



BWI-Thurgood Marshall Airport Annual Summary of Noise Exposure

Presented by DC Metroplex BWI Community Roundtable in cooperation with Vianair, Inc

Yearly Report for period January 2023 – December 2023

DC Metroplex BWI Community Roundtable link to Noise Exposure Monthly Reports below.
The reports can be found at the bottom of the page within the tab labeled
“Noise Exposure Monthly Reports (Howard/Anne Arundel County Contractor)”.

<https://marylandaviation.com/environmental/environmental-compliance-sustainability/dc-metroplex-bwi-community-roundtable>

2023 Annual Summary of Monthly Noise Exposure Reports

Estimated Regional Population Exposed

to DNL Values above 50 DNL ⁽¹⁾⁽²⁾ **281,708 residents**

Total # of BWI – Marshall Operations **235,041**

Total Operations Day Vs Night ⁽³⁾ **Day - 194,156 (82.6%) / Night - 40,857 (17.4%)**

Cargo Operations **11,758 – (5% of Total BWI-M Operations)**

Cargo Operations Day Vs Night **Day - 8,881 (75.54% of cargo operations) / Night - 2,877 (24.47%)**

(1) Source: Maryland Aviation Administration (MAA) Community Noise saturation (CANS) Presentation to Maryland Aviation Commission 21 Feb 2024

(2) There were 221,820 total Noise Complaints during 2023 in areas where the annual DNL is below 50 DNL. Source: MMA CANS Presentation 21 Feb 2024

(3) "Nighttime Hours" are from 10PM to 7AM

Anne Arundel County Landmarks - Top 12 Number of events above 55 dBA and DNL Yearly Average*

Description	Number of Events Above 55 dBA (YTD)	DNL (Yearly Average*)
Shiple's Choice Elementary	79,128	58.43
Arden on the Severn	61,527	56.42
Rolling Knolls	23,854	46.20
Sherwood Forest	22,430	48.09
London Public House	18,093	38.43
West Annapolis Elementary	13,540	43.54
Wordour Bluffs	12,962	42.53
Maryland State House	10,352	41.28
Millersville Elementary School	8,805	42.71
Truxton Park	7,403	39.47
Annapolis Middle School	6,555	37.67
Eastport Terrace	6,519	37.66

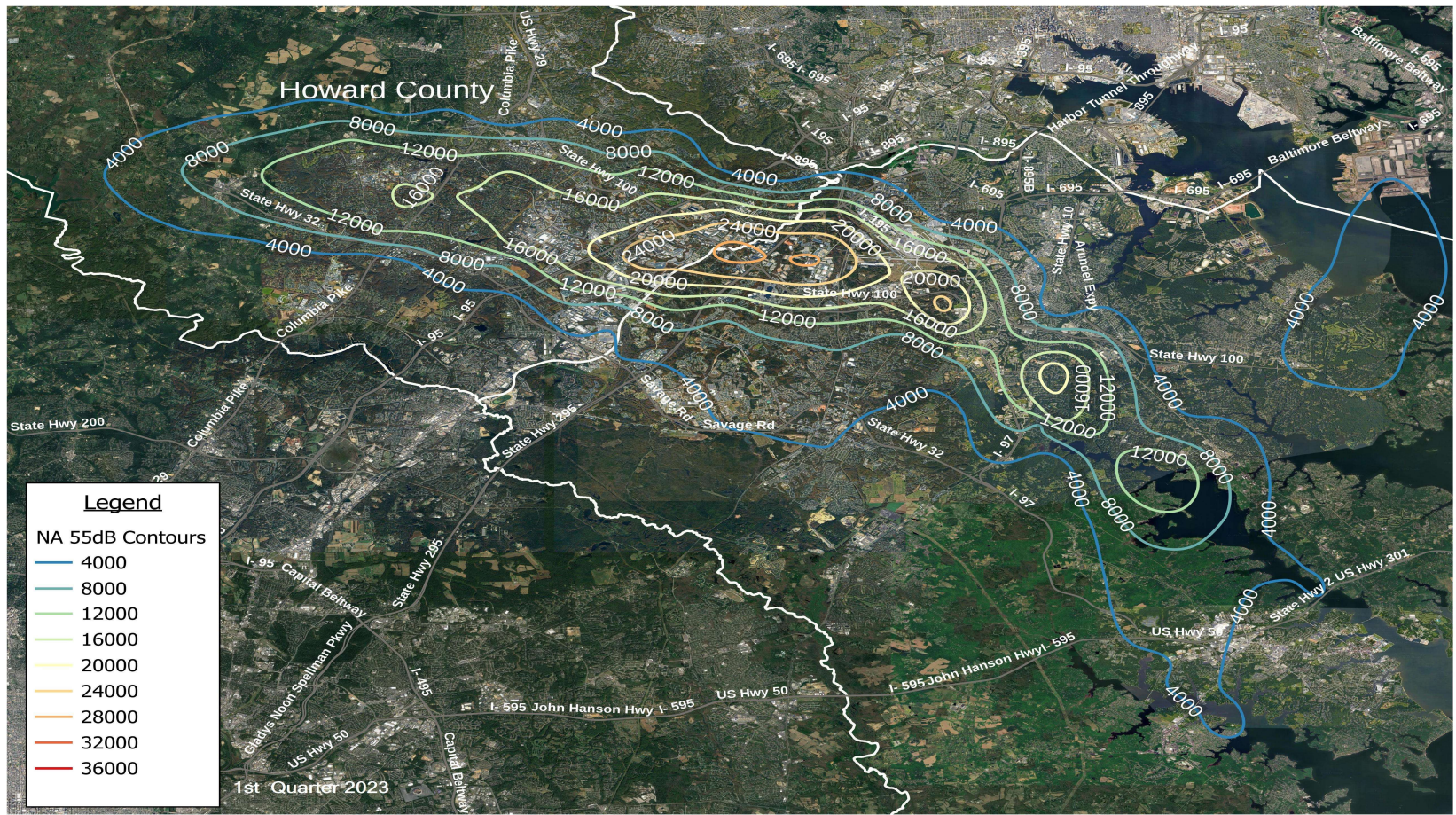
* This is an indicative DNL for discussion purposes only and is comprised of total monthly DNL calculations divided by twelve (12) months.

Howard County Landmarks - Top 12 Number of events above 55 dBA and DNL Yearly Average*

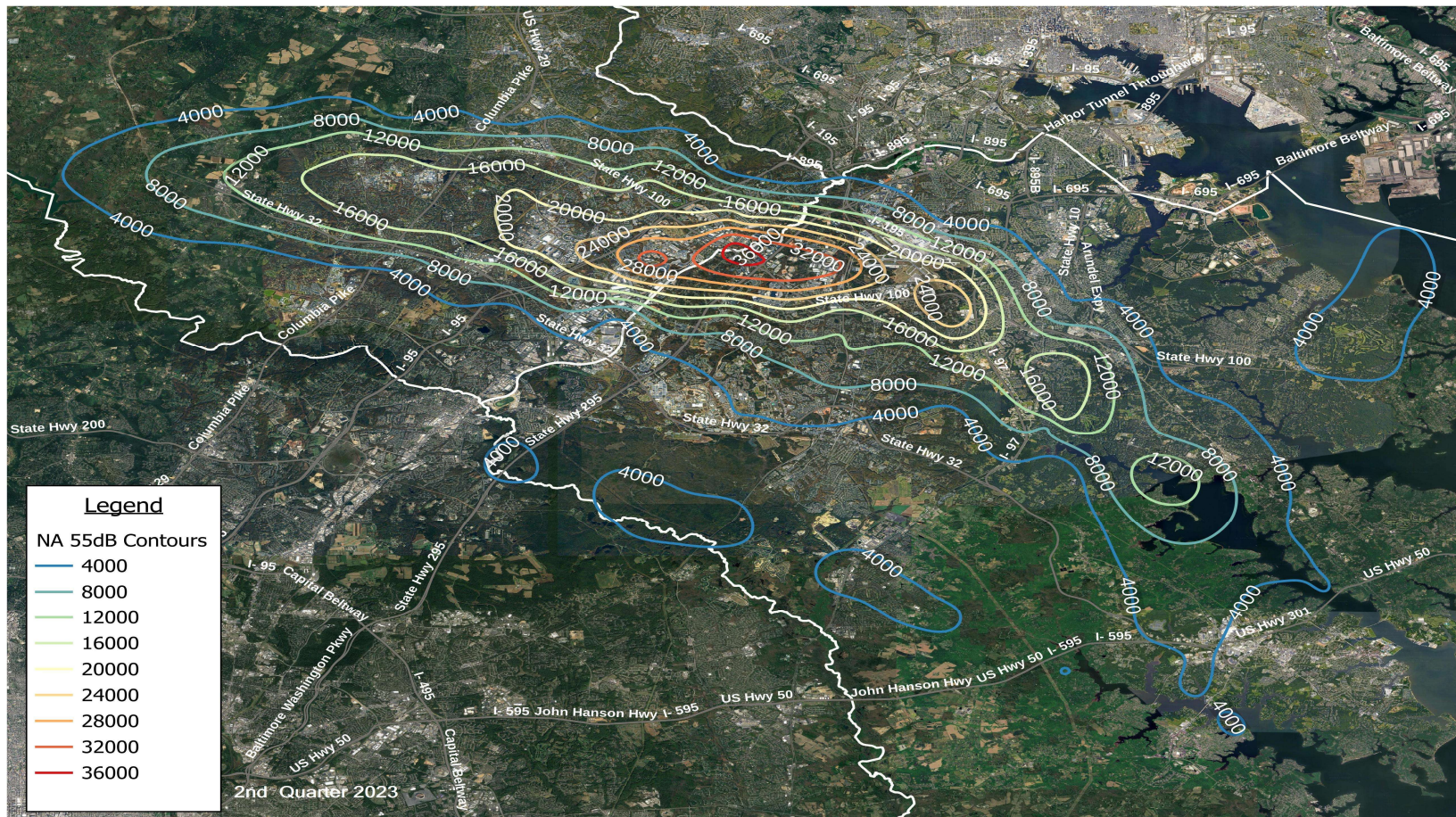
Description	Number of Events Above 55 dBA (YTD)	DNL (Yearly Average*)
Oxford Square Neighborhood	119,203	63.29
Howard Square Apartments	110,459	55.25
Harwood Park Neighborhood	86,685	57.27
Troy Park	89,671	59.26
Gateway Site	83,846	57.26
Christ Church Episcopal	79,951	56.13
Mayfield Woods Middle School	68,769	57.25
Oakland Mills High School	73,087	55.34
Long Reach High School	72,287	56.10
Merriweather Post Pavillion	71,215	54.20
HoCo General Hospital	67,975	52.98
Abiding Savior Lutheran	64,100	51.74

* This is an indicative DNL for discussion purposes only and is comprised of total monthly DNL calculations divided by twelve (12) months.

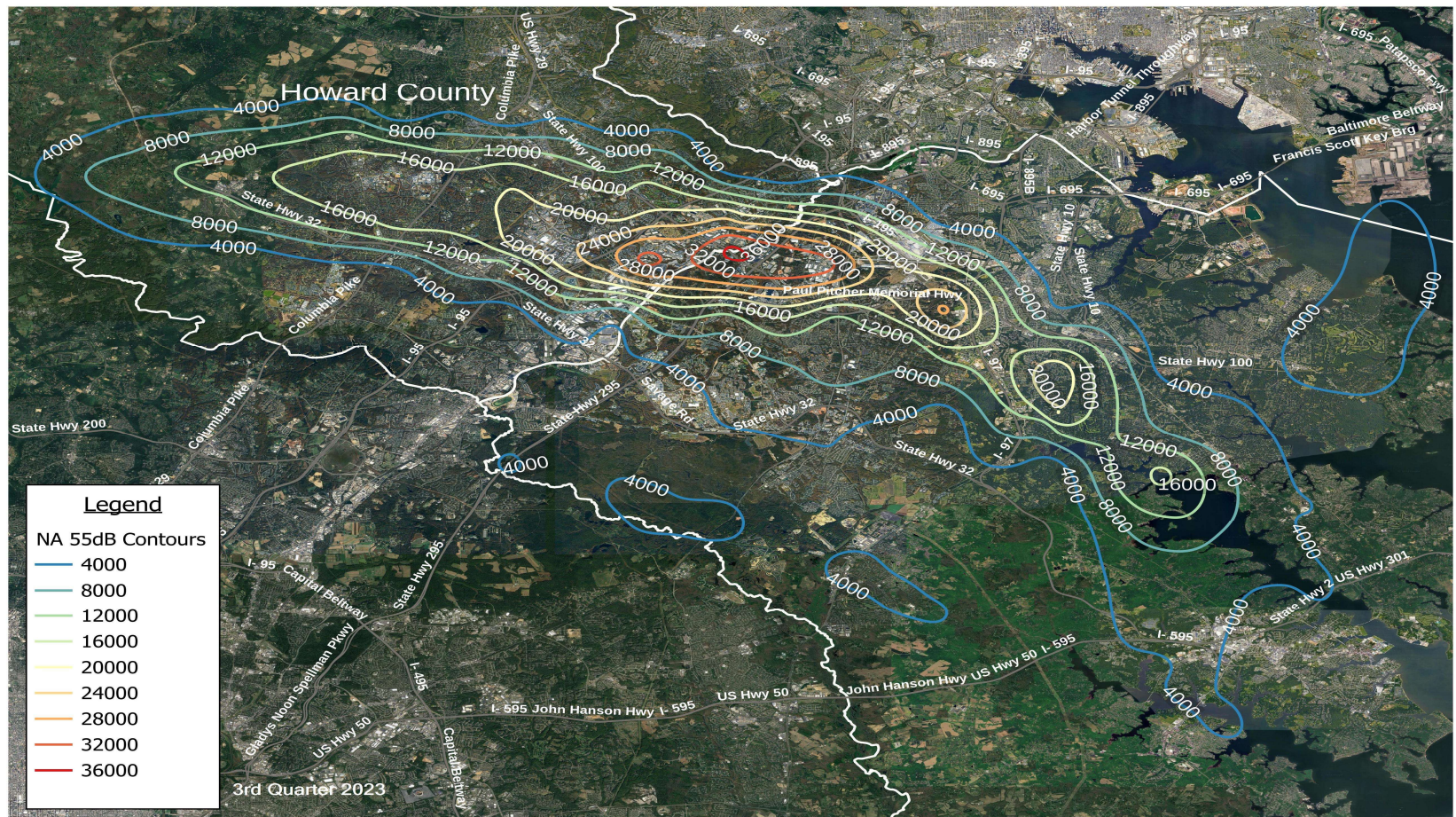
1st Quarter (Jan-Mar) Contours for Number Of Events Above 55 Decibels (NA55)



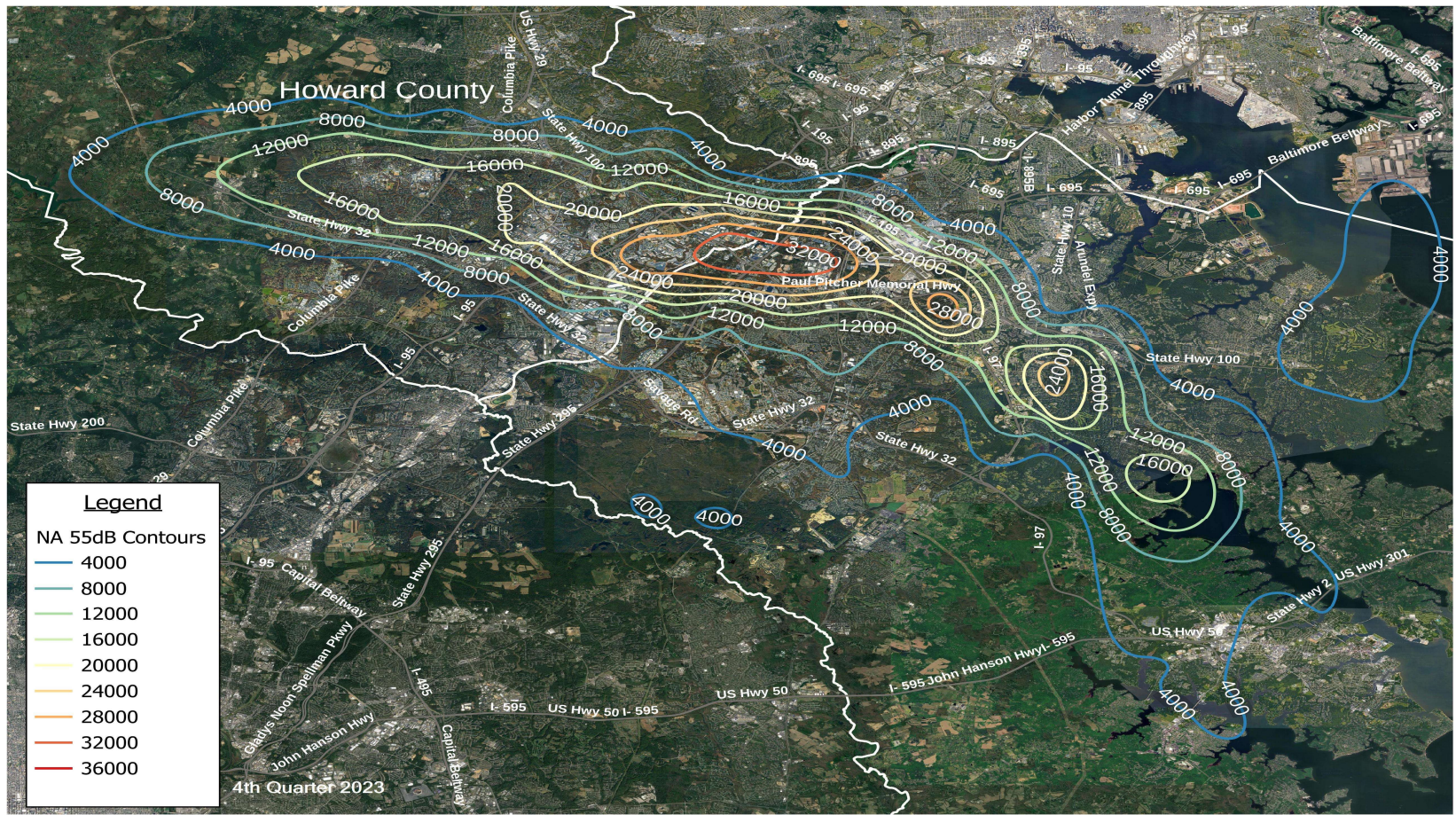
2nd Quarter (Apr-Jun) Contours for Number Of Events Above 55 Decibels (NA55)



3rd Quarter (Jul-Sep) Contours for Number Of Events Above 55 Decibels (NA55)



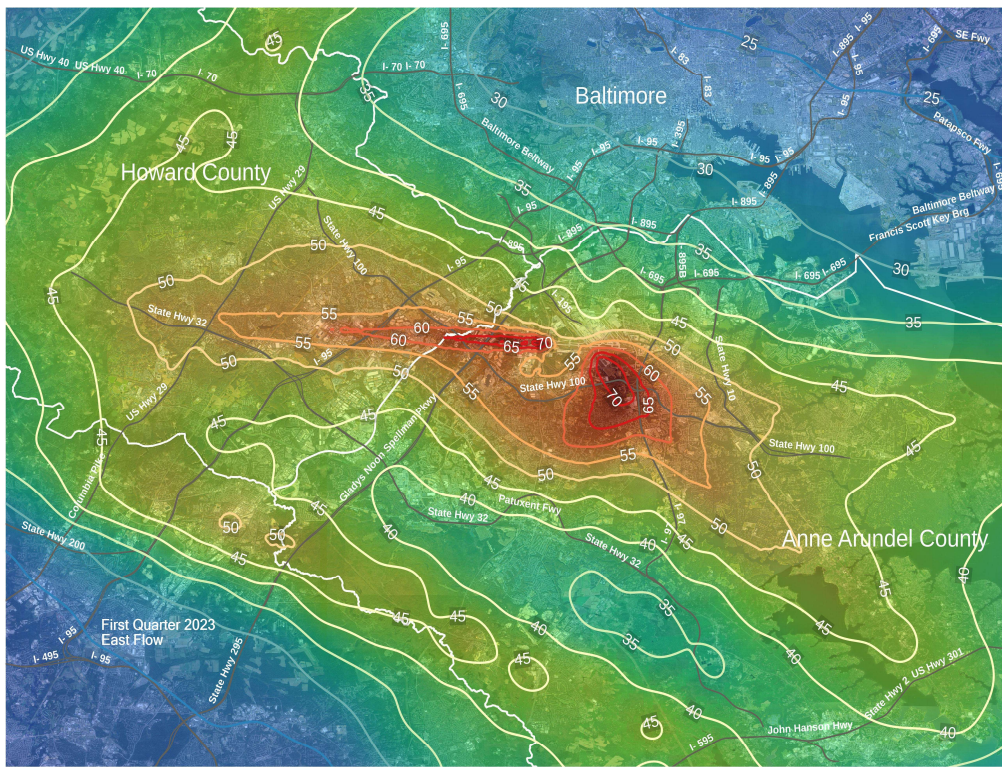
4th Quarter (Oct-Dec) Contours for Number Of Events Above 55 Decibels (NA55)



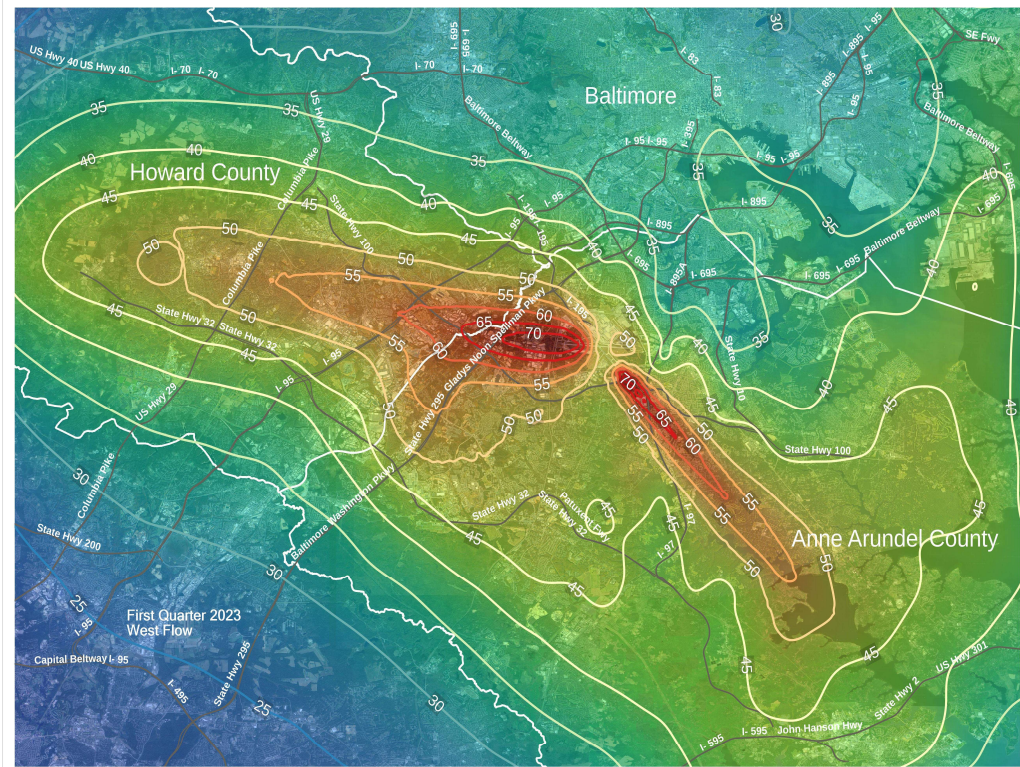
Typical DNL Map for East and West flow operation

1st Quarter 2023

East Flow



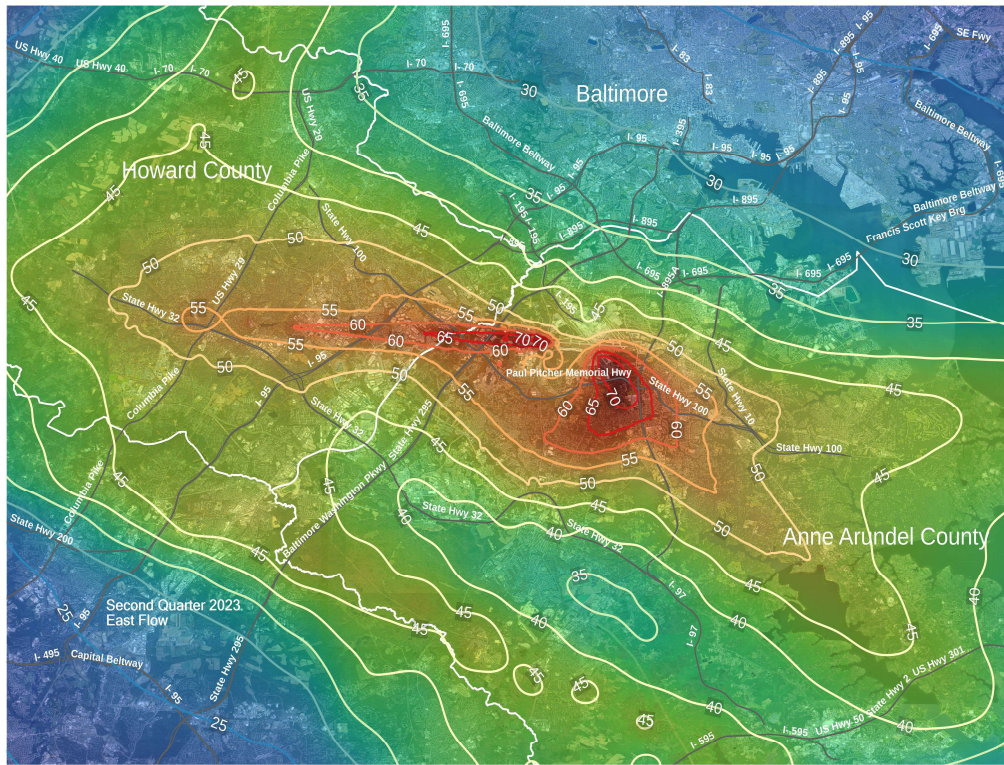
West Flow



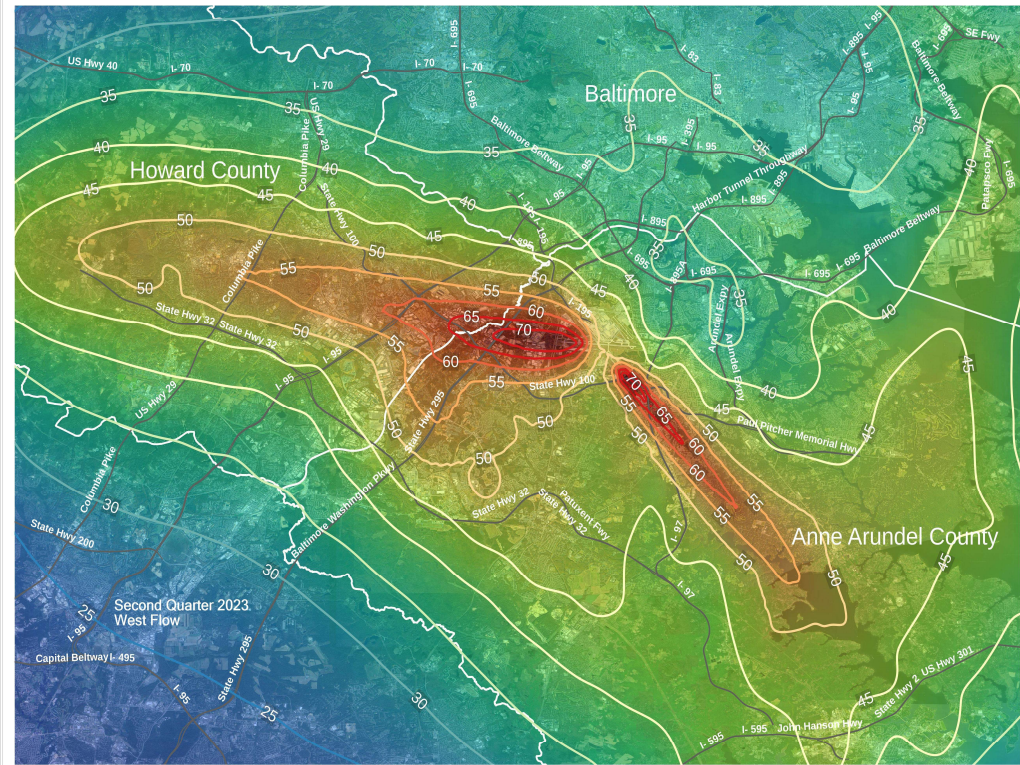
Typical DNL Map for East and West flow operation

2nd Quarter 2023

East Flow



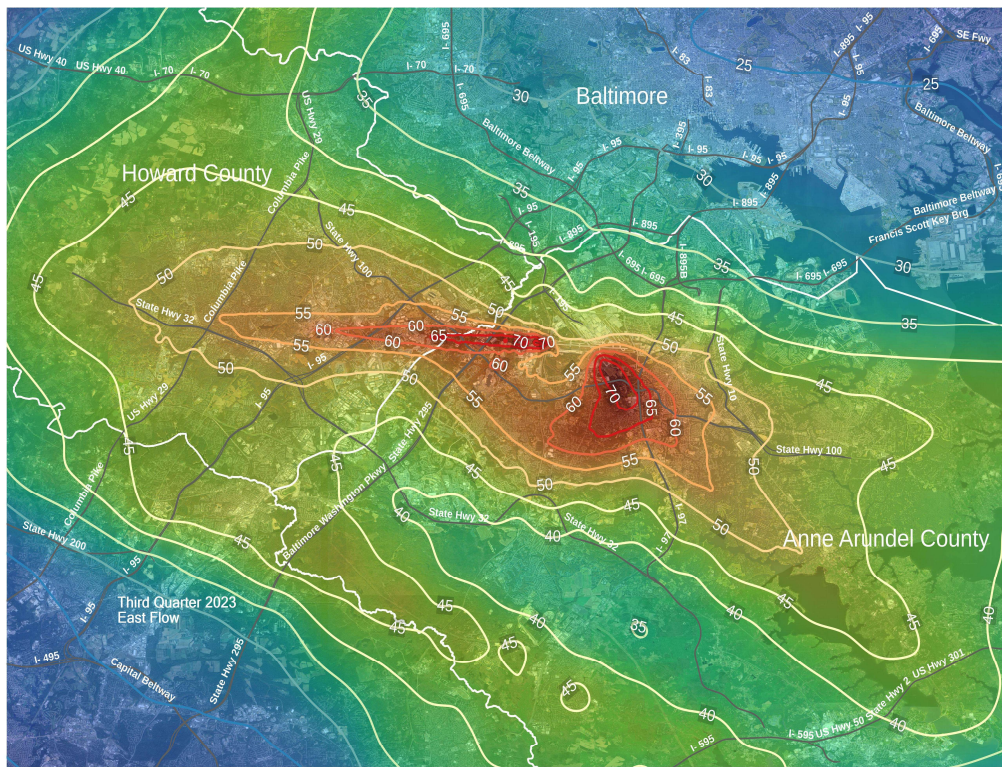
West Flow



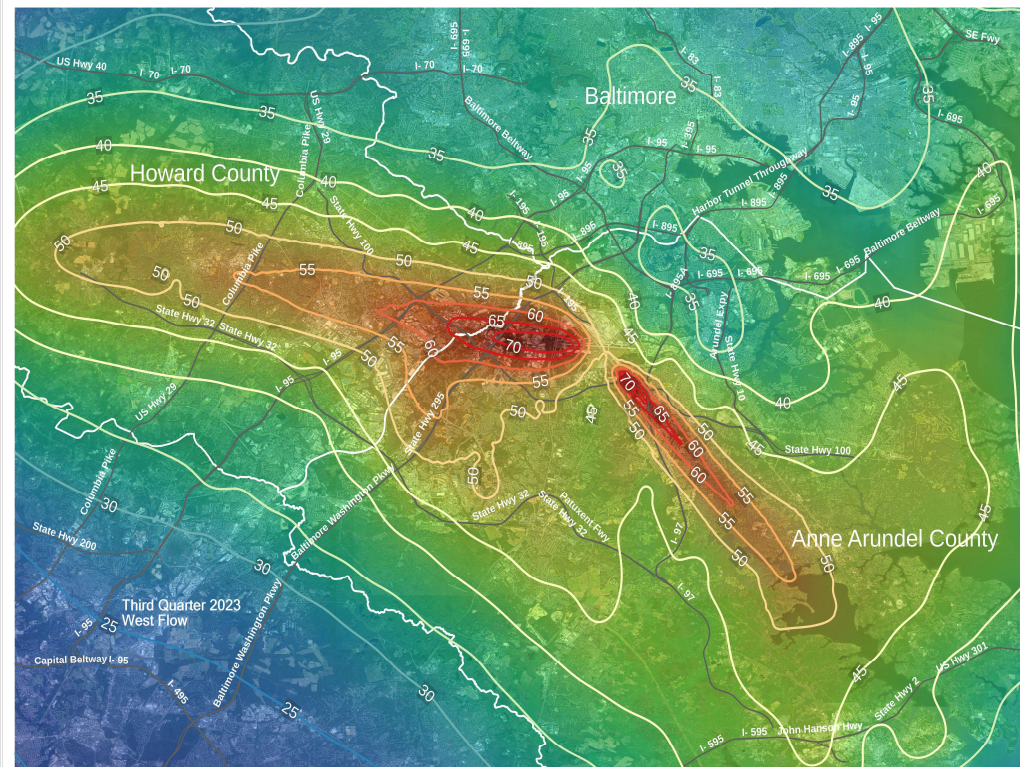
Typical DNL Map for East and West flow operation

3rd Quarter 2023

East Flow



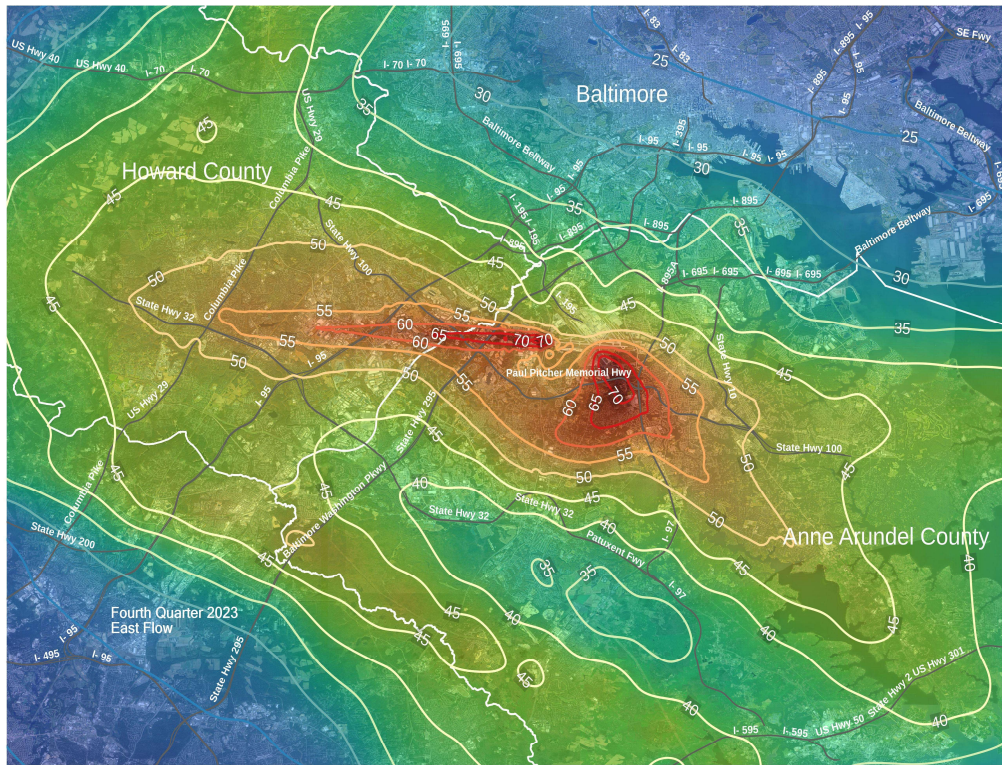
West Flow



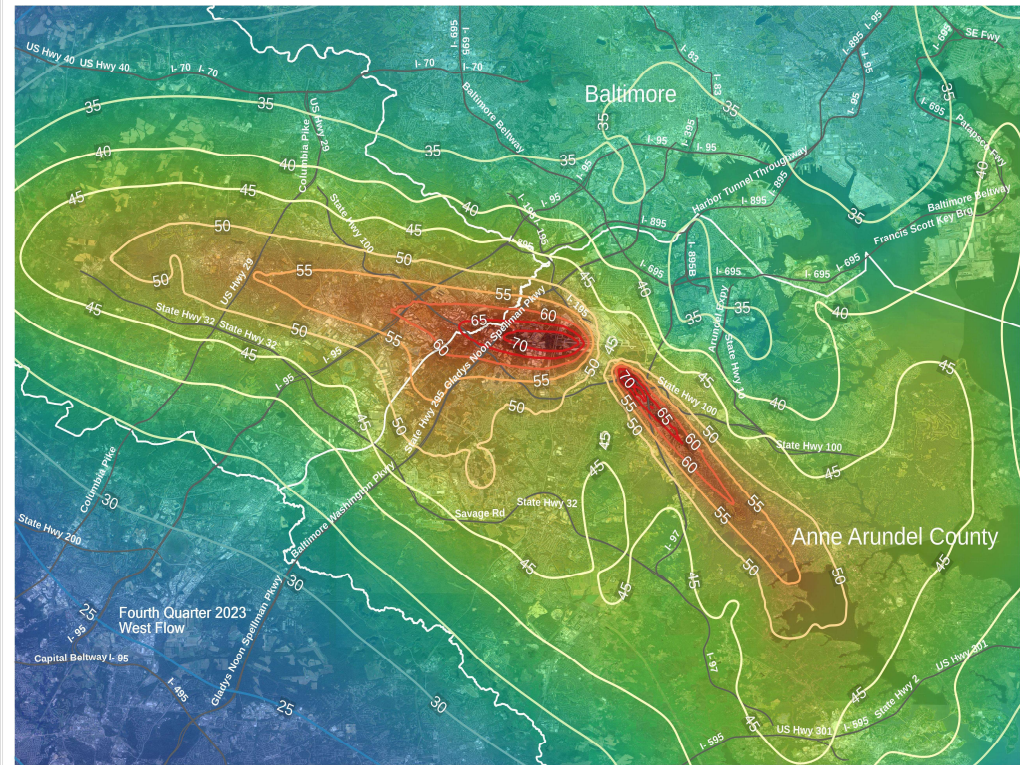
Typical DNL Map for East and West flow operation

4th Quarter 2023

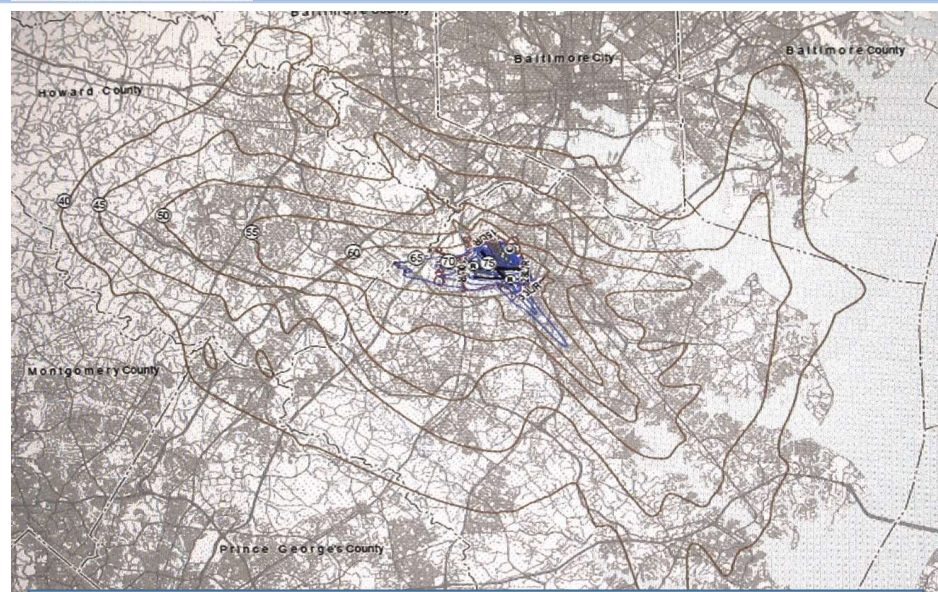
East Flow



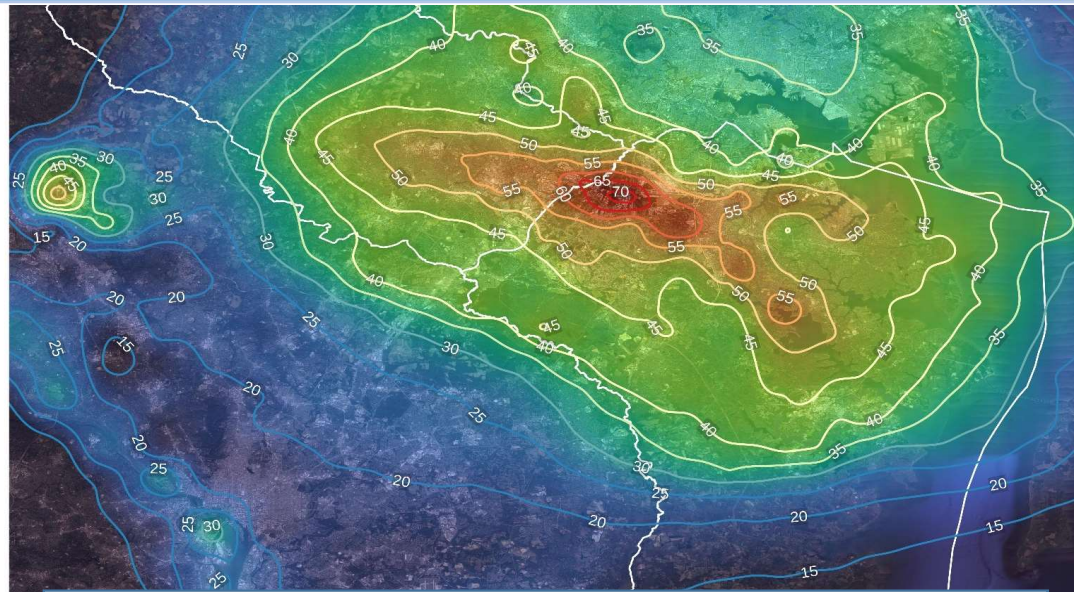
West Flow



REGIONAL MAPS OF BWI-MARSHALL NOISE POLLUTION



MAA modeled *actual historical* flights projected for the 2020 Airport Noise Zone and updated in Aug 2022 for a report to the Maryland General Assembly

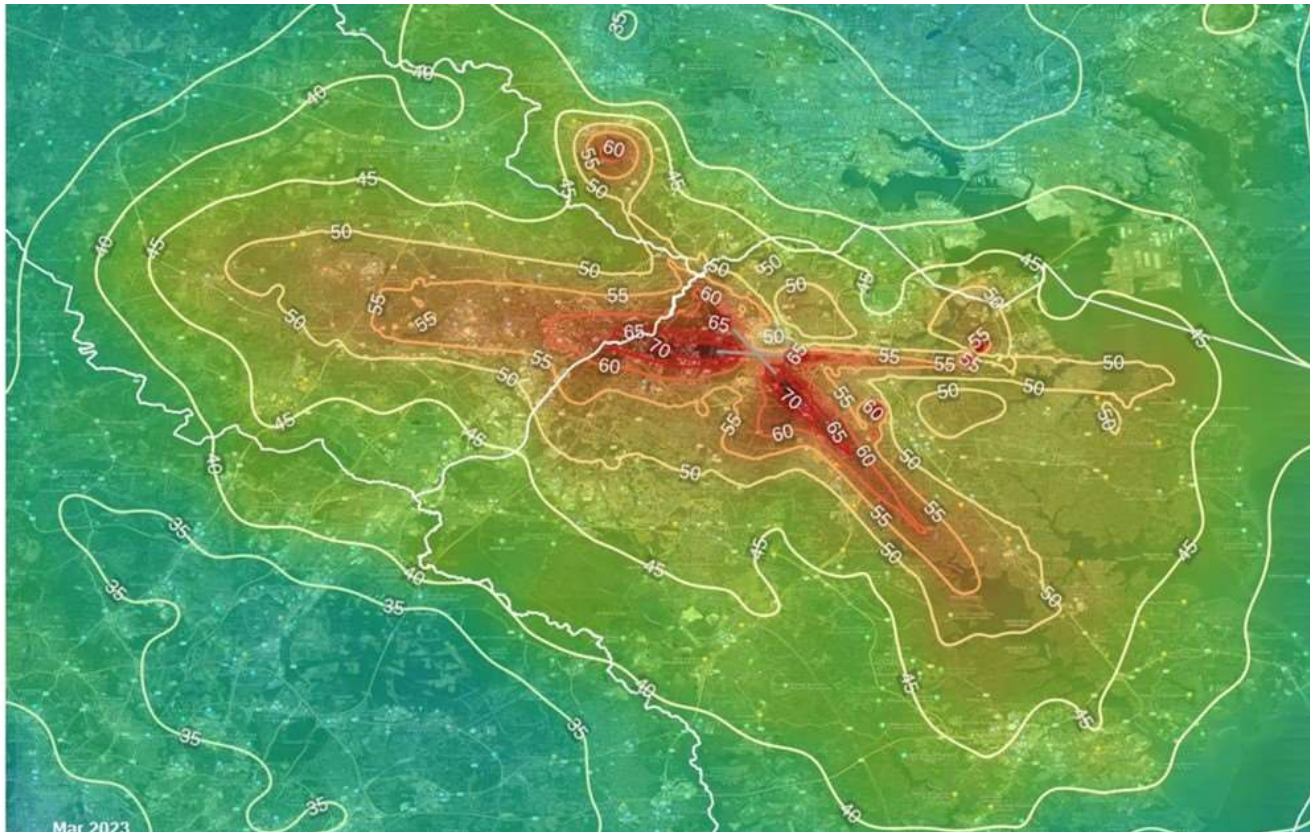


Vianair, Inc. modeled *actual daily* flights for February 2023 for the Monthly Aircraft Operations and Noise Exposure Report of the DC Metroplex BWI Community Roundtable

These images represent two versions of the mapped regional noise pollution generated by commercial flight operations at BWI-Marshall. The map on the left was generated by MDOT-MAA based on actual **historical** operations collected by the MDOT MAA's Airport Noise and Operations Monitoring System (ANOMS) with computer modeling of future expected noise. It is focused on the 65 DNL contour of the Airport Noise Zone. The Vianair-generated map on the right is based on **actual daily flights** from the airport with computer modeling of the resulting expected noise, creating a more in-depth look at all DNL noise contours.

Noise Exposure – DNL Contours

Howard and Anne Arundel Counties

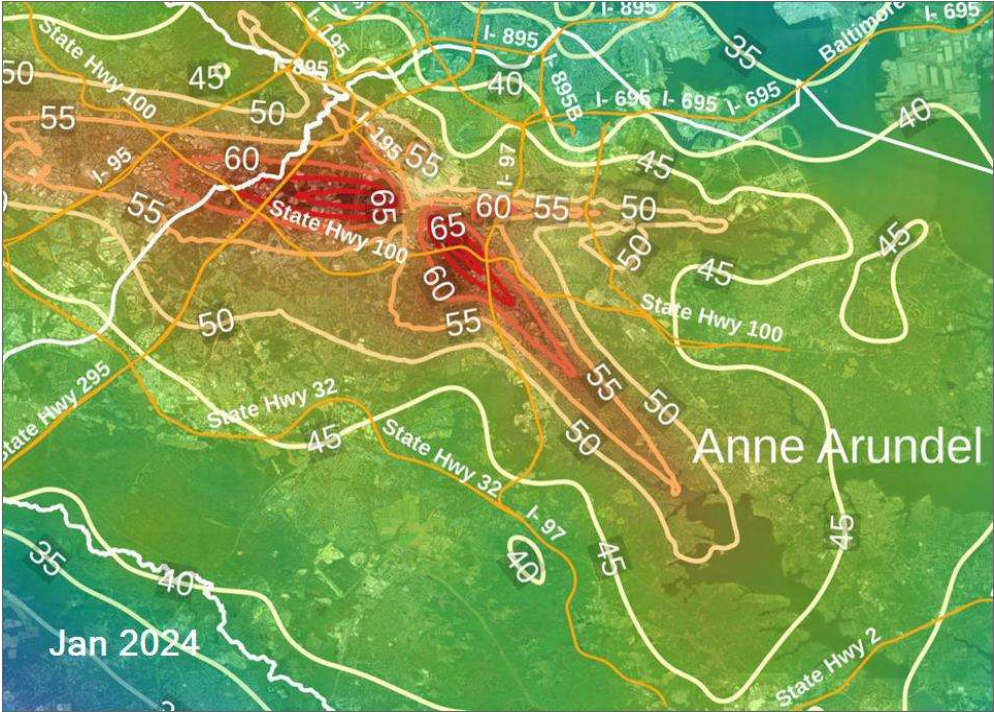
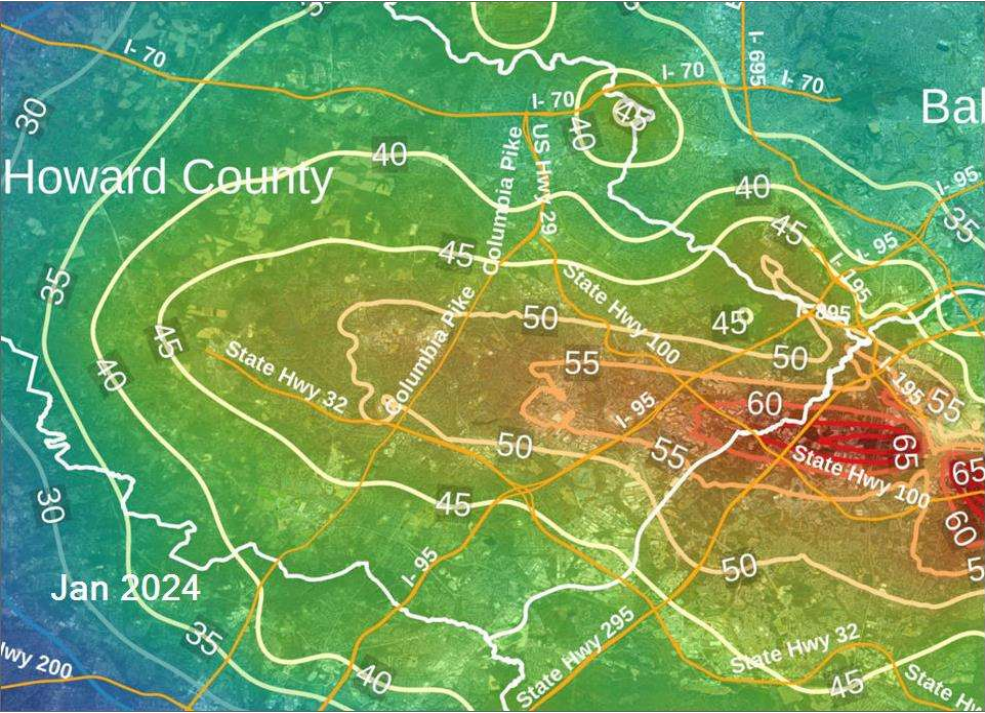


In this Vianair-generated map, noise is expressed in DNL contours. For reference, the **50 DNL** contour stretches westward to encompass the approximate boundaries of **Columbia/Clarksville**, eastward to **Fort Smallwood/Lake Shore/Annapolis** and south to **Crownsville /Millersville/Fort Meade**.

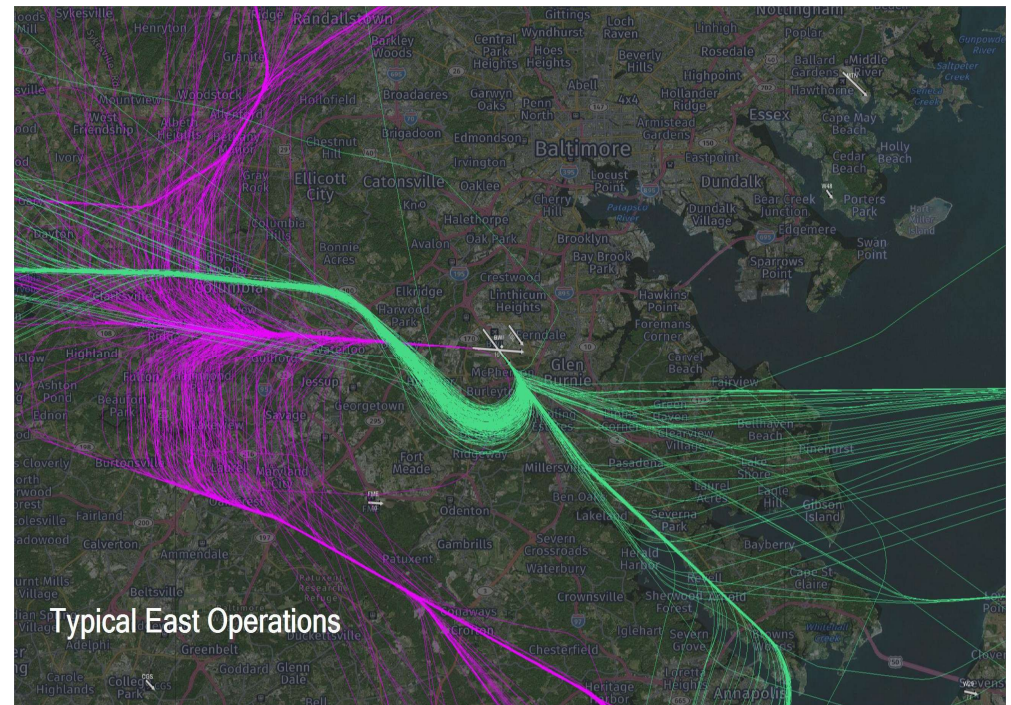
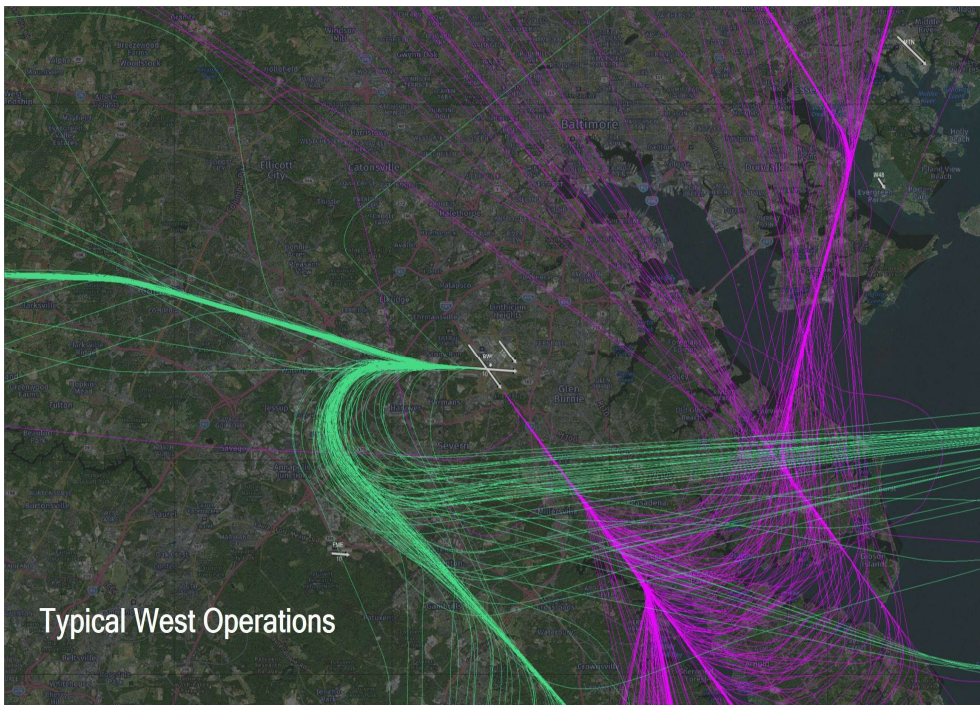
The WHO has identified adverse health effects at this noise level.

Noise Exposure – DNL Contours

Howard and Anne Arundel Counties

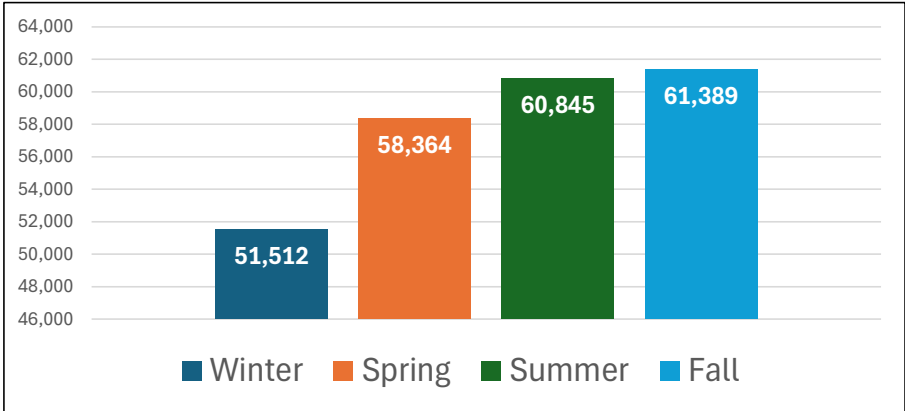
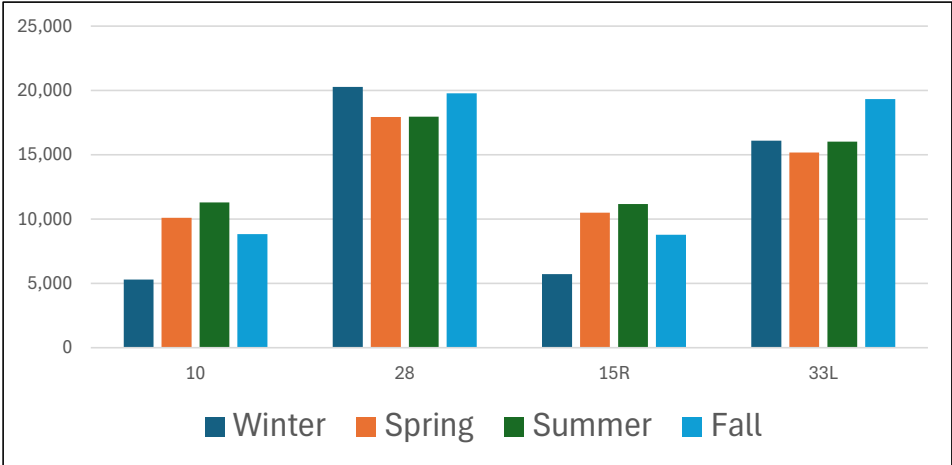
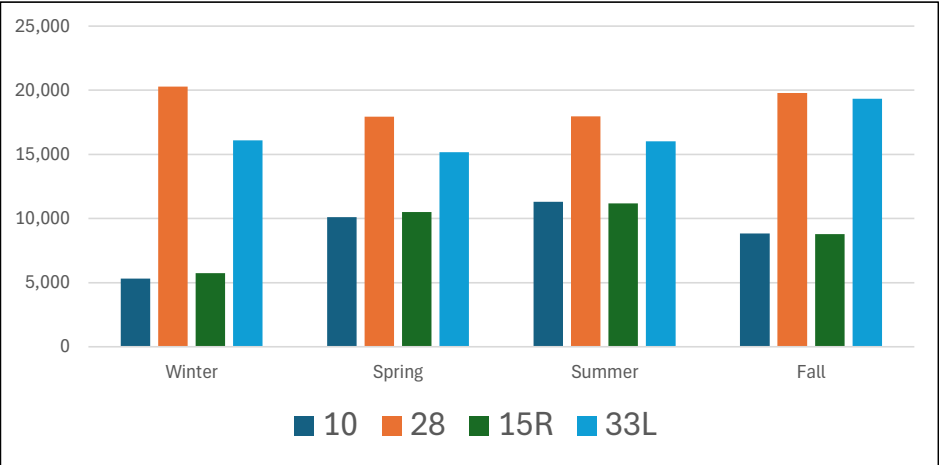


Visual representation of a typical day of traffic over the Baltimore region



Note: This chart displays operations for Runways 10/28 and 15R/33L only, which together comprise 92.5% of all flight operations.

Seasonal Traffic Charts December 2022 – November 2023



Note: This chart displays operations for Runways 10/28 and 15R/33L only, which together comprise 92.5% of all flight operations.





Definitions

Decibel (dB(A)): A unit of measurement of sound pressure adjusted for the human ear's response to particular frequencies

Day-Night Average Sound Level (DNL): A descriptor of 24-hour noise (midnight to midnight) that adds a ten-decibel (dB) nighttime penalty to noise events which occur between the hours of 10 p.m. and 7 a.m to account for the intrusive nature of noise at night. DNL is the standard metric used by the Federal Aviation Administration (" FAA") as required by federal regulation. Federal guidelines require DNL 65 as the level of aircraft noise exposure that is incompatible with noise-sensitive applications including residential development. This metric is required by FAA and COMAR

The Noise-above (NA): A noise metric counts the number of times the noise level exceeds a specific threshold. In this report, the Number-of-Events-Above 55 metric (NASS) is calculated. NASS quantifies the number of aircraft events resulting in noise exposure of 55 decibels or higher at each location depicted.

Day-evening-night level (Lden): It is a descriptor of noise level defined by the European Environment Agency ("EEA") and based on energy equivalent noise level (Leq) over a whole day with a penalty of 10 dB(A) for night-time noise (11.00 pm -7.00 am) and an additional penalty of 5 dB(A) for evening noise (7.00 pm -11.00 pm).

Airport Noise Zone (ANZ): An area of land surrounding the airport within which noise levels are equal to or greater than DNL 65 dBA.

Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA): Operator of Baltimore/ Washington International Thurgood Marshall Airport (BWI Marshall I Airport).

Code of Maryland Regulations (COMAR): Requires MDOT MAA to control development in areas where noise levels are DNL 65 dBA or more..



For More Information

For more information about the contents of this report or
for questions about the DC Metroplex BWI Community Roundtable

Please Visit:

<https://marylandaviation.com/environmental/environmental-compliance-sustainability/dc-metroplex-bwi-community-roundtable>