishing to receive ''Maryland Documents'' should write to: Legislative Sales, Maryland Department of Legislative Services, 90 State Circle, Annapolis, MD 21401.

REGULATIONS CODIFICATION SYSTEM

Under the COMAR codification system, every regulation is assigned a unique four-part codification number by which it may be identified. All regulations found in COMAR are arranged by title. Each title is divided into numbered subtitles, each subtitle is divided into numbered chapters, and each chapter into numbered regulations.

09.12.01.01D(2)(c)(iii)

Title | Subtitle | Chapter | Regulation | Section | Subsection | Paragraph | Subparagraph

A regulation may be divided into lettered sections, a section divided into numbered subsections, a subsection divided into lettered paragraphs, and a paragraph divided into numbered subparagraphs.

Cumulative Table of COMAR Regulations Adopted, Amended, or Repealed

This table, previously printed in the Maryland Register lists the regulations, by COMAR title, that have been adopted, amended, or repealed in the Maryland Register since the regulations were originally published or last supplemented in the Code of Maryland Regulations (COMAR). The table is no longer printed here but may be found on the Division of State Documents website at www.dsd.state.md.us.

Table of Pending Proposals

The table below lists proposed changes to COMAR regulations. The proposed changes are listed by their COMAR number, followed by a citation to that issue of the Maryland Register in which the proposal appeared. Errata pertaining to proposed regulations are listed, followed by "(err)". Regulations referencing a document incorporated by reference are followed by "(ibr)". None of the proposals listed in this table have been adopted. A list of adopted proposals appears in the Cumulative Table of COMAR Regulations Adopted, Amended, or Repealed.

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08.02.03.03,.07,.10,.13,.14 • 48:2 Md. R. 51 (1-15-21)
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08.03.08.01,.04—.09 • 47:23 Md. R. 980 (11-6-20)
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09 MARYLAND DEPARTMENT OF LABOR

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09.10.02.62 • 48:2 Md. R. 58 (1-15-21)
09.10.03.01-1 • 47:25 Md. R. 1075 (12-4-20)
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10.07.02.01—.03,.33,.40 • 47:2 Md. R. 91 (1-17-20) (ibr)

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10.09.03.07 • 47:23 Md. R. 983 (11-6-20)
10.09.04.01,.03—.07 • 47:23 Md. R. 984 (11-6-20)
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10.09.37.03-1 • 47:22 Md. R. 939 (10-23-20)
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10.27.01.01,.05,.10 • 47:23 Md. R. 987 (11-6-20)
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10.37.01.02 • 47:22 Md. R. 941 (10-23-20) (ibr)
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10.64.02.01—.03 • 47:23 Md. R. 1002 (11-6-20)
10.67.04.03 • 47:23 Md. R. 1004 (11-6-20)

11 DEPARTMENT OF TRANSPORTATION

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11.03.01..01-1,.12 • 48:2 Md. R. 60 (1-15-21) (ibr)
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13A STATE BOARD OF EDUCATION

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15 MARYLAND DEPARTMENT OF AGRICULTURE

15.01.05.02,.05 • 48:1 Md. R. 19 (1-4-21)

16 DEPARTMENT OF JUVENILE SERVICES

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26.03.13.03 • 48:2 Md. R. 63 (1-15-21)

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30 MARYLAND INSTITUTE FOR EMERGENCY MEDICAL SERVICES SYSTEMS (MIEMSS)

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33 STATE BOARD OF ELECTIONS

33.17.06.05 • 47:24 Md. R. 1054 (11-20-20)

.01-1 Incorporation by Reference.

A. The following documents are incorporated by reference to the extent that they are referenced in this chapter:

[(1) ASME Boiler and Pressure Vessel Code:

(a) 1986 ASME Boiler and Pressure Vessel Code;

(b) 1989 ASME Boiler and Pressure Vessel Code;

(c) 1992 ASME Boiler and Pressure Vessel Code;

(d) 1995 ASME Boiler and Pressure Vessel Code and 1995 Addenda; and

(e) 1998 ASME Boiler and Pressure Vessel Code, together with the:

(i) Boilers and Pressure Vessels, 1998 Code Cases, Supplements 1, 2 and 3;

(ii) Nuclear Components, 1998 Code Cases, Supplements 2 and 3;

(iii) 1999 Addenda; and

(iv) 2000 Addenda; and

(2) National Board Inspection Code — A Manual for Boiler and Pressure Vessel Inspectors:

(a) 1992 Edition, together with the:

(i) 1993 Addendum; and

(ii) 1994 Addendum.

(b) 1998 Edition, with the following changes on page 137:

(i) Delete the definition of Pressure Retaining Items (PRI); and

(ii) Insert in its place "Pressure Retaining Items (PRI) means any boiler or pressure vessel, including boiler external piping.";

(c) 1998 Addendum;

(d) 1999 Addendum;

(e) 2001 Edition, together with the:

(i) 2001 Addendum;

(ii) 2002 Addendum; and

(iii) 2003 Addendum;

(f) 2004 Edition, together with the:

(i) 2004 Addendum;

(ii) 2005 Addendum; and

(iii) 2006 Addendum;

(g) 2007 Edition, together with the:

(i) 2007 Addendum;

(ii) 2008 Addendum;

(iii) 2009 Addendum; and

(iv) 2010 Addendum; and

(h) 2011 Edition.]

(1) ASME 2019 Boiler and Pressure Vessel Code, an International Code; and

(2) National Board Inspection Code — NBIC, 2019 Edition.

B. The following documents are incorporated by reference in their entirety:

[(1) Power Piping, ASME B31.1:

(a) ASME B31.1 — 1992 Edition (American Society of Mechanical Engineers), together with the:

(i) ASME B31.1a — 1992 Addenda to ASME B31.1 — 1992 Edition, Power Piping (American Society of Mechanical Engineers);

(ii) ASME B31.1b — 1993 Addenda to ASME B31.1 — 1992 Edition, Power Piping (American Society of Mechanical Engineers); and

(iii) ASME B31.1c — 1994 Addenda to ASME B31.1 — 1992 Edition, Power Piping (American Society of Mechanical Engineers); and

(b) ASME B31.1 — 1998 Edition (American Society of Mechanical Engineers), together with the:

(i) ASME B31.1a — 1999 Addenda;

(ii) ASME B31.1b — 2000 Addenda;

(2) ASME B31.3:

(a) Chemical Plant and Petroleum Refinery Piping (American Society of Mechanical Engineers):

(i) ASME B31.3 — 1993 Edition;

(ii) ASME B31.3a — 1993 Addenda;

(iii) ASME B31.3b — 1994 Addenda; and

(iv) ASME B31.3c — 1995 Addenda; and

(b) Process Piping, ASME Code for Pressure Piping, B31.3 — 1999 Edition (American Society of Mechanical Engineers), together with ASME B31.3a — 2000 Addenda;

(3) Controls and Safety Devices for Automatically Fired Boilers (American Society of Mechanical Engineers):

(a) ASME CSD-1 — 1992 Edition;

(b) ASME CSD-1a — 1993 Addenda;

(c) ASME CSD-1 — 1995 Edition;

(d) ASME CSD-1a 1996 Addenda;

(e) ASME CSD-1b — 1996 Addenda;

(f) ASME CSD-1 — 1998 Edition;

(g) ASME CSD-1a-1999 Addenda; and

(h) Errata to ASME CSD-1a-1999 Addenda;

(4) NFPA 85C Prevention of Furnace Explosions/Implosions in Multiple Burner Boiler-Furnaces, 1991 Edition;

(5) NFPA 8501 Single Burner Boiler Operation, 1992 Edition.]

(1) ASME B31.1 — 2018 Edition, Power Piping (American Society of Mechanical Engineers);

(2) ASME B31.3 — 2018 Edition, Process Piping (American Society of Mechanical Engineers);

(3) ASME CSD-1 – 2018 Edition, Controls and Safety Devices for Automatically Fired Boilers (American Society of Mechanical Engineers) as amended in §C of this regulation; and

(4) NFPA 85, Boiler and Combustion Systems Hazards Code — 2019 Edition (National Fire Protection Association).

C. Controls and Safety Devices for Automatically Fired Boilers (CSD-1) (American Society of Mechanical Engineers).

(1) (text unchanged)

(2) The following are exempt from the requirements of ASME CSD-1:

(a) Water heaters stamped either ["h" or "hlw"] *"H" or "HLW"* and used as potable water heaters, if the water temperature is less than 210°F and the water pressure is less than 160 PSIG;

(b)—(d) (text unchanged)

MATTHEW S. HELMINIAK
Commissioner of Labor and Industry

Title 11
DEPARTMENT OF TRANSPORTATION

Subtitle 03 MARYLAND AVIATION ADMINISTRATION

Notice of Proposed Action

[21-014-P-I]

The Executive Director of the Maryland Aviation Administration proposes to amend:

(1) Regulations **.01-1** and **.12** under **COMAR 11.03.01 Baltimore/Washington International Thurgood Marshall Airport**; and

(2) Regulation **.10** under **COMAR 11.03.02 Martin State Airport**.

This action was considered by the Maryland Aviation Commission in an open meeting held on November 18, 2020, notice of which was given pursuant to Maryland General Provisions Article §3-302, Annotated Code of Maryland.

Statement of Purpose

The purpose of this action is to incorporate by reference the new certified Martin State Airport (MTN) Noise Zone, reflecting the noise contours for the new base year of 2019 and new future years of 2025 and 2030, as well as the new certified Baltimore/Washington International Thurgood Marshall Airport (BWI) Noise Zone, reflecting the noise contours for the new base year of 2020 and new future years of 2025 and 2030.

Comparison to Federal Standards

There is no corresponding federal standard to this proposed action.

Estimate of Economic Impact

The proposed action has no economic impact.

Economic Impact on Small Businesses

The proposed action has minimal or no economic impact on small businesses.

Impact on Individuals with Disabilities

The proposed action has no impact on individuals with disabilities.

Opportunity for Public Comment

Comments may be sent to Raven S. Berry, Director, Office of Administrative Services, MAA, P.O. Box 8766, BWI Airport MD 21240, or email to rberry1@bwiairport.com. Comments will be accepted through February 16, 2021. A public hearing has not been scheduled.

Editor's Note on Incorporation by Reference

Pursuant to State Government Article, §7-207, Annotated Code of Maryland, Baltimore/Washington International Thurgood Marshall Airport Noise Zone and Martin State Airport Noise Zone have been declared documents generally available to the public and appropriate for incorporation by reference. For this reason, they will not be printed in the Maryland Register or the Code of Maryland Regulations (COMAR). Copies of these documents are filed in special public depositories located throughout the State. A list of these depositories was published in 48:1 Md. R. 7 (January 4, 2021), and is available online at www.dsd.state.md.us. These documents may also be inspected at the office of the Division of State Documents, 16 Francis Street, Annapolis, Maryland 21401.

11.03.01 Baltimore/Washington International Thurgood Marshall Airport

Authority: Transportation Article, §§*5-202.1,* 5-204, 5-208, 5-426, 5-805, 5-806, and 5-819, Annotated Code of Maryland

.01-1 Incorporation by Reference.

A. (text unchanged)

B. Documents Incorporated

(1)—(4) (text unchanged)

(5) The certified Baltimore/Washington International Thurgood Marshall Airport (BWI) Noise Zone, consisting of the 65, 70, and 75 L_{dn} contours overprinted on county tax maps as indicated below:

(a)—(b) (text unchanged)

(c) Anne Arundel County Tax Maps 3, 4, *7,* 8, 9, and 15;

(d) Howard County Tax [Maps 38, and] *Map* 44.

(6) The Martin State Airport — Airport Noise Zone, certified by the Executive Director, and consisting of the 65, 70, and 75 L_{dn} contours overprinted on county tax maps as indicated below:

(a) [2012] Airport Noise Zone Map;

(b) [2012] Tax Map index;

(c) Baltimore County Tax Maps *90 and* 91 [and 98, dated March, 2012].

(7)—(8) (text unchanged)

C. (text unchanged)

.12 Certified Baltimore/Washington International Thurgood Marshall Airport (BWI) Noise Zone.

A. (text unchanged)

B. BWI Noise Zone

(1)—(2) (text unchanged)

(3) The certified Baltimore/Washington International Thurgood Marshall Airport (BWI) Noise Zone consists of the 65, 70, and 75 L_{dn} contours overprinted on county tax maps as indicated as follows:

(a)—(b) (text unchanged)

(c) Anne Arundel County Tax Maps 3, 4, *7,* 8, 9, and 15;

(d) Howard County Tax [Maps 38, and] *Map* 44.

(4) The noise zone is a composite of the 65, 70, and 75 Ldn noise contours for the base year of [2014 and future years of 2019 and 2024] *2020 and future years of 2025 and 2030.*

(5) (text unchanged)

C. BWI Noise Abatement Plan

(1)—(3) (text unchanged)

(4) The elements contained in the BWI Noise Abatement Plan are as follows:

(a)—(c) (text unchanged)

(d) [Ground noise measures] *Control of Ground Based Noise Sources;*

(e) [Continued restricted use of Runway 04/22] *Continued monitoring;*

(f) [Cooperative airlines/airport program;] *Continued control of incompatible development; and*

[(g) Continued control of incompatible development;

(h) Continued monitoring and annual review; and]

[(i)] *(g)* Noise assistance [program] *programs.*

11.03.02 Martin State Airport

Authority: Transportation Article, §§5-202.1, 5-204, 5-208, 5-426, 5-805, 5-806, and 5-819, Annotated Code of Maryland

.10 Certified Martin State Airport (MTN) Noise Zone.

A. (text unchanged)

B. MTN Airport Noise Zone.

(1)–(2) (text unchanged)

(3) The Martin State Airport — Airport Noise Zone, certified by the Executive Director, and consisting of the 65, 70, and 75 L_{dn} contours overprinted on county tax maps as follows, is incorporated by reference at COMAR 11.03.01.01A-1B(6):

(a)—(b) (text unchanged)

(c) Baltimore County Tax Maps *90 and* 91 [and 98].

(4) The noise zone is a composite of the 65, 70, and 75 Ldn noise contours for the base year of [2012 and future years of 2017 and 2022] *2019 and future years of 2025 and 2030.*

(5) (text unchanged)

C. MTN Noise Control Plan

(1)—(3) (text unchanged)

(4) The elements contained in the MTN Noise Abatement Plan are as follows:

(a) [Departure procedures] *Airport Noise Zone (ANZ);*

(b) [Arrival procedures] *Control of Incompatible Development;*

(c) [Closed traffic patterns] *Noise Concerns;*

(d) [Ground noise measures] *Maryland Air National Guard (MDANG) Noise Barriers;*

(e) [Touch-and-go landings and practice approaches;] *Aircraft Maintenance Engine Run-up Areas; and*

[(f) Helicopter special procedures;

(g) Noise concerns; and

(h) Control of incompatible development]

(f) Noise Abatement Procedures including Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) Departures, VFR and IFR Arrivals and Traffic Patterns, Closed Traffic Patterns, and Touch-and-Go or Practice Approaches.

RICKY S. SMITH, SR.
Executive Director

Title 13B
MARYLAND HIGHER EDUCATION COMMISSION

Subtitle 08 FINANCIAL AID

13B.08.11 Richard W. Collins III Leadership with Honor Scholarship Program

Authority: Education Article, §§11-105(u), 18-204(c), and 18-605(e), Annotated Code of Maryland

Notice of Proposed Action

[21-020-P]

The Maryland Higher Education Commission proposes to amend Regulations **.02—.04** under **COMAR 13B.08.11 Richard W. Collins III Leadership with Honor Scholarship Program**. This action was considered at an open meeting of the Commission held November 18, 2020.

Statement of Purpose

The purpose of this action is to clarify the eligibility of part-time students for the scholarship award and add an application deadline for priority consideration for the award.

Comparison to Federal Standards

There is no corresponding federal standard to this proposed action.

Estimate of Economic Impact

The proposed action has no economic impact.

Economic Impact on Small Businesses

The proposed action has minimal or no economic impact on small businesses.

Impact on Individuals with Disabilities

The proposed action has no impact on individuals with disabilities.

Opportunity for Public Comment

Comments may be sent to Geoff Newman, Assistant Secretary, Maryland Higher Education Commission, 6 N. Liberty St., 6th Fl., Baltimore, MD 20201, or call 410-767-3085, or email to geoff.newman@maryland.gov. Comments will be accepted through February 16, 2021. A public hearing has not been scheduled.

.02 Definitions.

A. (text unchanged)

B. Terms Defined.

(1)—(7) (text unchanged)

(8) "Part-time" means enrollment at an eligible institution in:

(a) At least 6 credits but fewer than 12 credits per semester in a certificate or undergraduate degree program; or

(b) At least 6 credits but fewer than 9 credits per semester in a graduate certificate, graduate degree, or doctoral degree program.

[(8)] *(9)*—[(9)] *(10)* (text unchanged)

.03 Student Eligibility.

A. (text unchanged)

B. An applicant is eligible for a scholarship if the applicant:

(1) Is enrolled full-time *or part-time* at an eligible institution;

(2)—(5) (text unchanged)

.04 Application Process.

A. (text unchanged)

B. Form of Application.

(1) An applicant shall apply and submit a Free Application for Federal Student Aid (FAFSA) by [July15] *April 1*.

(2) If the applicant is ineligible to submit a FAFSA, but qualifies for in-State tuition under Education Article, Title 15, Annotated Code of Maryland, the applicant shall submit a Maryland State Financial Aid Application (MSFAA) by [July 15] *April 1*.

C.—D. (text unchanged)

E. Time of Submission.

(1) An application and FAFSA or MSFAA received by the Office by April 1 will have priority consideration for an award.

(2) If funds are available, an application and FAFSA or MSFAA received by the Office after April 1, but no later than July 15, may be considered for an award.

(3) An application and FAFSA or MSFAA received by the Office after July 15 is untimely and may not be considered.

F.—G. (text unchanged)

JAMES D. FIELDER, JR., Ph.D.
Secretary of Higher Education

Title 14
INDEPENDENT AGENCIES

Subtitle 22 COMMISSION ON CRIMINAL SENTENCING POLICY

14.22.01 General Regulations

Authority: Criminal Procedure Article, §6-211, Annotated Code of Maryland

Notice of Proposed Action

[21-016-P]

The Maryland State Commission on Criminal Sentencing Policy proposes to amend Regulations **.02**, **.07**, and **.17** under **COMAR 14.22.01 General Regulations**. This action was considered by the Maryland State Commission on Criminal Sentencing Policy at an open meeting held on December 8, 2020, notice of which was given by publication in the Maryland Register, Vol. 47, Issue 24, pursuant to General Provisions Article, §3-302(c), Annotated Code of Maryland.

Statement of Purpose

The purpose of this action is to indicate modifications to the name and definition of a guidelines-compliant plea agreement in Regulations .02, .07, and .17 under COMAR 14.22.01 General Regulations. These modifications replace the term "ABA plea agreement" with "MSCCSP binding plea agreement." Further, these modifications tighten the definition of a guidelines-compliant plea, requiring agreement as to the specific active time (if any), not merely a sentence cap or range. The modifications also provide clarifying language to confirm that a binding plea involves agreement from all

BWI/MTN ANZ E-News Express Notification

From: BWI eNews Express <maabwienewsexpress@mdot.state.md.us>
Sent: Friday, January 15, 2021 9:19 AM
To: Mailing list
Subject: Airport Noise Zone Studies & Public Workshop/Hearing Notice

Announcements

BWI Marshall & Martin State Airport Noise Zone - Updated Studies and Public Workshop/Hearing Notice

MDOT MAA is updating the Airport Noise Zone (ANZ) and Noise Abatement Plan (NAP) for both Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall) and Martin State Airport (MTN). MDOT MAA will conduct a Public Workshop and Public Hearing for each study pursuant to the Annotated Code of Maryland Transportation Article Section 5-806(b) on the proposed ANZs. The purpose of each Public Workshop and Public Hearing is to afford all interested persons the opportunity to learn, ask questions, and comment on the ANZ.

The Public Workshop and Public Hearing on the MTN ANZ is scheduled for **January 26, from 6:00 p.m. to 8:00 p.m**., and the Public Workshop and Public Hearing on the BWI Marshall ANZ is scheduled for **January 28, from 6:00 p.m. to 8:00 p.m.**

More information, including the Draft documents and meeting registration information, is available on the MAA Community Relations website at www.maacommunityrelations.com.

BWI NOISE HOTLINE
410-859-7021

Office of Environmental Services
Noise Program
P.O. BOX 8766
BWI Airport, MD 21240-8766
410-859-7375

VISIT US AT:
maacommunityrelations.com

STAY CONNECTED

BWI Thurgood Marshall Airport | P.O. Box 8766, BWI Airport, MD 21240

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Sent by maabwienewsexpress@mdot.state.md.us

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tel: 410/332-6000
800/829-8000

WE HEREBY CERTIFY, that the annexed advertisement of Order No 6859846

Sold To:
Assedo Consulting LLC - CU80056291
6100 Chevy Chase Dr
Laurel,MD 20707

Bill To:
Assedo Consulting LLC - CU80056291
6100 Chevy Chase Dr
Laurel,MD 20707

Was published in "The Baltimore Sun", "Daily", a newspaper printed and published in Baltimore City on the following dates:

Jan 14, 2021

The Baltimore Sun Media Group

By B. Price, Legal Advertising

Subscribed and sworn to before me this 14 day of Jan 2021

By Michele Elaine

Notary Public

My commission expires 10/5/23

MICHELE ELAINE GRESSINGER NOTARY PUBLIC BALTIMORE COUNTY, MD

THE BALTIMORE SUN MEDIA GROUP

300 E. Cromwell Street
Baltimore, Maryland 21230
tel: 410/332-6000
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By Michele Elaine

Notary Public

My commission expires 10/5/23

MICHELE ELAINE GOESBAUER NOTARY PUBLIC BALTIMORE COUNTY, MD

The Baltimore Sun | Thursday, January 14, 2021 5

LEGAL NOTICES

PUBLIC NOTICE
Maryland Department of Transportation Maryland Aviation Administration

The Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA) will conduct a Public Workshop and Public Hearing pursuant to the Annotated Code of Maryland Transportation Article Section 5-806 (b) on the Proposed Airport Noise Zone (ANZ) for Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall).

Thursday, January 28, 2021
6:00 pm – Public Workshop
7:00 pm – Public Hearing

Location:
Due to the ongoing COVID-19 pandemic, the Public Workshop and Public Hearing will be held virtually via the GotoWebinar platform. Registration information is available at https://maacommunityrelations.com/.

The purpose of the Public Workshop and Public Hearing is to afford all interested persons the opportunity to learn, ask questions, and comment on the ANZ. The BWI Marshall ANZ will be incorporated by reference into the Code of Maryland Regulations (COMAR).

The Public Workshop will begin with a twenty-five-minute presentation, followed by a thirty-minute Questions and Answers session. The presentation presents the contour maps depicting the current and proposed boundaries of the BWI Marshall ANZ. It also provides an overview of the ANZ update process. Representatives of MDOT MAA will be available to answer questions and discuss points of interest during the Questions and Answers session.

Following the Public Workshop, the Public Hearing will begin promptly at 7:00 p.m. During this time, formal comments from the public will be recorded before a hearing officer. Formal comments will begin at 7:00 p.m. and will be accepted until 8:00 p.m.

To register in advance to present formal comments at the Public Hearing, please contact Mr. Bruce Rineer, Manager, Noise Section at BRineer@bwiairport.com or 410-859-7813. Elected officials and community leaders will be given the opportunity to speak before members of the public. On the evening of the virtual Public Hearing, individuals who desire to comment can also sign-up via the virtual platform. They will follow the speakers on the previously established list. Each individual will be allocated two minutes to make a comment. Written statements, in lieu of or in addition to an oral comment at the hearing, may be submitted to Mr. Bruce Rineer at BRineer@bwiairport.com until 5:00 p.m. on February 14, 2021.

The public BWI Marshall ANZ document is available on the MDOT MAA Community Relations website: https://maacommunityrelations.com/. In the event that a member of the public is unable to access the document online, requests for accommodation may be submitted to Mr. Bruce Rineer at BRineer@bwiairport.com.

Notice on ADA compliance:
Anyone planning to attend the Public Workshop and/or Public Hearing and who wishes to receive auxiliary aids, services, or accommodations is invited to contact Mr. Bruce Rineer at BRineer@bwiairport.com at least 48 hours in advance of the meeting.

Notice on Limited English Proficiency Compliance:
Anyone planning to attend the Public Workshop and/or Public Hearing and is limited in their ability to speak or understand English and wishes to receive translation services is invited to contact Mr. Bruce Rineer at BRineer@bwiairport.com at least 48 hours in advance of the meeting.
1/14/2021 6859846

PUBLIC NOTICE
Maryland Department of Transportation Maryland Aviation Administration

The Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA) will conduct a Public Workshop and Public Hearing pursuant to the Annotated Code of Maryland Transportation Article Section 5-806 (b) on the Proposed Airport Noise Zone (ANZ) for Martin State Airport (MTN).

Tuesday, January 26, 2021 6:00 pm – Public Workshop 7:00 pm – Public Hearing

Location:
Due to the ongoing COVID-19 pandemic, the Public Workshop and Public Hearing will be held virtually via the GotoWebinar platform.
Registration information is available at h ttps://maacommunityrelations.com/.

The purpose of the Public Workshop and Public Hearing is to afford all interested persons the opportunity to learn, ask questions, and comment on the ANZ. The MTN ANZ will be incorporated by reference into the Code of Maryland Regulations (COMAR).
The Public Workshop will begin with a twenty-five-minute presentation, followed by a thirty-minute Questions and Answers session. The presentation presents the contour maps depicting the current and proposed boundaries of the MTN ANZ. It also provides an overview of the ANZ update process.
Representatives of MDOT MAA will be available to answer questions and discuss points of interest during the Questions and Answers session.

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p.m. on February 14, 2021.
The public MTN ANZ document is available on the MDOT MAA Community Relations website:
h ttps://maacommunityrelations.com/. In the event that a member of the public is unable to access the document online, requests for accommodation may be submitted to Mr. Bruce Rineer at
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1/14/21 6860171

BALTIMORE COUNTY BOARD OF LIQUOR LICENSE COMMISSIONERS
TOWSON, MARYLAND 21204
410-887-3191
FAX 410-887-3970

NOTICE IS HEREBY GIVEN THAT THE FOLLOWING PERSONS HAVE FILED APPLICATION TO SELL BEER, WINE AND/ OR LIQUOR AT THE LOCATION STATED:

Gregory Moundas, Frances Czajka of ONE MD BALTIMORE 4980 MANAGEMENT, LLC t/a Residence Inn-Baltimore White Marsh 4980 Mercantile Rd. White Marsh, MD 21236. Application for change of Corporate Officers of Class B (on sale) Beer, Wine, Liquor Hotel Exception License from Robert Burg, Frances Czajka of One MD Baltimore 4980 Management, LLC t/a Residence Inn-Baltimore White Marsh.
(1:00 p.m.) (11)

Gregory Moundas, Frances Czajka of ONE MD BALTIMORE 8477 MANAGEMENT, LLC t/a Fairfield Inn & Suites White Marsh 8477 Cordon Way White Marsh, MD 21236. Application for change of Corporate Officers of Class B (on sale) Beer, Wine, Liquor Hotel Exception License from Robert Burg, Frances Czajka of One MD Baltimore 8477 Management, LLC t/a Fairfield Inn-Suites White Marsh.
(1:00) (11)

Gregory Moundas, Frances Czajka of ONE MD BALTIMORE HGI MANAGEMENT, LLC t/a Hilton Garden Inn-Baltimore White Marsh 5015 Campbell Blvd. Baltimore, MD 21236. Application for change of Corporate Officers of Class B (on sale) Beer, Wine, Liquor Hotel Exception License from Robert Burg, Frances Czajka of One MD Baltimore HGI Management, LLC t/a Hilton Garden Inn-Baltimore White Marsh.
(1:00) (14)

Gregory Moundas, Frances Czajka of ONE MD BALTIMORE HI MANAGEMENT, LLC t/a Hampton Inn-Baltimore White Marsh 8225 Town Center Dr. Baltimore, MD 21236. Application for change of Corporate Officers of Class B (on sale) Beer, Wine, Liquor Hotel Exception License from Robert Burg, Frances Czajka of One MD Baltimore HI Management, LLC t/a Hampton Inn-Baltimore White Marsh.
(1:00) (14)

Colleen Lyons, Barbara Gilliss, Lindsay Koren of BALTIMORE GMR, INC. t/a The Olive Garden Restaurant #1505 8245 Perry Hall Blvd. White Marsh, MD 21236. Application for change of Corporate Officers of Class BDR (on sale) Beer, Wine, Liquor Exception License from Colleen Lyons, Barbara Gilliss, Joseph Kern of Baltimore GMR, Inc. t/a The Olive Garden Italian Restaurant #1505.
(1:00 p.m.) (14)

Colleen Lyons, Barbara Gilliss, Lindsay Koren of BALTIMORE GMR, INC. t/a The Olive Garden Italian Restaurant #1891 6 Restaurant Park Dr. Owings Mills, MD 21117. Application for change of Corporate Officers of Class B (on sale) Beer, Wine, Liquor Exception License from Colleen Lyons, Barbara Gilliss, Joseph Kern of Baltimore GMR, Inc. t/a The Olive Garden Italian Restaurant.
(1:00 p.m.) (04)

HEARING UPON THE APPLICATION ABOVE WILL TAKE PLACE VIA WEBEX, DUE TO COVID-19 AND GOVERNOR HOGAN'S EXECUTIVE ORDER. ANYONE WISHI G TO ATTEND THE HEARING SHOULD DIAL I TO WEBEX NUMBER 1-415-655-0001 ACCESS CODE 732 237 119#
[illegible] ruary 1 [illegible]
PUBLISHER: The Baltimore Sun Newspaper
BOARD OF LIQUOR LICENSE COM ISSIONERS
FOR BAL MORE COUNTY
Susan Green, Chairwoman
Thomas Kaiser, Member
Jonathan Herbst, Member
1/14, 1/21/2021 6856579

MARYLAND HEALTH CARE COMMISSION
Subject: Formal Start of Review

Add'l Info: MARYLAND HEALTH CARE COMMISSION

The Maryland Health Care Commission (MHCC) hereby gives notice of docketing of the following application for Certificate of Need:

Hope Health System – Docket No. 20-03-2444
Establish a 16- bed psychiatric hospital specifically for children and adolescents. The facility will provide for four (4) single patient rooms to treat the child patient population and twelve (12) single patient rooms to treat the adolescent patient population. The inpatient facility would be established in a renovated portion of a building that HHS owns at 1726 Whitehead Road, Woodlawn, Baltimore County. The facility already includes an outpatient facility with a psychiatric partial hospitalization program (for children and adolescents below 18 years of age).
Proposed Cost: $4,500,000

MHCC shall review the applications under Maryland Health-General Code Annotated, Section 19-101 et seq., COMAR 10.24.01, and the applicable State Health Plan standards.
Any affected person may make a written request to the Commission to receive copies of relevant notices concerning the application(s). All further notices of proceedings on the application(s) will be sent only to affected persons who have registered as interested parties.

Persons desiring to become interested parties in the Commission's review of the above-referenced application(s) must meet the requirements of COMAR 10.24.01.01B(20) and (2) and must also submit written comments to the Commission no later than close of business March 1, 2021. These comments must state with particularity the State Health Plan standards or review criteria that you believe have not been met by the applicant(s) as stated in COMAR 10.24.01.08F.

Please refer to the Docket Number listed above in any correspondence on the application(s). Copies of the application are available for review in the office of MHCC during regular business hours by appointment. All correspondence should be addressed to:

Paul E. Parker, Director
Center for Health Care Facilities Planning & Development
Maryland Health Care Commission
4160 Patterson Avenue
Baltimore, Maryland 21215
1/14/2021 6861232

IN THE UNITED STATES BANKRUPTCY COURT FOR THE DISTRICT OF DELAWARE

In re: RGN-GROUP HOLDINGS, LLC, *et al.*,[1] Debtors.) Chapter 11) Case No. 20-11961 (BLS) (Jointly Administered)

NOTICE OF DEADLINES FOR THE FILING OF PROOFS OF CLAIM FOR RGN-BALTIMORE V, LLC, INCLUDING CLAIMS ARISING UNDER SECTION 503(B)(9) OF THE BANKRUPTCY CODE

THE CLAIMS BAR DATE IS FEBRUARY 11, 2021, AT 5:00 P.M. (EASTERN).
THE GOVERNMENTAL BAR DATE IS MAY 26, 2021, AT 5:00 P.M. (EASTERN).

PLEASE TAKE NOTICE OF THE FOLLOWING:

Deadlines for Filing Proofs of Claim. On November 16, 2020, the United States Bankruptcy Court for the District of Delaware (the "Court") entered an order [Docket No. 696] (the "Bar Date Order")[2] establishing certain dates by which parties holding prepetition claims against RGN-Group Holdings, LLC and certain of its affiliates and subsidiaries, as debtors and debtors in possession (collectively, the "Debtors") must file proofs of claim ("Proofs of Claim"), including claims by governmental units, claims arising under section 503(b)(9) of the Bankruptcy Code, Amended Schedules Claims, and Rejection Damages Claims in the chapter 11 case of the following debtor entity (the "Baltimore Debtor"):

DEBTOR	CASE NO.	PETITION DATE
RGN-Baltimore V, LLC	20-13022 BLS	[illegible]

The Bar Dates Pursuant to the Bar Date Order, ***all*** entities (except governmental units), including individuals, partnerships, corporations, joint ventures, estates, and trusts who have a claim or potential claim against the Baltimore Debtor, that arose prior to November 27, 2020 (the "Baltimore Petition Date"), no matter how remote or contingent such right to payment or equitable remedy may be, ***including*** claims arising under section 503(b)(9) of the Bankruptcy Code, MUST FILE A PROOF OF CLAIM on or before **February 11, 2021, 5:00 p.m., prevailing Eastern Time** (the "Claims Bar Date"). Governmental units who have a claim or potential claim against the Baltimore Debtor that arose prior to the Baltimore Petition Date, no matter how remote or contingent such right to payment or equitable remedy may be, MUST FILE A PROOF OF CLAIM on or before **May 26, 2021, 5:00 p.m., prevailing Eastern Time** (the "Governmental Bar Date").

Amended Schedules Bar Date. All parties asserting claims against the Baltimore Debtor's estate that are affected by an amendment or supplement to the Schedules are required to file Proofs of Claim by **the later of (I) the Claims Bar Date or the Governmental Bar Date, as applicable, and (II) 5:00 p.m., prevailing Eastern Time, on the date that is twenty-one days from the date on which the Baltimore Debtor provides notice of an amendment or supplement to the Schedules** (the "Amended Schedules Bar Date").

Rejection Damages Bar Date. All parties asserting claims against the Baltimore Debtor's estate arising from the Baltimore Debtor's rejection of an executory contract or unexpired lease must file a Proof of Claim by **the later of (a) the Claims Bar Date or the Governmental Bar Date, as applicable; and (b) 5:00 p.m., prevailing Eastern Time, on the date that is thirty-five days following service of an order approving the rejection of any executory contract or unexpired lease of the Baltimore Debtor** (the "Rejection Damages Bar Date").

ANY PERSON OR ENTITY WHO FAILS TO FILE A PROOF OF CLAIM, INCLUDING ANY REQUEST FOR PAYMENT UNDER SECTION 503(B)(9) OF THE BANKRUPTCY CODE, IN EACH CASE ON OR BEFORE THE APPLICABLE BAR DATE, SHALL NOT BE TREATED AS A CREDITOR WITH RESPECT TO SUCH CLAIM FOR THE PURPOSES OF VOTING AND DISTRIBUTION ON ANY CHAPTER 11 PLAN.

Filing a Proof of Claim. Each Proof of Claim must be filed, including supporting documentation, so as to be ***actually received*** by the Debtors' noticing and claims agent, Epiq Corporate Restructuring, LLC ("Epiq"), on or before the Claims Bar Date or the Governmental Bar Date (or, where applicable, on or before any other bar date as set forth herein) either: (i) electronically through the interface available at https://dm.epiq11.com/case/rgn or (ii) by First Class U.S. Mail, by overnight U.S. mail, or other hand delivery system at the following address: **If by First Class Mail: RGN Claims Processing Center, c/o Epiq Corporate Restructuring, LLC, P.O. Box 4420, Beaverton, OR 97076-4420; If by Hand Delivery or Overnight Mail: RGN Claims Processing Center, c/o Epiq Corporate Restructuring, LLC, 10300 SW Allen Blvd., Beaverton, OR 97005.**

PROOFS OF CLAIM SUBMITTED BY FACSIMILE OR ELECTRONIC MAIL WILL NOT BE ACCEPTED.

Additional Information. If you require additional information about the claims process, have any questions regarding the claims process and/or you wish to obtain a copy of the Bar Date Notice, a Proof of Claim Form or related documents you may do so by: (i) calling the Debtors' restructuring hotline at (877) 503-9054 (U.S./Canada), (503) 520-4478 (International); (ii) visiting the Debtors' restructuring website at: https://dm.epiq11.com/case/rgn and/or (iii) writing via hard copy to: RGN Claims Processing Center, c/o Epiq Corporate Restructuring, LLC, P.O. Box 4420, Beaverton, OR 97076-4420. ***Please note*** that Epiq ***cannot*** offer legal advice or advise whether you should file a Proof of Claim

Dated: January 14, 2021, Wilmington, Delaware

/s/ Ian J. Bambrick **FAEGRE DRINKER BIDDLE & REATH LLP,** Patrick A. Jackson (Del. Bar No. 4976), Ian J. Bambrick (Del. Bar No. 5455), 222 Delaware Avenue, Suite 1410, Wilmington, Delaware 19801, Tel.: (302) 467-4200, Fax: (302) 467-4201, Email: patrick.jackson@faegredrinker.com, ian.bambrick@faegredrinker.com -and- Mike T. Gustafson (admitted *pro hac vice*), 311 S. Wacker Drive, Suite 4300, Chicago, Illinois 60606, Tel.: (312) 212-6500, Fax: (312) 212-6501, Email: mike.gustafson@faegredrinker.com, *Co-Counsel to the Debtors and Debtors in Possession* -and- **KIRKLAND & ELLIS LLP, KIRKLAND & ELLIS INTERNATIONAL LLP,** Chad J. Husnick, P.C. (admitted *pro hac vice*), Joseph M. Graham (admitted *pro hac vice*), 300 North LaSalle Street, Chicago, Illinois 60654, Telephone: (312) 862-2000, Facsimile: (312) 862-2200, Email: chad.husnick@kirkland.com, joe.graham@kirkland.com -and- Edward O. Sassower, P.C., Patrick Venter (admitted *pro hac vice*), 601 Lexington Avenue, New York, New York 10022, Telephone: (212) 446-4800, Facsimile: (212) 446-4900, Email: esassower@kirkland.com, patrick.venter@kirkland.com, *Co-Counsel to the Debtors and Debtors in Possession*

[1] The mailing address for the Debtors in these chapter 11 cases is 3000 Kellway Drive, Suite 140, Carrollton, Texas 75006 (Attn: James S. Feltman, Responsible Officer). Due to the large number of Debtors in these chapter 11 cases, which are being jointly administered for procedural purposes only, a complete list of the Debtors is not provided herein. A complete list of the Debtors along with the last four digits of their tax identification numbers, where applicable, may be obtained on the website of the Debtors' noticing and claims agent at https://dm.epiq11.com/case/rgn or by contacting counsel for the Debtors (Rokeysha Ramos, paralegal, at rokeysha.ramos@faegredrinker.com).

[2] Capitalized terms used but not otherwise defined herein have the meanings ascribed to them in the Bar Date Order.

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AUCTIONS

Clayton Station

Bel Air Auto Auction, as agent of lienor, will sell at public auction the following vehicles under & by virtue of a lien pursuant to Md.Ann Code, Comm. Law Sec. 16-202 & 16-207 for repairs, storage and other lawful charges. Sale will be held at 1300 Business Center Way, Edgewood, MD 21040 on January 21, 2021 at 12:00pm. Purchaser of vehicle must have it inspected as provided in Md.Ann. Code Transp.Art Section 23-107. The following may be inspected during business hours at the auction location, 1300 Business Center Way Edgewood, MD 21040. Contact Bel Air Auto Auction at 410-893-5200.

W/O#	YEAR MAKE	MODEL	VIN
9766753	2012 TOYOTA	CAMRY	4T1BF1FK0CU150849
9766752	2007 NISSIAN	350Z	JN1BZ34D87M506369
9768548	2000 HYUNDAI	ELANTRA	KMHJF35F2YU945601
9768547	2010 TOYOTA	PRIUS	JTDKN3DUXA0223107
9768554	2009 TOYOTA	MATRIX	2T1KE40E19C003263
9770008	2001 TOYOTA	AVALON	4T1BF28B81U177104
9768540	2003 TOYOTA	PRIUS	JT2BK18U130076355
9768530	2008 VOLKSWAGEN	BEETLE	3VWPG31C58M508541
9768529	2001 VOLKSWAGEN	BEETLE	3VWDD21C71M456835
9768555	1999 TOYOTA	SIENNA	4T3ZF19CXXU153964
1578185	2017 HYUNDAI	ELANTRA	5NPD84LF3HH105325
1578566	2010 VOLKSWAGEN	CC	WVWNP7ANXAE562125
1578568	2002 VOLKSWAGEN	PASSAT	WVWRH63B12P178493
1578572	2009 AUDI	A4	WAUSF78K79N038196
1578192	2013 HYUNDIA	SONATA	KMHEC4A40DA067912
1578578	2013 DODGE	DART	1C3CDFCHXDD247504
1578582	2003 CHRYSLER	TOWN COUNTRY	2C8GP54L73R308478
1578583	2011 DODGE	CALIBER	1B3CB3HA8BD123595
1578588	2010 CHEVROLET	MALIBU	1G1ZC5EB3AF288500
1578591	2009 VOLKSWAGEN	GTI	WVWFD71K79W018853
1578594	2000 VOLKSWAGEN	PASSAT	WVWMD23B1YE182479
1578602	2010 HONDA	ODESSEY .	5FNRL3H94AB093000
1578604	2006 SUBARU	B9 TRIBECA	4S4WX82C464429120
1578200	2013 HYUNDAI	SONATA	5NPET46C77H230072
1578700	2010 DODGE	CHARGER	23BCA3CV9AH257255
1578533	2004 TOYOTA	SIENNA	5TDBA22C44S010932
1578537	2011 HYUNDAI	SONOTA	5NPEB4AC6BH307274
1578207	2012 HYUNDAI	SONATA	5NPEB4ACXCH427662
1578539	2006 MERCEDES BENZ	S430	WDBNG83J56A474032
1578211	2008 MERCEDES BENZ	E350	WDBUF87X98B345446
1578215	[illegible] MERCEDES BENZ	[illegible]	[illegible]71X77A001695

Owner may redeem vehicle up until time of auction with no entry or auction fee
Terms of Sale: Cash or Cashier Check. Lienor reserves the right to bid. Any parties claiming interest in the above may contact Bel Air Auto Auction at 410-893-5200. Our Fax # 410-676-6296.

CEMETERY LOTS

2 SIDE BY SIDE CEMETERY LOTS Loudon Park Cemetery. 1/2 Price. $3,000 OBO. 410-303-8357

3 CEMETERY PLOTS
Gardens Of Faith Cemetery.
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MISCELLANEOUS

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APG Media of Chesapeake, LLC
P.O. Box 600
29088 Airpark Drive
Easton, MD 21601

03/01/21
2932383

CERTIFICATE OF PUBLICATION

STATE OF : MARYLAND
COUNTY OF: Baltimore County

This is to certify that the annexed legal advertisement has been published in the publications and insertions listed below. "Project MTN - Public Notice Jan. 26th..." **was published in the:**

The Avenue News	**01/14/21**
The Dundalk Eagle	**01/14/21**

James F. Normandin
President & Publisher

PUBLIC NOTICE
Maryland Department of Transportation
Maryland Aviation Administration

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Registration information is available at https://maacommunityrelations.com/.

The purpose of the Public Workshop and Public Hearing is to afford all interested persons the opportunity to learn, ask questions, and comment on the ANZ. The MTN ANZ will be incorporated by reference into the Code of Maryland Regulations (COMAR).

The Public Workshop will begin with a twenty-five-minute presentation, followed by a thirty-minute
Questions and Answers session. The presentation presents the contour maps depicting the current and proposed boundaries of the MTN ANZ. It also provides an overview of the ANZ update process. Representatives of MDOT MAA will be available to answer questions and discuss points of interest during the Questions and Answers session.

Following the Public Workshop, the Public Hearing will begin promptly at 7:00 p.m. During this time, formal comments from the public will be recorded before a hearing officer. Formal comments will begin at 7:00 p.m. and will be accepted until 8:00 p.m. To register in advance to present formal comments at the Public Hearing, please contact Mr. Bruce Rineer, Manager, Noise Section at BRineer@bwiairport.com or 410-859-7813. Elected officials and community leaders will be given the opportunity to speak before members of the public. On the evening of the virtual Public Hearing, individuals who desire to comment can also sign-up via the virtual platform. They will follow the speakers on the previously established list. Each individual will be allocated two minutes to make a comment. Written statements, in lieu of or in addition to an oral comment at the hearing, may be submitted to Mr. Bruce Rineer at BRineer@bwiairport.com until 5:00 p.m. on February 14, 2021.

The public MTN ANZ document is available on the MDOT MAA Community Relations website:
https://maacommunityrelations.com/. In the event that a member of the public is unable to access the document online, requests for accommodation may be submitted to Mr. Bruce Rineer at BRineer@bwiairport.com.

Notice on ADA compliance:
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Notice on Limited English Proficiency Compliance:
Anyone planning to attend the Public Workshop and/or Public Hearing and is limited in their ability to speak or understand English and wishes to receive translation services is invited to contact Mr. Bruce Rineer at BRineer@bwiairport.com at least 48 hours in advance of the meeting.

2932383 AVE/DE 1/14/2021

PUBLIC NOTICES

BALTIMORE COUNTY BOARD OF
LIQUOR LICENSE COMMISSIONERS
TOWSON, MARYLAND 21204
410-887-3191 FAX 410-887-3970

NOTICE IS HEREBY GIVEN THAT THE FOLLOWING PERSONS HAVE FILED APPLICATION TO SELL BEER, WINE AND/OR LIQUOR AT THE LOCATION STATED:

Sonia Saini of **A & A 1126, INC.** t/a Club Baltimore 8014 Pulaski Hwy. Baltimore, MD 21237. Application for transfer of Class D (on sale) Beer, Wine, Liquor License from Jagpreet Singh of 8014 Pulaski, Inc. t/a Club Baltimore.
(1:00 p.m.) (15)

Colleen Lyons, Richard Watson, Lindsay Koren of **RARE BEVERAGES OF BALTIMORE COUNTY, LLC** t/a Longhorn Steakhouse 8655 Pulaski Hwy. Baltimore, MD 21237. Application for change of Corporate Officers of Class B (on sale) Beer, Wine, Liquor License from Richard Watson, Joseph Kern, Colleen Lyons of Rare Beverages of Baltimore County, LLC t/a Longhorn Steakhouse.
(1:00 p.m.) (15)

HEARING UPON THE APPLICATION ABOVE WILL TAKE PLACE VIA WEBEX, DUE TO COVID-19 AND GOVERNOR HOGAN'S EXECUTIVE ORDER. ANYONE WISHING TO ATTEND THE HEARING SHOULD DIAL IN TO WEBEX NUMBER 1-415-655-0001 ACCESS CODE 732 237 119#

MONDAY: February 01, 2021

PUBLISHER: Avenue Newspaper

BOARD OF LIQUOR LICENSE COMMISSIONERS
FOR BALTIMORE COUNTY

Susan Green, Chairwoman
Thomas Kaiser, Member
Jonathan Herbst, Member

2932033 AVE/DE 1/14,1/21/2021

BOOK TODAY!

STATE OF SOUTH CAROLINA IN THE FAMILY COURT OF THE THIRTEENTH JUDICIAL CIRCUIT COUNTY OF GREENVILLE
DOCKET NO.: 2020-DR-23-3322
NOTICE OF ADOPTION PROCEEDINGS TO THE DEFENDANT:
"ALEXANDER" JOHN DOE, BIRTH FATHER AND JOHN DOE BIRTH FATHER
YOU ARE HEREBY GIVEN THE FOLLOWING NOTICE:

1. That an adoption proceeding was filed in the Family Court of Greenville County on October 6, 2020, and in this Complaint you, "Alexander" John Doe, are alleged to be the biological father of a Hispanic, female child born in Baltimore, Maryland, on November 13, 2020; and you, John Doe, are alleged to be the father of a Hispanic, female child born in Baltimore, Maryland, on November 13, 2020.
2. That the Plaintiffs in the above captioned Notice are not named for the purpose of confidentiality; however, the Court knows the true identity of the Plaintiffs and in responding to this notice, you are required to use the caption and the number 2020-DR-23-3322.
3. That if Notice to Contest, Intervene or otherwise Respond is filed by you with the Court within thirty (30) days of the receipt of this Notice of Adoption Proceedings, you will be given an opportunity to appear and be heard on the merits of the adoption. To file notice to Contest, Intervene or otherwise Respond in this action, you must notify the above named Court at Greenville County Courthouse, Clerk of Court Greenville County Family Court, 301 University Ridge, Greenville, South Carolina, 29601 in writing of your intention to Contest, Intervene or otherwise Respond. The above named Court must be informed of your current address and any changes of your address during the adoption proceedings.
4. That your failure to respond within thirty (30) days of receipt of this Notice of Adoption Proceedings constitutes your consent to the adoption and forfeiture of all of your rights and obligations to the above identified child. It is further alleged that your consent to this adoption is not required under S.C. Code Ann. Section 63-9-310 and that your parental rights should be terminated pursuant to S.C. Code Ann. Section 63-7-2570 (7).This notice is given pursuant to S.C. Code Ann. Section 63-9-730 (E).

Raymond W. Godwin, Esq. (SC Bar #2162)
P.O. Box 354
Greenville, SC 29602
PH (864) 241-2883
FAX: (864) 255-4342
ATTORNEY FOR PLAINTIFFS
Date: December 14, 2020

2930870 AVE/DDE 12/31/2020,01/07,01/14/2021

PUBLIC NOTICE
Maryland Department of Transportation
Maryland Aviation Administration

The Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA) will conduct a Public Workshop and Public Hearing pursuant to the Annotated Code of Maryland Transportation Article Section 5-806 (b) on the Proposed Airport Noise Zone (ANZ) for Martin State Airport (MTN).

Tuesday, January 26, 2021
6:00 pm – Public Workshop
7:00 pm – Public Hearing

Location:
Due to the ongoing COVID-19 pandemic, the Public Workshop and Public Hearing will be held virtually via the GotoWebinar platform.
Registration information is available at https://maacommunityrelations.com/.

The purpose of the Public Workshop and Public Hearing is to afford all interested persons the opportunity to learn, ask questions, and comment on the ANZ. The MTN ANZ will be incorporated by reference into the Code of Maryland Regulations (COMAR).

The Public Workshop will begin with a twenty-five-minute presentation, followed by a thirty-minute
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Following the Public Workshop, the Public Hearing will begin promptly at 7:00 p.m. During this time, formal comments from the public will be recorded before a hearing officer. Formal comments will begin at 7:00 p.m. and will be accepted until 8:00 p.m. To register in advance to present formal comments at the Public Hearing, please contact Mr. Bruce Rineer, Manager, Noise Section at BRineer@bwiairport.com or 410-859-7813. Elected officials and community leaders will be given the opportunity to speak before members of the public. On the evening of the virtual Public Hearing, individuals who desire to comment can also sign-up via the virtual platform. They will follow the speakers on the previously established list. Each individual will be allocated two minutes to make a comment. Written statements, in lieu of or in addition to an oral comment at the hearing, may be submitted to Mr. Bruce Rineer at BRineer@bwiairport.com until 5:00 p.m. on February 14, 2021.

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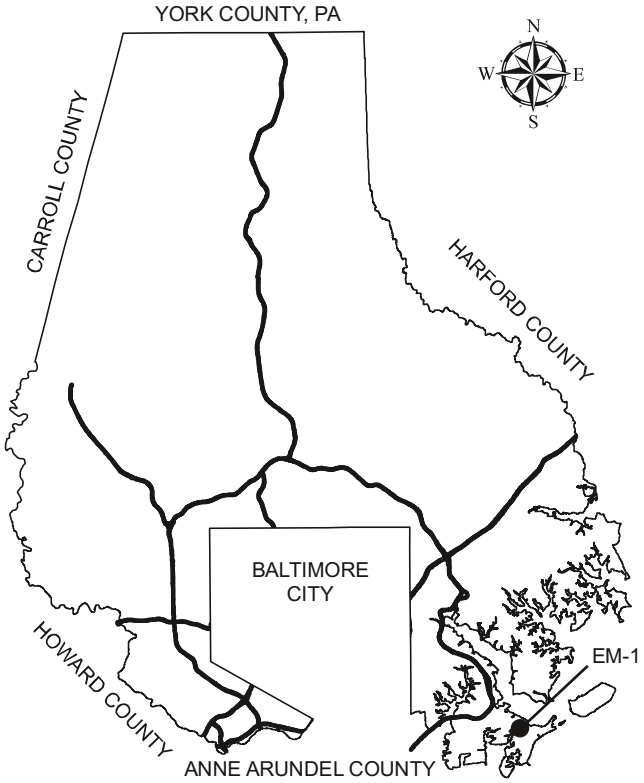
2932383 AVE/DE 1/14/2021

PUBLIC NOTICE

BALTIMORE COUNTY, MARYLAND WATER SUPPLY AND SEWERAGE PLAN
AMENDMENT CYCLE EM-1 2020



A VIRTUAL PUBLIC HEARING VIA WEBEX WILL BE HELD BY THE BALTIMORE COUNTY PLANNING BOARD AT 4:30 PM ON FEBRUARY 4, 2021 ON THE FOLLOWING NINE ISSUES COMPRISING AMENDMENT CYCLE EM-1 (2020) OF THE BALTIMORE COUNTY WATER SUPPLY & SEWERAGE PLAN. CALL-IN INFORMATION WILL BE AVAILABLE ON THE PLANNING BOARD WEBSITE AT: https://www.baltimorecountymd.gov/boards-commissions/planning/planning-board WRITTEN TESTIMONY WILL ALSO BE ACCEPTED IN LIEU OF VIRTUALLY ATTENDING THE MEETING AND MAY BE SENT TO CHRIS DAVIS AT: CDAVIS1@BALTIMORECOUNTYMD.GOV THE STAFF REPORT WILL BE AVAILABLE ON THE BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS WEBSITE IN JANUARY 2021 AT:
https://www.baltimorecountymd.gov/departments/publicworks/masterplan.html

8100, 8102, 8106/8108, 8210, AND 8214 NORTH POINT ROAD
PARCEL 60 AND PARCEL 334 NORTH POINT ROAD
8208 MILLERS ISLAND ROAD
2901 BAUERS FARM ROAD

2931014 DDE 01/07,01/14/2021

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Maryland Aviation Administration

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2932383 AVE/DE 1/14/2021

BALTIMORE COUNTY BOARD OF
LIQUOR LICENSE COMMISSIONERS
TOWSON, MARYLAND 21204
410-887-3191 FAX 410-887-3970

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MONDAY: February 01, 2021

PUBLISHER: Avenue Newspaper

BOARD OF LIQUOR LICENSE COMMISSIONERS
FOR BALTIMORE COUNTY

Susan Green, Chairwoman
Thomas Kaiser, Member
Jonathan Herbst, Member

2932033 AVE/DE 1/14,1/21/2021

We are proud to serve as your community newspaper of record

For more information contact your Legal Advertising Team

410-770-4080 • Monday - Friday, 8:30 a.m. to 4:00 p.m.
legals@chespub.com

PUBLIC AUCTION

Notification of the following owner(s) of properties stored at the Golden Ring Mini Storage Associates, LLP 8821 Philadelphia Rd, Baltimore, MD 21237. Your property will be sold at public auction on FEBRUARY 25, 2021 at 1:00 PM on the premises for delinquent rent and storage charges.

Devante Smith E-044
Hope Seidl H-055

Viola Sanders,
Property Manager

2932109 DE 1/14/2021

MTN Distribution list for notice of public workshop/hearing
Jan-21

MTN County Executives/Planning					
	Title	**Address**	**Address**	**Email**	**Attachment**
The Honorable John Olszewski, Jr.	Baltimore County Executive	400 Washington Avenue	Towson, MD 21204	johnnyo@baltimorecountymd.gov	Executive Summary
W. Carl Richards Jr.	Supervisor, Zoning Review,	County Office Building 111 West Chesapeake Avenue, Room 124	Towson, Maryland 21204	paizoning@baltimorecountymd.gov	Executive Summary

MTN Elected Officials							
County	**District**	**Title**	**Honorable**	**Name**	**Address1**	**Address 2**	**City State Zip**
United States	2nd Congressional District	Senator	Honorable	Benjamin Cardin	100 South Charles Street, Tower 1, Suite 1710		Baltimore, MD 21201
United States	2nd Congressional District	Senator	Honorable	Chris Van Hollen Jr.	60 West St., Suite 107		Annapolis, MD 21401
United States	2nd Congressional District	Representative	Honorable	A. Dutch Ruppersberger	375 W. Podonia Road, Suite 200		Timonium, MD 21093
Harford/Baltimore	District 7	Delegate	Honorable	RICHARD K. IMPALLARIA	House Office Building, Room 411	6 Bladen St.	Annapolis, MD 21401
Harford/Baltimore	District 7	Delegate	Honorable	LAUREN C. ARIKAN	House Office Building, Room 324	6 Bladen St.,	Annapolis, MD 21401
Harford/Baltimore	District 7	Delegate	Honorable	KATHY SZELIGA	House Office Building, Room 212	6 Bladen St.	Annapolis, MD 21401
Harford/Baltimore	District 7	Senator	Honorable	J. B. JENNINGS	James Senate Office Building, Room 423	11 Bladen St.	Annapolis, MD 21401
Baltimore	District 6	Delegate	Honorable	ROBIN L. GRAMMER, JR.	House Office Building, Room 307	6 Bladen St.	Annapolis, MD 21401
Baltimore	District 6	Delegate	Honorable	ROBERT B. (BOB) LONG	House Office Building, Room 325	6 Bladen St.	Annapolis, MD 21401
Baltimore	District 6	Delegate	Honorable	RICHARD W. METZGAR	House Office Building, Room 413	6 Bladen St.	Annapolis, MD 21401
Baltimore	District 6	Senator	Honorable	JOHNNY RAY SALLING	James Senate Office Building, Room 321	11 Bladen St.	Annapolis, MD 21401
Baltimore County	County Council	Councilmember	Honorable	Julian E. Jones, Jr.	Chair	400 Washington Avenue	Towson, MD 21204

MTN Stakeholder Advisory Committee					
NAME	CITY	STATE	ZIP	ORGANIZATION	TITLE
Al Pollard				MDOT MAA - Martin State Airport Operations and Maintenance	Chief of Operations and Maintenance
Brig. Gen. Ed Jones	Baltimore	MD	21220	Maryland Air National Guard	Brigadier General
Brig. Gen. Paul Johnson	Baltimore	MD	21220	Maryland Air National Guard	Brigadier General
Bruce Rineer				MDOT MAA - Noise Program	Manager, Noise Section
Captain Keith McMinn	Baltimore	MD	21220	Maryland State Police - Aviation Command	
Chris Roussey	Baltimore	MD	21220	Baltimore County Police Department - Aviation Unit	
Cory Grochowski				Baltimore City Police Department - Aviation Unit	
Darline Terrell-Tyson				MDOT MAA - Office of Environmental Services	Deputy Director of Environmental Services
Doug Zeisel	Middle River	MD	21220	Wilson Point Civic Improvement Association	
Glenn DiSabatino				MDOT MAA - Martin State Airport	Director of Operations
Jane Toskes	Baltimore	MD	21220	AMAV, Inc.	

Joseph Fraker	Towson	MD	21204	Baltimore County Department of Planning	Community Planner
Joseph Ireton	Baltimore	MD	21220	Maryland State Police - Aviation Command	Aviation Safety Officer
Joseph M. Toskes	Baltimore	MD	21220	AMAV, Inc.	Chief Pilot
Judith Davies	Rosedale	MD	21237	Nottingham Improvement Association	
Karen Harrell				MDOT MAA - Noise Program	Administrative Coordinator
Kevin Clarke				MDOT MAA - Division of Planning and Engineering	Director of Planning
Kevin Walsh	Baltimore	MD	21220	Middle River Aviation, LLC	President
Krystle Patchak	Towson	MD	21204	Baltimore County Department of Planning	Planner
Lynn Lanham	Middle River	MD	21220	Wilson Point Civic Improvement Association	
Major Michael Tagliaferri	Baltimore	MD	21220	Maryland State Police - Aviation Command	Commander
Marsha Ayres	Baltimore	MD	21220	Bowley's Quarters Improvement Association	
Michael Deruggiero	Baltimore	MD	21220	Maryland State Police - Aviation Command	Chief Pilot
Nikolaus Wagenfeiler	Baltimore	MD	21220	Midwest Air Traffic Control	
Paige Kroner	Washington	DC	20005	The National Business Aviation Association	
Paul Allen Paul Jr.	Chase	MD	21027	Bowley's Quarters Community Association	President
Paul L. Shank				MDOT MAA - Division of Planning and Engineering	Chief, Division of Planning & Engineering
Robert Bendler	Baltimore	MD	21220	Essex Middle River Civic Council	President
Robin Bowie				MDOT MAA - Office of Environmental Services	Director of Environmental Services
Rocky Jones	Baltimore	MD	21220	Essex Middle River Civic Council	
Ron Walper	Chase	MD	21027	Bowley's Quarters Community Association	
Royce Bassarab				MDOT MAA - Noise Program	Noise Program SME
Ryan Agan				MDOT MAA - Martin State Airport Operations and Maintenance	
Sgt. Brandon Branham	Baltimore	MD	21220	Baltimore County Police Department - Aviation Unit	
Shawn Ames				MDOT MAA - Division of Planning and Engineering	Deputy Director of Planning

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION

Larry Hogan
Governor
Boyd K. Rutherford
Lt. Governor
Gregory Slater
Secretary
Ricky D. Smith, Sr.
Executive Director

January 14, 2021

The Honorable Richard K. Impallaria
House Office Building, Room 411
6 Bladen St.
Annapolis, MD 21401

Dear Delegate Impallaria:

The Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA) is in the process of updating the Airport Noise Zone (ANZ) and Noise Abatement Plan (NAP) for Martin State Airport (MTN). We would like to advise you that MDOT MAA will conduct a Public Workshop and Public Hearing pursuant to the Annotated Code of Maryland Transportation Article Section 5-806(b) on the proposed ANZ.

The purpose of the Public Workshop and Public Hearing is to afford all interested persons the opportunity to learn, ask questions, and comment on the ANZ. The proposed MTN ANZ is scheduled to be incorporated by reference into the Code of Maryland Regulations (COMAR) and will then be used to control incompatible land development.

The Public Workshop and Public Hearing on the MTN ANZ is scheduled for January 26, from 6:00 p.m. to 8:00 p.m. The Public Workshop will begin with a brief presentation, followed by a Questions and Answers session. The presentation will present the contour maps depicting the current and proposed boundaries of the ANZ, and will include an overview of the ANZ update process. Representatives of MDOT MAA will be available to answer questions and discuss points of interest during the Questions and Answers session. Following the Public Workshop, the Public Hearing will begin promptly at 7:00 p.m. During this time, formal comments from the public will be recorded before a hearing officer. Information about registration for the Public Workshop and Public Hearing, in addition to the ANZ study, is available at www.maacommunityrelations.com.

If you have any questions, comments or concerns, please feel free to contact Mr. Bruce Rineer, Manager, Noise Section at BRineer@bwiairport.com or 410-859-7813. Mr. Rineer will be happy to assist you.

Sincerely,

Ricky D. Smith, Sr.

Ricky D. Smith, Sr.
Executive Director

PO Box 8766, BWI Airport, Maryland 21240-0766 | 410.859.7100 | 800.435.9294 | Maryland Relay TTY 410.859.7727 | marylandaviation.com

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION

Larry Hogan
Governor
Boyd K. Rutherford
Lt. Governor
Gregory Slater
Secretary
Ricky D. Smith, Sr.
Executive Director

January 14, 2021

The Honorable John Olszewski, Jr.
Baltimore County Executive
400 Washington Avenue
Towson, MD 21204

Dear County Executive Olszewski:

The Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA) has begun the process of updating the Airport Noise Zone (ANZ) and Noise Abatement Plan (NAP) for Martin State Airport (MTN). In an effort to keep Baltimore County advised of this on-going process, the Baltimore County Department of Planning was invited to participate in our Stakeholder Advisory Committee (SAC), which convened on September 12, 2019 and January 14, 2020, to solicit input, review materials, and provide a means to disseminate study findings. Mr. Joseph Fraker, Community Planner with the Department of Planning, attended both meetings. The Maryland Aviation Commission has given its approval to move forward with the certification process.

The ANZ contour is determined by a composite of three Day/Night Average Sound Level (DNL) contours: a base year contour, a 5-year post certification forecast contour (2025), and a 10-year post certification forecast contour (2030). The largest of the three contours in any area around the Airport determines the Noise Zone. The 2020 ANZ is shown on the attached Executive Summary. The 2020 ANZ contains 411 acres, a 4% increase from the previous ANZ. This increase is attributed in part to increased operations and the future condition of the runway layout for Runway 15/33, which may reconfigure each end of the existing runway for civilian aircraft.

Code of Maryland Regulation (COMAR) Section 5-805(c)(2), states "Before the Executive Director approves any assessment or plan, the Executive Director shall furnish it to the chief executive officer and the zoning board of any affected political subdivision and give them an opportunity to comment." The Executive Summary for the 2020 MTN ANZ is enclosed for your review and comments. The full 2020 MTN ANZ is available for download at: www.maacommunityrelations.com/content/anznoiseupdate/mtnanz.php. MDOT MAA will also hold a public workshop and hearing on the MTN ANZ on January 26 from 6:00pm to 8:00pm. Registration for the workshop and hearing can also be found on the Community Relations website.

PO Box 8766, BWI Airport, Maryland 21240-0766 | 410.859.7100 | 800.435.9294 | Maryland Relay TTY 410.859.7727 | marylandaviation.com

Your comments are requested by February 14. Once you have had an opportunity to review the information, you or your staff should feel free to contact Mr. Bruce Rineer, Manager, Noise Section at BRineer@bwiairport.com or 410-859-7813, with any questions or comments you may have. Of course, you should not hesitate to contact me directly if you have any concerns.

Sincerely,

Ricky D. Smith, Sr.

Ricky D. Smith, Sr.
Executive Director

Attachment

cc: Mr. W. Carl Richards Jr., Supervisor, Zoning Review
Mr. Joseph Fraker, Community Planner, Baltimore County Department of Planning
Ms. Darline Terrell-Tyson, Acting Director, Office of Environmental Services, MDOT MAA
Mr. Al Pollard, Chief, Division of MTN Operations & Maintenance, Martin State Airport

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January 14, 2021

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Supervisor, Zoning Review
Baltimore County
111 West Chesapeake Avenue, Room 124
Towson, Maryland 21204

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cc: The Honorable John Olszewski, Jr., Baltimore County Executive
Mr. Joseph Fraker, Community Planner, Baltimore County Department of Planning
Ms. Darline Terrell-Tyson, Acting Director, Office of Environmental Services, MDOT MAA
Mr. Al Pollard, Chief, Division of MTN Operations & Maintenance, Martin State Airport

Malcolm Mossman

From: Malcolm Mossman
Sent: Thursday, January 14, 2021 4:08 PM
To: [redacted]
Subject: Martin State (MTN) ANZ Update Public Workshop

Dear [redacted],

This e-mail serves as an invitation from the Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA) to attend the public hearing and public workshop for the Martin State Airport (MTN) Airport Noise Zone (ANZ) update. As a member of the SAC, you provided vital input during the MTN ANZ update process. Now, MDOT MAA would like to provide you and your colleagues an opportunity to review the draft document.

Due to the ongoing COVID-19 pandemic, the MTN ANZ update public workshop and public hearing will be held virtually on **Tuesday, January 26. The public workshop portion will begin promptly at 6:00 p.m. and the public hearing will follow at 7:00 p.m.**

The purpose of the public workshop and public hearing is to afford all interested persons the opportunity to learn, ask questions, and comment on the ANZ. The public workshop will begin with a brief presentation, followed by a Questions and Answers session. The presentation presents the contour maps depicting the current and proposed boundaries of the MTN ANZ. It also provides an overview of the ANZ update process. Representatives of MDOT MAA will be available to answer questions and discuss points of interest during the Questions and Answers component of the public workshop. The public hearing is one method to provide official public comment on the document. Written statements, in lieu of or in addition to an oral comment at the hearing, may be submitted to Mr. Bruce Rineer at BRineer@bwiairport.com until 5:00 p.m. on February 14.

The MTN ANZ update document, along with supplemental materials and registration information concerning the public workshop and public hearing are available at the MAA Community Relations website: https://maacommunityrelations.com/. Please share registration information with others who would be interested in attending. Meeting details are below:

Date: Tuesday, January 26
Time:
6:00 pm – Public Workshop
7:00 pm – Public Hearing

If you have any questions about the meeting or need technical support, please contact Tim Cooke at 443-603-3730 or via email at timc@assedollc.com.
If you have any questions or comments about the project prior to the January 26 meeting, please contact Bruce Rineer at BRineer@bwiairport.com. We look forward to everyone's participation. In the meantime, please continue to keep you and your family safe.

Regards,
Malcolm Mossman

Malcolm Mossman, AICP
Planner II/Outreach Specialist
Assedo Consulting, LLC

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To: MDOT MAA
From: HMMH/Assedo Consulting
Date: January 8, 2021
Updated: January 19, 2021
Re: COVID-19 Library Operating Status

Prepared by Tim Cooke, Assedo Consulting

Executive Summary:

Due to the on-going global pandemic, libraires in Baltimore City, Baltimore County, Harford County, Howard County, and Anne Arundel County are operating with curb side only pickup. The libraries are currently not open to the public.

Curb side pickup at libraires listed in this table is similar to what other restaurants and stores have implemented during COVID-19. The customer reserves the book(s) online and a staff member takes the book(s) out to the customer's car.

At most libraries, only books with an International Standard Book Number (ISBN) number can be checked out (pre-COVID and during COVID-19). Magazines, daily newspapers, and other reference books are not available for curbside pickup.

The ANZ document does not have an ISBN number and thus cannot be checked out. If libraires were fully opened, customers would be able to read the ANZ document at the library but would not be able to check it out.

Anne Arundel County libraries were scheduled to open at 25% capacity on Tuesday, January 19th but remain closed. After a discussion on January 19th, they notified us that this re-opening has been pushed to February 1st. If they do re-open, they have told us that they are able to house copies of the ANZ.

All other counties are curb side only through at least February 1, 2021.

Library System	Call Notes	Additional Web Research Information
Anne Arundel County Library (Linthicum, Severn, Brooklyn Park, Riviera Beach, Glen Burnie Regional, Severna Park)	• 12/15/2020: Called General Administrative line for Anne Arundel County Library System @ (410) 222-7371. Spoke with an operator who confirmed all branches are closed for in-person visits. There is nothing online to hope public documents as far as the operator knew, but thinks that documents can be made available to the public despite the facilities being closed. Transferred to Catherine Hollerbach, Chief of Public Services and Branch Management at Anne Arundel County Public Library. Left voicemail inquiring about the availability of public documents during current facility closure, and requested call back. • 12/18/2020: Called General Administrative line for Anne Arundel County Library System @ (410) 222-7371. Spoke with an operator and explained that I was following up on previous call regarding public documents, and that I had not gotten a call back from Catherine Hollerbach. The operator stated she would send an email to Ms. Hollerbach to request a call back to me. The operator also transferred me to Head of PR, Christine Feldman, who she stated would likely have information public documents. No answer, left voicemail inquiring about the availability of public documents during current facility closure, and requested call back. • 12/18/2020: Received call back from Christine Feldmann @ (410) 222-2523. She explained that Anne Arundel libraries did have an arrangement this year for a County Development Plan public document that was made available through appointments for visitors.	Branches CLOSED, curbside ONLY, through 2/1

	Appointments are for any visitor of the library to check out books, use computers, etc. and could be used to view public documents. Appointments will become available again starting January 19, 2021 at all 16 Anne Arundel library branches and can be scheduled by calling the branch you would like to visit. Reopening of appointments could be pushed back if the COVID situation worsens. To make BWI docs available, we can email her: cfeldmann@aacpl.net. • 01/19/2021: Spoke with Mrs. Feldmann regarding 25% capacity/appointments in the library re-opening. That has been pushed to January 31st at the earliest.	
Howard County Library (East Columbia, Central, Elkridge, Miller, Savage)	• 12/15/2020: Spoke with Lewis Belfont, Chief Operating Officer of Public Services for Howard County Library System @ (410) 222-7371. He confirmed all branches are closed for in-person visits. Public documents for viewing cannot be accommodated currently. He thinks that take-home documents could be distributed by branches. He also stated there is no way to accommodate the public documents online at this time. • 01/04/2021: Re-confirmed that Howard County libraries can not accommodate the document for curb side delivery.	Branches completely CLOSED due to COVID-19 outbreak at in the Howard County Library system. No-reopening time given.
Baltimore County Library (Arbutus, Essex, North Point)	• 12/15/2020: Called General Administrative line for Baltimore County Library System @ (410) 887-6100. Chose option to speak with Director's Office. No answer, left voicemail inquiring about the availability of public documents during current facility closure, and requested call back. • 12/18/2020: Called General Administrative line for Baltimore County Library System @ (410) 887-6100. Chose option to speak with	Branches CLOSED. (through New Year); curb side resumes 1/2

Baltimore City	Director's Office. No answer, left voicemail inquiring about the availability of public documents during current facility closure, and requested call back. • 12/18/2020: Called Towson Branch of Baltimore County Library System @ @ (410) 887-6166. Spoke with library branch staff who were not familiar with any protocols for public documents at this time. Recommended contacting the library system's dept. of PR/Marketing for more information. • 12/18/2020: Called Baltimore County Library Dept. of PR/Marketing @ (410) 887-6196. No answer, left voicemail inquiring about the availability of public documents during current facility closure, and requested call back. • 01/04/2021: Called and left messages with all contacts from December to re-confirm that Baltimore County libraries can not accommodate the document for curb side delivery. • 12/17/2020 Automated message via Baltimore City Public Libraries 311 service. Message left, no call back • 01/05/2021 Automated message via 311 system. Message left again with no response	Branches CLOSED, curbside ONLY, through 2/1
Harford County	• 12/18/2020 Automated message via Harford County Public Libraries Communications. Message left, no call back • 01/05/2021: Called and left messages with all contacts from December to re-confirm that Harford County libraries can not accommodate the document for curb side delivery.	Branches CLOSED, curbside ONLY, through 2/1

Attendee Report
Martin State Airport - Airport Noise Zone Update Public Workshop & Hearing

Webinar ID	Actual Start Date/Time	Duration
660-947-043	01/26/2021 05:04 PM EST	2 hours 57 minutes

Last Name	First Name	Zip/Postal Code	Organization
Ayres	Marsha	21220	Bowleys Quarters Improvement Assn.
Bassarab	Royce	21090	MDOT MAA
Branham	Brandon (Sgt)	21220	Baltimore County Police Department Aviation Team
Davies	Judy	21237	Nottingham Improvement Association
Girard	Brent	20850	U.S. Senator Chris Van Hollen
Hillman	Jessie	21204	Baltimore County Dept of Planning
Hughes	Kimberly	22301-2750	HNTB
Ireton	Joseph	21220	Maryland State Police Aviation Command
Jones	William	21221	Essex Middle River Civic Council
Metzgar	Delegate Ric	21401	House of Delegates
Perla	Lisa	21220	
Pinegar	Caroline	22206	HNTB
Thomas	Ronda	21228	
Wagenfeiler	Nikolaus	21078	MidwestATC
Beidle	Pamela	21401	Maryland State Senate
Gartner	Bruce	21043	Howard County Administration
Girard	Brent	20850	U.S. Senator Chris Van Hollen
Jung	Deb	21044	
Lynch	Timothy	21220	
Thomas	Ronda	21228	

Martin State Airport (MTN)
Airport Noise Zone (ANZ) Update
Public Workshop & Hearing

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION

Virtual Public Workshop Plan & Procedures

Tonight's virtual public workshop will operate similarly to an in-person meeting, and will **be recorded**.

Public Workshop Procedures:

- The workshop will begin with a brief presentation followed by an opportunity for attendees to ask MDOT MAA questions about the study.
- To ask a question:
  - Use the "Raised Hand" feature on the screen and an administrator will unmute your microphone, or
  - You can ask (type) the question in the chat box
- We will take questions this evening until 6:55 p.m.
- If you experience technical difficulties:
  - Please let us know in the chat box
  - Log off, and log back in
  - We recommend having only one web browser open for the duration of the meeting, and to close all other programs on your computer, if possible.

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Agenda

- MDOT MAA Introduction
- Public Workshop
  - Presentation
  - Q&A
- Break
- Public Hearing (7PM-8PM)

3

Maryland Airport Noise Zone (ANZ) Regulations

- Maryland Environmental Noise Act of 1974
  - Intended to minimize aircraft noise impacts and prevent incompatible land development around airports
- Code of Maryland Regulations (COMAR) requires MDOT MAA to complete an ANZ update for MTN every five years
- Noise impact determined by Day-Night Average (DNL/Ldn) composite contours:
  - Base year
  - 5-year post certification forecast
  - 10-year post certification forecast
- The ANZ represents the largest extent of the annual contours for each study year

4

ANZ Update Scope and Process

- Establish Stakeholder Advisory Committee (SAC)
- Prepare base year, 5-year, 10-year forecast contours
- Compile composite Airport Noise Zone (ANZ)
- Prepare inventory of existing land use
- Update the Noise Abatement Plan
- Obtain approval from MAC to circulate proposed ANZ Update

Completed

- **Conduct public workshop/hearing**
- Submit final ANZ to MAC for approval and MDOT MAA Executive Director certification

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Airport Noise Zone (ANZ) Study Update Elements

Airport Noise Zone (ANZ)	Noise Abatement Plan (NAP)
Means to identify and control incompatible land development around MTN Comprised of the largest extent of the annual Day-Night Average (DNL/Ldn) composite contours for each study year (2019 base, 2025 and 2030 forecast)	Prescribes measures to monitor and reduce or eliminate impacted land use areas to the extent feasible, while maintaining efficient airport operations

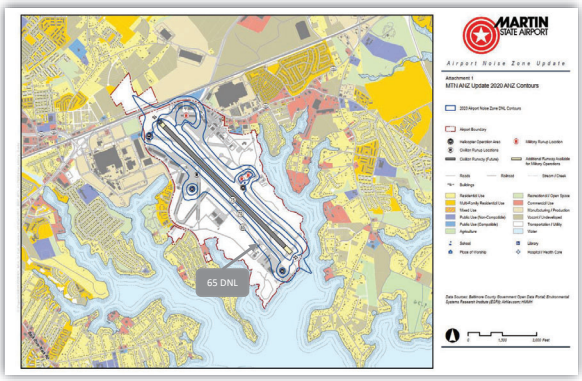
6

Stakeholder Advisory Committee (SAC) Roles and Responsibilities

- The SAC serves in an advisory role to the MDOT MAA solely for purposes of the MTN ANZ update process
  - Review of study inputs, assumptions, analyses, documentation, etc.
  - Input, advice, and guidance related to Noise Abatement Plan
- SAC members are expected to provide two-way communication between the SAC and their organizations / constituents
- MDOT MAA shall respect and consider SAC input, but retains overall responsibility for the MTN ANZ update

7

2020 MTN ANZ Contours

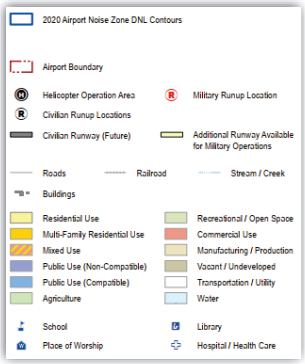


Noise contours modeled for existing (2019) and future (2025 and 2030) scenarios

2020 ANZ is 411 acres
- 96% on MDOT MAA property
- Remains entirely over compatible land uses (no impacts to noise-sensitive land uses)

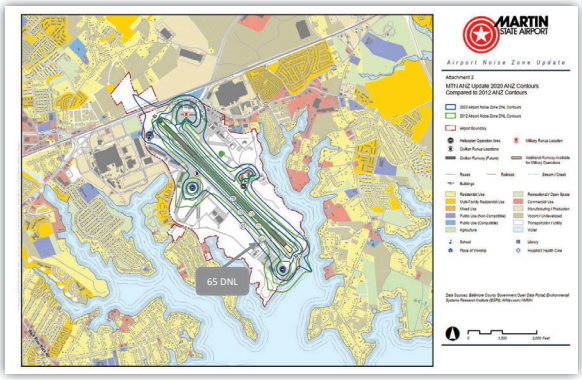
8

2020 MTN ANZ



9

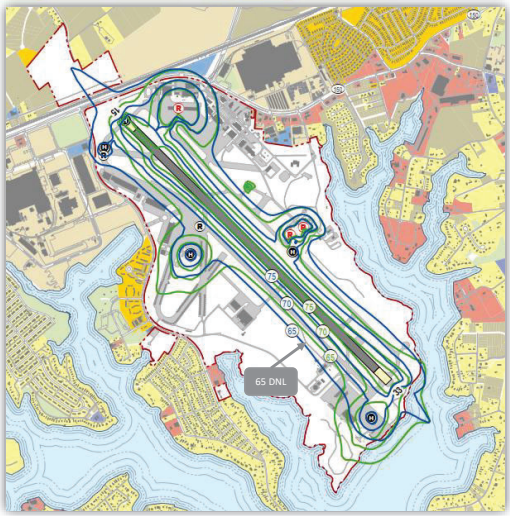
Comparison of 2020 ANZ to Previous ANZ



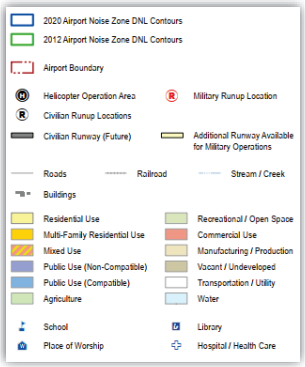
- 2020 ANZ is 4% larger than 2012 ANZ

Changes attributable to:
- Increased operations
- Future configuration of the runway layout for Runway 15/33 (may reconfigure each end of the existing runway for civilian aircraft)
- Noise model updates

10



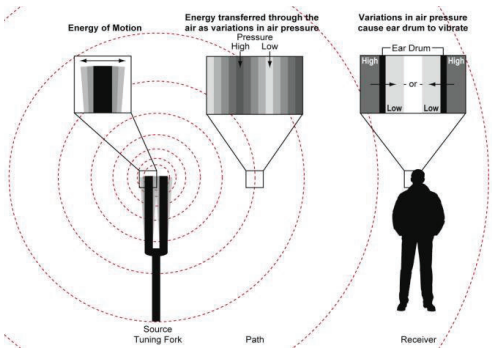
Comparison of 2020 ANZ to Previous ANZ



11

Noise Fundamentals: Sound vs. Noise

- Sound is pressure variation our ears can detect
  - An objective quantity
- Noise is "unwanted sound"
  - A subjective quantity
- We relate sound and noise by considering effects
  - Annoyance
  - Speech interference
  - Sleep disruption



12

Noise Fundamentals: The Decibel Scale

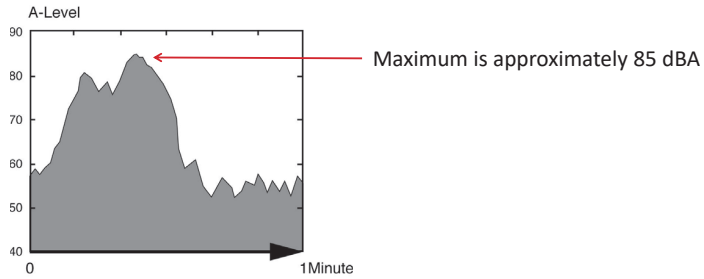
- We use a *logarithmic* scale – *decibels, or dB* to express sound levels and noise levels
- *Why?*
  - We hear sound pressures over a HUGE range
  - Decibels compress this range to match the way we interpret sound pressures
    - 0 to 140 dB
    - -00000003 to -03 lbs. per sq. inch (psi)
  - *We "hear" in decibels*.

"Energy"	dB	Common sounds
100,000,000,000,000	140	Near a jet engine at start of takeoff
10,000,000,000,000	130	Threshold of pain
1,000,000,000,000	120	On stage at a loud rock concert
100,000,000,000	110	
10,000,000,000	100	Jack hammer at 6 feet
1,000,000,000	90	
100,000,000	80	Vacuum cleaner at user's ear
10,000,000	70	Vacuum cleaner at 10 feet
1,000,000	60	Normal speech
100,000	50	
10,000	40	Quiet residential area
1,000	30	
100	20	Whisper
10	10	
1	0	Threshold of hearing
0.1	-10	

13

Noise Fundamentals: Single Event Noise Metrics

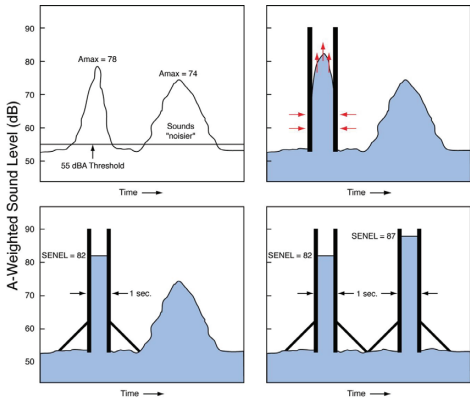
- The simplest way to describe a discrete noise "event" is its maximum sound level, abbreviated as Lmax



14

Noise Fundamentals: Single Event Noise Metrics

- Sound Exposure Level (SEL) measures the total "noisiness" of an event by taking duration into account
- Duration matters: A longer event may seem "noisier," even if it has a lower or equal maximum level

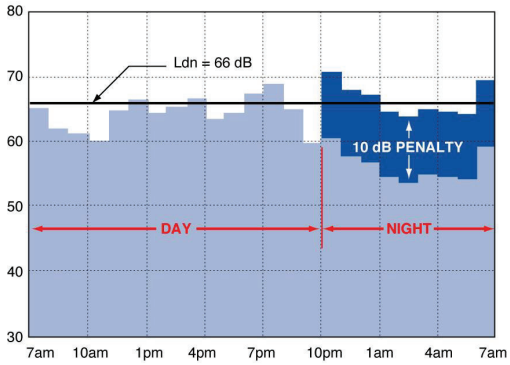


15

Noise Fundamentals: Cumulative Exposure Metric

Day-Night Average Level (DNL)

- Describes 24-hour exposure
- Noise from 10 pm to 7 am is factored up by 10 dB
  - "Penalty" is equal to counting each night aircraft 10 times
- DNL is abbreviated as Ldn (as defined in COMAR)



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COMAR Requires Modeling

- **Sec. 11.03.03.02.**
  - *§C. Development of noise contours of equal noise exposure are to be determined using a prediction method in accordance with the procedures of §D, below. Measurements, undertaken in accordance with the procedure of §E of this regulation, may be used to confirm the locations of contours of equal noise exposure.*

Source: http://www.dsd.state.md.us/comar/comarhtml/11/11.03.03.02.htm

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Noise Modeling Process

- Study years for this ANZ Update: 2019, 2025, 2030
- Analyze existing radar data
- Base Year (2019)
  - Determined base year AEDT inputs
  - Developed base year conditions and DNL contours
- Forecast Years (2025 and 2030)
  - Determined 5 and 10-year forecast AEDT inputs
    - Use of operations forecasts as published in the 2018 FAA Terminal Area Forecast
  - Developed 5-year and 10-year forecast DNL Contours

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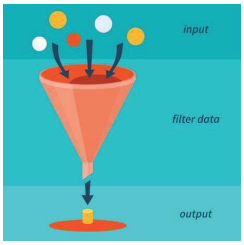
Noise Model Inputs

- Aviation Environmental Design Tool (AEDT)- noise modeling software
- AEDT requires input data in three categories:
  1. Aircraft noise and performance data
  2. Airport physical inputs
  3. Aircraft operational data
     - Number of aircraft operations
     - Aircraft fleet mix
     - Day-night split of operations
     - Runway utilization
     - Flight track geometry and utilization



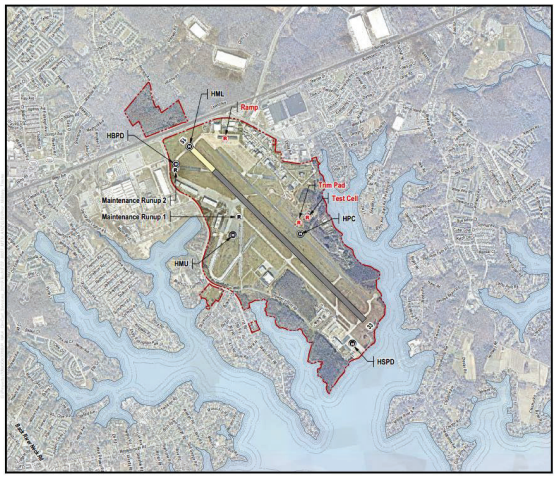
19

Physical Input Requirements

- Runway layout (including displaced landing or takeoff thresholds)
- Flight tracks
- Airport elevation
- Airport weather
  - Temperature
  - Relative humidity
- Related requirements:
  - runway use rates
  - flight track use rates

Photo Source:
https://www.martinstateairport.com/content/airserv/photos/genphotos.html

20



MARTIN STATE AIRPORT

Airport Noise Zone Update

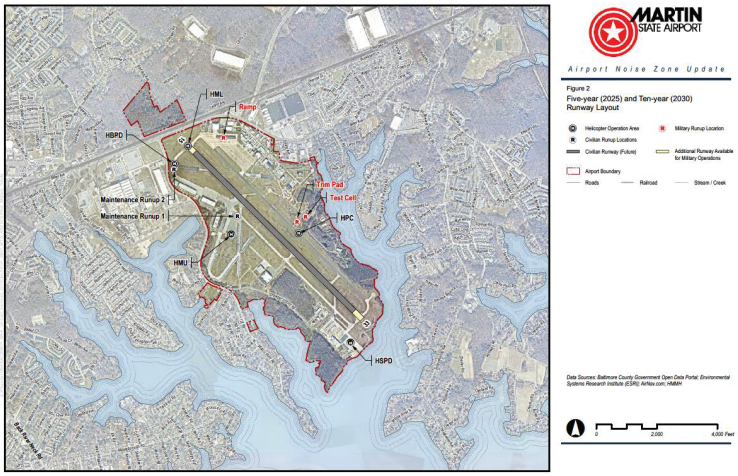
Figure 1
Existing (2019) Runway Layout

Helicopter Operation Area
Civilian Runup Locations
Civilian Runway
Airport Boundary
Roads
Railroad
Stream / Creek
Military Runup Location
Additional Runway Available for Military Operations

Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH

0 2,000 4,000 Feet

21



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Baseline and Future Operations Levels

Year	Itinerant Operations				Local Operations		Total
	Air Carrier	Air Taxi	General Aviation	Military	General Aviation	Military	
2019	0	2,173	37,153	1,893	38,756	645	80,620
2025	0	2,173	38,021	1,893	40,506	645	83,238
2030	0	2,173	38,761	1,893	42,023	645	85,495

Source: FAA, 2018 Terminal Area Forecast (TAF)

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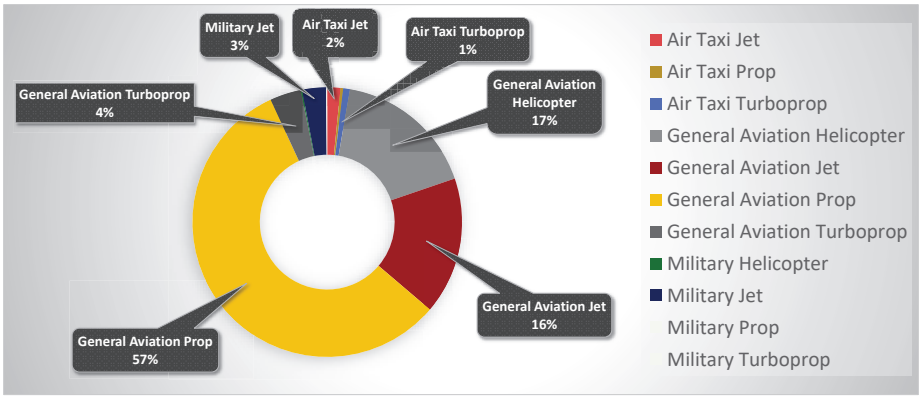
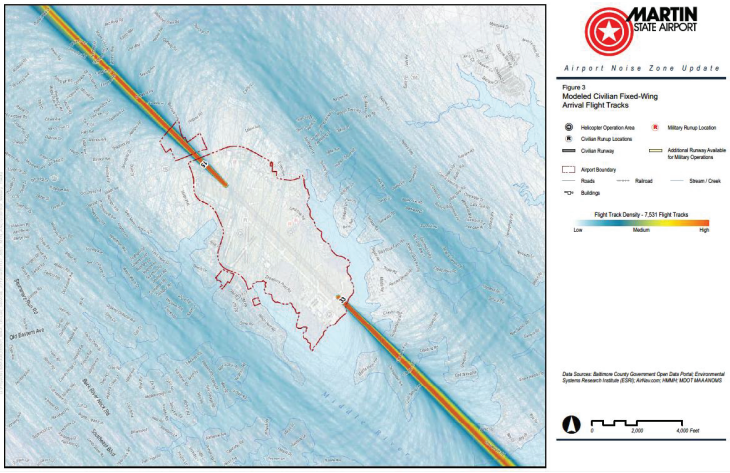
Distribution of Operations by Aircraft Type



24


MARTIN STATE AIRPORT
Airport Noise Zone Update
Figure 3
Modeled Civilian Fixed-Wing Arrival Flight Tracks
Helicopter Operation Area
Military Runup Location
Civilian Runup Locations
Civilian Runway
Additional Runway Available for Military Operations
Airport Boundary
Roads
Railroad
Stream / Creek
Buildings
Flight Track Density - 7,531 Flight Tracks
Low
Medium
High
Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH; MDOT MAA NVOMS
0
2,000
4,000 Feet
BWI BALTIMORE/WASHINGTON INTERNATIONAL Thurgood Marshall AIRPORT
MARTIN STATE AIRPORT

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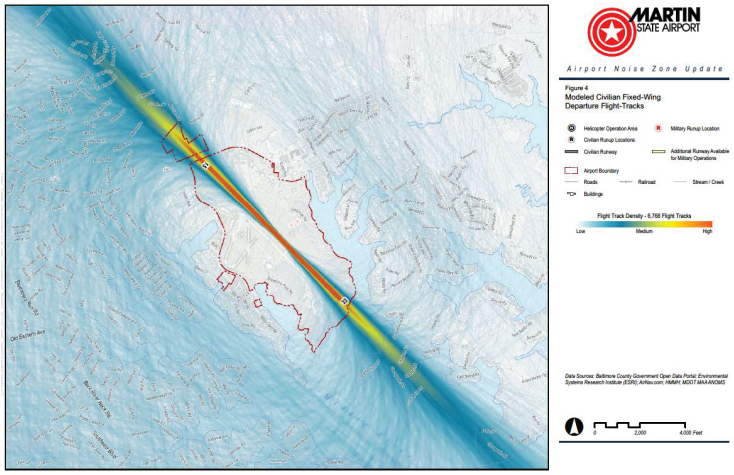
MARTIN STATE AIRPORT
Airport Noise Zone Update
Figure 4
Modeled Civilian Fixed-Wing Departure Flight-Tracks
Helicopter Operation Area
Military Runup Location
Civilian Runup Locations
Civilian Runway
Additional Runway Available for Military Operations
Airport Boundary
Roads
Railroad
Stream / Creek
Buildings
Flight Track Density - 6,768 Flight Tracks
Low
Medium
High
Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH; MDOT MAA NVOMS
0
2,000
4,000 Feet
BWI BALTIMORE/WASHINGTON INTERNATIONAL Thurgood Marshall AIRPORT
MARTIN STATE AIRPORT

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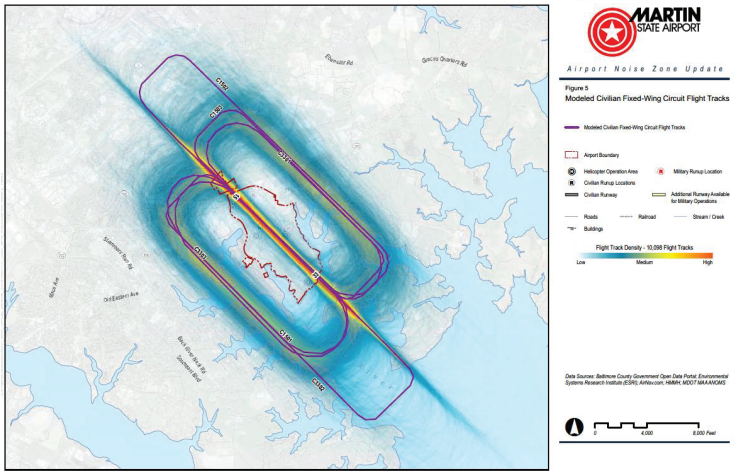
MARTIN STATE AIRPORT
Airport Noise Zone Update
Figure 5
Modeled Civilian Fixed-Wing Circuit Flight Tracks
Modeled Civilian Fixed-Wing Circuit Flight Tracks
Airport Boundary
Helicopter Operation Area
Military Runup Location
Civilian Runup Locations
Civilian Runway
Additional Runway Available for Military Operations
Roads
Railroad
Stream / Creek
Buildings
Flight Track Density - 10,098 Flight Tracks
Low
Medium
High
Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH; MDOT MAA NVOMS
0
4,000
8,000 Feet
BWI BALTIMORE/WASHINGTON INTERNATIONAL Thurgood Marshall AIRPORT
MARTIN STATE AIRPORT

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MTN Noise Abatement Plan

- The NAP is comprised of two parts
  - Efforts MDOT MAA is taking to mitigate noise
  - Voluntary aircraft operating procedures
- Includes multiple elements
  - Prescribed noise abatement procedures
  - Process for addressing community noise complaints
  - Airport Zoning Permitting and Board of Airport Zoning Appeals* Procedure

** BAZA Members appointed by the Governor*

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Updated Noise Abatement Plan Summary

Noise Abatement

- **Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) Departures**
  - VFR Piston-engine Aircraft: Runway 15/33 – Unless otherwise instructed by ATC, aircraft fly runway heading to 1000' Mean Sea Level (MSL) prior to turning to the ATC approved on-course heading or crosswind leg of the traffic pattern.
  - VFR Turbine Powered Aircraft: Runway 15/33 – Unless otherwise instructed by ATC, aircraft shall fly runway heading to 1,500' MSL prior to turning to the ATC approved, on-course heading or crosswind leg of the traffic pattern.
  - VFR Helicopter Departures: Unless operating under a Letter of Agreement (LOA) with MTN ATC specifying otherwise, helicopters shall climb to 500' AGL on initial departure heading before turning on-course.
  - All IFR Departures: IFR departures shall be accomplished in accordance with ATC direction or clearance.
- **VFR and IFR Arrivals and Traffic Patterns**
  - VFR and IFR aircraft approach should, to the maximum extent feasible, maintain the highest practical altitude, commensurate with flight and ATC procedures in order to minimize aircraft noise exposure to communities underlying the final approach courses.
- **Closed Traffic Patterns**
  - A left-hand traffic pattern shall be used at MTN unless otherwise directed by ATC. Piston fixed-wing aircraft should fly runway heading until reaching 1,000' MSL prior to turning to the crosswind leg of the traffic pattern. Turbine aircraft should fly runway heading until reaching 1,500'MSL prior to turning to the crosswind leg of the traffic pattern.
- **Touch-and-Go or Practice Approaches**
  - No touch-and-go and/or practice approaches or practice landings are permitted between 10:00 p.m. to 6:00 a.m. daily unless approved by MTN Operations and Maintenance staff.

Noise Mitigation

- Airport Noise Zone
- Control of Incompatible Development
- Noise Concerns
- Maryland Air National Guard (MDANG) Noise Barriers
- Aircraft Maintenance Engine Run-up Areas

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MTN Noise Abatement Plan

- Originally adopted in 1984, updated in 1987, reviewed and approved with no changes in 2012.
- Includes:
  - Airport Noise Zone
  - Zoning permit and appeals process
  - Complaint procedures
  - MDANG noise barriers
  - Aircraft maintenance engine run-up areas
  - Departure and arrival traffic procedures
  - Closed traffic patterns
  - "Touch-and-Go" restrictions

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Public Notice and Review

Proposed Action (updating COMAR) was published in the Maryland Register.

Public notice was provided via posting in:
- Baltimore Sun
- Dundalk Eagle
- The Avenue News

SAC members and Maryland State and Local elected officials were notified directly.

Document is available for public review electronically at MDOT MAA Community Relations website: www.maacommunityrelations.com

Public Comments
- During the Public Hearing each individual will be allocated two minutes to make a comment.
- Written statements, in lieu of or in addition to an oral comment at the hearing, may be submitted to Mr. Bruce Rineer at BRineer@bwiairport.com until 5:00 p.m. on February 14, 2021

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QUESTIONS AND ANSWERS

BREAK
PUBLIC HEARING WILL BEGIN AT 7:00 PM

Virtual Public Hearing Plan & Procedures

Tonight's virtual public hearing will **be recorded**.

Public Hearing Procedures:

- At 7:00 pm, the MDOT MAA Hearing Officer will formally begin the Public Hearing.
- During the hearing, comments will be heard and recorded, however comments/questions will not be responded to during the hearing.
- To make an official comment, please raise your hand virtually. Commenters will be called upon to speak in the order that hands are raised. Each commenter will be allotted two minutes to speak.
- During the Public Hearing, a Court Reporter will record all public comments.
- Following each comment, the Hearing Officer will thank the speaker and the next commenter will be called.

If you experience technical difficulties:

- Please let us know in the chat box
- Log off, and log back in
- We recommend having only one web browser open for the duration of the meeting, and to close all other programs on your computer, if possible.

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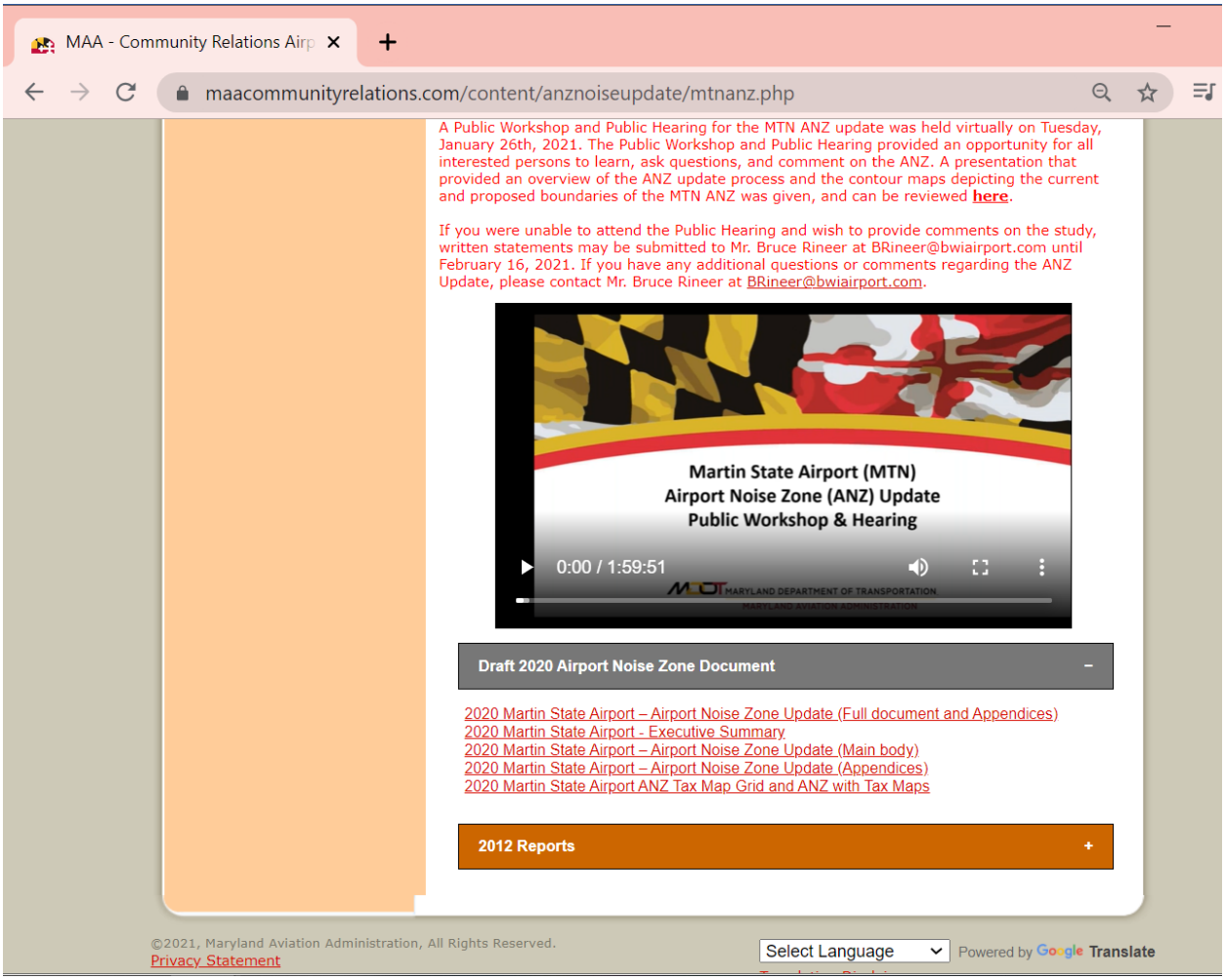
PUBLIC HEARING
(COMMENTS LIMITED TO TWO MINUTES PER PARTICIPANT)

MAA Community Relations Website



1 MARTIN STATE PUBLIC WORKSHOP
2 AND PUBLIC HEARING
3
4 held via GoToWebinar
5 Tuesday, January 26, 2021
6
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16
17 Hosts: Joy Hamilton and Bruce Rineer
18
19
20
21

1 P R O C E E D I N G S
2 MS. HAMILTON: Good evening. I
3 wanted to welcome you back. For those
4 of you who are just joining us, you
5 are joining the public hearing comment
6 session for Martin State Airport's
7 Airport Noises Zone ANZ update public
8 hearing.
9 Please do know that this session
10 is being recorded. I will turn it
11 over now to our hearing officer
12 Ms. Darline Terrell-Tyson.
13 We might be having a technical
14 difficulty at this moment, but I will
15 just run through a bit while Darline
16 gets settled in there.
17 So tonight's public hearing will
18 be recorded and during the hearing we
19 will hear and record comments and
20 questions, but they will not be
21 responded to during the hearing.

Hi Darline. We're having a bit of difficulty hearing you, Darline. I don't think that we can hear you. I wasn't sure if it was just me having trouble, but I don't think we can. So I'm wondering whether or not I could have another member of the state team, maybe Bruce, read through our opening for the hearing.

MR. RINEER: Sure. Hi, again, I'm Bruce Rineer with MDOT/MAA, and I am with the Office of Environmental Services in the -- I'm sorry, I wasn't prepared. I was just kind of kicking back.

So this is the public hearing portion. During this hearing comments will be heard and recorded, however, comments and questions will not be responded to during the hearing. To make an official comment, please raise

1 your hand virtually and commenters
2 will be called upon to speak in the
3 order that their hands are raised.
4 Each commenter will be allowed two
5 minutes to speak.
6 During the public hearing a
7 court reporter will record all public
8 comments. Following each comment, I
9 will thank the speaker and then the
10 next commenter will be called.
11 If you experience any
12 difficulty, please let us know either
13 by raising your hand or logging off
14 and logging back on. And so I'll look
15 and see if anybody would like to make
16 a comment.
17 MS. HAMILTON: Yeah, so I
18 actually -- if you want to, Bruce,
19 we'll keep tabs on that, and we
20 actually have someone on deck to start
21 out.

We'll be starting with Mr. William Jones. Thank you. And then we want to make sure that we can hear Mr. Jones.

Mr. Jones, you'll be given two minutes.

MR. WILLIAM JONES: I don't know why that keeps happening. I didn't do anything.

MR. RINEER: Okay.

MS. HAMILTON: So, Mr. Jones, you do not need your two minutes or would you like it?

MR. WILLIAM JONES: No, I do not need it.

MS. HAMILTON: Very good.

MR. WILLIAM JONES: I don't need it. Sorry.

MS. HAMILTON: Okay. Thank you, sir. Right this minute we don't have anybody on deck.

1 MR. RINEER: We'll mute and
2 stand by. If anybody has any -- and
3 we will be available for the next
4 hour. So that's it.
5 (Standby.)
6 MS. HAMILTON: Good evening
7 folks, just a reminder that you are
8 attending the public hearing for the
9 Martin State Airport Noise Zone for
10 the ANZ update. Please let us know if
11 you have a comment that you would like
12 to make on the record. Thank you.
13 (Standby.)
14 MS. HAMILTON: Just a reminder
15 that you are attending the public
16 hearing for Martin State Airport ANZ
17 update. This is an opportunity to
18 offer comment about the ANZ update on
19 the record. Thank you.
20 (Standby.)
21 MS. HAMILTON: Hello, just a

1 reminder you are currently attending
2 the public hearing for Martin State
3 Airport, the Airport Noise Zone ANZ
4 update. This is an opportunity to
5 provide public comment. This session
6 is being recorded. You have two
7 minutes to provide comments on the
8 record.
9 In order to do so, feel free to
10 raise your hand or type in the chat
11 and we will unmute your mic. Thank
12 you.
13 (Standby.)
14 MS. HAMILTON: Good evening,
15 just a reminder that you are currently
16 attending a public hearing, an
17 opportunity for public comment on the
18 Martin State Airport, Airport Noise
19 Zone ANZ update. Anyone wishing to
20 offer public comment just let us know,
21 raise your hand, or place a note in

1 the chat, and we'll be happy to unmute
2 you and offer two minutes of speaking
3 time. Thank you.
4 (Standby.)
5 MS. HAMILTON: Hello, once
6 again. Just wanted to let you know
7 that we have been participating in the
8 public hearing for Martin State
9 Airport, Airport Noise Zone ANZ
10 update, an opportunity to offer public
11 comment. I wanted to just let you
12 know we have eight minutes left.
13 We're about eight minutes out.
14 It's last call if anyone does
15 need or wants to offer a comment,
16 please don't hesitate to raise your
17 hand or type in the chat, and we'll be
18 happy to take your comment on the
19 record. Thank you.
20 (Standby.)
21 MS. HAMILTON: Okay, everyone.

We're very close to the end of this evening. Once again, it's been a pleasure to be with you this evening and thank you all for joining us and taking time out of your day to learn all about the Martin State Airport ANZ Noise Zone update. You've been at the public hearing which is about to end in about one minute, an opportunity for public comment on the record.

Again, just thank you so much for joining us. And we'll let that count down clock go down and then we will be ending our public hearing this evening. On behalf of MDOT/MAA, thank you very much for joining us.

(Hearing adjourned.)

1 State of Maryland
2 County of Baltimore, to wit:
3 I, RONDA J. THOMAS, a Notary Public of the
4 State of Maryland, Baltimore County, do hereby
5 certify that above Martin State Airport Public
6 Hearing on January 26, 2021, was recorded
7 stenographically by me and this transcript is a
8 true record of the proceedings.
9 I further certify that I am not related to
10 any of the parties, nor in any way interested in
11 the outcome of this action.
12 As witness my hand this 18th day of
13 February, 2021.
14
15 RONDA J. THOMAS
16 Notary Public
17
18
19
20 My Commission Expires:
21 October 15, 2021

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Appendix F Public Comments

No public comments were received related to the 2020 MTN ANZ and NAP.