



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



January 14, 2020
6:00 PM – 8:00 PM

MDOT 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](#)



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



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 and Welcome Remarks

Introductions

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



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 may be submitted using the forms 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 Officer 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 394 acres, an 11% reduction from 441 acres contained within the currently adopted ANZ. The reduced acreage 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 Taxilane 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



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

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



Why we need you!

- To understand ANZ effects on homeowners
- 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



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

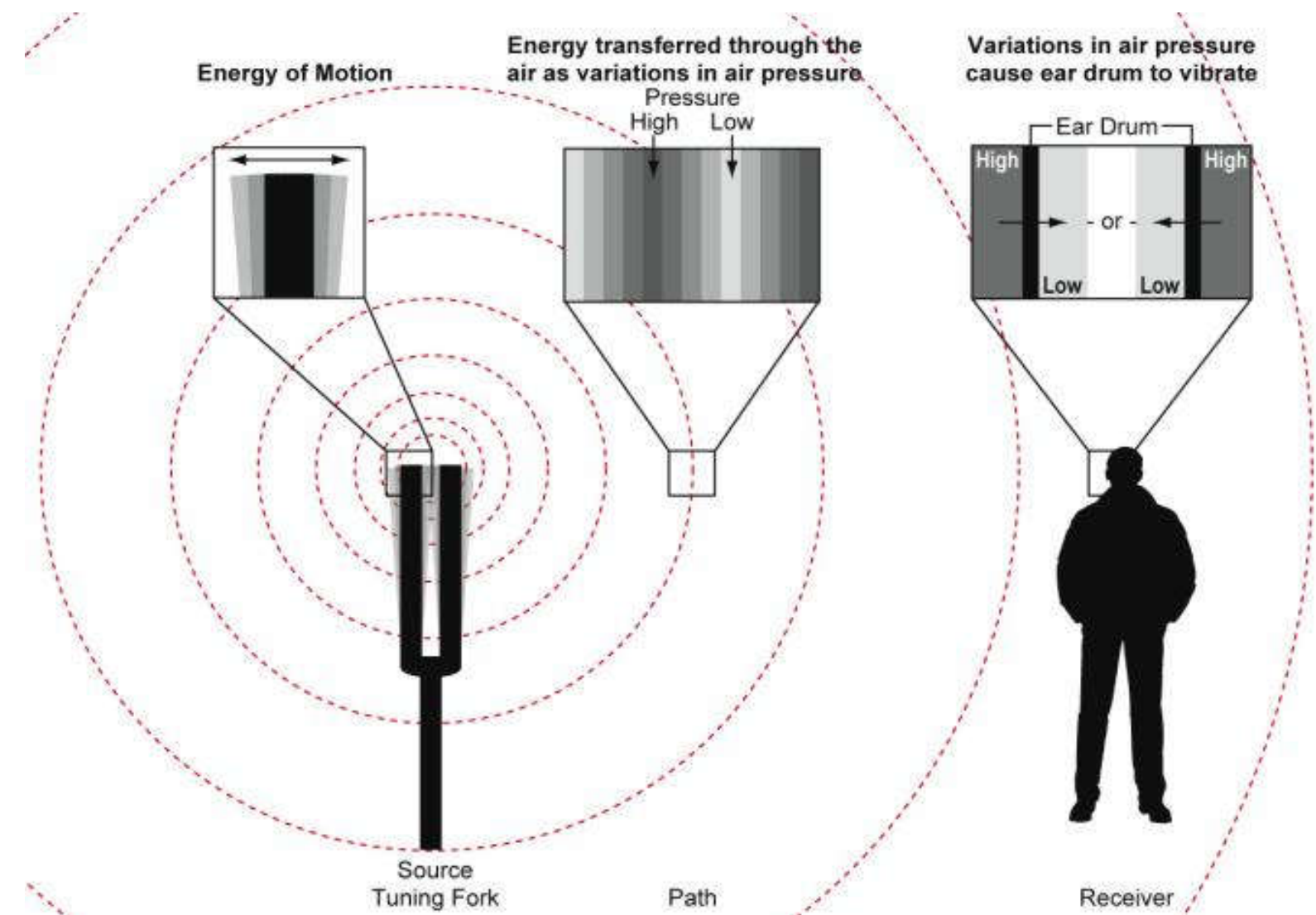


SAC Roles and Responsibilities

- 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

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



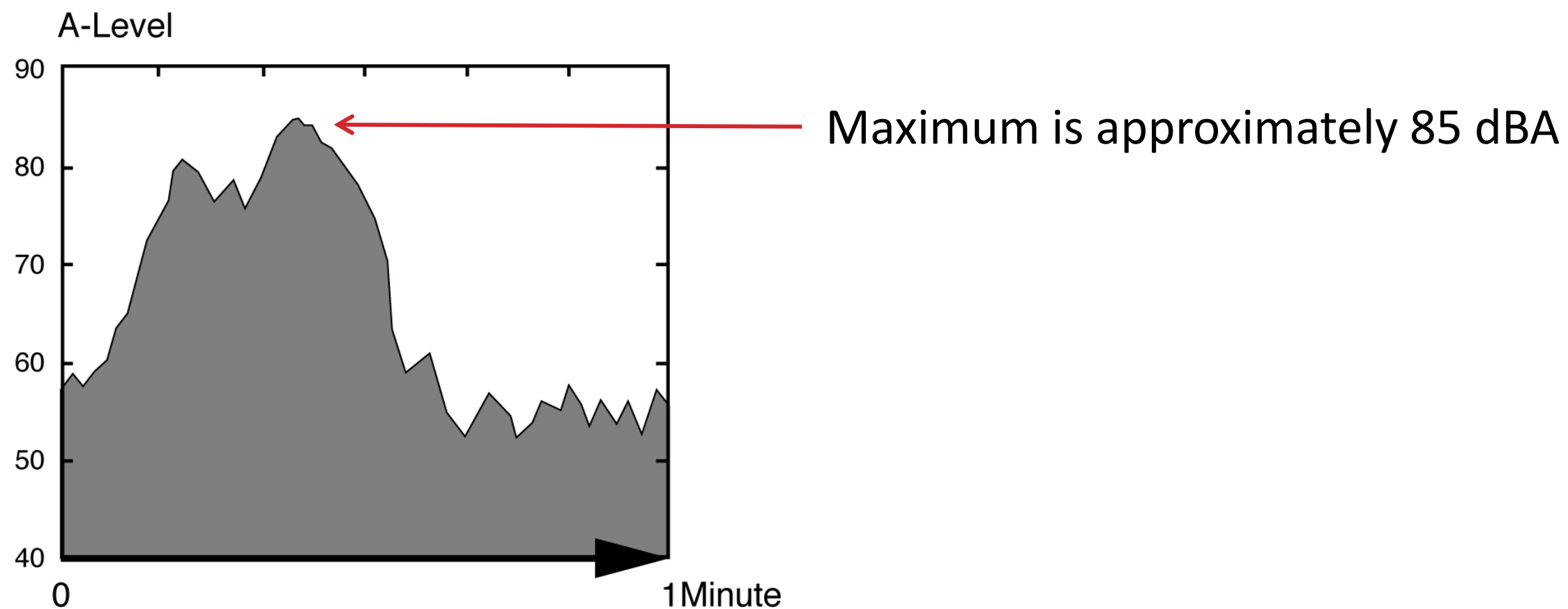
Noise Fundamentals: The Decibel Scale

- 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	

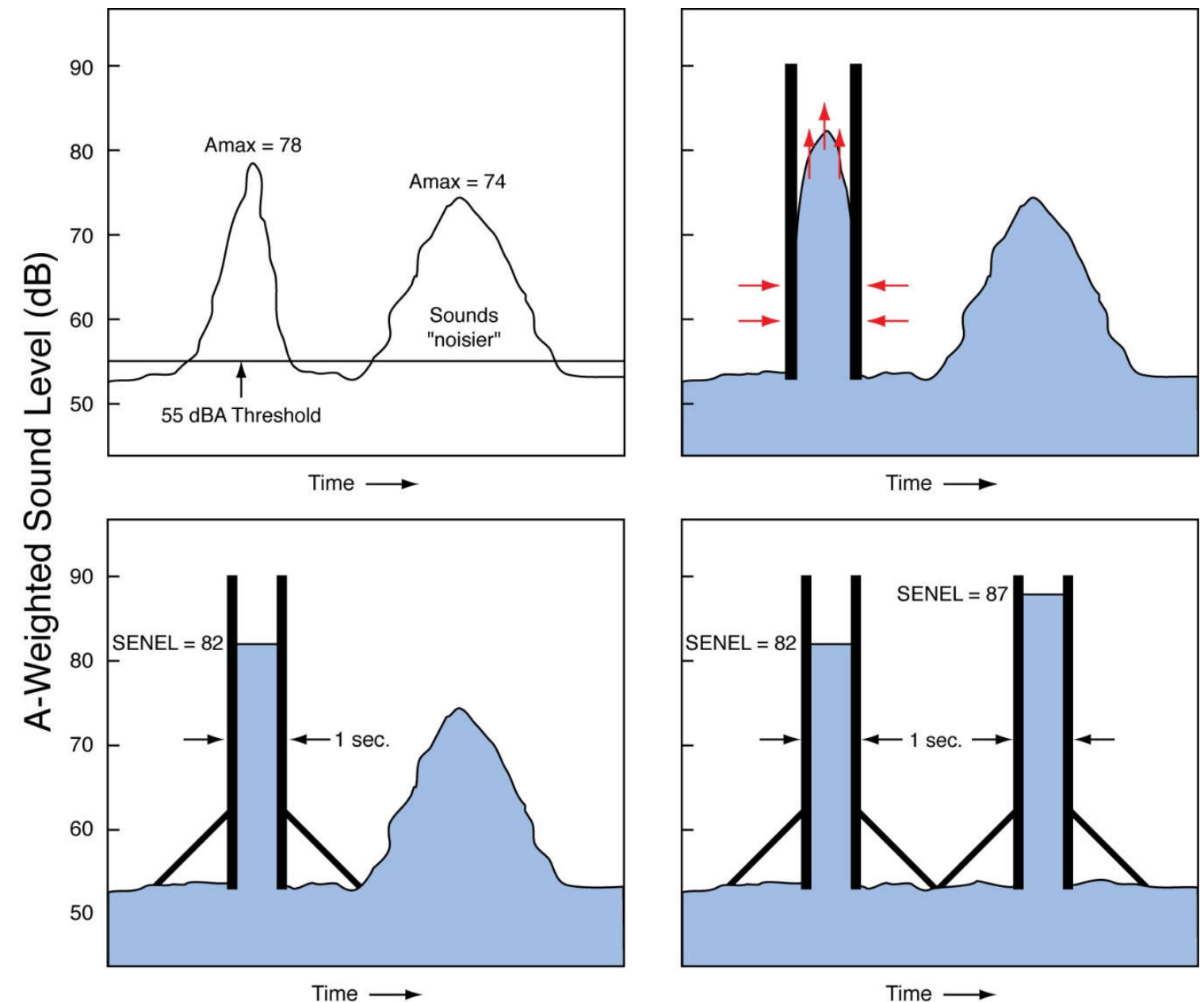
Noise Fundamentals: Single Event Noise Metrics

- The simplest way to describe a discrete noise “event” is its maximum sound level, abbreviated as L_{max}



Noise Fundamentals: Single Event Noise Metrics

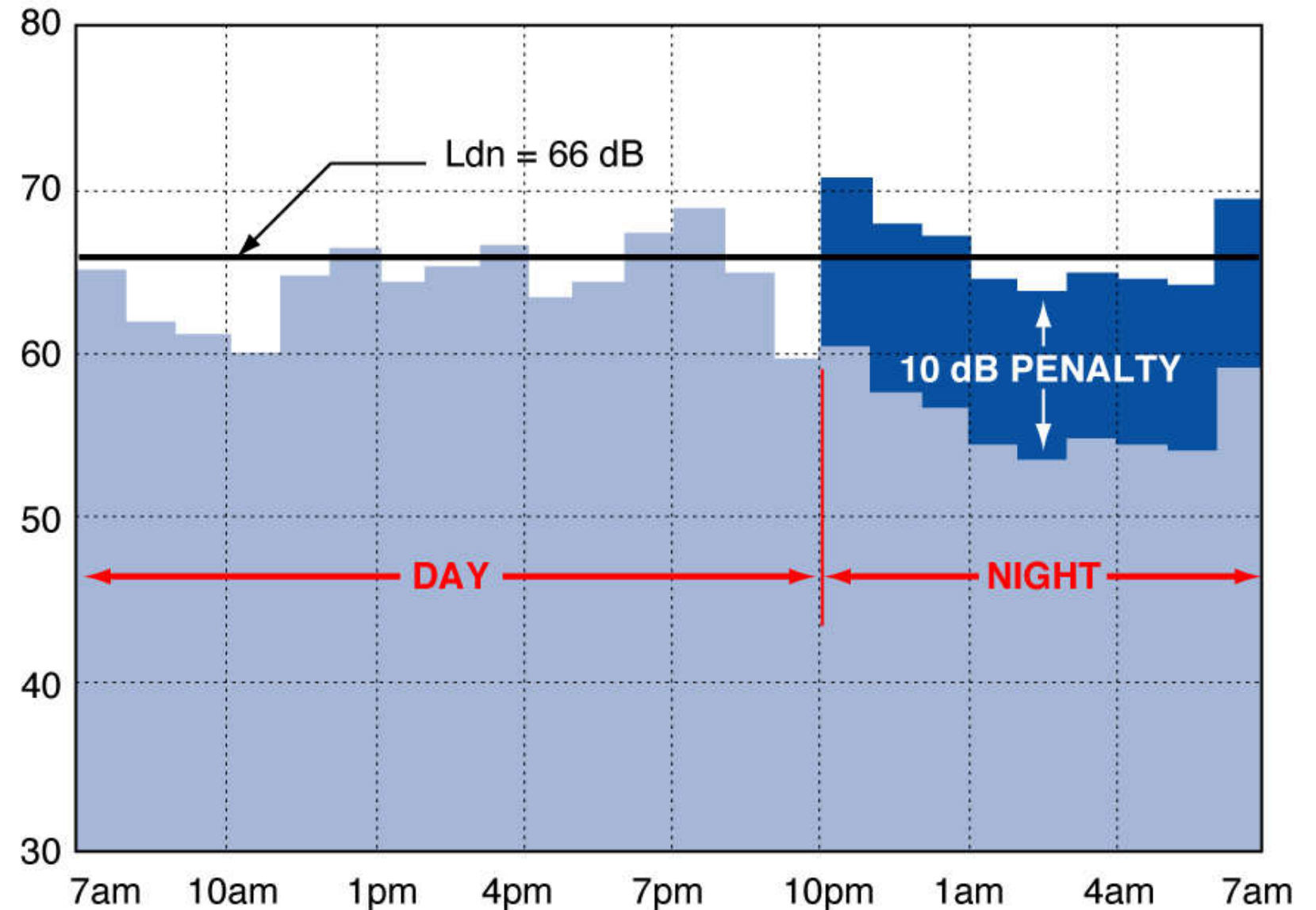
- Sound Exposure Level (SEL) measures the total “noisiness” of an event by taking duration into account
- Duration matters: A longer event may seem “noisier,” even if it has a lower or equal maximum level



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)



Commercial Airport DNL Contour Examples

BOS

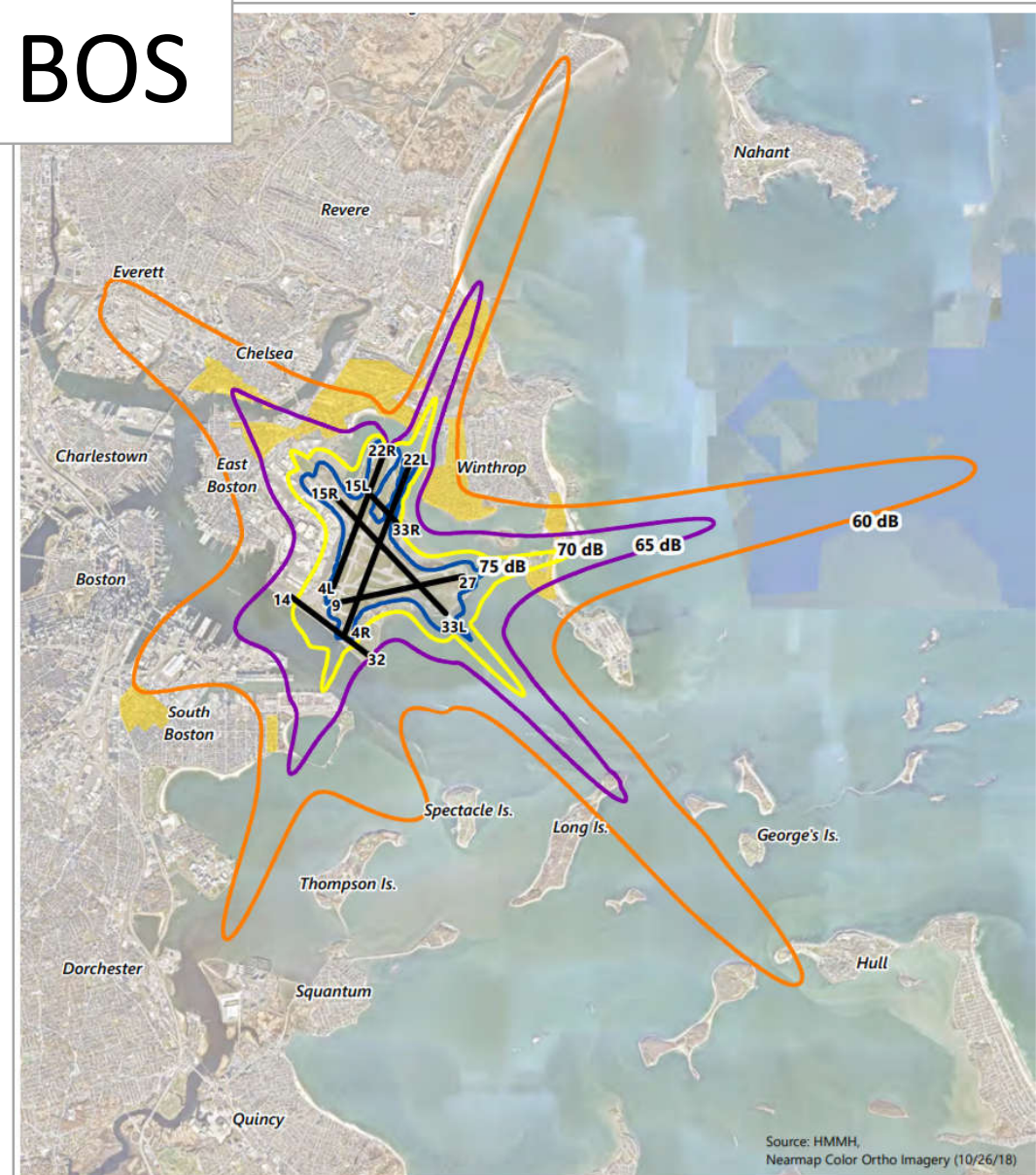


FIGURE 6-14 60-75 DNL Contours for 2017 Operations Using AEDT 2d

2017 Environmental Status and Planning Report

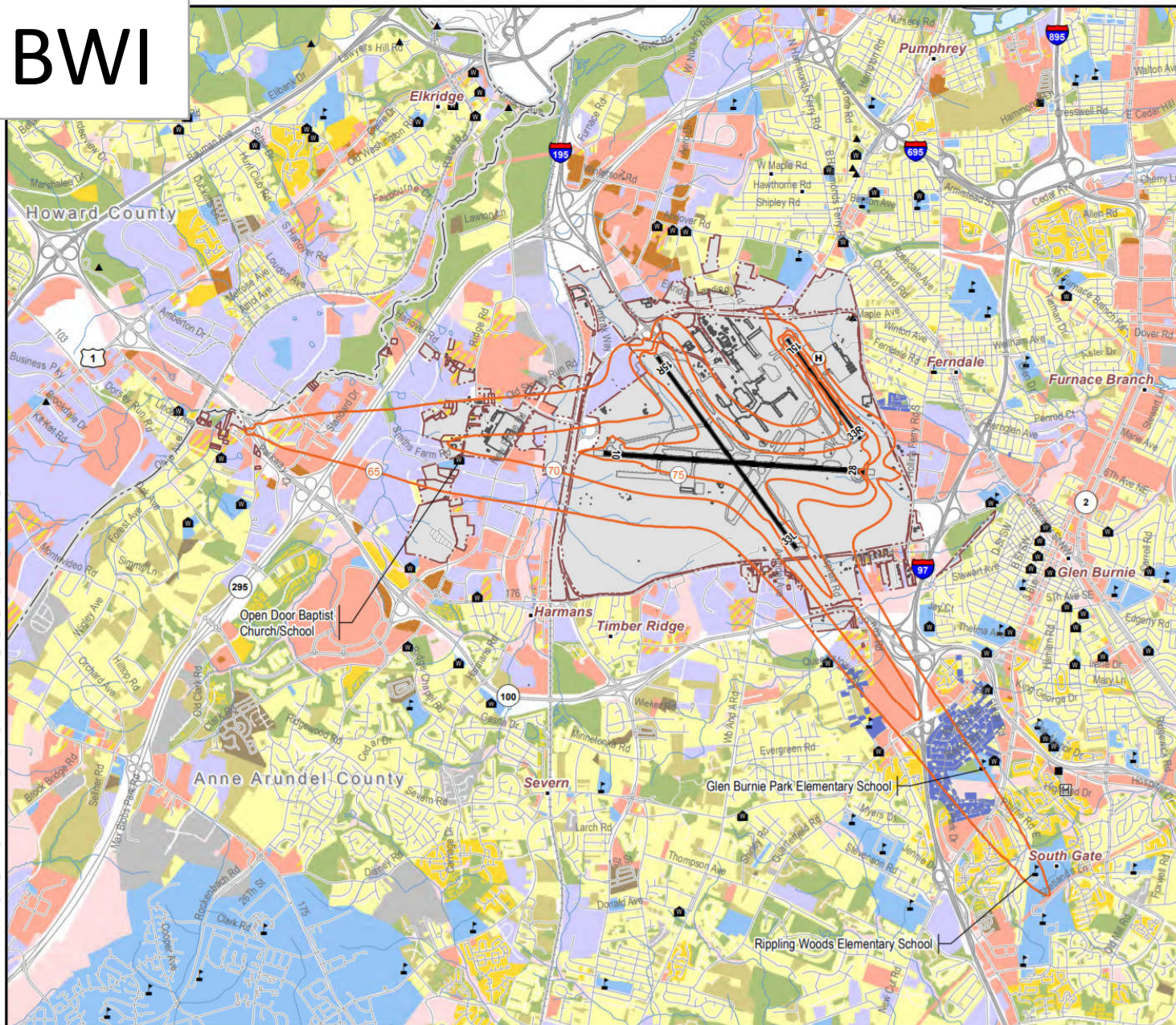
Source: HMMH, Nearmap Color Ortho Imagery (10/26/18)


- 2017 DNL Contour (AEDT 2d)
- 60 dB
 - 65 dB
 - 70 dB
 - 75 dB
 - Massport Sound Insulation Areas



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

BWI





BALTIMORE/WASHINGTON INTERNATIONAL
Thurgood Marshall
AIRPORT

Forecast Condition (2019) Noise Exposure Map
Figure 21

- Forecast 2019 DNL Contour
- BWI Airport Property
- Forecast Airport Runway Layout (2019)
- Forecast Helicopter Pad (2019)

Land Use



Residential	Public Use
Multi-Family Residential	Commercial
Transient Lodging	Exempt Commercial
Mobile Home	Manufacturing and Production
Mixed Use Residential	Recreational Open Space
Undeveloped Residential	Vacant / Undefined
Residential, Previously Mitigated	

Roads, River or Stream, County Boundary, Water, School, Place of Worship, Nursing Home, Historic Site, Hospital

Note: All previously mitigated homes are considered compatible

Data Sources: Maryland Aviation Administration; Maryland State Highway Administration; Anne Arundel & Howard County; Maryland Department of Planning; Environmental System Research Group, Inc.

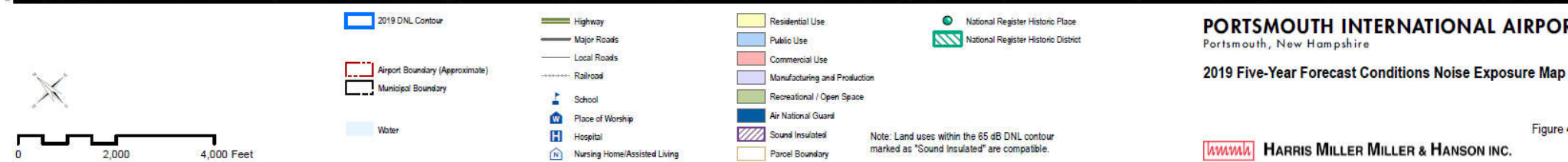
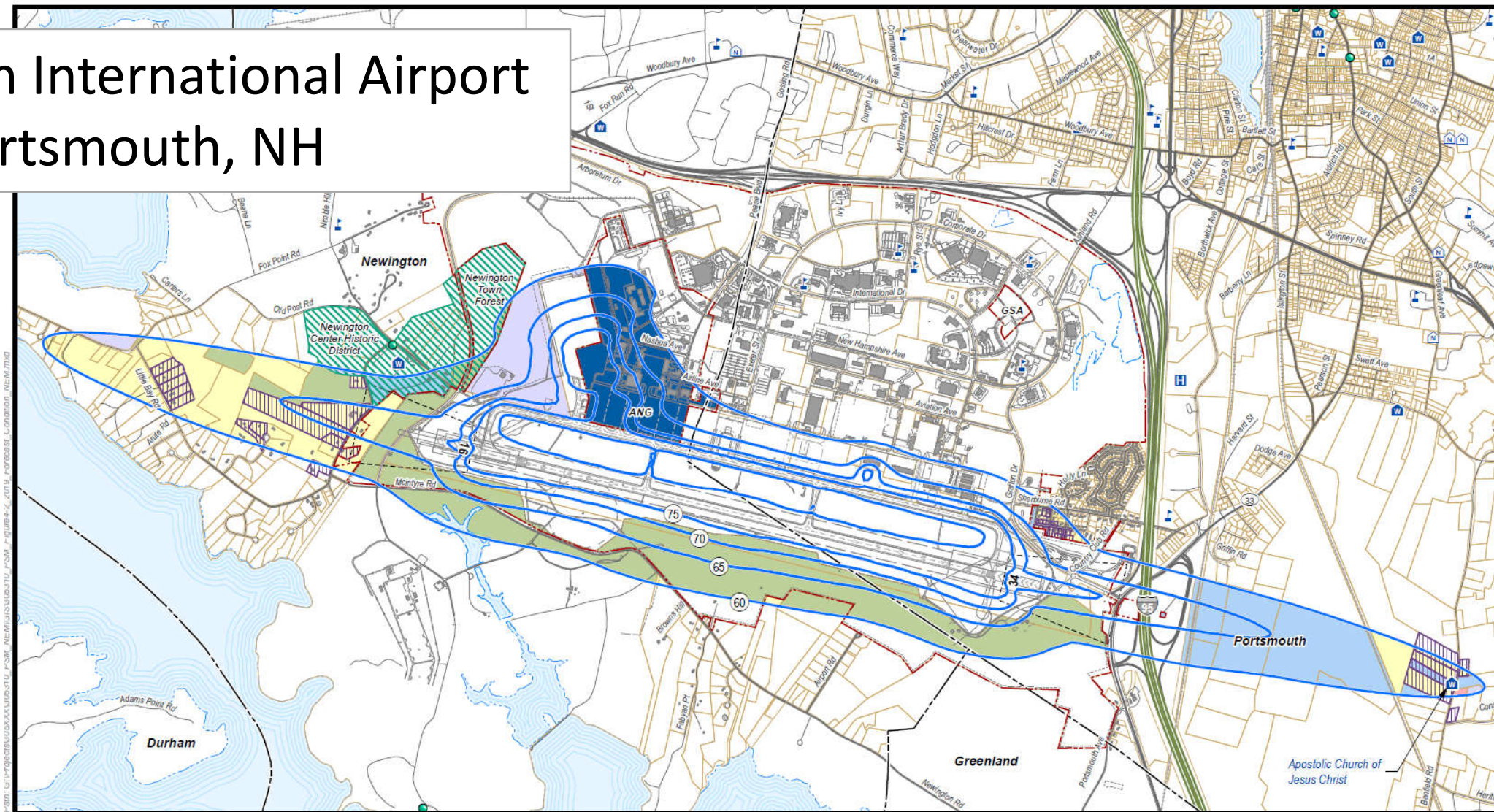
0 2,000 4,000 8,000 Feet

Source: MAA;
<https://www.maacommunityrelations.com/media/client/anzn/aiseupdate/2016/2019%20Noise%20Exposure%20Map.pdf>

Single Runway DNL Contour Example

Portsmouth International Airport
Portsmouth, NH



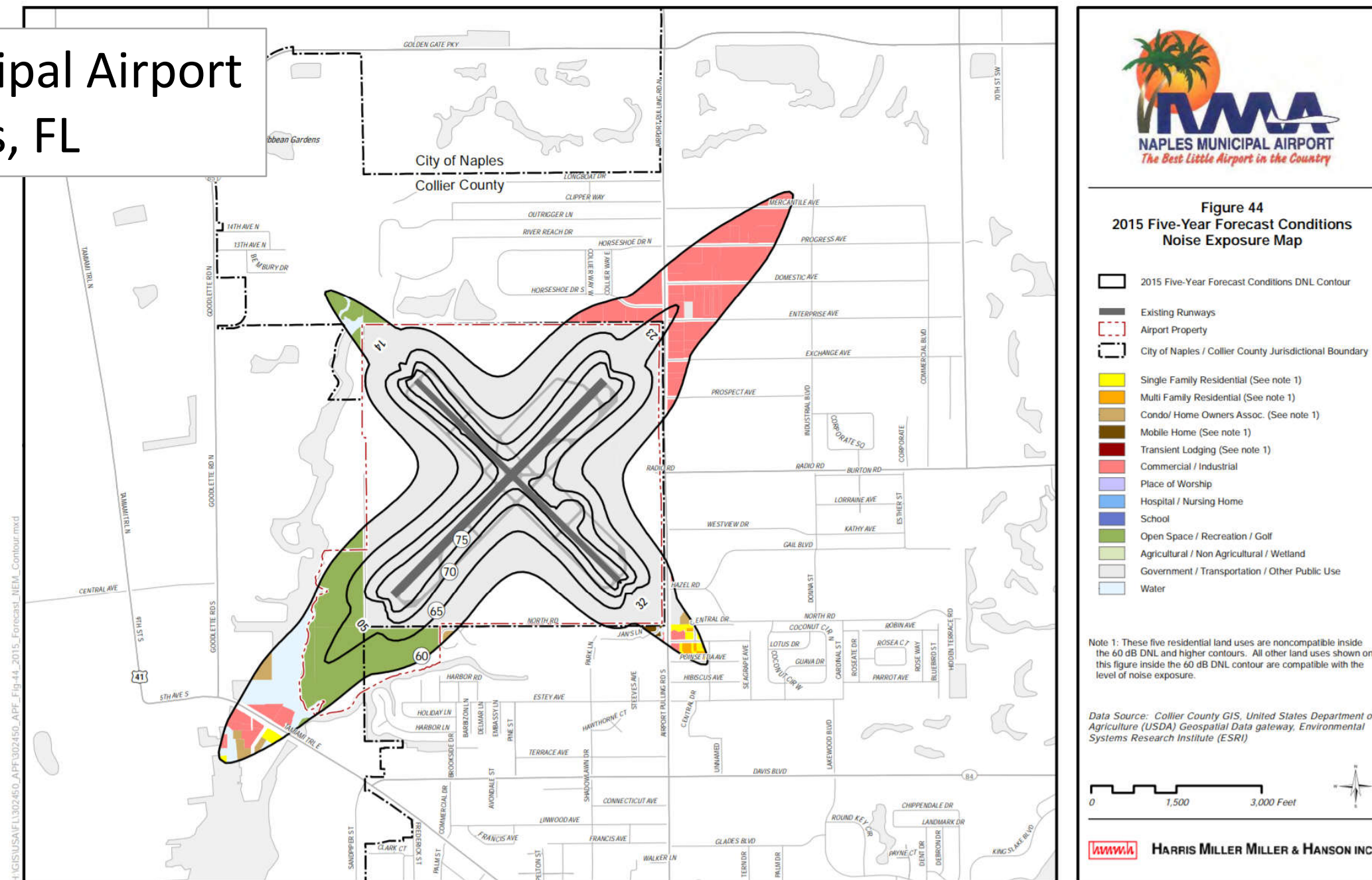
PORTSMOUTH INTERNATIONAL AIRPORT
Portsmouth, New Hampshire
2019 Five-Year Forecast Conditions Noise Exposure Map

HARRIS MILLER MILLER & HANSON INC.

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

General Aviation Airport DNL Contour Example

Naples Municipal Airport
Naples, FL



Source: Naples Airport; <https://flynaples.com/wp-content/uploads/2018/06/3new-Final APF 2010 2015 NEM Update.pdf>



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



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

Baseline and Future Operations Levels

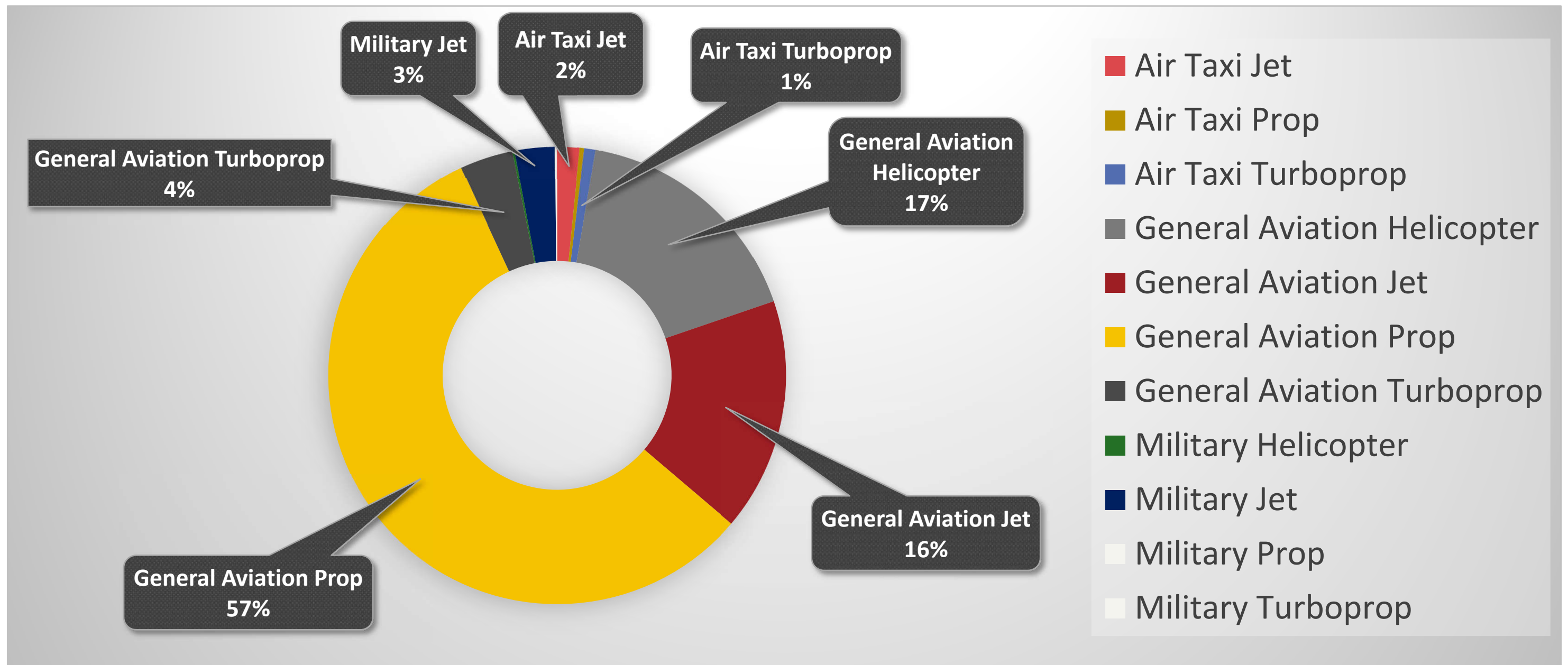
Year	Itinerant Operations				Local Operations		Total
	Air Carrier	Air Taxi	General Aviation	Military	General Aviation	Military	
2019	0	2,173	37,153	1,893	38,756	645	80,620
2025	0	2,173	38,021	1,893	40,506	645	83,238
2030	0	2,173	38,761	1,893	42,023	645	85,495

Source: FAA, 2018 Terminal Area Forecast (TAF)

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

Distribution of Operations by Aircraft Type



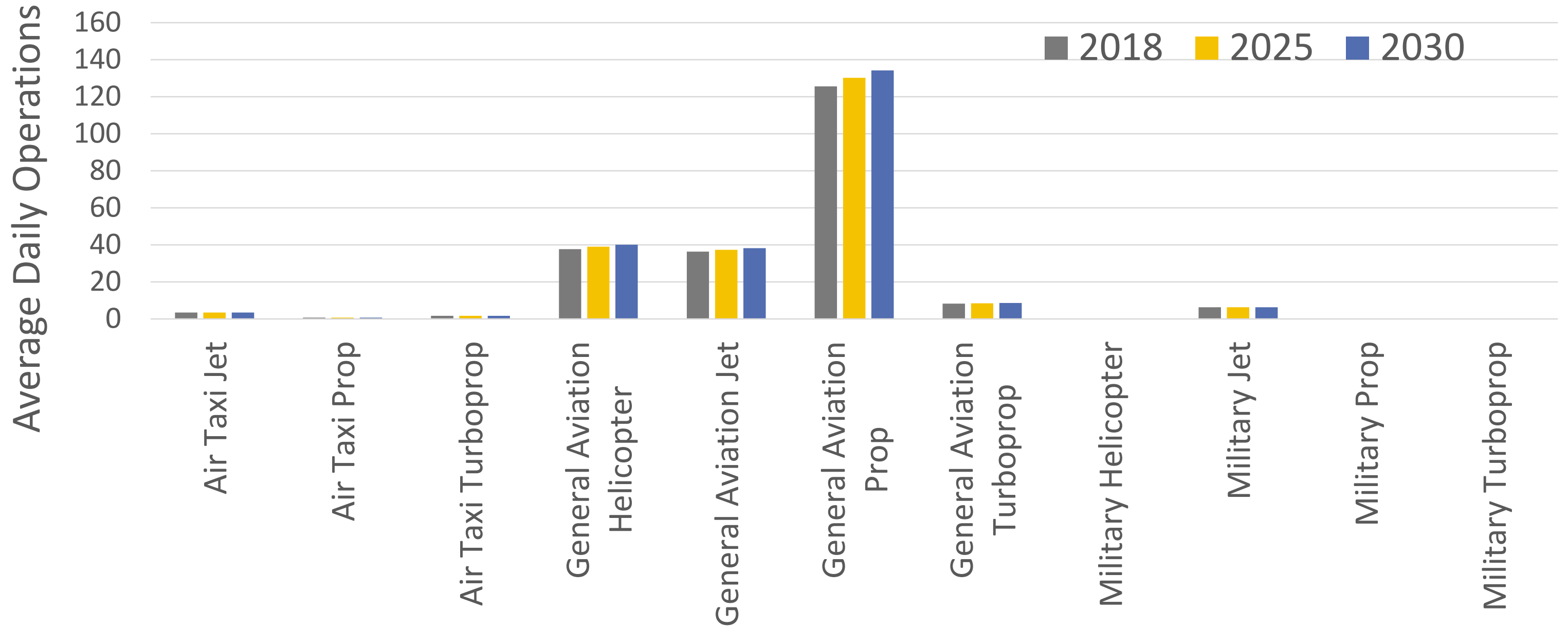
2025 Average Daily Operations

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

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

Comparison of Forecast Operations





Airport Noise Zone Update

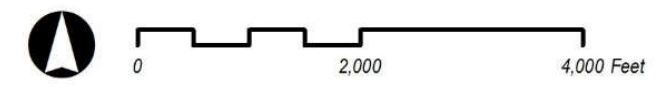
Existing (2019) Runway Layout

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



DRAFT

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



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	-	-	-	-	-	-	-	-	-



Airport Noise Zone Update

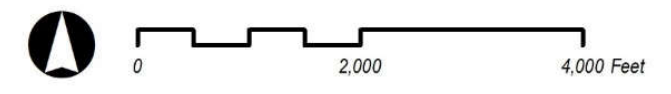
Existing (2019) Runway Layout

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



DRAFT

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



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



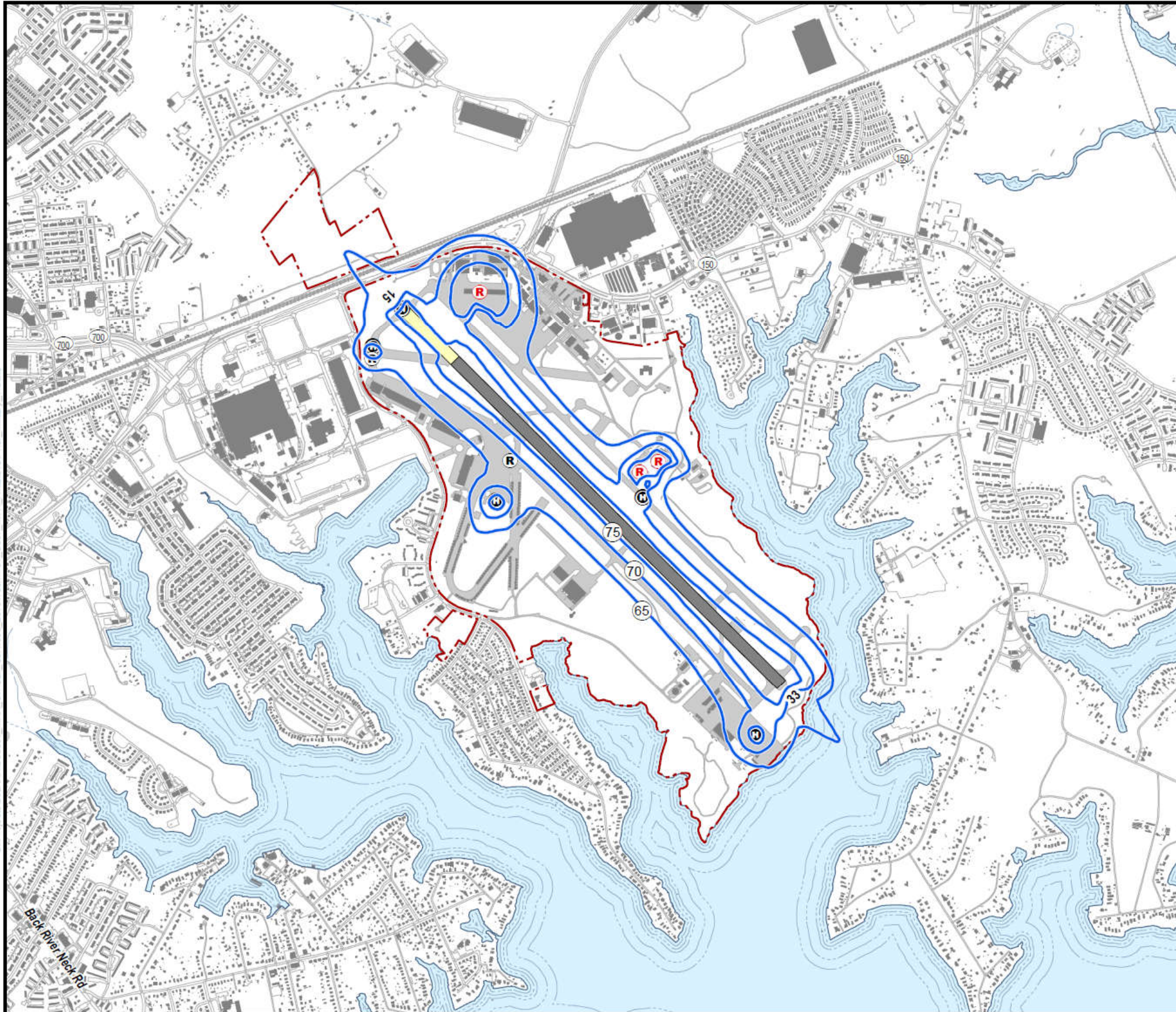
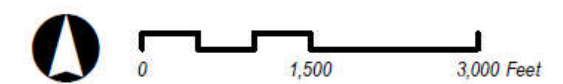
Airport Noise Zone Update

MTN ANZ Update 2019 Base Year Contours

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

DRAFT

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



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Airport Noise Zone Update

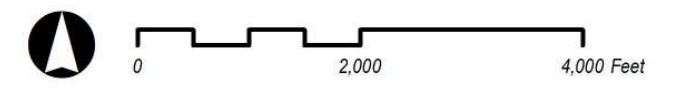
Five-year (2025) and Ten-year (2030) Runway Layout

- Helicopter Operation Area
- Civilian Runup Locations
- Military Runup Location
- Civilian Runways
- Military Runways
- Airport Boundary
- Roads
- Railroad
- Stream / Creek



DRAFT

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



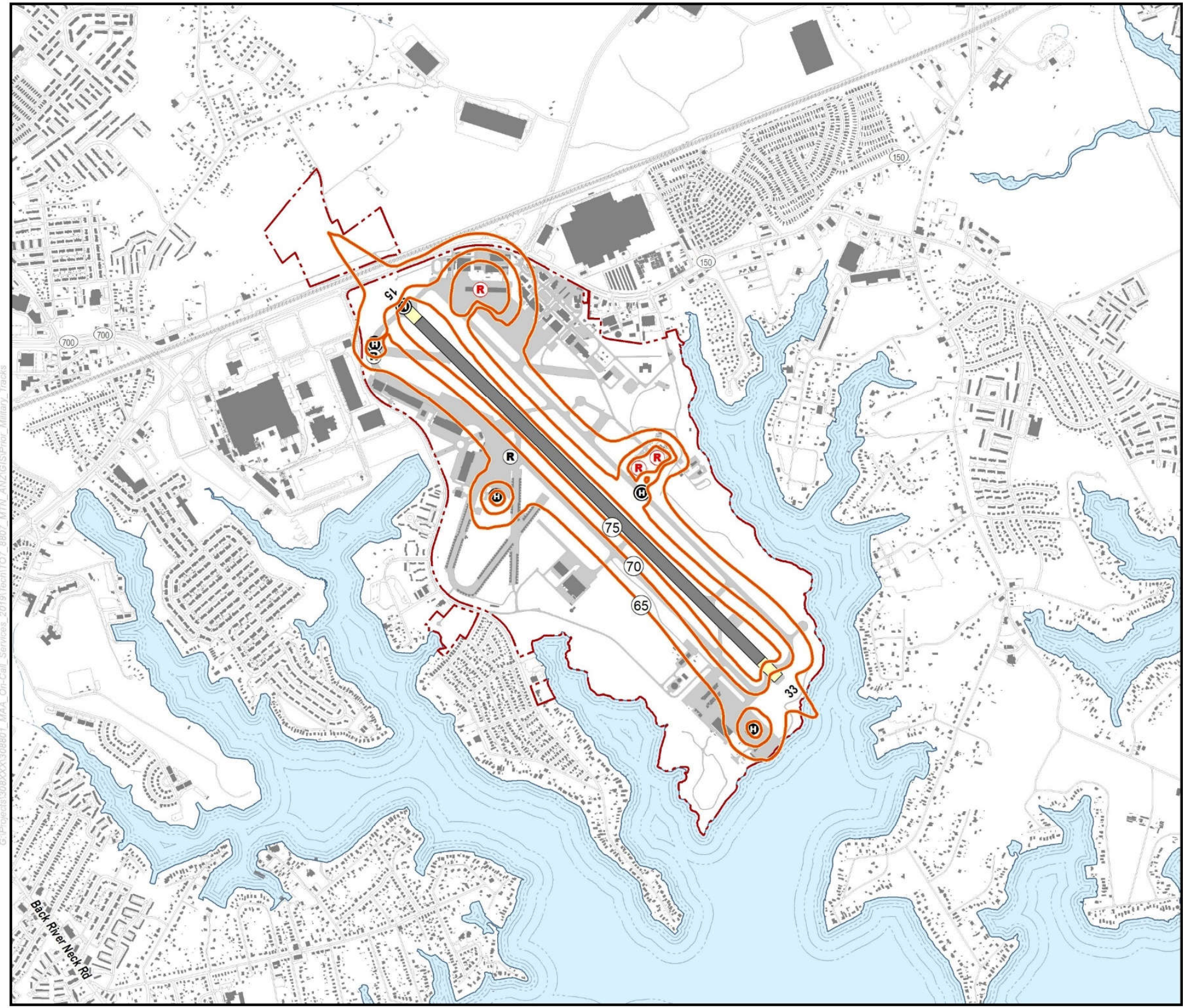
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Airport Noise Zone Update

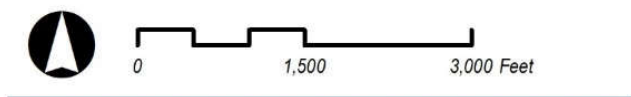
MTN ANZ Update 2025 5-Year Forecast Contours

- 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.

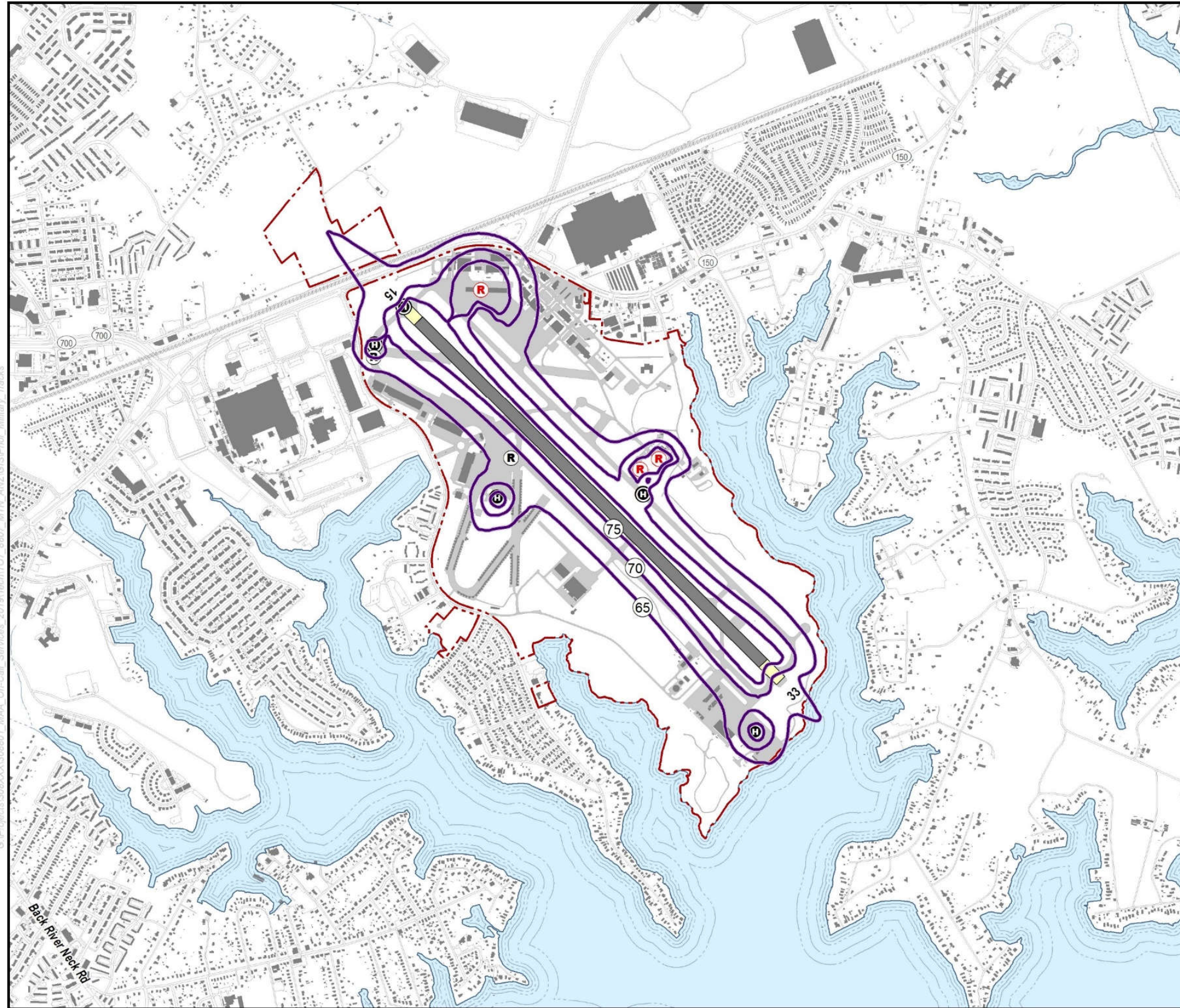




Airport Noise Zone Update

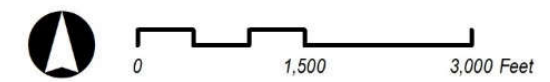
MTN ANZ Update 2030 10-Year Forecast Contours

- 2030 10-Year Forecast DNL Contours
- Airport Boundary
- Helicopter Operation Area
- Military Runup Location
- Civilian Runup Locations
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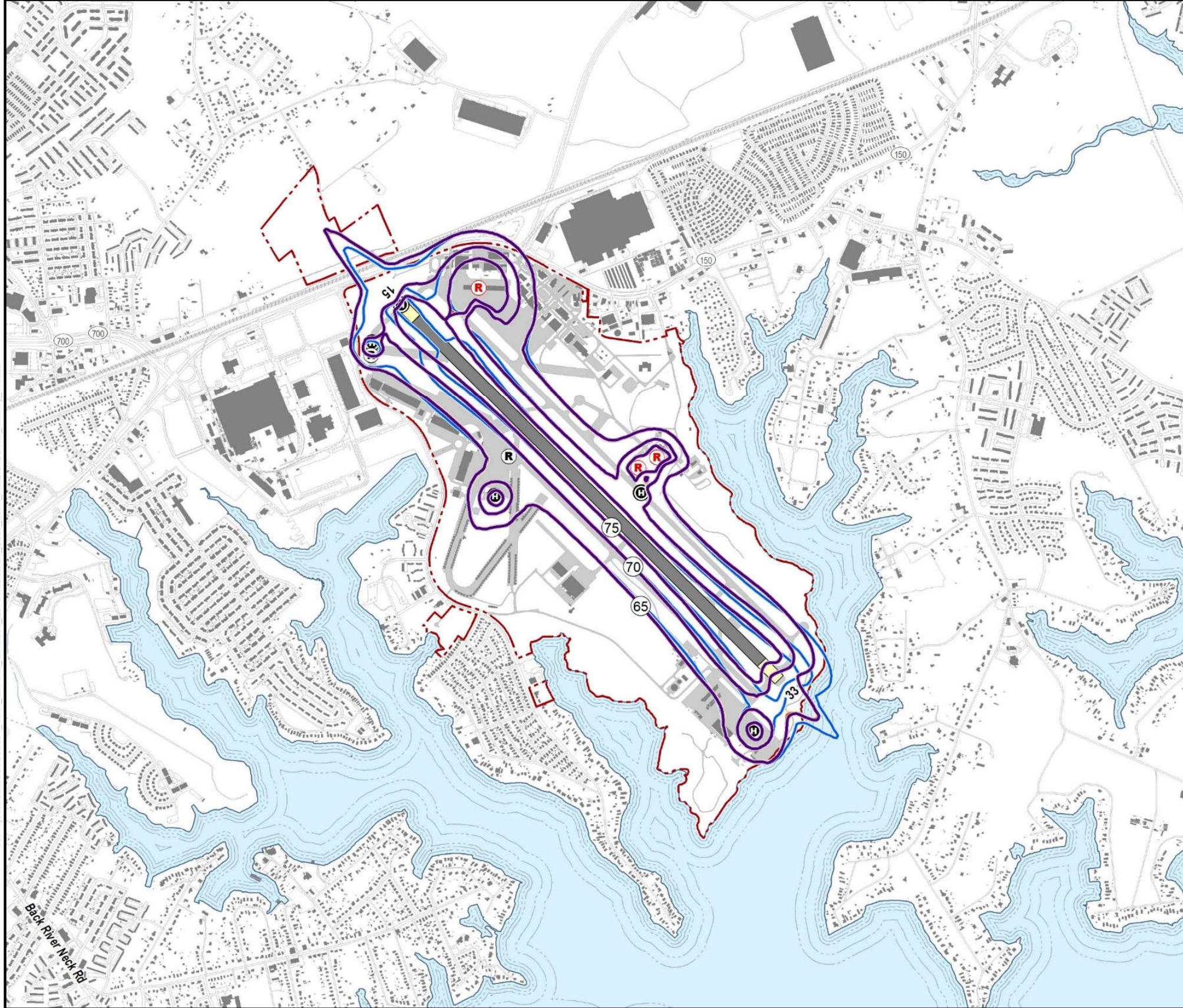




Airport Noise Zone Update

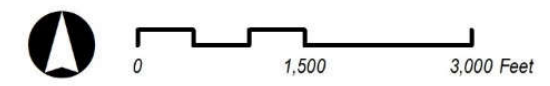
MTN ANZ Update 2019 Base Year Contours Compared to 2025 5-Year and 2030 10-Year Forecast Contours

- 2019 Base Year DNL Contours
- 2025 5-Year Forecast DNL Contours
- 2030 10-Year Forecast DNL Contours
- Airport Boundary
- Helicopter Operation Area
- Civilian Runup Locations
- Civilian Runway (Future)
- Military Runup Location
- 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.

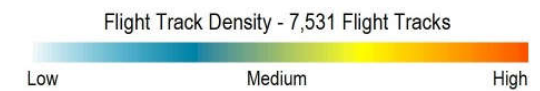




Airport Noise Zone Update

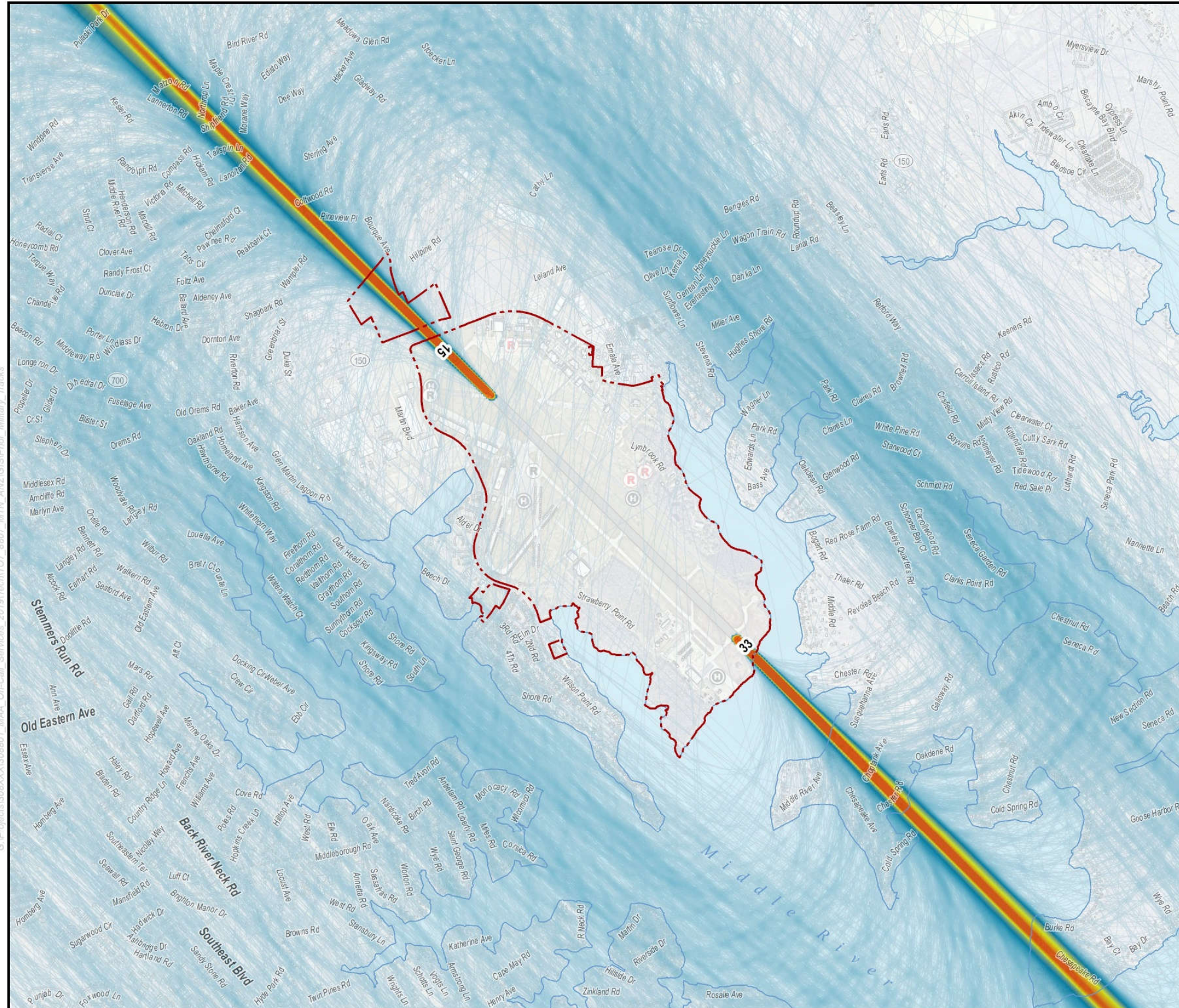
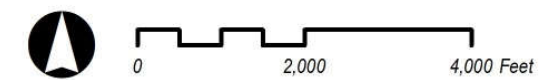
Modeled Civilian Fixed-Wing Arrival Flight-Tracks

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



DRAFT

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

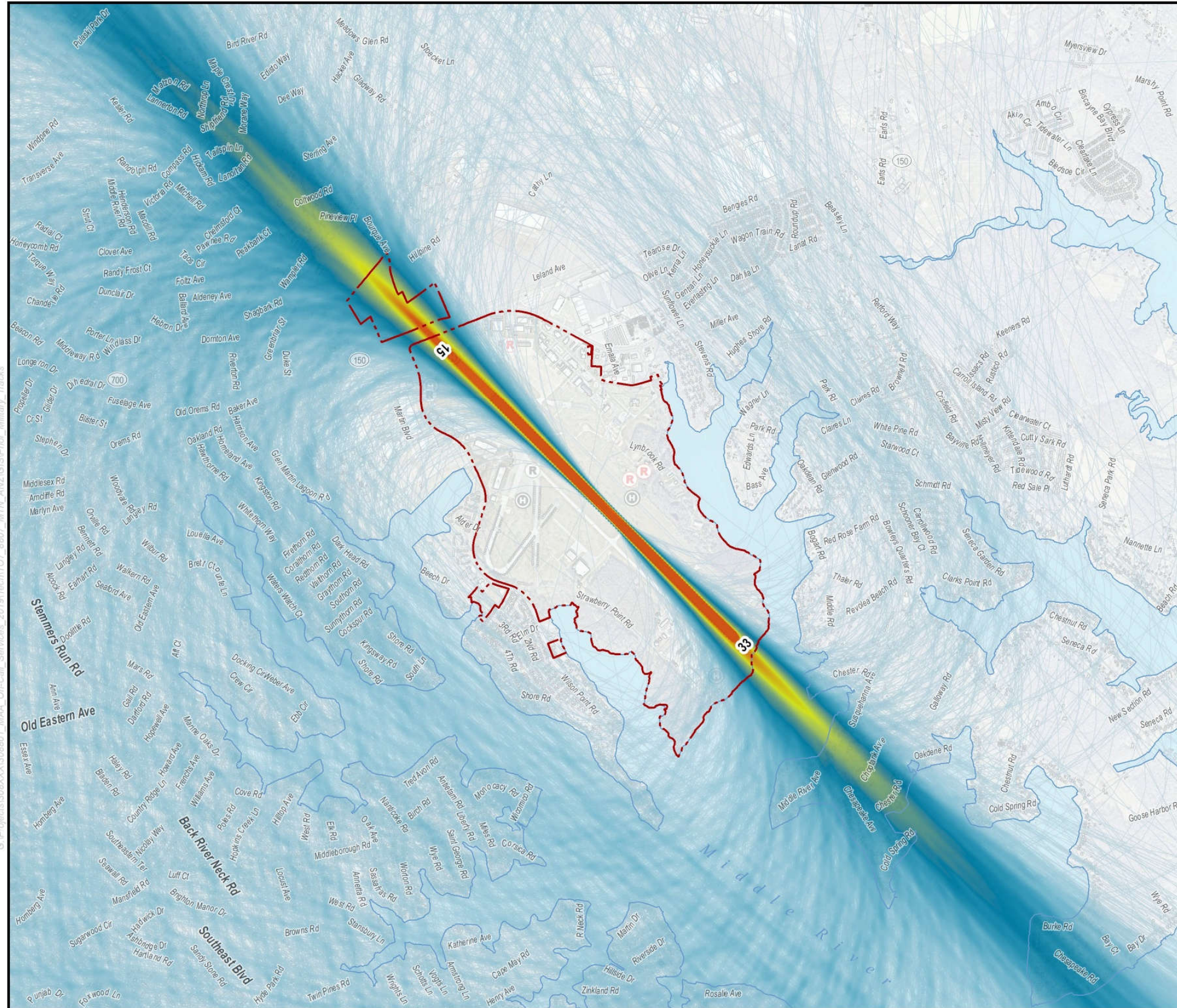
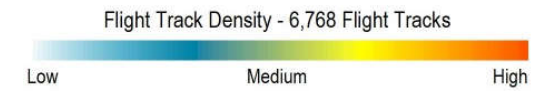




Airport Noise Zone Update

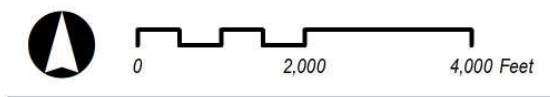
Modeled Civilian Fixed-Wing Departure Flight-Tracks

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



DRAFT

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

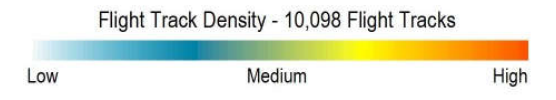




Airport Noise Zone Update

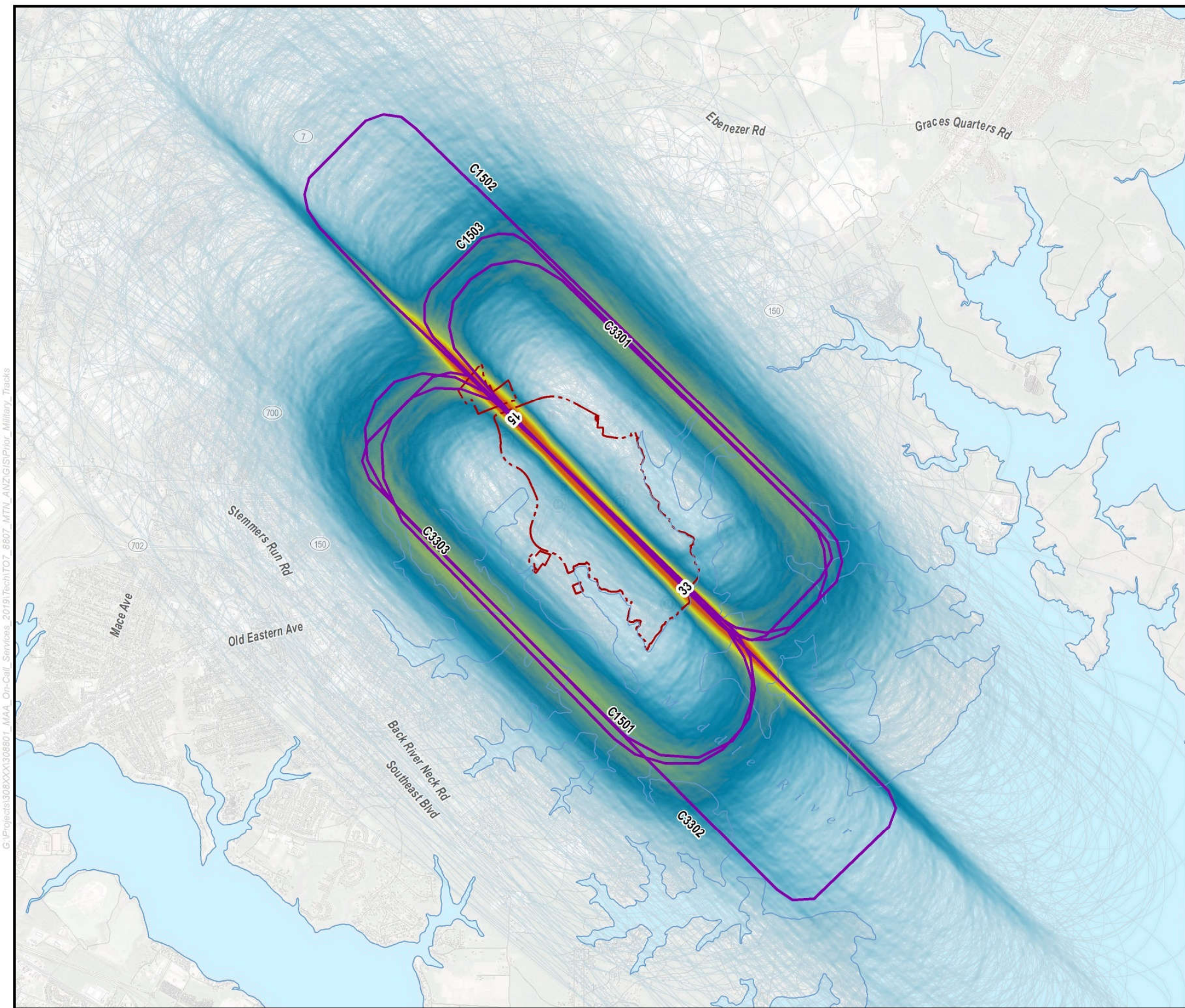
Modeled Civilian Fixed-Wing Circuit Flight Tracks

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



DRAFT

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



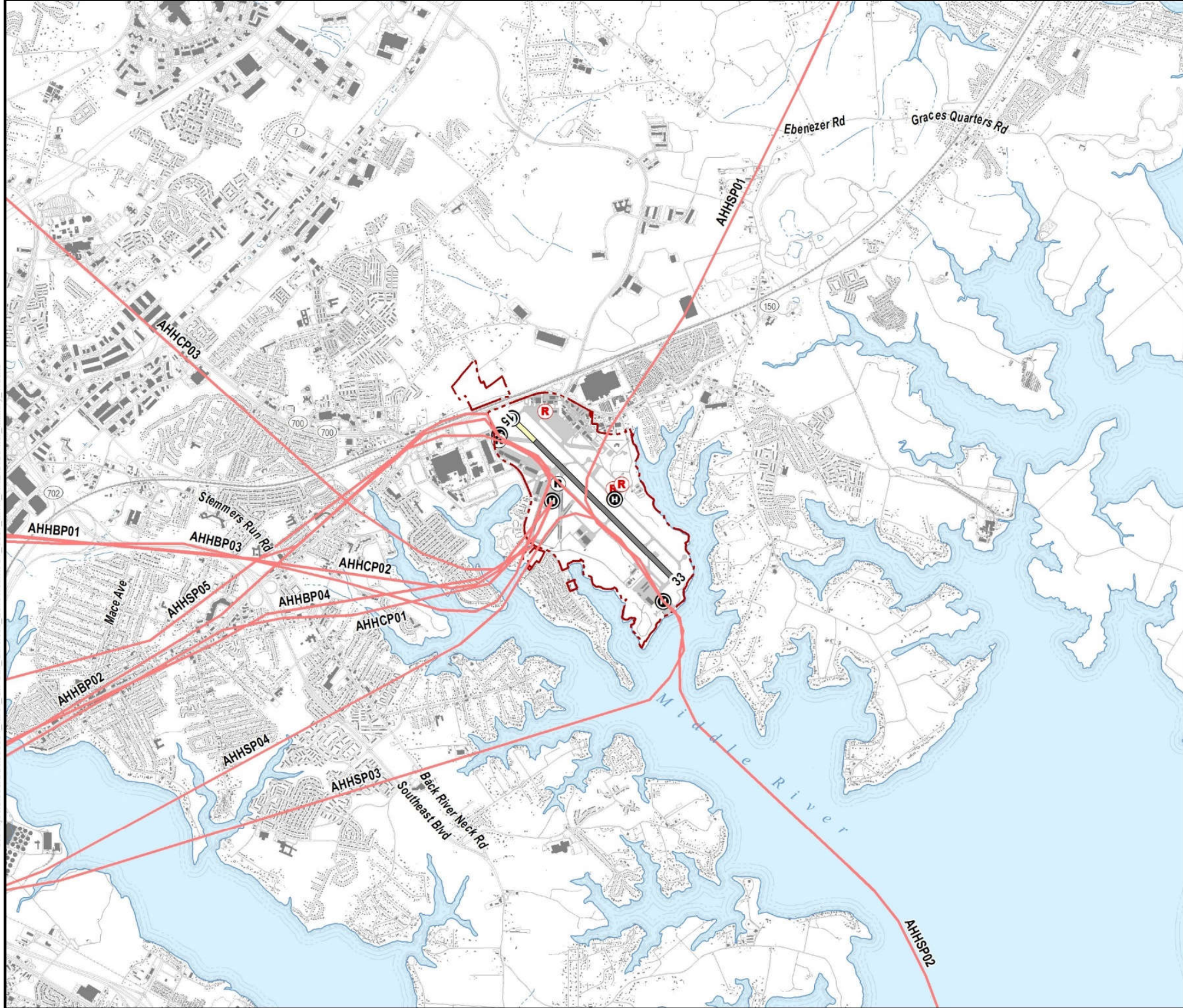
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Airport Noise Zone Update

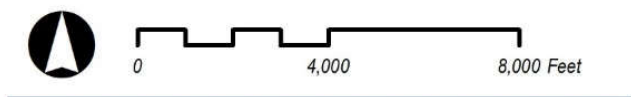
Modeled Civilian Helicopter Arrival Flight Tracks

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



DRAFT

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





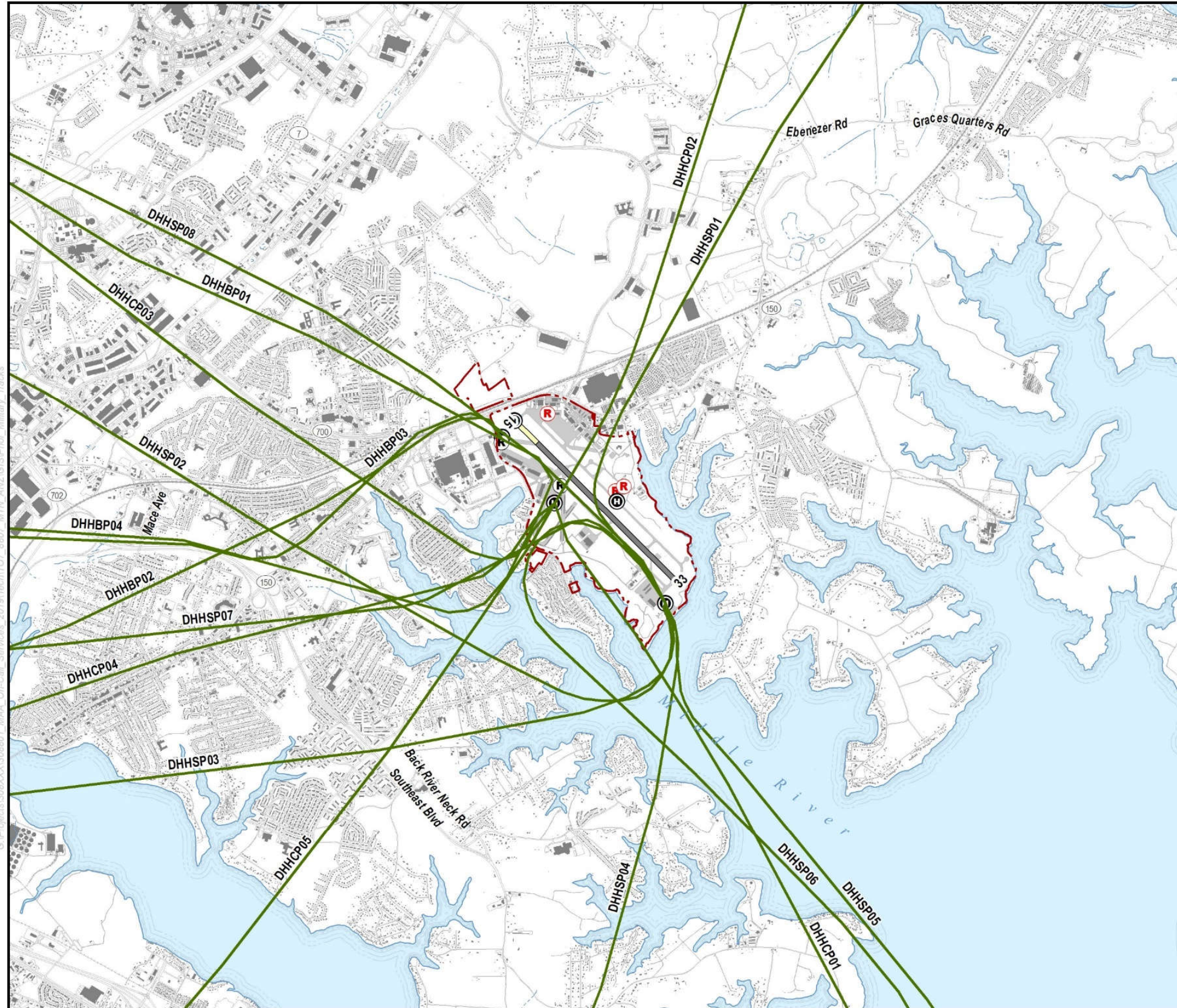
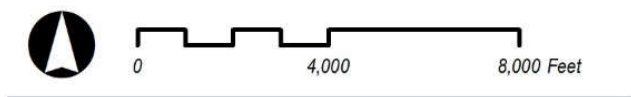
Airport Noise Zone Update

Modeled Civilian Helicopter Departure Flight Tracks

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

DRAFT

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

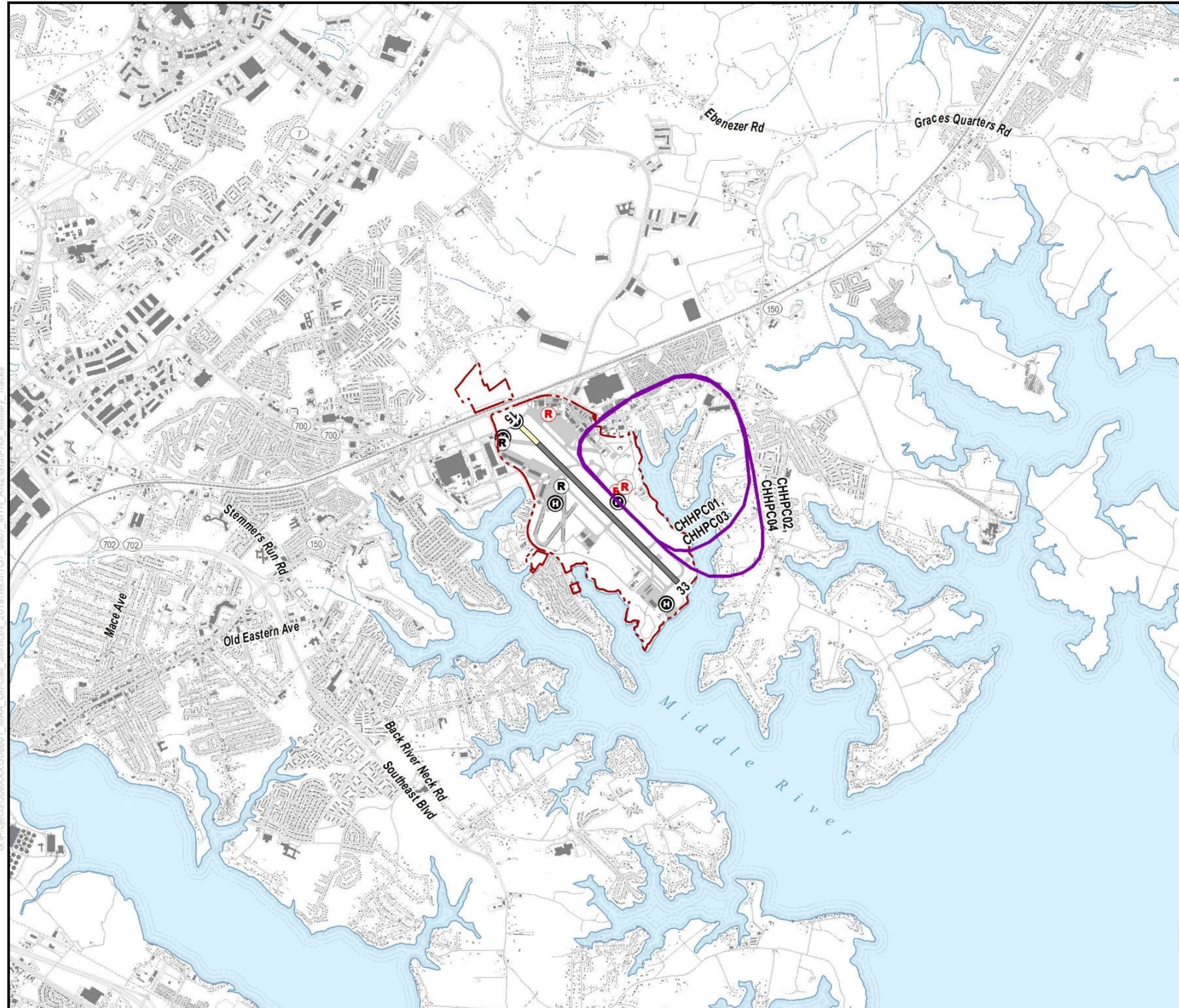




Airport Noise Zone Update

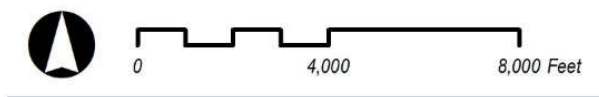
Modeled Civilian Helicopter Circuit Flight Tracks

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



DRAFT

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

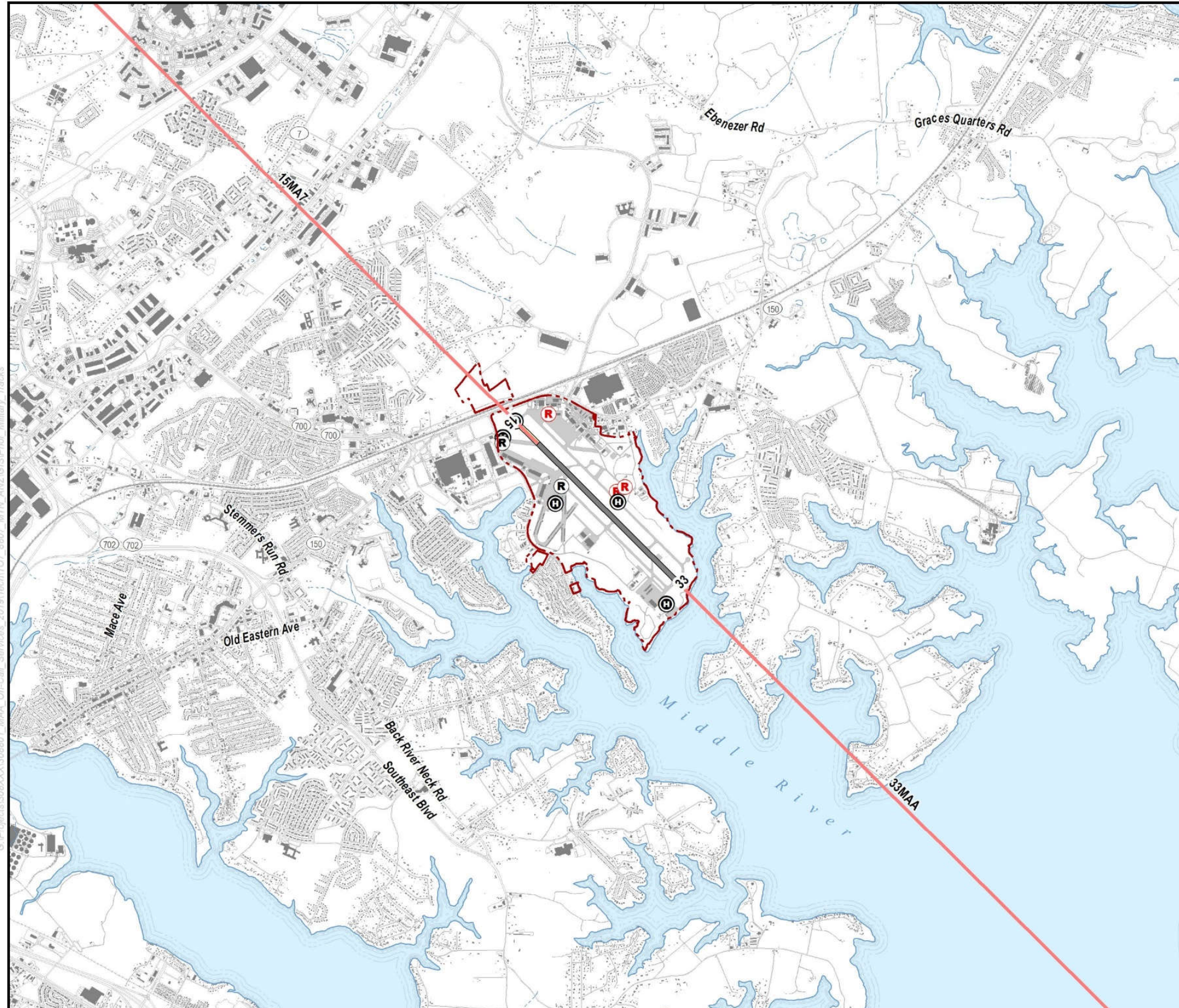




Airport Noise Zone Update

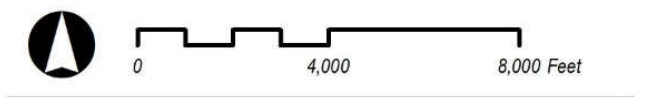
Modeled Military Fixed-Wing and Helicopter Arrival Flight Tracks

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



DRAFT

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





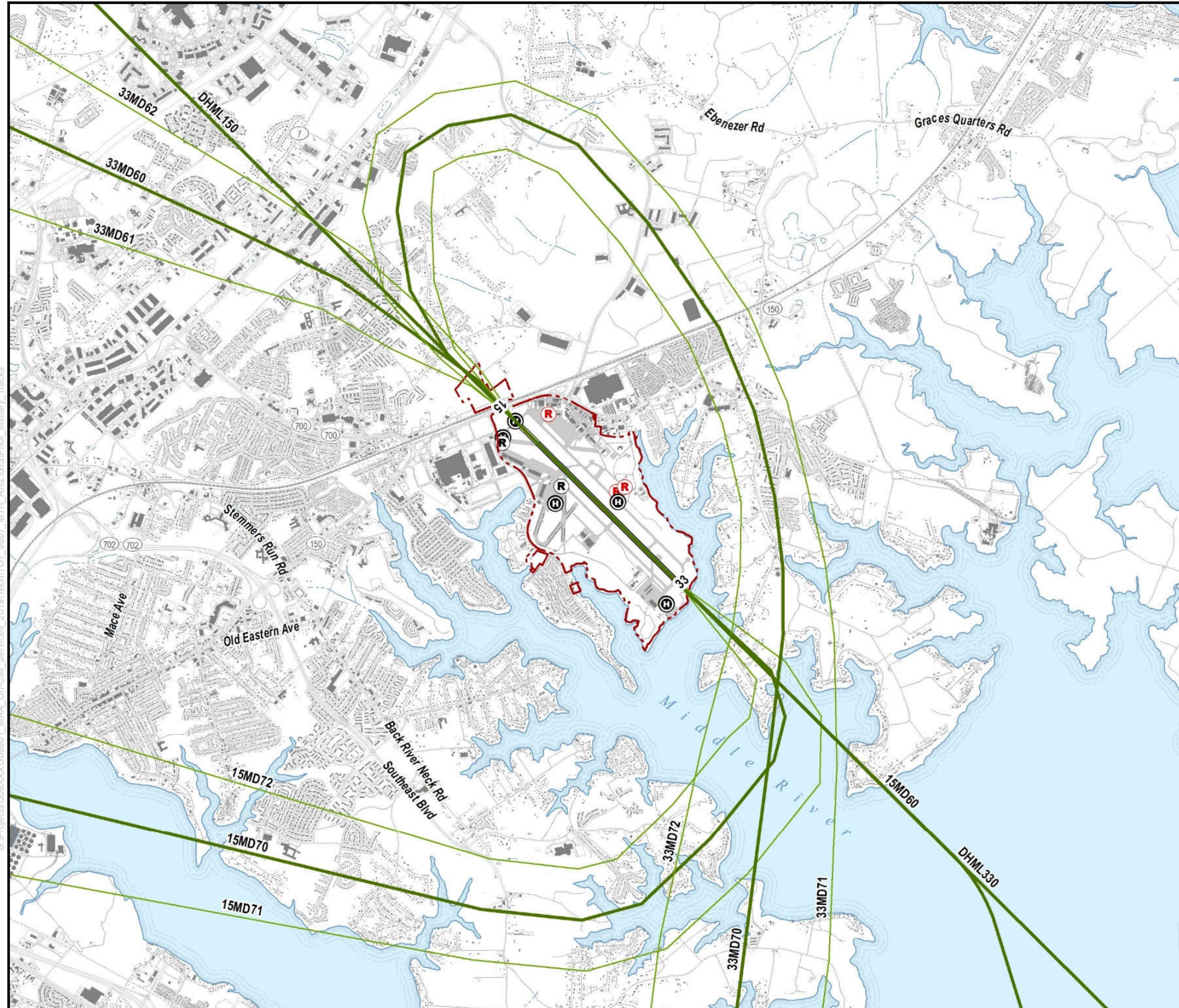
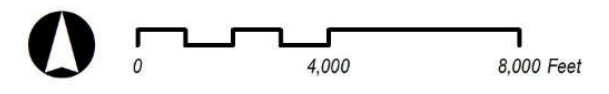
Airport Noise Zone Update

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
- Civilian Runup Locations
- Civilian Runway
- Additional Runway Available for Military Operations
- Roads
- Railroad
- Stream / Creek
- Buildings
- Military Runup Location

DRAFT

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

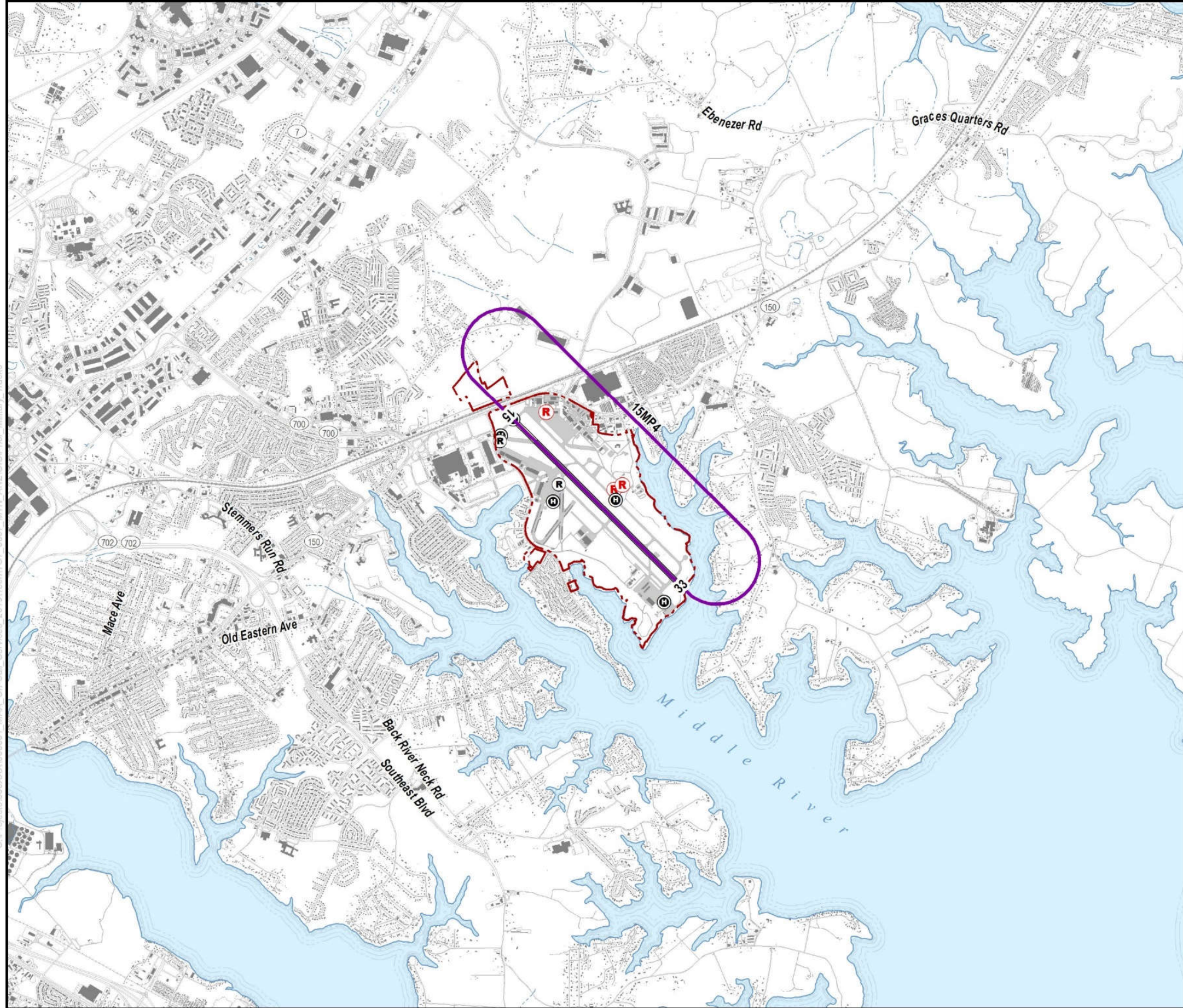




Airport Noise Zone Update

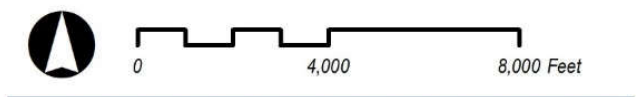
Modeled Military Fixed-Wing Circuit Flight Tracks

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



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



Draft 2020 MTN Airport Noise Zone

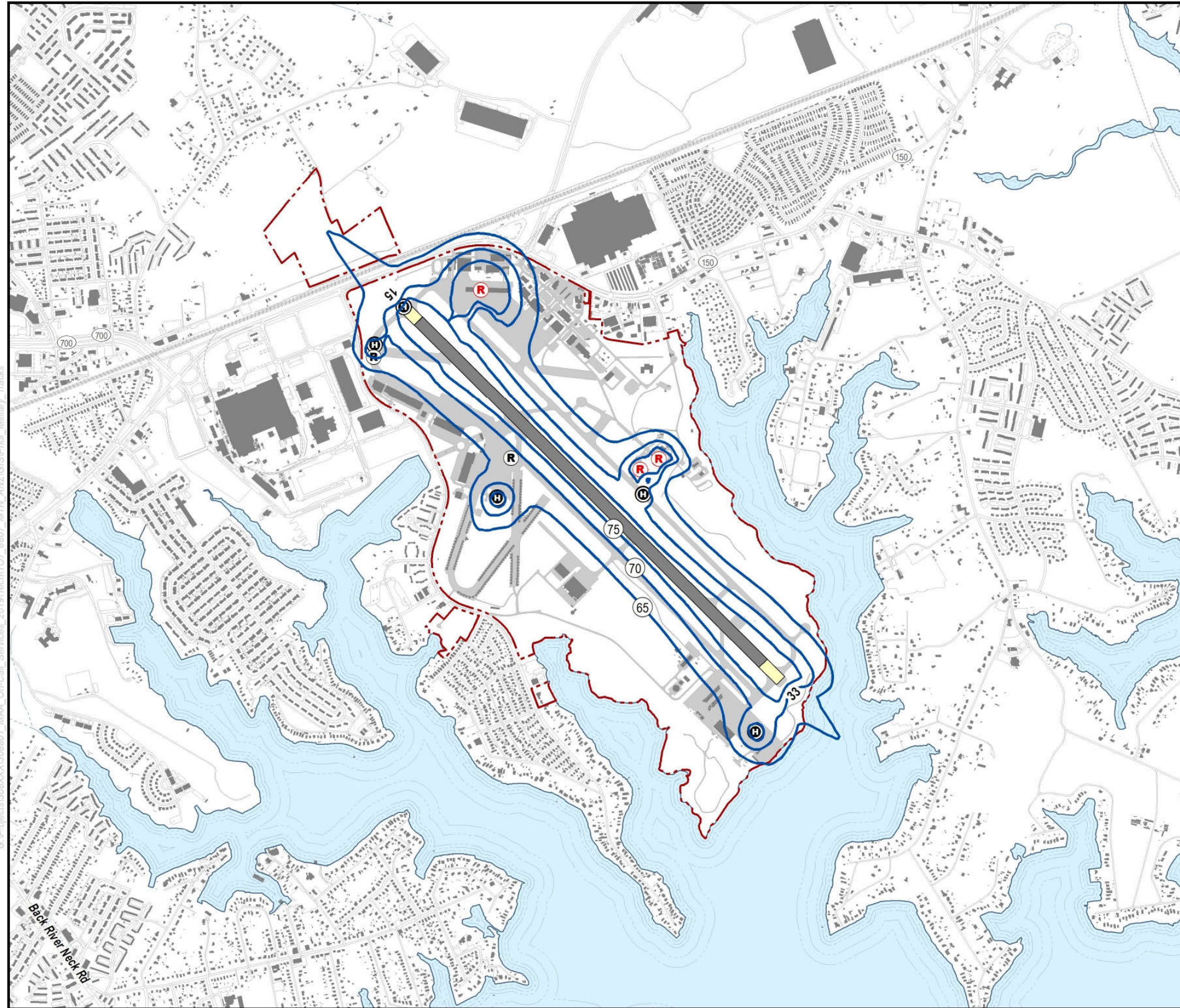
- 2020 MTN ANZ is a composite of the 65, 70, and 75 Day-Night Average (DNL/Ldn) noise contours for:
 - Base year 2019
 - Future years of 2025 and 2030
- Represents the largest extent of the annual DNL/Ldn contours for each of the three study years (2019, 2025, and 2030)
- Defined to provide the largest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



Airport Noise Zone Update

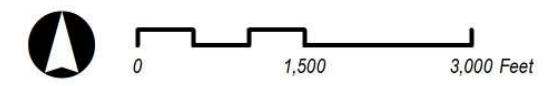
MTN ANZ Update 2020 ANZ Contours

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



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

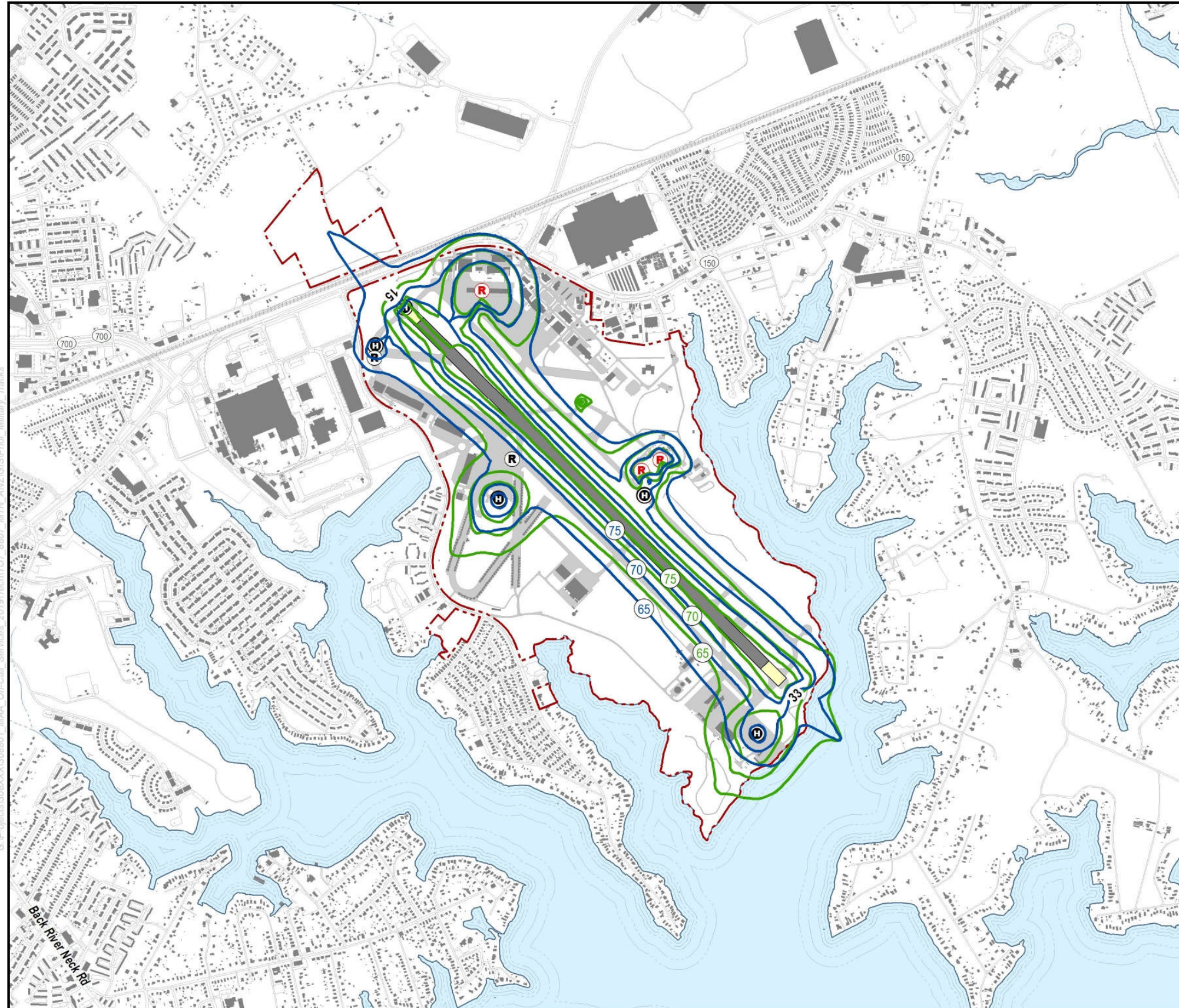




Airport Noise Zone Update

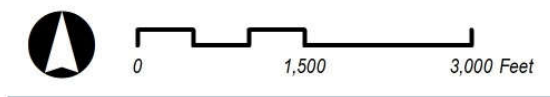
MTN ANZ Update 2020 ANZ Contours Compared to 2012 ANZ Contours

- 2020 Airport Noise Zone DNL Contours
- 2012 Airport Noise Zone DNL Contours
- Airport Boundary
- Helicopter Operation Area
- Civilian Runup Locations
- Civilian Runway (Future)
- Additional Runway Available for Military Operations
- Military Runup Location
- Roads
- Railroad
- Stream / Creek
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Data Sources: Baltimore County Government Open Data Portal; Environmental Systems Research Institute (ESRI); AirNav.com; HMMH Inc.





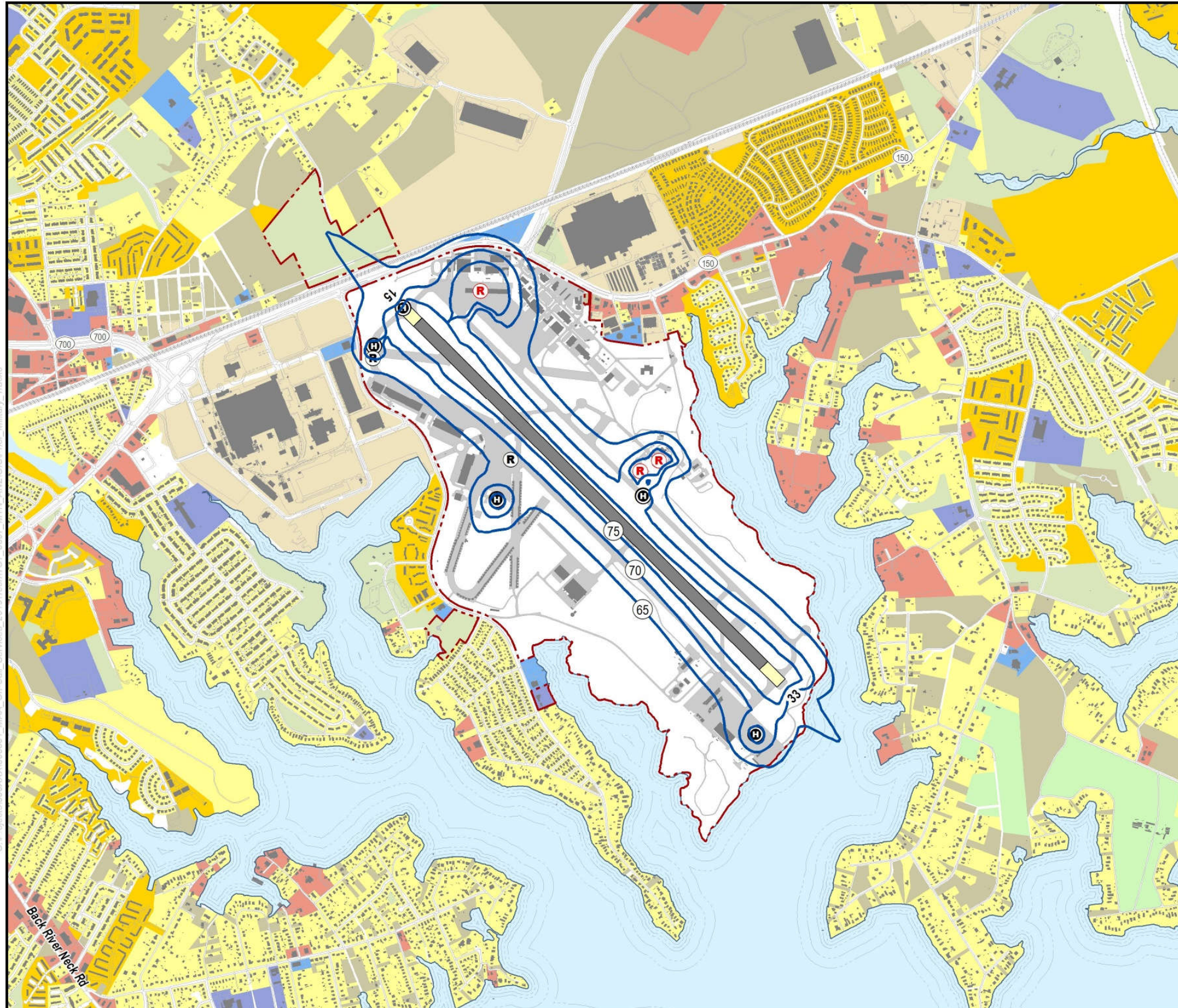
Airport Noise Zone Update

MTN ANZ Update 2020 ANZ Contours

- 2020 Airport Noise Zone DNL Contours
- Airport Boundary
- Helicopter Operation Area
- 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
- Place of Worship
- Library
- Hospital / Health Care

DRAFT

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



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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



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



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



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.



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.



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.



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.



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.



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.

Proposed Project Schedule

Date	Item
July 2019	Project Start
September 12, 2019	Stakeholder Advisory Committee (SAC) Meeting #1 <ul style="list-style-type: none">• Introductions• Overview of ANZ Update scope and process• Schedule
Fall 2019	Develop draft ANZ contours <ul style="list-style-type: none">• Distribute compiled study information to SAC members for review and comment
January 14, 2020	Stakeholder Advisory Committee (SAC) Meeting #2 <ul style="list-style-type: none">• Present draft ANZ contours & review Noise Abatement Plan
Early 2020	Prepare draft ANZ document
Spring 2020	Public Workshop/ Public Hearing <ul style="list-style-type: none">• 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@bwairport.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!



Supplemental Information

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	<ul style="list-style-type: none"> - 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