

APPENDIX A AIRPORT NOISE ZONE OVERLAID ON COUNTY TAX MAP

These are reduced scale versions of the Airport Noise Zone. The official, certified BWI Marshall Airport Noise Zone consists of the 65, 70, and 75 L_{dn} contours overprinted on county tax maps as indicated below:

- (a) Airport Noise Zone Map (1 sheet, plotted at 1 inch = 2,000 feet);
- (b) Tax Map Index (1 sheet, plotted at 1 inch = 2,000 feet);
- (c) Anne Arundel County Tax Maps 3, 4, 8, 9, and 15 (1 tax map per sheet each; 5 sheets total plotted at 1 inch = 600 feet); and
- (d) Howard County Tax Maps 38, and 44 (1 sheet each; 2 sheets total plotted at 1 inch = 600 feet).

Each sheet has a certification by the Maryland Aviation Administration Executive Director that the Noise Zone is incorporated by reference at COMAR 11.03.01.01-B(5) effective December 22, 2014.

The numbers along the borders are Maryland State Plane coordinates, units of meters, referenced to the North American Datum (NAD) of 1983 (FIPS code 1900).

The Airport Noise Zone depicts the location the runways and dimensions used in any of the three years. The red line depicts the airport property; only the main parcel is shown.

Full size, certified copies of the BWI Marshall Airport Noise Zone are available for viewing during business hours, Monday through Friday, at the MAA offices at 991 Corporate Boulevard in Linthicum, Maryland and the following libraries:

Anne Arundel County

- Linthicum Branch
- Severn Community Branch
- Brooklyn Park Branch
- Riviera Beach Branch
- Glen Burnie Regional Branch
- Severna Park Branch

Howard County

- East Columbia Branch
- Central Branch
- Elkridge Branch
- Miller Branch
- Savage Branch

Baltimore County

- Arbutus Branch

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COMAR 11.03.01.01-1(B)(5)
Baltimore/Washington International
Thurgood Marshall Airport
Noise Zone

BALTIMORE / WASHINGTON INTERNATIONAL THURGOOD MARSHALL AIRPORT AIRPORT NOISE ZONE

Prepared by:
Maryland Aviation Administration

Assisted by:
Harris Miller Miller & Hanson Inc.
Prepared June 30, 2014



Maryland Department of Transportation

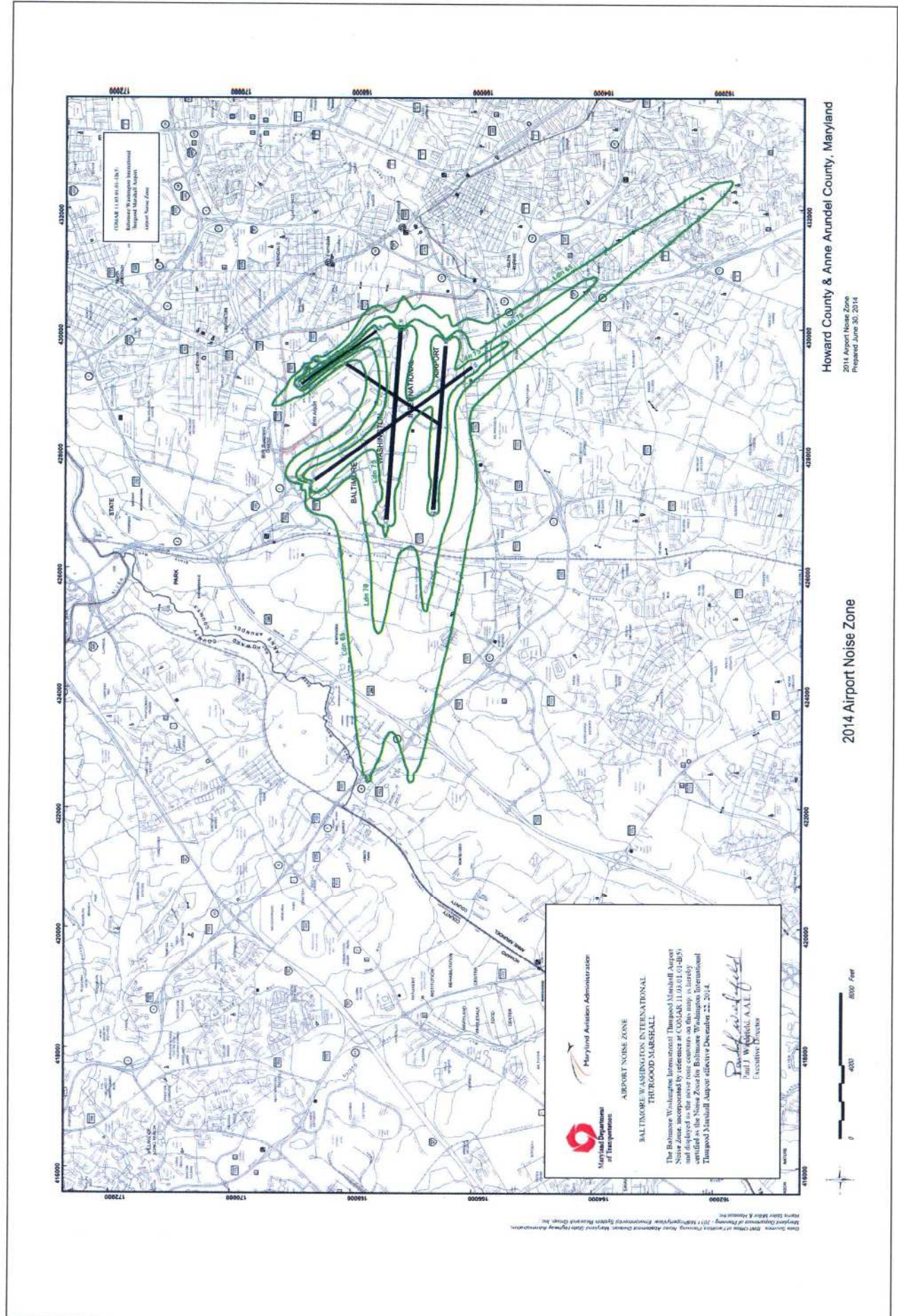
Maryland Aviation Administration

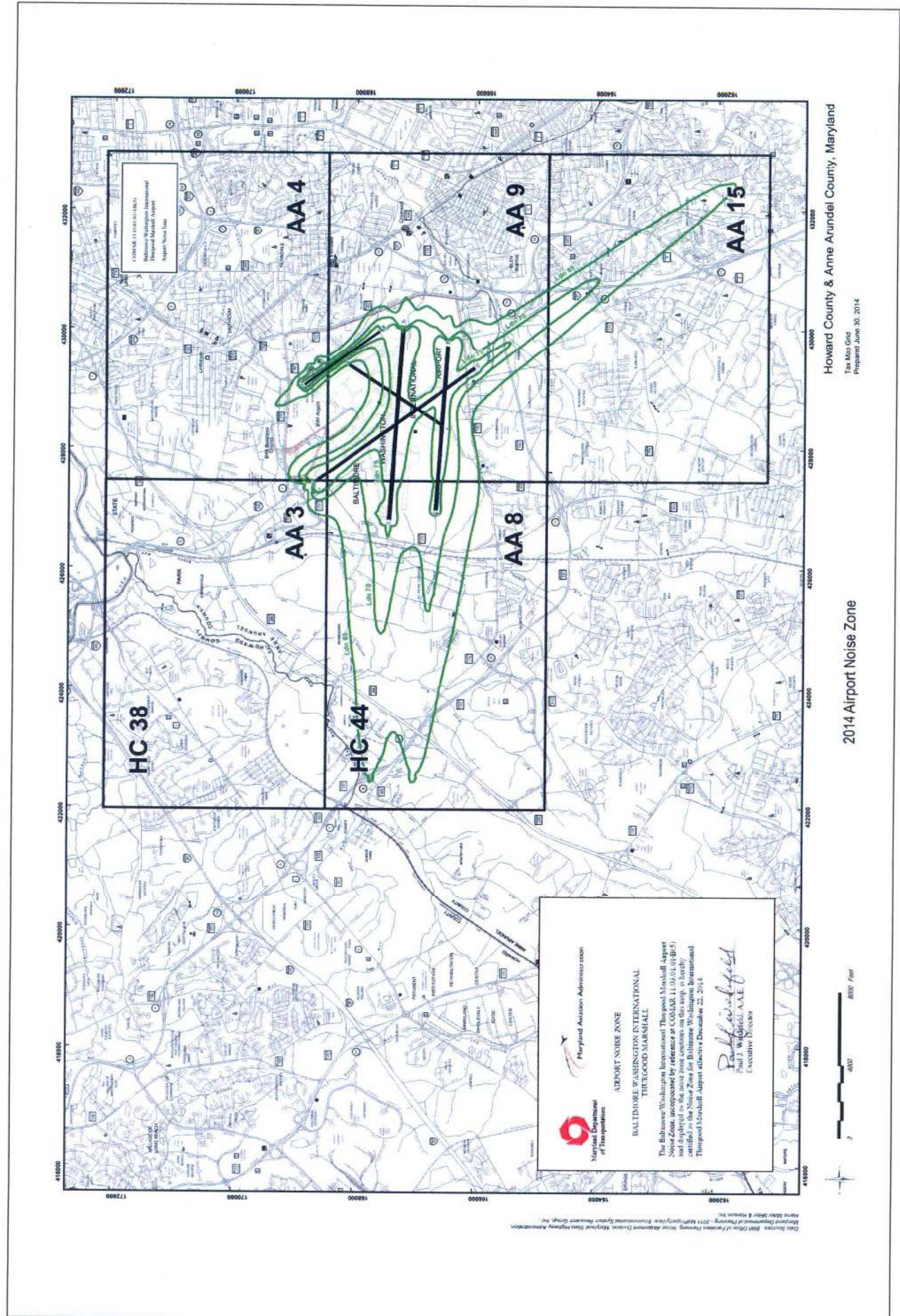
AIRPORT NOISE ZONE
BALTIMORE/WASHINGTON INTERNATIONAL
THURGOOD MARSHALL

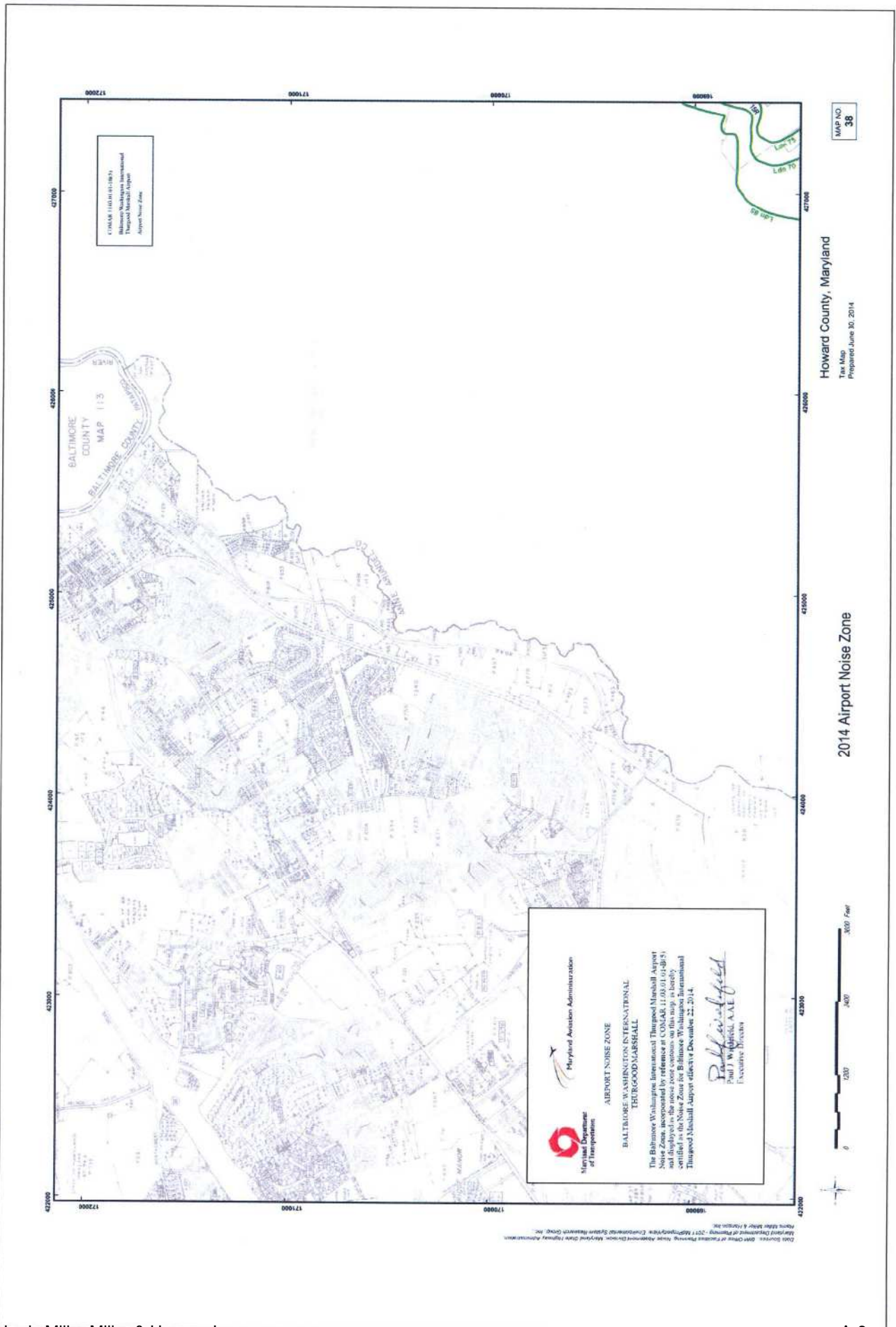
The Baltimore/Washington International Thurgood Marshall Airport Noise Zone, incorporated by reference as COMAR 11.03.01.01-1(B)(5) in the Code of Regulations, is hereby certified as the Noise Zone for Baltimore/Washington International Thurgood Marshall Airport effective December 22, 2014.



Paul J. Wierfeld, A.A.E.
Executive Director








Maryland Department of Transportation
Airport Noise Zone
BALTIMORE WASHINGTON INTERNATIONAL THURGOOD MARSHALL
 The Baltimore Washington International Thurgood Marshall Airport Noise Zone, accompanied by reference to COMAR 11.03.01.01-08(S) and displayed as the noise zone contours on this map, is hereby certified as the Noise Zone for Baltimore Washington International Thurgood Marshall Airport effective December 22, 2014.

Paul J. Walscheid, A.A.E.
 Executive Director

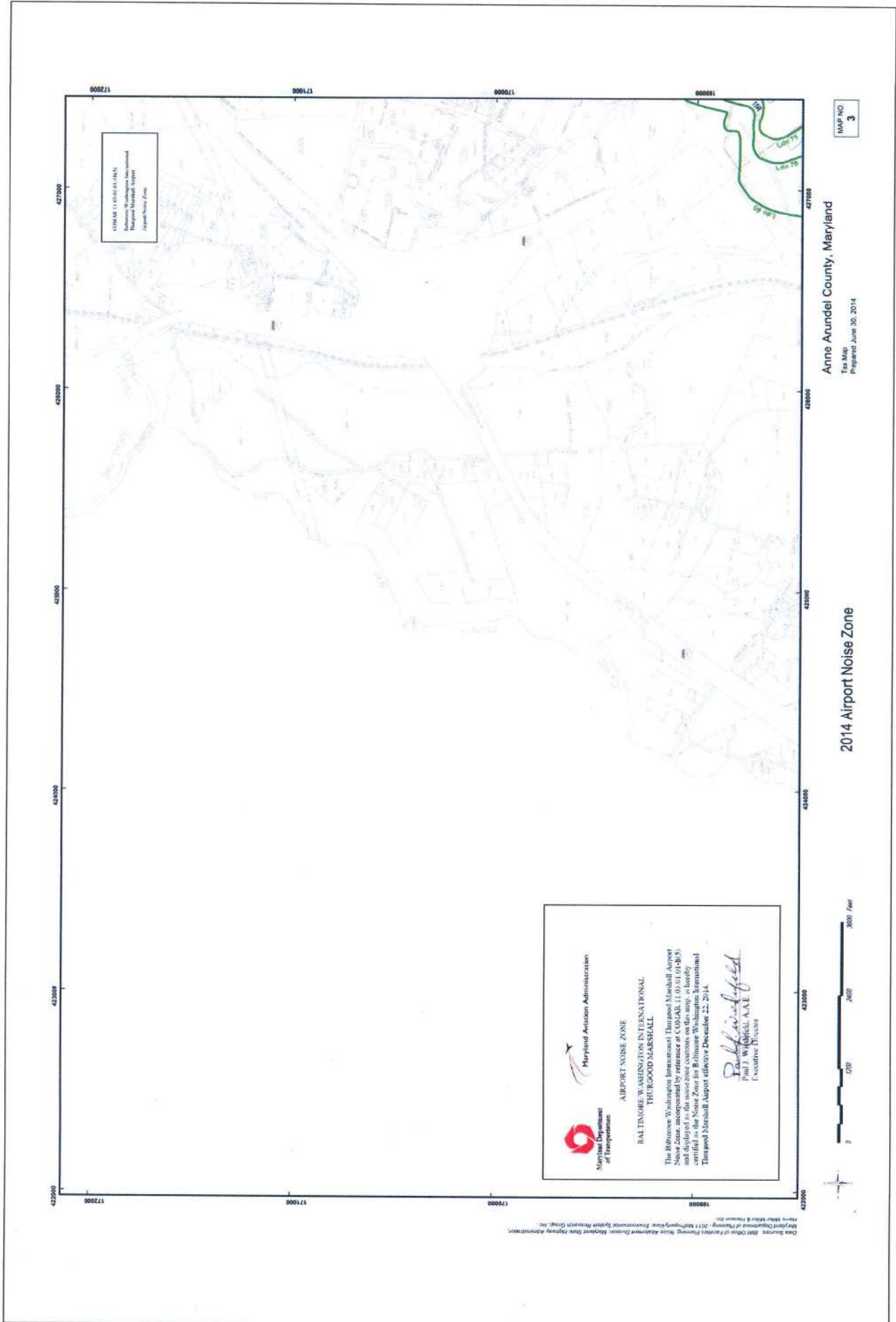
COMAR 11.03.01.01-08(S)
 Baltimore Washington International
 Thurgood Marshall Airport
 Airport Noise Zone

MAP NO 38

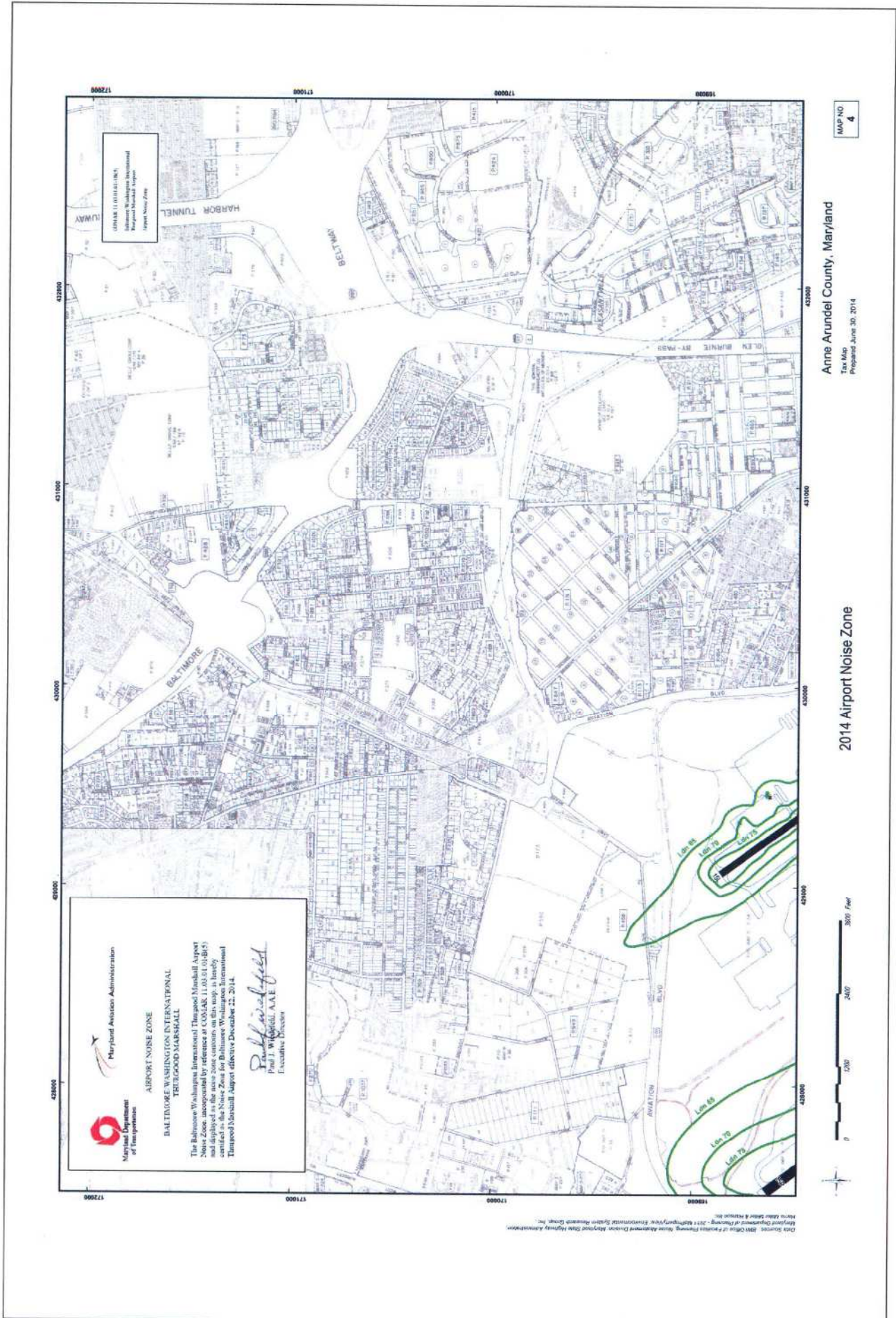
Howard County, Maryland
 Tax Map
 Prepared June 30, 2014

2014 Airport Noise Zone

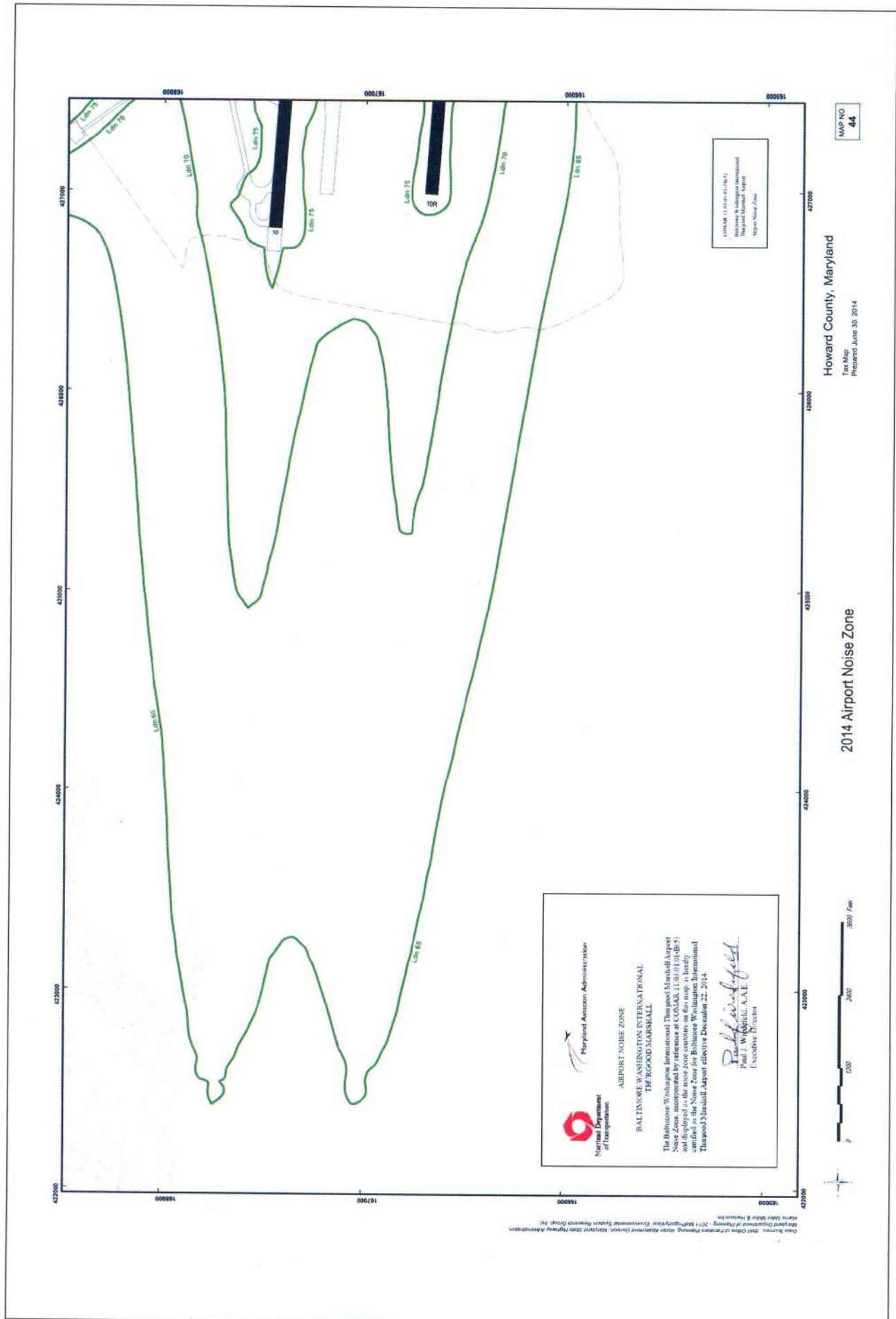
Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport



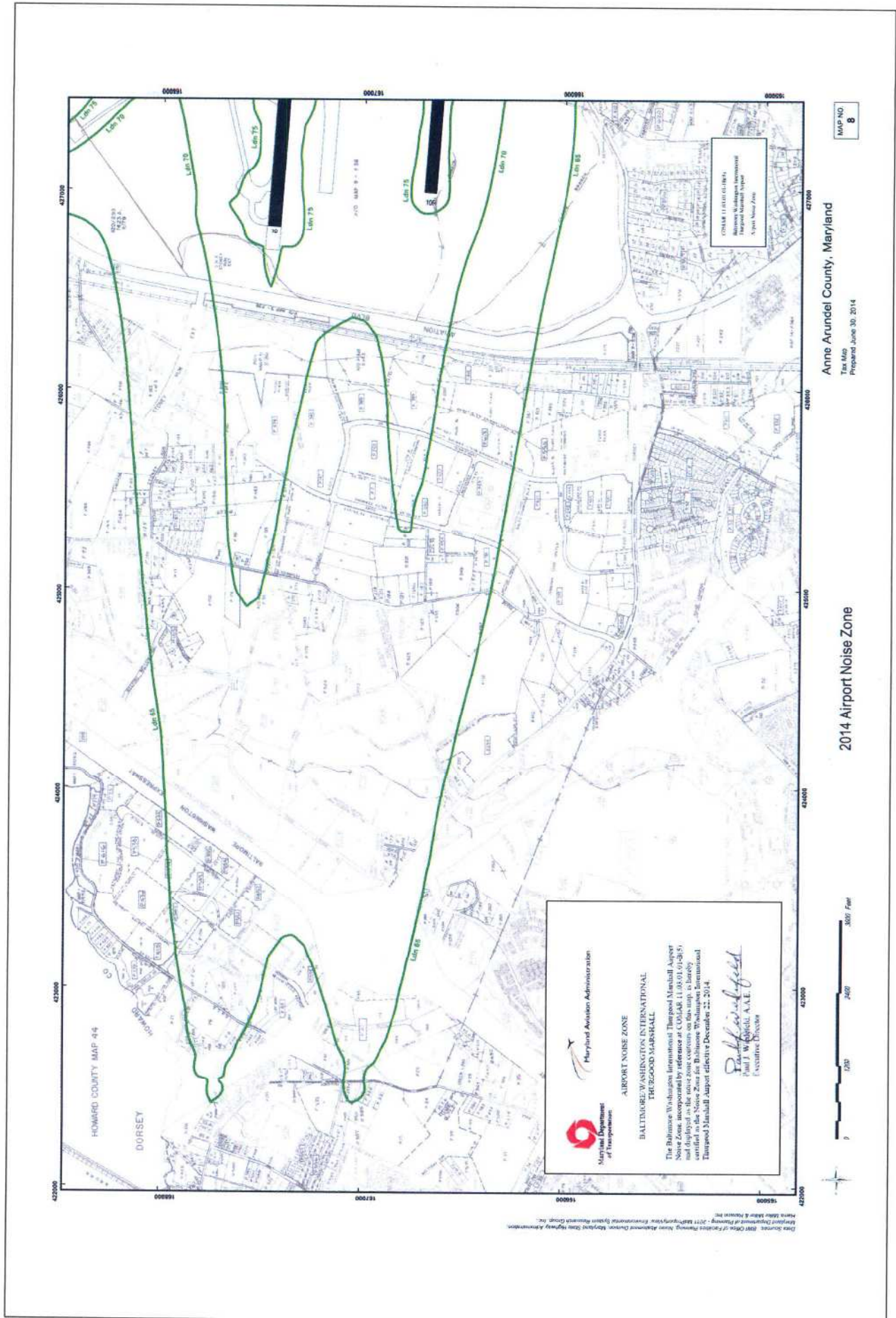
Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport



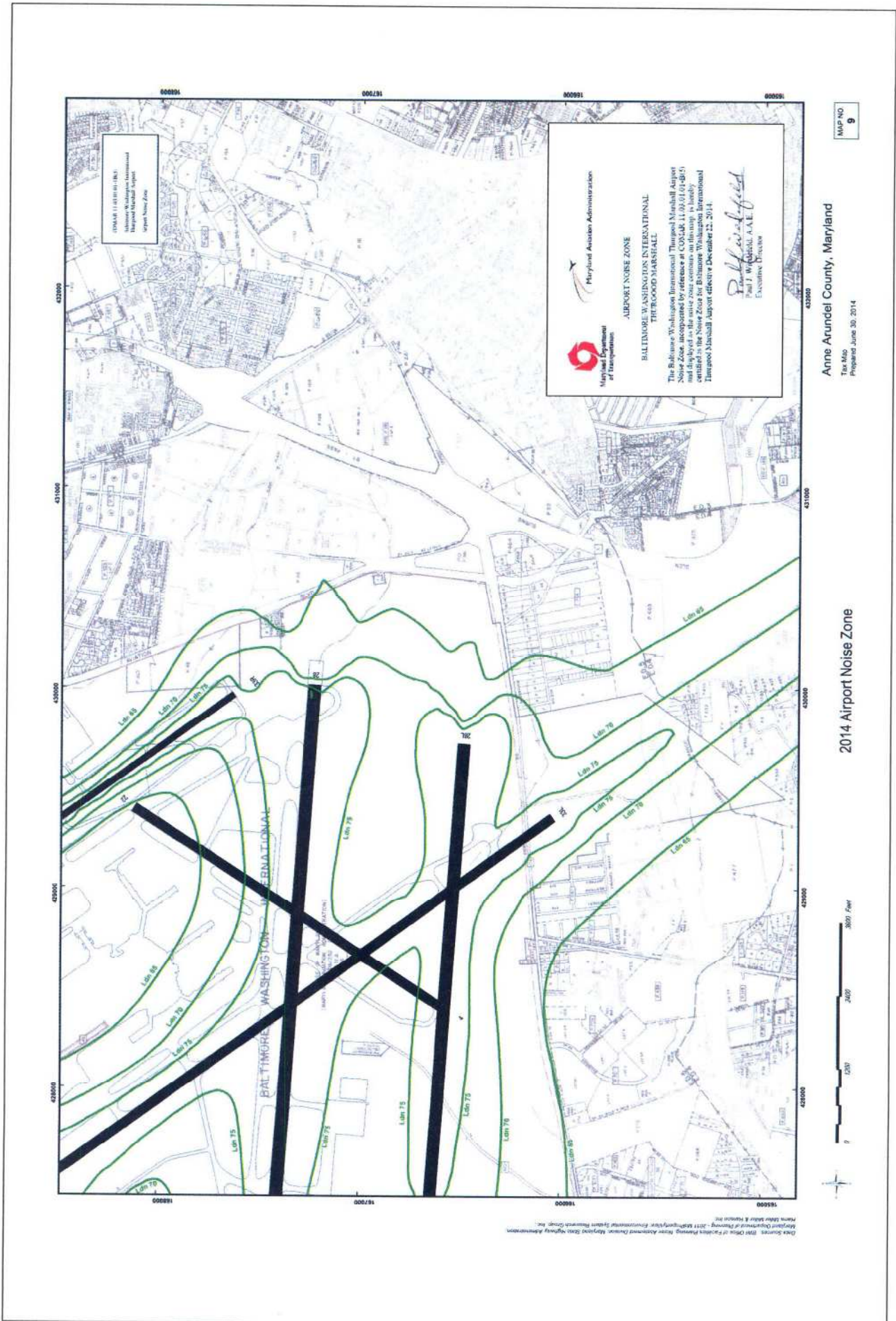
Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport



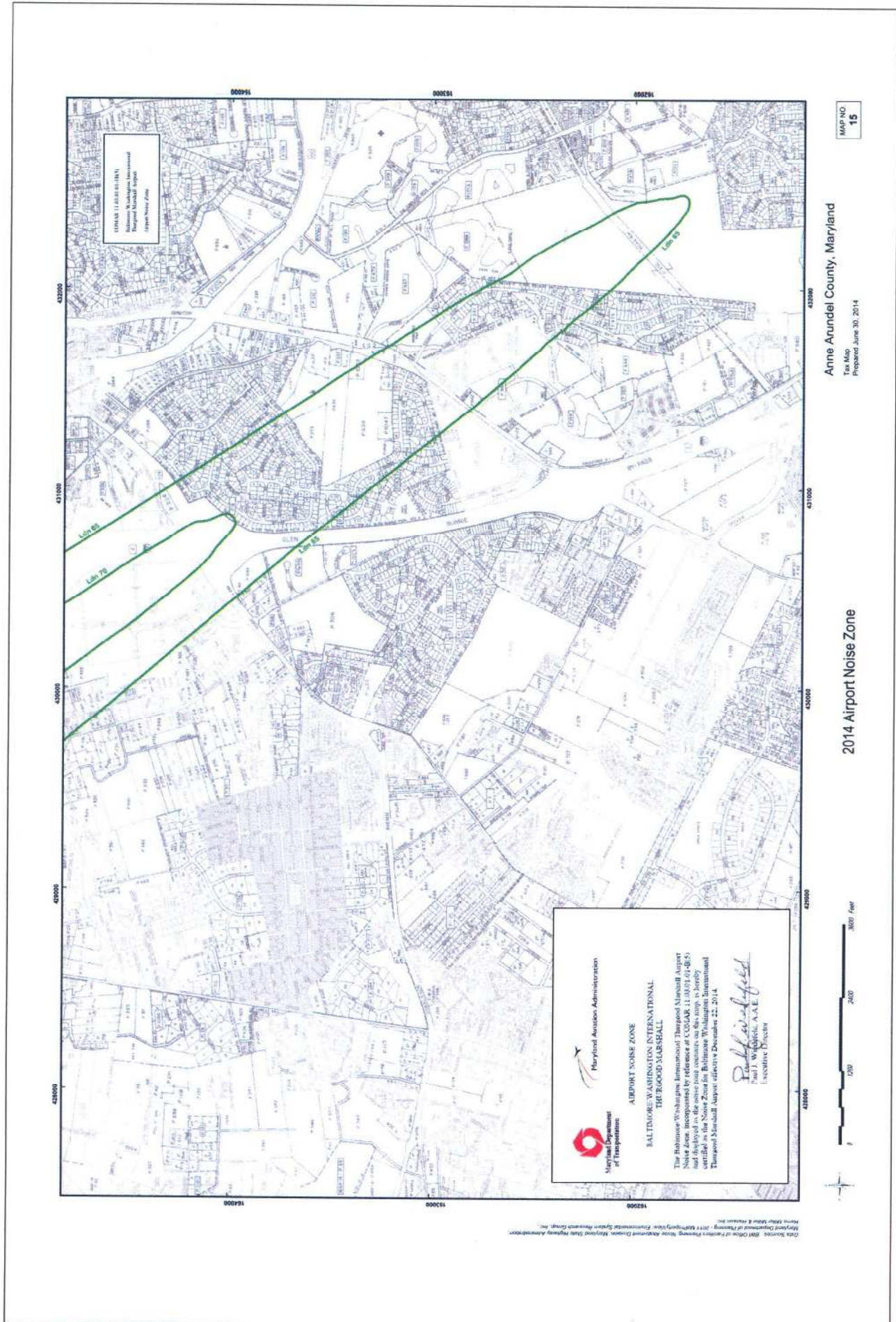
Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport



Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport



Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport



APPENDIX B BWI MARSHALL NOISE ABATEMENT PLAN

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The Noise Abatement Plan (NAP) fulfills Maryland state requirements under the provisions of Sections 5-805, 5-806 and 5-819 of the Transportation Article, Annotated Code of Maryland. These sections require airport operators to develop a noise abatement plan, in conjunction with an airport noise zone, to reduce or eliminate the impacted land use area. In general, those are residential areas, schools, hospitals, rest homes, homes for the aged, nursing homes, libraries and churches within the ANZ subject to 65 L_{dn} or greater.¹

The Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall) NAP, developed by the Maryland Aviation Administration (MAA), includes the federal Noise Compatibility Program prepared under Title 14 of the Code of Federal Regulation Part 150 (14 CFR Part 150, or Part 150). Part 150 requires U.S. airports to develop a noise compatibility program to secure federal funding for noise mitigation programs and to gain federal approval to implement certain noise abatement procedures. Part 150 has two components, the Noise Exposure Maps (NEM) and the Noise Compatibility Program (NCP). In many areas the NAP and the NCP overlap, though there are some differences due to the different state and federal requirements.

The BWI Marshall NAP includes measures to monitor and reduce impacted land use to the extent feasible, while maintaining efficient airport operations. In developing and monitoring the NAP, MAA works closely with the BWI Neighbors Committee which consists of representatives from eleven communities neighboring the Airport.

The BWI Marshall NAP is divided into two areas dealing with noise abatement elements and land use elements.

A. Noise Abatement Elements

Noise abatement at BWI Marshall includes a wide variety of strategies that are intended to reduce noise impacts for communities around the Airport. Operational procedures such as arrival and departure flight procedures and a preferential runway use system are intended to direct aircraft operations over less populated areas, where and when possible. The Federal Aviation Administration (FAA) Air Traffic Control Tower at BWI Marshall has primary responsibility for implementation of flight procedures and the preferential runway use system. Ground noise is controlled by MAA to reduce noise sources from airfield ramps and during maintenance operations, especially at night when ambient noise levels are lower in nearby communities. MAA coordinated a program to encourage greater use of quieter Stage 3 commercial jet aircraft and to reduce nighttime aircraft operations at BWI Marshall, when possible. MAA also has established an effective noise monitoring program using fixed and portable monitors, and a noise "Hotline" for complaints is available 24-hours a day.

Described below are the aircraft noise abatement procedures that have been implemented by MAA through issuance of BWI Marshall Tenant Directives.

1. Aircraft Noise Abatement Departure Procedures

- a. Distance Measuring Equipment (DME) departures for jet aircraft will commence departure turns using DME distances from the following runways (unless otherwise directed by the BWI Tower):
 - Runway 15R - two mile DME when turning left and one mile DME when turning right.

¹ Portions of Title 14 of the Code of Federal Regulations are also known as the Federal Aviation Regulations (FAR)

- Runway 28 - three mile DME for all turns.
 - Runway 10 - two mile DME for all turns.
 - Runway 4/22 was permanently closed / decommissioned as a runway effective August 6, 2014. Previously the NAP stated “Runway 22 - two mile DME for all turns.”
- b. Jet aircraft departures from Runway 33L will begin turns immediately upon becoming safely airborne, but not below 300 feet above ground during VFR conditions and not below 400 feet during IFR conditions.
 - c. Runway 4/22 was permanently closed / decommissioned as a runway effective August 6, 2014. Previously the NAP stated “Runway 04 will be used only when excessive cross winds or emergency conditions exist. Jets departing Runway 04 will maintain runway heading until one mile from end of runway.”
 - d. All aircraft departing Runway 33R to the north or east will maintain runway heading until one mile from end of runway.
 - e. Multi-engine aircraft departing Runway 15L are encouraged to maintain runway heading for one half mile before turning.

2. Aircraft Noise Abatement Arrival Procedures

- a. As a voluntary measure, all jet aircraft conducting VFR approaches will turn onto final approach a minimum of four miles from the end of the runway, when weather and air traffic permit.
- b. All turbojet aircraft conducting visual approaches are expected to maintain 3,000 feet or above until 10 DME from the BWI VOR and, to the maximum extent possible, should remain at or above the Instrument Landing System (ILS) or Visual Approach Slope Indicator (VASI), consistent with safe flight procedures.
- c. When air traffic and weather permit, and when cleared by the BWI Tower, the Interstate Visual Runway 33L procedure is to be used by turbojet aircraft arriving via the Nottingham VOR for VFR approaches to Runway 33L. (This procedure provides aircraft a visual approach over I-97 and Route 3.)

3. Preferential Runway Use System

- a. West operations, which concentrate turbojet departures on Runway 28, are preferred for noise abatement.
- b. Runway 10/28 is the preferred runway for noise abatement between the hours of 2300 and 0500 local time. Traffic and weather permitting, aircraft should arrive on Runway 10 and depart Runway 28. Runways 15R/33L and 15L/33R are available for use during the above hours, but are not preferred for noise abatement purposes.
- c. Runway 33R should not be assigned to departing aircraft from 2300 to 0500 local time. During these hours, Runway 15L should not be assigned to arriving aircraft except for unusual weather conditions, emergencies or mercy flights requiring its use.
- d. Practice landings and approaches by jet and turboprop aircraft are prohibited on all runways from 2300 to 0700 local time.

- e. Noise Rule for Runway 15L/33R: Any aircraft producing a value of 87.0 EPNdB that is determined by averaging the take-off and sideline 14 CFR Part 36 certification measurements, is prohibited from operating on Runway 15L/33R, except for emergencies or mercy flights. Prohibited aircraft are permitted and encouraged to use the Airport's Runway 10/28 and 15R/33L.

4. Continued Restricted Use of Runway 4/22

Runway 4/22 was permanently closed / decommissioned as a runway effective August 6, 2014. Previously the NAP stated "Runway 04/22 shall be closed to multi-engined aircraft from 2200 to 0700 local time. Except as noted below, Runway 04 shall be closed to jet aircraft departures and Runway 22 shall be closed to arriving jet aircraft. Runway 04 jet aircraft arrivals are permitted from 0700 to 2200 local time when a 2,500 foot or higher weather ceiling exists. The above restrictions apply except for unusual weather conditions, emergencies or runway closures which preclude use of other runways."

5. Control of Ground Based Noise Sources

- a. Powerback Restrictions: All aircraft reverse thrust powerback operations at BWI Marshall must be approved in advance by the MAA and the FAA. This procedure will be approved by the MAA for specified gates, and only if the procedure, through demonstration, is in compliance with a maximum noise level test. All powerbacks are prohibited from 2200 to 0700 local time. Authorization to conduct powerback procedures will be terminated by the MAA should any environmental or safety hazards become evident. (Tenant Directive 203.1)
- b. Engine Maintenance Runup Restrictions: Run-ups are authorized from 0600 to 2200 local time only at approved airfield locations and under procedures prescribed by the MAA. Prior permission must be obtained from the BWI Marshall Airport Operations Center for any runups conducted between 2200 to 0600 local time. Permission during this time period shall be denied unless it can be shown that failure to conduct the runup will delay departure of a scheduled passenger flight. (Tenant Directive 501.1)
- c. Tree Buffer Along East Airport Boundary: The MAA planted 622 trees on the eastern boundary of BWI Marshall along Aviation Boulevard (formerly Hammonds Ferry Road). When mature, the buffer will provide some attenuation of ground noise sources as well as a visual barrier between Airport facilities and operations and the adjacent community.

6. Cooperative Airline/Airport Program

During the phaseout of Stage 2 commercial aircraft, the MAA established a Cooperative Airline/Airport Program under which the MAA and airlines serving BWI Marshall voluntarily implemented actions to control and reduce total cumulative noise levels of the commercial jet fleet. Negotiations with the air carriers focused on reducing nighttime operations, when possible, and increasing the use of quieter Stage 3 aircraft during both day and night periods. Since the phaseout was complete as of 2000, this program was concluded.

7. Continued Monitoring and Annual Review

The MAA monitors, on a continual basis, Airport activities and noise abatement concerns expressed by the community. The BWI Marshall Neighbors Committee meets with the MAA on a regular basis. The Committee serves as a forum for discussion of noise related matters and review of progress towards achieving desired noise abatement goals. The MAA uses methods described below to support these efforts.

- a. Noise Hotline: The MAA Office of Noise, Real Estate and Land Use Compatibility maintains a 24-hour noise "Hotline". Residents may call (410) 859-7021 to identify a noise concern. During normal weekday business hours, a staff person will discuss concerns directly with citizens. During non-business hours, an answering machine is programmed to record necessary information concerning a complaint and the calls are reviewed the following workday. A member of the MAA staff investigates complaints and follows up with a response to the caller if necessary.
- b. Quarterly Report: A report is prepared presenting noise related data for each quarter of the year. The report includes monthly noise levels actually recorded by the Airport's remote monitoring sites and the fleet noise level computed from the number of takeoffs and landings by each air carrier. The report also contains monthly information regarding noise complaints, BWI Marshall east/west operational modes and statistics related to the use of quieter, Stage 3 aircraft.
- c. Computerized Monitoring System: The BWI Marshall permanent noise monitoring system originally consisted of 23 fixed noise monitors located throughout nearby communities adjacent to aircraft flight paths. The monitors provide real time data on aircraft noise levels in the communities. In addition to the permanent noise monitoring system, the MAA has several portable monitors. Sites for the permanent monitors were selected with community input and, over time, several monitors have been relocated to meet community concerns and needs.
- d. Annual Review: A program evaluation was conducted annually by the MAA to review the effectiveness of noise abatement programs at BWI Marshall. These reviews are now reported as part of the Quarterly Reports.

B. Land Use Elements

The State of Maryland wisely recognized at an early date the importance of protecting Maryland residents and BWI Marshall, Maryland's major air carrier airport, from future incompatible land uses and established land use control measures. These land use elements are discussed below.

1. Control of Incompatible Development

- a. Airport Noise Zone: An Airport Noise Zone is established for BWI to control incompatible development in areas where levels of cumulative aircraft noise exposure are equal to or greater than the limits for cumulative noise exposure established by regulation. Restrictions placed on land use development allowed within the ANZ are based on established limits for cumulative noise exposure. Local government approval of development activities prior to construction is prohibited within the ANZ before an airport zoning permit or variance is obtained. Anyone desiring to construct or modify a structure or establish land use within the ANZ is required to first obtain an airport zoning permit from the MAA. According to State law, permits must be denied by the MAA if the proposed land use is incompatible with the established cumulative noise exposure limits. Additions and modifications to an existing residential structure are exempt from the noise zoning permit process, as long as the modification does not increase the number of dwelling units. Permit applications can be obtained from the MAA, the Anne Arundel County Office of Inspections and Permits or the Howard County Office of License and Permits.
- b. Board of Airport Zoning Appeals (BAZA): In the event an airport zoning permit is denied by the MAA, the applicant may appeal to the Board of Airport Zoning Appeals for a variance from the noise regulations. The Board will consider any facts and circumstances relevant to the request for a variance, including testimony or evidence regarding possible impacts of

granting or denying the variance on the surrounding community. In granting a variance to the regulations, the Board will require at a minimum: 1) compliance with all applicable minimum standards of noise attenuation adopted by the MAA; and 2) an avigation easement over the property. The applicable regulations governing control of incompatible land use at BWI can be found in Sections 11.03.03, 11.03.05 and 11.03.06 of Title 11, Transportation, Code of Maryland Regulations.

- c. Noise Zone Notification in Real Estate Transactions: A notification process by owners/Realtors is intended to inform prospective buyers and renters of a property's location within the ANZ. The Maryland State Real Estate Commission has established an educational program with the Anne Arundel County and Howard County Boards of Realtors to provide notification as part of standard real estate transactions within the ANZ.

2. Noise Assistance Programs

The MAA has established noise assistance programs for residents and schools located in the ANZ. The MAA Office of Noise, Real Estate and Land Use Compatibility administers programs to reduce the numbers of affected properties and the noise impacts for individuals, homes, and schools adversely affected by aircraft noise. Questions about the programs and applications may be obtained by calling the MAA Office of Noise, Real Estate and Land Use Compatibility at 410-859-7375.

- a. Voluntary Residential Property Acquisition Program:² In 1985, the MAA began a program to acquire residential properties with cumulative noise levels of 75 dB L_{dn} and greater. Participation in the program is voluntary. The NAP was expanded in 1988 to acquire properties in communities that are exposed to cumulative noise levels of 70-75 dB L_{dn} , provided the area has been zoned by local government to transition from residential to a noise compatible use. In 2008, this program was further expanded to cumulative noise levels of 65 dB L_{dn} , as defined by the current FAA accepted Part 150 Noise Exposure Map contour. Large residential properties where the owners have reasonable opportunity for non-residential resale without State or Federal assistance are excluded from the program. Property owners are paid full market value for their property at its highest and best use, and provided relocation assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. This program is also subject to other federal laws, regulations and guidelines.
- b. Homeowners Assistance Program: In 1988, the MAA began the Homeowners Assistance Program to offer financial assistance to homeowners residing in communities that are exposed to cumulative noise of 70-75 dB L_{dn} , and who are not eligible for the Voluntary Residential Property Acquisition Program. In 2008, this program was further expanded to cumulative noise levels of 65 dB L_{dn} , as defined by the current FAA accepted Part 150 Noise Exposure Map contour.

State law requires that participants in the program grant the State an avigation easement. The easement permits aircraft operations, noise and other effects of flight over and on a property and provides notification to future owners of cumulative aircraft noise levels. Homeowners are also ineligible for participation in other assistance programs and the easement is binding upon future owners of the property. Copies of the easement may be obtained from the MAA

² Historically the Noise Abatement Plan called this program the "Voluntary Land Program" while the federal Noise Compatibility Program called this program the "Voluntary Residential Property Acquisition Program." Since these are the same programs, MAA will refer to this as the "Voluntary Residential Property Acquisition Program" in the future.

Office of Noise, Real Estate and Land Use Compatibility. This program is also subject to other federal laws, regulations and guidelines. The Homeowners Assistance Program offers a choice to eligible homeowners of two options as described below:

- i. Resale Assurance Option: Financial assistance is provided to eligible homeowners wishing to move from the ANZ. The selected properties are appraised to determine their value as if they were located outside the ANZ. The homeowner enters into a contract with the MAA, committing the MAA to: 1) pay the difference between the actual selling price of the property and its appraised value if it were outside the ANZ; and 2) pay certain closing costs on a replacement house. Prospective purchasers must be advised of the property's location within the ANZ and their ineligibility for participation in noise assistance programs.
- ii. Soundproofing Option: The MAA will assist eligible homeowners in making modifications to their houses, with a goal of reducing interior noise levels to an average of 45 L_{dn} . The type and extent of the improvements are dependent upon the noise reduction capabilities of the existing structure. Fresh air ventilation and air conditioning are installed to allow windows to remain closed. The homeowner enters into a contract with the MAA, committing the MAA to: 1) pay for the agreed upon noise reduction modifications; and 2) monitor the construction and assure its quality.
- c. School Soundproofing Program: This program provides soundproofing for eligible schools to reduce undesirable interior noise levels. Four schools in the ANZ have received soundproofing through this program at a cost of \$9.3 million. These schools are Corkran Middle School, Arthur Slade Regional School, Glen Burnie Park and Oakwood Elementary Schools.
- d. Ridgewood Mobile Home Park: The MAA proposed relocation of the residents of the Ridgewood Mobile Home Park under the 1993 NAP. The Park is located within the 65 L_{dn} contour of the prior ANZs, and is affected by departure and arrival paths for Runway 10/28. The Park is expected to remain within the ANZ in future years with implementation of BWI Marshall's master plan and construction of a planned parallel runway 10R/28L. Mobile homes have higher interior noise levels than single family homes in similar noise impacted areas. The MAA investigated the feasibility of soundproofing mobile homes and concluded this could not be done effectively. The MAA obtained federal funding for acquisition of easements and relocation of the park residents. This project is complete.

APPENDIX C SUPPORTING NOISE MODELING DOCUMENTATION

C.1 HMMH memorandum “BWI Airport Noise Zone Update – Forecast Airport Layout and Operational Assumptions” dated April 25, 2014.

This memorandum discusses the assumptions for the Airport Noise Zone 2014, 2019 and 2024 conditions. The 2014 and 2019 assumptions and inputs, and associated noise contours, are identical to the concurrent Noise Exposure Map contours, although this memorandum provides additional clarity. The 2024 conditions are solely for the Airport Noise Zone. Several modeling assumptions are based on the 2011 Master Plan.

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TECHNICAL MEMORANDUM

To: Ms. Ellen Sample, Director, Office of Noise, Real Estate and Land Use
Compatibility – Maryland Aviation Administration

From: David A. Crandall

Date: April 25, 2014

Subject: BWI Airport Noise Zone Update – Forecast Airport Layout and Operational Assumptions

Reference: HMMH Project No.: 305160.012
MAA Contract: MAA-SV-12-002



1. INTRODUCTION

Maryland Aviation Administration (MAA) has retained Harris Miller Miller & Hanson (HMMH) to prepare an update to its Airport Noise Zone (ANZ) and associated documentation for Baltimore-Washington/Thurgood Marshall International Airport (BWI) in accordance with Code of Maryland Regulations (COMAR) Title 11.03.03. This effort is referred to as the “BWI ANZ Update”. This memorandum presents the noise modeling future airport layout and operational forecast assumptions for review and comment.

MAA plans to certify the BWI ANZ Update in calendar year 2014. Therefore the base year of the ANZ will be 2014, the 5-year forecast for the ANZ will be 2019 and the 10-year forecast for the ANZ will be 2024.¹

This memorandum has four attachments, listed below:

1. Attachment A is a narrative of the airport layout and associated runway use assumptions for the BWI ANZ Update noise modeling assumptions. Attachment A has been prepared for inclusion in the ANZ documentation.
2. Attachment B is the FAA Terminal Area Forecast (TAF) issued January 2013 for BWI. This issue of the TAF includes historical data from 1990 to 2011 and forecast years 2012 through 2040. The BWI ANZ Update will present analysis of aircraft noise exposure for a base year (2014), a year five year forecast (2019), and a ten year forecast (2024).
3. Attachment C presents BWI operation counts from FAA’s Air Traffic Activity Data System (ATADS), from January 2012 through December 2013.
4. Attachment D presents the count of operations from the top ten airlines operating at BWI during calendar year 2012.

2. AIRPORT LAYOUT AND ASSOCIATED RUNWAY USE

- The airport layout is expected to change between now and 2024. Attachment A presents a narrative and associated tables of the existing airport layout and the anticipated changes, including proposed runway use assumptions and references to the respective sources. Attachment A has been prepared for inclusion into the Airport Noise Zone documentation.

¹ The modeling assumptions for the base year (2014) and 5-year forecast (2019) will be the same as the on-going BWI Part 150 Noise Exposure Map Update being prepared in accordance with federal regulations. FAA concurred with the 2014 and 2019 forecast assumptions on February 25, 2014. Those assumptions are repeated in this memorandum.

HARRIS MILLER MILLER & HANSON INC.

Subject: BWI Airport Noise Zone Update – Forecast Airport Layout and Operational Assumptions
Date: April 25, 2014
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3. FORECAST ASSUMPTIONS

For the BWI ANZ Update, MAA proposes to use the January 2013 issue of the FAA's Terminal Area Forecast (Attachment B of this memorandum) for aircraft operational activity levels.² The total proposed modeled operations are presented in Table 1. The TAF reports aircraft operational activity levels in one of four categories listed below.³

- Air Carrier – Operations by aircraft capable of holding 60 seats or more and are flying using a three letter company designator.
- Air Taxi – Operations by aircraft less than 60 seats and are flying using a three letter company designator or the prefix "Tango".
- Military – all classes of military operations.
- General Aviation – Civil (non-military) aircraft operations not otherwise classified under air carrier or air taxi.



For the 2014 ANZ, 263,530 annual operations would be modeled. For the 2019 ANZ, 292,253 annual operations would be modeled. For the 2024 ANZ, 319,464 annual operations would be modeled. Table 1 also presents, for reference, the 2012 actual airport operations, as reported by FAA's Air Traffic Activity Data System (ATADS).⁴ Operations have been declining, and operations for calendar year 2013 are approximately three percent below the operations for calendar year 2012.⁵ ATADS data for January 2012 through December 2013, inclusive, is presented as Attachment C.

Baseline operations will be developed using the last 12 months of available data (provided by MAA [via its Airscene.com® system] and augmented with flight plan data purchased from a third-party vendor) and scaled to the January 2013 issue of the TAF activity levels (refer to Table 1).⁶ Cape Air (FAA designator KAP) and Colgan Air (CJC) are no longer operating at BWI and will be removed from the 2014 (and future) operations (additional discussion provided later in this memorandum).⁷

² January 2013 issue of the FAA's TAF is also being used as the forecast for the Noise Exposure Map.

³ FAA Joint Order JO 7210.3X, Section 9-1-2. Categories of Operations, Published 2/9/2012. Latest version is available at <http://www.faa.gov/documentLibrary/media/Order/FAC.pdf>. The January 2013 issue of the TAF is based on historical operations data http://www.faa.gov/about/office_org/headquarters_offices/apl/aviation_forecasts/taf_reports/media/TAF_summary_report_FY2012.pdf, pp. 3-5.

⁴ FAA's Air Traffic Activity Data System (ATADS), <https://aspm.faa.gov/opsnet/sys/Main.asp>

⁵ The data used to support this statement is available from <https://aspm.faa.gov/opsnet/sys/Main.asp> by requesting a monthly report.

⁶ *Airscene.com* is a registered trademark of ITT Exelis. Flight plan data, purchased from a third party-vendor, would be used to provide the destination airports for departing aircraft, which is then used in an FAA approved methodology to estimate aircraft weight (Airscene.com does not provide the destination airport for BWI departures).

⁷ FAA airline designators are published in FAA Order 7340.2, Chapter 3. The most current version is available at http://www.faa.gov/air_traffic/publications/atpubs/CNT/index.htm

HARRIS MILLER MILLER & HANSON INC.

Subject: BWI Airport Noise Zone Update – Forecast Airport Layout and Operational Assumptions
 Date: April 25, 2014
 Page 3

Table 1 – Summary of FAA Terminal Area Forecast (TAF) Operations Activity Levels at BWI and Proposed Modeled Operations for the 2014, 2019, and 2024 Airport Noise Zone

FAA Operational Category ¹	2012 Operations ²		Proposed 2014 ANZ Operations		Proposed 2019 ANZ Operations		Proposed 2024 ANZ Operations ⁵	
	2012 ATADS (Actual)	2012 Avg. Annual Day Operations	2014 Forecast Issued January 2013	2014 Avg. Annual Day Operations	2019 Forecast Issued January 2013	2019 Avg. Annual Day Operations	2024 Forecast Issued January 2013	2024 Avg. Annual Day Operations
Air Carrier	210,842	576.1	208,969	572.5	240,831	659.8	269,829	739.3
Air Taxi and Commuter	40,312	110.1	38,329	105.0	34,359	94.1	31,697	86.8
GA (Itinerant + local) ³	15,854	43.3	15,272	41.8	16,103	44.1	16,978	46.5
Military	998	2.7	960	2.6	960	2.6	960	2.6
Total⁴	268,006	732.3	263,530	722.0	292,253	800.7	319,464	875.2

Notes:
 1 Operational Categories used in ATADS and the TAF are those defined in FAA Order 7210.3X at Chapter 9, Section 9-1-2 (February 9, 2012). <http://www.faa.gov/documentLibrary/media/Order/FAC.pdf>
 2 2012 actual operations are provided for reference. Average annual day operations were developed assuming 366 days since 2012 was a leap year.
 3 General Aviation activity levels presented in "Itinerant" operations include Civil "Local" operations. ATADS reported 244 civilian local operations for 2012. The TAF forecasts 268 civilian local operations for 2014, 2019 and 2024.
 4 Totals may not match exactly due to rounding.
 5 2024 Average annual day operations were developed assuming 365 days. The TAF does not make adjustments for leap years
 Sources: FAA ATADS, FAA TAF issued January 2013



While most of this analysis was being prepared during calendar year 2013, FAA has since released ATADS counts for calendar year 2013. Actual 2013 operations are very close to the TAF issued in January 2013. Therefore, the use of the January 2013 issue of the TAF still appears to be valid.⁸

The detailed forecast for calendar year 2019 and 2024 relies on several general assumptions concerning changes to the fleet within the BWI ANZ Update time frame. These changes would be made relative to the 2014 fleet. We considered publicly available information from the top ten airlines operating at BWI during calendar year 2012 as part of this effort- the top ten airlines represent approximately eighty-four percent of calendar year 2012 operations.⁹ Additional information was known for four other airlines and is discussed below.¹⁰ The remaining sixteen percent of operations will be included in the modeling, although with broader assumptions.¹¹

⁸ See Attachment B for the January 2013 issue of the TAF and Attachment C for the ATADS counts.

⁹ Counts of operations provided by MAA's AirScene.com system. See Attachment D of this memorandum.

¹⁰ Colgan Airlines, Air Transport International, ABX Air and FedEx. HMMH and MAA staff had information readily available regarding these operators. Combined, these four airlines represented less than one and a half percent of calendar year 2012 operations.

¹¹ The remaining operations include a mix of regional airlines operating behalf of mainline airlines, contract operations operating on behalf of Air Mobility Command (AMC) which has gates in Terminal E, fractional ownership aircraft, charters and general aviation operations.

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We propose that the assumptions for 2019 and 2024 would be:

- All aircraft certified to 14 CFR Part 36 Stage 2 will be retired from the fleet by 2015, therefore they will remain in the 2014 fleet but be replaced by Stage 3 or higher versions for the 2019 and 2024 fleets.¹²
- The day/night ratio and departure stage length ratio for aircraft will remain the same as the 2012 base-year for each aircraft type combination.
- Southwest Airlines (SWA) and AirTran (TRS)¹³
 - These airlines will continue their merger and continue to operate in a similar manner as in 2012
 - Southwest will retire all of their 737-500s by 2019
 - Southwest will retire thirty-nine percent of their 737-300 by 2019 and those 737-300s will remain at constant operational levels through 2024¹⁴
 - Southwest's growth will come from the Boeing 737-700s and 737-800s that are on order
 - Boeing 717-200s will be removed from the combined SWA/TRS fleet and will be transferred to Delta Air Lines (DAL) before 2019.¹⁵ Every three Boeing 717-200 operations will be replaced with two 737-700 operations.¹⁶



¹² 14 CFR Part 36 describes noise certification of aircraft. Stage 2 aircraft are louder than Stage 3 aircraft of the same weight. 14 CFR Part 36 also defines Stage 4 (quieter than Stage 3) and may in the future define Stage 5. 14 CFR Stage 2 aircraft will typically not be allowed to operate in continental United States after December 31, 2015 per *the FAA Modernization and Reform Act* of 2012. Currently, aircraft certified to 14 CFR Stage 2 and weighing more than 75,000 lb have generally been prohibited from operating in the continental United States since 2000. In practice, the 2012 act affects the remaining aircraft weighing less than 75,000 lb. FAA released a final rule, effective September 3, 2013, that adopts into operating rules the prohibitions from the 2012 act.

Federal Register, July 2, 2013, pp. 39576 – 39583

<http://www.gpo.gov/fdsys/pkg/FR-2013-07-02/pdf/2013-15843.pdf>

Federal Register, September 20, 2013, pg. 57790

<http://www.gpo.gov/fdsys/pkg/FR-2013-09-20/pdf/2013-22850.pdf>

¹³ Aviation Week "Southwest Uses 737 Retirements to Decrease MRO Costs." accessed 6/2/12;

http://www.aviationweek.com/Article/PrintArticle.aspx?id=article-xml/awx_05_17_2012_p0-458413.xml (available only by subscription)

Boeing "Customer Reports – Southwest Airlines." accessed 9/5/13;

<http://active.boeing.com/commercial/orders/index.cfm?content=customerselection.cfm&pageid=m15524>

Air Transport World Online "Southwest to sublease all 88 AirTran 717s aircraft to Delta." accessed 9/10/13;

<http://atwonline.com/aircraft-amp-engines/southwest-sublease-all-88-airtran-717s-aircraft-delta>

¹⁴ An exact retirement schedule for the 737-300 and 737-500 was not found. Southwest Airline's 2012 Annual Report indicates that the 737-300 and 737-500 are being retired (pp 10,12, 53, 61, 88). However, Southwest expects to retrofit 78 of its 737-300s with *Evo* interior in 2013 (pg 10). As of December 31, 2012, SWA had 128 737-300 (pg. 35). Therefore, it was assumed that 78 (61% of 128) 737-300s would still be in service as Southwest recoups its investment in the *Evo* interior and the remaining 50 aircraft (39%) would be retired.

<http://southwest.investorroom.com>

¹⁵ This process of transferring Boeing 717-200s from SWA/TRS to DAL started in calendar year 2013 and is expected to be completed by the end of 2015.

¹⁶ The two 737-700s replacing three 717-200 estimate is based on MAA staff observations of the routes that have changed to-date.

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- Delta Air Lines (DAL)¹⁷
 - Delta will retire all Boeing DC-9s and replace those operations with Boeing 717-200s before 2019¹⁸
 - Delta will retire all Boeing 757-200s before 2019
 - Delta's growth will come from the Boeing 737-800s, 737-900s and Airbus A321s that are on order
- United Airlines (UAL)¹⁹
 - United will retire all Boeing 757-200s before 2019
 - Growth, including replacement of 757-200 operations, will come from the Boeing 737-900s that are on order
- US Airways (AWE)²⁰
 - AWE and American Airlines (AAL) will continue their merger, and continue to operate in a similar manner as in 2012. Ultimately, the combined companies will retain the American Airlines brand name. These airlines have not announced comprehensive fleet changes in time for this analysis. Therefore for this analysis, their operations will be considered independently.
 - US Airways will retire all Boeing 737-400s before 2019
 - Growth will come from the Airbus A321 that are on order
- American Airlines (AAL)^{21 22}
 - American will retire approximately sixty percent of their Boeing MD-80 aircraft by 2019; we will assume that AAL MD-80 operations decrease by the same percent
 - American will retire all of their Boeing MD-80 aircraft before 2024
 - Growth, including replacement of MD-80 operations, will come from the Boeing 737-800s that are on order



¹⁷ Air Transport World Online "Southwest to sublease all 88 AirTran 717s aircraft to Delta." accessed 9/10/13; <http://atwonline.com/aircraft-amp-engines/southwest-sublease-all-88-airtran-717s-aircraft-delta>
Delta Air Lines "Annual Report 10K SEC Filing 2013." accessed 5/13/13; <http://www.sec.gov/edgar/searchedgar/companysearch.html>
Delta Air Lines "Delta Continues Domestic Fleet Restructuring..." accessed 9/10/13; <http://news.delta.com/index.php?s=43&item=1809>
Delta Air Lines "Delta Announces Order for 40 Airbus Aircraft" accessed 9/11/2013; <http://news.delta.com/index.php?s=43&item=2095>

¹⁸ As noted previously, these aircraft are coming from SWATRS. Footnote 15 provides additional information

¹⁹ United Airlines "Annual Report 10K SEC Filing 2013." accessed 5/14/13; <http://www.sec.gov/edgar/searchedgar/companysearch.html>
United Airlines "United Announces Order For 150 Boeing Aircraft." accessed 9/10/13 <http://ir.unitedcontinentalholdings.com/phoenix.zhtml?c=83680&p=irol-newsArticle&ID=1714264>

²⁰ Bloomberg. "AMR, US Airways Affirm Plane Orders in Push to Refresh Fleet." accessed 9/10/13/13;; <http://www.bloomberg.com/news/2013-02-14/amr-us-airways-affirm-plane-orders-in-push-to-refresh-fleets.html>
Boeing "Customer Reports – US Airways." accessed 9/5/13; <http://active.boeing.com/commercial/orders/index.cfm?content=customerselection.cfm&pageid=m15524> US Airways "Annual Report 10K SEC Filing 2013." accessed 5/15/13 <http://www.sec.gov/edgar/searchedgar/companysearch.html>
American Airlines "AMR Corporation And US Airways Group Come Together To Build The New American Airlines" accessed 4/24/2014 <http://hub.aa.com/en/nr/amr-corporation-and-us-airways-group-come-together-to-build-the-new-american-airlines>

²¹ DallasNews "American execs see massive aircraft order as a no-lose proposition." accessed 9/10/13 <http://www.dallasnews.com/business/airline-industry/20110720-american-airlines-confirms-deal-to-buy-460-aircraft-spin-off-american-eagle.ece>

²² See discussion for US Airways (AWE)

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- American Eagle/Envoy (EGF)²³
 - American Airlines, the major airline that oversees EGF service, will discontinue service with all Embraer 135/140/145s operated by American Eagle and replace them with Embraer 175s operated by Republic Airways (RPA) on order before 2019.
- jetBlue (JBU) or Jazz (JZA)²⁴
 - No fleet mix changes are expected for either of these airlines
- Cape Air (KAP) and Colgan Airlines (CJC)
 - These two airlines operated at BWI for part of calendar year 2012, but are no longer operating at BWI. For modeling purposes, the removal of these operations are assumed as part of the overall decrease in operations between 2012 and 2014 observed in Table 1, and will be removed from the 2014, 2019 and 2024 operations. Additional information regarding each airline is discussed below.
 - KAP provided passenger service to Lancaster, PA (FAA airport designator LNS) and Hagerstown, MD (FAA airport designator HGR) under the US Department of Transportation's (DOT) Essential Air Service (EAS) program. The EAS contract that KAP was operating from BWI was won by an airline that moved the service to Dulles International Airport (FAA airport designator IAD), so there is no replacement for the service at BWI. Service to these airports from BWI stopped approximately October 31, 2012. Therefore, KAP operations will be removed from the 2014, 2019 and 2024 operations.²⁵
 - CJC ended service on September 5, 2012 as part of Pinnacle Airlines Corp.'s restructuring plan.²⁶ CJC was operating flights on behalf of United Airlines. United Airlines moved the flights to other carriers operated under the United Express brand (Commutair, ExpressJet, Republic, Chautauqua, etc.). Analysis of MAA's AirScene.com system data indicates that CJC did not operate more than 90 flights per month during any month in 2012 (compared to a total monthly average of over 22,000 flights at BWI per month). Therefore, the overall effect on BWI operations is relatively minimal and CJC operations will be removed from the 2014, 2019 and 2024 operations.²⁷
- Air Transport International (ATN)²⁸
 - DC-8 aircraft will be replaced with 757-200 for 2014 and 2019



²³ American Eagle Airlines, Inc. To Change Its Name To Envoy accessed 3/24/2014 <http://hub.aa.com/en/nr/pressrelease/american-eagle-airlines-inc-to-change-its-name-to-envoy>
ch aviation GmbH "American Eagle to retire remaining ERJ-135s by end of 2013." accessed 9/10/13
<http://www.ch-aviation.ch/portal/news/14133-american-eagle-to-retire-remaining-erj-135s-by-end-of-2013>
American Airlines "Large 76 Seat Regional Jets Will Join the American Fleet for the First Time in its History" accessed 9/10/13
<http://hub.aa.com/en/nr/pressrelease/american-airlines-signs-new-agreement-to-begin-large-regional-jet-flying>

²⁴ We did not find any mention of new aircraft types or retirements for these airlines.

²⁵ US DOT Essential Air Service reports are available at <http://www.dot.gov/office-policy/aviation-policy/essential-air-service-reports>. The October 2012 report for Non-Alaska U.S. Carrier Subsidy Reports briefly discusses the change in service effective in footnote 2. The November 2013 report does not show any EAS service to/from BWI. Accessed 12/4/2013.
http://articles.herald-mail.com/2012-10-28/news/34783737_1_cape-air-flights-international-thurgood-marshall-airport Accessed 12/12/2013.

²⁶ <http://www.colganair.com/> Pinnacle Airlines is now Endeavor Air, a wholly owned subsidiary of Delta Air Lines
<http://www.flypinnacle.com/> Accessed 12/4/2013.

²⁷ See Footnote 10 for additional discussion.

²⁸ ch aviation GmbH "21DEC2012: Air Transport International to replace DC-8 combis by B757s" accessed 9/10/13,
<http://www.ch-aviation.ch/portal/airline.php?cha=8C>
MAA staff observations, as of spring 2014, indicate that ATN is operating all 757-200s.

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- ABX Air, Inc. (ABX)²⁹
 - 767-200 aircraft will be replaced with 767-300 aircraft by 2019
- FedEx (FDX)³⁰
 - DC-10/MD-11/MD-10 aircraft will be replaced with Boeing 767-300 aircraft by 2019
- For the operations not described by the airlines or operators (including general aviation discussed specifically above:³¹
 - Out of production aircraft will be held at current levels unless noted specifically above for a given airline (for example B717, B727, B733, B734, B735, B757, A300, A310, DC8, DC9, DC10, H25A, MD11, MD80, MD90 and PA32).
 - Growth will come from in-production aircraft types (in other words, aircraft that are currently being manufactured) in the same proportion that they appear in the baseline data set, unless noted specifically above for a given airline.



²⁹ Air Transport Services Group, Inc. ("ATSG") Annual Report 10K SEC Filing 2013 Accessed 4/3/2014
ATSG is the parent company of ABX. ATSG's annual report indicates that the B762 come of lease around 2017 (pg. 22) and do have some maintenance coming up (pg. 15). ATSG is receiving 767-300 (pg. 2, pg. 17)
<http://atsginc.com/ir/10k2013.pdf>

³⁰ FedEx Annual Report 2013. pp. 22, 25 Accessed 4/4/2014
<http://investors.fedex.com/phoenix.zhtml?c=73289&p=irol-reportsannual>

³¹ See footnote 9 above for additional discussion.

Attachment A

Note - The following runway data and discussion is proposed for the 2014/2019/2024 Airport Noise Zone documentation.

1.1 Airport Physical Parameters

BWI has four runways which are designated 4/22, 10/28, 15R/33L, and 15L/33R. Each pair of numbers corresponds to the name of each runway end. Aircraft can land and takeoff in either direction on a given runway therefore, each runway end has a unique name. The numbers are a shorthand notation that indicates the runway's geographical orientation: the compass heading of the runway, rounded to the nearest ten degrees, with the trailing zero dropped. For example, the magnetic heading of Runway 28 is approximately 284 degrees. The number is rounded to 280, and finally to 28 with the zero dropped; hence, Runway 28. Simple geometry requires that the difference between the designation of each end equals 18 (that is, 180 degrees); hence, Runway 10 is in the opposite direction from Runway 28. There are two runways that are oriented in the same direction, thus both having the 15/33 designation. In order to differentiate one from the other, when facing 150 degrees from the North, the runway to the right is called 15R (for right)/33L, and the other is called 15L (for left)/33R. In this case, 15R/33L is the western-most of the two parallel runways.

Code of Maryland Regulations (COMAR) requires that the ANZ include noise contours for conditions ten years in the future. This also requires an estimate of what the airfield will look like in ten years. The most recently approved Airport Layout Plan (ALP) for BWI proposes several changes to the runway layout/geometry which are scheduled for completion by 2024. In addition, the ALP includes the proposed parallel Runway 10R/28L, currently scheduled for 2026 or later. Although the proposed parallel Runway 10R/28L is currently scheduled two years after the 10-year ANZ forecast, it is included in the 2024 contours for the purposes of this ANZ because 1) it is a major element that could affect noise 2) it is scheduled reasonably close to the 10-year ANZ forecast period and 3) it has been consistently included in past iterations of the ANZ.

Table 1 presents the Existing Airport and Runway layouts proposed for the 2014 contours. In addition to the runways, there is a helicopter landing spot on the east side of the airport, just east of Runway 15L/33R. The five year conditions (2019) include changes proposed on the current Airport Layout Plan (ALP), specifically the decommissioning of Runway 4/22, along with changes to certain existing runways to meet the latest federal government design standards. Table 2 presents the future airport layout proposed for the 2019 contours. Coordinates, elevations and thresholds that change from the existing layout are highlighted in *italics*. Table 3 presents the future airport layout proposed for the 2024 contours.

Additional details regarding the current and the future runway layout are presented in the following sections.

1.1.1 Runway Lengths and Elevations

Runway 10/28 is 10,502 feet long and 150 feet wide¹. Runway 10 has an elevation of 139.0 feet and Runway 28 has an elevation of 126.2 feet.

Runway 15L/33R is 5,000 feet long and 100 feet wide. Runway 15L has an elevation of 141.5 feet and Runway 33R has an elevation of 114.1 feet.

Runway 15R/33L is 9,501 feet long and 150 feet wide. Runway 15R has an elevation of 138.6 feet and Runway 33L has an elevation of 129.2 feet.

Runway 4/22 is 6,000 feet long and 150 feet wide. Runway 4 has an elevation of 146.0 feet and Runway 22 has an elevation of 137.7 feet.

1.1.2 Existing Runway Displaced Thresholds

A displaced arrival threshold is a runway threshold located at a point other than the physical beginning or end of a runway. Under normal operating conditions, aircraft begin a takeoff roll at the physical end of a runway. For landings, however, they typically will cross over the end of a runway in flight, touching down some distance beyond the threshold. The altitude at which aircraft cross over the threshold when landing is the “threshold crossing height”.

Runway 10/28 has displaced arrival thresholds to meet FAA Design Standards. The Runway 10 arrival threshold is displaced 550 feet. The arrival threshold for Runway 28 is displaced 500 feet. All aircraft arriving on Runway 10 or Runway 28 use the displaced arrival thresholds for those runways. Aircraft departing on all runways, except Runway 28, begin their takeoff roll at the physical end of the runway. Most aircraft departing on Runway 28 begin their takeoff roll at the intersection with Taxiway C, approximately 500 feet west of the physical end of the runway. Aircraft which have a need (based on weight, length of flight, or other conditions) for a full 10,502 feet of runway may begin their takeoff roll at the physical end of Runway 28.

1.1.3 Future Runway Layout (2019)

The most recently approved ALP for BWI proposes several changes to the runway layout/geometry which are scheduled for completion by 2019 and are included in the development of the 2019 contours. These alterations are depicted on Sheets 3 and 5 of the ALP approved in August 2012 and summarized in Table 2. These changes are briefly described below:

- Runway 4/22: The runway would be decommissioned.
- Runway 10/28: The Runway 28 displaced arrival threshold is expected to increase from 500 feet to 700 feet.
- Runway 15L/33R: No physical changes to this runway are proposed.
- Runway 15R/33L: The runway would shift 3 feet to the southwest. In addition, the arrival threshold for Runway 15R would be displaced 300 feet and the arrival threshold for Runway 33L would be displaced 500 feet.

¹ The width of Runway 10/28 was previously 200 ft. The revised width of 150 feet was published by FAA effective June 27, 2013. The change in runway width does not affect noise calculations.

- Helicopter pad: The helicopter pad would move approximately 645 feet to the southeast.

1.1.4 Future Runway Layout (2024)

The most recently approved ALP for BWI proposes several changes to the runway layout/geometry which are scheduled for completion around 2024 and are included in the development of the 2024 contours. These alterations are depicted on Sheets 3 and 5 of the ALP approved in August 2012 and summarized in Table 3. These changes are briefly described below:

- Runway 10/28²: No physical changes to this runway are proposed.
- Runway 15L/33R: No physical changes to this runway are proposed.
- Runway 15R/33L: The runway length would be increased from 9,501 feet to 10,501 feet. The lengthening would occur on the south east end of the runway pavement. This project is schedule for the 2021-2025 timeframe and is included in the 2024 layout for the purpose of this ANZ update.
- Helicopter pad: No physical changes to the helicopter pad are proposed relative to the changed 2019 layout.
- Proposed Runway 10R/28L: Although this proposed runway is currently scheduled for the 2026 timeframe, it is included in the 10-year forecast as a reasonable projection of future usage for the purpose of this ANZ update. The Runway 10R end includes a proposed 500-foot displaced arrival threshold.

1.1.5 Runway End Coordinates and Dimensions

The following three tables present the runway end coordinates, runway lengths and other geometric data which would be used for modeling the predicted noise exposure in 2014, 2019, and 2024 as part of the ANZ. Changes in 2019 data, compared to 2014 data, are in *italics*. Changes in 2024 data, compared to 2019 are also in *italics*.

² This runway will likely be renamed Runway 10L/28R, but is left as named, Runway 10/28, in this ANZ analysis for consistency with the 2012 Airport Layout Plan and the existing (year 2014) and forecast (year 2019) scenarios.

Table 1 – Runway Layout Data (2014)

Runway	4	22
Latitude (deg)	39.166878	39.180662
Longitude (deg)	-76.671368	-76.659780
Elevation (ft)	146.0	137.7
Length (ft)	6,000	6,000
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	0	0
Threshold Crossing Height (ft)	37	47
Runway	10	28
Latitude (deg)	39.174747	39.172632
Longitude (deg)	-76.689618	-76.652676
Elevation (ft)	139.0	126.2
Length (ft)	10,502	10,502
Takeoff Threshold (ft)	0	500 (typical)
Approach Threshold (ft)	550	500
Threshold Crossing Height (ft)	50	55
Runway	15L	33R
Latitude (deg)	39.187373	39.176236
Longitude (deg)	-76.663540	-76.653231
Elevation (ft)	141.5	114.1
Length (ft)	5,000	5,000
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	0	0
Threshold Crossing Height (ft)	47	47
Runway	15R	33L
Latitude (deg)	39.185366	39.164208
Longitude (deg)	-76.681984	-76.662387
Elevation (ft)	138.6	129.2
Length (ft)	9,501	9,501
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	0	0
Threshold Crossing Height (ft)	50	55
Helicopter Pad		
Latitude (deg)	39.186529	
Longitude (deg)	-76.660582	
Elevation (ft)	132	

Sources: BWI 2012 Airport Layout Plan, Sheet 5

Threshold Crossing Height from FAA Form 5010 effective March 7, 2013

Helicopter pad information estimated from BWI 2012 Airport Layout Plan, Sheet 3

Table 2 – Runway Layout Data (2019)

Runway	4	22
	<i>Expected to be permanently closed / decommissioned as a runway prior to 2019</i>	
Runway	10	28
Latitude (deg)	39.174747	39.172632
Longitude (deg)	-76.689618	-76.652676
Elevation (ft)	139.0	126.2
Length (ft)	10,502	10,502
Takeoff Threshold (ft)	0	500 (typical)
Approach Threshold (ft)	550	700
Threshold Crossing Height (ft)	50	50 (anticipated)
Runway	15L	33R
Latitude (deg)	39.187373	39.176236
Longitude (deg)	-76.66354	-76.653231
Elevation (ft)	141.5	114.1
Length (ft)	5,000	5,000
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	0	0
Threshold Crossing Height (ft)	47	47
Runway	15R	33L
Latitude (deg)	39.185361	39.164203
Longitude (deg)	-76.681993	-76.662393
Elevation (ft)	138.6	129.2
Length (ft)	9,501	9,501
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	300	500
Threshold Crossing Height (ft)	50	50 (anticipated)
Helicopter Pad		
Latitude (deg)	39.185181	
Longitude (deg)	-76.659115	
Elevation (ft)	129	

Sources: BWI 2012 Airport Layout Plan, Sheet 5

Threshold Crossing Height from FAA Form 5010 effective March 7, 2013, unless otherwise noted as “(anticipated)”

Helicopter pad information estimated from BWI 2012 Airport Layout Plan, Sheet 3

Changes relative to the 2014 layout are in *italics*

Table 3 – Runway	4	22
	Expected to be permanently closed / decommissioned as a runway prior to 2019	
Runway	10	28
Latitude (deg)	39.174747	39.172632
Longitude (deg)	-76.689618	-76.652676
Elevation (ft)	139.0	126.2
Length (ft)	10,502	10,502
Takeoff Threshold (ft)	0	500 (typical)
Approach Threshold (ft)	550	700
Threshold Crossing Height (ft)	50	50 (anticipated)
Runway**	10R	28L
Latitude (deg)	39.167757	39.165944
Longitude (deg)	-76.687725	-76.656068
Elevation (ft)	140.0	130.0
Length (ft)	9,000	9,000
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	500	0
Threshold Crossing Height (ft)	50 (anticipated)	50 (anticipated)
Runway	15L	33R
Latitude (deg)	39.187373	39.176236
Longitude (deg)	-76.66354	-76.653231
Elevation (ft)	141.5	114.1
Length (ft)	5,000	5,000
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	0	0
Threshold Crossing Height (ft)	47	47
Runway**	15R	33L
Latitude (deg)	39.185361	39.161976
Longitude (deg)	-76.681993	-76.660330
Elevation (ft)	138.6	129.2
Length (ft)	10,501	10,501
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	0	0
Threshold Crossing Height (ft)	50	50 (anticipated)
Helicopter Pad		
Latitude (deg)	39.185181	
Longitude (deg)	-76.659115	
Elevation (ft)	129	

Sources: BWI 2012 Airport Layout Plan, Sheet 5

Threshold Crossing Height from FAA Form 5010 effective March 7, 2013, unless otherwise noted as “(anticipated)”

Helicopter pad information estimated from BWI 2012 Airport Layout Plan, Sheet 3

Note: **As discussed in the text, this layout includes certain projects scheduled around the 2024 timeframe.

Changes relative to the 2019 layout are in *italics*

1.2 Runway Use

[EDITORIAL NOTE 2/21/2014: – Much of this section is written past tense as if we have finished the analysis- this is only to avoid a rewrite later. Some of the text below might just be for the project's admin record and may not be included in the public document.]

A major input to the noise modeling process is the average annual runway utilization, which is the percentage use of each runway end. Runway utilization depends on several factors, including wind conditions, runway length and heading, aircraft type and performance, flight purpose (origin/destination), terrain, and noise abatement procedures. The runway-end utilization rates used in the computer modeling process for the 2014 contours were developed directly from historical data from the BWI operations database that contains a record of each flight detected by passive radar in the MAA's AirScene.com system. Each record in the database contains the date and time of the flight and the runway used. From these records, overall runway usage tables for 2014, 2019, and 2024 were compiled by arrival or departure, day or night, and aircraft type.

[EDITORIAL NOTE 2/21/2014:: Tables are to be provided when the analysis is complete; structure will be similar to Table 8 through 34 in August 2007 ANZ documentation; subgroupings of air carrier and air taxi used for reporting are to-be determined]

The modeled air carrier ([subgroupings TBD**]), air taxi ([subgroupings TBD**]), general aviation, and military runway utilization rates that HMMH developed for this study are presented below in Tables X through Y for 2014, Tables X through Y for 2019, and Tables X through Y for 2024.

The runway use for the 2024 layout, which includes the proposed parallel 10R/28L runway, originates from 2011 BWI Master Plan Technical Report.³ For the purposes of the 2024 analysis, model tracks and operations from the existing Runway 10/28 were copied (and moved) to the proposed Runway 10R/28L. Then the operations of the two runways were adjusted to represent 2024 operations, as discussed below.

For year 2024, the proposed Runway 10R/28L is 9,000 ft. as defined by the current ALP, is shorter than existing Runway 10/28 at 10,502 ft. We assume some aircraft would not depart the proposed Runway 10R/28L because of runway length and therefore would continue to use the existing Runway 10/28. Integrated Noise Model v 7.0d (INM) performance algorithms will be used to determine the take-off roll distance (i.e. the distance from start of takeoff to the point at which the wheels leave the ground) for each modeled aircraft type and at various weights. All aircraft and weight combinations which have a take-off roll distance greater 75% of the length of the proposed Runway 10R/28L (75% of 9,000 ft. = 6,750 ft.) are assumed to remain on the existing Runway 10/28.

The 75% departure length limit was chosen as a reasonable estimate based on the required departure take-off roll distance for the runway 10R/28L design aircraft. The ALP defines the Boeing 777-200 flying a distance of 7,000 nautical miles (NM). The aircraft performance model used for the ANZ noise analysis is INM. The 777-200 at 7,000 NM listed on the ALP as the design aircraft is represented in INM by INM type 777200 (Boeing 777-200ER with GE90-90B engines) at stagelength nine. For the average annual

³ Landrum & Brown "BALTIMORE/WASHINGTON INTERNATIONAL THURGOOD MARSHALL AIRPORT MASTER PLAN TECHNICAL REPORT" Final 2011. The specific runway used for this analysis came from a Landrum & Brown analysis prepared to support the noise contour developed for the BWI Marshall 2011 Master Plan/ALP. The relevant ALP contours are depicted in Exhibit 7.4-1, 2030 ALP Noise Exposure Contour (described in Section 7.4, and specifically Section 7.4.1.2, of the Final Master Plan Technical Report) and in Appendix K "ENVIRONMENTAL EVALUATION OF ALTERNATIVES", (Sec. 2.6.2.2.3 Alternative 2c and Exhibit 2-5).

meteorological conditions⁵ used for the ANZ noise modeling, the take-off roll distances for the 777200 at stagelength 9 are 7,478 ft. and 7,720 ft. for Runway 10R and Runway 28L respectively (or 83% and 86% of the 9,000 ft. runway length). To account for modeling variability and any additional operational safety, the runway length limit was reduced by an additional ~10% to arrive at the 75% limit. Analysis of operations to date indicates that even with the 75% /6,750 ft. limit, the number of aircraft/weight operations that have a takeoff roll greater than 6,750 ft. in INM is about 1 per week.

During busy periods, it was assumed that both of the proposed runways could be used for departing aircraft at the same time and flight tracks would not cross. For the purpose of this analysis, busy hours are defined as those forecast to have twenty or more operations per hour in the 2024 conditions. These hours are estimated to be⁶

- Monday through Friday, 6 AM and later until (and not including) 10 PM.
- Saturday, 6 AM and later until (and not including) 7 PM.
- Sunday, 7 AM and later until (and not including) 10 PM.

During these hours of operations, it is assumed that the existing Runway 28 would be used for aircraft departing west and making right turns to the north and east while the proposed Runway 28L would be used for aircraft departing and making left turns for destinations to the south, east and west. However, all departures that need the extra runway length of the existing Runway 28 would continue to do so regardless of destination. Similarly, for simultaneous departures on Runways 10 and 10R, we assume the existing Runway 10 would be used for aircraft departing straight east and making left turns to the north and west while the proposed Runway 10R would be used for aircraft making right turns for destinations to the east, south and west with aircraft needing the extra runway length using existing Runway 10. All departures that need the extra runway length of the existing Runway 10 would continue to do so regardless of destination.

It should be noted that the purpose of the analysis described above is to prepare an estimation of average annual runway use for the purpose of the ANZ and does not consider in detail all of the considerations that aircraft operators use to select a particular runway for a particular flight. Ultimate authority to operate an aircraft safely resides with the pilot.

⁵ Average annual meteorological conditions: Temperature 56.6, sea level pressure of 30.02 in-Hg.

⁶ Developed by looking at radar data and MAA's review of the June 2014 airline schedule.

APO TERMINAL AREA FORECAST DETAIL REPORT
Forecast Issued January 2013

BWI

Fiscal Year	AIRCRAFT OPERATIONS													
	Enplanements			Itinerant Operations					Local Operations			Total Ops	Total Tracon Ops	Based Aircraft
	Air Carrier	Commuter	Total	Air Carrier	Air Taxi & Commuter	GA	Military	Total	Civil	Military	Total			
REGION:AEA STATE:MD LOCID:BWI														
CITY:BALTIMORE AIRPORT:BALTIMORE/WASHINGTON INTL THURGOOD MARSHAL														
1990	4,498,900	529,300	5,028,200	157,829	88,120	54,670	1,880	302,499	826	140	966	303,465	520,100	107
1991	4,448,719	579,038	5,027,757	148,637	84,003	46,628	1,741	281,009	1,211	100	1,311	282,320	0	100
1992	4,131,980	591,872	4,723,852	128,648	85,862	42,986	2,542	260,038	4,844	962	5,806	265,844	0	97
1993	3,772,189	664,781	4,436,970	120,201	90,082	40,553	2,125	252,961	7,286	1,427	8,713	261,674	0	97
1994	5,501,668	618,316	6,119,984	156,024	78,384	37,376	2,744	274,528	9,834	2,030	11,864	286,392	0	97
1995	5,929,125	666,390	6,595,515	153,313	88,666	34,722	1,992	278,693	16,944	1,295	18,239	296,932	0	82
1996	5,828,667	707,217	6,535,884	150,509	87,782	22,141	1,393	261,825	7,959	372	8,331	270,156	267,990	84
1997	6,439,042	613,818	7,052,860	153,263	82,923	21,780	1,635	259,601	7,058	276	7,334	266,935	506,242	63
1998	6,759,369	510,313	7,269,682	160,932	78,385	24,246	2,598	266,161	11,185	264	11,449	277,610	523,365	63
1999	7,743,205	572,377	8,315,582	187,878	75,367	28,396	2,859	294,500	12,285	34	12,319	306,819	536,766	63
2000	8,847,339	598,567	9,445,906	206,603	66,843	21,581	2,058	297,085	12,431	19	12,450	309,535	538,098	63
2001	9,720,408	595,191	10,315,599	230,103	63,061	26,992	2,727	322,883	5,543	2	5,545	328,428	545,079	87
2002	8,942,833	506,348	9,449,181	210,349	66,037	29,728	3,478	309,592	689	0	689	310,281	520,891	100
2003	9,083,637	356,371	9,440,008	209,468	46,700	33,548	2,306	292,022	3,640	337	3,977	295,999	160,918	102
2004	9,805,532	355,738	10,161,270	215,257	50,909	34,976	1,092	302,234	5,327	189	5,516	307,750	0	96
2005	9,322,247	392,053	9,714,300	219,396	54,039	31,850	865	306,150	6,337	147	6,484	312,634	0	96
2006	9,599,106	570,886	10,169,992	209,248	57,858	32,288	793	300,187	4,932	88	5,020	305,207	0	99
2007	9,765,170	613,759	10,378,929	209,291	58,451	29,508	663	297,913	3,728	38	3,766	301,679	0	79
2008	9,733,554	609,204	10,342,758	207,083	48,575	23,856	787	280,301	5,433	40	5,473	285,774	0	96
2009	9,591,301	522,215	10,113,516	199,995	44,386	17,172	728	262,281	3,130	12	3,142	265,423	0	86
2010	10,143,381	467,948	10,611,329	207,276	43,045	18,912	774	270,007	5,300	0	5,300	275,307	0	75
2011	10,524,080	529,350	11,053,430	219,750	39,317	17,183	690	276,940	378	0	378	277,318	0	73
2012*	10,524,347	518,234	11,042,581	213,337	41,395	15,898	960	271,590	276	0	276	271,866	0	74

https://aspm.faa.gov/wtaf/detail.asp?line=SELECT+*+FROM+WTAf+WHERE+SYSYEAR>^1990+AND+SYSYEAR<^204... 09/11/2013

2013*	10,020,984	420,288	10,441,272	206,084	37,504	14,843	960	259,391	268	0	268	259,659	0	77
2014*	10,077,230	447,607	10,524,837	208,969	38,329	15,004	960	263,262	268	0	268	263,530	0	80
2015*	10,396,869	470,883	10,867,752	216,074	37,793	15,167	960	269,994	268	0	268	270,262	0	82
2016*	10,736,746	481,242	11,217,988	223,204	36,583	15,331	960	276,078	268	0	268	276,346	0	84
2017*	11,066,950	490,867	11,557,817	230,123	35,486	15,497	960	282,066	268	0	268	282,334	0	86
2018*	11,386,543	499,212	11,885,755	235,416	34,918	15,665	960	286,959	268	0	268	287,227	0	89
2019*	11,715,372	507,699	12,223,071	240,831	34,359	15,835	960	291,985	268	0	268	292,253	0	92

APO TERMINAL AREA FORECAST DETAIL REPORT
Forecast Issued January 2013

BWI

Fiscal Year	AIRCRAFT OPERATIONS													
	Enplanements			Itinerant Operations				Local Operations			Total Ops	Total Tracon Ops	Based Aircraft	
	Air Carrier	Commuter	Total	Air Carrier	Air Taxi & Commuter	GA	Military	Total	Civil	Military				Total
2020*	12,053,701	516,330	12,570,031	246,370	33,809	16,007	960	297,146	268	0	268	297,414	0	94
2021*	12,401,807	525,108	12,926,915	252,037	33,268	16,180	960	302,445	268	0	268	302,713	0	97
2022*	12,759,972	534,035	13,294,007	257,833	32,736	16,355	960	307,884	268	0	268	308,152	0	100
2023*	13,128,486	543,114	13,671,600	263,763	32,212	16,531	960	313,466	268	0	268	313,734	0	102
2024*	13,507,649	552,347	14,059,996	269,829	31,697	16,710	960	319,196	268	0	268	319,464	0	105
2025*	13,897,768	561,737	14,459,505	276,035	31,190	16,891	960	325,076	268	0	268	325,344	0	108
2026*	14,299,160	571,287	14,870,447	282,384	30,691	17,074	960	331,109	268	0	268	331,377	0	111
2027*	14,712,152	580,999	15,293,151	288,879	30,200	17,259	960	337,298	268	0	268	337,566	0	114
2028*	15,137,079	590,876	15,727,955	295,524	29,717	17,446	960	343,647	268	0	268	343,915	0	118
2029*	15,574,285	600,921	16,175,206	302,321	29,242	17,635	960	350,158	268	0	268	350,426	0	122
2030*	16,024,126	611,137	16,635,263	309,275	28,774	17,826	960	356,835	268	0	268	357,103	0	126
2031*	16,486,968	621,526	17,108,494	316,389	28,313	18,019	960	363,681	268	0	268	363,949	0	130
2032*	16,963,186	632,092	17,595,278	323,666	27,860	18,214	960	370,700	268	0	268	370,968	0	134
2033*	17,453,166	642,838	18,096,004	331,111	27,414	18,411	960	377,896	268	0	268	378,164	0	138
2034*	17,957,306	653,766	18,611,072	338,726	26,975	18,610	960	385,271	268	0	268	385,539	0	142
2035*	18,476,017	664,880	19,140,897	346,517	26,544	18,811	960	392,832	268	0	268	393,100	0	147
2036*	19,009,720	676,183	19,685,903	354,487	26,119	19,014	960	400,580	268	0	268	400,848	0	152

2037*	19,558,847	687,678	20,246,525	362,640	25,701	19,220	960	408,521	268	0	268	408,789	0	157
2038*	20,123,845	699,369	20,823,214	370,981	25,290	19,428	960	416,659	268	0	268	416,927	0	162
2039*	20,705,172	711,258	21,416,430	379,513	24,885	19,639	960	424,997	268	0	268	425,265	0	167
2040*	21,303,302	723,349	22,026,651	388,242	24,486	19,851	960	433,539	268	0	268	433,807	0	172

Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport

Subject: BWI Airport Noise Zone Update - Forecast Airport Layout and Operation Assumptions

Date: April 25, 2014

Attachment C

ATADS : Airport Operations : Standard Report

From 01/2012 To 12/2013 | Facility=BWI

Date	Facility	Air		Itinerant General			Local			Total Operations
		Carrier	Taxi	Aviation	Military	Total	Civil	Military	Total	
Jan-12	BWI	16,142	3,426	1,119	50	20,737	0	0	0	20,737
Feb-12	BWI	15,732	3,470	1,055	69	20,326	52	0	52	20,378
Mar-12	BWI	17,913	3,606	1,181	102	22,802	30	0	30	22,832
Apr-12	BWI	18,040	3,249	1,344	71	22,704	10	0	10	22,714
May-12	BWI	18,841	3,544	1,430	133	23,948	0	0	0	23,948
Jun-12	BWI	19,118	3,391	1,466	74	24,049	80	0	80	24,129
Jul-12	BWI	19,549	3,428	1,312	75	24,364	0	0	0	24,364
Aug-12	BWI	18,797	3,549	1,338	78	23,762	22	0	22	23,784
Sep-12	BWI	16,613	3,393	1,373	90	21,469	0	0	0	21,469
Oct-12	BWI	16,853	3,530	1,376	70	21,829	12	0	12	21,841
Nov-12	BWI	16,776	2,972	1,374	81	21,203	12	0	12	21,215
Dec-12	BWI	16,468	2,754	1,242	105	20,569	26	0	26	20,595
Jan-13	BWI	15,766	2,931	1,124	69	19,890	0	0	0	19,890
Feb-13	BWI	14,534	2,770	1,119	101	18,524	6	0	6	18,530
Mar-13	BWI	17,394	2,972	1,282	123	21,771	0	0	0	21,771
Apr-13	BWI	17,938	2,845	1,349	125	22,257	0	0	0	22,257
May-13	BWI	18,830	2,985	1,590	132	23,537	0	0	0	23,537
Jun-13	BWI	18,584	2,956	1,362	103	23,005	26	0	26	23,031
Jul-13	BWI	19,103	3,042	1,359	132	23,636	4	0	4	23,640
Aug-13	BWI	18,555	3,038	1,238	132	22,963	22	0	22	22,985
Sep-13	BWI	16,306	2,995	1,449	129	20,879	30	0	30	20,909
Oct-13	BWI	17,510	3,034	1,403	118	22,065	164	0	164	22,229
Nov-13	BWI	15,988	2,751	1,308	120	20,167	370	0	370	20,537
Dec-13	BWI	16,405	2,494	1,154	59	20,112	345	0	345	20,457
Sub-Total for BWI		417,755	75,125	31,347	2,341	526,568	1,211	0	1,211	527,779
Total:		417,755	75,125	31,347	2,341	526,568	1,211	0	1,211	527,779

Report created on Wed Jan 22 19:55:41 EST 2014

Sources: Air Traffic Activity System (ATADS)

Total Calendar Year 2012 and 2013 Operations										
	Air		Itinerant General			Local			Total Operations	
	Carrier	Taxi	Aviation	Military	Total	Civil	Military	Total		
2012	210,842	40,312	15,610	998	267,762	244	0	244	268,006	
2013	206,913	34,813	15,737	1,343	258,806	967	0	967	259,773	

2013 compared to 2012	
Difference	(8,233)
Percent Difference	-3.1%

Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport

Subject: BWI Airport Noise Zone Update – Forecast Airport Layout and Operation Assumptions

Date: April 25, 2014

Attachment D

Page 1

Attachment D - Calendar Year 2012 Operation Counts for Top Ten Airlines at BWI

Airline Designator ¹	2012 ³												Totals ²
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
SWA	9,561	9,567	11,033	11,057	11,484	11,426	11,766	11,033	10,125	8,916	8,534	7,668	122,170
TRS	2,646	2,416	2,618	2,655	2,732	2,955	3,011	2,957	2,896	2,542	2,466	2,465	32,359
DAL	1,106	1,022	1,226	1,208	1,234	1,275	1,264	1,385	1,287	1,175	1,227	1,075	14,484
AWE	777	740	803	768	801	787	840	814	751	671	702	748	9,202
UAL	520	526	663	611	768	821	845	873	654	527	529	530	7,867
AAL	488	403	421	485	523	516	468	473	447	398	378	356	5,356
KAP	527	507	547	535	550	522	516	527	509	380	1	0	5,121
EGF	295	274	296	338	351	338	327	343	341	293	301	273	3,770
JBU	278	261	308	298	311	297	307	307	296	267	239	236	3,405
JZA	204	194	221	216	280	264	261	279	258	237	196	163	2,773
Total²	16,402	15,910	18,136	18,171	19,034	19,201	19,605	18,991	17,564	15,406	14,573	13,514	206,507

Notes:

1 – FAA airline designators are published in FAA Order 7340.2, Chapter 3. The most current version is available at

http://www.faa.gov/air_traffic/publications/atpubs/CNT/index.htm

2 – Totals is for only the top ten airlines operating at BWI during calendar year 2012.

Source: Maryland Aviation Administration's AirScene.com system; HMMH

3 – The operational counts for the 2012 top ten airlines include both Air Carrier and Air Taxi operations

C.2 Non-Standard Noise Modeling Substitution Request and FAA Approval

This memorandum and associated FAA Approval was prepared for the concurrent Noise Exposure Map update, and was used to support the ANZ update.

HMMH memorandum “BWI Part 150 Noise Exposure Map Update – INM Substitution Aircraft Request” dated September 11, 2013. This memorandum describes the contractor’s recommended non-standard modeling methodology and prepared in accordance to FAA July 2009 guidance.

http://www.faa.gov/airports/environmental/policy_guidance/media/nonstd_inm_modeling.pdf

The Federal Aviation Administration’s Office of Environment and Energy (AEE) approved the recommendations in letter dated October 13, 2013.

HARRIS MILLER MILLER & HANSON INC.

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September 11, 2013

Ms. Ellen Sample
Maryland Aviation Administration
P.O. Box 8766
BWI Airport, MD 21240

Subject: Baltimore/Washington International Thurgood Marshall Airport
BWI Part 150 Noise Exposure Map Update – INM Substitution Aircraft Request

Reference: HMMH Project No. 305160.011
MAA-SV-12-002 Task 11

Dear Ms. Sample:



Harris Miller Miller & Hanson Inc. (HMMH) is assisting Maryland Aviation Administration (MAA) with a 14 C.F.R. Part 150 Noise Exposure Map (NEM) Update for Baltimore/Washington International Thurgood Marshall Airport (BWI). The study will address aircraft noise and land-use compatibility projections based on Day-Night Average Sound Level contours developed using the most current release of the Integrated Noise Model (INM); i.e., Version 7.0d. Consistent with Federal Aviation Administration (FAA) policies and procedures, we submit this request for approval of the identified aircraft types of interest, included in Attachment A. This letter supersedes our May 31, 2013 request which assumed the BWI NEM study would use INM Version 7.0c.

HMMH recommends that MAA submit this request to FAA. FAA should review and approve these INM 7.0d substitutes for use in this NEM Update, or provide appropriate guidance. In accordance with FAA policy, we expect that this request will be reviewed by the FAA's Airport Planning and Environmental Division (APP-400) and Office of Environment and Energy Noise Division (AEE-100). We will be happy to respond to questions regarding this request from yourself or FAA.

Thank you for your assistance in this matter.

Sincerely yours,

HARRIS MILLER MILLER & HANSON INC.

A handwritten signature in blue ink that reads 'David A. Crandall'.

David A. Crandall
Principal Consultant

Attachment A: INM Aircraft Substitution Requests and Suggestions

HARRIS MILLER MILLER & HANSON INC.

NEM Update for Baltimore/Washington International Thurgood Marshall Airport
 Request for INM 7.0d Aircraft Type Substitutions
 September 11, 2013
 Page A-1

ATTACHMENT A

INM AIRCRAFT SUBSTITUTION REQUESTS AND SUGGESTIONS

The aircraft types listed in Table 1 are included in the Noise Exposure Map (NEM) Update and require a FAA approved substitution. In each case, we have identified a substitute for each aircraft using the INM 7.0d database. The basis for our recommendations are discussed following Table 1.

This discussion refers, in some cases, to recent guidance FAA provided HMMH for noise studies including:

- T. F. Green Airport (PVD) Airport Improvement Program Environmental Impact Statement (EIS) Study with INM 7.0b, HMMH Project No. 300650, FAA approval issued January 3, 2011.
- Los Angeles International Airport (LAX) Part 161 Noise and Access Restriction Study with INM 7.0b, HMMH Project No. 300700, FAA approval issued December 9, 2011.
- Watertown International Airport (ART) Environmental Assessment (EA) with INM 7.0c, HMMH Project No. 305800, FAA approval issued January 14, 2013.

We can provide copies of the above documents upon request.

Table 1. Aircraft Types and Recommended INM Substitutions

#	Group	Aircraft Code	Represented Aircraft Models	Recommended INM Substitution
1.1	Jet	E50P	Embraer EMB-500 Phenom 100	CNA510 ¹
1.2	Jet	E55P	Embraer EMB-505 Phenom 300	CNA560E ¹
1.3	Jet	H25C	BAe/Raytheon Hawker 1000	LEAR35 ^{1,2}
1.4	Jet	LJ40	Learjet 40	LEAR35 ²
1.5	Jet	DC86	Douglas DC-8-60	DC86HK ³
1.6	Jet	FA7X	Dassault Falcon 7X	F10062 ²
1.7	Turbo Prop	B350	Beech Super King Air 350	DO228 ²
1.8	Turbo Prop	P46T	Piper Malibu Meridian	CNA208 ²
1.9	Turbo Prop	TBM8	Socata TBM-850	CNA208 ²
1.10	Turbo Prop	KODI	Quest Kodiak	CNA208
1.11	Piston Prop	BE36	Beechcraft 36 Bonanza	CNA206 ¹
1.12	Piston Prop	COL4	Lancair LC-41 Columbia 400	GASEPV ¹
-	Piston Prop	COL3	Lancair Columbia 300	GASEPV
1.13	Piston Prop	DA40	Diamond 40	GASEPV ²

Notes:

- 1 FAA approved type for ART EA
- 2 FAA approved type for LAX Part 161 Study
- 3 User-defined aircraft that FAA approved type for PVD EIS

1.1 Embraer EMB-500 Phenom 100 – E50P

We propose to model EMB-500 Phenom 100 operations with INM type CNA510 as most recently approved for the ART EA, HMMH Job # 305800.

HARRIS MILLER MILLER & HANSON INC.

NEM Update for Baltimore/Washington International Thurgood Marshall Airport
 Request for INM 7.0d Aircraft Type Substitutions
 September 11, 2013
 Page A-2

1.2 Embraer EMB-505 Phenom 300 – E55P

We propose to model EMB-505 Phenom 300 operations with INM type CNA560E as most recently approved for the ART EA, HMMH Job # 305800.

1.3 BAe/Raytheon Hawker-125-1000 – H25C

We propose to model H25C operations with INM type LEAR35 as most recently approved for the ART EA, HMMH Job # 305800 and LAX Part 161, HMMH Job # 300700.

Table 2 compares the Hawker 125-1000 with the Hawker 800 and LEAR35 aircraft. Based on the comparison, the LEAR35 appears to be a good match.

Table 2 Noise Certification Data from BAe-125-1000 and -800 and LEAR35

Manufacturer	Type Designation	MTOW (lb)	MLW (lb)	Engine Manufacturer / Type Designator	Noise Level (EPNdB)		
					Takeoff	Sideline	Approach
Raytheon	Hawker 125-1000	31,000	25,000	PW305	81.8	85.9	91.6
Raytheon	Hawker 125-800	27,400	23,350	TFE731-5R-1H	80.9	87.2	96.5
Learjet	LEAR 35 A	18,000	14,300	TFE731-2-2B	83.6	87.4	91.3

Source: FAA AC 36-1H, at http://www.faa.gov/about/office_org/headquarters_offices/AEP/noise_levels/media/uscert_appendix_01_030210.xls

1.4 Learjet 40 – LJ40

We propose to model LJ40 operations with INM type LEAR35 as most recently approved for the LAX Part 161, HMMH Job # 300700.

The LJ40 is a derivative of the Learjet 45 (LJ45) with a shorter fuselage. The LJ40 and LJ45 engines are both versions of the Honeywell TFE731-20AR. In INM 7.0d, the LJ45 is mapped to the substitution aircraft, LEAR35.

1.5 Douglas DC-8-60 with Stage 3 Hushkit – DC86

We propose to model DC86 operations with 14 CFR Part 36 Stage 3 hushkit with a user-defined aircraft, DC86HK as most recently approved for the PVD EIS, HMMH Job # 300650

In the past the FAA has approved the use of a user defined aircraft comprised of the DC86QN aircraft with the DC870 Noise-Power-Distance (NPD) curves + 4dB added to the curves. We propose to use this same user defined aircraft for this project.

This user defined aircraft had been approved by FAA, and used for, the last BWI NEM update.¹

1.6 Dassault Falcon 7X – FA7X

We propose to model FA7X operations with INM type F10062 as most recently approved for the LAX Part 161, HMMH Job # 300700.

¹ Maryland Aviation Administration, Baltimore/Washington International Thurgood Marshall Airport Part 150 Updated Noise Exposure Maps, December 2005. The documentation of DC86HK is in Appendix G.

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The Dassault Falcon 7X is a relatively new three-engine (two are fuselage mounted, one tail mounted) corporate jet and does not have an FAA-approved INM substitution. The FA7X is powered by three Pratt & Whitney Canada PW 307A engines and is heavier than previous three-engine Dassault corporate aircraft that are powered by Allied Signal/Garrett TFE731 series engines (i.e. Falcon 50 and Falcon 900). Certification from EASA indicates that the INM F10062 would be an appropriate substitution. The Dassault Falcon 7X has a certified MTOW of 31,298 kg (69,000 lb.) and a certified MLW of 28,304 kg (62,400 lb.). For comparison, the Fokker 100 has a MTOW of 43,090 kg and a MLW of 38,780 kg. Since the FA7X has three-engines and the Fokker 100 has two engines (along with most other candidate INM 7.0b types), thrust to weight comparisons would not be effective because three-engine and two-engine aircraft have different certification requirements regarding available thrust for engine-out conditions. Table 3 presents a comparison of the Dassault Falcon 7X and Fokker 100 certification data.

Table 3 Noise Certification Data from Dassault Falcon 7X and Fokker 100

Manufacturer	Type Designation	MTOW (lb)	MLW (lb)	Engine Manufacturer / Type Designator	Effective Perceived Noise Level (EPNdB)		
					Fly Over	Lateral	Approach
Dassault Aviation	Falcon 7X	31,298	28,304	Pratt & Whitney Canada PW 307 A	83.7	90.4	92.6
Fokker Services	F28 Mark 0100	43,090	38,780	Rolls-Royce Tay 620-15	83.4	89.3	93.1

Source: EASA file "TCDSN Jets (080711).xls", as posted on http://easa.europa.eu/ws_prod/c/c_tc_noise.php on November 12, 2008
 Notes
 Weights converted from EASA reported units of kg and rounded to tens of lb.

1.7 Beech Super King Air 350 – B350

We propose to model the B350 operations with INM type DO228 as most recently approved for the LAX Part 161, HMMH Job # 300700.

1.8 Piper Malibu Meridian – P46T

We propose to model the P46T operations with INM type CNA208 as most recently recommended/approved for the LAX Part 161, HMMH Job # 300700.

1.9 Socata TBM-850 – TBM8

We propose to model the TBM8 operations with INM type CNA208 as most recently recommended/approved for the LAX Part 161, HMMH Job # 300700.

1.10 Quest Kodiak - KODI

We propose to model KODI operations with INM type CNA208

The Quest Kodiak is a relatively new single-engine utility turboprop designed for short field operations. Table 4 compares the general characteristics of the Kodiak to the similar Cessna Caravan (INM type CNA208). Both aircraft have constant speed (i.e. variable pitch) propellers,

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although the Kodiak has a four-blade propeller compared to the Caravan's three-blade propeller.² The take-off climb performance appears to be better for the Kodiak, implying that the Kodiak will be higher and more distant to ground receptor off airfield. Therefore the CNA208 is probably slightly conservative/louder than actual noise levels from the Kodiak.

Table 4 General Characteristics of the Quest Kodiak and the Cessna Caravan

Manufacturer	Type Designation	MTOW (lb)	Engine Manufacturer / Model (Power)	Max Rate of Climb at Sea Level (ft / min)	Max. Power Loading	Max. Wing Loading (lb / sq ft)
Quest	Kodiak	7,255	Pratt & Whitney PT6A-34 (750 hp)	1,371	9.67 lbs/hp	30.1
Cessna	Caravan 208	8,750	Pratt & Whitney PT6A-114 (675 shp)	925 - 975	12.96 lbs/shp	31.32

Source for Quest Kodiak:
<http://questaircraft.com/the-kodiak/specifications-option/> as viewed May 30, 2013
 Source for Cessna Caravan:
 "Jane's All the World's Aircraft 2010-2011" Jane's Information Group Inc., Alexandria, Virginia (ISBN-13 978 0 7106 29166), pp.752-753. Data for "B: Super Cargomaster" and "C: Grand Caravan" provide best match for INM 7.0d CNA208 and are used above.

1.11 Beechcraft Bonanza 36 - BE36

We propose to model BE36 operations with INM type CNA206 as most recently approved for the ART EA, HMMH Job # 305800.

The BE36 Beechcraft Bonanza is a single-engine propeller aircraft that is similar in weight and engines with the Cessna 206 as shown in Table 5.

Table 5 Estimated Maximum A-weighted Sound Levels for Cessna 206, Beechcraft 36

Manufacturer	Type Designation	MTOW (lb)	MLW (lb)	Engine Manufacturer / Type Designator	Noise Level (Est Lmax dB)	
					Takeoff	Approach
Cessna	206	3,300	3,300	IO-520-A	70.2	63.5
Beech	A36	3,600	3,600	IO-520-BA	71.0	64.0

Source: FAA AC 36-3H, as posted on
http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document/information/documentID/22945, as viewed May 30, 2013

1.12 Lancair Columbia 400 – COL4, and Columbia 300 – COL3

We propose to model the COL4 and COL3 operations with INM type GASEPV. The COL4 was most recently approved for the ART EA, HMMH Job # 305800.

² Additional information such as rpm and blade diameter were not available for both types, so we could not compare blade tip speeds.

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Both the COL4 and COL3 are single engine piston aircraft similar in weight to the GASEPV we seek similar approval for COL3 to be substituted with INM type GASEPV.

1.13 Diamond 40 – DA40

We propose to model the DA40 operations with INM type GASEPV as most recently approved for the LAX Part 161, HMMH Job # 300700.

The DA40 series are single engine piston aircraft with either a two or three-blade, constant-speed variable pitch propeller that would probably be best modeled as GASEPV.³

³ Information on the options for the DA40 can be found on the Diamond Aircraft Industries Inc.'s website.
http://www.diamondaircraft.com/aircraft/da40_xls/specs.php
http://www.diamondaircraft.com/aircraft/da40_cs/specs.php



U.S. Department
 of Transportation
**Federal Aviation
 Administration**

Office of Environment and Energy

800 Independence Ave., S.W.
 Washington, D.C. 20591

October 1, 2013

Andrew Brooks
 Environmental Program Manager
 Federal Aviation Administration
 Eastern Regional Office
 1 Aviation Plaza
 Jamaica, NY 11434

Dear Andrew,

The Office of Environment and Energy (AEE) has reviewed the proposed non-standard Integrated Noise Model (INM) aircraft substitutions for the Baltimore/Washington International Thurgood Marshall Airport (BWI) Part 150 Noise Exposure Map Update.

Harris Miller Miller & Hanson Inc. (HMMH) is assisting Maryland Aviation Administration (MAA) with the Noise Exposure Map (NEM) Update for BWI. The update will address aircraft noise and land-use compatibility projections based on Day-Night Average Sound Level contours developed using the most current release of the INM; i.e., Version 7.0d. HMMH has proposed substitutions for 14 aircraft types that currently do not have standard substitutions in the INM aircraft database. The proposed substitutions and the corresponding AEE recommendations are summarized in the table below.

Aircraft	HMMH Proposed Substitution	AEE Recommendation
Embraer EMB-500 Phenom 100	CNA510	Concur
Embraer EMB-505 Phenom 300	CNA560E	Concur
BAe/Raytheon Hawker 1000	LEAR35	Concur
Learjet 40	LEAR35	Concur
Douglas DC-8-60	DC86HK	Concur
Dassault Falcon 7X	F10062	Concur
Beech Super King Air 350	DO228	Concur
Piper Malibu Meridian	CNA208	Concur
Socata TBM-850	CNA208	Concur
Quest Kodiak	CNA208	Concur
Beechcraft 36 Bonanza	CNA206	Concur
Lancair LC-41 Columbia 400	GASEPV	Concur
Lancair Columbia 300	GASEPV	Concur
Diamond 40	GASEPV	Concur

AEE concurs with the aircraft substitutions proposed by HMMH. Please understand that this approval is limited to this particular Part 150 NEM Update for BWI. Any additional projects or non-standard INM input at BWI or any other site will require separate approval.

Sincerely,

A handwritten signature in black ink, appearing to read "Rebecca Cointin". The signature is fluid and cursive, with a large initial "R" and a long, sweeping tail.

Rebecca Cointin, Manager
AEE/Noise Division

cc: Jim Byers, APP-400

APPENDIX D INM INPUT FILES

INM input files were submitted with the document in electronic format.

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**APPENDIX E GENERAL ADDENDUMS TO CONTRACT OF SALE
FOR IMPROVED PROPERTIES FOR ANNE ARUNDEL AND
HOWARD COUNTY**

MARYLAND
(ANNE ARUNDEL COUNTY)
GENERAL ADDENDUM TO ALL CONTRACTS OF SALE
FOR IMPROVED PROPERTIES LOCATED IN THE STATE OF MARYLAND

Required Coldwell Banker Residential Brokerage Addendum for Every Contract of Sale for New or Resale,
Improved Residential Property

Contract of Sale dated: _____

Buyer(s): _____

Seller(s): _____

Property: _____

- Regarding:
1. Consumer Disclosure Required by Federal Law
 2. Notice of Buyer's Right to Include a Contingency for Property Inspection(s)
 3. Consumer Disclosures Required by State and/or Local Law
 4. Additional General Contract Provisions
 5. First-Time Maryland Home Buyer Notice

1. **LEAD-BASED PAINT HAZARD:** Poisoning from lead-based paint is a serious health hazard, particularly to young children and pregnant women. Lead-based paint occurs more often in houses constructed prior to 1978. Extensive rental property registration and certification and owner and tenant notice and acknowledgment documentation is mandatory.

LEAD-BASED PAINT HAZARDS. Title X, Section 10106, the Residential Lead-Based Paint Hazard Reduction Act of 1992 (the Act), required the disclosure of certain information regarding lead-based paint and lead-based paint hazards in connection with the sale of residential real property. Unless otherwise exempt, the Act applies only to housing constructed prior to 1978. A Seller of pre-1978 housing is required to disclose to the Buyer(s), based upon the Seller's actual knowledge, all known lead-based paint hazards in the Property and provide the Buyer(s) with any available reports in the Seller's possession relating to lead-based paint or lead-based paint hazards applicable to the Property. The Seller, however, is not required to conduct or pay for any lead-based paint risk assessment or inspection. At the time that the offer to purchase is entered into by the Buyer(s), the Seller is required to provide the Buyer(s) with the EPA pamphlet entitled "Protect Your Family from Lead in Your Home" and a "Disclosure of Information on Lead-Based Paint and Lead-Based Paint Hazards" form.

Seller and Buyer agree and represent and warrant, each unto the other, that no binding and enforceable contract shall be deemed to exist or to have been formed unless all of the requirements of the Act were fully satisfied and complied with prior to the execution of this Contract by Seller and Buyer. Seller and Buyer represent and warrant that each intended, as a material term of the offer and acceptance, that the requirements of the Act be fully complied with as an express condition of the formation of a binding and enforceable contract by and between the parties.

Buyer and Seller acknowledge by their signatures below that they have read and understand the provisions of this agreement.

Lead-based paint information can be obtained by contacting the National Safety Council's National Lead Information Center (1-800-424-6323) and/or (1-800-532-3394).

2. **PROPERTY INSPECTION: (*)**

A. **General Terms:** Buyer has the right, subject to Seller's written acceptance, to make the offer to purchase contingent upon an inspection of the Property. The inspections will be performed by a professional engineer, expert or inspection specialist of Buyer's choice, at Buyer's risk of damage to the Property, and at Buyer's expense. Buyer has the right to be present during any inspection of the Property. Separate inspection addenda shall set forth the scope of the inspection and shall include provisions regarding the timely completion of the inspection and the delivery of inspection results as well as the mechanism or procedure to be followed by Buyer and Seller in responding to situations or conditions objected to by Buyer. The Brokers and Sales Associates may, if requested, provide information regarding inspection service companies available and fees charged.

B. **Scope of the Property Inspections:**

1. **Inspection of the Structural Components:** Buyer may wish to have an inspection for the purpose of determining the physical condition of the following items or systems now present on the Property and included in the purchase price: heating, plumbing, electrical and air cooling and/or filtering systems; roof and roof components, structural components and foundation and basement insofar as water penetration is concerned.

2. **Other Property Characteristics to Be Considered:** There may be a number of property characteristics which could affect the suitability of the Property for Buyer's intended use. Brokers and Sales Associates are not generally aware of these characteristics and/or do not have the technical knowledge to advise Buyer of the significance of these characteristics. Therefore, Buyer may wish to have additional inspections of the Property made. The following information is provided to assist Buyer in making an informed decision regarding the scope of any additional inspections.

a. **Environmental Considerations; Hazardous Materials:** There are hazardous materials which could affect the Property. Hazardous materials include, but are not necessarily limited to, petroleum products, cleaning chemicals, paint and lead-based paint (See Section 1), lawn and garden chemicals, urea formaldehyde foam insulation (UFFI), asbestos, toxic mold, contamination affecting soil and drinking water, electromagnetic fields from high tension wires, interior pollutants from improper ventilation, including the presence of radon gas in excess of EPA standards, the proximity of landfills and disposal sites, and the presence of underground storage tanks. Additional information regarding these substances is available from the U.S. Environmental Protection Agency (EPA) (202) 260-2090 and/or The Maryland Department of the Environment (410) 831-3000.

b. **Fire Retardant Treated Plywood Used in Construction:** In some instances, the use of fire retardant treated (FRT) plywood as roof sheathing has resulted in the loss of wood strength through thermal degradation. The extent of such degradation depends upon the particular fire retardant treatment used, the temperature levels in the roof and attic system and the degree of moisture present in the roof and attic system. Additional information regarding fire retardant treated plywood is available from the National Association of Homebuilders Research Center, Home Base Hot Line (800-898-2842).

c. **Waters of the U.S.; Jurisdictional Wetlands:** If all or a portion of the Property has been designated tidal or nontidal wetlands, the approval of both the federal and state government may be necessary before a building permit for either new construction or expansion or improvement of existing structures can be issued for the Property. Additionally, the future use of existing improved properties may be restricted. Additional information regarding wetlands is available from the U.S. Army Corps of Engineers, Regulatory Branch (410) 962-3670 and the Maryland Department of Natural Resources, Tidal Wetlands Division (410) 631-8075 and the Nontidal Division (410) 831-8094.

d. **Chesapeake Bay Critical Areas:** If all or a portion of the Property is located within 1,000 feet of tidal waters of the Chesapeake Bay, there may be restrictions on the use and/or development of the Property. Additional information regarding the Chesapeake Bay critical areas is available from the Critical Areas Program established by the local government of each county in Maryland and Baltimore City.

e. **Airport Noise Zone:** If all or a portion of the Property is located in the vicinity of an airport, Buyer may wish to review an airport noise zone map if available.

f. **Flood Plain: (*)** The Property or part of the Property could be located in an area established by the government as a "flood plain". If the property is located in a flood plain, flood insurance could be required by the mortgage lender as a condition for granting a mortgage. Construction on the Property could be prohibited or restricted.

3. **CONSUMER DISCLOSURES:**

A. Disclosures Required by the State of Maryland:

1. Agency Disclosures and Acknowledgment: (*) Buyer and Seller acknowledge that prior to entering into this Contract they have been fully informed in writing of the agency relationships which the Brokers and Sales Associates involved in this sale have with Buyer and with Seller and, in addition, Buyer and Seller have provided written consent to those agency relationships.

2. Homeowners Association and/or Condominium Law and Private Agreements: (*) If the Property is a part of a development subject to the imposition of mandatory fees as defined by the Maryland Homeowners Association Act, and/or a condominium unit, and/or subject to private maintenance agreements, Seller will make the necessary disclosures by additional attached addendum.

3. Newly Constructed Residence: (*) a) New Home Warranty Security Plan: If the Property is a newly constructed dwelling, Maryland law requires that Seller/Builder provide Buyer with a written statement concerning the presence or absence of a New Home Warranty Security Plan approved by the State of Maryland (addendum will be attached); b) Insulation: Seller/Builder must inform Buyer of the location, type, and thickness (R factor) of insulation used in the walls and roof of newly constructed residences. c) Water/Sewer Service: The Property may be subject to a fee or assessment which purports to cover or defray the cost of installing or maintaining all or part of the public water or waste water facilities constructed by the developer in the subdivision. This fee or assessment may be payable annually. Seller will provide Buyer with detailed written disclosure of the amount of the fee, the duration of the charge, and any right to prepay or discount the fee.

4. Forest Conservation: The Maryland Forest Conservation Act requires that any person making an application for a development, subdivision, site plan, building or grading or sediment and erosion control permit for an area greater than 40,000 sq. ft. must complete forest stand delineation and forest conservation plans. These plans require preparing and filing extensive documents and payment of certain deposits/fees. Consult the appropriate office of the local government for details.

5. Agriculturally Assessed Property/Mandatory Sludge Notice: If the subject Property is agriculturally assessed, the Purchaser is given the following notice: "Under § 9-241 of the Environment Article of the Annotated Code of Maryland, the Department of the Environment is required to maintain permanent records regarding every permit issued for the utilization of sewage sludge, including the application of sewage sludge on farm land. A prospective buyer has the right to ascertain all such information regarding the property being sold under this transaction."

6. Real Property Tax Escrow Notice: Pursuant to the State of Maryland Annotated Code, Tax Property Article § 10-204.3, a property owner may elect to pay real property taxes on an annual or semi-annual basis. Buyer(s) is advised to convey to their settlement attorney whether they wish to pay real property taxes annually or semi-annually.

B. Disclosures Required by Anne Arundel County:

1. Front Foot Benefit/Capital Facilities: The Buyer hereby acknowledges and agrees to assume capital facilities assessment/front foot benefit of \$ _____ per _____ payable to: _____ County.

Initials for Front Foot Benefit/Capital Facilities paragraph: _____
Seller(s) Initials Buyer(s) Initials

2. Private Assessment Notice to Purchasers of Real Estate in Anne Arundel County: This Property is subject to a fee or assessment which purports to cover or defray the cost of installing or maintaining all or part of the public water or wastewater facilities constructed by the developer of _____ subdivision. This fee or assessment is (amount) \$ _____ payable annually in (month) _____ to (name and address) _____ (herein called "Lienholder") until (date) _____. There may be a right of prepayment or discount for early payment which may be ascertained by contacting the Lienholder. This fee or assessment is a contractual obligation between the Lienholder and each owner of this Property and is not in any way a fee or assessment by Anne Arundel County.

Initials for Private Assessment Notice paragraph: _____
Seller(s) Initials Buyer(s) Initials

3. Special Tax District Notice to Purchasers of Real Estate in Anne Arundel County: This Property is located within a special taxing district. Each year the Buyer of this Property must pay a special assessment or special tax imposed under Article 6, Title 4A, of the Anne Arundel County Code. Special tax on this Property amounts to \$ _____ each year. As of _____ (date of each scheduled increase), the assessment or tax may increase to \$ _____ (maximum amount or method for determining the maximum amount). For further information on this assessment or tax, the Buyer may contact the Anne Arundel County Office of Budget and Finance. Seller further cautions the Buyer that an increase in any special assessment, special tax, fee, or charge is likely to occur in the foreseeable future, but the timing or amount of the increase is not certain as of the date this Contract is signed. Buyer should contact the Anne Arundel County Office of Budget and Finance for further details regarding any such future increases.

Initials for Special Tax District Notice paragraph:

Seller(s) initials

Buyer(s) initials

4. Waterfront Property:

a. Private or community beach or boating facilities may require payment of membership dues or usage fees.
b. If this Property is, or appears to be, "waterfront" property, Buyer will rely on Buyer's own surveyor and title expert to ascertain the extent of any riparian rights or other rights of water access that inure to the owner of Property.

5. Water rights/riparian rights: If representation is made that certain water rights or privileges exist, details will be provided by attached addendum.

6. "Impact Fees" are authorized in Anne Arundel County.

7. Radium in Well Water:

a. DISCLOSURE: According to the Anne Arundel County Department of Health, studies indicate that the radium level in some areas of Anne Arundel County, Maryland, exceed the level established by the U.S. Environmental Protection Agency for drinking water, as described in "Health Matters: Radium in Well Water Information Sheet". The radium level in well water may be determined through specific testing conducted by county health authorities or by an environmental testing firm approved by county health authorities.

b. ACKNOWLEDGMENT: Buyer and Seller acknowledge receiving a copy of (a) "Health Matters: Radium in Well Water Information Sheet", published by the Anne Arundel County Department of Health, 10/2000, and (b) Map - Testing Regions for Gross Alpha and Radium 226/228, revised July 31, 2000, from agents listed in Contract.

8. ANNE ARUNDEL COUNTY LAND-USE PLANS

REQUIRED NOTICE: The buyer fully understands that in order to become more fully informed of the current and future land-use plans, facility plans, public works plans, school plans, or other plans affecting the property or area, the buyer should consult the appropriate County agency or County Internet web site for information regarding these plans. This notice is required under Section 10-703 of the Real Property Article, Annotated Code of Maryland, for any Contract of Sale for a single-family residential real property in Anne Arundel County which is improved by four or fewer single-family units. Local laws requiring disclosure to home buyers of substantially similar information, if any, shall prevail over this notice requirement.

9. PROPERTIES LOCATED WITHIN ANNAPOLIS CITY LIMITS are subject to a city tax in addition to the Anne Arundel County property tax.

10. AIRPORT NOISE ZONE - BWI AIRPORT/ANNE ARUNDEL COUNTY

NOTICE TO PURCHASER: This property may be located within the designated airport noise zone of Baltimore/Washington International Airport. The property may now or in the future be subject to overflights of air traffic to and from that facility, and experience cumulative day-night noise levels of 65 decibels or greater. Additionally, properties in an airport noise zone are subject to zoning restrictions which may restrict new development or new uses of the property without a zoning variance from the Board of Airport Zoning Appeals, as per Title 5, Subtitle 8 of the Transportation Article, Annotated Code of Maryland. For more information, contact the Maryland Aviation Administration or the Anne Arundel County Office of Planning and Zoning.

4. GENERAL PROVISIONS: (*)

A. Suitability of Property for Specific Use: (*) Buyer, by submission and acceptance by Seller of a specific contingency clause, has the right to ascertain that the Property will meet a specific purpose or can be adapted to a specific use.

B. Home Warranty Disclosure Statement:

Subject Property: Data compiled by various real estate associations/businesses indicate that home warranty coverage helps reduce claims between the Buyer and the Seller for the year following the sale/purchase of an improved property. If warranty coverage is not provided by the Property Seller, Coldwell Banker Residential Brokerage suggests that the Buyer consider the purchase of a warranty program. The details of the Coldwell Banker Home Protection Plan (insured by AON) are provided for your review and consideration in a separate brochure. You may direct any questions that you have regarding the Coldwell Banker Home Protection Plan to AON at 800-747-5152.

We hereby acknowledge receipt of the Coldwell Banker Home Protection Plan (insured by AON) and an application, and make the following election regarding the purchase of the Coldwell Banker Home Protection Plan:

- Buyer(s) elects to purchase a one-year Coldwell Banker Home Protection Plan (insured by AON) on the subject Property effective with our date of ownership. We authorize our settlement agent to deduct, on the HUD-1 Settlement Statement, the cost of this policy.
- Buyer(s) declines to purchase the Coldwell Banker Home Protection Plan (insured by AON).
- Buyer(s) and Seller(s) agree that Seller at Seller's sole expense will provide a one-year Coldwell Banker Home Protection Plan (insured by AON) for the benefit of the Buyer. Seller authorizes settlement agent to deduct, on the HUD-1 Settlement Statement, the cost of this policy.
- Buyer(s) and Seller(s) agree to share equally in the cost of a one-year Coldwell Banker Home Protection Plan (insured by AON) which is for the benefit of the Buyer(s).
(Attach Coldwell Banker Home Protection Plan application.)

_____ Buyer(s) Initials	_____ Buyer(s) Initials	_____ Seller(s) Initials	_____ Seller(s) Initials
----------------------------	----------------------------	-----------------------------	-----------------------------

C. Certifications: Depending on the type of mortgage applied for by Buyer, lender may require certain certifications that relate to major structural components of the Property or require inspections/appraisals that certify that the Property is free of specific hazards or conditions. Buyer and Seller agree to cooperate in the production of said certificates. Unless otherwise required by law, costs of inspections/certifications will be paid by appropriate party.

D. Credit Reports and Financial Data Sheets: The Seller acknowledges that the content, and accuracy and completeness of any financial information concerning the Buyer submitted in conjunction with the Contract of Sale will be considered to be the sole and exclusive representation of the Buyer. Unless expressly stated to the contrary the real estate licensees involved in the transaction have neither verified nor investigated the financial information provided by Buyer.

E. Insurance (*) "Homeowner's" insurance (property, casualty and liability insurance) protection for the buyer will be required by a mortgage lender and/or in any case is strongly recommended. Issuance of such insurance will require that the Buyer submit an application and may require an inspection of the property by a representative of the insurance company. Buyer is advised to communicate with an insurance company before final settlement to confirm that the required insurance policy will be issued and that the cost of the policy is within the range anticipated by the Buyer.

5. FIRST-TIME MARYLAND HOME BUYER:

The following section is applicable only if each individual Buyer (Grantee) is an individual who has never owned residential real property in Maryland that has been the individual's principal residence and if the Property is improved residential real property.

If the Buyer is a qualified first-time Maryland home buyer, and if the property is improved residential real property which the Buyer intends to occupy as Buyer's principal residence (excluding co-makers or guarantors of a purchase money mortgage or deed of trust), Section 14-104 of the Real Property Article of the Annotated Code of Maryland provides: a) that the entire amount of the state transfer tax shall be paid by the Seller; and b) that the entire amount of recordation tax and local transfer tax shall be paid by the Seller unless there is an express agreement between Buyer and Seller that the recordation tax and local transfer tax will not be paid entirely by the Seller.

(*) As a first-time buyer in Maryland, Buyer must complete an addendum which will confirm that Buyer is a qualified "First-time Maryland Home Buyer" and will describe how payment of local recordation tax and transfer tax will be allocated between Buyer and Seller.

PLEASE NOTE: AN ASTERISK (*) INDICATES THAT AN ADDITIONAL WRITTEN ADDENDUM PERTINENT TO THE SUBJECT MAY BE REQUIRED FOR THE CONTRACT OF SALE TO BE FULLY ENFORCEABLE.

_____ Buyer	_____ Date	_____ Seller	_____ Date
_____ Buyer	_____ Date	_____ Seller	_____ Date

CBRS BF315AA (Revised 11/4/09)

**MARYLAND
(HOWARD COUNTY/COLUMBIA)
GENERAL ADDENDUM TO ALL CONTRACTS OF SALE
FOR IMPROVED PROPERTIES LOCATED IN THE STATE OF MARYLAND**

**Required Coldwell Banker Residential Brokerage Addendum for Every Contract of Sale for New or Resale,
Improved Residential Property**

Contract of Sale dated: _____

Buyer(s): _____

Seller(s): _____

Property: _____

- Regarding:
1. Consumer Disclosure Required by Federal Law
 2. Notice of Buyer's Right to Include a Contingency for Property Inspection(s)
 3. Consumer Disclosures Required by State and/or Local Law
 4. Additional General Contract Provisions
 5. First-Time Maryland Home Buyer Notice

1. **LEAD-BASED PAINT HAZARD:** Poisoning from lead-based paint is a serious health hazard, particularly to young children and pregnant women. Lead-based paint occurs more often in houses constructed prior to 1978. Extensive rental property registration and certification and owner and tenant notice and acknowledgment documentation is mandatory.

LEAD-BASED PAINT HAZARDS. Title X, Section 10108, the Residential Lead-Based Paint Hazard Reduction Act of 1992 (the Act), required the disclosure of certain information regarding lead-based paint and lead-based paint hazards in connection with the sale of residential real property. Unless otherwise exempt, the Act applies only to housing constructed prior to 1978. A Seller of pre-1978 housing is required to disclose to the Buyer(s), based upon the Seller's actual knowledge, all known lead-based paint hazards in the Property and provide the Buyer(s) with any available reports in the Seller's possession relating to lead-based paint or lead-based paint hazards applicable to the Property. The Seller, however, is not required to conduct or pay for any lead-based paint risk assessment or inspection. At the time that the offer to purchase is entered into by the Buyer(s), the Seller is required to provide the Buyer(s) with the EPA pamphlet entitled "Protect Your Family from Lead in Your Home" and a "Disclosure of Information on Lead-Based Paint and Lead-Based Paint Hazards" form.

Seller and Buyer agree and represent and warrant, each unto the other, that no binding and enforceable contract shall be deemed to exist or to have been formed unless all of the requirements of the Act were fully satisfied and complied with prior to the execution of this Contract by Seller and Buyer. Seller and Buyer represent and warrant that each intended, as a material term of the offer and acceptance, that the requirements of the Act be fully complied with as an express condition of the formation of a binding and enforceable contract by and between the parties.

Buyer and Seller acknowledge by their signatures below that they have read and understand the provisions of this agreement.

Lead-based paint information can be obtained by contacting the National Safety Council's National Lead Information Center (1-800-424-5323) and/or (1-800-532-3394).

2. **PROPERTY INSPECTION: (*)**

A. **General Terms:** Buyer has the right, subject to Seller's written acceptance, to make the offer to purchase contingent upon an inspection of the Property. The inspections will be performed by a professional engineer, expert or inspection specialist of Buyer's choice, at Buyer's risk of damage to the Property, and at Buyer's expense. Buyer has the right to be present during any inspection of the Property. Separate inspection addenda shall set forth the scope of the inspection and shall include provisions regarding the timely completion of the inspection and the delivery of inspection results as well as the mechanism or procedure to be followed by Buyer and Seller in responding to situations or conditions objected to by Buyer. The Brokers and Sales Associates may, if requested, provide information regarding inspection service companies available and fees charged.

B. **Scope of the Property Inspections:**

1. **Inspection of the Structural Components:** Buyer may wish to have an inspection for the purpose of determining the physical condition of the following items or systems now present on the Property and included in the purchase price: heating, plumbing, electrical and air cooling and/or filtering systems; roof and roof components, structural components and foundation and basement insofar as water penetration is concerned.

2. **Other Property Characteristics to Be Considered:** There may be a number of property characteristics which could affect the suitability of the Property for Buyer's intended use. Brokers and Sales Associates are not generally aware of these characteristics and/or do not have the technical knowledge to advise Buyer of the significance of these characteristics. Therefore, Buyer may wish to have additional inspections of the Property made. The following information is provided to assist Buyer in making an informed decision regarding the scope of any additional inspections.

a. **Environmental Considerations: Hazardous Materials:** There are hazardous materials which could affect the Property. Hazardous materials include, but are not necessarily limited to, petroleum products, cleaning chemicals, paint and lead-based paint (See Section 1), lawn and garden chemicals, urea formaldehyde foam insulation (UFFI), asbestos, toxic mold, contamination affecting soil and drinking water, electromagnetic fields from high tension wires, interior pollutants from improper ventilation, including the presence of radon gas in excess of EPA standards, the proximity of landfills and disposal sites, and the presence of underground storage tanks. Additional information regarding these substances is available from the U.S. Environmental Protection Agency (EPA) (202) 260-2090 and/or The Maryland Department of the Environment (410) 631-3000.

b. **Fire Retardant Treated Plywood Used in Construction:** In some instances, the use of fire retardant treated (FRT) plywood as roof sheathing has resulted in the loss of wood strength through thermal degradation. The extent of such degradation depends upon the particular fire retardant treatment used, the temperature levels in the roof and attic system and the degree of moisture present in the roof and attic system. Additional information regarding fire retardant treated plywood is available from the National Association of Homebuilders Research Center, Home Base Hot Line (800-898-2842).

c. **Waters of the U.S.; Jurisdictional Wetlands:** If all or a portion of the Property has been designated tidal or nontidal wetlands, the approval of both the federal and state government may be necessary before a building permit for either new construction or expansion or improvement of existing structures can be issued for the Property. Additionally, the future use of existing improved properties may be restricted. Additional information regarding wetlands is available from the U.S. Army Corps of Engineers, Regulatory Branch (410) 962-3670 and the Maryland Department of Natural Resources, Tidal Wetlands Division (410) 631-8075 and the Nontidal Division (410) 631-8094.

d. **Chesapeake Bay Critical Areas:** If all or a portion of the Property is located within 1,000 feet of tidal waters of the Chesapeake Bay, there may be restrictions on the use and/or development of the Property. Additional information regarding the Chesapeake Bay critical areas is available from the Critical Areas Program established by the local government of each county in Maryland and Baltimore City.

e. **Airport Noise Zone:** If all or a portion of the Property is located in the vicinity of an airport, Buyer may wish to review an airport noise zone map if available.

f. **Flood Plain: (*)** The Property or part of the Property could be located in an area established by the government as a "flood plain". If the property is located in a flood plain, flood insurance could be required by the mortgage lender as a condition for granting a mortgage. Construction on the Property could be prohibited or restricted.

3. **CONSUMER DISCLOSURES:**

A. **Disclosures Required by the State of Maryland:**

1. **Agency Disclosures and Acknowledgment:** (*) Buyer and Seller acknowledge that prior to entering into this Contract they have been fully informed in writing of the agency relationships which the Brokers and Sales Associates involved in this sale have with Buyer and with Seller and, in addition, Buyer and Seller have provided written consent to those agency relationships.
2. **Homeowners Association and/or Condominium Law and Private Agreements:** (*) If the Property is a part of a development subject to the imposition of mandatory fees as defined by the Maryland Homeowners Association Act, and/or a condominium unit, and/or subject to private maintenance agreements, Seller will make the necessary disclosures by additional attached addendum.
3. **Newly Constructed Residence:** (*) a) New Home Warranty Security Plan: If the Property is a newly constructed dwelling, Maryland law requires that Seller/Builder provide Buyer with a written statement concerning the presence or absence of a New Home Warranty Security Plan approved by the State of Maryland (addendum will be attached); b) Insulation: Seller/Builder must inform Buyer of the location, type, and thickness (R factor) of insulation used in the walls and roof of newly constructed residences. c) Water/Sewer Service: The Property may be subject to a fee or assessment which purports to cover or defray the cost of installing or maintaining all or part of the public water or waste water facilities constructed by the developer in the subdivision. This fee or assessment may be payable annually. Seller will provide Buyer with detailed written disclosure of the amount of the fee, the duration of the charge, and any right to prepay or discount the fee.
4. **Forest Conservation:** The Maryland Forest Conservation Act requires that any person making an application for a development, subdivision, site plan, building or grading or sediment and erosion control permit for an area greater than 40,000 sq. ft. must complete forest stand delineation and forest conservation plans. These plans require preparing and filing extensive documents and payment of certain deposits/fees. Consult the appropriate office of the local government for details.
5. **Agriculturally Assessed Property/Mandatory Sludge Notice:** If the subject Property is agriculturally assessed, the Purchaser is given the following notice: "Under § 9-241 of the Environment Article of the Annotated Code of Maryland, the Department of the Environment is required to maintain permanent records regarding every permit issued for the utilization of sewage sludge, including the application of sewage sludge on farm land. A prospective buyer has the right to ascertain all such information regarding the property being sold under this transaction."
6. **Real Property Tax Escrow Notice:** Pursuant to the State of Maryland Annotated Code, Tax Property Article § 10-204 3, a property owner may elect to pay real property taxes on an annual or semi-annual basis. Buyer(s) is advised to convey to their settlement attorney whether they wish to pay real property taxes annually or semi-annually.

B. **Disclosures Required by Howard County: GENERAL PLAN MAPS AND ZONING MAP:**

1. **NOTICE TO BUYER:** If you are purchasing a newly constructed residential dwelling unit or an existing residential dwelling unit located in Howard County, Maryland, the Seller is required to notify you that the Property being purchased may be affected by plans for roadway capital improvements and land use in Howard County. Current plans or roadway capital improvement and land use in Howard County are contained in the current Howard County General Plan Maps and current Generalized Zoning Map. YOU HAVE THE RIGHT TO EXAMINE THE CURRENT HOWARD COUNTY GENERAL PLAN MAPS AND CURRENT GENERALIZED ZONING MAP (the "Maps").
2. **ACKNOWLEDGEMENT BY BUYER:** Buyer hereby acknowledges that Seller has notified Buyer of Buyer's right to examine the current Maps and Buyer understands that in order to become fully informed of current and future roadway improvements and land use plans, Buyer should consult with the Howard County Department of Planning and Zoning, 3430 Courthouse Drive, Ellicott City, Maryland 21043.

Buyer(s) Initials Buyer(s) Initials
3. **AVAILABILITY OF MAPS:** If the Property being purchased is a newly constructed home, the Seller is required to have a copy of the Maps available in a model home or sales office. If a model home or sales office is not located in the same subdivision as the Property, the Seller shall have a copy of the Maps available at the Property. If the Property being purchased is an existing home, a copy of the Maps is available at the Howard County Department of Planning and Zoning, 3430 Courthouse Drive, Ellicott City, Maryland 21043.
4. **RESCISSON RIGHTS OF BUYER:** If notice of the availability of the Maps is provided to the Buyer at the time of or within less than two (2) days before entering into this Contract of Sale, the Buyer shall have the right, upon written notice to the Seller, to rescind this Contract and, in the event of such rescission, all deposit money paid by the Buyer in connection with this Contract will be returned to the Buyer. To be effective, the Buyer's election to rescind this Contract as herein provided, must be delivered to the Seller not later than 11:59 p.m. on the second Howard County Government business day immediately following the Date of Contract Acceptance as shown on Page 9 of the Contract of Sale. If this notice of the availability of the General Plan Maps is provided to the Buyer more than two (2) days before entering into this Contract, then the Buyer shall have no right to rescind this Contract for any reason based upon the contents of the Maps.

Buyer(s) Initials Buyer(s) Initials

5. FAILURE TO PROVIDE NOTICE REGARDING MAPS

Buyer is advised that Section 17.502(c) of the Howard County Code provides that the failure of the Seller to provide notice of the availability of the Maps for Howard County shall not cause this contract to be invalid, void, voidable or otherwise unenforceable by the Seller or the Buyer.

Seller is hereby advised that Section 17.504 of the Howard County Code provides that the failure of the Seller to provide notice of the availability of the Maps for Howard County would constitute a violation of Title 24, "Civil Penalties" of the Howard County Code and may result in a Class B offense under Title 24 against the Seller.

C. Disclosures Required for Property Located in Columbia:

1. NOTICE TO BUYER AND SELLER: There are many home owner associations in Howard County, including one of the largest in the state - the Columbia Association. The Columbia Association actively enforces Columbia's Residential Architectural Covenants. The Covenants are designed to assure Columbia residents of certain standards for land use, architectural design and property maintenance. They establish restrictions which are further interpreted in Architectural Guidelines published separately by each of Columbia's villages. Specific guidelines vary slightly among the Villages, and each Village has a Covenant Advisor and an Architectural Committee to assist residents in complying with the Covenants of that Village.

In general, when residents wish to alter the exterior appearance of their property in any way or if they wish to establish an in-home business, they must apply for the approval of the Village Architectural Committee. If changes are made to the exterior of a property or if an in-home business is established without Village approval, that property is in violation of the covenants. Similarly, when a property is not maintained in accordance with the Covenants, it is in violation of the Covenants. Covenant violations are enforced at the Village level; however, if the Village cannot gain compliance, the case may be forwarded to the Columbia Association which may decide to pursue the matter in court or take other action.

Current owners are responsible for maintaining their property in conformance with the covenants, and regardless of the reason for the violation, the responsibility for correcting the violation always rests with the current property owner. Therefore, a buyer could unknowingly purchase a property subject to an existing violation, and, as the new current property owner, be responsible for correcting it. In order to assist property owners and prospective purchasers, the Villages will, on the written request of the property owner, inspect a property and issue a Covenant Compliance Letter which will either list all existing violations with suggestions for correction, or verify that the property is violation free.

SELLER AGREES TO PROVIDE BUYER WITH A COVENANT COMPLIANCE LETTER VERIFYING THAT THE PROPERTY IS VIOLATION FREE.

All other terms and conditions of the Contract shall remain in full force and effect.

2. COLUMBIA (C.P.R.A.) LIEN NOTICE: If the property is located within the geographical boundaries of the town of Columbia or certain other communities proximate to Columbia, then this property shall be subject to the continuing lien known as the Columbia Park and Recreation Association Lien (C.P.R.A. Lien) recorded among the land records of Howard County as Liber WHH 463, Folio 158.

4. GENERAL PROVISIONS: (*)

A. Suitability of Property for Specific Use: (*) Buyer, by submission and acceptance by Seller of a specific contingency clause, has the right to ascertain that the Property will meet a specific purpose or can be adapted to a specific use.

B. Home Warranty Disclosure Statement:

Subject Property: Data compiled by various real estate associations/businesses indicate that home warranty coverage helps reduce claims between the Buyer and the Seller for the year following the sale/purchase of an improved property. If warranty coverage is not provided by the Property Seller, Coldwell Banker Residential Brokerage suggests that the Buyer consider the purchase of a warranty program. The details of the Coldwell Banker Home Protection Plan (insured by AON) are provided for your review and consideration in a separate brochure. You may direct any questions that you have regarding the Coldwell Banker Home Protection Plan to AON at 800-747-5152.

We hereby acknowledge receipt of the Coldwell Banker Home Protection Plan (insured by AON) and an application, and make the following election regarding the purchase of the Coldwell Banker Home Protection Plan:

____ Buyer(s) elects to purchase a one-year Coldwell Banker Home Protection Plan (insured by AON) on the subject Property effective with our date of ownership. We authorize our settlement agent to deduct, on the HUD-1 Settlement Statement, the cost of this policy.

____ Buyer(s) declines to purchase the Coldwell Banker Home Protection Plan (insured by AON).

____ Buyer(s) and Seller(s) agree that Seller at Seller's sole expense will provide a one-year Coldwell Banker Home Protection Plan (insured by AON) for the benefit of the Buyer. Seller authorizes settlement agent to deduct, on the HUD-1 Settlement Statement, the cost of this policy.

____ Buyer(s) and Seller(s) agree to share equally in the cost of a one-year Coldwell Banker Home Protection Plan (insured by AON) which is for the benefit of the Buyer(s).

(Attach Coldwell Banker Home Protection Plan application.)

Buyer(s) Initials

Buyer(s) Initials

Seller(s) Initials

Seller(s) Initials

C. Certifications: Depending on the type of mortgage applied for by Buyer, lender may require certain certifications that relate to major structural components of the Property or require inspections/appraisals that certify that the Property is free of specific hazards or conditions. Buyer and Seller agree to cooperate in the production of said certificates. Unless otherwise required by law, costs of inspections/certifications will be paid by appropriate party.

D. Credit Reports and Financial Data Sheets: The Seller acknowledges that the content, and accuracy and completeness of any financial information concerning the Buyer submitted in conjunction with the Contract of Sale will be considered to be the sole and exclusive representation of the Buyer. Unless expressly stated to the contrary the real estate licensees involved in the transaction have neither verified nor investigated the financial information provided by Buyer.

E. Insurance (*) "Homeowner's" insurance (property, casualty and liability insurance) protection for the buyer will be required by a mortgage lender and/or in any case is strongly recommended. Issuance of such insurance will require that the Buyer submit an application and may require an inspection of the property by a representative of the insurance company. Buyer is advised to communicate with an insurance company before final settlement to confirm that the required insurance policy will be issued and that the cost of the policy is within the range anticipated by the Buyer.

5. FIRST-TIME MARYLAND HOME BUYER:

The following section is applicable only if each individual Buyer (Grantee) is an individual who has never owned residential real property in Maryland that has been the individual's principal residence and if the Property is improved residential real property.

If the Buyer is a qualified first-time Maryland home buyer, and if the property is improved residential real property which the Buyer intends to occupy as Buyer's principal residence (excluding co-makers or guarantors of a purchase money mortgage or deed of trust), Section 14-104 of the Real Property Article of the Annotated Code of Maryland provides: a) that the entire amount of the state transfer tax shall be paid by the Seller; and b) that the entire amount of recordation tax and local transfer tax shall be paid by the Seller unless there is an express agreement between Buyer and Seller that the recordation tax and local transfer tax will not be paid entirely by the Seller.

(*) As a first-time buyer in Maryland, Buyer must complete an addendum which will confirm that Buyer is a qualified "First-time Maryland Home Buyer" and will describe how payment of local recordation tax and transfer tax will be allocated between Buyer and Seller.

PLEASE NOTE: AN ASTERISK (*) INDICATES THAT AN ADDITIONAL WRITTEN ADDENDUM PERTINENT TO THE SUBJECT MAY BE REQUIRED FOR THE CONTRACT OF SALE TO BE FULLY ENFORCEABLE.

Buyer and Seller by their signatures below confirm that they have read and that they understand and accordingly agree to the provisions of this General Addendum, including all information contained in the following paragraphs:

1. Consumer Disclosure Required by Federal Law
2. Notice of Buyer's Right to Include a Contingency for Property Inspection(s)
3. Consumer Disclosures Required by State and/or Local Law
4. Additional General Contract Provisions
5. First-Time Maryland Home Buyer Notice

Buyer Date

Seller Date

Buyer Date

Seller Date

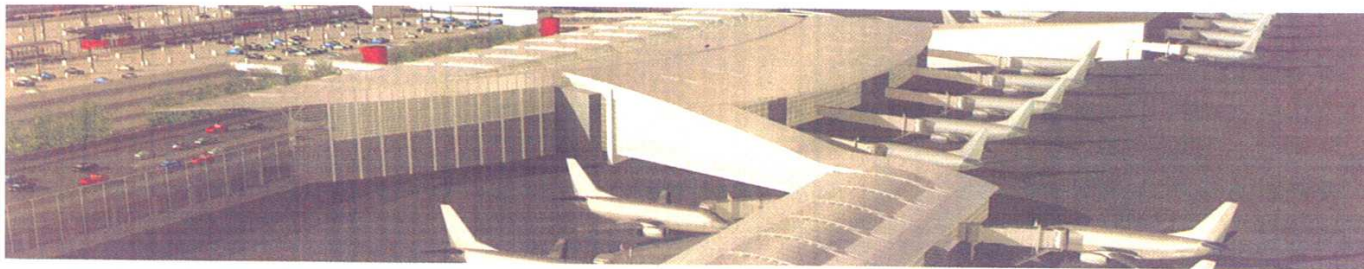
CBRB BF315HOC (11/03)

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APPENDIX F BACKGROUND MATERIAL, MINUTES, AND SIGN-IN SHEETS RELATED TO NOISE ZONE ADVISORY COMMITTEE MEETINGS, BWI MARSHALL NEIGHBORS COMMITTEE MEETINGS, PUBLIC WORKSHOP AND MARYLAND AIRPORT COMMISSION MEETING

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F.1 Neighbors Committee Meeting (April 23, 2013)



FOR IMMEDIATE RELEASE
April 19, 2013

CONTACT: Jonathan Dean
410-859-7027

***** PUBLIC / MEDIA ADVISORY *****

BWI Neighbors Committee to Meet April 23

The Maryland Aviation Administration (MAA) will host a BWI Neighbors Committee meeting on Tuesday, April 23. The meeting will be held at 6:00 p.m. in the assembly room of the MAA offices located at 991 Corporate Blvd., Linthicum.

The BWI Neighbors Committee serves as a liaison between Baltimore/Washington International Thurgood Marshall Airport and surrounding neighborhoods to ensure continuing and timely discussion of mutual airport and community interests.

Membership in the BWI Neighbors Committee includes official representatives of local community associations, and representatives from the MAA and the local air traffic control tower of the Federal Aviation Administration. Meetings of the BWI Neighbors Committee are open to the public.

###

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www.bwairport.com

F.1.1 Notification List



Maryland Aviation Administration

Martin O'Malley
Governor
Anthony G. Brown
Lt. Governor
Darrell B. Mobley
Acting Secretary

Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

April 5, 2013

Dear Community Organization:

SUBJECT: Neighbors' Committee Meeting

The next meeting of the Baltimore/Washington International Thurgood Marshall Airport Neighbors' Committee will be on Tuesday, April 23, 2013 at 6:00 p.m. The meeting will be held at the Maryland Aviation Administration in the Assembly Room; located at 991 Corporate Boulevard in Linthicum, Maryland.

Enclosed is a summary of the Quarterly Noise Report for the fourth quarter of 2012.

If you have any questions, please feel free to contact me at 410-859-7550.

Sincerely,

A handwritten signature in cursive script that reads "Paula O'Connor". The signature is written in black ink and is positioned above the printed name.

Paula O'Connor

Planner,

Division of Noise, Real Estate & Land Use Compatibility Planning

County Executive & Staff

The Honorable Laura A. Neuman
County Executive
Arundel Center
44 Calvert St.
Annapolis MD 21401-1831

Mr. Brian Muldoon
Howard County
Department of Planning & Zoning
3430 Courthouse Dr.
Ellicott City MD 21043

Marsha McLaughlin, Director
Dept. of Planning & Zoning
3430 Courthouse Dr.
Ellicott City MD 21043

Ms. Veronica Jagoe
Executive Office of Community
Anne Arundel County
P.O. Box 270
Annapolis MD 21401

Ms. Tara Oursler
The Honorable C.A. Dutch
Ruppersberger's Office
375 W. Padonia Rd.
Timonium MD 21093

The Honorable Ken Ulman
Howard County Executive
3430 Courthouse Drive
Ellicott City MD 21043

Ms. Lynn Miller
Planning & Zoning
Anne Arundel County
2664 Riva Rd.
Annapolis MD 21401

The Honorable Courtney Watson
Howard County Council
3430 Courthouse Dr.
Ellicott City MD 21032

Mr. George Cardwell
Office of Planning & Zoning
Anne Arundel County
2664 Riva Rd., MS 6403
Annapolis MD 21401

Ms. Sheila Raynor
Anne Arundel Co. Government
Office of Comm. Serv. MS1430
7409 Baltimore Annapolis Blvd.
Glen Burnie MD 21061

The Honorable Calvin Ball
Howard County Council
3430 Courthouse Dr.
Ellicott City MD 21032

Ms. Nancy Brown
Glen Burnie Improvement Assoc.
19 Georgia Ave, NW
Glen Burnie MD 21061

Mr. Ken Glendenning
Linthicum-Shipleigh Improvement
Assoc.
602 Fairmount Rd.
Linthicum MD 21090

Mr. Eric Jordan
Elmhurst Improvement Association
7848 Coldbrooke Drive
Severn MD 21144

Ms. Liz Wagner
Greater Ferndale Community Civic
Association
239 Wicklow Avenue
Glen Burnie MD 21061

Mr. Ed Huber
Elkridge Community Association
6615 Pheasant Drive
Elkridge MD 21075

Mr. Melvin Kelly
Seven Improvement Association
768 Queenstown Road
Severn MD 21144

Mr. Richard Hanna
Timber Ridge Improvement
Association
7403 Hawkins Drive
Hanover Maryland 21076

Mr. Rusty Bristow
Harmans Civic Association
7215 Ridge Road
Hanover Maryland 21076

Mr. Fred Davis
Greater Pasadena Council
653 Colston Lane
Pasadena MD 21122

Mr. Ernie Michaelson
Timber Ridge Improvement
Association
7425 Hawkins Dr.
Hanover MD 21076

Mr. William Raymond Faith
Greater Elkridge Community
Association
6039 Hunt Club Rd.
Elkridge MD 21075

Mr. Wayne Dixon
Harmans Civic
Association
7677 Ridge Chapel Rd.
Hanover MD 21076

Mr. Corey Jones
Severn Improvement Assoc.
441 Queenstown Rd.
Severn MD 21144

Mr. Rodney Jones
Severn Improvement Assoc.
613 Jones Rd.
Severn MD 21144

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Annapolis, MD 21401-1991

The Honorable Ronald A. George
Maryland House of Delegates
152 House Office Building
Annapolis, MD 21401-1991

The Honorable Steven J. DeBoy, Sr.
Maryland House of Delegates
House Office Building Room 306
6 Bladen St.
Annapolis, MD 21401-1991

The Honorable James N. Robey
Senate of Maryland
120 James Senate Office Building
Annapolis, MD 21401-1991

The Honorable James Benoit
Anne Arundel County Council
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Annapolis MD 21401

The Honorable C. Edward Middlebrooks
Anne Arundel County Council
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Annapolis MD 21401

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Senate of Maryland
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Annapolis, MD 21401-1991

The Honorable Nicholas R. Kipke
Maryland House of Delegates
164 House Office Building
Annapolis, MD 21401-1991

The Honorable Mary Ann Love
Maryland House of Delegates
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The Honorable Donald H. Dwyer, Jr.
Maryland House of Delegates
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The Honorable James E. DeGrange, Sr.
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Annapolis, MD 21401-1991

The Honorable Michael E. Busch
Maryland House of Delegates
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Annapolis, MD 21401-1991

The Honorable Edward J. Kasemeyer
Senate of Maryland
Miller Senate Office Build. 3 West Wing
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Annapolis, MD 21401-1991

The Honorable James E. Malone, Jr.
Maryland House of Delegates
251 House Office Building
Annapolis, MD 21401-1991

The Honorable Tony McConkey
Maryland House of Delegates
157 House Office Building
Annapolis, MD 21401-1991

The Honorable Frank S. Turner
Maryland House of Delegates
206 House Office Building
Annapolis, MD 21401-1991

The Honorable John Sarbanes
United State House of Representatives
2444 Rayburn HOB
Washington DC 20515

The Honorable John C. Astle
Senate of Maryland
123 James Senate Office Building
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The Honorable Elizabeth Bobo
Maryland House of Delegates
214 House Office Building
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Washington, DC 20515

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The Honorable Guy Guzzone
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Annapolis, MD 21401

The Honorable Shane E. Pendergrass
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The Honorable Tricia L. Johnson
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Annapolis MD 21401

The Honorable Jen Terrasa
Howard County Council
3430 Courthouse Drive
Ellicott City MD 21043

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The Honorable Neil Quinter
Maryland House of Delegates
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Columbia MD 21046

The Honorable Tony McConkey
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Annapolis MD 21401

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Maryland House of Delegates
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100 State Circle
Annapolis MD 21401

The Honorable Edward Kasemeyer
Senate of Maryland
5205 East Drive, Suite H
Arbutus MD 21227

The Honorable Elizabeth Bobo
Maryland House of Delegates
5561 Suffield Court
Columbia MD 21044

The Honorable James Malone, Jr.
Maryland House of Delegates
5205 East Drive, Suite H
Arbutus MD 21227

The Honorable John Sarbanes
500 Baltimore Ave., Suite 303
Crown Point MD 21204

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Annapolis MD 21401

The Honorable Ronald C. Dillon, Jr.
Anne Arundel County Council
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Annapolis MD 21401

The Honorable Cathleen M. Vitale
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MAA Office of Noise, Real Estate
and Land Use Compatibility



Date: April 17, 2013

TO:

Interested Parties

From: Paula O'Connor *P.O.*

Maryland Aviation Administration

Office of Noise, Real Estate and Land
Use Compatibility Planning

P.O. Box 8766

BWI Airport, Maryland 21240-0766

Phone: 410-859-7375

Fax phone: 410-859-7288

SUBJECT: Neighbors' Committee Meeting

Enclosed please find the agenda for the Baltimore/Washington International Thurgood Marshall Airport Neighbors' Committee Meeting being held on Tuesday, April 23, 2013 at 6:00 p.m. The meeting will be held at the Maryland Aviation Administration in the Assembly Room; located at 991 Corporate Boulevard in Linthicum, Maryland.

If you have any questions, please feel free to contact me at 410-859-7550.

**BALTIMORE/WASHINGTON INTERNATIONAL THURGOOD MARSHALL AIRPORT
NEIGHBORS COMMITTEE MEETING**

Tuesday, April 23, 2012
MAA Assembly Rooms 991 Corporate Blvd.
6:00 p.m.

AGENDA

- | | |
|--|--|
| 1. Runways 10-28 and 15R-33L Obstruction Clearing Project | Alan Peljovich, P.E.
RSA Program Manager
Johnson, Mirmiran & Thompson, Inc. |
| 2. BWI Marshall Airport Noise Zone and FAR Part 150 Noise Exposure Map Updates | Ellen Sample, MAA
Director, Office of Noise,
Real Estate and Land Use Planning |
| 3. Noise Property Disposal Update | Ellen Sample, MAA
Director, Office of Noise,
Real Estate and Land Use Planning |
| 4. Community Enhancement Grant Program Update | Melvin Kelly, Chairman |
| 5. Registered Guests and Speakers | |

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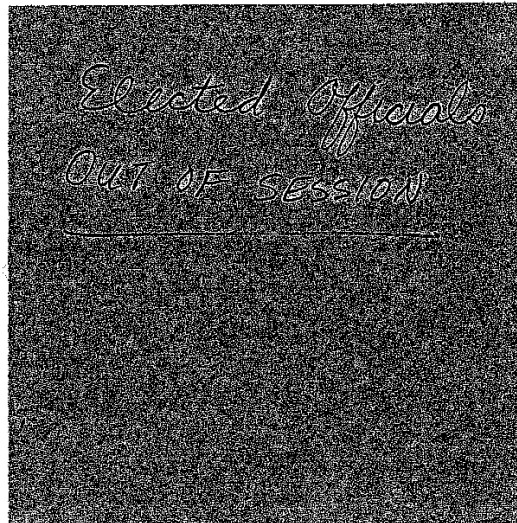
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Ms. Ara Crowe
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Ms. Patricia Beattley-Patterson
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Severna Park MD 21146

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Mr. Robert Haney
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Ms. Barbara Turner
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Arthur Slade Regional School
120 Dorsey Rd.
Glen Burnie MD 21061

Padraic Gray
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Hanover MD 21076

Mr. David Servinsky
7872 Sandy Pine Drive
Severn MD 21144

Mr. Charles Levay, President
Peach Orchard Civic Assoc.
7804 Elberta Dr.
Severn MD 21144

Richard Chapman
Provinces Civic Assoc.
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Severn MD 21144

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Catonsville MD 21228

Mr. Cliff Kooser
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Ferndale MD 21061

Mr. Andrew Bassler
Arthur Slade School Board
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Pasadena MD 21122

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Glen Burnie MD 21061

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Westminster MD 21158

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Severn MD 21144

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Hanover MD 21076

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Severna Park MD 21146

Mr. Don Newhouse
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Catonsville MD 21228

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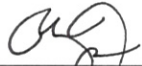

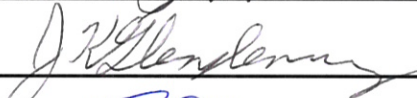


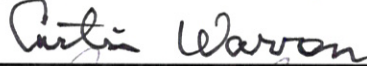

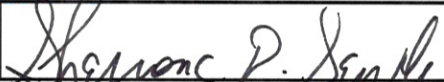
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F.1.2 Sign-in List

**Baltimore/Washington International Thurgood Marshall Airport
 Neighbors Committee Meeting
 Sign In Sheet
 April 23, 2013**

Name	Signature	Community/Company Name
Rodney Jones		Severn Imp. Assc.
RAYMOND FATH		ELKRIEGE COMMUNITY
KEN GLENDENNING		LSIA
Jonathan Dean		MAA
DAN DONOVAN		PEACH ORCHARD
HARRY MATTHEWS	HARMANUS RD	CIVIC ASSN
CURTIS WARREN		Deep Run
CHARLES LEVAY		PEACH ORCHARD
E. Michaelson	TRAESE Michaelson	
P. Xxxxx	TRAESE	
Shamone P. Senti		DONSEG Road

Name	Signature	Company Name
Leslie Sowell	Leslie Sowell	Dorsey Road
Lionel Montgomery	Lionel Montgomery	Dorsey Road
Laura English	Laura English	Elkton Towne Court Regimett
Mervin Kelly	Mervin Kelly	SEWER IMP ASSOC
Paul Harrell	Paul J. Harrell	Elmhurst Improvement Assoc,
LAURA DONOVAN	Laura Donovan	114 Glendale Ave
Ned Carey	Ned Carey	MAA
MARJORIE DESCHENES	M Deschenes	PROVINCES CIVIC ASSN

F.1.3 Materials presented



Noise Exposure Map and Airport Noise Zone Updates

Neighbor's Committee Meeting
April 23, 2012

Comparison of Noise Exposure Map and Airport Noise Zone



Noise Exposure Map and Airport Noise Zone Updates

Part 150 Noise Exposure Map (NEM):

- Enabled by Federal Aviation Regulations Part 150, 1981
- Noise impact determined by DNL Contours for two scenarios:
 - Base year
 - 5-year forecast
- Determines eligibility for federal noise abatement funds

Airport Noise Zone (ANZ):

- Enabled by Maryland Environmental Noise Act 1974
- Noise impact determined by Ldn composite contours:
 - Base year
 - 5-year forecast
 - 10-year forecast
- MAA Controls Land Use Development in Airport Noise Zone

Part 150

What is Part 150?



Noise Exposure Map and Airport Noise Zone Updates

- **Part 150 is a process**
 - Voluntary FAA-defined process for airport noise studies
- **Two major components:**
 - A Noise Exposure Map
 - Noise Compatibility Program
- **FAA accepts the NEM and approves the NCP**
- **Accepted NEM provides access to FAA funding for noise mitigation**
- **FAA accepted BWI NEM Update on April 3, 2006**
- **FAA approved BWI NCP Update on February 26, 2008**



Part 150

Elements of a Part 150 Noise Exposure Map



Noise Exposure Map and Airport Noise Zone Updates

- **Noise Exposure Maps (NEM's)**
 - Noise impact is determined by two contours
 - a base year and
 - 5-year forecast contour
 - Depicts DNL 65 dB, 70 dB and 75 dB day-night average sound level (DNL) and greater (these levels are also used for ANZ, though COMAR uses the abbreviation Ldn)
 - Characterizes land use in the airport environs
 - Determines eligibility for federal noise mitigation funds.

- **MAA needs to submit NEM Update for continued FAA funding.**

Part 150

BWI History



Noise Exposure Map and Airport Noise Zone Updates

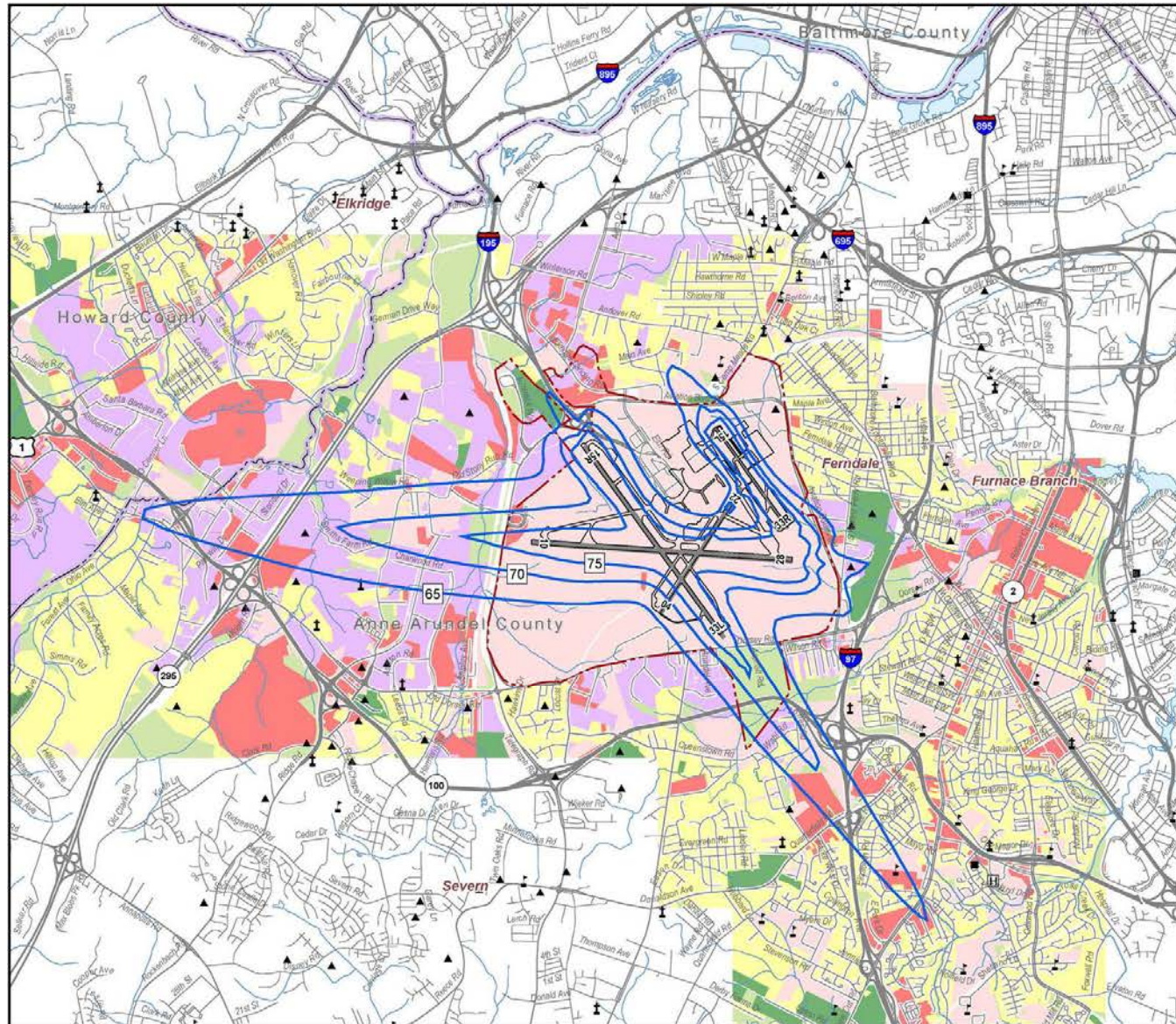
- **1989: FAA accepted BWI's first NEM**
- **1990: FAA approved BWI's first NCP**
- **NEM updates accepted in 1995 and 2006**
 - 2006 NEM maps available at <http://www.maacommunityrelations.com/content/anznoiseupdate/part150study.php>
- **NCP update approved in 2008**

NEM Accepted April 3, 2006

Basecase (2003) Noise Exposure Map



Noise Exposure Map and Airport Noise Zone Updates



Baltimore
 Washington
 International
 Airport

Basecase (2003)
 Noise Exposure Map
 Figure 16

- Basecase (2003) DNL Contour
- Airport Runways
- Airport Property
- Residential
- Commercial
- Exempt Commercial
- Industrial
- Agriculture
- Forest
- School
- Place of Worship
- Hospital
- Nursing Home
- Historic Site
- Roads
- River or Stream
- Water
- County Boundary

Data Sources: BWI Office of Facilities Planning, Noise Abatement Division; Maryland State Highway Administration; Maryland Department of Planning; Environmental System Research Group, Inc.



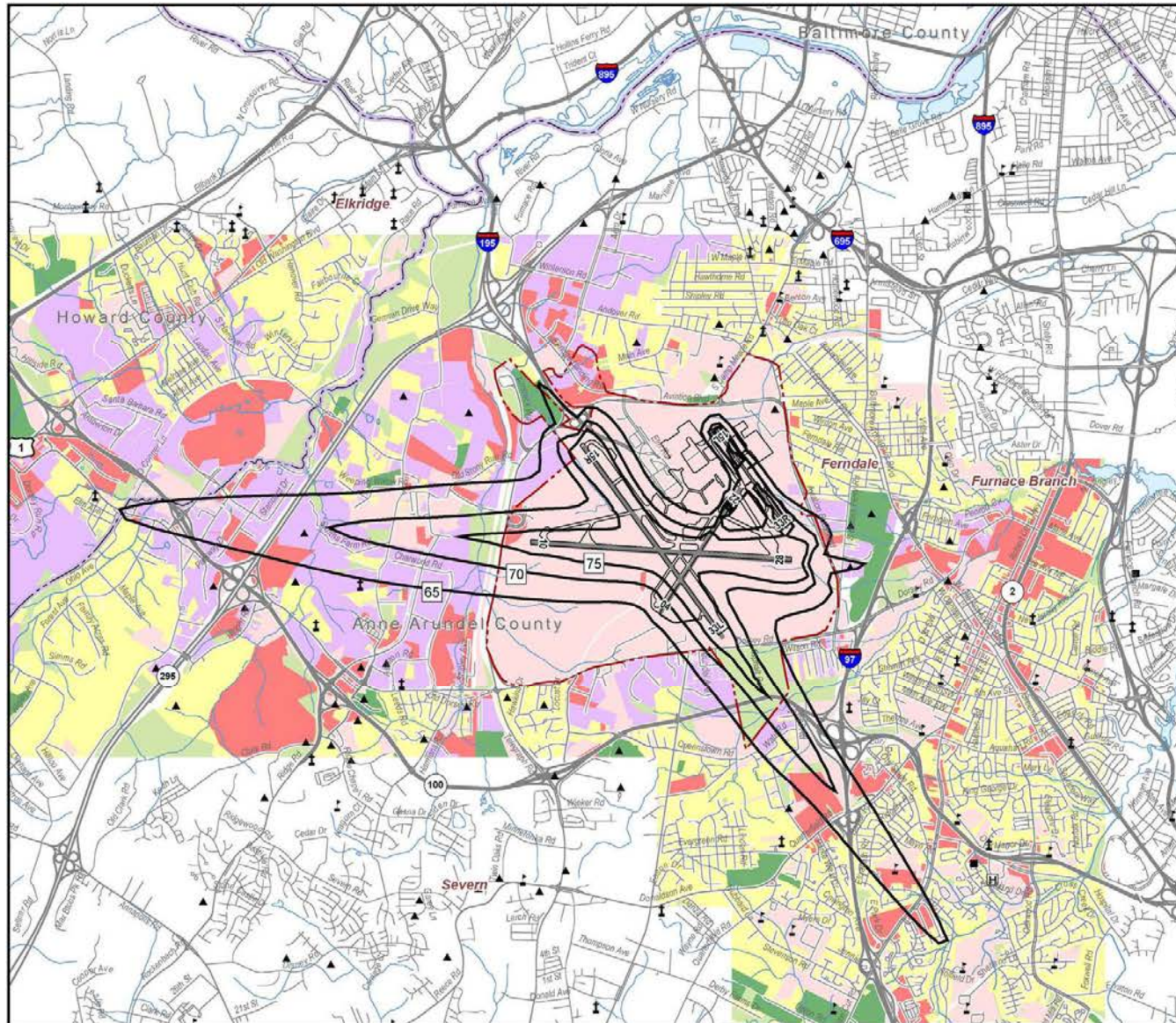
HARRIS MILLER MILLER & HANSON INC.

NEM Accepted April 3, 2006

Forecast (2010) Noise Exposure Map



Noise Exposure Map and Airport Noise Zone Updates

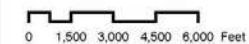


Baltimore
Washington
International
Airport

Forecast (2010)
Noise Exposure Map
Figure 17

- Forecast (2010) DNL Contour
- Airport Runways
- Airport Property
- Residential
- Commercial
- Exempt Commercial
- Industrial
- Agriculture
- Forest
- School
- Place of Worship
- Hospital
- Nursing Home
- Historic Site
- Roads
- River or Stream
- Water
- County Boundary

Data Sources: BWI Office of Facilities Planning, Noise Abatement Division;
Maryland State Highway Administration; Maryland Department of Planning;
Environmental System Research Group, Inc.



HARRIS MILLER MILLER & HANSON INC.

Airport Noise Zone



Noise Exposure Map and Airport Noise Zone Updates

- **State Process defined by the Maryland Environmental Noise Act of 1974**
- **Provides the State the ability to control land use around BWI and MTN state airports**
- **Identifies Noise Abatement Plan**
- **Composite of three contours, base year with five and ten year forecasts contours**

Airport Noise Zone BWI History



Noise Exposure Map and Airport Noise Zone Updates

- **1976: First Airport Noise (ANZ) certified**

- **ANZ Updates 1982, 1988, 1993, 1998, 2007**
 - The 2007 Airport Noise Zone “ANZ” includes a 2005 base year and 2012 and 2017 forecast contours
 - The 2007 ANZ is available at <http://www.maacommunityrelations.com/content/anznoiseupdate/bwianz.php#>

Airport Noise Zone



Noise Exposure Map and Airport Noise Zone Updates

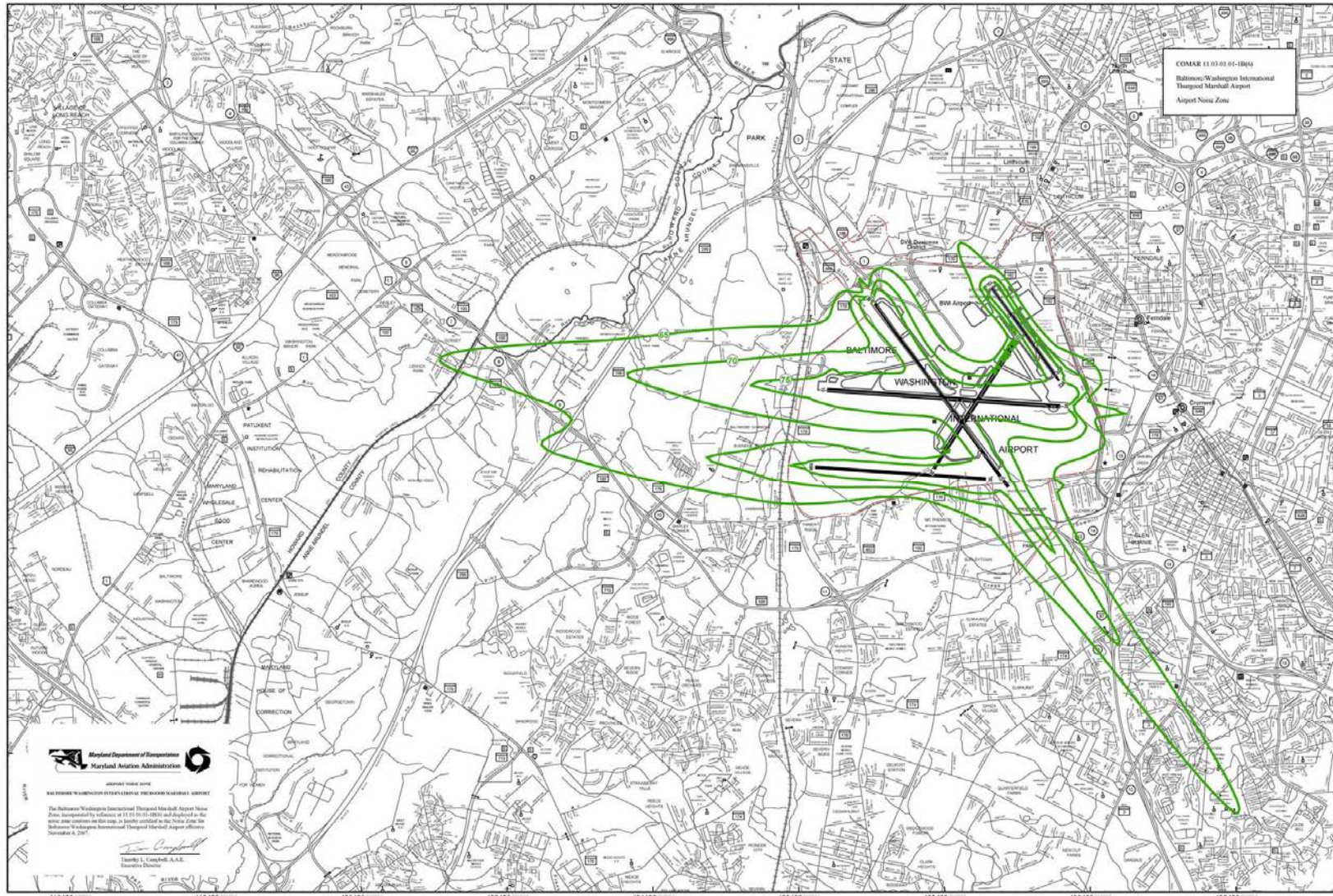
- **Contours define areas exposed to existing and future aircraft noise levels**
- **Depicts 65, 70 and 75 day night average sound level (Ldn, same DNL metric used in Part 150) and greater**
- **Area where the State regulates land use**
- **Airport Zoning Permit required**
- **Denied permits can be appealed to the Board of Airport Zoning Appeals**

Airport Noise Zone

2007 Airport Noise Zone



Noise Exposure Map and Airport Noise Zone Updates



2007 Airport Noise Zone

Howard County & Anne Arundel County, Maryland

2007 Airport Noise Zone Contour
Prepared April 25, 2007

Contour Preparation Data Requirements



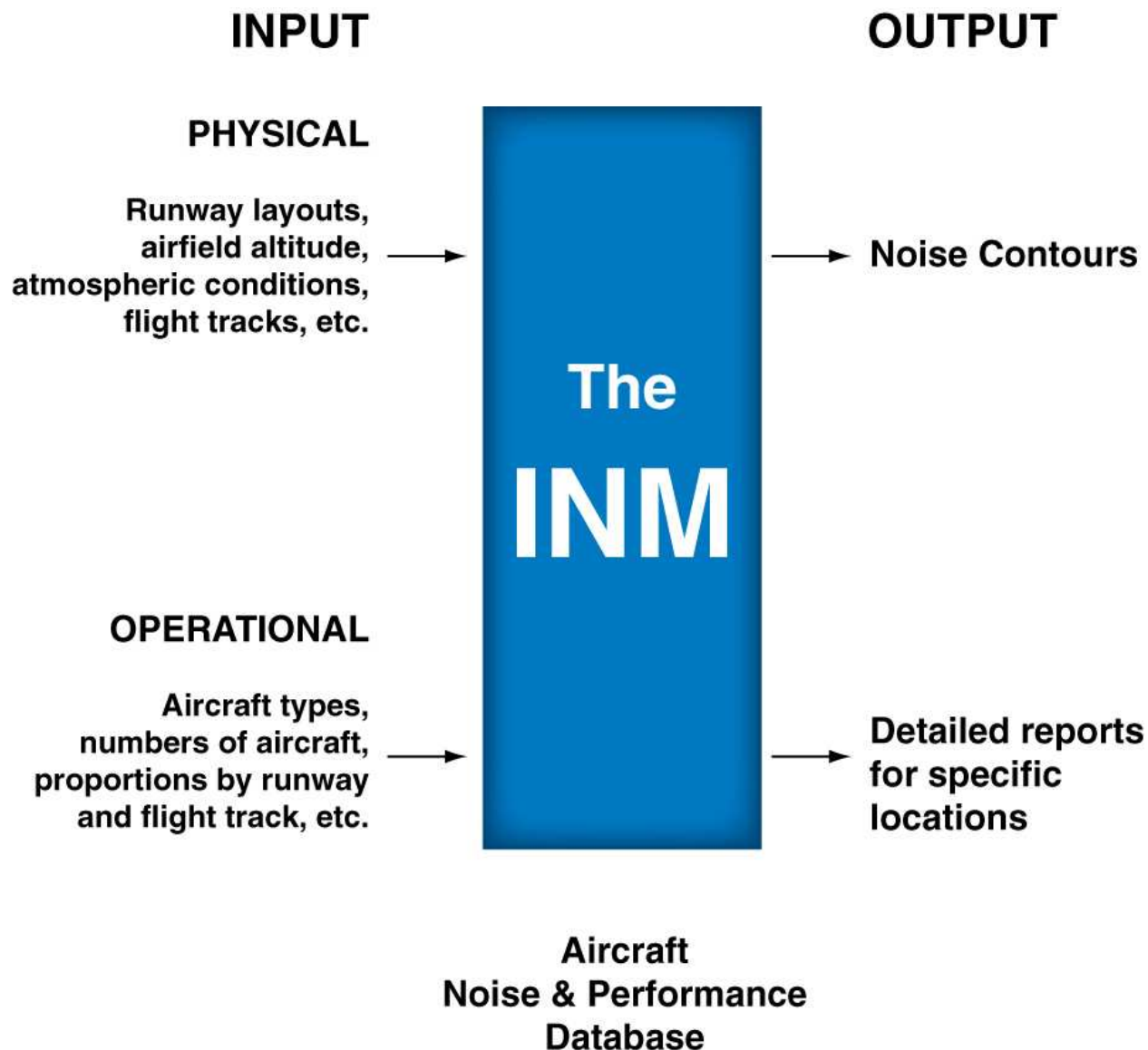
Noise Exposure Map and Airport Noise Zone Updates

- **Operations**
 - Annual average daily operations
 - Detailed breakdown by aircraft type
- **Airport layout**
- **Average runway use**
- **Location and utilization of flight tracks**
 - We will use RealContours™, which allows us to model every flight (radar) track

Contour Preparation Noise Model Input and Output



Noise Exposure Map and Airport Noise Zone Updates



FAA Part 150 NEM and State ANZ Update Tasks



Noise Exposure Map and Airport Noise Zone Updates

- **Prepare**
 - Base year, (NEM and ANZ)
 - 5-year forecast, (NEM and ANZ)
 - 10-year forecast contours (ANZ only)
 - Compile composite Airport Noise Zone (ANZ only)
- **Conduct land use inventory**
- **Prepare draft documentation for public review**
 - Two separate documents
 - one for NEM and one for ANZ
 - Each prepared in accordance to the respective regulations

FAA Part 150 NEM and State ANZ Update Tasks



Noise Exposure Map and Airport Noise Zone Updates

- **Convene an Advisory Committee**
- **Public Notification**
- **Provide information on website**
- **Conduct**
 - NEM public work shop
 - ANZ public hearing
- **Prepare final documentation/incorporate comments**
 - NEM – Submit to FAA
 - ANZ – Incorporate into Code of Maryland Regulations (COMAR)

Proposed Schedule and Public Participation



Noise Exposure Map and Airport Noise Zone Updates

Month	Activity
April 2013	Start
April 23, 2013	Neighbor's Committee Meeting
June 2013	Draft noise contours for review
July 2013	Draft documentation for initial review -One Draft Noise Exposure Map, documentation and maps -One Draft Airport Noise Zone, documentation and maps
August 2013	-Advisory Committee Meeting -Newsletters
September 2013	Public comment period -NEM informational workshop -ANZ public hearing
November 2013	Final NEM and ANZ Submittals

Reuse Plan Status April 2013



Reuse Plan Status – April 2013



MAA Reuse Plan Parcels

- TO BE DISPOSED
- UNSUCCESSFUL AUCTION
- UPCOMING AUCTIONS (SUMMER 2013)
- SUCCESSFUL AUCTION

April 2013

Noise Update

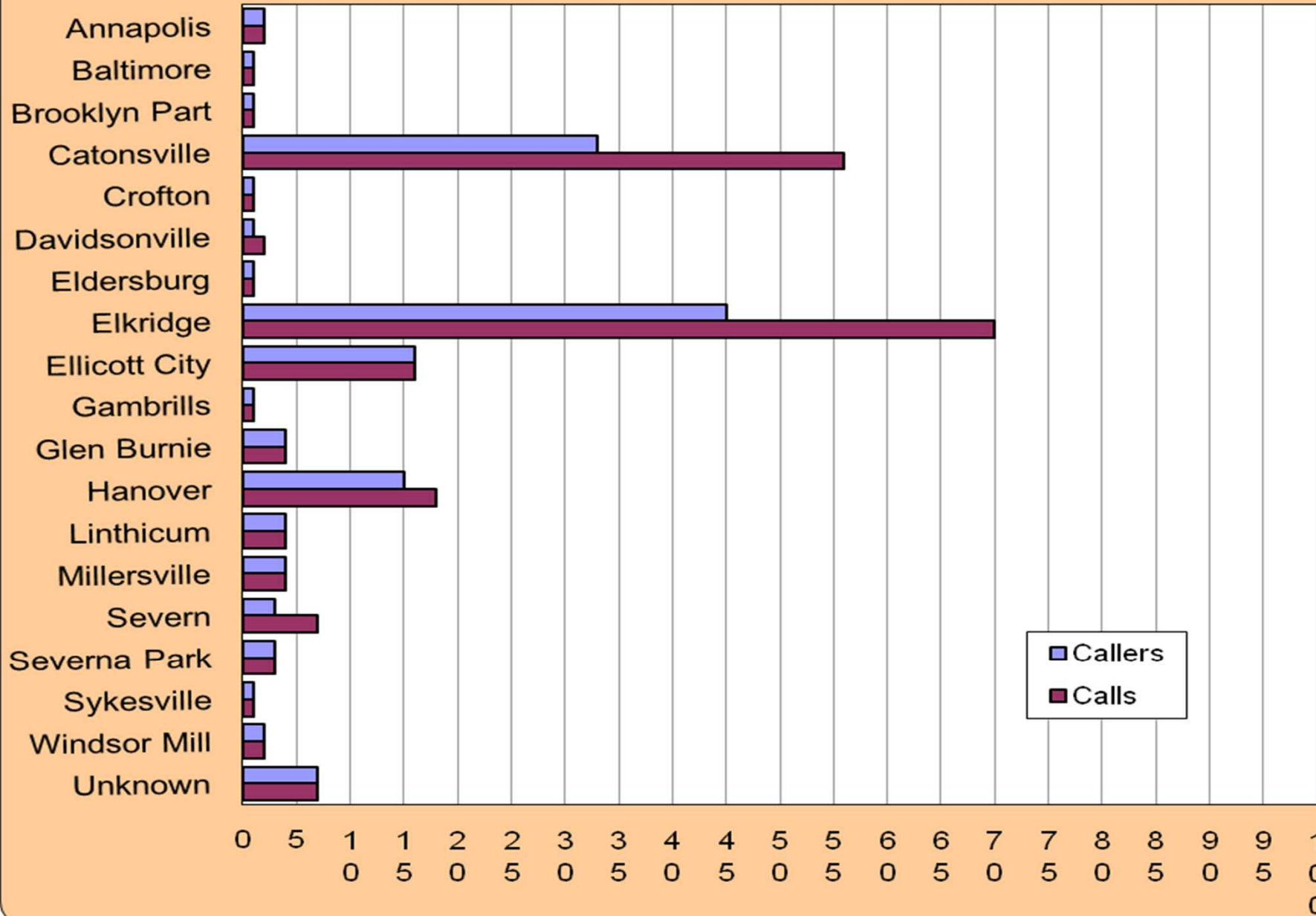
Ten Years Passenger Numbers and Operations

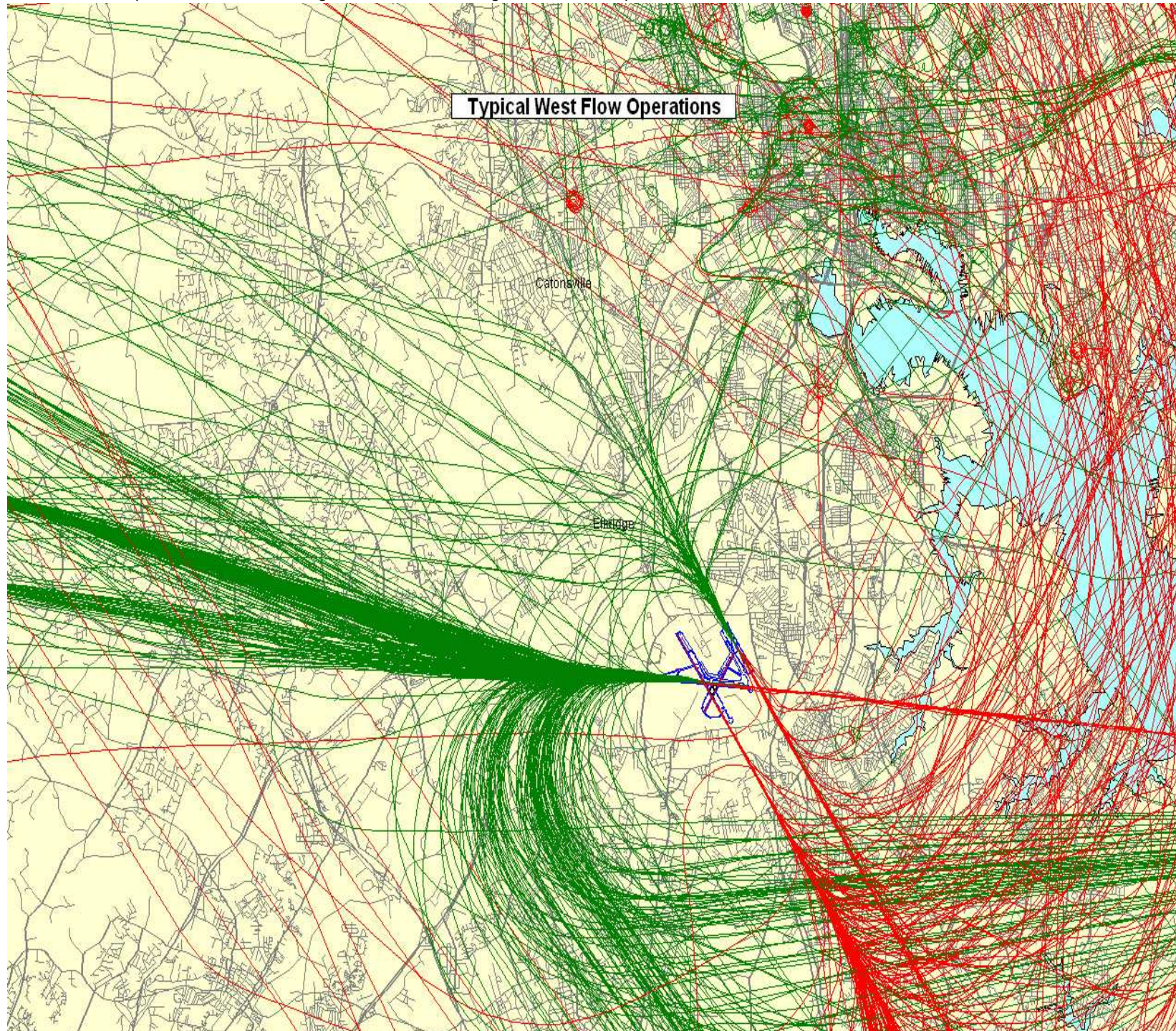


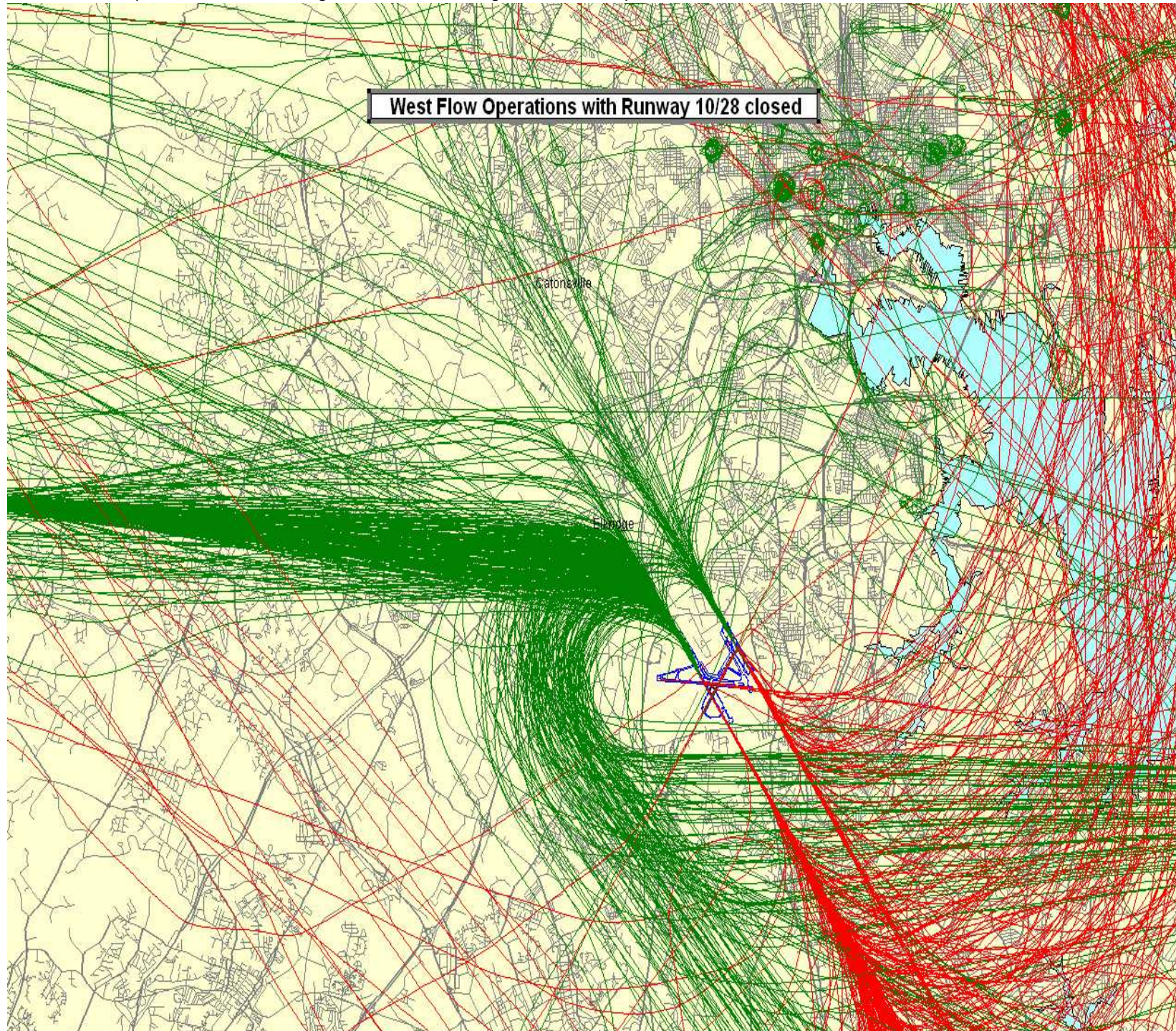
Noise Exposure Map and Airport Noise Zone Updates

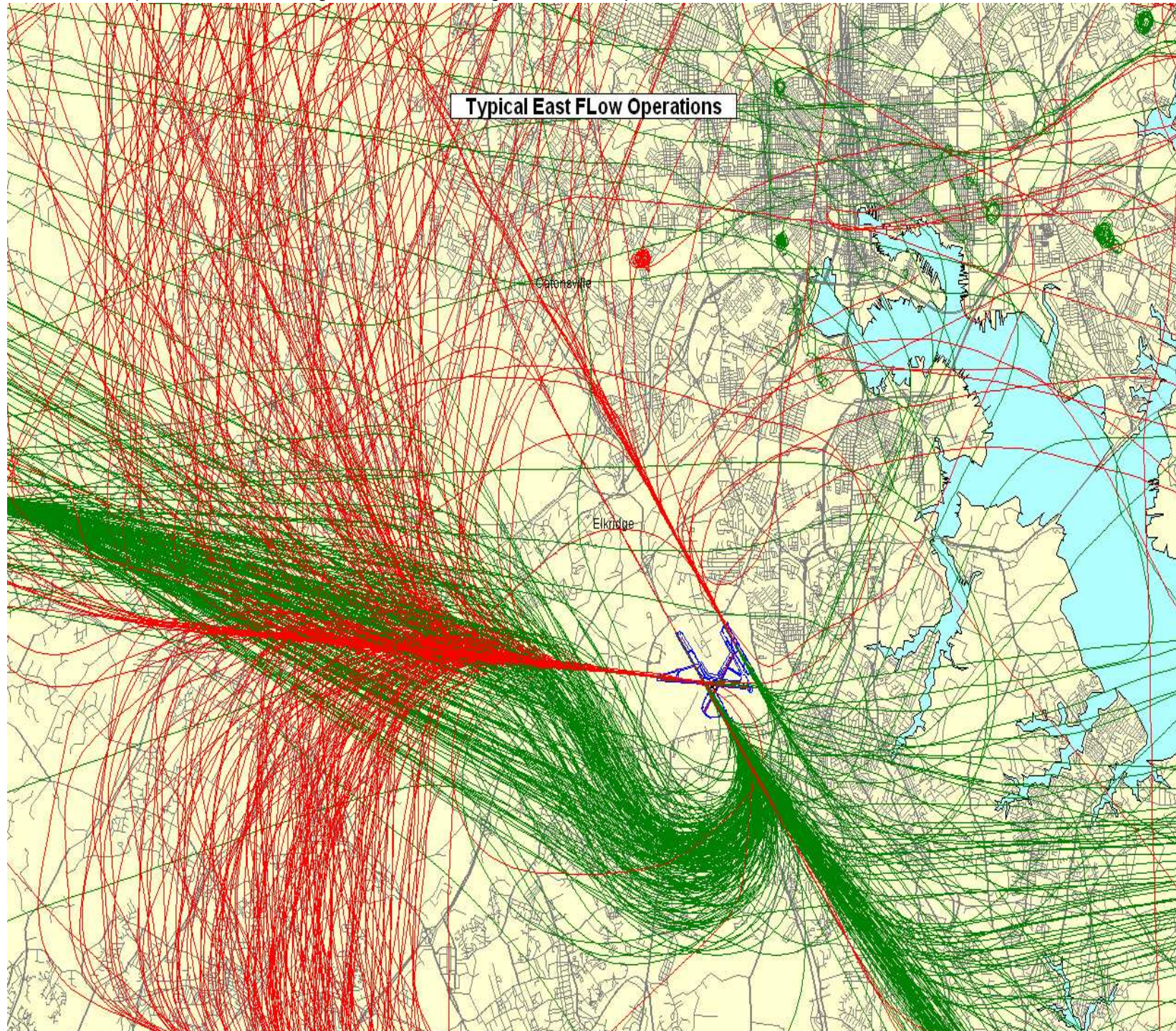
Calendar Year	Total Number Passengers	Total Number Operations
2002	19,012,529	304,921
2003	19,696,158	294,389
2004	20,341,507	300,963
2005	19,742,093	311,525
2006	20,696,967	305,630
2007	21,044,384	296,872
2008	20,488,881	277,662
2009	20,953,614	268,005
2010	21,936,461	276,457
2011	22,391,785	276,133
2012	22,679,887	268,006

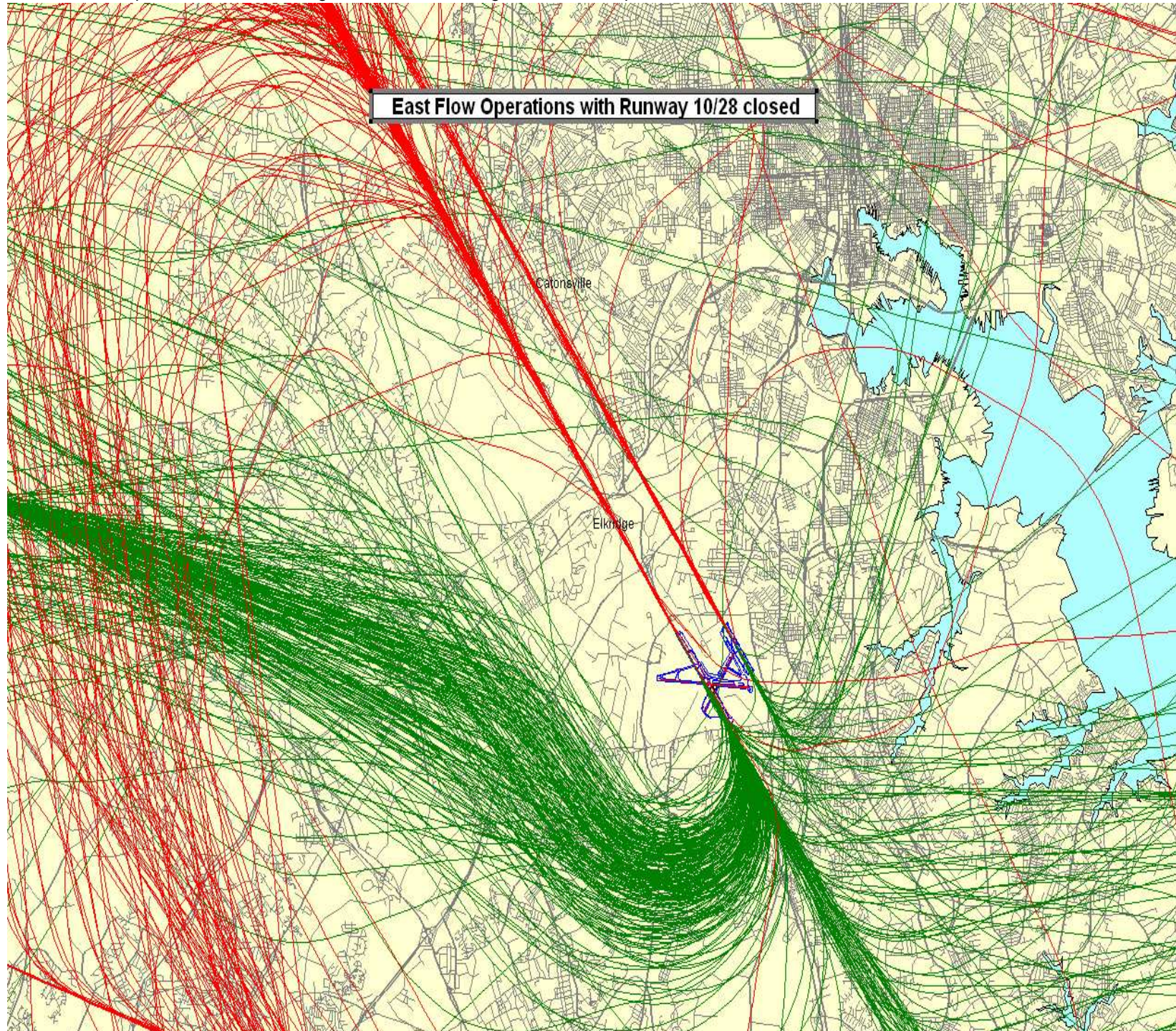
Fourth Quarter 2012 Number of Calls and Callers per Community

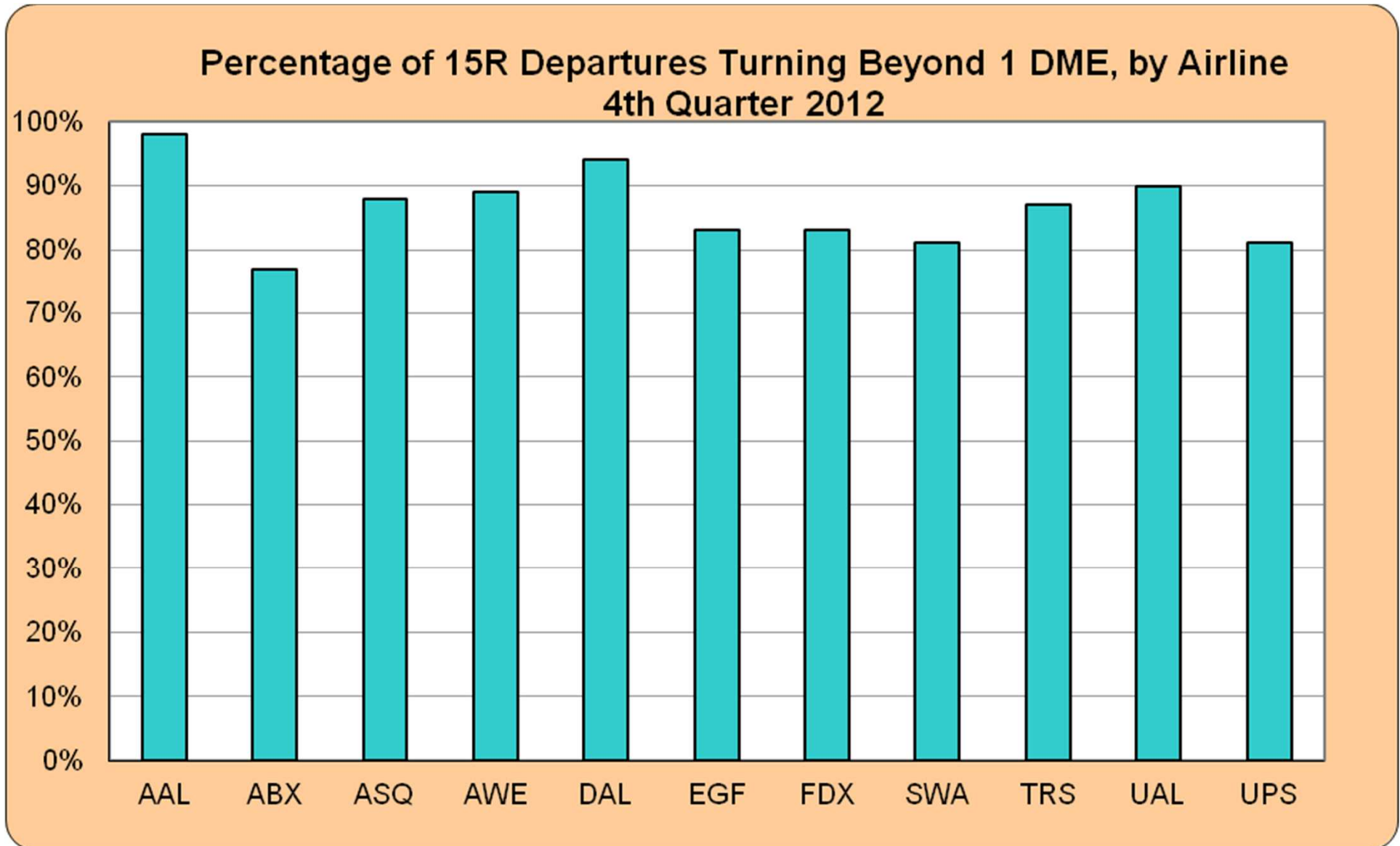


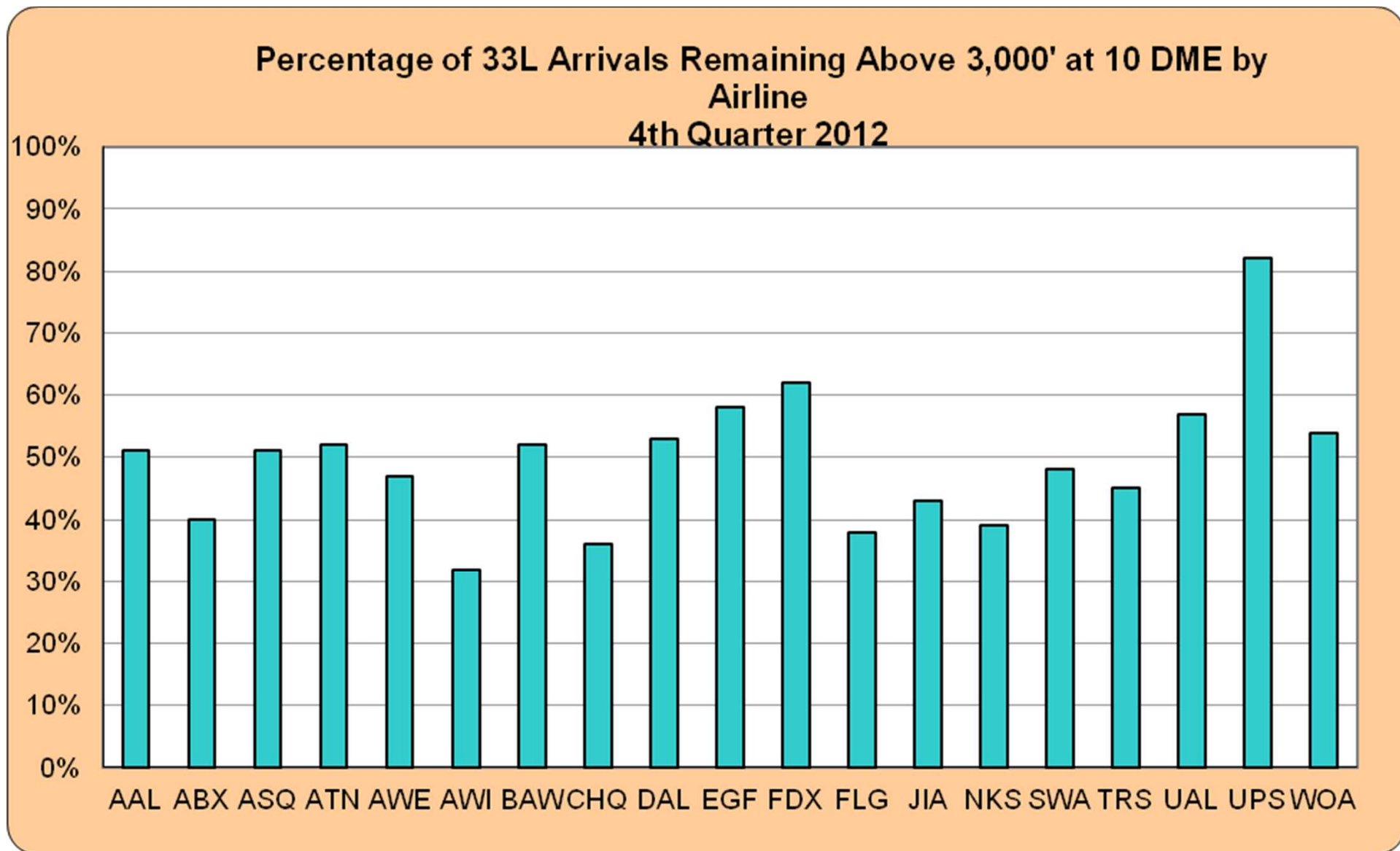


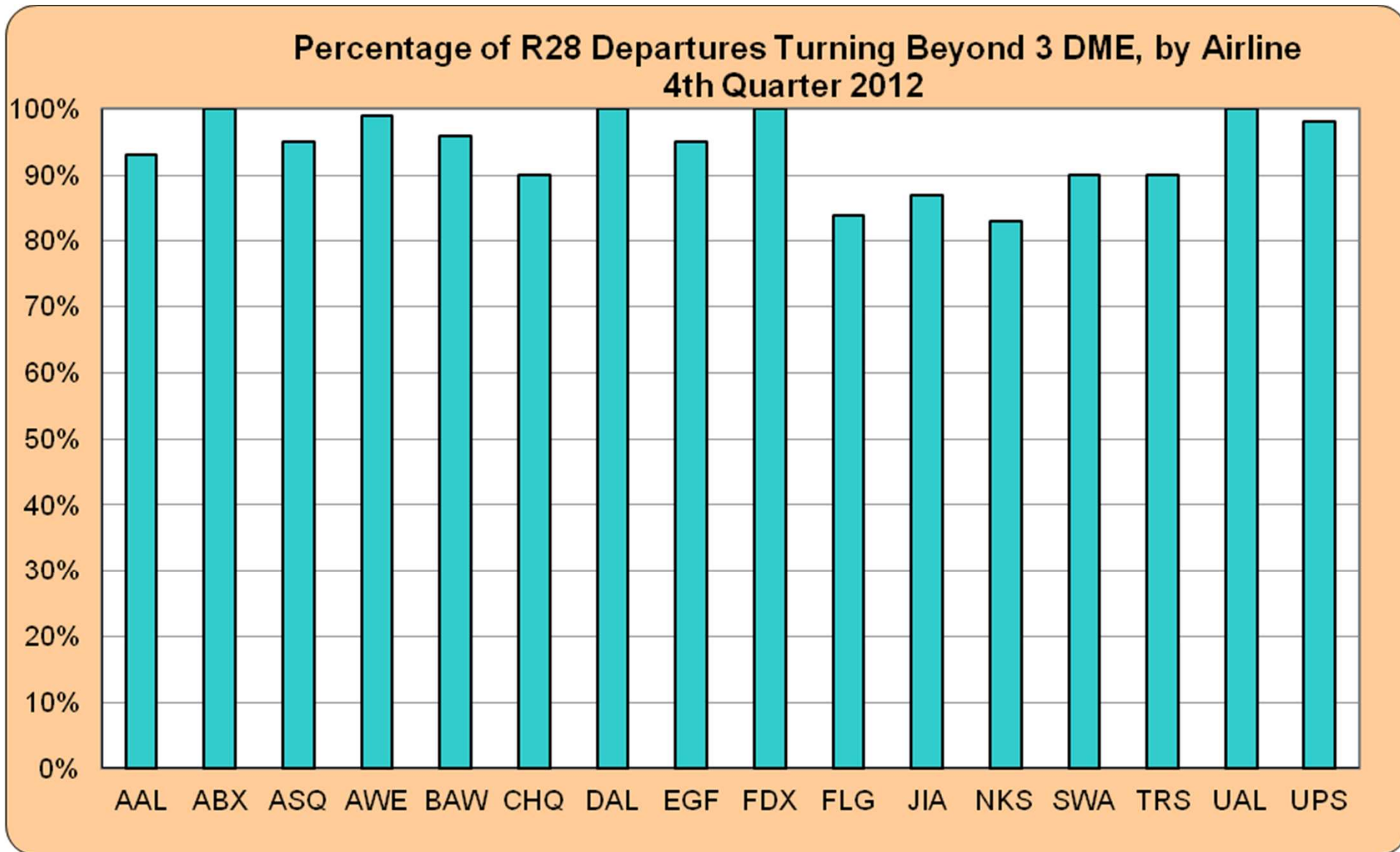












<http://www.maacommunityrelations.com/index.php>

F.2 Neighbors Committee Meeting (March 18, 2014)



FOR IMMEDIATE RELEASE
March 14, 2014

CONTACT: Jonathan Dean
410-859-7027

***** PUBLIC ADVISORY *****

**BWI Marshall Airport Neighbors Committee
to Meet March 18**

The Maryland Aviation Administration (MAA) will host a BWI Marshall Airport Neighbors Committee meeting on Tuesday, March 18. The meeting will be held at 6:00 p.m. in the assembly room of the MAA offices located at 991 Corporate Blvd., Linthicum.

The BWI Marshall Airport Neighbors Committee serves as a liaison between Baltimore/Washington International Thurgood Marshall Airport and surrounding neighborhoods to ensure continuing and timely discussion of mutual airport and community interests.

Membership in the BWI Marshall Airport Neighbors Committee includes official representatives of local community associations and representatives from the MAA, and the local air traffic control tower of the Federal Aviation Administration. Meetings of the BWI Marshall Airport Neighbors Committee are open to the public.

###



Harris Miller Miller & Hanson Inc.

P.O. Box 8766
BWI Thurgood Marshall Airport,
Maryland 21240-0766
410-859-7027 • Toll-Free: 1-800-I-FLY-BWI
Fax: 410-694-6297

www.bwiairport.com

F-61

F.2.1 Notification List

Ellen Sample

From: Jonathan Dean
Sent: Monday, April 21, 2014 2:24 PM
To: Ellen Sample
Subject: RE: Neighbor's Committee Meeting

Sure—

Baltimore Sun
[Annapolis] Capital
Maryland Gazette
Baltimore Business Journal
Associated Press
Daily Record
Business Monthly
Washington Post
Washington Business Journal
Capital Business
WBAL Radio
WTOP Radio
WYPR Radio
WAMU Radio
WNEW Radio
WMAR 2
WBAL 11
WJZ 13
WBFF 45
WRC 4
WTTG 5
WJLA 7
WUSA 9

Thanks,

--Jonathan

Jonathan O. Dean, C.M.
Manager, Division of Communications
Maryland Aviation Administration
Baltimore/Washington International Thurgood Marshall Airport
410-859-7719 | 410-530-1956 (cell)
jdean@BWIairport.com

From: Ellen Sample
Sent: Monday, April 21, 2014 12:29 PM

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Linthicum-Shipley Improvement Assoc.
602 Fairmount Rd.
Linthicum MD 21090

Melvin Kelly
Severn Improvement Assoc.
768 Queenstown Rd.
Severn MD 21144

Corey Jones
Severn Improvement Assoc.
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Severn MD 21144

Rodney Jones
Severn Improvement Assoc.
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Severn MD 21144

Richard Hanna
Timber Ridge Improvement Assoc.
7403 Hawkins Dr.
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Ernie Michaelson
Timber Ridge Improvement Assoc.
7425 Hawkins Dr.
Hanover MD 21076

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Ferndale-Linthicum Area Comm. Council
239 Wicklow Ave.
Glen Burnie MD 21061

Edward Huber
The Greater Elkridge Comm. Assoc.
6615 Pheasant Dr.
Elkridge MD 21075

William Raymond Faith
The Greater Elkridge Comm. Assoc.
6039 Hunt Club Rd.
Elkridge MD 21075

Paul Harrell
Elmhurst Improvement Assoc.
7904 Poplar Grove Rd.
Severn MD 21144

Nancy Brown
Glen Burnie Improvement Assoc.
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Glen Burnie MD 21061

Fred Davis
Greater Pasadena Council
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Pasadena MD 21122

Rusty Bristow
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Hanover MD 21076

Wayne Dixon
Harmans Civic Assoc.
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Hanover MD 21076

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Annapolis MD 21401-1831

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Ellicott City MD 21043

Marsha McLaughlin, Director
Dept. of Planning & Zoning
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Annapolis MD 21401

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Glen Burnie MD 21061

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Ellicott City MD 21032

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The Honorable Ronald A. George
Maryland House of Delegates
152 House Office Building
Annapolis, MD 21401-1991

The Honorable Steven J. DeBoy, Sr.
Maryland House of Delegates
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The Honorable James N. Robey
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120 James Senate Office Building
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The Honorable James Benoit
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The Honorable C. Edward Middlebrooks
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The Honorable Nicholas R. Kipke
Maryland House of Delegates
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The Honorable Mary Ann Love
Maryland House of Delegates
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The Honorable Donald H. Dwyer, Jr.
Maryland House of Delegates
154 House Office Building
Annapolis, MD 21401-1991

The Honorable James E. DeGrange, Sr.
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101 James Senate Office Building
Annapolis, MD 21401-1991

The Honorable Michael E. Busch
Maryland House of Delegates
H-101 State House
Annapolis, MD 21401-1991

The Honorable Edward J. Kasemeyer
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Miller Senate Office Build. 3 West Wing
11 Bladen St.
Annapolis, MD 21401-1991

The Honorable James E. Malone, Jr.
Maryland House of Delegates
251 House Office Building
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The Honorable Tony McConkey
Maryland House of Delegates
157 House Office Building
Annapolis, MD 21401-1991

The Honorable Frank S. Turner
Maryland House of Delegates
206 House Office Building
Annapolis, MD 21401-1991

The Honorable John Sarbanes
United State House of Representatives
2444 Rayburn HOB
Washington DC 20515

The Honorable John C. Astle
Senate of Maryland
123 James Senate Office Building
Annapolis, MD 21401-1991

The Honorable Elizabeth Bobo
Maryland House of Delegates
214 House Office Building
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Annapolis, MD 21401-1991

The Honorable C. A. Dutch Ruppertsberger
House of Representatives
1730 Longworth House Office Building
Washington, DC 20515

The Honorable Robert A. Costa
Maryland House of Delegates
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Annapolis, MD 21401-1991

The Honorable Benjamin L. Cardin
United States Senate
509 Hart Senate Office Building
Washington, DC 20515

The Honorable Pamela G. Beidle
Maryland House of Delegates
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Annapolis, MD 21401

The Honorable Guy Guzzone
Maryland House of Delegates
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6 Bladen St.
Annapolis, MD 21401

The Honorable Shane E. Pendergrass
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362 House Office Building
Annapolis, MD 21401-1991

The Honorable Steven R. Schuh
Maryland House of Delegates
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Anne Arundel County Council
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The Honorable Jen Terrasa
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The Honorable Neil Quinter
Maryland House of Delegates
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Columbia MD 21046

The Honorable Ronald C. Dillon, Jr.
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44 Calvert St.
Annapolis MD 21401

The Honorable Cathleen M. Vitale
Anne Arundel County Council
44 Calvert St.
Annapolis MD 21401

*

Mr. Rick Raidar
314 Panorama Way
Baltimore MD 21225

Ms. Dynell Jones
1518 David Victoria Lane
Hanover MD 21076

Ms. Tammy Valko
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Glen Burnie MD 21061

Mr. Joseph Gilberto
47 Linwood Ave.
Glen Burnie MD 21061

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Mr. Mark Clark
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Linthicum MD 21090

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Glen Burnie MD 21061

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Baltimore MD 21225

Ms. Carman Russo
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Baltimore MD 21225

Ms. Donna Albert
124 Archwood Ave.
Glen Burnie MD 21061

Mr. Jim Kiles
132 Glendale Ave.
Glen Burnie MD 21061

Ms. Donna Gingher
237 Poplar Ave.
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Mr. Derrick Dallas
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Linthicum MD 21090

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Linthicum MD 21090

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Severn MD 21144

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Baltimore MD 21225

Ms. Judy Anderson
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Linthicum MD 21090

Homeowner
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Severn MD 21144

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Ms. Anne Marie Raynic
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Linthicum MD 21090

Sharon Pierpoint
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Glen Burnie MD 21060

Ms. Elizabeth Francoise
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Linthicum MD 21090

Mr. Tim Walters
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Linthicum MD 21090

Ms. Veronica Crowe
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Ms. Darlene Frederick
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Glen Burnie MD 21061

Mr. Earl Mason
414 5th Ave.
Baltimore MD 21225

Ms. Bonnie Wick
619 Douglas St.
Baltimore MD 21225

Ms. Maria Koch
406 Sycamore Rd.
Linthicum MD 21090

Ms. Loyla Reichner
810 Old Riverside Rd.
Baltimore MD 21225

Homeowner
819 Sunnyfield Lane
Baltimore MD 21225

Mr. Brent Nickels
1452 Fairbanks Dr.
Hanover MD 21076

Ms. Connie Bower
408 Darlene Ave.
Linthicum MD 21090

Ms. Peggy Hook
405 Sycamore Rd.
Linthicum MD 21090

Homeowner
323 West Arundel Rd.
Baltimore MD 21225

Mr. Robert Blurfeld
405 Greenwood Rd.
Linthicum MD 21090

Mr. Michael Davie
1020 Summer Hill Dr.
Odenton MD 21113

Mr. Mark Turner
1305 Rome Ct.
Odenton MD 21113

Mr. Dennis Schuman
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Linthicum MD 21090

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Severn MD 21144

Ms. Mary Nickelson
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Linthicum MD 21090

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Linthicum MD 21090

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Rockville MD 200851

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Mr. Mark Anderson
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Severna Park MD 21146

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Glen Burnie MD 21060

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Arnold MD 21012

Alice Cook
107 Mountain Rd.
Linthicum MD 21090

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620 Old Stage Rd.
Glen Burnie MD 21061

Mr. Tony Frank
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Glen Burnie MD 21060

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Ferndale MD 21061

Mr. Booker Madden
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Jessup Improvement Assoc.
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Hanover MD 21076

Mr. Reggie Dixon
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Hanover MD 21076

Ms. Margaret Daniels
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Millersville MD 21108

Mr. Walter Dirndorfer
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Linthicum MD 21090

Mr. Bruce Fink
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Linthicum MD 21090

Cpt. Walter Stocknick
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Crownsville MD 21032

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Millersville MD 21108

Mr. Fred Marc
St. Augustine's School
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Elkridge MD 21227

Mr. Joe LaCasio, Principal
Quarterfield Elementary School
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Yasmin Boodhoosingh
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Hanover MD 21076

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Baltimore MD 21225

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Columbia MD 21045

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Severn MD 21144

Ms. Ruth Carter
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Glen Burnie MD 21061

Ms. Ara Crowe
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Glen Burnie MD 21061

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Severna Park MD 21146

Mr. Joseph Pfeiffer
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Hanover MD 21076

Mr. Robert Haney
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Taneytown MD 21787

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Harmans MD 21076

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Glen Burnie MD 21061

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Hanover MD 21076

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Glen Burnie MD 21061

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Harmans MD 21077

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Odenton MD 21113

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Hanover MD 21076

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Ellicott City MD 21043

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Hanover MD 21076

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Glen Burnie MD 21061

Padraic Gray
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Hanover MD 21076

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Severn MD 21144

Mr. Charles Levay, President
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Gambrills MD 21054

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Severn MD 21144

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Severna Park MD 21146

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Millersville MD 21108

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Severna Park 21146

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Glen Burnie MD 21061

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c/o Parke West Homeowners Assoc.
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Catonsville MD 21228

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Ferndale MD 21061

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Pasadena MD 21122

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Glenwood MD 21738-9320

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Gaithersburg MD 20879

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Glen Burnie MD 21061

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Westminster MD 21158

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Severna Park MD 21146

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Severn MD 21144

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Hanover MD 21076

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Severna Park MD 21146

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Glen Burnie MD 21061

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Baltimore MD 21226

Richard Young
7506 Old Stage Rd.
Glen Burnie MD 21061

Ms. Wilma Brown
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Glen Burnie MD 21061

Andorick Acres
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Severn, MD 21144

Cohansey Court Condo
7611 McNamara Drive
Glen Burnie, MD 21061

Crestwood Community Association
P.O. Box 114
Linthicum, MD 21090

Danza Village Community Association
821 Meadow Road
Severn, MD 21144

Deep Run Civic Association
7107 Forest Avenue
Hanover MD 21076

Taxpayer's Improvement
Assoc. of Patapsco Park, Inc.
c/o Geraldine Bates
6012 Belle Grove Rd.
Baltimore MD 21225

Delmont Station Homeowners
P.O. Box 867
Severn, MD 21144

Dundee & Associates
P.O. Box 1297
Glen Burnie, MD 21060

Elmhurst Improvement Association
7809 Walnut Tree Road
Severn, MD 21144

Ferndale/Linthicum Community Association
504 Packard Avenue
Ferndale, MD 21061

Foxchase Community Association
Pat Kupfer, President
123 Foxview Dr.
Glen Burnie, MD 21061

Glen Burnie Improvement Association
19 Crain Highway South
Glen Burnie, MD 21060

Woodlawn Heights Community Association
40 Glendale Avenue
Glen Burnie, MD 21061

Timber Ridge Community Association
7425 Hickory Lane
Hanover, MD 21076

Greater Ferndale Community Association
4 Greenwood Avenue
Ferndale, MD 21061

Greenbriar Homeowners
3 Green Knoll Blvd.
Hanover MD 21076

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c/o Mr. Woody Bowen
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Baltimore MD 21225

Harundale Oakwood Park Civic Association, Inc.
P.O. Box 522
Glen Burnie, MD 21060

Wicklow Woods Homeowners Association
11 Lennon Court
Glen Burnie MD 21061

Woodside Square Condo
578 Glen Court
Glen Burnie, MD 21061

Woodcrest Homeowners Association
6319 Harris Heights Avenue
Glen Burnie, MD 21061

Linthicum-Shipley Community Association
721 S. Hammonds Ferry Road
Linthicum, MD 21090

Maple Glen Estates
127 Sunlight Circle
Glen Burnie, MD 21061

Merriweather Homeowners Association
7314 Musical Way
Severn, MD 21144

Myers Estates Homeowners Association
7808 Stafford Hill Court
Glen Burnie, MD 21061

Redbridge Homeowner Assoc.
P.O. Box 441
Severn MD 21144

N. Linthicum Improvement Association
414 Laura Avenue
North Linthicum, MD 21090

New Cut Farms
8156 Silo Road
Severn, MD 21144

North Glen Community Association
P.O. Box 481
Glen Burnie, MD 21061

North District Police
Community Relations
939 Hammonds Lane
Baltimore MD 21225

Peach Orchard
P.O. Box 392
Severn MD 21144

Peach Orchard Homeowners
P.O. Box 841
Severn MD 21144

Provinces Civic Association
P.O. Box 313
Jessup MD 20794

Quail Run Association
P.O. Box 431
Severn MD 21144

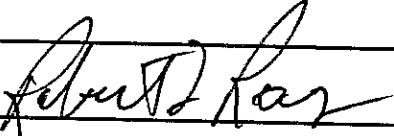
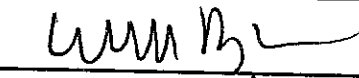
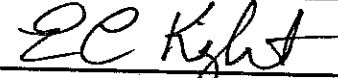
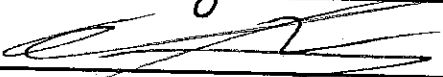

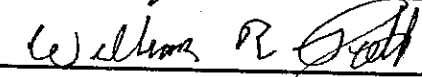



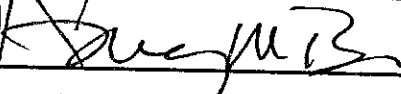
Trailside Improvement Assoc.
435 Arbor Drive
Glen Burnie MD 21061

Severn Hills Homeowners Assoc.
7914 Severn Hills Way
Severn MD 21144

Severn Improvement Assoc.
P.O. Box 892
Severn MD 21144

F.2.2 Sign-in List

Baltimore/Washington International Thurgood Marshall Airport Neighbors Committee Meeting Sign In Sheet March 18, 2014

Name	Signature	Community/Company Name
Bob Rayer		SHA
David Ritchey		Hunt Reporting Co.
Ed Donaldson		FAN
Ed Kight		OBP 1A
Rusty Bristow		HARMAN'S
MARVIN ROBINSON		GEN CIVIC TRANSPN.
WILLIAM FAITH		Elbridge Comm ASSN
KEVIN GLENDENNING		LSIA
Neil Carey		MRAA
Jonathan Dean		
Nancy Brown		SBIA

OLD BROOKLYN PARK

Name	Signature	Company Name
R Hanna	<i>R Hanna</i>	TRIA
Wilma + David Brown	<i>Wilma Brown</i>	
ERNEST MICHELSON	<i>E. Michelson</i>	Timber Ridge
Paul Harrell	<i>Paul Harrell</i>	Elmhurst
Melvin Kecey	<i>Melvin Kecey</i>	SEA
Wayne Dixon	<i>Wayne Dixon</i>	HARMAR Civic Assn.
Manuel R. Perez	<i>Manuel R. Perez</i>	508 McPherson Rd
Laura Donovan	<i>Laura Donovan</i>	CORN BARNE Glen Burnie

F.2.3 Materials Presented

**BALTIMORE/WASHINGTON INTERNATIONAL THURGOOD MARSHALL AIRPORT
NEIGHBORS COMMITTEE MEETING**

Tuesday, March 18, 2014
MAA Assembly Rooms 991 Corporate Blvd.
6:00 p.m.

AGENDA

- | | |
|--|--|
| 1. Update of the Runway Area Safety Projects/
Runway 15R/33L Closure | Cedrick Johnson
ADCI Corporation |
| 2. Update SHA projects in BWI Marshall Area
(MD 170, I-97, MD 100 & MD 295) | Robert Rager
State Highway Administration
District Community Liaison |
| 3. Airport Noise Zone and FAR Part 150
Noise Exposure Map Update | Ellen Sample, MAA
Director, Office of Noise,
Real Estate and Land Use Planning |
| 4. Community Enhancement Grant Program Update | Melvin Kelly, Chairman |
| 5. Registered Guests and Speakers | |



Neighbor's Committee Meeting March 18, 2014

Comparison of Noise Exposure Map and Airport Noise Zone



Noise Exposure Map and Airport Noise Zone Updates

Part 150 Noise Exposure Map (NEM):

- Enabled by Federal Aviation Regulations Part 150, 1981
- Noise impact determined by DNL Contours for two scenarios:
 - Base year
 - 5-year forecast
- Determines eligibility for federal noise abatement funds

Airport Noise Zone (ANZ):

- Enabled by Maryland Environmental Noise Act 1974
- Noise impact determined by Ldn composite contours:
 - Base year
 - 5-year forecast
 - 10-year forecast
- MAA Controls Land Use Development in Airport Noise Zone



Schedule

Noise Exposure Map and Airport Noise Zone Updates

▪ **Noise Exposure Map (NEM):**

- **Advisory Committee Meeting - May 2014**
- **Public Workshop - July 2014**
- **Submission to FAA - August 2014**
- **FAA review NEM's (180 day review)**
- **Publication of Acceptance in Federal Register**

▪ **Airport Noise Zone (ANZ):**

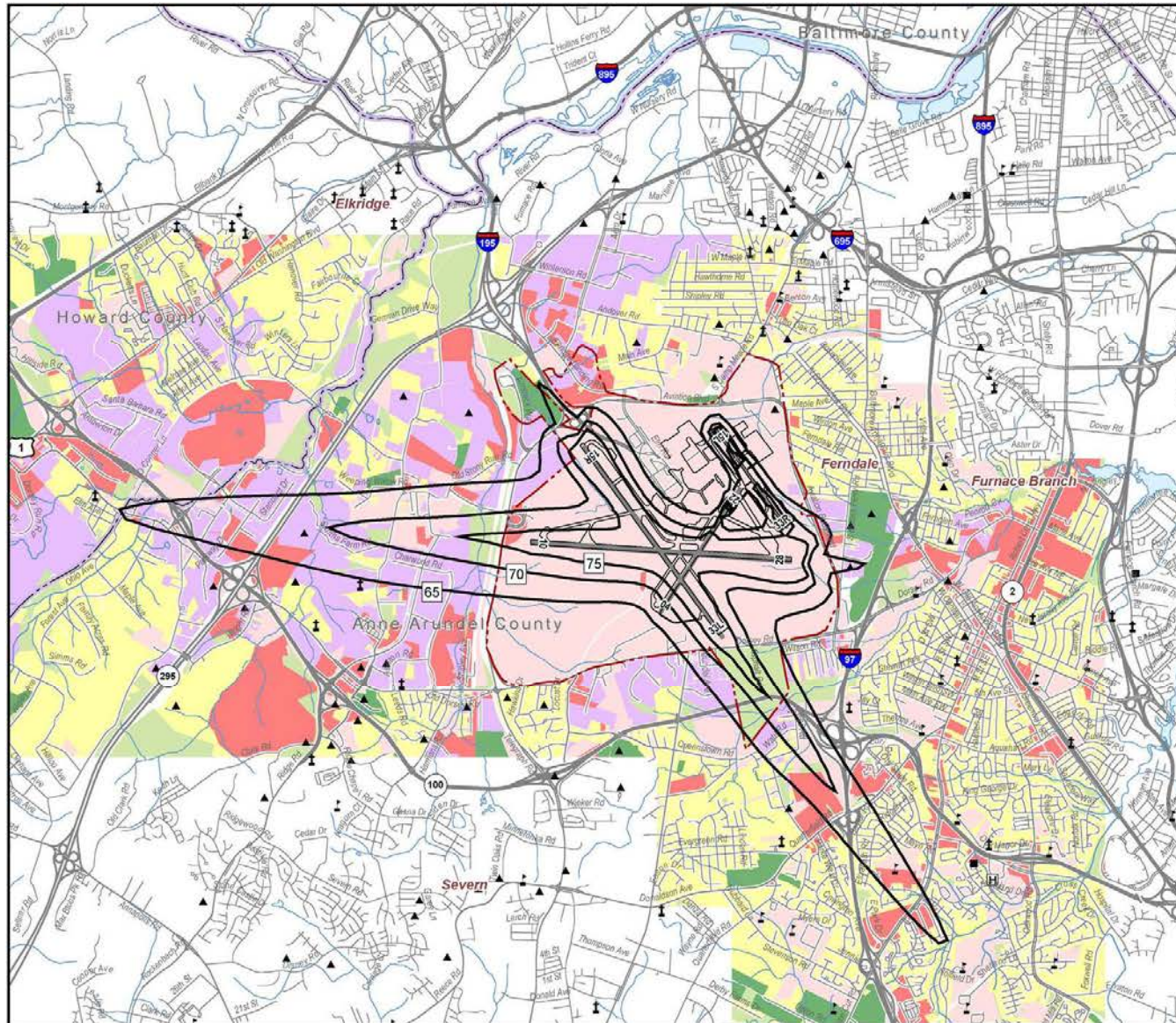
- **Advisory Committee Meeting - May 2014**
- **Public Workshop - July 2014**
- **Publish Proposed Action in Maryland Register- August 2014**
- **Public Hearing - August 2014**
- **Public Comment Period (30 days)**
- **Request Maryland Aviation Commission Approval**
- **Publish ANZ Regulations in COMAR by December 2014**

NEM Accepted April 3, 2006

Forecast (2010) Noise Exposure Map



Noise Exposure Map and Airport Noise Zone Updates



BWI
Baltimore
Washington
International
Airport

Forecast (2010)
Noise Exposure Map
Figure 17

- Forecast (2010) DNL Contour
- Airport Runways
- Airport Property
- Residential
- Commercial
- Exempt Commercial
- Industrial
- Agriculture
- Forest
- School
- Place of Worship
- Hospital
- Nursing Home
- Historic Site
- Roads
- River or Stream
- Water
- County Boundary

Data Sources: BWI Office of Facilities Planning, Noise Abatement Division; Maryland State Highway Administration; Maryland Department of Planning; Environmental System Research Group, Inc.

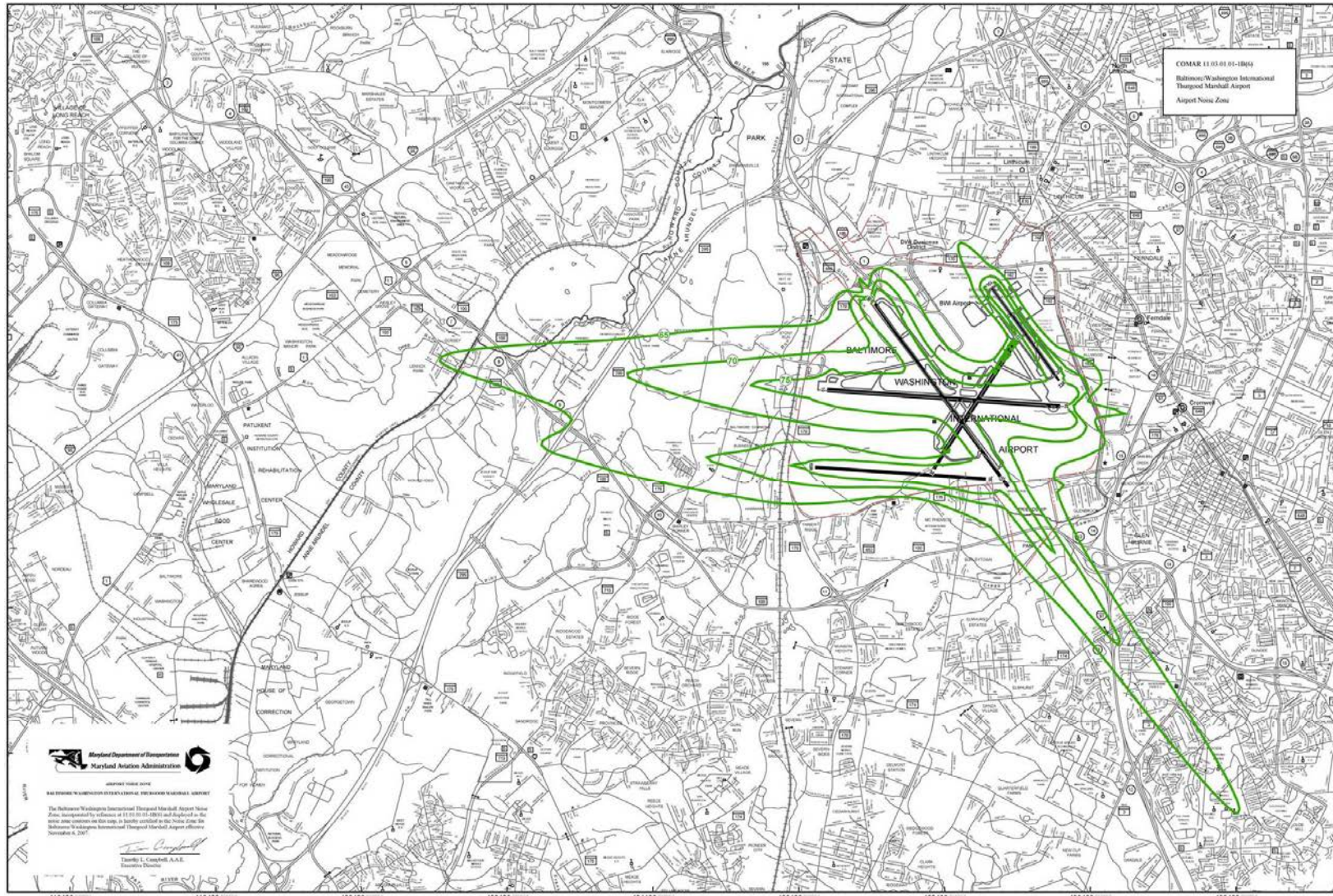
0 1,500 3,000 4,500 6,000 Feet

HARRIS MILLER MILLER & HANSON INC.



2007 Airport Noise Zone

Noise Exposure Map and Airport Noise Zone Updates



2007 Airport Noise Zone

Howard County & Anne Arundel County, Maryland

2007 Airport Noise Zone Contour
Prepared April 25, 2007

F.3 Community Advisory Committee Meeting (May 14, 2014)

F.3.1 Notification List

F.3.1.1 Notification and Correspondence with the Community Advisory Committee



Maryland Aviation Administration

Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor

James T. Smith, Jr.
Secretary

Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

April 15, 2014

Mr. Edward Huber
The Greater Elkridge Community Association
6615 Pheasant Dr.
Elkridge MD 21075

Dear Mr. Huber:

Subject: Advisory Committee for Updates to the Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall) Noise Zone and the Federal Aviation Regulation Part 150 Noise Exposure Maps.

The Maryland Aviation Administration (MAA) is in the process of updating the Airport Noise Zone (ANZ) and Federal Aviation Regulation Part 150 Noise Exposure Maps (NEM's) for BWI Marshall. The public outreach components of both actions include a Community Advisory Committee consisting of area residents, local organization representatives, planning agencies, public agencies, airport users and other interested parties.

I would like to invite you or another representative of your organization to join our Committee. We anticipate there will be one meeting which will be held on May 14, 2014 at 6:00 p.m. until 8:00 p.m. in the Assembly Room, located at the MAA, 991 Corporate Boulevard in Linthicum, Maryland. A list of the invited participants is attached. One community workshop will be held, tentatively in the month of July 2014. We will be sending documents by overnight mail on Wednesday, May 7th for you to review prior to the meeting.

Thank you in advance for your participation in this process. Please call Ms. Karen Harrell if you have any questions or would like additional information at 410-859-7550 or email to kharrell@bwiairport.com. Also, please contact her if you are unable to attend. We appreciate your interest in airport issues and look forward to working with you.

Sincerely,

Ellen Sample
Director,
Office of Noise, Real Estate and Land Use Compatibility

Attachment

Part 150 and ANZ Update Advisory Committee - 2014

Neighbors Committee

Edward Huber
The Greater Elkridge Community Association
6615 Pheasant Drive
Elkridge, MD 21075
410-796-1674

Eric Jordan
Elmhurst Improvement Association
7848 Coldbrooke Drive
Severn MD 21144
410-969-2339

Nancy Brown (Vice Chairman)
Glen Burnie Improvement Association
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Glen Burnie MD 21061
(W) 410-230-4203
(H) 410-551-5288

Rusty Bristow
Harmans Civic Association
7215 Ridge Road
Hanover MD 21076
410-850-5269

Ken Glendenning
Linthicum-Shipleigh Improvement Association
602 Fairmount Road
Linthicum MD 21090
410-859-8459

Melvin Kelly (Chairman)
Severn Improvement Association
768 Queenstown Road
Severn MD 21144
410-768-3650

Richard Hanna
Timber Ridge Improvement Association
7403 Hawkins Drive
Hanover MD 21076
410-761-5917

Ms. Liz Wagner
Ferndale-Linthicum Area Community Council
239 Wicklow Avenue
Glen Burnie, MD 21061

Elected Officials

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James Senate Office Building, Room 101
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e-mail: james.degrange@senate.state.md.us

Federal Aviation Administration

Ed Donaldson
Air Traffic Manager
BWI Tower
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Steve Smith
Support Manager for Air Space
Potomac TRACON
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Warrenton VA 20187
540-349-7501

Marcus Brundage
Environmental Specialist
Washington Airports District Office
23723 Air Freight Lane – Ste 210
Dulles VA 20166
703-661-1365

Aviation Representatives

Jeff Gilley
Director of Airports and Ground Infrastructure
National Business Aviation Association
1299 Pennsylvania Avenue NW
Washington DC 20004
202-737-4477

Craig Fuller
President
Aircraft Owners and Pilots Association
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Frederick MD 21701
1-800-872-2672

Bert Scither
Chief Pilot
Southwest Airlines
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Baltimore MD 21240

Robert Grant
Director
Signature Flight Support
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410-859-8393

Gene Condon
Chairman
BWI Business Partnership
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Linthicum MD 21090
410-859-1000

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MEMORANDUM

To: Community Advisory Committee for Updates to the
Baltimore/Washington International Thurgood Marshall Airport Noise
Zone and the Federal Aviation Regulation Part 150 Noise Exposure
Maps

Ms. Ellen Sample, Director, Office of Noise, Real Estate and Land
Use Compatibility – Maryland Aviation Administration

From: David A. Crandall

Date: May 7, 2014

Subject: Background Material for the May 14th, 2014 Community Advisory
Committee Meeting

Reference: HMMH Job No. 305160.011 / 305160.012



As discussed in a previous letter, the Maryland Aviation Administration (MAA) is in the process of updating the Airport Noise Zone (ANZ) and Federal Aviation Regulation Part 150 Noise Exposure Maps (NEM's) for Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall).

This memorandum presents background material for the Community Advisory Committee meeting being held on May 14, 2014 from 6:00 p.m. until 8:00 p.m. in the Assembly Room, located at the MAA, 991 Corporate Boulevard in Linthicum, Maryland. Members of the MAA staff and the contractor team, Harris Miller Miller & Hanson Inc. (HMMH) and Straughan Environmental, will make a presentation and be available to answer questions.

Background – Noise Exposure Map

Federal Aviation Regulation (FAR) Part 150, "Airport Noise Compatibility Planning," provides the methodology and procedures to be used in preparing aircraft noise exposure maps and developing airport land use compatibility programs. The Noise Exposure Map, as defined in Federal Regulations, presents a basecase and forecast (typically 5 years). Conducting a Part 150 study qualifies airport operators for Federal Aviation Administration (FAA) grant funds for homeowner assistance programs. Upon approval of the Part 150 study for BWI Marshall by the FAA, funding will be available to the MAA for programs such as soundproofing, resale assurance, or the purchase properties where aircraft noise exceeds federal guidelines. The current official NEM was accepted by FAA April 6, 2006. Included in that NEM are noise contours for 2003 and 2010 conditions; those two maps are available on MAA's website, <http://www.maacommunityrelations.com/content/anznnoiseupdate/part150study.php>.

The FAA's Noise Exposure Map checklist, which provides a summary of the NEM requirements, can be found at http://www.faa.gov/airports/environmental/airport_noise/part_150/checklists/media/noise_map_cklistarti.pdf

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Background – Airport Noise Zone

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 the MAA to create an ANZ to control incompatible land development around BWI Marshall and a Noise Abatement Plan (NAP) to minimize the impact of aircraft noise on people living near the Airport. An ANZ and NAP were first established for BWI Marshall in 1976; and were updated in 1982, 1988, 1993, and 1998. An updated ANZ was certified on November 6, 2007.

The ANZ is determined by a composite of three noise contours: a base year contour, a five-year forecast, and a ten-year forecast. The largest of the three contours in any area around the Airport determines the Noise Zone, thereby offering protection within the largest of the existing or future noise exposure contours. The MAA uses the ANZ to control incompatible land development around the Airport.



The 2007 ANZ, which has 11 sheets (two overview sheets and nine close in) is available on MAA's website, <http://www.maacommunityrelations.com/content/anznoiseupdate/bwianz.php>.

Materials for review

The attached package includes several documents for your review ahead of the BWI NEM/ANZ Community Advisory Committee meeting on May 14th.

- HMMH memorandum "BWI Part 150 Noise Exposure Map Update – Forecast Airport Layout and Operation Assumptions" dated December 12, 2013
This memorandum describes the runway layout assumptions and aircraft operations assumptions for the baseline noise contours for calendar year 2014, and the future noise contours for calendar year 2019. The Federal Aviation Administration completed its review of this memorandum in February. In summary, the 2014 runway layout is the current layout while the 2019 runway layout includes some changes that are either in progress or are planned over the next 5 years. The 2014 operations represent current operations while the 2019 operations represent a forecasted increase in operations and changes in several aircraft types. The memorandum provides details and lists the sources for the various assumptions.
- HMMH memorandum "BWI Airport Noise Zone Update – Forecast Airport Layout and Operational Assumptions" dated April 25, 2014.
This memorandum discusses the assumptions for the Airport Noise Zone 2014, 2019 and 2024 conditions. The 2014 and 2019 assumptions and inputs, and associated noise contours, are identical to the noise exposure map contours, although this memorandum provides additional clarity. The 2024 conditions are solely for the Airport Noise Zone. Several modeling assumptions are based on the 2011 Master Plan.
- Figure 1, "Comparison of Draft 2014 Annual L_{dn} with Draft 2019 Annual L_{dn} Contours", presents the draft 65 dB, 70 dB and 75 dB Day-Night Average Sound Level (abbreviated DNL or L_{dn}) for calendar year 2014 and 2019 using the assumptions described in the memorandum listed above. The Day-Night Average Sound Level is required for both Part 150 NEMs and for the Airport Noise Zone. Federal regulations generally abbreviate Day-Night Average Sound Level

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as DNL while Maryland regulations use L_{dn} . However both abbreviations refer to the same noise metric. The 65 dB DNL (or L_{dn}) contour is the lowest (quietest) level discussed in both regulations.

The land use shown in Figure 1 is data from Anne Arundel County and Howard County organized into the categories defined in Part 150 guidelines. The land within the 65 dB DNL contour will be field verified after the May 14th meeting. Additional land use elements, such as depicting schools, places of worship and historic sites will be added in the coming weeks.

- Figure 2, "Comparison of Draft 2014 NEM and Draft 2019 NEM contours with Current 2010 Noise Exposure Map (NEM) Contour" presents the draft 2014 NEM and draft 2019 NEM contours compared to the current 2010 NEM. The 2014 NEM and 2019 NEM are still in progress. As noted above, the land use base maps are not yet complete.
- Figure 3, "Comparison of Draft 2014 Annual L_{dn} and Draft 2019 Annual L_{dn} Contours with Current 2007 Airport Noise Zone (ANZ) Contour", presents the draft 2014 Annual L_{dn} and 2019 Annual L_{dn} contours compared to the current 2007 ANZ contours. In reality, the 2014 L_{dn} /2019 Annual L_{dn} contours are physically identical to the 2014 NEM and 2019 NEM contours, however they are labeled differently to match the terminology found in the respective regulations. The land use depicted is the same as Figure 1. The new ANZ will be the outer extent of the 2014 Annual L_{dn} , 2019 Annual L_{dn} and 2024 Annual L_{dn} contours overlaid on tax maps. The 2024 Annual L_{dn} contour is still being developed.



Figure 4 through Figure 7 present generalized depictions of the flight tracks and operations used in the draft 2014 L_{dn} contours. Rather than presenting every individual track equally, these "flight track density plots" use color gradations to depict the flight track geometry, dispersion, and the relative frequency of overflights in areas of interest. The color ranges are assigned based on the relative density of modeled aircraft operations included in the development of the draft 2014 L_{dn} contours. Note that these figures, by themselves, do not indicate noise exposure and they have not been adjusted for aircraft altitudes. The flight tracks have been organized into four distinct sets:

- Figure 4 presents the west flow departures tracks.
- Figure 5 presents the west flow arrivals tracks.
- Figure 6 presents the east flow departures tracks.
- Figure 7 presents the east flow arrivals tracks.

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TECHNICAL MEMORANDUM

To: Ms. Ellen Sample, Director, Office of Noise, Real Estate and Land Use
Compatibility – Maryland Aviation Administration

From: David A. Crandall

Date: December 12, 2013

Subject: BWI Part 150 Noise Exposure Map Update – Forecast Airport Layout and
Operation Assumptions

Reference: HMMH Project No.: 305160.011
MAA Contract: MAA-SV-12-002



1. INTRODUCTION

Maryland Aviation Administration (MAA) has retained Harris Miller Miller & Hanson (HMMH) to prepare an update to its Noise Exposure Map (NEM) and associated documentation for Baltimore-Washington/Thurgood Marshall International Airport (BWI) in accordance with regulations promulgated by the Federal Aviation Administration and published at Title 14 of the Code of Federal Regulations (CFR) Part 150. This effort is referred to as the “BWI NEM Update”. This memorandum presents the noise modeling future airport layout and operational forecast assumptions for review and comment.

MAA plans to submit the BWI NEM Update to FAA early in calendar year 2014. Therefore the base year of the NEM will be 2014 and the forecast year for the NEM will be 2019.

This memorandum has four attachments, listed below:

1. Attachment A is a narrative of the airport layout assumptions for the BWI Part 150 noise modeling assumptions. Attachment A has been prepared for inclusion in the Part 150 documentation.
2. Attachment B is the FAA Terminal Area Forecast (TAF) issued January 2013 for BWI. This issue of the TAF includes historical data from 1990 to 2011 and forecast years 2012 through 2040. The BWI NEM Update will present analysis of aircraft noise exposure for a base year (2014) and a year five year forecast (2019).
3. Attachment C presents BWI operation counts from FAA’s Air Traffic Activity Data System (ATADS), from January 2012 through July 2013.
4. Attachment D presents the count of operations from the top ten airlines operating at BWI during calendar year 2012.

2. AIRPORT LAYOUT

The airport layout is expected to change between now and 2019. Attachment A presents a narrative and associated tables of the existing airport layout and the anticipated changes as presented in the 2012 Airport Layout Plan and discussions with MAA. Attachment A has been prepared for inclusion into the Noise Exposure Map documentation.

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3. FORECAST ASSUMPTIONS

In its June 2008 document entitled “Review and Approval of Aviation Forecasts”,¹ the FAA describes its guidelines for comparing locally-prepared forecasts to the FAA’s TAF. For all classes of airports, forecasts for total enplanements, based aircraft, and total operations are considered consistent with the TAF if they meet the following criterion:

Forecasts differ by less than 10 percent in the 5-year forecast period and 15 percent in the 10-year period.

For the BWI NEM Update, MAA proposes to use the January 2013 issue of the FAA’s Terminal Area Forecast (Attachment B of this memorandum) for aircraft operational activity levels. The total proposed modeled operations are presented in Table 1. The TAF reports aircraft operational activity levels in one of four categories listed below.²



- Air Carrier – Operations by aircraft capable of holding 60 seats or more and are flying using a three letter company designator.
- Air Taxi - Operations by aircraft less than 60 seats and are flying using a three letter company designator or the prefix “Tango”.
- Military – all classes of military operations.
- General Aviation – Civil (non-military) aircraft operations not otherwise classified under air carrier or air taxi.

For the 2014 NEM, 263,530 annual operations would be modeled. For the 2019 NEM, 292,253 annual operations would be modeled. Table 1 also presents, for reference, the 2012 actual airport operations, as reported by FAA’s Air Traffic Activity Data System (ATADS).³ Operations have been declining, and operations for the first 7 months of 2013 are approximately 4 percent below the operations for the first 7 months of 2012.⁴ ATADS data for January 2012 through July 2013, inclusive, is presented as Attachment C.

Baseline operations will be developed using the last 12 months of available data (provided by MAA [via its Airscene.com® system] and augmented with flight plan data purchased from a third-party vendor) and scaled to TAF 2013 activity levels (refer to Table 1).⁵ Cape Air (FAA designator KAP) and Colgan Air (CJC) are no longer operating at BWI and will be removed from the 2014 operations (additional discussion provided later in this memorandum).⁶

¹ http://www.faa.gov/airports/planning_capacity/media/approval_local_forecasts_2008.pdf

² FAA Joint Order JO 7210.3X, Section 9-1-2. Categories of Operations, Published 2/9/2012. Latest version is available at <http://www.faa.gov/documentLibrary/media/Order/FAC.pdf> The 2012 TAF is based on historical operations data http://www.faa.gov/about/office_org/headquarters_offices/apl/aviation_forecasts/taf_reports/media/TAF_summary_report_FY2012.pdf, pp. 3-5.

³ FAA’s Air Traffic Activity Data System (ATADS), <https://aspm.faa.gov/opsnet/sys/Main.asp>

⁴ The data used to support this statement is available from <https://aspm.faa.gov/opsnet/sys/Main.asp> by requesting a monthly report.

⁵ *Airscene.com* is a registered trademark of ITT Exelis. Flight plan data, purchased from a third party-vendor, would be used to provide the destination airports for departing aircraft, which is then used in an FAA approved methodology to estimate aircraft weight (*Airscene.com* does not provide the destination airport for BWI departures).

⁶ FAA airline designators are published in FAA Order 7340.2, Chapter 3. The most current version is available at http://www.faa.gov/air_traffic/publications/atpubs/CNT/index.htm

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Table 1 – Summary of FAA Terminal Area Forecast (TAF) Operations Activity Levels at BWI and Proposed Modeled Operations for the 2014 and 2019 Noise Exposure Map

FAA Operational Category ¹	2012 Operations ²		Proposed 2014 NEM Operations		Proposed 2019 NEM Operations	
	2012 ATADS (Actual)	2012 Average Annual Day Operations	2014 Forecast – Issued January 2013	2014 Average Annual Day Operations	2019 Forecast – Issued January 2013	2019 Average Annual Day Operations
Air Carrier	210,842	576.1	208,969	572.5	240,831	659.8
Air Taxi and Commuter	40,312	110.1	38,329	105.0	34,359	94.1
GA (Itinerant + local) ³	15,854	43.3	15,272	41.8	16,103	44.1
Military	998	2.7	960	2.6	960	2.6
Total⁴	268,006	732.3	263,530	722.0	292,253	800.7



Notes:

- 1 Operational Categories used in ATADS and the TAF are those defined in FAA Order 7210.3X at Chapter 9, Section 9-1-2 (February 9, 2012). <http://www.faa.gov/documentLibrary/media/Order/FAC.pdf>
 - 2 2012 actual operations are provided for reference. Average annual day operations were developed assuming 366 days since 2012 was a leap year.
 - 3 General Aviation activity levels presented in "Itinerant" operations include Civil "Local" operations. ATADS reported 244 civilian local operations for 2012. The TAF forecasts 268 civilian local operations for both 2014 and 2019.
 - 4 Totals may not match exactly due to rounding.
- Sources: ATADS, TAF 2013

The detailed forecast for 2019 relies on several general assumptions concerning changes to the fleet within the BWI NEM Update time frame. These changes would be made relative to the 2014 fleet. We considered publicly available information from the top ten airlines operating at BWI during calendar year 2012 as part of this effort – the top ten airlines represent approximately eighty-four percent of calendar year 2012 operations.⁷ Additional information was known for two other airlines and is discussed below.⁸ The remaining sixteen percent of operations will be included in the modeling, although with broader assumptions.⁹

We propose that the assumptions for 2019 would be:

- All aircraft certified to 14 CFR Part 36 Stage 2 will be retired from the fleet by 2015, therefore they will remain in the 2014 fleet but be replaced by Stage 3 or higher versions for the 2019 fleet.¹⁰

⁷ Counts of operations provided by MAA's AirScene.com system. See Attachment D of this memorandum.

⁸ Colgan Airlines and Air Transport International. HMMH and MAA staff had information readily available regarding these operators. Combined these two airlines represented less than one half of a percent of calendar year 2012 operations.

⁹ The remaining operations include a mix of regional airlines operating behalf of mainline airlines, contract operations operating on behalf of Air Mobility Command (AMC) which has gates in Terminal E, fractional ownership aircraft, charters and general aviation operations.

¹⁰ 14 CFR Part 36 describes noise certification of aircraft. Stage 2 aircraft are louder than Stage 3 aircraft of the same weight. 14 CFR Part 36 also defines Stage 4 (quieter than Stage 3) and may in the future define Stage 5. 14 CFR Stage 2 aircraft will typically not be allowed to operate in continental United States after December 31, 2015 per *the FAA Modernization and Reform Act of 2012*. Currently, aircraft certified to 14 CFR Stage 2 and weighing more than 75,000 lb have generally been prohibited

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- The day/night ratio and departure stage length ratio for aircraft will remain the same as the 2012 base-year for each aircraft type combination.
- Southwest Airlines (SWA) and AirTran (TRS)¹¹
 - These airlines will continue their merger and continue to operate in a similar manner as in 2012
 - Southwest will retire their 737-500s and thirty-nine percent of their 737-300¹²
 - Southwest's growth will come from the Boeing 737-700s and 737-800s that are on order.
 - Boeing 717-200s will be removed from the combined SWA/TRS fleet and will be transferred to Delta Air Lines (DAL). Every three Boeing 717-200 operations will be replaced with two 737-700 operations.¹³
- Delta Air Lines (DAL)¹⁴
 - Delta will retire all Boeing DC-9s and replace those operations with Boeing 717-200s
 - Delta will retire all Boeing 757-200s
 - Delta's growth will come from the Boeing 737-800s, 737-900s and Airbus A321s that are on order
- US Airways (AWE)¹⁵



from operating the in the continental United States since 2000. In practice, the 2012 act affects the remaining aircraft weighing less than 75,000 lb. FAA released a final rule, effective September 3, 2013, that adopts into operating rules the prohibitions from the 2012 act.

Federal Register, July 2, 2013, pp. 39576 – 39583

<http://www.gpo.gov/fdsys/pkg/FR-2013-07-02/pdf/2013-15843.pdf>

Federal Register, September 20, 2013, pg. 57790

<http://www.gpo.gov/fdsys/pkg/FR-2013-09-20/pdf/2013-22850.pdf>

¹¹ Aviation Week "Southwest Uses 737 Retirements to Decrease MRO Costs." accessed 6/2/12;

http://www.aviationweek.com/Article/PrintArticle.aspx?id=article-xml/awx_05_17_2012_p0-458413.xml

(available only by subscription)

Boeing "Customer Reports – Southwest Airlines." accessed 9/5/13;

<http://active.boeing.com/commercial/orders/index.cfm?content=customerselection.cfm&pageid=m15524>

Air Transport World Online "Southwest to sublease all 88 AirTran 717s aircraft to Delta." accessed 9/10/13

<http://atwonline.com/aircraft-amp-engines/southwest-sublease-all-88-airtran-717s-aircraft-delta>

¹² We have not found an exact retirement schedule for the 737-300 and 737-500. Southwest Airline's 2012 Annual Report indicates that the 737-300 and 737-500 are being retired (pp 10, 12, 53, 61, 88). However, Southwest expects to retrofit 78 of its 737-300s with *Evo*ve interior in 2013 (pg. 10). As of December 31, 2012, SWA had 128 737-300 (pg. 35). Therefore, we assumed that 78 (61% of 128) 737-300s would still be in service as Southwest recoups its investment in the *Evo*ve interior and the remaining 50 aircraft (39%) would be retired.

<http://southwest.investorroom.com>

¹³ The two 737-700s replacing three 717-200 estimate is based on MAA staff observations of the routes that have changed to-date.

¹⁴ Air Transport World Online "Southwest to sublease all 88 AirTran 717s aircraft to Delta." accessed 9/10/13;

<http://atwonline.com/aircraft-amp-engines/southwest-sublease-all-88-airtran-717s-aircraft-delta>

Delta Air Lines "Annual Report 10K SEC Filing 2013." accessed 5/13/13;

<http://www.sec.gov/edgar/searchedgar/companysearch.html>

Delta Air Lines "Delta Continues Domestic Fleet Restructuring..." accessed 9/10/13;

<http://news.delta.com/index.php?s=43&item=1809>

Delta Air Lines "Delta Announces Order for 40 Airbus Aircraft" accessed 9/11/2013;

<http://news.delta.com/index.php?s=43&item=2095>

¹⁵ Bloomberg. "AMR, US Airways Affirm Plane Orders in Push to Refresh Fleet." accessed 9/10/13;

<http://www.bloomberg.com/news/2013-02-14/amr-us-airways-affirm-plane-orders-in-push-to-refresh-fleets.html>

Boeing "Customer Reports – US Airways." accessed 9/5/13;

<http://active.boeing.com/commercial/orders/index.cfm?content=customerselection.cfm&pageid=m15524>

US Airways "Annual Report 10K SEC Filing 2013." accessed 5/15/13

<http://www.sec.gov/edgar/searchedgar/companysearch.html>

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- US Airways will retire all Boeing 737-400s
 - Growth will come from the Airbus A321 that are on order
- United Airlines (UAL)¹⁶
 - United will retire all Boeing 757-200s
 - Growth, including replacement of 757-200 operations, will come from the Boeing 737-900s that are on order
- American Airlines (AAL)¹⁷
 - American will retire approximately sixty percent of their Boeing MD-80 aircraft by 2019; we will assume that AAL MD-80 operations decrease by the same percent
 - Growth will come from the Boeing 737-800s that are on order
- American Eagle (EGF)¹⁸
 - American Eagle will retire all Embraer 135/140/145s and replace them with Embraer 175s on order
- jetBlue (JBU) or Jazz (JZA)¹⁹
 - No fleet mix changes are expected for either of these airlines
- Cape Air (KAP) and Colgan Airlines (CJC)
 - These two airlines operated at BWI for part of calendar year 2012, but are no longer operating at BWI. For modeling purposes, the removal of these operations are assumed as part of the overall decrease in operations between 2012 and 2014 observed in Table 1, and will be removed from both the 2014 and 2019 operations. Additional information regarding each airline is discussed below.
 - KAP provided passenger service to Lancaster, PA (FAA airport designator LNS) and Hagerstown, MD (FAA airport designator HGR) under the US Department of Transportation's (DOT) Essential Air Service (EAS) program. The EAS contract that KAP was operating from BWI was won by an airline that moved the service to Dulles International Airport (FAA airport designator IAD), so there is no replacement for the service at BWI. Service to these airports from BWI stopped approximately October 31, 2012. Therefore, KAP operations will be removed from the 2014 and 2019 operations.²⁰



¹⁶ United Airlines "Annual Report 10K SEC Filing 2013." accessed 5/14/13;

<http://www.sec.gov/edgar/searchedgar/companysearch.html>

United Airlines "United Announces Order For 150 Boeing Aircraft." accessed 9/10/13

<http://ir.unitedcontinentalholdings.com/phoenix.zhtml?c=83680&p=irol-newsArticle&ID=1714264>

¹⁷ DallasNews "American execs see massive aircraft order as a no-lose proposition." accessed 9/10/13

<http://www.dallasnews.com/business/airline-industry/20110720-american-airlines-confirms-deal-to-buy-460-aircraft-spin-off-american-eagle.ece>

¹⁸ ch aviation GmbH "American Eagle to retire remaining ERJ-135s by end of 2013." accessed 9/10/13

<http://www.ch-aviation.ch/portal/news/14133-american-eagle-to-retire-remaining-erj-135s-by-end-of-2013>

American Airlines "Large 76 Seat Regional Jets Will Join the American Fleet for the First Time in its History" accessed 9/10/13.

<http://hub.aa.com/en/nr/pressrelease/american-airlines-signs-new-agreement-to-begin-large-regional-jet-flying> Note- the new Embraer 175s could be operated by another airline (Republic Airways).

¹⁹ We did not find any mention of new aircraft types or retirements for these airlines.

²⁰ US DOT Essential Air Service reports are available at <http://www.dot.gov/office-policy/aviation-policy/essential-air-service-reports>.

The October 2012 report for Non-Alaska U.S. Carrier Subsidy Reports briefly discusses the change in service effective in footnote 2. The November 2013 report does not show any EAS service to/from BWI. Accessed 12/4/2013.

http://articles.herald-mail.com/2012-10-28/news/34783737_1_cape-air-flights-international-thurgood-marshall-airport Accessed 12/12/2013.

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- CJC ended service on September 5, 2012 as part of Pinnacle Airlines Corp.'s restructuring plan.²¹ CJC was operating flights on behalf of United Airlines. United Airlines moved the flights to other carriers operated under the United Express brand (Commutair, ExpressJet, Republic, Chautauqua, etc.). Analysis of MAA's AirScene.com system data indicates that CJC did not operate more than 90 flights per month during any month in 2012 (compared to a total monthly average of over 22,000 flights at BWI per month). Therefore, the overall effect on BWI operations is relatively minimal and CJC operations will be removed from the 2014 and 2019 operations.²²
- Air Transport International (ATN)²³
 - DC-8 aircraft will be replaced with 757-200
- For the operations not described by the airlines or operators (including general aviation) discussed specifically above:²⁴
 - Out of production aircraft will be held at current levels unless noted specifically above for a given airline (for example B717, B727, B733, B734, B735, B757, A300, A310, DC8, DC9, DC10, H25A, MD11, MD80, MD90 and PA32).
 - Growth will come from in-production aircraft types (in other words, aircraft that are currently being manufactured) in the same proportion that they appear in the baseline data set, unless noted specifically above for a given airline.



²¹ <http://www.colganair.com/> Pinnacle Airlines is now Endeavor Air, a wholly owned subsidiary of Delta Air Lines <http://www.flypinnacle.com/> Accessed 12/4/2013.

²² See Footnote 8 for additional discussion.

²³ ch aviation GmbH "21DEC2012: Air Transport International to replace DC-8 combis by B757s" accessed 9/10/13, <http://www.ch-aviation.ch/portal/airline.php?cha=8C>

²⁴ See Footnote 9 for additional discussion.

Attachment A

Note - The following runway data and discussion is proposed for the 2014/2019 Noise Exposure Map documentation.

1.1 Airport Physical Parameters

BWI has four runways which are designated 4/22, 10/28, 15R/33L, and 15L/33R. Each pair of numbers corresponds to the name of each runway end. Aircraft can land and takeoff in either direction on a given runway therefore, each runway end has a unique name. The numbers are a shorthand notation that indicates the runway's geographical orientation: the compass heading of the runway, rounded to the nearest ten degrees, with the trailing zero dropped. For example, the magnetic heading of Runway 28 is approximately 284 degrees. The number is rounded to 280, and finally to 28 with the zero dropped; hence, Runway 28. Simple geometry requires that the difference between the designation of each end equals 18 (that is, 180 degrees); hence, Runway 10 is in the opposite direction from Runway 28. There are two runways that are oriented in the same direction, thus both having the 15/33 designation. In order to differentiate one from the other, when facing 150 degrees from the North, the runway to the right is called 15R (for right)/33L, and the other is called 15L (for left)/33R. In this case, 15R/33L is the western-most of the two parallel runways.

Table 1 presents the Existing Airport and Runway layouts proposed for the 2014 contours. In addition to the runways, there is a helicopter landing spot on the east side of the airport, just east of Runway 15L/33R. The five year conditions (2019) include changes proposed on the current Airport Layout Plan, specifically the decommissioning of Runway 4/22, along with changes to certain existing runways to meet the latest federal government design standards. Table 2 presents the future airport layout proposed for the 2019 contours. Coordinates, elevations and thresholds that change from the existing layout are highlighted in *italics*. Additional details regarding the current and the future runway layout are presented in the following sections.

1.1.1 Existing Runway Lengths and Elevations

Runway 10/28 is 10,502 feet long and 150 feet wide.¹ Runway 10 has an elevation of 139.0 feet and Runway 28 has an elevation of 126.2 feet.

Runway 15L/33R is 5,000 feet long and 100 feet wide. Runway 15L has an elevation of 141.5 feet and Runway 33R has an elevation of 114.1 feet.

¹ The width of Runway 10/28 was previously 200 ft. The revised width of 150 feet was published by FAA effective June 27, 2013. The change in runway width does not affect noise calculations.

Runway 15R/33L is 9,501 feet long and 150 feet wide. Runway 15R has an elevation of 138.6 feet and Runway 33L has an elevation of 129.2 feet.

Runway 4/22 is 6,000 feet long and 150 feet wide. Runway 4 has an elevation of 146.0 feet and Runway 22 has an elevation of 137.7 feet.

1.1.2 Existing Runway Displaced Thresholds

A displaced threshold is a runway threshold located at a point other than the physical beginning or end of a runway. Under normal operating conditions, aircraft begin a takeoff roll at the physical end of a runway. For landings, however, they typically will cross over the end of a runway in flight, touching down some distance beyond the threshold. The altitude at which aircraft cross over the threshold when landing is the “threshold crossing height”.

Runway 10/28 has displaced arrival thresholds that meet FAA Design Standards. The Runway 10 arrival threshold is displaced 550 feet. The arrival threshold for Runway 28 is displaced 500 feet. All aircraft arriving on Runway 10 or Runway 28 use the displaced arrival thresholds for those runways. Aircraft departing on all runways, except Runway 28, begin their takeoff roll at the physical end of the runway. Most aircraft departing on Runway 28 begin their takeoff roll at the intersection with Taxiway C, approximately 500 feet west of the physical end of the runway. Aircraft which have a need (based on weight, length of flight, or other conditions) for a full 10,502 feet of runway may begin their takeoff roll at the physical end of Runway 28.

1.1.3 Future Runway Layout

The most recently approved Airport Layout Plan (ALP) for BWI proposes several changes to the runway layout/geometry which are scheduled for completion by 2019 are included in the development of the 2019 contours. These alterations are depicted on Sheets 3 and 5 of the ALP approved in August 2012 and summarized in Table 2. These changes are briefly described below:

- Runway 4/22: The runway would be decommissioned.
 - Runway 10/28: The Runway 28 displaced arrival threshold is expected to increase from 500 feet to 700 feet.
 - Runway 15L/33R: No physical changes to this runway are proposed.
 - Runway 15R/33L: The runway would shift 3 feet to the southwest. In addition, the arrival threshold for Runway 15R would be displaced 300 feet and the arrival threshold for Runway 33L would be displaced 500 feet.
- Helicopter pad: The helicopter pad would move approximately 645 feet to the southeast.

1.1.4 Runway End Coordinates and Dimensions

The following two tables present the runway end coordinates, runway lengths and other geometric data which would be used for modeling predicted noise exposure in 2014 and 2019 as part of the NEM. Changes in 2019 data, compared to 2014 data, are in *italics*.

Table 1 – Runway Layout Data (2014)

Runway	4	22
Latitude (deg)	39.166878	39.180662
Longitude (deg)	-76.671368	-76.659780
Elevation (ft)	146.0	137.7
Length (ft)	6,000	6,000
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	0	0
Threshold Crossing Height (ft)	37	47
Runway	10	28
Latitude (deg)	39.174747	39.172632
Longitude (deg)	-76.689618	-76.652676
Elevation (ft)	139.0	126.2
Length (ft)	10,502	10,502
Takeoff Threshold (ft)	0	500 (typical)
Approach Threshold (ft)	550	500
Threshold Crossing Height (ft)	50	55
Runway	15L	33R
Latitude (deg)	39.187373	39.176236
Longitude (deg)	-76.663540	-76.653231
Elevation (ft)	141.5	114.1
Length (ft)	5,000	5,000
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	0	0
Threshold Crossing Height (ft)	47	47
Runway	15R	33L
Latitude (deg)	39.185366	39.164208
Longitude (deg)	-76.681984	-76.662387
Elevation (ft)	138.6	129.2
Length (ft)	9,501	9,501
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	0	0
Threshold Crossing Height (ft)	50	55
Helicopter Pad		
Latitude (deg)	39.186529	
Longitude (deg)	-76.660582	
Elevation (ft)	132	

Sources: BWI 2012 Airport Layout Plan, Sheet 5
 Threshold Crossing Height from FAA Form 5010 effective August 22, 2013
 Helicopter pad information estimated from BWI 2012 Airport Layout Plan, Sheet 3

Table 2 – Runway Layout Data (2019)

Runway	4	22
	<i>Expected to be permanently closed / decommissioned as a runway prior to 2019</i>	
Runway	10	28
Latitude (deg)	39.174747	39.172632
Longitude (deg)	-76.689618	-76.652676
Elevation (ft)	139.0	126.2
Length (ft)	10,502	10,502
Takeoff Threshold (ft)	0	500 (typical)
Approach Threshold (ft)	550	700
Threshold Crossing Height (ft)	50	50 (anticipated)
Runway	15L	33R
Latitude (deg)	39.187373	39.176236
Longitude (deg)	-76.66354	-76.653231
Elevation (ft)	141.5	114.1
Length (ft)	5,000	5,000
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	0	0
Threshold Crossing Height (ft)	47	47
Runway	15R	33L
Latitude (deg)	39.185361	39.164203
Longitude (deg)	-76.681993	-76.662393
Elevation (ft)	138.6	129.2
Length (ft)	9,501	9,501
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	300	500
Threshold Crossing Height (ft)	50	50 (anticipated)
Helicopter Pad		
Latitude (deg)	39.185181	
Longitude (deg)	-76.659115	
Elevation (ft)	129	

Sources: BWI 2012 Airport Layout Plan, Sheet 5

Threshold Crossing Height from FAA Form 5010 effective August 22, 2013, unless otherwise noted as “(anticipated)”

Helicopter pad information estimated from BWI 2012 Airport Layout Plan, Sheet 3

APO TERMINAL AREA FORECAST DETAIL REPORT

Forecast Issued January 2013

BWI

Fiscal Year	Enplanements			AIRCRAFT OPERATIONS						Total Ops	Total Tracon Ops	Based Aircraft		
	Air Carrier	Commuter	Total	Itinerant Operations			Local Operations							
				Air Carrier	Air Taxi & Commuter	GA	Military	Total	Civil	Military	Total			
REGION:AEA STATE:MD LOCID:BWI														
CITY:BALTIMORE AIRPORT:BALTIMORE/WASHINGTON INTL THURGOOD MARSHAL														
1990	4,498,900	529,300	5,028,200	157,829	88,120	54,670	1,880	302,499	826	140	966	303,465	520,100	107
1991	4,448,719	579,038	5,027,757	148,637	84,003	46,628	1,741	281,009	1,211	100	1,311	282,320	0	100
1992	4,131,980	591,872	4,723,852	128,648	85,862	42,986	2,542	260,038	4,844	962	5,806	265,844	0	97
1993	3,772,189	664,781	4,436,970	120,201	90,082	40,553	2,125	252,961	7,286	1,427	8,713	261,674	0	97
1994	5,501,668	618,316	6,119,984	156,024	78,384	37,376	2,744	274,528	9,834	2,030	11,864	286,392	0	97
1995	5,929,125	666,390	6,595,515	153,313	88,666	34,722	1,992	278,693	16,944	1,295	18,239	296,932	0	82
1996	5,828,667	707,217	6,535,884	150,509	87,782	22,141	1,393	261,825	7,959	372	8,331	270,156	267,990	84
1997	6,439,042	613,818	7,052,860	153,263	82,923	21,780	1,635	259,601	7,058	276	7,334	266,935	506,242	63
1998	6,759,369	510,313	7,269,682	160,932	78,385	24,246	2,598	266,161	11,185	264	11,449	277,610	523,365	63
1999	7,743,205	572,377	8,315,582	187,878	75,367	28,396	2,859	294,500	12,285	34	12,319	306,819	536,766	63
2000	8,847,339	598,567	9,445,906	206,603	66,843	21,581	2,058	297,085	12,431	19	12,450	309,535	538,098	63
2001	9,720,408	595,191	10,315,599	230,103	63,061	26,992	2,727	322,883	5,543	2	5,545	328,428	545,079	87
2002	8,942,833	506,348	9,449,181	210,349	66,037	29,728	3,478	309,592	689	0	689	310,281	520,891	100
2003	9,083,637	356,371	9,440,008	209,468	46,700	33,548	2,306	292,022	3,640	337	3,977	295,999	160,918	102
2004	9,805,532	355,738	10,161,270	215,257	50,909	34,976	1,092	302,234	5,327	189	5,516	307,750	0	96
2005	9,322,247	392,053	9,714,300	219,396	54,039	31,850	865	306,150	6,337	147	6,484	312,634	0	96
2006	9,599,106	570,886	10,169,992	209,248	57,858	32,288	793	300,187	4,932	88	5,020	305,207	0	99
2007	9,765,170	613,759	10,378,929	209,291	58,451	29,508	663	297,913	3,728	38	3,766	301,679	0	79
2008	9,733,554	609,204	10,342,758	207,083	48,575	23,856	787	280,301	5,433	40	5,473	285,774	0	96
2009	9,591,301	522,215	10,113,516	199,995	44,386	17,172	728	262,281	3,130	12	3,142	265,423	0	86
2010	10,143,381	467,948	10,611,329	207,276	43,045	18,912	774	270,007	5,300	0	5,300	275,307	0	75
2011	10,524,080	529,350	11,053,430	219,750	39,317	17,183	690	276,940	378	0	378	277,318	0	73
2012*	10,524,347	518,234	11,042,581	213,337	41,395	15,898	960	271,590	276	0	276	271,866	0	74

2013*	10,020,984	420,288	10,441,272	206,084	37,504	14,843	960	259,391	268	0	268	259,659	0	77
2014*	10,077,230	447,607	10,524,837	208,969	38,329	15,004	960	263,262	268	0	268	263,530	0	80
2015*	10,396,869	470,883	10,867,752	216,074	37,793	15,167	960	269,994	268	0	268	270,262	0	82
2016*	10,736,746	481,242	11,217,988	223,204	36,583	15,331	960	276,078	268	0	268	276,346	0	84
2017*	11,066,950	490,867	11,557,817	230,123	35,486	15,497	960	282,066	268	0	268	282,334	0	86
2018*	11,386,543	499,212	11,885,755	235,416	34,918	15,665	960	286,959	268	0	268	287,227	0	89
2019*	11,715,372	507,699	12,223,071	240,831	34,359	15,835	960	291,985	268	0	268	292,253	0	92

APO TERMINAL AREA FORECAST DETAIL REPORT

Forecast Issued January 2013

BWI

Fiscal Year	AIRCRAFT OPERATIONS													
	Enplanements			Itinerant Operations				Local Operations			Total Ops	Total Tracon Ops	Based Aircraft	
	Air Carrier	Commuter	Total	Air Carrier	Air Taxi & Commuter	GA	Military	Total	Civil	Military				Total
2020*	12,053,701	516,330	12,570,031	246,370	33,809	16,007	960	297,146	268	0	268	297,414	0	94
2021*	12,401,807	525,108	12,926,915	252,037	33,268	16,180	960	302,445	268	0	268	302,713	0	97
2022*	12,759,972	534,035	13,294,007	257,833	32,736	16,355	960	307,884	268	0	268	308,152	0	100
2023*	13,128,486	543,114	13,671,600	263,763	32,212	16,531	960	313,466	268	0	268	313,734	0	102
2024*	13,507,649	552,347	14,059,996	269,829	31,697	16,710	960	319,196	268	0	268	319,464	0	105
2025*	13,897,768	561,737	14,459,505	276,035	31,190	16,891	960	325,076	268	0	268	325,344	0	108
2026*	14,299,160	571,287	14,870,447	282,384	30,691	17,074	960	331,109	268	0	268	331,377	0	111
2027*	14,712,152	580,999	15,293,151	288,879	30,200	17,259	960	337,298	268	0	268	337,566	0	114
2028*	15,137,079	590,876	15,727,955	295,524	29,717	17,446	960	343,647	268	0	268	343,915	0	118
2029*	15,574,285	600,921	16,175,206	302,321	29,242	17,635	960	350,158	268	0	268	350,426	0	122
2030*	16,024,126	611,137	16,635,263	309,275	28,774	17,826	960	356,835	268	0	268	357,103	0	126
2031*	16,486,968	621,526	17,108,494	316,389	28,313	18,019	960	363,681	268	0	268	363,949	0	130
2032*	16,963,186	632,092	17,595,278	323,666	27,860	18,214	960	370,700	268	0	268	370,968	0	134
2033*	17,453,166	642,838	18,096,004	331,111	27,414	18,411	960	377,896	268	0	268	378,164	0	138
2034*	17,957,306	653,766	18,611,072	338,726	26,975	18,610	960	385,271	268	0	268	385,539	0	142
2035*	18,476,017	664,880	19,140,897	346,517	26,544	18,811	960	392,832	268	0	268	393,100	0	147
2036*	19,009,720	676,183	19,685,903	354,487	26,119	19,014	960	400,580	268	0	268	400,848	0	152

2037*	19,558,847	687,678	20,246,525	362,640	25,701	19,220	960	408,521	268	0	268	408,789	0	157
2038*	20,123,845	699,369	20,823,214	370,981	25,290	19,428	960	416,659	268	0	268	416,927	0	162
2039*	20,705,172	711,258	21,416,430	379,513	24,885	19,639	960	424,997	268	0	268	425,265	0	167
2040*	21,303,302	723,349	22,026,651	388,242	24,486	19,851	960	433,539	268	0	268	433,807	0	172

ATADS : Airport Operations : Standard Report

From 01/2012 To 07/2013 | Facility=BWI

Date	Facility	Itinerant				Local			Total Operations	
		Air Carrier	Air Taxi	General Aviation	Military	Total	Civil	Military		
Jan-12	BWI	16,142	3,426	1,119	50	20,737	0	0	0	20,737
Feb-12	BWI	15,732	3,470	1,055	69	20,326	52	0	52	20,378
Mar-12	BWI	17,913	3,606	1,181	102	22,802	30	0	30	22,832
Apr-12	BWI	18,040	3,249	1,344	71	22,704	10	0	10	22,714
May-12	BWI	18,841	3,544	1,430	133	23,948	0	0	0	23,948
Jun-12	BWI	19,118	3,391	1,466	74	24,049	80	0	80	24,129
Jul-12	BWI	19,549	3,428	1,312	75	24,364	0	0	0	24,364
Aug-12	BWI	18,797	3,549	1,338	78	23,762	22	0	22	23,784
Sep-12	BWI	16,613	3,393	1,373	90	21,469	0	0	0	21,469
Oct-12	BWI	16,853	3,530	1,376	70	21,829	12	0	12	21,841
Nov-12	BWI	16,776	2,972	1,374	81	21,203	12	0	12	21,215
Dec-12	BWI	16,468	2,754	1,242	105	20,569	26	0	26	20,595
Jan-13	BWI	15,766	2,931	1,124	69	19,890	0	0	0	19,890
Feb-13	BWI	14,534	2,770	1,119	101	18,524	6	0	6	18,530
Mar-13	BWI	17,394	2,972	1,282	123	21,771	0	0	0	21,771
Apr-13	BWI	17,938	2,845	1,349	125	22,257	0	0	0	22,257
May-13	BWI	18,830	2,985	1,590	132	23,537	0	0	0	23,537
Jun-13	BWI	18,584	2,956	1,362	103	23,005	26	0	26	23,031
Jul-13	BWI	19,103	3,042	1,359	132	23,636	4	0	4	23,640
Sub-Total for BWI		332,991	60,813	24,795	1,783	420,382	280	0	280	420,662
Total:		332,991	60,813	24,795	1,783	420,382	280	0	280	420,662

Comparison of January through July	
Jan-Jul 2012	159,102
Jan-Jul 2013	152,656
Difference	(6,446)
Percent Difference	-4.1%

Report created on Fri Sep 6 16:17:48 EDT 2013
 Sources: Air Traffic Activity System (ATADS)

Total Calendar Year 2012 Operations									
	Itinerant				Local			Total Operations	
	Air Carrier	Air Taxi	General Aviation	Military	Total	Civil	Military		
	210,842	40,312	15,610	998	267,762	244	0	244	268,006

Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport

Subject: BWI Part 150 Noise Exposure Map Update – Forecast Airport Layout and Operation Assumptions

Date: December 12, 2013

Attachment D

Page 1

Attachment D - Calendar year 2012 operation counts for top ten airlines at BWI

Airline Designator ¹	2012												Totals ²
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
SWA	9,561	9,567	11,033	11,057	11,484	11,426	11,766	11,033	10,125	8,916	8,534	7,668	122,170
TRS	2,646	2,416	2,618	2,655	2,732	2,955	3,011	2,957	2,896	2,542	2,466	2,465	32,359
DAL	1,106	1,022	1,226	1,208	1,234	1,275	1,264	1,385	1,287	1,175	1,227	1,075	14,484
AWE	777	740	803	768	801	787	840	814	751	671	702	748	9,202
UAL	520	526	663	611	768	821	845	873	654	527	529	530	7,867
AAL	488	403	421	485	523	516	468	473	447	398	378	356	5,356
KAP	527	507	547	535	550	522	516	527	509	380	1	0	5,121
EGF	295	274	296	338	351	338	327	343	341	293	301	273	3,770
JBU	278	261	308	298	311	297	307	307	296	267	239	236	3,405
JZA	204	194	221	216	280	264	261	279	258	237	196	163	2,773
Total²	16,402	15,910	18,136	18,171	19,034	19,201	19,605	18,991	17,564	15,406	14,573	13,514	206,507

Notes:

1 – FAA airline designators are published in FAA Order 7340.2, Chapter 3. The most current version is available at http://www.faa.gov/air_traffic/publications/atpubs/CNT/index.htm

2 – Totals is for only the top ten airlines operating at BWI during calendar year 2012.

Source: Maryland Aviation Administration's AirScene.com system; HMMH

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TECHNICAL MEMORANDUM

To: Ms. Ellen Sample, Director, Office of Noise, Real Estate and Land Use
Compatibility – Maryland Aviation Administration

From: David A. Crandall

Date: April 25, 2014

Subject: BWI Airport Noise Zone Update – Forecast Airport Layout and Operational Assumptions

Reference: HMMH Project No.: 305160.012
MAA Contract: MAA-SV-12-002



1. INTRODUCTION

Maryland Aviation Administration (MAA) has retained Harris Miller Miller & Hanson (HMMH) to prepare an update to its Airport Noise Zone (ANZ) and associated documentation for Baltimore-Washington/Thurgood Marshall International Airport (BWI) in accordance with Code of Maryland Regulations (COMAR) Title 11.03.03. This effort is referred to as the “BWI ANZ Update”. This memorandum presents the noise modeling future airport layout and operational forecast assumptions for review and comment.

MAA plans to certify the BWI ANZ Update in calendar year 2014. Therefore the base year of the ANZ will be 2014, the 5-year forecast for the ANZ will be 2019 and the 10-year forecast for the ANZ will be 2024.¹

This memorandum has four attachments, listed below:

1. Attachment A is a narrative of the airport layout and associated runway use assumptions for the BWI ANZ Update noise modeling assumptions. Attachment A has been prepared for inclusion in the ANZ documentation.
2. Attachment B is the FAA Terminal Area Forecast (TAF) issued January 2013 for BWI. This issue of the TAF includes historical data from 1990 to 2011 and forecast years 2012 through 2040. The BWI ANZ Update will present analysis of aircraft noise exposure for a base year (2014), a year five year forecast (2019), and a ten year forecast (2024).
3. Attachment C presents BWI operation counts from FAA’s Air Traffic Activity Data System (ATADS), from January 2012 through December 2013.
4. Attachment D presents the count of operations from the top ten airlines operating at BWI during calendar year 2012.

2. AIRPORT LAYOUT AND ASSOCIATED RUNWAY USE

- The airport layout is expected to change between now and 2024. Attachment A presents a narrative and associated tables of the existing airport layout and the anticipated changes, including proposed runway use assumptions and references to the respective sources. Attachment A has been prepared for inclusion into the Airport Noise Zone documentation.

¹ The modeling assumptions for the base year (2014) and 5-year forecast (2019) will be the same as the on-going BWI Part 150 Noise Exposure Map Update being prepared in accordance with federal regulations. FAA concurred with the 2014 and 2019 forecast assumptions on February 25, 2014. Those assumptions are repeated in this memorandum.

HARRIS MILLER MILLER & HANSON INC.

Subject: BWI Airport Noise Zone Update – Forecast Airport Layout and Operational Assumptions
Date: April 25, 2014
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3. FORECAST ASSUMPTIONS

For the BWI ANZ Update, MAA proposes to use the January 2013 issue of the FAA's Terminal Area Forecast (Attachment B of this memorandum) for aircraft operational activity levels.² The total proposed modeled operations are presented in Table 1. The TAF reports aircraft operational activity levels in one of four categories listed below.³

- Air Carrier – Operations by aircraft capable of holding 60 seats or more and are flying using a three letter company designator.
- Air Taxi – Operations by aircraft less than 60 seats and are flying using a three letter company designator or the prefix "Tango".
- Military – all classes of military operations.
- General Aviation – Civil (non-military) aircraft operations not otherwise classified under air carrier or air taxi.



For the 2014 ANZ, 263,530 annual operations would be modeled. For the 2019 ANZ, 292,253 annual operations would be modeled. For the 2024 ANZ, 319,464 annual operations would be modeled. Table 1 also presents, for reference, the 2012 actual airport operations, as reported by FAA's Air Traffic Activity Data System (ATADS).⁴ Operations have been declining, and operations for calendar year 2013 are approximately three percent below the operations for calendar year 2012.⁵ ATADS data for January 2012 through December 2013, inclusive, is presented as Attachment C.

Baseline operations will be developed using the last 12 months of available data (provided by MAA [via its Airscene.com® system] and augmented with flight plan data purchased from a third-party vendor) and scaled to the January 2013 issue of the TAF activity levels (refer to Table 1).⁶ Cape Air (FAA designator KAP) and Colgan Air (CJC) are no longer operating at BWI and will be removed from the 2014 (and future) operations (additional discussion provided later in this memorandum).⁷

² January 2013 issue of the FAA's TAF is also being used as the forecast for the Noise Exposure Map.

³ FAA Joint Order JO 7210.3X, Section 9-1-2. Categories of Operations, Published 2/9/2012. Latest version is available at <http://www.faa.gov/documentLibrary/media/Order/FAC.pdf>. The January 2013 issue of the TAF is based on historical operations data http://www.faa.gov/about/office_org/headquarters_offices/apl/aviation_forecasts/taf_reports/media/TAF_summary_report_FY2012.pdf, pp. 3-5.

⁴ FAA's Air Traffic Activity Data System (ATADS), <https://aspm.faa.gov/opsnet/sys/Main.asp>

⁵ The data used to support this statement is available from <https://aspm.faa.gov/opsnet/sys/Main.asp> by requesting a monthly report.

⁶ *Airscene.com* is a registered trademark of ITT Exelis. Flight plan data, purchased from a third party-vendor, would be used to provide the destination airports for departing aircraft, which is then used in an FAA approved methodology to estimate aircraft weight (Airscene.com does not provide the destination airport for BWI departures).

⁷ FAA airline designators are published in FAA Order 7340.2, Chapter 3. The most current version is available at http://www.faa.gov/air_traffic/publications/atpubs/CNT/index.htm

HARRIS MILLER MILLER & HANSON INC.

Subject: BWI Airport Noise Zone Update – Forecast Airport Layout and Operational Assumptions
 Date: April 25, 2014
 Page 3

Table 1 – Summary of FAA Terminal Area Forecast (TAF) Operations Activity Levels at BWI and Proposed Modeled Operations for the 2014, 2019, and 2024 Airport Noise Zone

FAA Operational Category ¹	2012 Operations ²		Proposed 2014 ANZ Operations		Proposed 2019 ANZ Operations		Proposed 2024 ANZ Operations ⁵	
	2012 ATADS (Actual)	2012 Avg. Annual Day Operations	2014 Forecast Issued January 2013	2014 Avg. Annual Day Operations	2019 Forecast Issued January 2013	2019 Avg. Annual Day Operations	2024 Forecast Issued January 2013	2024 Avg. Annual Day Operations
Air Carrier	210,842	576.1	208,969	572.5	240,831	659.8	269,829	739.3
Air Taxi and Commuter	40,312	110.1	38,329	105.0	34,359	94.1	31,697	86.8
GA (Itinerant + local) ³	15,854	43.3	15,272	41.8	16,103	44.1	16,978	46.5
Military	998	2.7	960	2.6	960	2.6	960	2.6
Total⁴	268,006	732.3	263,530	722.0	292,253	800.7	319,464	875.2

Notes:
 1 Operational Categories used in ATADS and the TAF are those defined in FAA Order 7210.3X at Chapter 9, Section 9-1-2 (February 9, 2012). <http://www.faa.gov/documentLibrary/media/Order/FAC.pdf>
 2 2012 actual operations are provided for reference. Average annual day operations were developed assuming 366 days since 2012 was a leap year.
 3 General Aviation activity levels presented in "Itinerant" operations include Civil "Local" operations. ATADS reported 244 civilian local operations for 2012. The TAF forecasts 268 civilian local operations for 2014, 2019 and 2024.
 4 Totals may not match exactly due to rounding.
 5 2024 Average annual day operations were developed assuming 365 days. The TAF does not make adjustments for leap years
 Sources: FAA ATADS, FAA TAF issued January 2013



While most of this analysis was being prepared during calendar year 2013, FAA has since released ATADS counts for calendar year 2013. Actual 2013 operations are very close to the TAF issued in January 2013. Therefore, the use of the January 2013 issue of the TAF still appears to be valid.⁸

The detailed forecast for calendar year 2019 and 2024 relies on several general assumptions concerning changes to the fleet within the BWI ANZ Update time frame. These changes would be made relative to the 2014 fleet. We considered publicly available information from the top ten airlines operating at BWI during calendar year 2012 as part of this effort- the top ten airlines represent approximately eighty-four percent of calendar year 2012 operations.⁹ Additional information was known for four other airlines and is discussed below.¹⁰ The remaining sixteen percent of operations will be included in the modeling, although with broader assumptions.¹¹

⁸ See Attachment B for the January 2013 issue of the TAF and Attachment C for the ATADS counts.

⁹ Counts of operations provided by MAA's AirScene.com system. See Attachment D of this memorandum.

¹⁰ Colgan Airlines, Air Transport International, ABX Air and FedEx. HMMH and MAA staff had information readily available regarding these operators. Combined, these four airlines represented less than one and a half percent of calendar year 2012 operations.

¹¹ The remaining operations include a mix of regional airlines operating behalf of mainline airlines, contract operations operating on behalf of Air Mobility Command (AMC) which has gates in Terminal E, fractional ownership aircraft, charters and general aviation operations.

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We propose that the assumptions for 2019 and 2024 would be:

- All aircraft certified to 14 CFR Part 36 Stage 2 will be retired from the fleet by 2015, therefore they will remain in the 2014 fleet but be replaced by Stage 3 or higher versions for the 2019 and 2024 fleets.¹²
- The day/night ratio and departure stage length ratio for aircraft will remain the same as the 2012 base-year for each aircraft type combination.
- Southwest Airlines (SWA) and AirTran (TRS)¹³
 - These airlines will continue their merger and continue to operate in a similar manner as in 2012
 - Southwest will retire all of their 737-500s by 2019
 - Southwest will retire thirty-nine percent of their 737-300 by 2019 and those 737-300s will remain at constant operational levels through 2024¹⁴
 - Southwest's growth will come from the Boeing 737-700s and 737-800s that are on order
 - Boeing 717-200s will be removed from the combined SWA/TRS fleet and will be transferred to Delta Air Lines (DAL) before 2019.¹⁵ Every three Boeing 717-200 operations will be replaced with two 737-700 operations.¹⁶



¹² 14 CFR Part 36 describes noise certification of aircraft. Stage 2 aircraft are louder than Stage 3 aircraft of the same weight. 14 CFR Part 36 also defines Stage 4 (quieter than Stage 3) and may in the future define Stage 5. 14 CFR Stage 2 aircraft will typically not be allowed to operate in continental United States after December 31, 2015 per *the FAA Modernization and Reform Act* of 2012. Currently, aircraft certified to 14 CFR Stage 2 and weighing more than 75,000 lb have generally been prohibited from operating in the continental United States since 2000. In practice, the 2012 act affects the remaining aircraft weighing less than 75,000 lb. FAA released a final rule, effective September 3, 2013, that adopts into operating rules the prohibitions from the 2012 act.

Federal Register, July 2, 2013, pp. 39576 – 39583

<http://www.gpo.gov/fdsys/pkg/FR-2013-07-02/pdf/2013-15843.pdf>

Federal Register, September 20, 2013, pg. 57790

<http://www.gpo.gov/fdsys/pkg/FR-2013-09-20/pdf/2013-22850.pdf>

¹³ Aviation Week "Southwest Uses 737 Retirements to Decrease MRO Costs." accessed 6/2/12;

http://www.aviationweek.com/Article/PrintArticle.aspx?id=article-xml/awx_05_17_2012_p0-458413.xml (available only by subscription)

Boeing "Customer Reports – Southwest Airlines." accessed 9/5/13;

<http://active.boeing.com/commercial/orders/index.cfm?content=customerselection.cfm&pageid=m15524>

Air Transport World Online "Southwest to sublease all 88 AirTran 717s aircraft to Delta." accessed 9/10/13;

<http://atwonline.com/aircraft-amp-engines/southwest-sublease-all-88-airtran-717s-aircraft-delta>

¹⁴ An exact retirement schedule for the 737-300 and 737-500 was not found. Southwest Airline's 2012 Annual Report indicates that the 737-300 and 737-500 are being retired (pp 10,12, 53, 61, 88). However, Southwest expects to retrofit 78 of its 737-300s with *Evo* interior in 2013 (pg 10). As of December 31, 2012, SWA had 128 737-300 (pg. 35). Therefore, it was assumed that 78 (61% of 128) 737-300s would still be in service as Southwest recoups its investment in the *Evo* interior and the remaining 50 aircraft (39%) would be retired.

<http://southwest.investorroom.com>

¹⁵ This process of transferring Boeing 717-200s from SWA/TRS to DAL started in calendar year 2013 and is expected to be completed by the end of 2015.

¹⁶ The two 737-700s replacing three 717-200 estimate is based on MAA staff observations of the routes that have changed to-date.

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- Delta Air Lines (DAL)¹⁷
 - Delta will retire all Boeing DC-9s and replace those operations with Boeing 717-200s before 2019¹⁸
 - Delta will retire all Boeing 757-200s before 2019
 - Delta's growth will come from the Boeing 737-800s, 737-900s and Airbus A321s that are on order
- United Airlines (UAL)¹⁹
 - United will retire all Boeing 757-200s before 2019
 - Growth, including replacement of 757-200 operations, will come from the Boeing 737-900s that are on order
- US Airways (AWE)²⁰
 - AWE and American Airlines (AAL) will continue their merger, and continue to operate in a similar manner as in 2012. Ultimately, the combined companies will retain the American Airlines brand name. These airlines have not announced comprehensive fleet changes in time for this analysis. Therefore for this analysis, their operations will be considered independently.
 - US Airways will retire all Boeing 737-400s before 2019
 - Growth will come from the Airbus A321 that are on order
- American Airlines (AAL)^{21 22}
 - American will retire approximately sixty percent of their Boeing MD-80 aircraft by 2019; we will assume that AAL MD-80 operations decrease by the same percent
 - American will retire all of their Boeing MD-80 aircraft before 2024
 - Growth, including replacement of MD-80 operations, will come from the Boeing 737-800s that are on order



¹⁷ Air Transport World Online "Southwest to sublease all 88 AirTran 717s aircraft to Delta." accessed 9/10/13; <http://atwonline.com/aircraft-amp-engines/southwest-sublease-all-88-airtran-717s-aircraft-delta>
Delta Air Lines "Annual Report 10K SEC Filing 2013." accessed 5/13/13; <http://www.sec.gov/edgar/searchedgar/companysearch.html>
Delta Air Lines "Delta Continues Domestic Fleet Restructuring..." accessed 9/10/13; <http://news.delta.com/index.php?s=43&item=1809>
Delta Air Lines "Delta Announces Order for 40 Airbus Aircraft" accessed 9/11/2013; <http://news.delta.com/index.php?s=43&item=2095>

¹⁸ As noted previously, these aircraft are coming from SWA/TRS. Footnote 15 provides additional information

¹⁹ United Airlines "Annual Report 10K SEC Filing 2013." accessed 5/14/13; <http://www.sec.gov/edgar/searchedgar/companysearch.html>
United Airlines "United Announces Order For 150 Boeing Aircraft." accessed 9/10/13 <http://ir.unitedcontinentalholdings.com/phoenix.zhtml?c=83680&p=irol-newsArticle&ID=1714264>

²⁰ Bloomberg. "AMR, US Airways Affirm Plane Orders in Push to Refresh Fleet." accessed 9/10/13/13;; <http://www.bloomberg.com/news/2013-02-14/amr-us-airways-affirm-plane-orders-in-push-to-refresh-fleets.html>
Boeing "Customer Reports – US Airways." accessed 9/5/13; <http://active.boeing.com/commercial/orders/index.cfm?content=customerselection.cfm&pageid=m15524> US Airways "Annual Report 10K SEC Filing 2013." accessed 5/15/13 <http://www.sec.gov/edgar/searchedgar/companysearch.html>
American Airlines "AMR Corporation And US Airways Group Come Together To Build The New American Airlines" accessed 4/24/2014 <http://hub.aa.com/en/nr/amr-corporation-and-us-airways-group-come-together-to-build-the-new-american-airlines>

²¹ DallasNews "American execs see massive aircraft order as a no-lose proposition." accessed 9/10/13 <http://www.dallasnews.com/business/airline-industry/20110720-american-airlines-confirms-deal-to-buy-460-aircraft-spin-off-american-eagle.ece>

²² See discussion for US Airways (AWE)

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- American Eagle/Envoy (EGF)²³
 - American Airlines, the major airline that oversees EGF service, will discontinue service with all Embraer 135/140/145s operated by American Eagle and replace them with Embraer 175s operated by Republic Airways (RPA) on order before 2019.
- jetBlue (JBU) or Jazz (JZA)²⁴
 - No fleet mix changes are expected for either of these airlines
- Cape Air (KAP) and Colgan Airlines (CJC)
 - These two airlines operated at BWI for part of calendar year 2012, but are no longer operating at BWI. For modeling purposes, the removal of these operations are assumed as part of the overall decrease in operations between 2012 and 2014 observed in Table 1, and will be removed from the 2014, 2019 and 2024 operations. Additional information regarding each airline is discussed below.
 - KAP provided passenger service to Lancaster, PA (FAA airport designator LNS) and Hagerstown, MD (FAA airport designator HGR) under the US Department of Transportation's (DOT) Essential Air Service (EAS) program. The EAS contract that KAP was operating from BWI was won by an airline that moved the service to Dulles International Airport (FAA airport designator IAD), so there is no replacement for the service at BWI. Service to these airports from BWI stopped approximately October 31, 2012. Therefore, KAP operations will be removed from the 2014, 2019 and 2024 operations.²⁵
 - CJC ended service on September 5, 2012 as part of Pinnacle Airlines Corp.'s restructuring plan.²⁶ CJC was operating flights on behalf of United Airlines. United Airlines moved the flights to other carriers operated under the United Express brand (Commutair, ExpressJet, Republic, Chautauqua, etc.). Analysis of MAA's AirScene.com system data indicates that CJC did not operate more than 90 flights per month during any month in 2012 (compared to a total monthly average of over 22,000 flights at BWI per month). Therefore, the overall effect on BWI operations is relatively minimal and CJC operations will be removed from the 2014, 2019 and 2024 operations.²⁷
- Air Transport International (ATN)²⁸
 - DC-8 aircraft will be replaced with 757-200 for 2014 and 2019



²³ American Eagle Airlines, Inc. To Change Its Name To Envoy accessed 3/24/2014
<http://hub.aa.com/en/nr/pressrelease/american-eagle-airlines-inc-to-change-its-name-to-envoy>
ch aviation GmbH "American Eagle to retire remaining ERJ-135s by end of 2013." accessed 9/10/13
<http://www.ch-aviation.ch/portal/news/14133-american-eagle-to-retire-remaining-erj-135s-by-end-of-2013>
American Airlines "Large 76 Seat Regional Jets Will Join the American Fleet for the First Time in its History" accessed 9/10/13
<http://hub.aa.com/en/nr/pressrelease/american-airlines-signs-new-agreement-to-begin-large-regional-jet-flying>

²⁴ We did not find any mention of new aircraft types or retirements for these airlines.

²⁵ US DOT Essential Air Service reports are available at <http://www.dot.gov/office-policy/aviation-policy/essential-air-service-reports>. The October 2012 report for Non-Alaska U.S. Carrier Subsidy Reports briefly discusses the change in service effective in footnote 2. The November 2013 report does not show any EAS service to/from BWI. Accessed 12/4/2013.
http://articles.herald-mail.com/2012-10-28/news/34783737_1_cape-air-flights-international-thurgood-marshall-airport Accessed 12/12/2013.

²⁶ <http://www.colganair.com/> Pinnacle Airlines is now Endeavor Air, a wholly owned subsidiary of Delta Air Lines
<http://www.flypinnacle.com/> Accessed 12/4/2013.

²⁷ See Footnote 10 for additional discussion.

²⁸ ch aviation GmbH "21DEC2012: Air Transport International to replace DC-8 combis by B757s" accessed 9/10/13,
<http://www.ch-aviation.ch/portal/airline.php?cha=8C>
MAA staff observations, as of spring 2014, indicate that ATN is operating all 757-200s.

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- ABX Air, Inc. (ABX)²⁹
 - 767-200 aircraft will be replaced with 767-300 aircraft by 2019
- FedEx (FDX)³⁰
 - DC-10/MD-11/MD-10 aircraft will be replaced with Boeing 767-300 aircraft by 2019
- For the operations not described by the airlines or operators (including general aviation discussed specifically above:³¹
 - Out of production aircraft will be held at current levels unless noted specifically above for a given airline (for example B717, B727, B733, B734, B735, B757, A300, A310, DC8, DC9, DC10, H25A, MD11, MD80, MD90 and PA32).
 - Growth will come from in-production aircraft types (in other words, aircraft that are currently being manufactured) in the same proportion that they appear in the baseline data set, unless noted specifically above for a given airline.



²⁹ Air Transport Services Group, Inc. ("ATSG") Annual Report 10K SEC Filing 2013 Accessed 4/3/2014
ATSG is the parent company of ABX. ATSG's annual report indicates that the B762 come of lease around 2017 (pg. 22) and do have some maintenance coming up (pg. 15). ATSG is receiving 767-300 (pg. 2, pg. 17)
<http://atsginc.com/ir/10k2013.pdf>

³⁰ FedEx Annual Report 2013. pp. 22, 25 Accessed 4/4/2014
<http://investors.fedex.com/phoenix.zhtml?c=73289&p=irol-reportsannual>

³¹ See footnote 9 above for additional discussion.

Attachment A

Note - The following runway data and discussion is proposed for the 2014/2019/2024 Airport Noise Zone documentation.

1.1 Airport Physical Parameters

BWI has four runways which are designated 4/22, 10/28, 15R/33L, and 15L/33R. Each pair of numbers corresponds to the name of each runway end. Aircraft can land and takeoff in either direction on a given runway therefore, each runway end has a unique name. The numbers are a shorthand notation that indicates the runway's geographical orientation: the compass heading of the runway, rounded to the nearest ten degrees, with the trailing zero dropped. For example, the magnetic heading of Runway 28 is approximately 284 degrees. The number is rounded to 280, and finally to 28 with the zero dropped; hence, Runway 28. Simple geometry requires that the difference between the designation of each end equals 18 (that is, 180 degrees); hence, Runway 10 is in the opposite direction from Runway 28. There are two runways that are oriented in the same direction, thus both having the 15/33 designation. In order to differentiate one from the other, when facing 150 degrees from the North, the runway to the right is called 15R (for right)/33L, and the other is called 15L (for left)/33R. In this case, 15R/33L is the western-most of the two parallel runways.

Code of Maryland Regulations (COMAR) requires that the ANZ include noise contours for conditions ten years in the future. This also requires an estimate of what the airfield will look like in ten years. The most recently approved Airport Layout Plan (ALP) for BWI proposes several changes to the runway layout/geometry which are scheduled for completion by 2024. In addition, the ALP includes the proposed parallel Runway 10R/28L, currently scheduled for 2026 or later. Although the proposed parallel Runway 10R/28L is currently scheduled two years after the 10-year ANZ forecast, it is included in the 2024 contours for the purposes of this ANZ because 1) it is a major element that could affect noise 2) it is scheduled reasonably close to the 10-year ANZ forecast period and 3) it has been consistently included in past iterations of the ANZ.

Table 1 presents the Existing Airport and Runway layouts proposed for the 2014 contours. In addition to the runways, there is a helicopter landing spot on the east side of the airport, just east of Runway 15L/33R. The five year conditions (2019) include changes proposed on the current Airport Layout Plan (ALP), specifically the decommissioning of Runway 4/22, along with changes to certain existing runways to meet the latest federal government design standards. Table 2 presents the future airport layout proposed for the 2019 contours. Coordinates, elevations and thresholds that change from the existing layout are highlighted in *italics*. Table 3 presents the future airport layout proposed for the 2024 contours.

Additional details regarding the current and the future runway layout are presented in the following sections.

1.1.1 Runway Lengths and Elevations

Runway 10/28 is 10,502 feet long and 150 feet wide¹. Runway 10 has an elevation of 139.0 feet and Runway 28 has an elevation of 126.2 feet.

Runway 15L/33R is 5,000 feet long and 100 feet wide. Runway 15L has an elevation of 141.5 feet and Runway 33R has an elevation of 114.1 feet.

Runway 15R/33L is 9,501 feet long and 150 feet wide. Runway 15R has an elevation of 138.6 feet and Runway 33L has an elevation of 129.2 feet.

Runway 4/22 is 6,000 feet long and 150 feet wide. Runway 4 has an elevation of 146.0 feet and Runway 22 has an elevation of 137.7 feet.

1.1.2 Existing Runway Displaced Thresholds

A displaced arrival threshold is a runway threshold located at a point other than the physical beginning or end of a runway. Under normal operating conditions, aircraft begin a takeoff roll at the physical end of a runway. For landings, however, they typically will cross over the end of a runway in flight, touching down some distance beyond the threshold. The altitude at which aircraft cross over the threshold when landing is the “threshold crossing height”.

Runway 10/28 has displaced arrival thresholds to meet FAA Design Standards. The Runway 10 arrival threshold is displaced 550 feet. The arrival threshold for Runway 28 is displaced 500 feet. All aircraft arriving on Runway 10 or Runway 28 use the displaced arrival thresholds for those runways. Aircraft departing on all runways, except Runway 28, begin their takeoff roll at the physical end of the runway. Most aircraft departing on Runway 28 begin their takeoff roll at the intersection with Taxiway C, approximately 500 feet west of the physical end of the runway. Aircraft which have a need (based on weight, length of flight, or other conditions) for a full 10,502 feet of runway may begin their takeoff roll at the physical end of Runway 28.

1.1.3 Future Runway Layout (2019)

The most recently approved ALP for BWI proposes several changes to the runway layout/geometry which are scheduled for completion by 2019 and are included in the development of the 2019 contours. These alterations are depicted on Sheets 3 and 5 of the ALP approved in August 2012 and summarized in Table 2. These changes are briefly described below:

- Runway 4/22: The runway would be decommissioned.
- Runway 10/28: The Runway 28 displaced arrival threshold is expected to increase from 500 feet to 700 feet.
- Runway 15L/33R: No physical changes to this runway are proposed.
- Runway 15R/33L: The runway would shift 3 feet to the southwest. In addition, the arrival threshold for Runway 15R would be displaced 300 feet and the arrival threshold for Runway 33L would be displaced 500 feet.

¹ The width of Runway 10/28 was previously 200 ft. The revised width of 150 feet was published by FAA effective June 27, 2013. The change in runway width does not affect noise calculations.

- Helicopter pad: The helicopter pad would move approximately 645 feet to the southeast.

1.1.4 Future Runway Layout (2024)

The most recently approved ALP for BWI proposes several changes to the runway layout/geometry which are scheduled for completion around 2024 and are included in the development of the 2024 contours. These alterations are depicted on Sheets 3 and 5 of the ALP approved in August 2012 and summarized in Table 3. These changes are briefly described below:

- Runway 10/28²: No physical changes to this runway are proposed.
- Runway 15L/33R: No physical changes to this runway are proposed.
- Runway 15R/33L: The runway length would be increased from 9,501 feet to 10,501 feet. The lengthening would occur on the south east end of the runway pavement. This project is schedule for the 2021-2025 timeframe and is included in the 2024 layout for the purpose of this ANZ update.
- Helicopter pad: No physical changes to the helicopter pad are proposed relative to the changed 2019 layout.
- Proposed Runway 10R/28L: Although this proposed runway is currently scheduled for the 2026 timeframe, it is included in the 10-year forecast as a reasonable projection of future usage for the purpose of this ANZ update. The Runway 10R end includes a proposed 500-foot displaced arrival threshold.

1.1.5 Runway End Coordinates and Dimensions

The following three tables present the runway end coordinates, runway lengths and other geometric data which would be used for modeling the predicted noise exposure in 2014, 2019, and 2024 as part of the ANZ. Changes in 2019 data, compared to 2014 data, are in *italics*. Changes in 2024 data, compared to 2019 are also in *italics*.

² This runway will likely be renamed Runway 10L/28R, but is left as named, Runway 10/28, in this ANZ analysis for consistency with the 2012 Airport Layout Plan and the existing (year 2014) and forecast (year 2019) scenarios.

Table 1 – Runway Layout Data (2014)

Runway	4	22
Latitude (deg)	39.166878	39.180662
Longitude (deg)	-76.671368	-76.659780
Elevation (ft)	146.0	137.7
Length (ft)	6,000	6,000
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	0	0
Threshold Crossing Height (ft)	37	47
Runway	10	28
Latitude (deg)	39.174747	39.172632
Longitude (deg)	-76.689618	-76.652676
Elevation (ft)	139.0	126.2
Length (ft)	10,502	10,502
Takeoff Threshold (ft)	0	500 (typical)
Approach Threshold (ft)	550	500
Threshold Crossing Height (ft)	50	55
Runway	15L	33R
Latitude (deg)	39.187373	39.176236
Longitude (deg)	-76.663540	-76.653231
Elevation (ft)	141.5	114.1
Length (ft)	5,000	5,000
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	0	0
Threshold Crossing Height (ft)	47	47
Runway	15R	33L
Latitude (deg)	39.185366	39.164208
Longitude (deg)	-76.681984	-76.662387
Elevation (ft)	138.6	129.2
Length (ft)	9,501	9,501
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	0	0
Threshold Crossing Height (ft)	50	55
Helicopter Pad		
Latitude (deg)	39.186529	
Longitude (deg)	-76.660582	
Elevation (ft)	132	

Sources: BWI 2012 Airport Layout Plan, Sheet 5
 Threshold Crossing Height from FAA Form 5010 effective March 7, 2013
 Helicopter pad information estimated from BWI 2012 Airport Layout Plan, Sheet 3

Table 2 – Runway Layout Data (2019)

Runway	4	22
	<i>Expected to be permanently closed / decommissioned as a runway prior to 2019</i>	
Runway	10	28
Latitude (deg)	39.174747	39.172632
Longitude (deg)	-76.689618	-76.652676
Elevation (ft)	139.0	126.2
Length (ft)	10,502	10,502
Takeoff Threshold (ft)	0	500 (typical)
Approach Threshold (ft)	550	700
Threshold Crossing Height (ft)	50	50 (anticipated)
Runway	15L	33R
Latitude (deg)	39.187373	39.176236
Longitude (deg)	-76.66354	-76.653231
Elevation (ft)	141.5	114.1
Length (ft)	5,000	5,000
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	0	0
Threshold Crossing Height (ft)	47	47
Runway	15R	33L
Latitude (deg)	39.185361	39.164203
Longitude (deg)	-76.681993	-76.662393
Elevation (ft)	138.6	129.2
Length (ft)	9,501	9,501
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	300	500
Threshold Crossing Height (ft)	50	50 (anticipated)
Helicopter Pad		
Latitude (deg)	39.185181	
Longitude (deg)	-76.659115	
Elevation (ft)	129	

Sources: BWI 2012 Airport Layout Plan, Sheet 5

Threshold Crossing Height from FAA Form 5010 effective March 7, 2013, unless otherwise noted as “(anticipated)”

Helicopter pad information estimated from BWI 2012 Airport Layout Plan, Sheet 3

Changes relative to the 2014 layout are in *italics*

Table 3 – Runway	4	22
	Expected to be permanently closed / decommissioned as a runway prior to 2019	
Runway	10	28
Latitude (deg)	39.174747	39.172632
Longitude (deg)	-76.689618	-76.652676
Elevation (ft)	139.0	126.2
Length (ft)	10,502	10,502
Takeoff Threshold (ft)	0	500 (typical)
Approach Threshold (ft)	550	700
Threshold Crossing Height (ft)	50	50 (anticipated)
Runway**	10R	28L
Latitude (deg)	39.167757	39.165944
Longitude (deg)	-76.687725	-76.656068
Elevation (ft)	140.0	130.0
Length (ft)	9,000	9,000
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	500	0
Threshold Crossing Height (ft)	50 (anticipated)	50 (anticipated)
Runway	15L	33R
Latitude (deg)	39.187373	39.176236
Longitude (deg)	-76.66354	-76.653231
Elevation (ft)	141.5	114.1
Length (ft)	5,000	5,000
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	0	0
Threshold Crossing Height (ft)	47	47
Runway**	15R	33L
Latitude (deg)	39.185361	39.161976
Longitude (deg)	-76.681993	-76.660330
Elevation (ft)	138.6	129.2
Length (ft)	10,501	10,501
Takeoff Threshold (ft)	0	0
Approach Threshold (ft)	0	0
Threshold Crossing Height (ft)	50	50 (anticipated)
Helicopter Pad		
Latitude (deg)	39.185181	
Longitude (deg)	-76.659115	
Elevation (ft)	129	

Sources: BWI 2012 Airport Layout Plan, Sheet 5

Threshold Crossing Height from FAA Form 5010 effective March 7, 2013, unless otherwise noted as “(anticipated)”

Helicopter pad information estimated from BWI 2012 Airport Layout Plan, Sheet 3

Note: **As discussed in the text, this layout includes certain projects scheduled around the 2024 timeframe.

Changes relative to the 2019 layout are in *italics*

1.2 Runway Use

[EDITORIAL NOTE 2/21/2014: – Much of this section is written past tense as if we have finished the analysis- this is only to avoid a rewrite later. Some of the text below might just be for the project's admin record and may not be included in the public document.]

A major input to the noise modeling process is the average annual runway utilization, which is the percentage use of each runway end. Runway utilization depends on several factors, including wind conditions, runway length and heading, aircraft type and performance, flight purpose (origin/destination), terrain, and noise abatement procedures. The runway-end utilization rates used in the computer modeling process for the 2014 contours were developed directly from historical data from the BWI operations database that contains a record of each flight detected by passive radar in the MAA's AirScene.com system. Each record in the database contains the date and time of the flight and the runway used. From these records, overall runway usage tables for 2014, 2019, and 2024 were compiled by arrival or departure, day or night, and aircraft type.

[EDITORIAL NOTE 2/21/2014:: Tables are to be provided when the analysis is complete; structure will be similar to Table 8 through 34 in August 2007 ANZ documentation; subgroupings of air carrier and air taxi used for reporting are to-be determined]

The modeled air carrier ([subgroupings TBD**]), air taxi ([subgroupings TBD**]), general aviation, and military runway utilization rates that HMMH developed for this study are presented below in Tables X through Y for 2014, Tables X through Y for 2019, and Tables X through Y for 2024.

The runway use for the 2024 layout, which includes the proposed parallel 10R/28L runway, originates from 2011 BWI Master Plan Technical Report.³ For the purposes of the 2024 analysis, model tracks and operations from the existing Runway 10/28 were copied (and moved) to the proposed Runway 10R/28L. Then the operations of the two runways were adjusted to represent 2024 operations, as discussed below.

For year 2024, the proposed Runway 10R/28L is 9,000 ft. as defined by the current ALP, is shorter than existing Runway 10/28 at 10,502 ft. We assume some aircraft would not depart the proposed Runway 10R/28L because of runway length and therefore would continue to use the existing Runway 10/28. Integrated Noise Model v 7.0d (INM) performance algorithms will be used to determine the take-off roll distance (i.e. the distance from start of takeoff to the point at which the wheels leave the ground) for each modeled aircraft type and at various weights. All aircraft and weight combinations which have a take-off roll distance greater 75% of the length of the proposed Runway 10R/28L (75% of 9,000 ft. = 6,750 ft.) are assumed to remain on the existing Runway 10/28.

The 75% departure length limit was chosen as a reasonable estimate based on the required departure take-off roll distance for the runway 10R/28L design aircraft. The ALP defines the Boeing 777-200 flying a distance of 7,000 nautical miles (NM). The aircraft performance model used for the ANZ noise analysis is INM. The 777-200 at 7,000 NM listed on the ALP as the design aircraft is represented in INM by INM type 777200 (Boeing 777-200ER with GE90-90B engines) at stagelength nine. For the average annual

³ Landrum & Brown "BALTIMORE/WASHINGTON INTERNATIONAL THURGOOD MARSHALL AIRPORT MASTER PLAN TECHNICAL REPORT" Final 2011. The specific runway used for this analysis came from a Landrum & Brown analysis prepared to support the noise contour developed for the BWI Marshall 2011 Master Plan/ALP. The relevant ALP contours are depicted in Exhibit 7.4-1, 2030 ALP Noise Exposure Contour (described in Section 7.4, and specifically Section 7.4.1.2, of the Final Master Plan Technical Report) and in Appendix K "ENVIRONMENTAL EVALUATION OF ALTERNATIVES", (Sec. 2.6.2.2.3 Alternative 2c and Exhibit 2-5).

meteorological conditions⁵ used for the ANZ noise modeling, the take-off roll distances for the 777200 at stagelength 9 are 7,478 ft. and 7,720 ft. for Runway 10R and Runway 28L respectively (or 83% and 86% of the 9,000 ft. runway length). To account for modeling variability and any additional operational safety, the runway length limit was reduced by an additional ~10% to arrive at the 75% limit. Analysis of operations to date indicates that even with the 75% /6,750 ft. limit, the number of aircraft/weight operations that have a takeoff roll greater than 6,750 ft. in INM is about 1 per week.

During busy periods, it was assumed that both of the proposed runways could be used for departing aircraft at the same time and flight tracks would not cross. For the purpose of this analysis, busy hours are defined as those forecast to have twenty or more operations per hour in the 2024 conditions. These hours are estimated to be⁶

- Monday through Friday, 6 AM and later until (and not including) 10 PM.
- Saturday, 6 AM and later until (and not including) 7 PM.
- Sunday, 7 AM and later until (and not including) 10 PM.

During these hours of operations, it is assumed that the existing Runway 28 would be used for aircraft departing west and making right turns to the north and east while the proposed Runway 28L would be used for aircraft departing and making left turns for destinations to the south, east and west. However, all departures that need the extra runway length of the existing Runway 28 would continue to do so regardless of destination. Similarly, for simultaneous departures on Runways 10 and 10R, we assume the existing Runway 10 would be used for aircraft departing straight east and making left turns to the north and west while the proposed Runway 10R would be used for aircraft making right turns for destinations to the east, south and west with aircraft needing the extra runway length using existing Runway 10. All departures that need the extra runway length of the existing Runway 10 would continue to do so regardless of destination.

It should be noted that the purpose of the analysis described above is to prepare an estimation of average annual runway use for the purpose of the ANZ and does not consider in detail all of the considerations that aircraft operators use to select a particular runway for a particular flight. Ultimate authority to operate an aircraft safely resides with the pilot.

⁵ Average annual meteorological conditions: Temperature 56.6, sea level pressure of 30.02 in-Hg.

⁶ Developed by looking at radar data and MAA's review of the June 2014 airline schedule.

APO TERMINAL AREA FORECAST DETAIL REPORT

Forecast Issued January 2013

BWI

Fiscal Year	Enplanements			AIRCRAFT OPERATIONS						Total Ops	Total Tracon Ops	Based Aircraft		
	Air Carrier	Commuter	Total	Itinerant Operations			Local Operations							
				Air Carrier	Air Taxi & Commuter	GA	Military	Total	Civil	Military	Total			
REGION:AEA STATE:MD LOCID:BWI														
CITY:BALTIMORE AIRPORT:BALTIMORE/WASHINGTON INTL THURGOOD MARSHAL														
1990	4,498,900	529,300	5,028,200	157,829	88,120	54,670	1,880	302,499	826	140	966	303,465	520,100	107
1991	4,448,719	579,038	5,027,757	148,637	84,003	46,628	1,741	281,009	1,211	100	1,311	282,320	0	100
1992	4,131,980	591,872	4,723,852	128,648	85,862	42,986	2,542	260,038	4,844	962	5,806	265,844	0	97
1993	3,772,189	664,781	4,436,970	120,201	90,082	40,553	2,125	252,961	7,286	1,427	8,713	261,674	0	97
1994	5,501,668	618,316	6,119,984	156,024	78,384	37,376	2,744	274,528	9,834	2,030	11,864	286,392	0	97
1995	5,929,125	666,390	6,595,515	153,313	88,666	34,722	1,992	278,693	16,944	1,295	18,239	296,932	0	82
1996	5,828,667	707,217	6,535,884	150,509	87,782	22,141	1,393	261,825	7,959	372	8,331	270,156	267,990	84
1997	6,439,042	613,818	7,052,860	153,263	82,923	21,780	1,635	259,601	7,058	276	7,334	266,935	506,242	63
1998	6,759,369	510,313	7,269,682	160,932	78,385	24,246	2,598	266,161	11,185	264	11,449	277,610	523,365	63
1999	7,743,205	572,377	8,315,582	187,878	75,367	28,396	2,859	294,500	12,285	34	12,319	306,819	536,766	63
2000	8,847,339	598,567	9,445,906	206,603	66,843	21,581	2,058	297,085	12,431	19	12,450	309,535	538,098	63
2001	9,720,408	595,191	10,315,599	230,103	63,061	26,992	2,727	322,883	5,543	2	5,545	328,428	545,079	87
2002	8,942,833	506,348	9,449,181	210,349	66,037	29,728	3,478	309,592	689	0	689	310,281	520,891	100
2003	9,083,637	356,371	9,440,008	209,468	46,700	33,548	2,306	292,022	3,640	337	3,977	295,999	160,918	102
2004	9,805,532	355,738	10,161,270	215,257	50,909	34,976	1,092	302,234	5,327	189	5,516	307,750	0	96
2005	9,322,247	392,053	9,714,300	219,396	54,039	31,850	865	306,150	6,337	147	6,484	312,634	0	96
2006	9,599,106	570,886	10,169,992	209,248	57,858	32,288	793	300,187	4,932	88	5,020	305,207	0	99
2007	9,765,170	613,759	10,378,929	209,291	58,451	29,508	663	297,913	3,728	38	3,766	301,679	0	79
2008	9,733,554	609,204	10,342,758	207,083	48,575	23,856	787	280,301	5,433	40	5,473	285,774	0	96
2009	9,591,301	522,215	10,113,516	199,995	44,386	17,172	728	262,281	3,130	12	3,142	265,423	0	86
2010	10,143,381	467,948	10,611,329	207,276	43,045	18,912	774	270,007	5,300	0	5,300	275,307	0	75
2011	10,524,080	529,350	11,053,430	219,750	39,317	17,183	690	276,940	378	0	378	277,318	0	73
2012*	10,524,347	518,234	11,042,581	213,337	41,395	15,898	960	271,590	276	0	276	271,866	0	74

2013*	10,020,984	420,288	10,441,272	206,084	37,504	14,843	960	259,391	268	0	268	259,659	0	77
2014*	10,077,230	447,607	10,524,837	208,969	38,329	15,004	960	263,262	268	0	268	263,530	0	80
2015*	10,396,869	470,883	10,867,752	216,074	37,793	15,167	960	269,994	268	0	268	270,262	0	82
2016*	10,736,746	481,242	11,217,988	223,204	36,583	15,331	960	276,078	268	0	268	276,346	0	84
2017*	11,066,950	490,867	11,557,817	230,123	35,486	15,497	960	282,066	268	0	268	282,334	0	86
2018*	11,386,543	499,212	11,885,755	235,416	34,918	15,665	960	286,959	268	0	268	287,227	0	89
2019*	11,715,372	507,699	12,223,071	240,831	34,359	15,835	960	291,985	268	0	268	292,253	0	92

APO TERMINAL AREA FORECAST DETAIL REPORT

Forecast Issued January 2013

BWI

Fiscal Year	AIRCRAFT OPERATIONS													
	Enplanements			Itinerant Operations				Local Operations			Total Ops	Total Tracon Ops	Based Aircraft	
	Air Carrier	Commuter	Total	Air Carrier	Air Taxi & Commuter	GA	Military	Total	Civil	Military				Total
2020*	12,053,701	516,330	12,570,031	246,370	33,809	16,007	960	297,146	268	0	268	297,414	0	94
2021*	12,401,807	525,108	12,926,915	252,037	33,268	16,180	960	302,445	268	0	268	302,713	0	97
2022*	12,759,972	534,035	13,294,007	257,833	32,736	16,355	960	307,884	268	0	268	308,152	0	100
2023*	13,128,486	543,114	13,671,600	263,763	32,212	16,531	960	313,466	268	0	268	313,734	0	102
2024*	13,507,649	552,347	14,059,996	269,829	31,697	16,710	960	319,196	268	0	268	319,464	0	105
2025*	13,897,768	561,737	14,459,505	276,035	31,190	16,891	960	325,076	268	0	268	325,344	0	108
2026*	14,299,160	571,287	14,870,447	282,384	30,691	17,074	960	331,109	268	0	268	331,377	0	111
2027*	14,712,152	580,999	15,293,151	288,879	30,200	17,259	960	337,298	268	0	268	337,566	0	114
2028*	15,137,079	590,876	15,727,955	295,524	29,717	17,446	960	343,647	268	0	268	343,915	0	118
2029*	15,574,285	600,921	16,175,206	302,321	29,242	17,635	960	350,158	268	0	268	350,426	0	122
2030*	16,024,126	611,137	16,635,263	309,275	28,774	17,826	960	356,835	268	0	268	357,103	0	126
2031*	16,486,968	621,526	17,108,494	316,389	28,313	18,019	960	363,681	268	0	268	363,949	0	130
2032*	16,963,186	632,092	17,595,278	323,666	27,860	18,214	960	370,700	268	0	268	370,968	0	134
2033*	17,453,166	642,838	18,096,004	331,111	27,414	18,411	960	377,896	268	0	268	378,164	0	138
2034*	17,957,306	653,766	18,611,072	338,726	26,975	18,610	960	385,271	268	0	268	385,539	0	142
2035*	18,476,017	664,880	19,140,897	346,517	26,544	18,811	960	392,832	268	0	268	393,100	0	147
2036*	19,009,720	676,183	19,685,903	354,487	26,119	19,014	960	400,580	268	0	268	400,848	0	152

2037*	19,558,847	687,678	20,246,525	362,640	25,701	19,220	960	408,521	268	0	268	408,789	0	157
2038*	20,123,845	699,369	20,823,214	370,981	25,290	19,428	960	416,659	268	0	268	416,927	0	162
2039*	20,705,172	711,258	21,416,430	379,513	24,885	19,639	960	424,997	268	0	268	425,265	0	167
2040*	21,303,302	723,349	22,026,651	388,242	24,486	19,851	960	433,539	268	0	268	433,807	0	172

Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport

Subject: BWI Airport Noise Zone Update - Forecast Airport Layout and Operation Assumptions

Date: April 25, 2014

Attachment C

ATADS : Airport Operations : Standard Report

From 01/2012 To 12/2013 | Facility=BWI

Date	Facility	Air		Itinerant General			Local			Total Operations
		Carrier	Taxi	Aviation	Military	Total	Civil	Military	Total	
Jan-12	BWI	16,142	3,426	1,119	50	20,737	0	0	0	20,737
Feb-12	BWI	15,732	3,470	1,055	69	20,326	52	0	52	20,378
Mar-12	BWI	17,913	3,606	1,181	102	22,802	30	0	30	22,832
Apr-12	BWI	18,040	3,249	1,344	71	22,704	10	0	10	22,714
May-12	BWI	18,841	3,544	1,430	133	23,948	0	0	0	23,948
Jun-12	BWI	19,118	3,391	1,466	74	24,049	80	0	80	24,129
Jul-12	BWI	19,549	3,428	1,312	75	24,364	0	0	0	24,364
Aug-12	BWI	18,797	3,549	1,338	78	23,762	22	0	22	23,784
Sep-12	BWI	16,613	3,393	1,373	90	21,469	0	0	0	21,469
Oct-12	BWI	16,853	3,530	1,376	70	21,829	12	0	12	21,841
Nov-12	BWI	16,776	2,972	1,374	81	21,203	12	0	12	21,215
Dec-12	BWI	16,468	2,754	1,242	105	20,569	26	0	26	20,595
Jan-13	BWI	15,766	2,931	1,124	69	19,890	0	0	0	19,890
Feb-13	BWI	14,534	2,770	1,119	101	18,524	6	0	6	18,530
Mar-13	BWI	17,394	2,972	1,282	123	21,771	0	0	0	21,771
Apr-13	BWI	17,938	2,845	1,349	125	22,257	0	0	0	22,257
May-13	BWI	18,830	2,985	1,590	132	23,537	0	0	0	23,537
Jun-13	BWI	18,584	2,956	1,362	103	23,005	26	0	26	23,031
Jul-13	BWI	19,103	3,042	1,359	132	23,636	4	0	4	23,640
Aug-13	BWI	18,555	3,038	1,238	132	22,963	22	0	22	22,985
Sep-13	BWI	16,306	2,995	1,449	129	20,879	30	0	30	20,909
Oct-13	BWI	17,510	3,034	1,403	118	22,065	164	0	164	22,229
Nov-13	BWI	15,988	2,751	1,308	120	20,167	370	0	370	20,537
Dec-13	BWI	16,405	2,494	1,154	59	20,112	345	0	345	20,457
Sub-Total for BWI		417,755	75,125	31,347	2,341	526,568	1,211	0	1,211	527,779
Total:		417,755	75,125	31,347	2,341	526,568	1,211	0	1,211	527,779

Report created on Wed Jan 22 19:55:41 EST 2014

Sources: Air Traffic Activity System (ATADS)

Total Calendar Year 2012 and 2013 Operations										
	Air		Itinerant General			Local			Total Operations	
	Carrier	Taxi	Aviation	Military	Total	Civil	Military	Total		
2012	210,842	40,312	15,610	998	267,762	244	0	244	268,006	
2013	206,913	34,813	15,737	1,343	258,806	967	0	967	259,773	

2013 compared to 2012	
Difference	(8,233)
Percent Difference	-3.1%

Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport

Subject: BWI Airport Noise Zone Update – Forecast Airport Layout and Operation Assumptions

Date: April 25, 2014

Attachment D

Page 1

Attachment D - Calendar Year 2012 Operation Counts for Top Ten Airlines at BWI

Airline Designator ¹	2012 ³												Totals ²
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
SWA	9,561	9,567	11,033	11,057	11,484	11,426	11,766	11,033	10,125	8,916	8,534	7,668	122,170
TRS	2,646	2,416	2,618	2,655	2,732	2,955	3,011	2,957	2,896	2,542	2,466	2,465	32,359
DAL	1,106	1,022	1,226	1,208	1,234	1,275	1,264	1,385	1,287	1,175	1,227	1,075	14,484
AWE	777	740	803	768	801	787	840	814	751	671	702	748	9,202
UAL	520	526	663	611	768	821	845	873	654	527	529	530	7,867
AAL	488	403	421	485	523	516	468	473	447	398	378	356	5,356
KAP	527	507	547	535	550	522	516	527	509	380	1	0	5,121
EGF	295	274	296	338	351	338	327	343	341	293	301	273	3,770
JBU	278	261	308	298	311	297	307	307	296	267	239	236	3,405
JZA	204	194	221	216	280	264	261	279	258	237	196	163	2,773
Total²	16,402	15,910	18,136	18,171	19,034	19,201	19,605	18,991	17,564	15,406	14,573	13,514	206,507

Notes:

1 – FAA airline designators are published in FAA Order 7340.2, Chapter 3. The most current version is available at

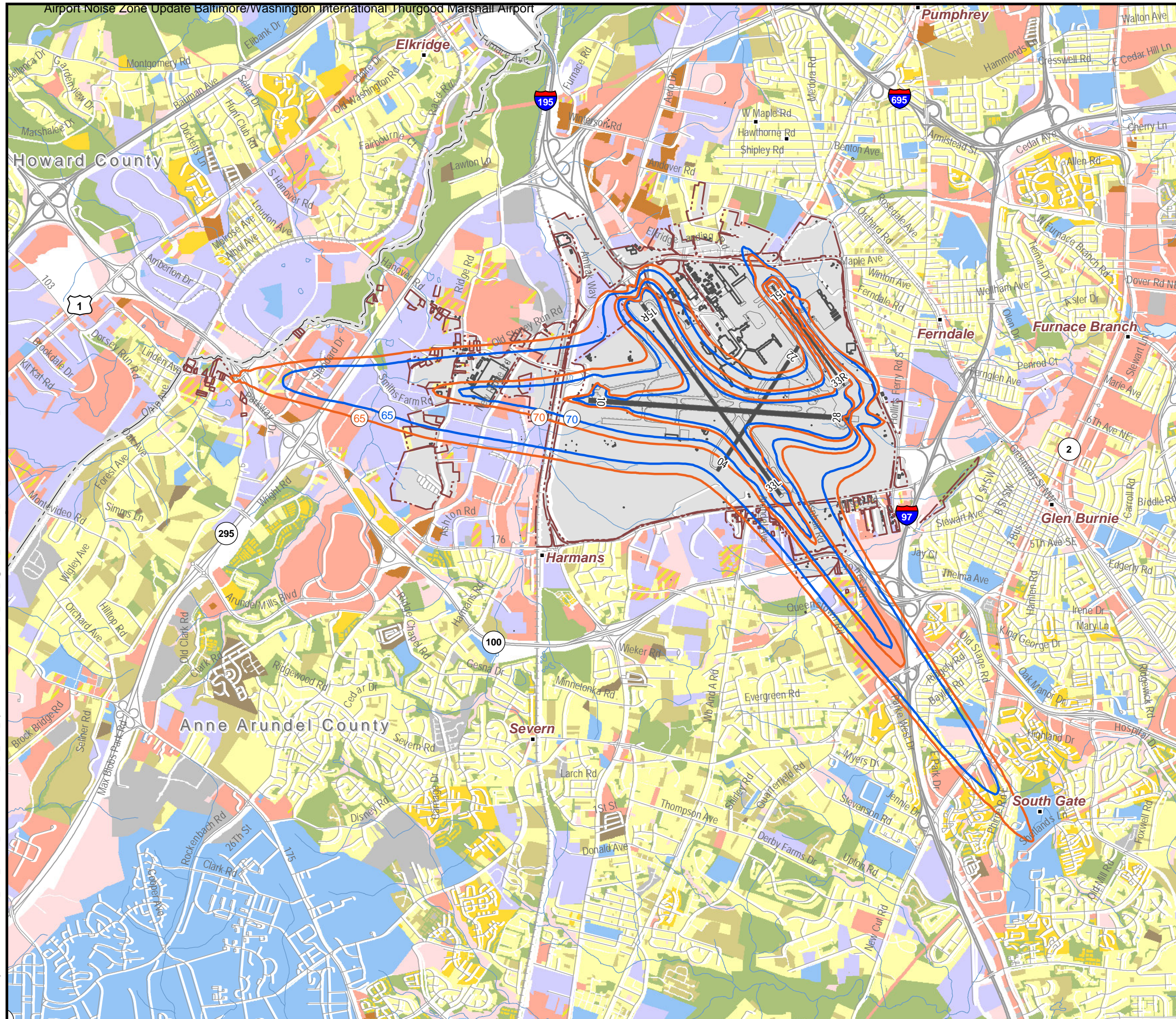
http://www.faa.gov/air_traffic/publications/atpubs/CNT/index.htm

2 – Totals is for only the top ten airlines operating at BWI during calendar year 2012.

Source: Maryland Aviation Administration's AirScene.com system; HMMH

3 – The operational counts for the 2012 top ten airlines include both Air Carrier and Air Taxi operations

Airport-Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport

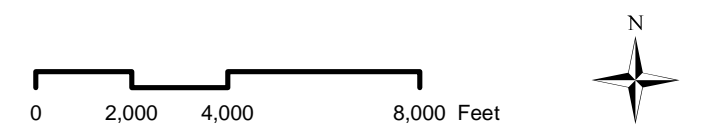


Comparison of Draft 2014 Annual Ldn with
Draft 2019 Annual Ldn Contours

- Draft 2014 Annual Ldn Contour
 - Draft 2019 Annual Ldn Contour
 - Existing Airport Runways
 - BWI Airport Property
- Draft 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 |
- Roads
 - County Boundary
 - River or Stream
 - Water

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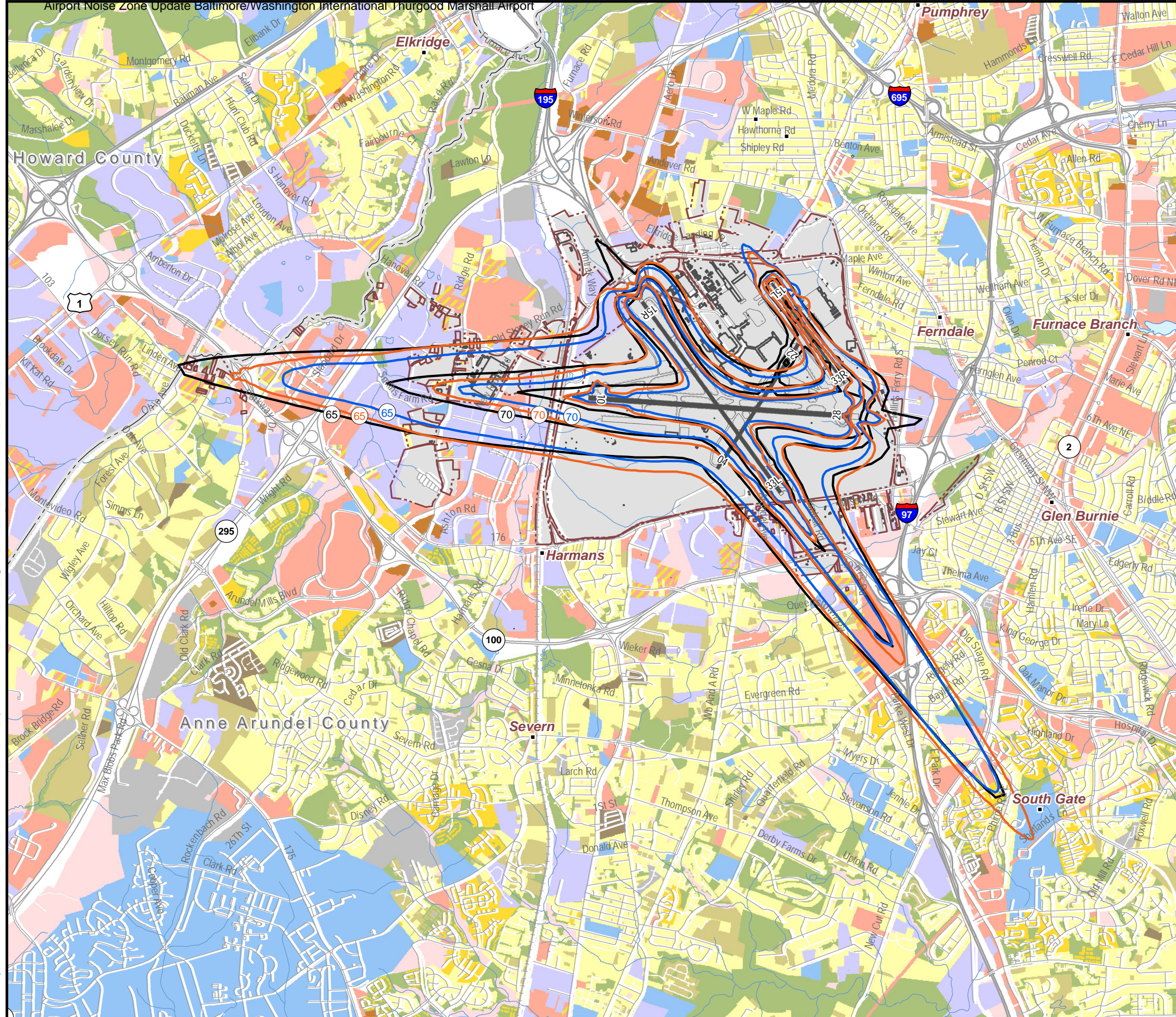
Data Sources: BWI Office of Facilities Planning, Noise Abatement Division; Maryland State Highway Administration; Anne Arundel & Howard County; Maryland Department of Planning; Environmental System Research Group, Inc.



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Airport-Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport

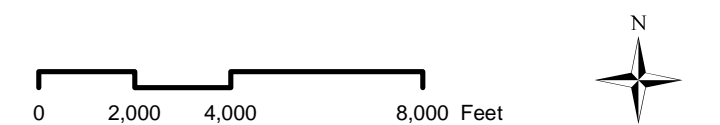


Comparison of Draft 2014 NEM and Draft 2019 NEM Contours with Current 2010 Noise Exposure Map (NEM) Contour

- Draft 2014 NEM Basecase DNL Contour
 - Draft 2019 NEM Forecast DNL Contour
 - Forecast 2010 DNL Contour (Found in compliance by FAA on April 3, 2006)
 - Existing Airport Runways
 - BWI Airport Property
- Draft 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 |
| Roads | River or Stream |
| County Boundary | Water |

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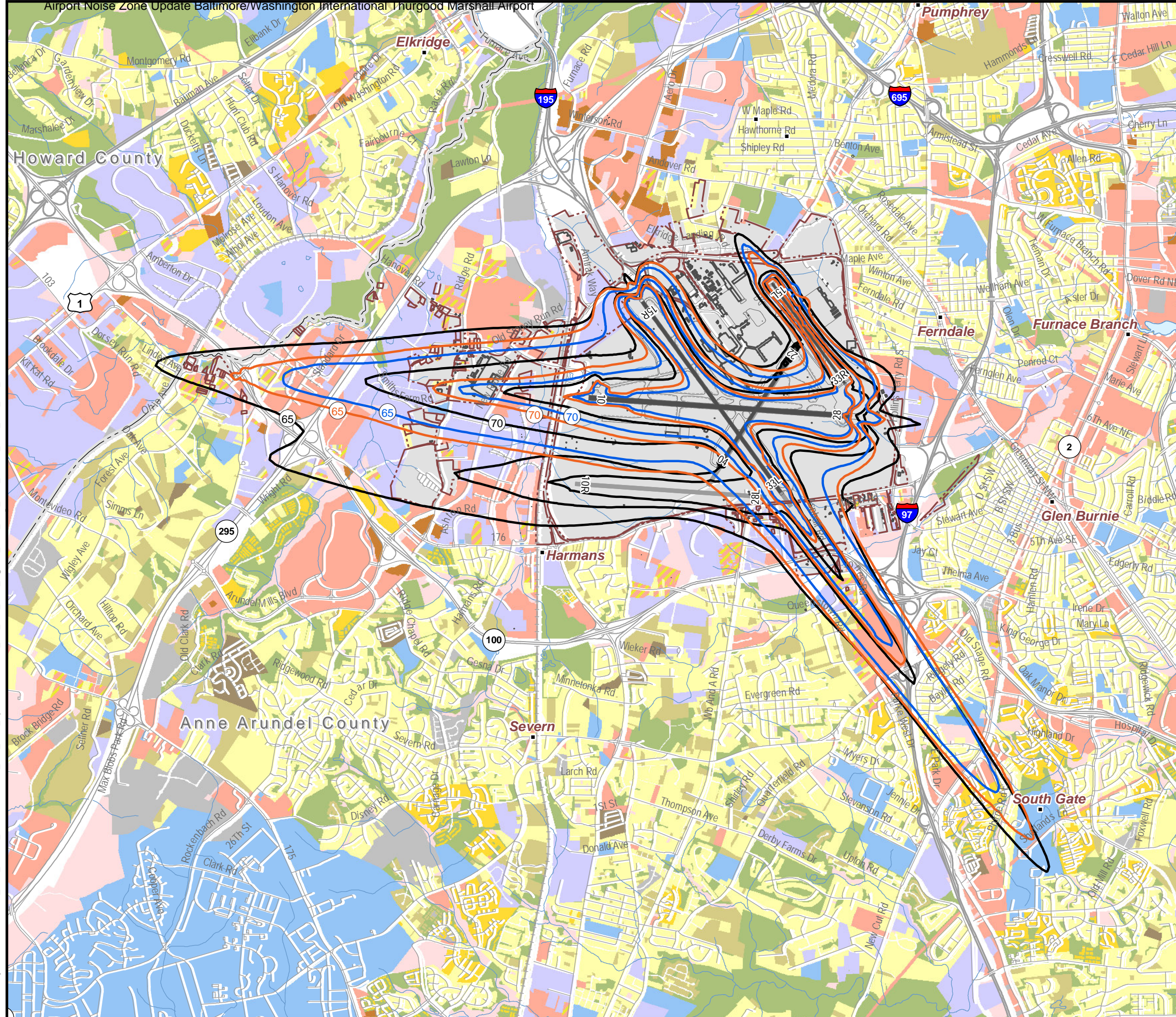
Data Sources: BWI Office of Facilities Planning, Noise Abatement Division; Maryland State Highway Administration; Anne Arundel & Howard County; Maryland Department of Planning; Environmental System Research Group, Inc.



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Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport

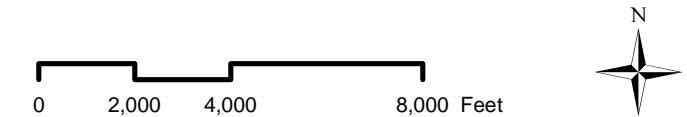


Comparison of Draft 2014 Annual Ldn and Draft 2019 Annual Ldn Contours with Current 2007 Airport Noise Zone (ANZ) Contour

- Draft 2014 Base Year Annual Ldn Contour
 - Draft 2019 Future Year Annual Ldn Contour
 - 2007 ANZ Contour (Incorporated into the Code of Maryland Regulations on November 6, 2007)
 - Existing Airport Runways
 - Future Airport Runways (As used for 2007 ANZ's contour 2017 forecast year)
 - BWI Airport Property
- Draft 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 |
- Roads
 - River or Stream
 - County Boundary
 - Water

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Data Sources: BWI Office of Facilities Planning, Noise Abatement Division; Maryland State Highway Administration; Anne Arundel & Howard County; Maryland Department of Planning; Environmental System Research Group, Inc.

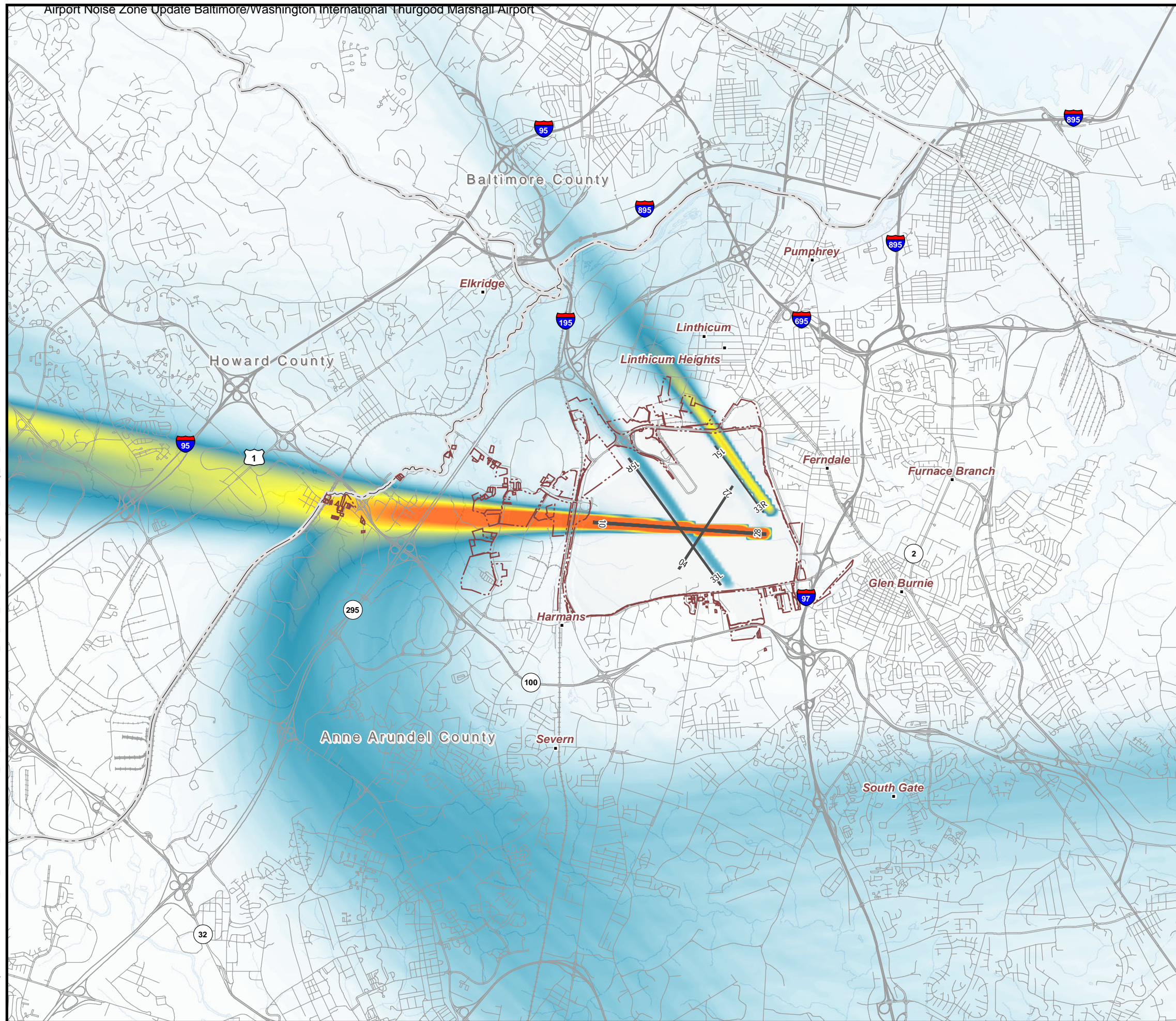


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Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport

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Flight Track Density Plot
West Flow Departure Tracks

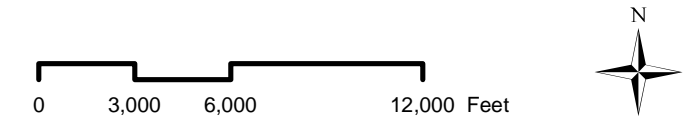
- Existing Airport Runways
- BWI Airport Property
- Roads
- River or Stream
- County Boundary
- Water

Flight Track Density

Low High

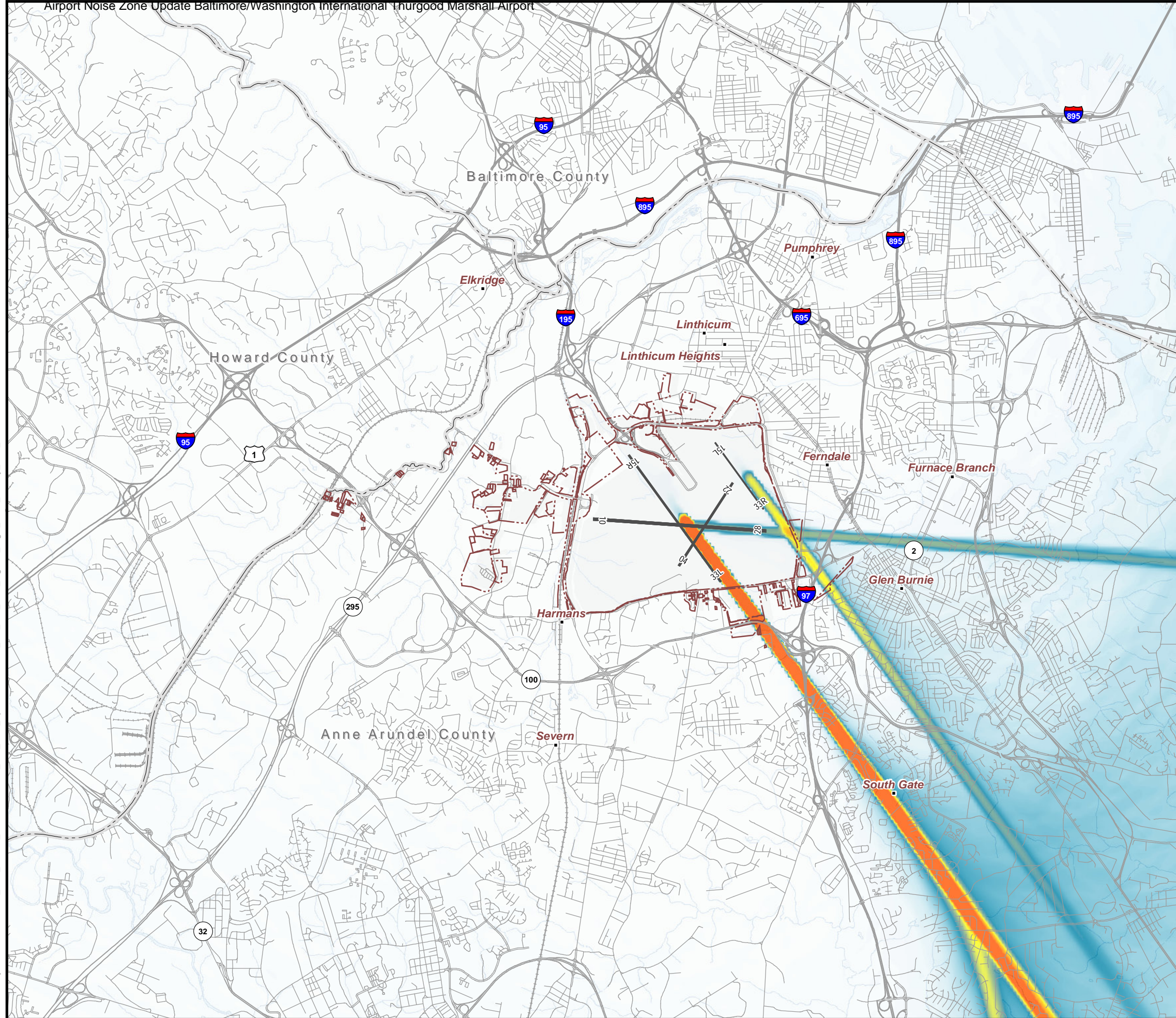
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Data Sources: BWI Office of Facilities Planning, Noise Abatement Division; Maryland State Highway Administration; Anne Arundel & Howard County; Maryland Department of Planning; Environmental System Research Group, Inc.



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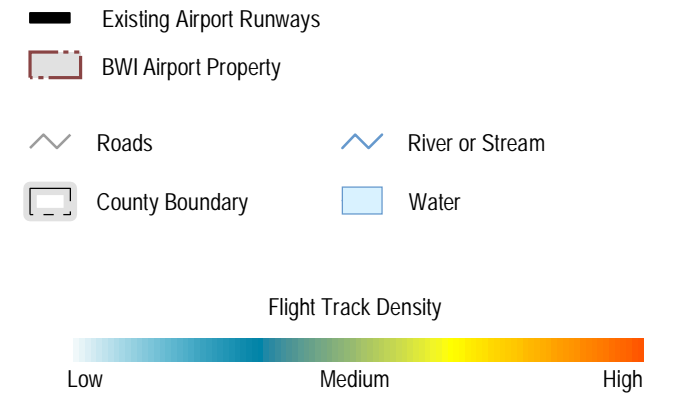
Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport



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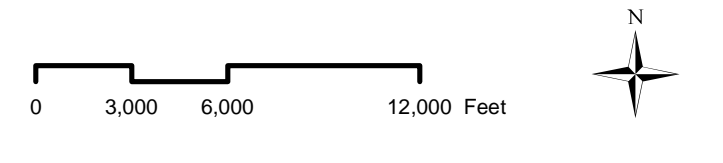


Flight Track Density Plot
West Flow Arrival Tracks



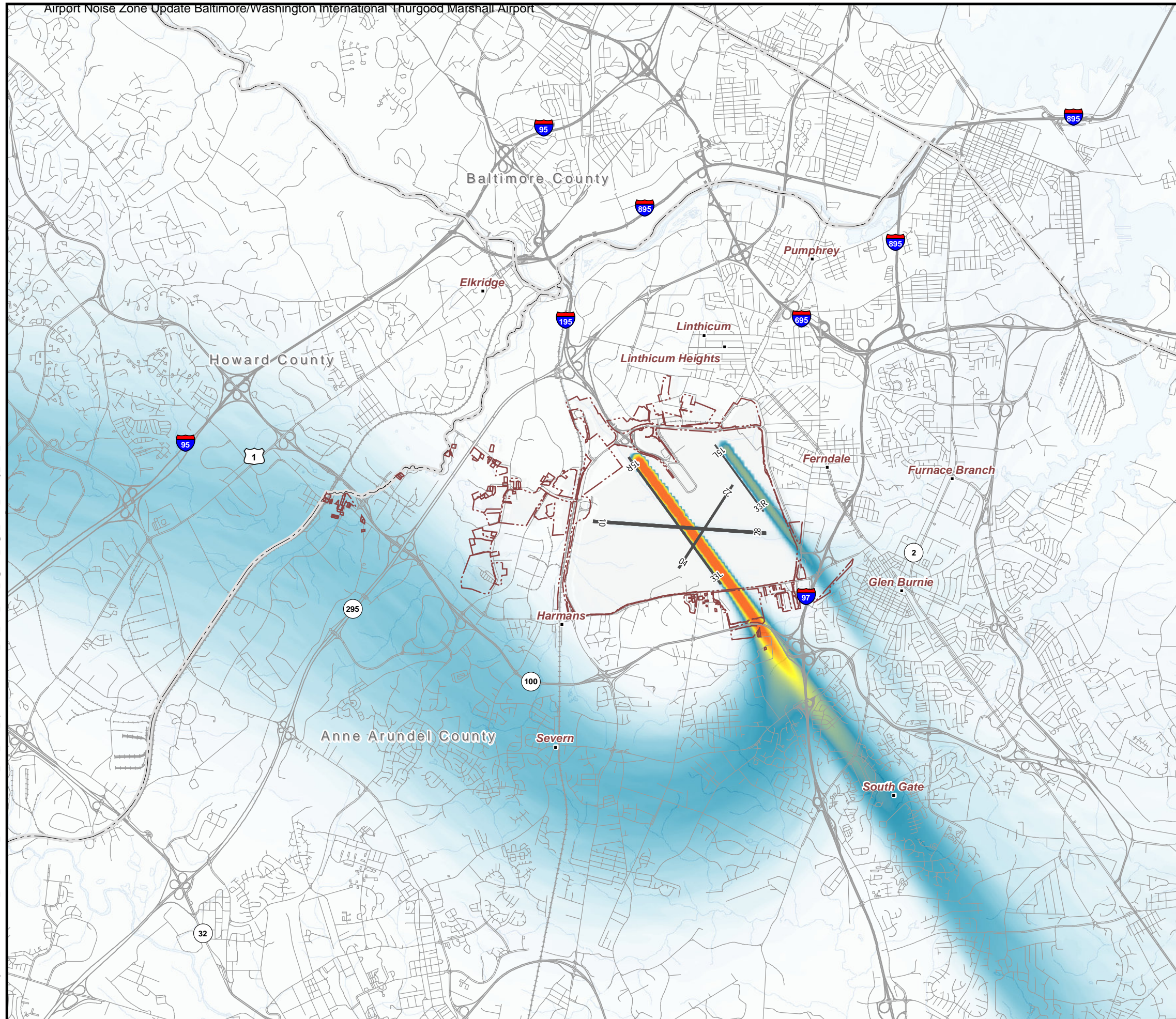
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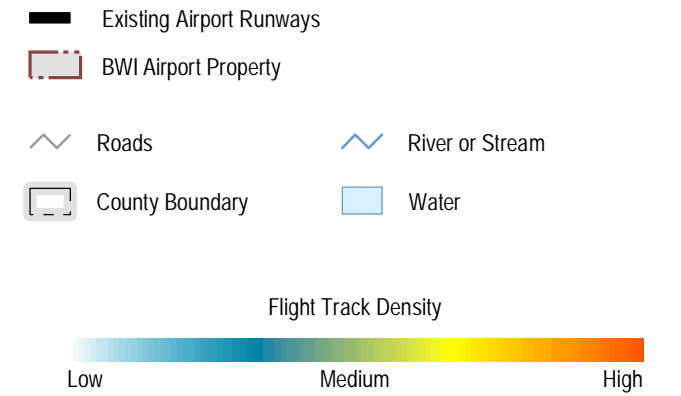


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Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport

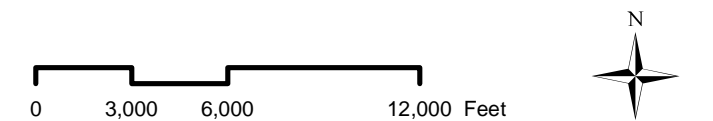


Flight Track Density Plot
East Flow Departure Tracks



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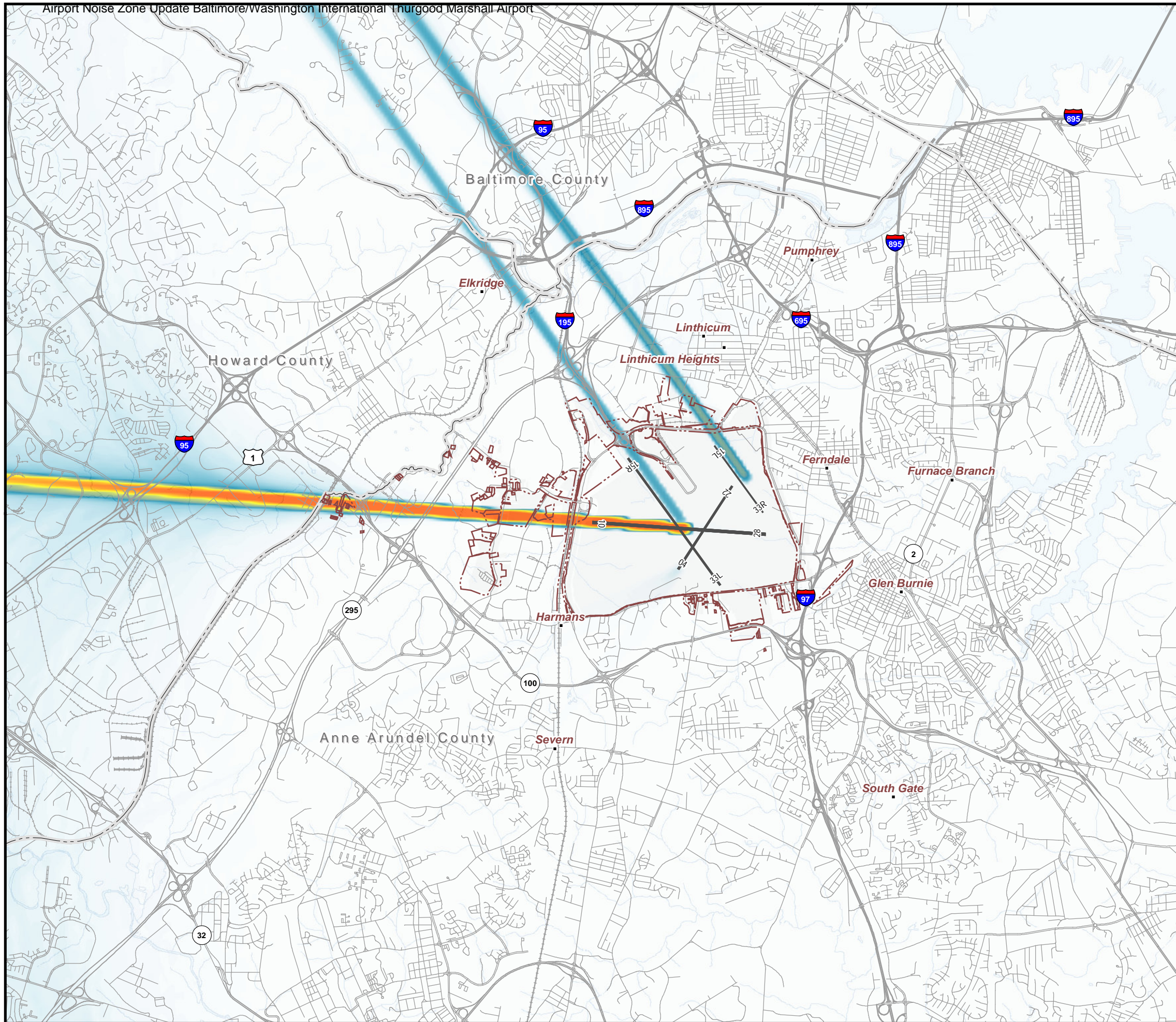
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Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport



Flight Track Density Plot
East Flow Arrival Tracks

- Existing Airport Runways
 - BWI Airport Property
 - Roads
 - River or Stream
 - County Boundary
 - Water
- Flight Track Density
- Low High

DRAFT

Data Sources: BWI Office of Facilities Planning, Noise Abatement Division; Maryland State Highway Administration; Anne Arundel & Howard County; Maryland Department of Planning; Environmental System Research Group, Inc.



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F.3.1.2 Notification and Correspondence with the Elected Officials



Maryland Aviation Administration

Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor

James T. Smith, Jr.
Secretary

Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

April 22, 2014

The Honorable Laura A. Neuman
Anne Arundel County
The Arundel Center
44 Calvert Street
Annapolis MD 21404

Dear County Executive Neuman:

Subject: Updates to the Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall) Noise Zone and the Federal Aviation Regulation Part 150 Noise Exposure Maps.

As an elected official representing an area surrounding BWI Marshall, we would like to keep you apprised of our progress as we update the BWI Marshall Airport Noise Zone (ANZ) and the Federal Aviation Regulation Part 150 Noise Exposure Maps (NEM's). The public outreach components of both actions include a Community Advisory Committee consisting of area residents, local organization representatives, planning agencies, public agencies, airport users and other interested parties.

We will be holding an Advisory Committee meeting on Wednesday, May 14, 2014 from 6:00 p.m. until 8:00 p.m. in the Assembly Room, located at the Maryland Aviation Administration (MAA), 991 Corporate Boulevard in Linthicum, Maryland. A list of the invited participants is attached for your information. The MAA will forward related documents to you and will keep you advised of pertinent issues throughout the completion of these projects. In the event you may have any comments, questions or are interested in participating, you or your staff may contact Ms. Ellen Sample, MAA's Director of Noise, Real Estate and Land Use Compatibility at 410-859-7925 or dsample@bwiairport.com. Ms. Sample would be happy to assist you.

Sincerely,

Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

Attachment

The Honorable Laura A. Neuman
Page Two

cc: Louisa H. Goldstein, Esquire, Assistant Attorney General, MAA
Mr. Paul L. Shank, P.E., C.M., Chief Engineer, MAA
Ms. Ellen Sample, Director, Noise, Real Estate & Land Use Compatibility, MAA

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Anne Arundel County
The Arundel Center
44 Calvert St.
Annapolis MD 21404

The Honorable Ken Ulman
3430 Court House Dr.
Ellicott City MD 21043

The Honorable Kevin Kamantz
400 Washington Ave.,
Mail Stop 2M01A
Old Courthouse Mezzanine
Towson MD 21204

Ms. Andea Van Arsdale, Director
Department of Planning
The Jefferson Building, Ste. 101
105 West Chesapeake Ave.
Towson MD 21204

Ms. Marsha McLaughlin, Director
Department of Planning & Zoning
3430 Courthouse Dr.
Ellicott City MD 21043

Mr. Larry R. Tom
Department of Planning & Zoning
2664 Riva Rd.
Annapolis MD 21401

Ms. Mary Alter, Ph.D, Chair
Anne Arundel County Planning Advisory Board
c/o Office of Planning & Zoning
2664 Riva Rd.
Annapolis MD 21401

The Honorable Jennifer Terrasa, Chair
Howard County Council
George Howard Building
3430 Courthouse Dr.
Ellicott City MD 21043

The Honorable Tom Quirk, Chairman
Baltimore County Council
400 Washington Ave.
Towson MD 21204

The Honorable Daryl Jones
Anne Arundel County Council
44 Calvert St., 1st. Floor
Annapolis MD 21401

The Honorable John J. Grasso
Anne Arundel County Council
44 Calvert St. 1st. Floor
Annapolis MD 21401

The Honorable Allan H. Kittleman
Maryland State Senate
James Senate Office Building, Room 423
11 Bladen St.
Annapolis MD 21401

The Honorable Edward J. Kasemeyer
Maryland State Senate
Miller State Office Building, 3 West Wing
11 Bladen St.
Annapolis MD 21401

The Honorable James N. Robey
Maryland State Senate
James Senate Office Building, Room 120
11 Bladen St.
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The Honorable Edward R. Reilly
Maryland State Senate
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11 Bladen St.
Annapolis MD 21401

The Honorable Gail H. Bates
Maryland House of Delegates
House Office Building, Room 202
6 Bladen St.
Annapolis MD 21401

The Honorable Warren E. Miller
Maryland House of Delegates
House Office Building, Room 202
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Annapolis MD 21401

The Honorable Steven J. Deboy, Sr.
Maryland House of Delegates
House Office Building, Room 306
6 Bladen St.
Annapolis MD 21401

The Honorable James E. Malone, Jr.
Maryland House of Delegates
House Office Building, Room 251
6 Bladen St.
Annapolis MD 21401

The Honorable Elizabeth Bobo
Maryland House of Delegates
House Office Building, Room 214
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Maryland House of Delegates
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The Honorable Frank S. Turner
Maryland House of Delegates
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The Honorable Don H. Dwyer, Jr.
Maryland House of Delegates
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The Honorable Nicholas R. Kipke
Maryland House of Delegates
House Office Building, Room 217
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Annapolis MD 21401

The Honorable Steven R. Schuh
Maryland House of Delegates
House Office Building, Room 156
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The Honorable Pamela G. Beidle
Maryland House of Delegates
House Office Building, Room 161
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The Honorable Mary Ann Love
Maryland House of Delegates
House Office Building, Room 165
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Maryland House of Delegates
House Office Building, Room 162
6 Bladen St.
Annapolis MD 21401

The Honorable Cathleen M. Vitale, Esq.
Maryland House of Delegates
House Office Building, Room 154
6 Bladen St.
Annapolis MD 21401

The Honorable Robert A. Costa
Maryland House of Delegates
House Office Building, Room 159
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Burlington, Massachusetts 01803
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MEMORANDUM

To: General Distribution for Updates to the Baltimore/Washington International Thurgood Marshall Airport Noise Zone and the Federal Aviation Regulation Part 150 Noise Exposure Maps

Ms. Ellen Sample, Director, Office of Noise, Real Estate and Land Use Compatibility – Maryland Aviation Administration

From: David A. Crandall

Date: May 8, 2014

Subject: Background Material for the May 14th, 2014 Community Advisory Committee Meeting

Reference: HMMH Job No. 305160.011 / 305160.012



As discussed in a previous letter, the Maryland Aviation Administration (MAA) is in the process of updating the Airport Noise Zone (ANZ) and Federal Aviation Regulation Part 150 Noise Exposure Maps (NEM's) for Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall).

This memorandum presents background material for the Community Advisory Committee meeting being held on May 14, 2014 from 6:00 p.m. until 8:00 p.m. in the Assembly Room, located at the MAA, 991 Corporate Boulevard in Linthicum, Maryland.

Background – Noise Exposure Map

Federal Aviation Regulation (FAR) Part 150, "Airport Noise Compatibility Planning," provides the methodology and procedures to be used in preparing aircraft noise exposure maps and developing airport land use compatibility programs. The Noise Exposure Map, as defined in Federal Regulations, presents a basecase and forecast (typically 5 years). Conducting a Part 150 study qualifies airport operators for Federal Aviation Administration (FAA) grant funds for homeowner assistance programs. Upon approval of the Part 150 study for BWI Marshall by the FAA, funding will be available to the MAA for programs such as soundproofing, resale assurance, or the purchase properties where aircraft noise exceeds federal guidelines. The current official NEM was accepted by FAA April 6, 2006. Included in that NEM are noise contours for 2003 and 2010 conditions; those two maps are available on MAA's website, <http://www.maacommunityrelations.com/content/anznoiseupdate/part150study.php>.

The FAA's Noise Exposure Map checklist, which provides a summary of the NEM requirements, can be found at http://www.faa.gov/airports/environmental/airport_noise/part_150/checklists/media/noise_map_cklistarti.pdf

Background – Airport Noise Zone

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 the MAA to create an ANZ to control incompatible land development around BWI Marshall and a Noise Abatement Plan (NAP) to minimize the impact of aircraft noise on people living near the Airport. An ANZ and NAP were first

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BWI Airport Noise Zone and Noise Exposure Map Updates
Background Material for the May 14th, 2014 Community Advisory Committee Meeting
May 8, 2014
Page 2

established for BWI Marshall in 1976; and were updated in 1982, 1988, 1993, and 1998. An updated ANZ was certified on November 6, 2007.

The ANZ is determined by a composite of three noise contours: a base year contour, a five-year forecast, and a ten-year forecast. The largest of the three contours in any area around the Airport determines the Noise Zone, thereby offering protection within the largest of the existing or future noise exposure contours. The MAA uses the ANZ to control incompatible land development around the Airport.

The 2007 ANZ, which has 11 sheets (two overview sheets and nine close in) is available on MAA's website, <http://www.maacommunityrelations.com/content/anznoiseupdate/bwianz.php>.

Materials



The attached package includes the following documents for your review.

- Figure 1, "Comparison of Draft 2014 Annual L_{dn} with Draft 2019 Annual L_{dn} Contours", presents the draft 65 dB, 70 dB and 75 dB Day-Night Average Sound Level (abbreviated DNL or L_{dn}) for calendar year 2014 and 2019 using the assumptions described in the memorandum listed above. The Day-Night Average Sound Level is required for both Part 150 NEMs and for the Airport Noise Zone. Federal regulations generally abbreviate Day-Night Average Sound Level as DNL while Maryland regulations use L_{dn} . However both abbreviations refer to the same noise metric. The 65 dB DNL (or L_{dn}) contour is the lowest (quietest) level discussed in both regulations.

The land use shown in Figure 1 is data from Anne Arundel County and Howard County organized into the categories defined in Part 150 guidelines. The land within the 65 dB DNL contour will be field verified after the May 14th meeting. Additional land use elements, such as depicting schools, places of worship and historic sites will be added in the coming weeks.

- Figure 2, "Comparison of Draft 2014 NEM and Draft 2019 NEM contours with Current 2010 Noise Exposure Map (NEM) Contour" presents the draft 2014 NEM and draft 2019 NEM contours compared to the current 2010 NEM. The 2014 NEM and 2019 NEM are still in progress. As noted above, the land use base maps are not yet complete.
- Figure 3, "Comparison of Draft 2014 Annual L_{dn} and Draft 2019 Annual L_{dn} Contours with Current 2007 Airport Noise Zone (ANZ) Contour", presents the draft 2014 Annual L_{dn} and 2019 Annual L_{dn} contours compared to the current 2007 ANZ contours. In reality, the 2014 L_{dn} /2019 Annual L_{dn} contours are physically identical to the 2014 NEM and 2019 NEM contours, however they are labeled differently to match the terminology found in the respective regulations. The land use depicted is the same as Figure 1. The new ANZ will be the outer extent of the 2014 Annual L_{dn} , 2019 Annual L_{dn} and 2024 Annual L_{dn} contours overlaid on tax maps. The 2024 Annual L_{dn} contour is still being developed.

Figure 4 through Figure 7 present generalized depictions of the flight tracks and operations used in the draft 2014 L_{dn} contours. Rather than presenting every individual track equally, these "flight track density plots" use color gradations to depict the flight track geometry, dispersion, and the

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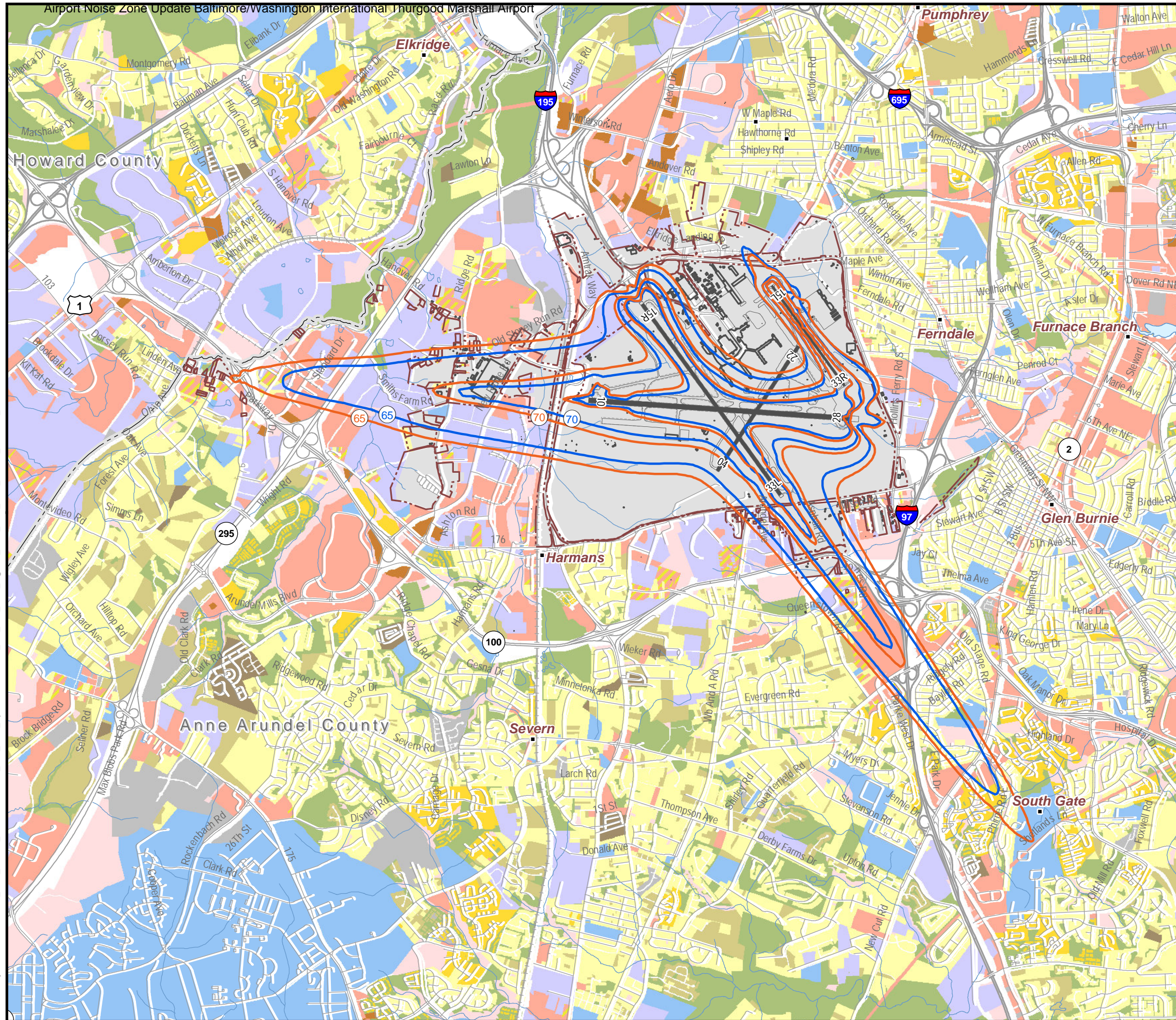
BWI Airport Noise Zone and Noise Exposure Map Updates
Background Material for the May 14th, 2014 Community Advisory Committee Meeting
May 8, 2014
Page 3

relative frequency of overflights in areas of interest. The color ranges are assigned based on the relative density of modeled aircraft operations included in the development of the draft 2014 L_{dn} contours. Note that these figures, by themselves, do not indicate noise exposure and they have not been adjusted for aircraft altitudes. The flight tracks have been organized into four distinct sets:

- Figure 4 presents the west flow departures tracks.
- Figure 5 presents the west flow arrivals tracks.
- Figure 6 presents the east flow departures tracks.
- Figure 7 presents the east flow arrivals tracks.



Airport-Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport

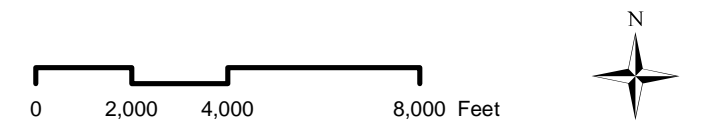


Comparison of Draft 2014 Annual Ldn with
Draft 2019 Annual Ldn Contours

- Draft 2014 Annual Ldn Contour
 - Draft 2019 Annual Ldn Contour
 - Existing Airport Runways
 - BWI Airport Property
- Draft 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 |
- Roads
 - County Boundary
 - River or Stream
 - Water

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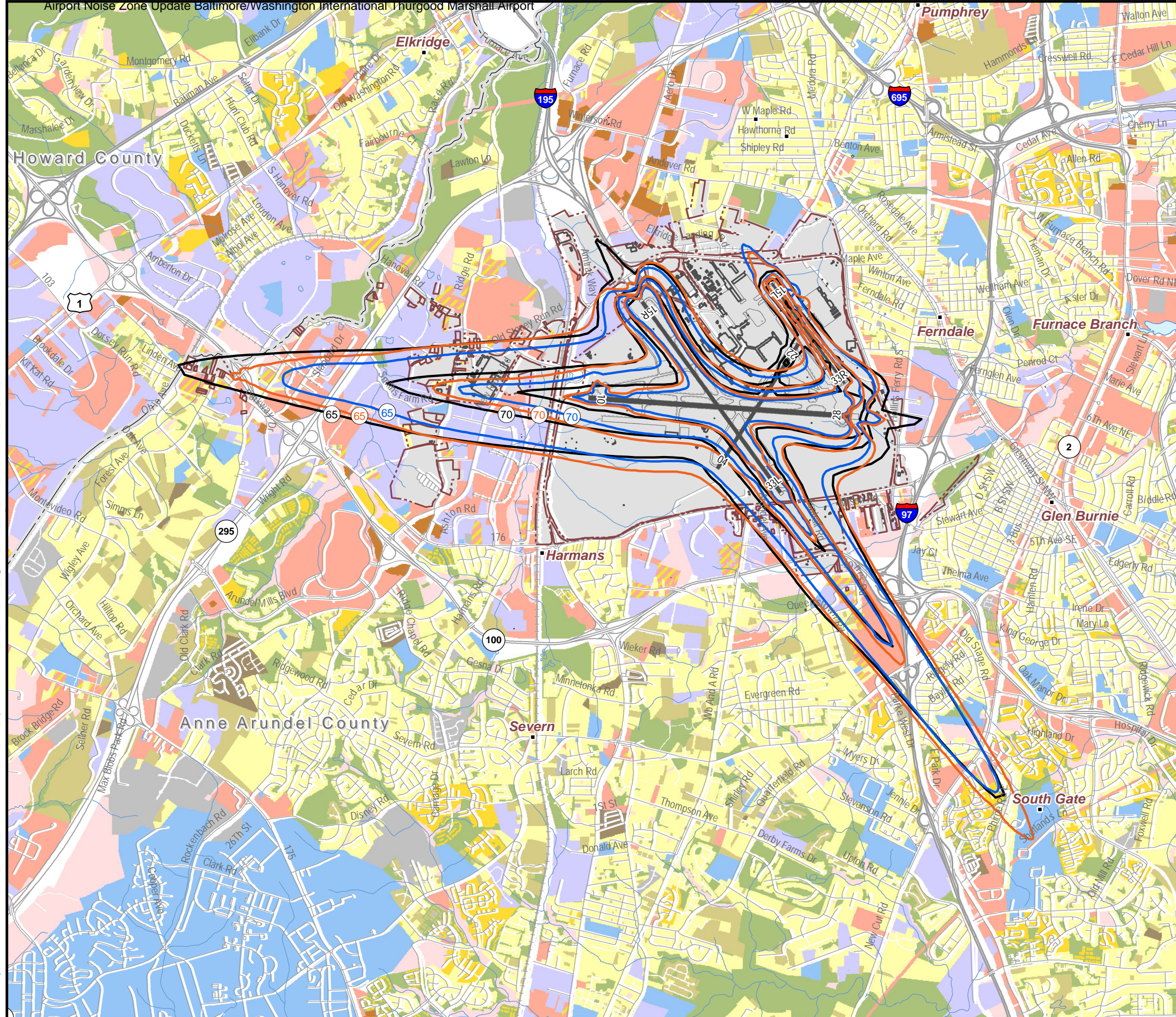
Data Sources: BWI Office of Facilities Planning, Noise Abatement Division; Maryland State Highway Administration; Anne Arundel & Howard County; Maryland Department of Planning; Environmental System Research Group, Inc.



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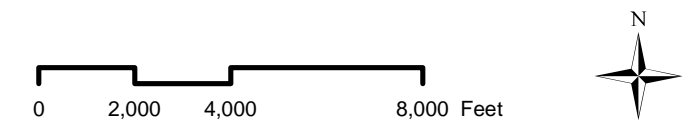


Comparison of Draft 2014 NEM and
Draft 2019 NEM Contours with
Current 2010 Noise Exposure Map (NEM) Contour

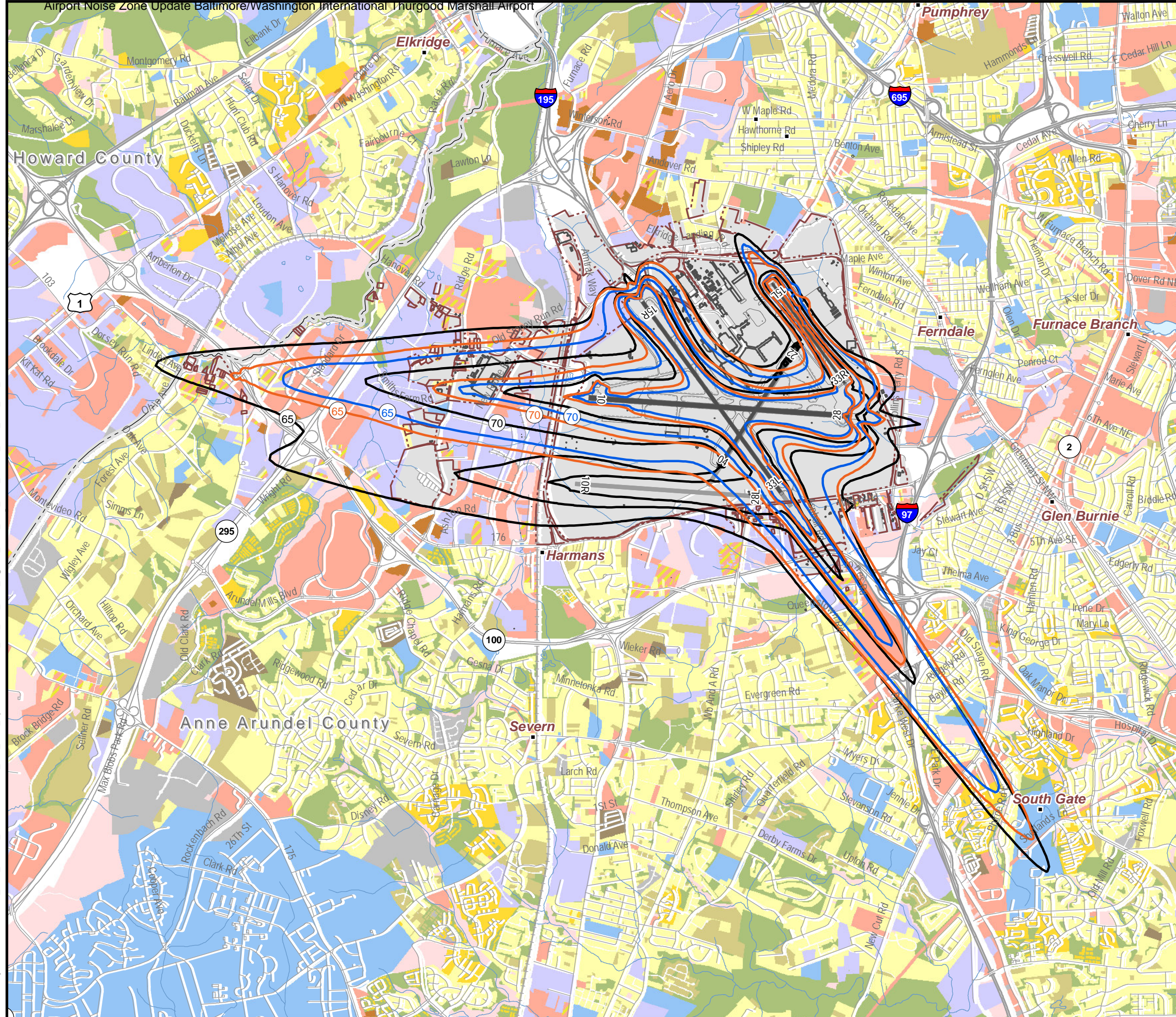
- Draft 2014 NEM Basecase DNL Contour
 - Draft 2019 NEM Forecast DNL Contour
 - Forecast 2010 DNL Contour (Found in compliance by FAA on April 3, 2006)
 - Existing Airport Runways
 - BWI Airport Property
- Draft Land Use
- | | |
|--------------------------|------------------------------|
| Residential | 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 |
| Roads | River or Stream |
| County Boundary | Water |

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Data Sources: BWI Office of Facilities Planning, Noise Abatement Division; Maryland State Highway Administration; Anne Arundel & Howard County; Maryland Department of Planning; Environmental System Research Group, Inc.



Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport

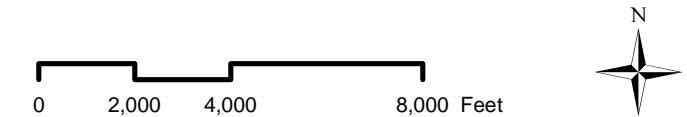


Comparison of Draft 2014 Annual Ldn and Draft 2019 Annual Ldn Contours with Current 2007 Airport Noise Zone (ANZ) Contour

- Draft 2014 Base Year Annual Ldn Contour
 - Draft 2019 Future Year Annual Ldn Contour
 - 2007 ANZ Contour (Incorporated into the Code of Maryland Regulations on November 6, 2007)
 - Existing Airport Runways
 - Future Airport Runways (As used for 2007 ANZ's contour 2017 forecast year)
 - BWI Airport Property
- Draft Land Use
- | | |
|---|--|
| Residential | Public Use |
| Multi-Family Residential | Commercial |
| Transient Lodging | Exempt Commercial |
| Mobile Home | Manufacturing and Production |
| Mixed Use Residential | Recreational Open Space |
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| Roads | River or Stream |
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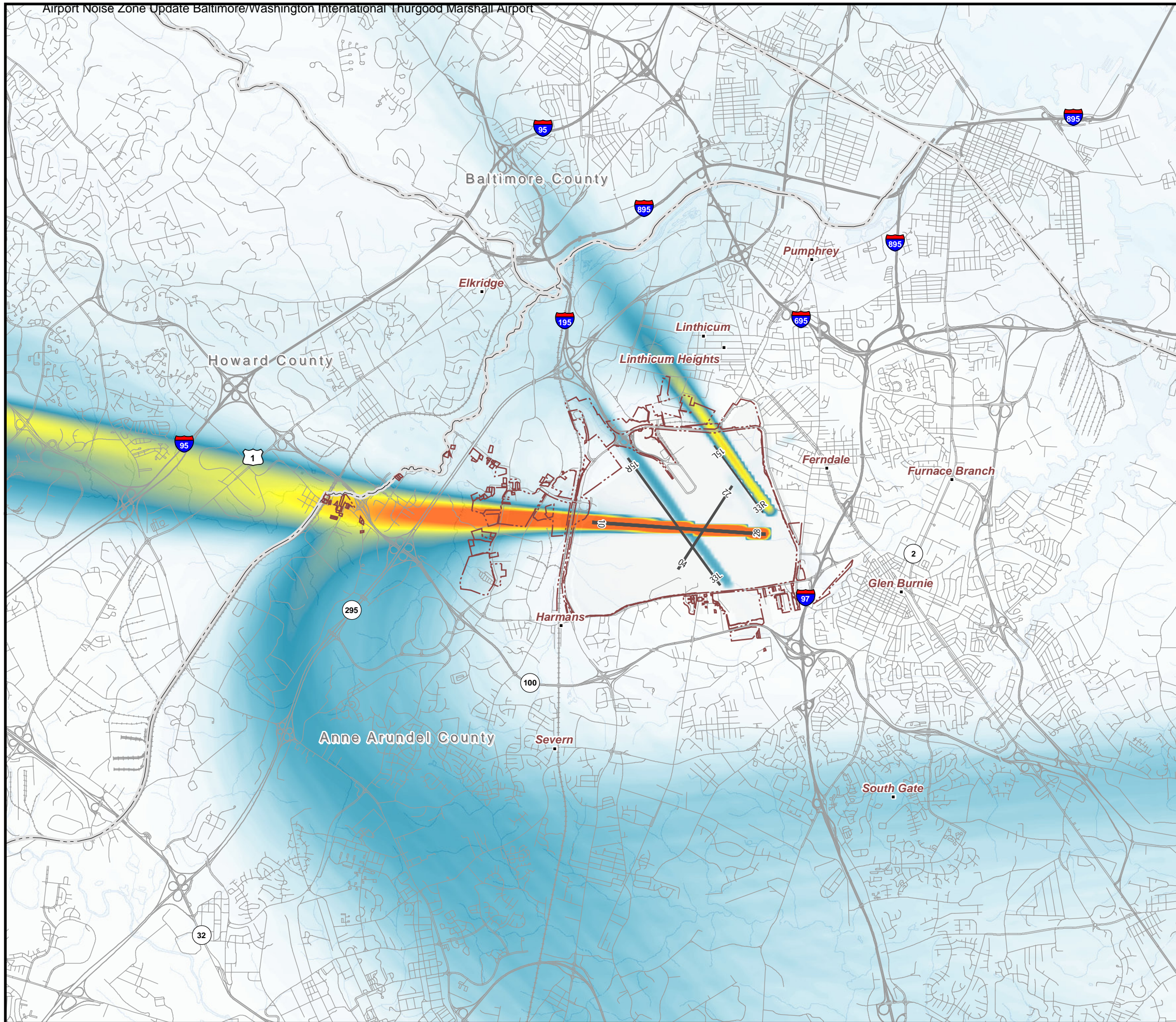
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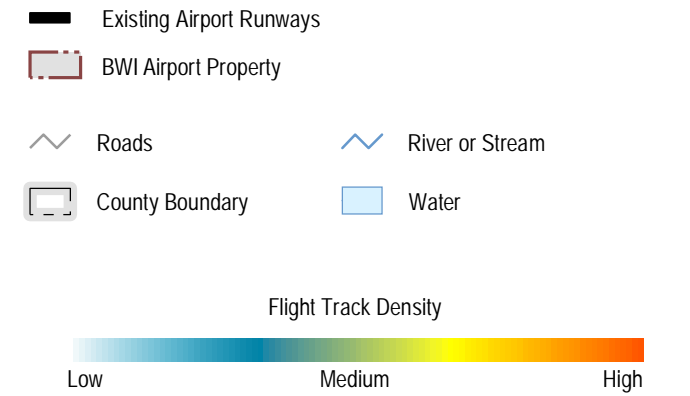
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Flight Track Density Plot
West Flow Departure Tracks



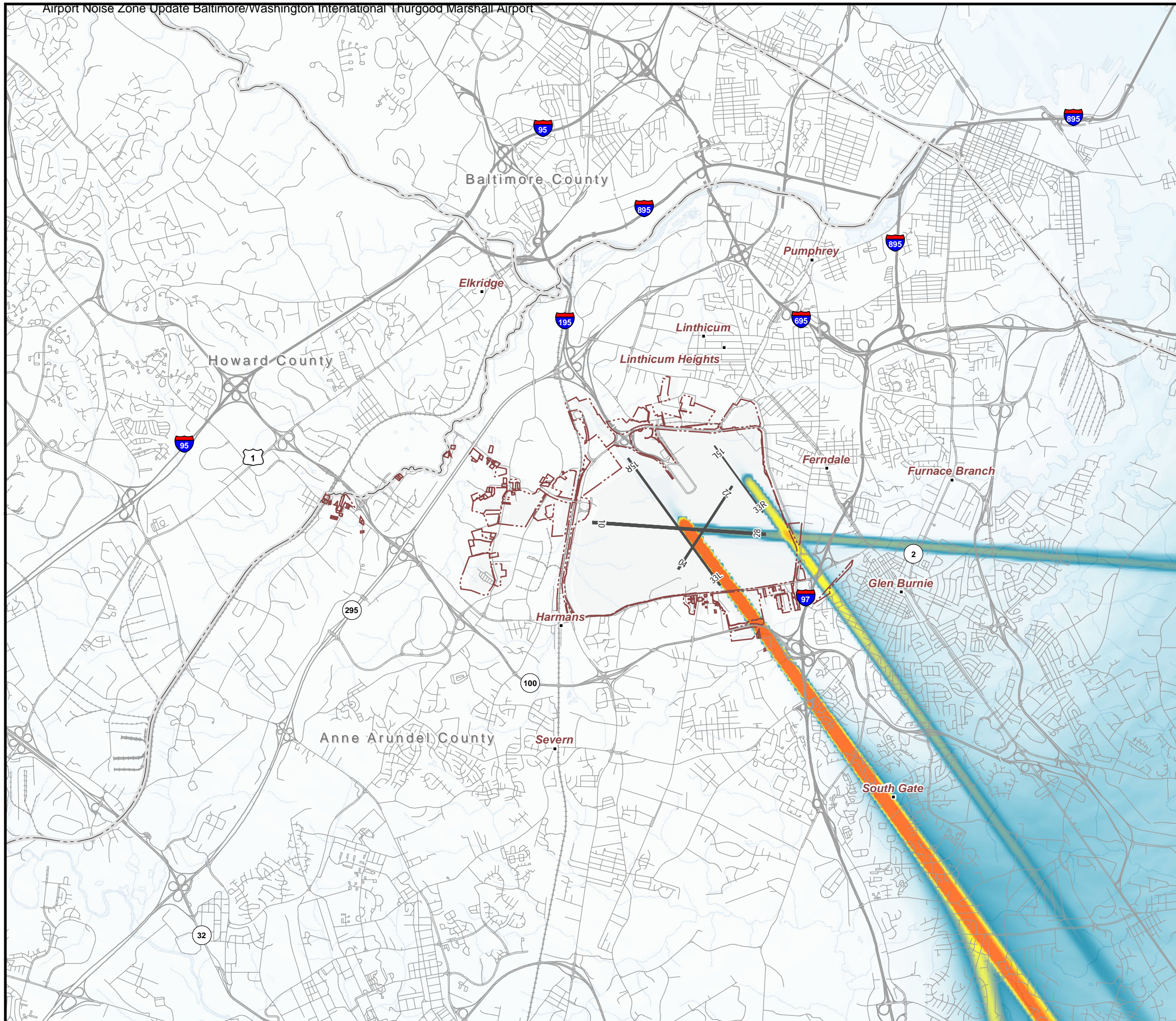
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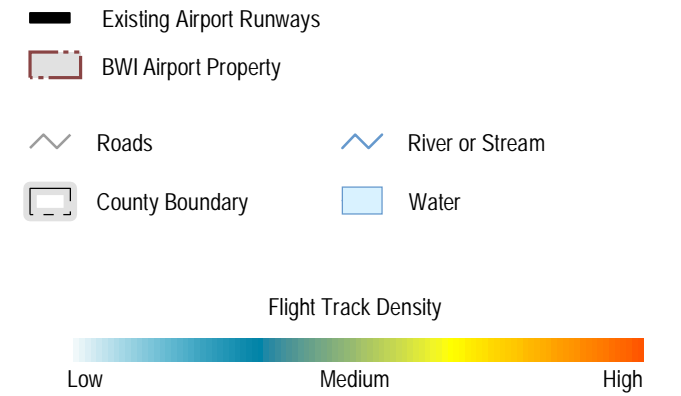
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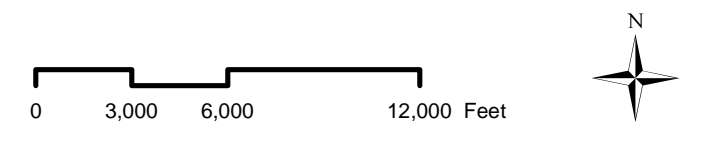


Flight Track Density Plot
West Flow Arrival Tracks



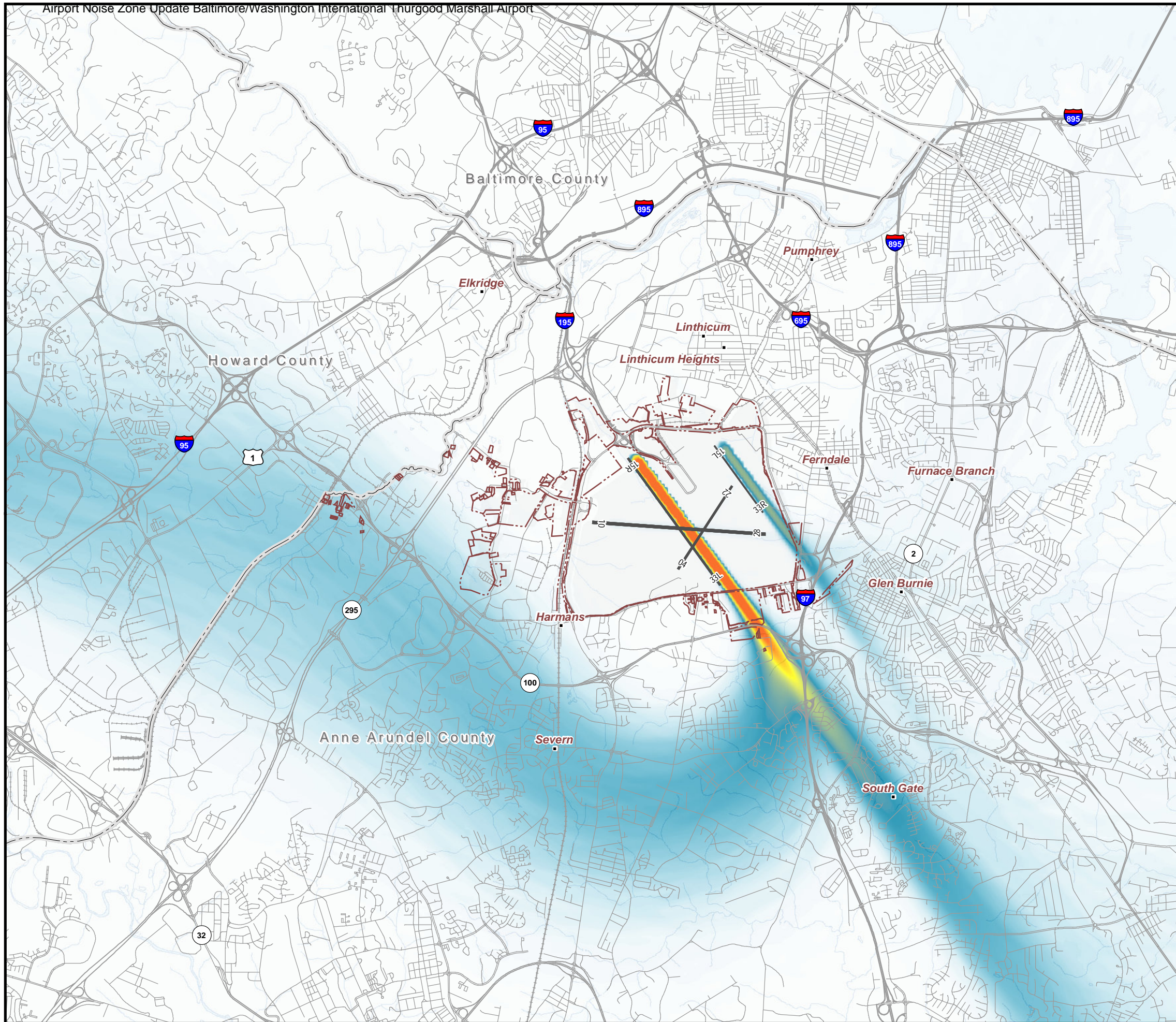
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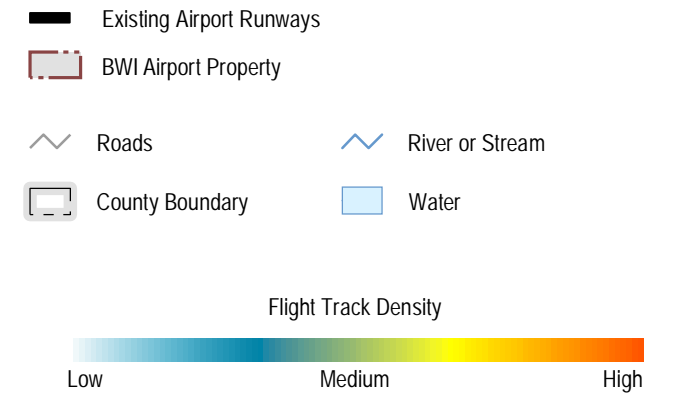


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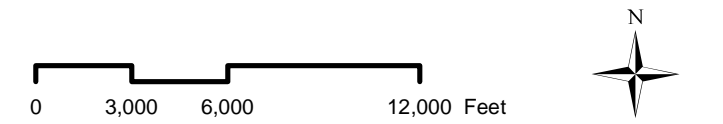


Flight Track Density Plot
East Flow Departure Tracks



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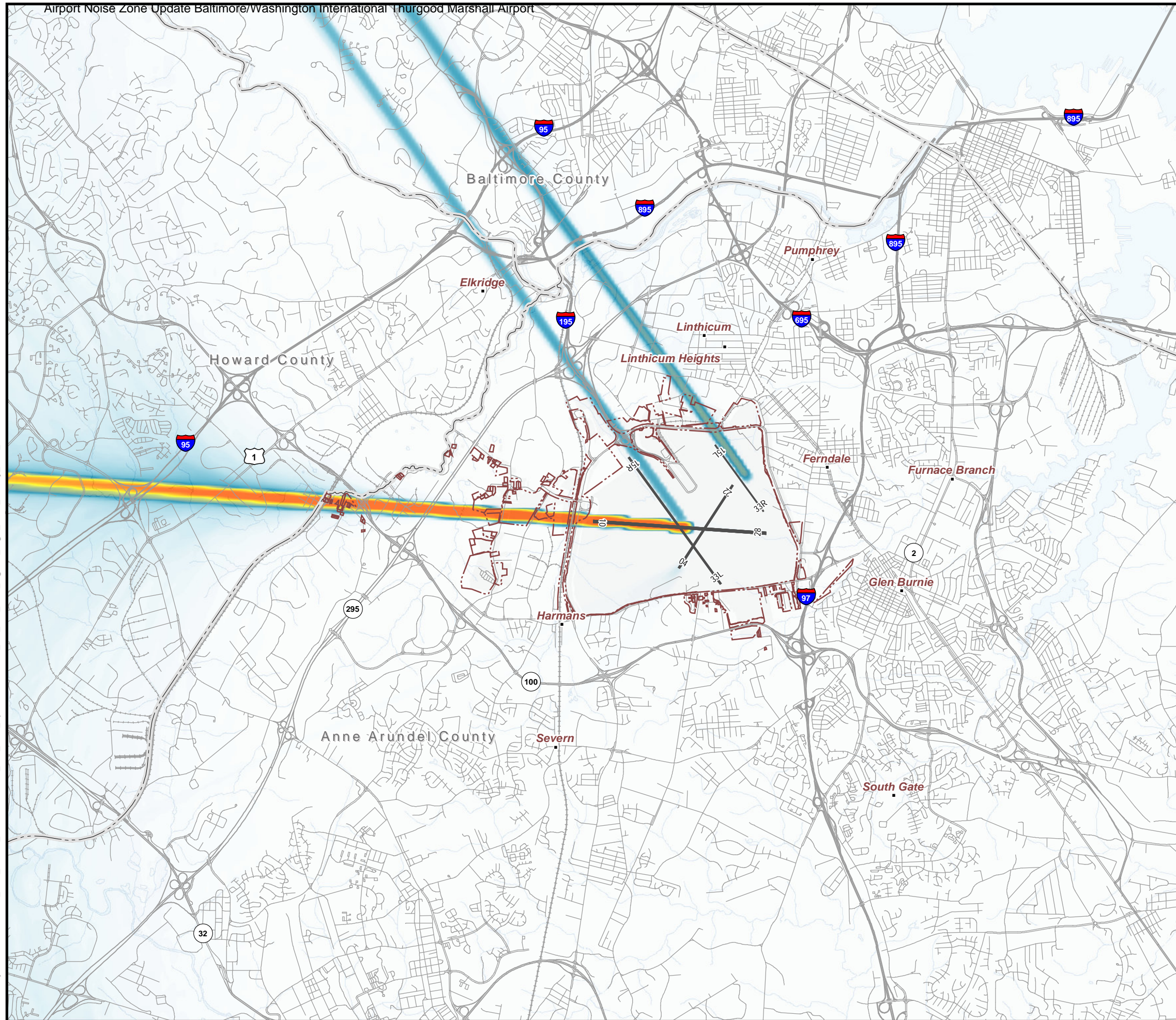
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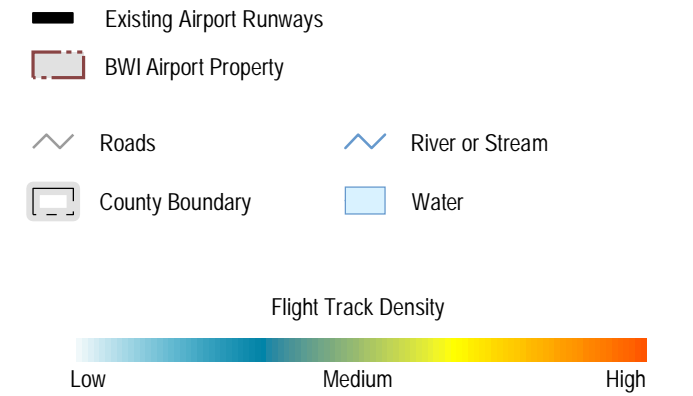
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Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport



Flight Track Density Plot
East Flow Arrival Tracks



DRAFT

Data Sources: BWI Office of Facilities Planning, Noise Abatement Division; Maryland State Highway Administration; Anne Arundel & Howard County; Maryland Department of Planning; Environmental System Research Group, Inc.



HMMH HARRIS MILLER MILLER & HANSON INC.

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F.3.2 Sign-in List


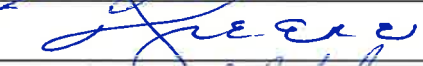





Baltimore/Washington International Thurgood Marshall Airport Community Advisory Committee Sign in Sheet

May 14, 2014

Name	Signature	Company/Organization
Nancy Brown		GBIA
Ellen Sample		MAA
Alverna R-Durham, Jr		Straughan
Sara Berman		STRAUGHAN
Bridget M. Wood		Ho Co.
ED DONALDSON		FAA
KEN GLENDENNING		LSIA
Melvin Kelly		SIA
George Cardwell		Anne Arundel Co
Rusty Bristow		HARMONAS



Name	Signature	Company/Organization
Stephen Smith		FAA / DOT/MDA
Linda Greene		BWI Bus. Partnerships
WAYNE SCHUSTER		MAA - OPE S
KAREN HARREN		MAA N, RE, LC,
Ryan Miller	/ 	AA Co-Planning

F.3.3 Meeting Minutes and Materials Presented

**Advisory Committee Meeting for the Updates to the
Baltimore/Washington International
Thurgood Marshall Airport (BWI Marshall)
Noise Zone and Federal Aviation Regulation Part 150 Noise Exposure
Maps**

**May 14, 2014, 6:00pm
991 Corporate Boulevard Assembly Rooms A/B**

Meeting Minutes

- Sign In sheet provided by Straughan Environmental and set up in lobby. Sara Berman & A.J. Durham attended for SES
- Introductions from David Crandall & Ellen Sample
- MS PowerPoint presentation & handout materials presented by HMMH. David Crandall presented.
- Ellen Sample gave a brief overview and asked everyone present to introduce themselves.

The following are a list of questions, comments, or issues that were discussed during the presentation:

1. Slides 3-4: NEM is a federally recognized document and helps to provide or determines eligibility for grants used for abatement services.
ANZ is a State recognized and certified document. Both are similar with operations and flight tracking but the recognized differently in study timeline.
2. Slides 7-8: Several changes are needed to update the Advisory Committee mailing list. This will be done [updated on Thursday May 15th] and emailed to Office – cc to David Crandall.
3. Slide 9: What is Part 150 a Voluntary Federal Program? Nancy Brown
 - i. Airports choose to conduct 14 CFR Part 150 because they are then eligible to receive federal funding for sound mitigation for residential structures.
 - ii. 250 airports nationwide have this certification
 - iii. Response from Ellen Sample
4. Slide 12: Who's the owner of the Noise Rule for 15L/33R? Stephen Smith
 - a. Comes from the Record of Decision for the runway itself.
 - b. Incorporated by the FAA and addressed in the 2007-08 NCP
5. Slide 15: Straughan will conduct a windshield survey to confirm land use within the 150 guidance (David Crandall).
6. Slide 17: How will the model address closures? Nancy Brown
 - a. The noise model inputs are adjusted for closure and maintenance.
 - i. The model will represent average annual conditions.

- ii. The data sources will be documented in the report (likely in a footnote) so looking back people will understand that the runways were closed during specific periods during the data collection.
7. Slide 18:
- a. Can you explain how Runway 28 is being moved west? Linda Greene
 - i. The runway is being redone and physically being moved. Wayne Schuster
 - b. What is the shift in 15R/33L
 - i. It will be a 3'shift. Wayne Schuster
 - c. The total number of flights in the model is on the high side given that airline efficiency has gone to fewer and fuller flights. David Crandall
8. Slides 19-20: These present the draft 2014 and 2019 contours with the 2010 official NEM from 2005 (Accepted by FAA April 2006). The base map is the draft land use [discussed on slide 15]. Night traffic is averaged in as if the operations occurred 10 times, providing greater effect on the noise contours.

There is a forecasted increase in operations between 2014 and 2019, thus an increase in the size of the 2019 contours relative to the 2014 contours. Can you explain the change in the noise contours between 2010 and 2019? The southeast side sees an expansion while the west side sees reduction.

- a. The change in the noise contours is due to the change in operations:
 - i. The noise contours changed due to the phase-out of certain plane models and the addition of newer and quieter models. David Crandall
 - ii. Arrival noise is steady, but the noise associated with has increased (southeast side) while departures has decreased due to the change in aircraft type (west side). David Crandall
 - iii. The shift in the contours is also due to the change in departure climb practices. Stephen Smith
 - b. Does this mean that there is a change in frequency in noise versus noise itself Ken Glendenning
 - i. The numbers were added and averaged together, Ken Glendenning
 - ii. It is not louder, but there is a greater frequency of noise events Stephen Smith
9. Slide 22: The Noise Land Inventory and Reuse Plan Update addresses the voluntary residential acquisition properties, and selling of property MAA no longer needs. Property acquisition only addresses currently residential properties that are zoned commercial property.
- a. Once sold what becomes of the property? Can it become open space?
 - b. Have you been successful at selling properties? Karen Harrell
 - i. Not really, of the 13 sold 5 or 6 were sold at auction.
 - c. Of the properties sold, what are they used for?
 - i. One was bought by a parking company.
 - ii. One was bought by the neighboring property owner.
 - iii. Walmart appears to be increasing in popularity throughout the area Karen Harrell.
 - iv. I like just open space. Ken Glendenning
10. Slide 23: How do you calibrate the model for NEM? Brian Muldoon

- a. The data in the model are based on noise measurements that were taken during controlled David Crandall
 - b. Is there public health information available? Brian Muldoon
 - i. There is a subdivision that has been fast tracked through his office located near Coco Cola Drive/ 100 / 295 Interchange that clearly would be impacted by the Airport Noise and Development. If not now- than surely in the future this will be factored.
 - ii. DAC responded that this is outside of the NEM/ANZ process
11. Slide 24: Overall contours decrease in size, but may include a few more neighborhoods which lead to a small population increase
12. Slide 25: Can MAA provide further information on population increases within the green areas/zones in relation to the 2007 ANZ contours?
- a. Does this mean that MAA controls what happens within the green area? Nancy Brown
 - b. If someone puts in a request to build the permit will be reviewed by MAA through this opportunity MAA can reject the permit if they believe it is an issue.
 - c. MAA can deny a request for development within this area. It will then review a proposed development to make sure all is done within the noise criteria and that they cannot be sued at a later date due to noise. Ellen Sample
 - d. FAA controls type of building development including heights of building. They have a privilege to deny. Wayne Schuster
13. Slide 28-30: This 2024 noise contour will assume the planned Runway 10R/28L.
- a. Has the planned Runway 10R/28L runway been approved from an environmental standpoint? Ed Huber
 - i. No it has not. It is in the long range planning, as there is a need to show plan if operations grow, but given the steady number of flights there is not a need for an additional runway. Wayne Schuster
 - ii. Runway 10R/28L appears on the approved ALP as a planned RWY – not in the near future (10years) but will remain there to demonstrate our expectations for growth and development. As noted on the approved ALP, footnote [14]. (NOTE: During the meeting is footnote was incorrectly called footnote [11] and is corrected in these meeting minutes as footnote [14].) “The FAA does not support the future Runway 10R/28L as identified”.
An additional runway will most likely not be in use by 2024, as the models overestimated current flight numbers. The previous numbers were too high.
 - b. Can we put a note into explain the change in the contours in relation to the Master Plan? Ellen Sample
 - c. The development of the ANZ relates to the outer extent; preparation over tax maps is an update.
 - d. Wayne Schuster made notes the some of the wordage pertaining to RWY 10/28 need to be changed to ‘planned’ not ‘proposed’. David Crandall agreed. RWY 10/28 appears on the Approved ALP master plan as a planned RWY – not in the near future (10 years) but will remain there to demonstrate our expectations for growth and development. Wayne also noted the studies produced in the past did not take in to consideration technology and financial expense of fuel etc... however the airlines are flying less flights,

with aircraft that have more capacity (and flying fuller to capacity). Older aircraft are retiring and also the departure methodology has been upgraded.



Community Advisory Committee Meeting May 14, 2014

Updates to BWI Marshall Airport Noise Zone and Federal Aviation Regulation Part 150 Noise Exposure Maps

Agenda



Noise Exposure Map and Airport Noise Zone Updates

- **Overview of both projects**
- **BWI Noise abatement goals and history**
- **Members of the Advisory Committee**
- **Noise Exposure Map (NEM) update**
- **Airport Noise Zone (ANZ) update**
- **Schedule**

Comparison of Noise Exposure Map and Airport Noise Zone



Noise Exposure Map and Airport Noise Zone Updates

Part 150 Noise Exposure Map (NEM):

- Enabled by Federal Aviation Regulations Part 150, 1981
- Noise impact determined by Day-Night Average Sound Level (DNL or L_{dn}) Contours for two scenarios:
 - Base year
 - 5-year forecast
- Determines eligibility for federal noise abatement funds

Airport Noise Zone (ANZ):

- Enabled by Maryland Environmental Noise Act 1974
- Noise impact determined by L_{dn} composite contours:
 - Base year
 - 5-year forecast
 - 10-year forecast
- Maryland Aviation Administration (MAA) Controls Land Use Development in Airport Noise Zone

Contour Preparation for the NEM and ANZ



Noise Exposure Map and Airport Noise Zone Updates

- **What is common? / What is different?**
- **Common Data Requirements**
 - Operations
 - Average runway use
 - Location and utilization of flight tracks
- **Different Study Years**
 - NEM is two years, one base and one 5-year forecast (2014/2019)
 - ANZ is three years, one base, one 5-year forecast and one 10 year forecast (2014/2019/2024)

BWI Noise Abatement Goals and History



Noise Exposure Map and Airport Noise Zone Updates

- **1976: First Airport Noise Zone (ANZ) certified**
- **ANZ Updates: 1982, 1988, 1993, 1998 and 2007**
- **1988 goal: noise levels at the end of 1993 would be no greater than those in 1987; this goal was achieved**
- **1989 Maryland General Assembly goal: ANZ no greater than 8,500 acres by the end of 1993. Also achieved.**

Community Advisory Committee Roles



Noise Exposure Map and Airport Noise Zone Updates

- **Committee members are responsible for**
 - Representing the interests of their organizations
 - Communicating progress with their constituents
 - Sharing their constituents' concerns and feedback

Community Advisory Committee Members (Invited)



Noise Exposure Map and Airport Noise Zone Updates

Organization	Representing	Representative
Neighbors Committee	The Greater Elkridge Community Association Elmhurst Improvement Association Glen Burnie Improvement Association Harmans Civic Association Linthicum-Shipley Improvement Association Severn Improvement Association Timber Ridge Improvement Association Ferndale-Linthicum Area Community Council	Edward Huber Eric Jordan Nancy Brown Rusty Bristow Ken Glendenning Melvin Kelly Richard Hanna Liz Wagner
Elected Officials	Senate of Maryland	Sen. James E. DeGrange, Sr.
Federal Aviation Administration	BWI Tower Potomac TRACON Washington Airports District Office	Ed Donaldson Steve Smith Marcus Brundage

Community Advisory Committee (continued)



Noise Exposure Map and Airport Noise Zone Updates

Organization	Representing	Representative
Aviation Representatives	National Business Aviation Association Aircraft Owners and Pilots Association Southwest Airlines Signature Flight Support BWI Business Partnership	Jeff Gilley Craig Fuller Arthur Silver Robert Grant Gene Condon
Public Planning Agencies	Howard County Office of Planning & Zoning Anne Arundel County Off. of Planning & Zoning	Brian Muldoon Lynn Miller
Maryland Aviation Administration	Director, Noise, Real Estate and Planning Assistant Attorney General Director, Office of Planning and Environmental Services Chief Engineer, Facilities Development and Engineering	Ellen Sample Louisa Goldstein Wayne Schuster Paul Shank

Noise Exposure Map

What is Part 150?



Noise Exposure Map and Airport Noise Zone Updates

- **Code of Federal Regulations (14 CFR) Part 150, “Airport Noise Compatibility Planning”**
 - Voluntary federal program
 - Sets national standards for analysis
 - Over 250 airports have participated
 - Provides access to federal funding
 - Funding primarily associated with Residential Sound Insulation or Acquisition

- **Two principal Part 150 elements**
 - Noise Exposure Map or NEM
 - Noise Compatibility Program or NCP

Noise Exposure Map

What is Part 150?



Noise Exposure Map and Airport Noise Zone Updates

- **Noise Exposure Map (NEM)**
 - **The NEM describes**
 - Airport layout and airport operation
 - Land uses in the airport environs
 - Noise/land use compatibility
 - Aircraft noise exposure contour maps
 - Base Year (year of submission)
 - Forecast Year (5-year forecast)

Noise Exposure Map

What is Part 150?



Noise Exposure Map and Airport Noise Zone Updates

- **Noise Compatibility Planning (NCP)**
 - **NCP includes proposed actions to minimize existing and future noise/land use incompatibilities**
 - Noise abatement measures
 - Noise mitigation or compensation measures
 - Preventive land use measures
 - Program management measures

Noise Exposure Map

Recent BWI Part 150 History



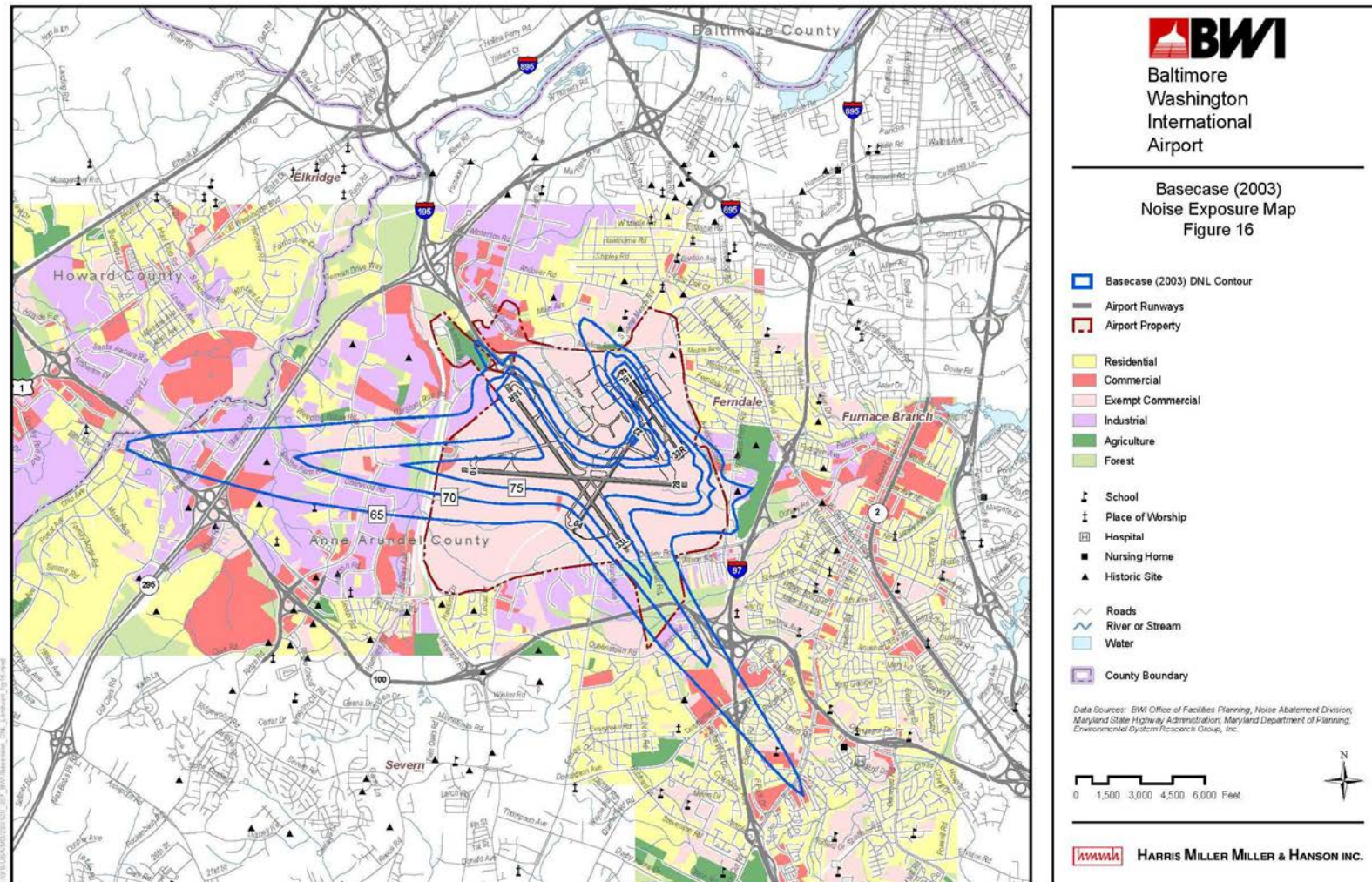
Noise Exposure Map and Airport Noise Zone Updates

- **Most recent Part 150 NEM study in 2005, FAA acceptance April 2006: 2003 Base Case and 2010 Forecast**
- **NCP Update 2007 and FAA Record of Approval (ROA) for NCP on February 26, 2008**
 - **Extension of Voluntary Residential Property Acquisition & Homeowners Assistance Program to include residences between 65 dB and 70 dB DNL**
 - **Updated Noise Rule for 15L/33R**
 - **Added an operations and noise monitoring system to the BWI NCP**
- **This project is only updating the NEM**

Noise Exposure Map 2003 Base Case - FAA acceptance April 2006



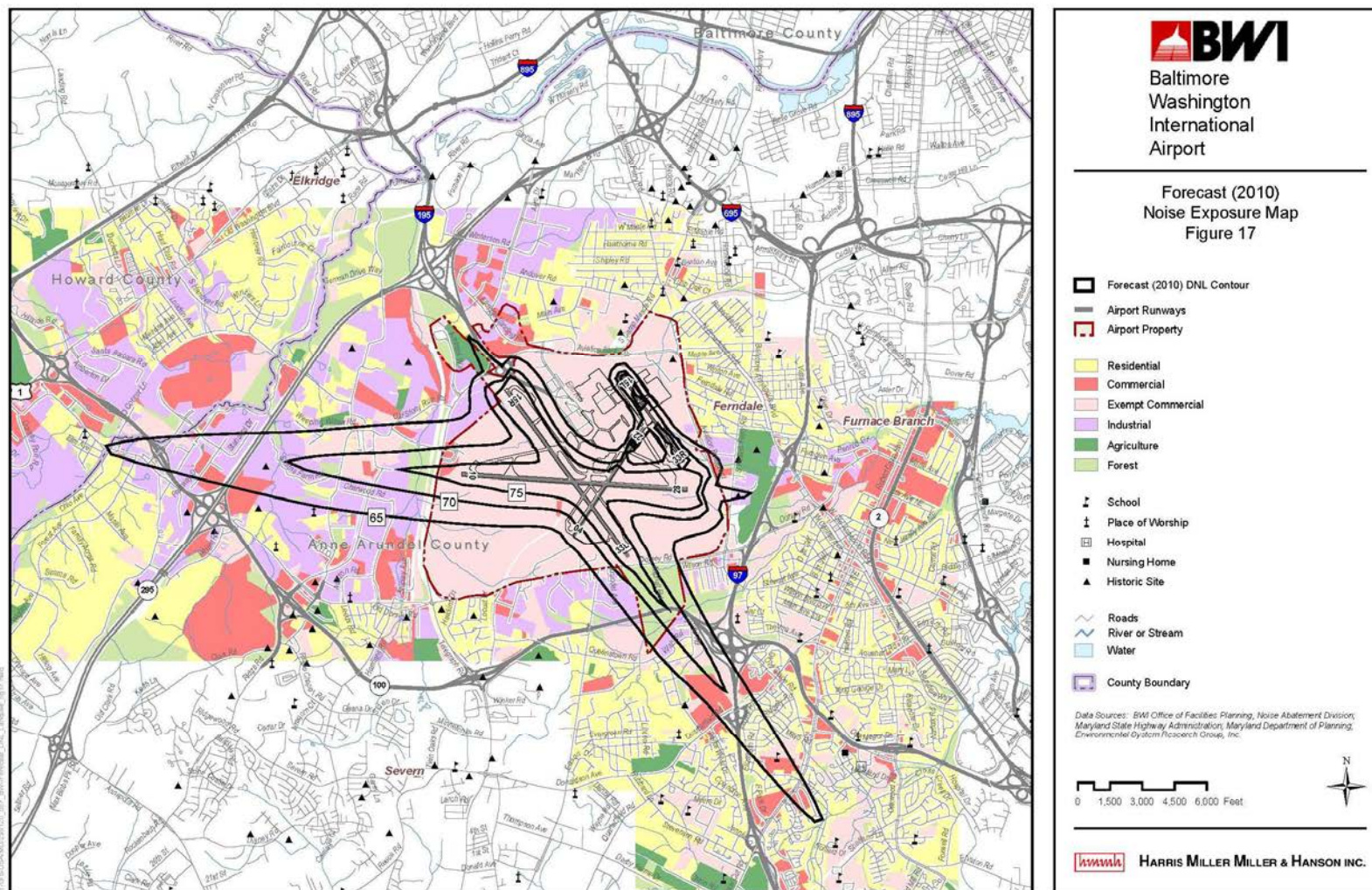
Noise Exposure Map and Airport Noise Zone Updates



Noise Exposure Map 2010 Forecast - FAA acceptance April 2006



Noise Exposure Map and Airport Noise Zone Updates



Noise Exposure Map Update - Land Use Inventory



Noise Exposure Map and Airport Noise Zone Updates

- **Sources**
 - Anne Arundel County
 - Howard County
 - State of Maryland
 - Maryland Aviation Administration
 - National Register of Historic Places
- **Land use data organized to Part 150 guidelines**
- **Land use verification with windshield survey in coming weeks.**

Noise Exposure Map Update – Contour Preparation Data



Noise Exposure Map and Airport Noise Zone Updates

- **Noise modeling done with FAA's Integrated Noise Model (INM)**
- **Runway layout**
- **Operations**
 - Annual average daily operations
 - Detailed breakdown by aircraft type
- **Average Runway Use**
- **Location and utilization of flight tracks**
 - We used RealContours™ as a pre-processor to the INM which allowed us to model every radar track

Noise Exposure Map Update - Develop Base Year 2014 contours



Noise Exposure Map and Airport Noise Zone Updates

- **Runway Layout / Operations**
 - HMMH memorandum “BWI Part 150 Noise Exposure Map Update – Forecast Airport Layout and Operation Assumptions” dated December 12, 2013
 - Runway layout: current airport layout
 - Operations: 263,530 annual aircraft operations
- **Modeled runway use and flight tracks represent average annual conditions**
 - Without the recent maintenance closures of Runway 10/28 and Runway 15R/33L
 - Density figures provided to CAC
- **Maintenance run-up activity**

Noise Exposure Map Update - Develop Forecast Year 2019 contours



Noise Exposure Map and Airport Noise Zone Updates

- **Runway Layout/ Operations (December 12, 2013 memo)**
 - **Runway layout changes**
 - Runway 4/22 would be decommissioned
 - Runway 28 arrivals would land 200 feet further west
 - Runway 15R/33L would shift
 - helicopter pad would move
 - **Operations forecasted to grow and fleet mix changes**
 - 292,253 annual aircraft operations
- **Modeled runway use**
 - **Similar to 2014**
- **Maintenance run-up activity**
 - **Assumed to grow with increase in operations**

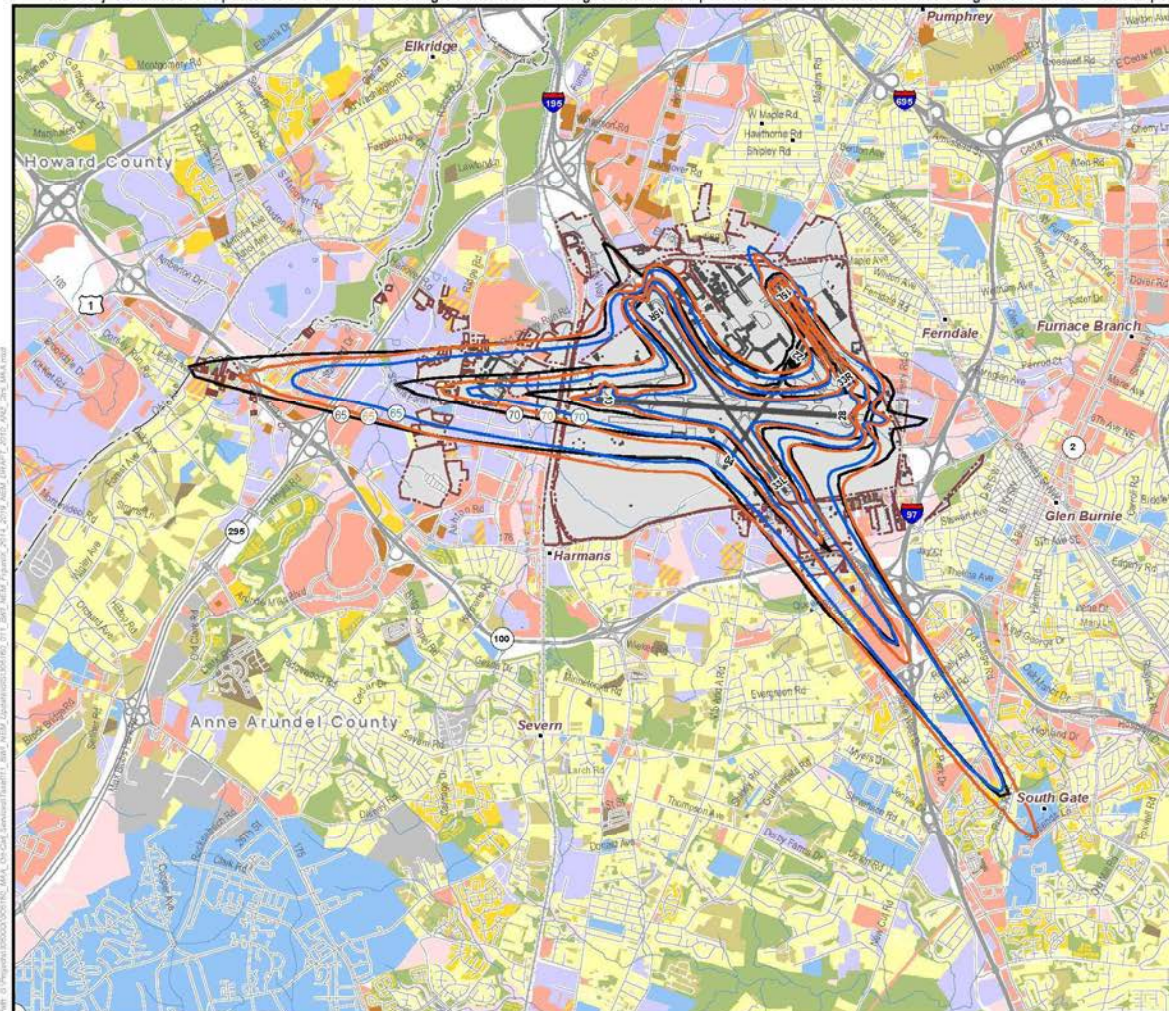
Noise Exposure Map

DRAFT Contours: 2014 and 2019



Noise Exposure Map and Airport Noise Zone Updates

Advisory Committee for Updates to the Baltimore/Washington International Thurgood Marshall Airport Noise Zone and Federal Aviation Regulation Part 150 Noise Exposure Map



BWI
BALTIMORE/WASHINGTON
INTERNATIONAL
Thurgood Marshall
AIRPORT

Comparison of Draft 2014 NEM and
Draft 2019 NEM Contours with
Current 2010 Noise Exposure Map (NEM) Contour

- Draft 2014 NEM Basecase DNL Contour
- Draft 2019 NEM Forecast DNL Contour
- Forecast 2010 DNL Contour (Found in compliance by FAA on April 3, 2006)
- Existing Airport Runways
- BWI Airport Property

Draft 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
 Roads	 River or Stream
 County Boundary	 Water

DRAFT

Data Sources: BWI Office of Facilities Planning, Noise Abatement Division; Maryland State Highway Administration, Anne Arundel & Howard County, Maryland Department of Planning, Environmental Systems Research Group, Inc.

HARRIS MILLER MILLER & HANSON INC.

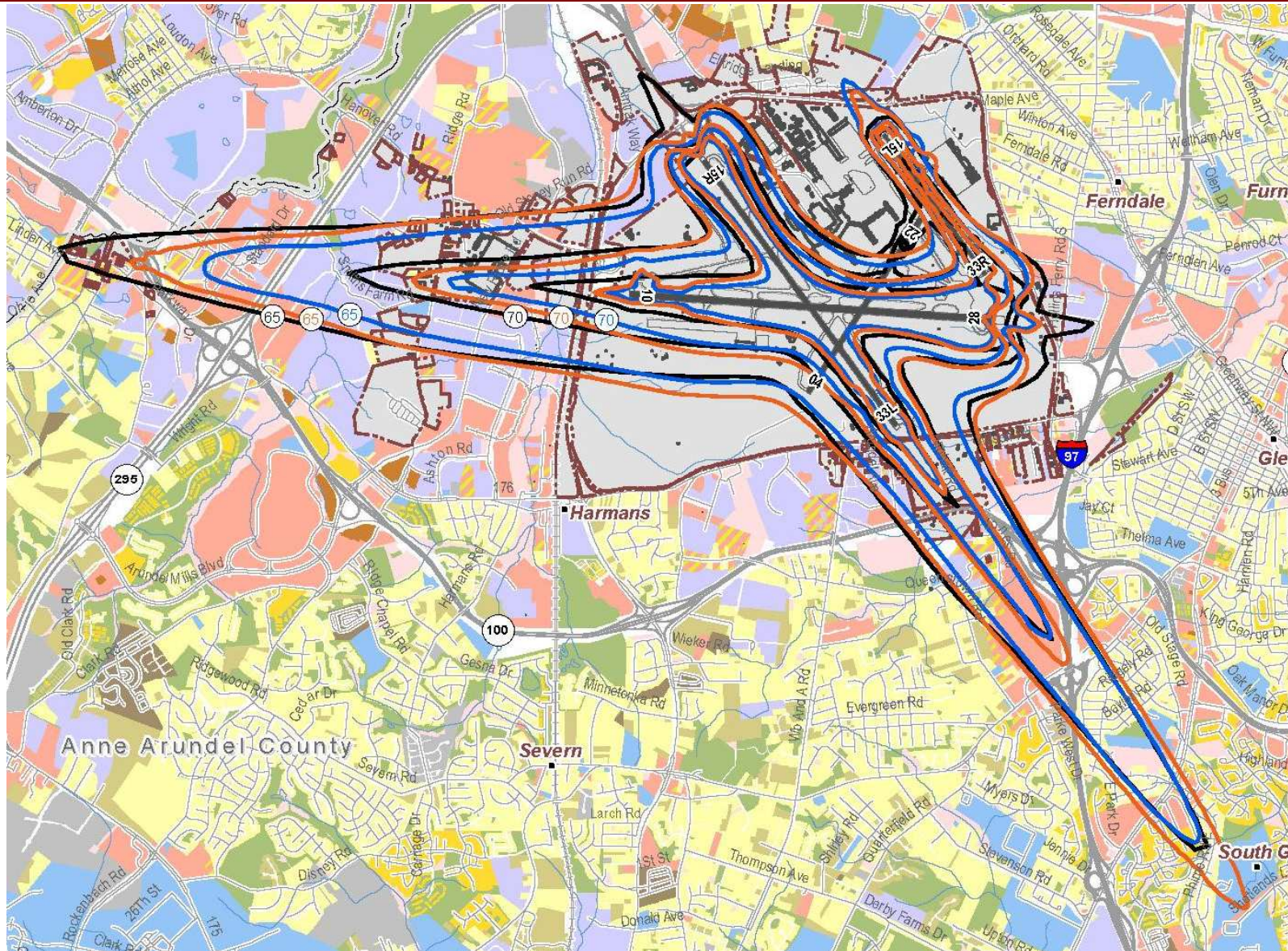
Figure 2 - for discussion on May 14, 2014

Noise Exposure Map

DRAFT Contours: 2014 and 2019



Noise Exposure Map and Airport Noise Zone Updates



Noise Exposure Map Remaining Tasks



Noise Exposure Map and Airport Noise Zone Updates

- **Finalize 2019**
- **Prepare documentation**
- **Provide public draft document**
- **Public Workshop**
- **Incorporate comments**
- **Submit to FAA**

Noise Exposure Map After FAA Acceptance



Noise Exposure Map and Airport Noise Zone Updates

- **NEM update needed for continued federal funding of various activities**
 - Voluntary Residential Property Acquisition
 - Homeowners Assistance Program
 - Sound Insulation
 - Noise and Operations Monitoring System Replacement
 - Noise Land Inventory and Reuse Plan Update

Airport Noise Zone

What is it?



Noise Exposure Map and Airport Noise Zone Updates

- **Composite of three DNL contours**
 - **Base year, 5-year, 10-year**
- **Computed with INM**
- **Largest contour in any area determines the Noise Zone**

Airport Noise Zone Historical Statistics



Noise Exposure Map and Airport Noise Zone Updates

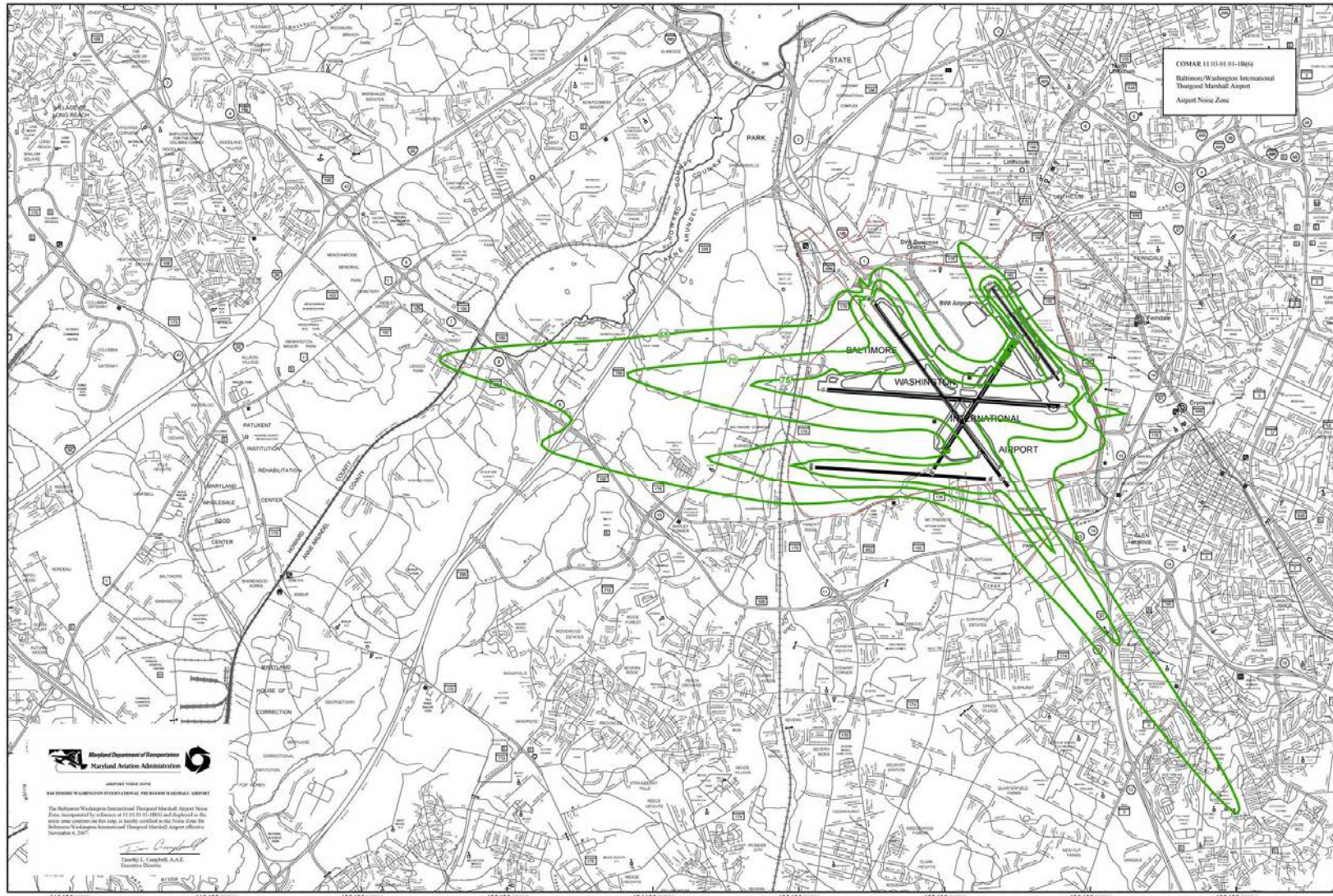
- **Most recent update completed in 2007**
 - Base Case 2005
 - Forecasts for 2012 and 2017
 - Incorporated into COMAR on November 6, 2007
- **Airport Noise Zone Area has decreased**

Year	Acreage	Population
1988	12,100	17,000
1993	7,500	5,800
1998	7,065	3,213
2007	5,172	3,429

Airport Noise Zone 2007 Contours – incorp. in COMAR Nov. 2007



Noise Exposure Map and Airport Noise Zone Updates



2007 Airport Noise Zone

Howard County & Anne Arundel County, Maryland

2007 Airport Noise Zone Contour
Prepared April 25, 2007

Airport Noise Zone Process



Noise Exposure Map and Airport Noise Zone Updates

- **Prepare base-year (2014), 5-year (2019), 10-year (2024)**
 - Assumptions in HMMH memorandum “BWI Airport Noise Zone Update – Forecast Airport Layout and Operational Assumptions” dated April 25, 2014.
 - 2014 L_{dn} contour is the same as the 2014 NEM DNL contour
 - 2019 L_{dn} contour is the same as the 2019 NEM DNL contour
- **Compile composite ANZ**
- **Conduct land use inventory**
- **Evaluate Noise Abatement Plan**
- **Conduct public hearing**
- **Incorporate into COMAR**

Airport Noise Zone DRAFT Contours: 2014 and 2019



Noise Exposure Map and Airport Noise Zone Updates

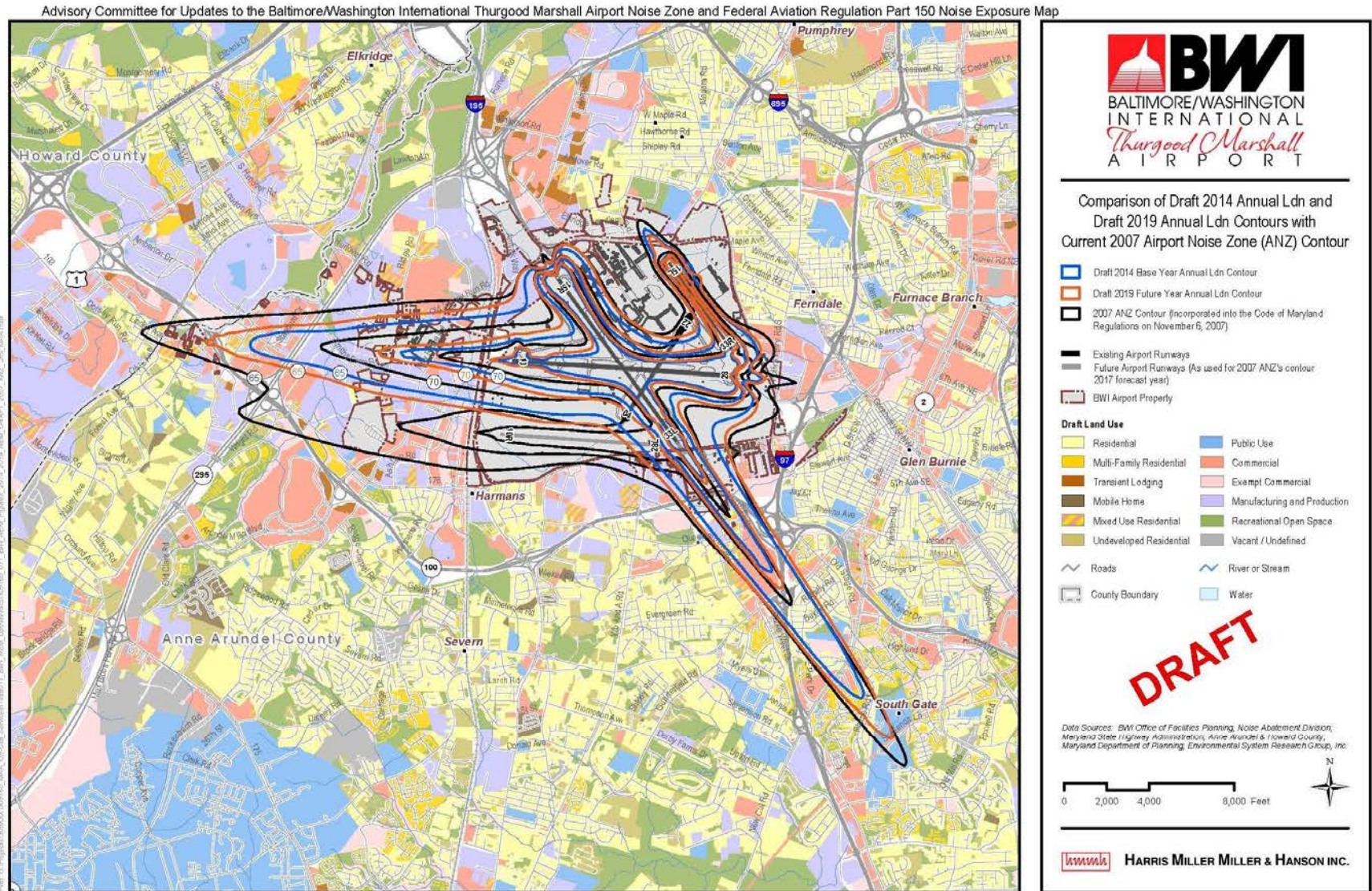
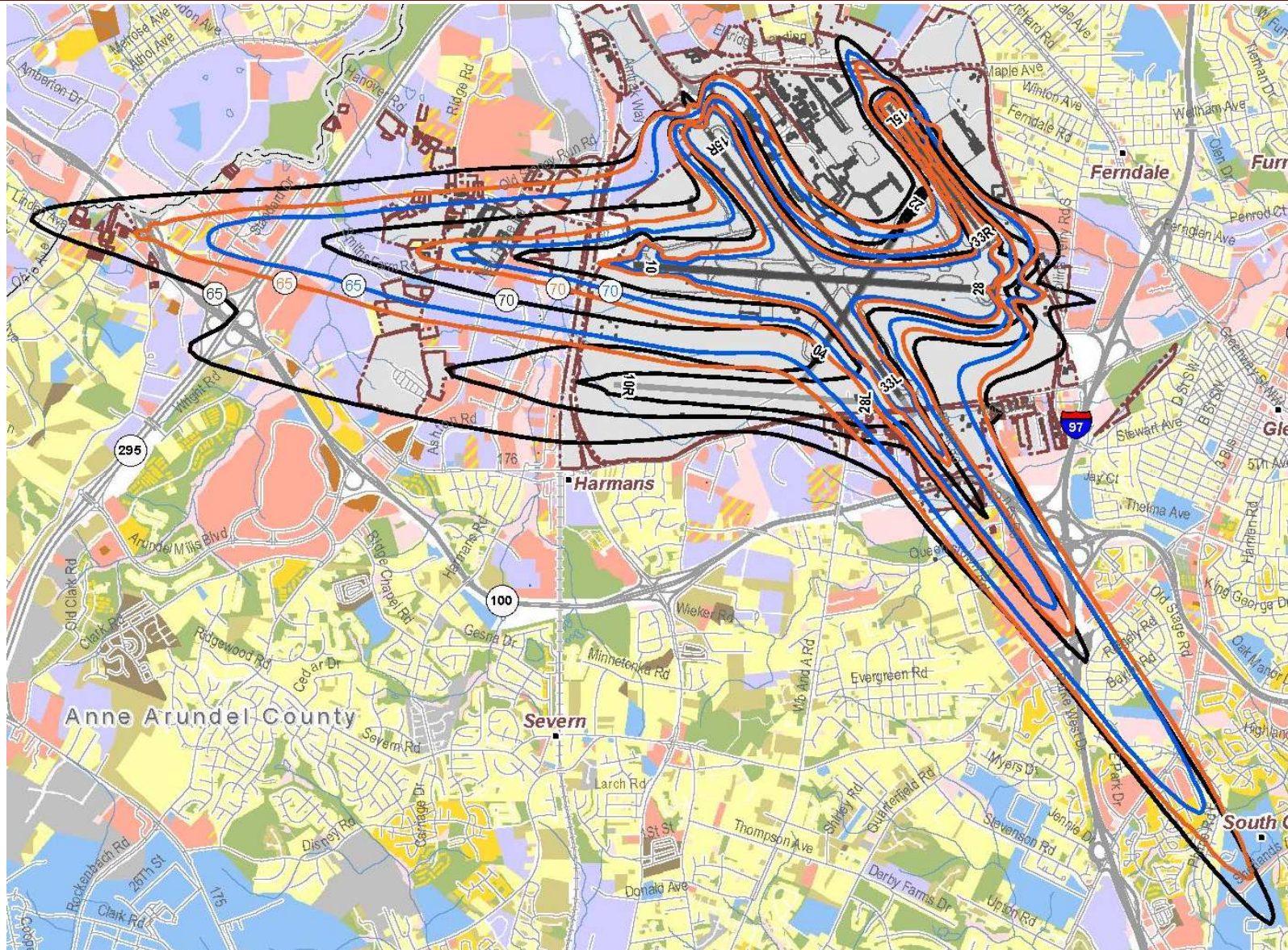


Figure 3 - for discussion on May 14, 2014

Airport Noise Zone DRAFT Contours: 2014 and 2019



Noise Exposure Map and Airport Noise Zone Updates



Airport Noise Zone Remaining Tasks



Noise Exposure Map and Airport Noise Zone Updates

- **Prepare 2024 Contour**
- **Develop ANZ**
- **Prepare over tax maps**
- **Prepare supporting documentation**
- **Public hearing**

Airport Noise Zone 2024 Assumptions



Noise Exposure Map and Airport Noise Zone Updates

- **Assumptions in HMMH memorandum “BWI Airport Noise Zone Update – Forecast Airport Layout and Operational Assumptions” dated April 25, 2014**
 - **Runway layout changes**
 - Lengthen Runway 15R/33L
 - Include Proposed Runway 10/28
 - **Operations forecasted to grow and fleet mix changes**
 - 319,464 annual aircraft operations
- **Runway Use Assumptions from the 2011 Master Plan**
 - **2011 Master Plan included a 2030 ALP contour**
 - Master Plan forecasted 512,440 annual operations for 2030
 - **2024 ANZ should be similar shape, but generally smaller**

Airport Noise Zone 2011 Master Plan, 2030 ALP Contour

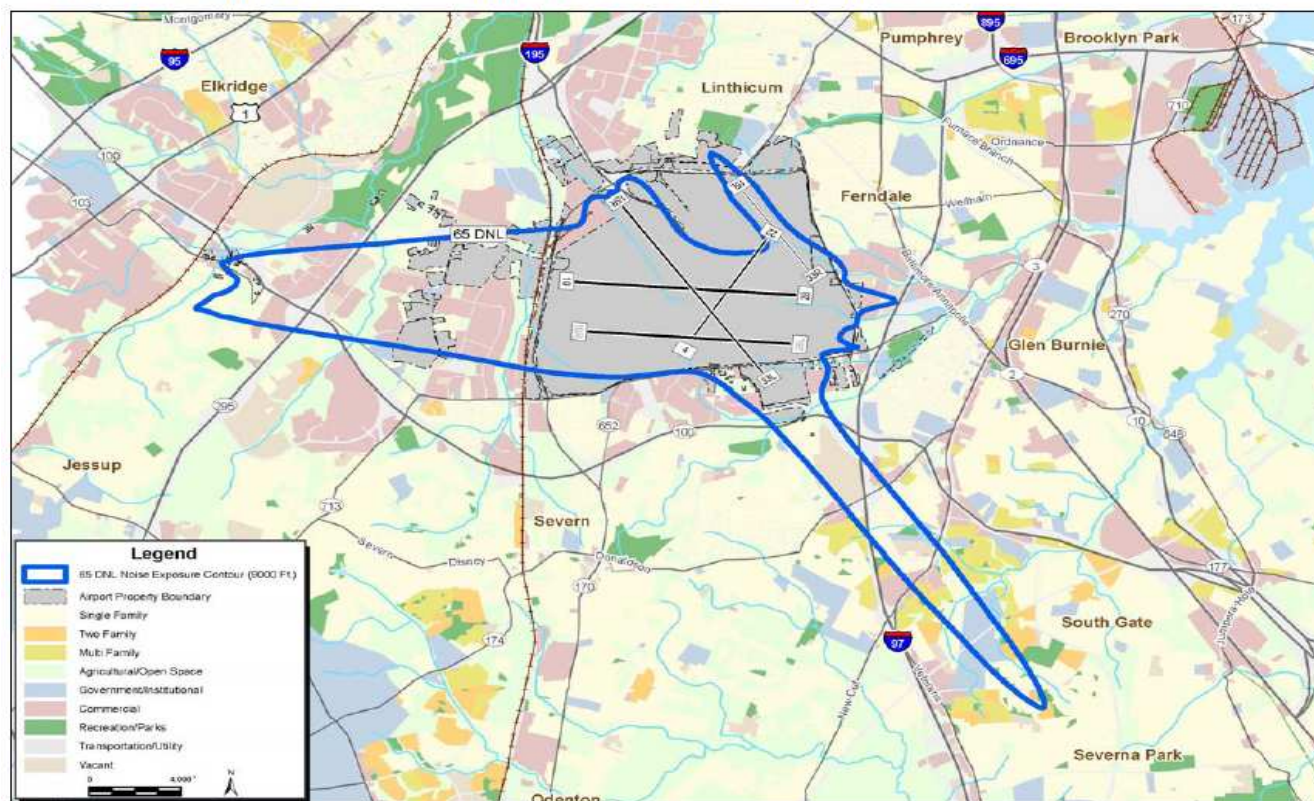


Noise Exposure Map and Airport Noise Zone Updates

BALTIMORE/WASHINGTON INTERNATIONAL THURGOOD MARSHALL AIRPORT MASTER PLAN TECHNICAL REPORT

FINAL

Exhibit 7.4-1 2030 ALP NOISE EXPOSURE CONTOUR Baltimore/Washington International Thurgood Marshall Airport



Landrum & Brown
2011

Chapter 7 – Environmental Overview
Page 7-11

Schedule



Noise Exposure Map and Airport Noise Zone Updates

▪ **Noise Exposure Map (NEM):**

- **Public Workshop – July/August 2014**
- **Submission to FAA - September 2014**
- **FAA review NEM's**
- **Publication of Acceptance in Federal Register**

▪ **Airport Noise Zone (ANZ):**

- **Public Workshop – July/August 2014**
- **Publish Proposed Action in Maryland Register- August 2014**
- **Public Hearing - October 2014**
- **Public Comment Period (30 days)**
- **Request Maryland Aviation Commission Approval**
- **Publish ANZ Regulations in COMAR by December 2014**

F.4 Executive Summary – October 2014

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Baltimore/Washington International Thurgood Marshall Airport

2014 Airport Noise Zone Update and Noise Abatement Plan - Executive Summary



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 Maryland Aviation Administration (MAA) to adopt an Airport Noise Zone (ANZ) and Noise Abatement Plan (NAP) that minimize the impact of aircraft noise on people living near Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall) and prevents incompatible land development around the Airport. The Code of Maryland Regulations (COMAR) also requires MAA to update the ANZ approximately every five years to account for changes in total annual aircraft operations, aircraft types, and aircraft flight paths that may result in changes to the overall aircraft noise levels.

Public Hearing and Comment Period

The Public Workshop and Public Hearing will be held at the MAA offices at 991 Corporate Boulevard in Linthicum MD, on Tuesday October 21, 2014. The Workshop will be held from 5:30 p.m. until 7 p.m. and the Public Hearing will begin at 7 p.m. The Public Hearing will provide interested people an opportunity to comment on proposed revisions to the 2014 BWI Marshall ANZ Update.

A thirty-day public comment period for the ANZ begins on Friday, October 3, 2014. Written statements, in lieu of or in addition to an oral presentation at the hearing, may be submitted to Ms. Sample at the address, located on the back of this Executive Summary, until 5 p.m. on Wednesday November 3, 2014 in order to be included in the "Public Hearing Transcript".

The complete ANZ is a 10 sheet set, overlaid on individual tax maps so individual parcels can be identified. The complete set is available at the various libraries and MAA's website, which are listed in this Executive Summary. The complete

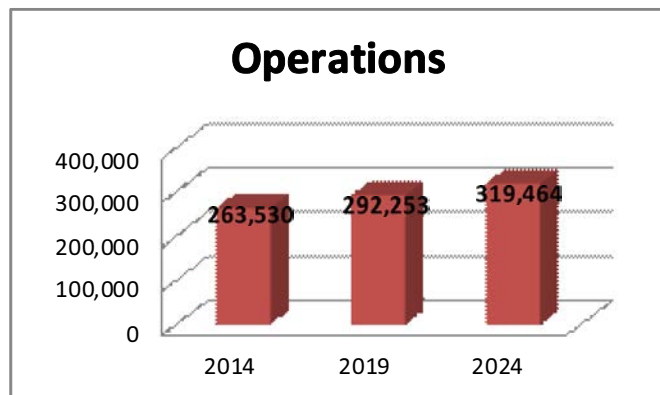
ANZ development documentation is available at MAA's website, and MAA offices (991 Corporate Boulevard in Linthicum MD, available for review during business hours).

2014 Airport Noise Zone

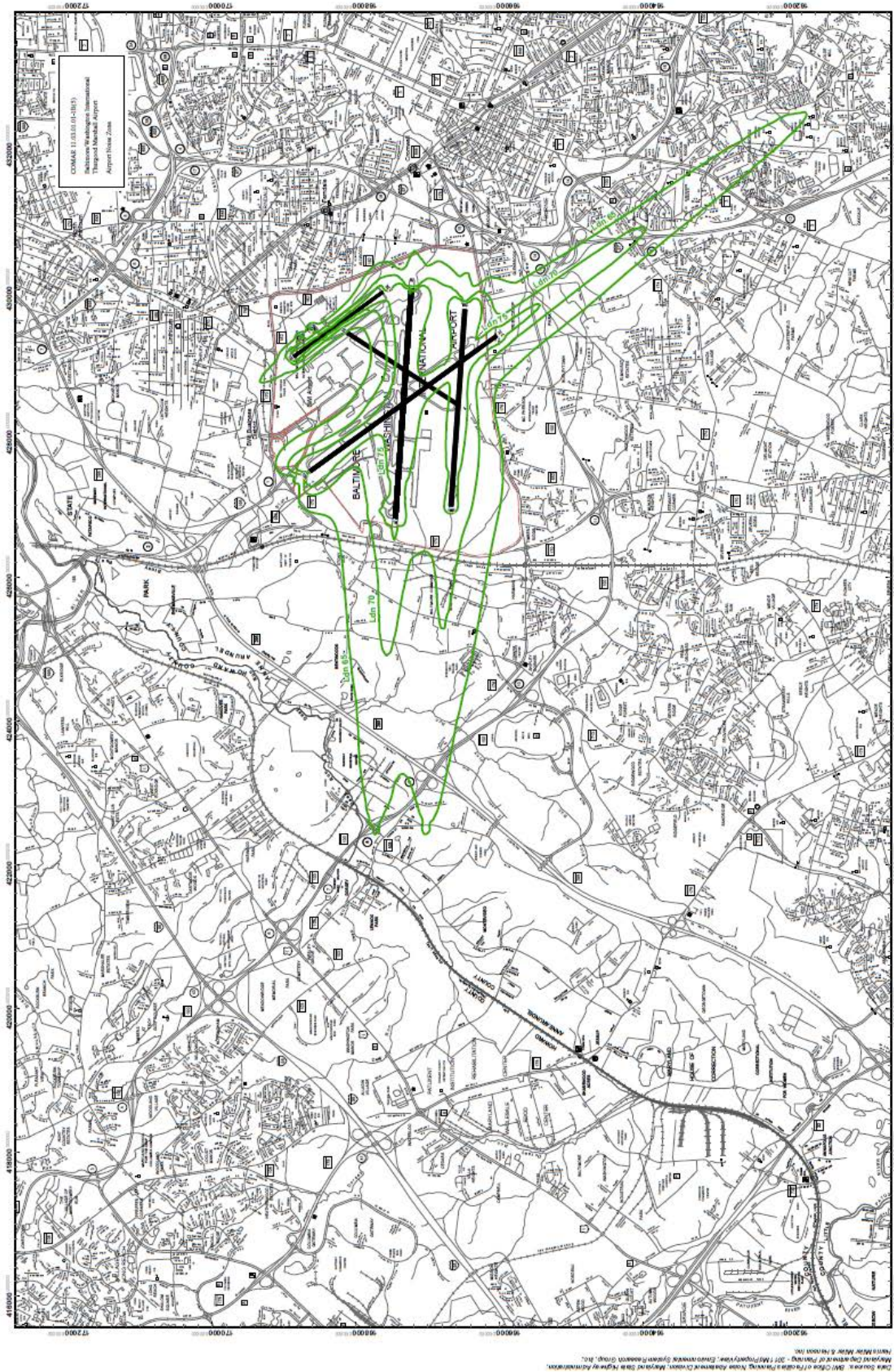
The ANZ is determined by a composite of three noise contours: a base year contour, a five-year forecast, and a ten-year forecast. The largest of the three contours in any area around the Airport determines the Noise Zone, thereby offering protection within the largest of the existing or future noise exposure contours. The MAA uses the ANZ to control incompatible land development around BWI Marshall.

Noise level contours are defined by the annual noise metric Day-Night Average Sound Level (L_{dn}). The L_{dn} is based on all sound energy produced by aircraft flight operations within a 24-hour period plus a penalty for each single nighttime operation (between 10 p.m. and 7 a.m.) which equates to 10 daytime operations. The L_{dn} is presented in five-decibel increments from 65 dB L_{dn} to 75 dB L_{dn} .

The proposed 2014 BWI Marshall ANZ Update is comprised of noise level contours for years 2014, 2019 and 2024. Forecast aircraft operation levels for the three years are presented below.



October 2014



Howard County & Anne Arundel County, Maryland
2014 Airport Noise Zone
Prepared June 30, 2014

2014 Airport Noise Zone

October 2014

The proposed 2014 BWI Marshall ANZ Update is presented on the opposite page of this Executive Summary. Estimated housing counts and population within the proposed 2014 ANZ are presented below.

Noise level L_{dn} (dB)	Estimated Population	Estimated Housing Units
65-70	3,525	1,456
70-75	66	25
75+	0	0
Total	3,591	1,481

Estimated Residential Population within Day-Night Average Sound Level (L_{dn}) Contours in the proposed 2014 BWI Marshall ANZ Update

Noise Abatement Plan

The BWI Marshall Noise Abatement Plan (NAP) prescribes measures to monitor and reduce or eliminate impacted land use areas to the extent feasible, while maintaining efficient airport operations. It fulfills State requirements under COMAR. An impacted land use area is defined as land within the ANZ, occupied by a land use with a cumulative noise exposure at or above the required noise limit for that land use.

In developing and monitoring the NAP, MAA works closely with the BWI Marshall Neighbors Committee, which consists of representatives from eleven communities neighboring the Airport. While operational measures receive the most public attention, the program is well rounded, and includes complementary compatible land use measures and other measures that focus on program implementation, communication, monitoring, and updating. The cooperative airport, citizen, and user effort has been, and will continue to be, the key to the success of the noise abatement program.

The Noise Abatement Plan also fulfills federal requirements for a noise compatibility program under Title 14 Code of Federal Regulations Part 150 (14 CFR Part 150, or Part 150). Part 150 requires U.S. airports to develop a noise compatibility program to secure federal funding for noise mitigation programs and to gain federal approval to implement certain noise abatement procedures.

Changes to the NAP

In August 2007, MAA submitted an updated Noise Compatibility Program to the FAA for review and approval. The update was approved by FAA on February 26, 2008; therefore certain elements of the Noise Abatement Plan have been updated to reflect those changes, as described below:

The MAA modified the existing Noise Rule for Runway 15L/33R by changing the aircraft noise level criteria and source. The result of the proposed change still maintains the original intent of the rule – keeping the 65 dB L_{dn} contour associated with Runway 15L/33R on-airport and away from noise sensitive land uses while permitting additional (relatively quiet) aircraft to use the runway.

The MAA modified its existing Voluntary Residential Property Acquisition and Homeowners Assistance (sound proofing and resale assurance) programs to expand eligibility to the 65 dB L_{dn} contour as defined by the FAA accepted Part 150 Noise Exposure Map (NEM). All other portions of these existing program elements will remain the same.

BWI Marshall Neighbors Committee and Community Advisory Committee

The BWI Marshall Neighbor's Committee was established in 1983 by the MAA in response to neighbors concerns about aircraft noise and future airport growth and development. The BWI Marshall Neighbors Committee formed the basis of the Community Advisory Committee for this study. The Community Advisory Committee, made up of neighborhood representatives, airport users, fixed-base operators, pilots, elected officials, and local, state, and federal officials, provides input and makes recommendations to the staff. Committee members helped disseminate information on the study to the rest of the community and aviation industry and solicit their input. On May 14, 2014, a Community Advisory Committee meeting was held. MAA presented the study progress. Questions and comments were received during the meeting, but MAA did not receive any comments that substantially affected the ANZ update.

BWI Noise Abatement Plan Summary

Noise Abatement Elements

- | | |
|---|---|
| Aircraft Noise Abatement Departure Procedures | • Noise abatement flight tracks, which specify turn locations, on all runways |
| Aircraft Noise Abatement Arrival Procedures | • VFR noise abatement arrival procedures |
| Preferential Runway Use System | • West operations are preferred for noise abatement |
| | • Runway 10/28 is the preferred runway for noise abatement between the hours of 2300 and 0500 local time |
| | • Limitation on use of Runway 33R from 2300 to 0500 local time |
| | • Practice landings and approaches by jet and turboprop aircraft are prohibited on all runways from 2300 to 0700 local time |
| | • Noise Rule for Runway 15L/33R |
| Continued Restricted Use of Runway 4/22 | • Runway 4/22 was permanently closed as a runway effective August 6, 2014 |
| Control of Ground Based Noise Sources | • Powerback Restrictions |
| | • Engine Maintenance Runup Restrictions |
| | • Tree Buffer Along East Airport Boundary |
| Continued Monitoring | • Noise Hotline |
| | • Quarterly Report |
| | • Airport Noise and Operations Monitoring System |

Land Use Elements

- | | |
|-------------------------------------|---|
| Control of Incompatible Development | • Airport Noise Zone |
| | • Board of Airport Zoning Appeals (BAZA) |
| | • Noise Zone Notification in Real Estate Transactions |
| Noise Assistance Programs | • Voluntary Residential Property Acquisition Program |
| | • Homeowners Assistance Program |
| | • School Soundproofing Program |

For Additional Information

Please contact:
Ms. Ellen Sample,
Director, Division of Noise, Real Estate, and Land Use
Compatibility
Maryland Aviation Administration
P.O. Box 8766
BWI Airport, MD 21240
dsample@bwiairport.com
(410) 859-7375

The large scale proposed 2024 ANZ, along with this
this Executive Summary, are available at the libraries
listed to the right. Or visit our website at:
<http://www.maacommunityrelations.com/>

Anne Arundel County

Linthicum Branch
Severn Community Branch
(formerly Provinces)
Brooklyn Park Branch
Riviera Beach Branch
Glen Burnie Branch
(formerly North County)
Severna Park Branch

Baltimore County

Arbutus Branch

Howard County

East Columbia Branch
Central Branch
Elkridge Branch
Miller Branch
Savage Branch

October 2014

APPENDIX G MARYLAND AIRPORT COMMISSION MATERIALS

G.1 Decision Paper (May 22, 2013)

MARYLAND AVIATION ADMINISTRATION Decision Paper

Airport Noise Zone and Noise Abatement Plan Update Baltimore/Washington International Thurgood Marshall Airport (BWI-Marshall)

1. SUBJECT/ISSUE

The Baltimore/Washington International Thurgood Marshall (BWI-Marshall) Airport Noise Zone (ANZ) and Noise Abatement Plan (NAP) are being updated this year, requiring the adoption of new COMAR regulations and approval by the Maryland Aviation Commission. The Maryland Aviation Administration (MAA) develops and certifies the ANZ pursuant to the Annotated Code of Maryland, Transportation Article Sections 5-804, 5-805 and 5-819. The MAA proposes to establish the updated ANZ and NAP for BWI-Marshall by amending Regulation .01-1 under COMAR 11.03.01, and Regulation .12 under COMAR 11.03.01. In accordance with Section 5-201 (b) (2), of the Annotated Code of Maryland, the Maryland Aviation Commission is charged with the review and approval of the Regulation.

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 MAA to adopt an ANZ and NAP to control incompatible land development around BWI-Marshall 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 the Airport determines the Noise Zone. For this ANZ update the base year will be 2013 and the forecast contours are 2018 and 2023. The policy issues involved in this update are discussed below.

2. DISCUSSION

This is the sixth update of the ANZ and NAP for BWI-Marshall since first established in 1976. The noise contours needed to update the ANZ are being prepared by our consultant, Harris Miller Miller and Hanson. The update of the BWI-Marshall NAP includes a review of the Airport's noise abatement operational procedures, land use zoning process, and Homeowner Assistance Programs for noise impacted communities.

Review of Operational Noise Abatement Procedures

A review of all operational procedures was completed during the Federal Aviation Regulation Part 150 Update for BWI-Marshall approved in March 2008. The determination at that time and still evident today is that the current procedures continue to be effective, with one proposed modification which was to the Noise Rule on Runway 15L/33R.

May 22, 2013

The Noise Rule and a list of prohibited aircraft were established using the Federal Aviation Administration's (FAA's) Integrated Noise Model (INM). The Noise Rule was a condition of and incorporated in the Record of Decision for the Extension of Runway 15L/33R dated July 14, 1989. Once the Rule was implemented, it became apparent that many aircraft operators did not understand the use of the INM to determine noise levels as opposed to the certification data for their aircraft provided in FAA Advisory Circulars. Additionally, aircraft operators did not have ready access to the INM database to determine if their aircraft met the criteria for Runway 15L/33R and had to rely on a list published by the MAA. This became increasingly difficult as new aircraft wanted to use BWI-Marshall. Furthermore, our research has shown that the INM predicts higher noise levels than are recorded by our noise monitors in the field or provided in the certification information for many aircraft. Thus the new method for identifying prohibited aircraft is based on FAA published sound levels for each aircraft type provided in FAA's advisory circular (AC) 36-1H "Noise Levels for Certificated and Foreign Aircraft." This available information makes it easier for pilots to understand and comply with the Rule.

Review of Land Use Zoning Control Process

The current ANZ contains 5,172 acres (see attached). The Board of Airport Zoning Appeals (BAZA) is charged with the review and approval of all requests to construct incompatible land uses within the ANZ. Through the appeal process, BAZA requires an Applicant to insure that a home built within the ANZ with a BAZA variance receives adequate sound insulation. The variance process requires all Applicants to provide an acoustical analysis to BAZA from a sound engineer which details how the structure will meet the interior noise level requirement of Ldn 45 dB. Additionally, once construction is completed and prior to the issuance of the use and occupancy permit, the Applicant is required to perform a post construction test and report, demonstrating that the property meets the standard. This report is forwarded to the MAA's acoustical consultant for review. Once the testing results are accepted by the MAA, a letter is forwarded to the local County jurisdiction indicating that the permit can be released. All approved variances require the Applicant to execute an avigation easement which is recorded in the local land records office.

An additional issue related to the ANZ is the continuing comments MAA receives from residents stating that they were not adequately informed when buying a property of its location near a major airport or within an ANZ, or of the recorded avigation easement in the property chain of title. The adopted ANZ is promulgated in the Maryland Register and in the Code of Maryland Regulations. The adopted ANZ and all avigation easements received through the BAZA process, or as a result of participation in BWI-Marshall's Homeowner Assistance Program, are recorded in the local land records office. The recording constitutes constructive notice to prospective buyers. Recording of restrictions and easements assures that a uniform system affecting title to land is consistently applied to all property transactions. Additionally the General Addendum to Contracts of Sale for Improved Property in Howard and Anne Arundel Counties includes a statement which recommends that purchasers review an Airport Noise Zone map if the property is located

May 22, 2013

near an airport. However, to promote further dissemination of this information, MAA will widely disseminate maps of the ANZ following this update to local libraries and to real estate offices near BWI-Marshall.

Review of Noise Assistance Programs

Under our past Homeowner Assistance Programs, 1245 homes, four schools and the Ridgewood Mobile Home Park had been made eligible for Federal and State assistance. To date, the total expenditure on this program is approximately 80 million dollars. The Homeowner Assistance Programs generally have focused on communities experiencing noise levels of 70 Ldn or greater so that initial efforts and resources would be concentrated on the most severely impacted areas. It was also recognized that noise levels would be reduced in future years as the commercial jet fleet transitioned to all Stage 3 aircraft.

MAA is in the process of updating their Federal Aviation Regulation (FAR) Noise Exposure Map (NEM) contours which determines eligibility for the Homeowner Assistance Programs. Eligibility for the program has been expanded to include properties in the 65 to 70 Ldn noise contours. The NEM update process will identify properties located within the 65 Ldn contour which will be eligible for the program. Once the NEM's are approved, improvements to eligible properties will be completed with 80 percent federal funding with the balance funded by the State.

3. CONCLUSION

The MAA proposes to proceed as outlined above as it completes the update of the ANZ and NAP for BWI-Marshall. MAA will be discussing these issues with the ANZ Advisory Committee, the BWI-Marshall Neighbors Committee and the public. A public hearing will be scheduled later this summer. The Maryland Aviation Commission approval will be obtained before the adoption of regulations establishing the updated ANZ.

4. RECOMMENDATION

Authorize the MAA to proceed with updating the ANZ and NAP as outlined above; to publish in the Maryland Register the proposed amendments to Regulations 01-1 under COMAR 11.03.01, and Regulation .12 under COMAR 11.03, and to hold a public hearing.

Approved Disapproved _____ Date May 22, 2013

May 22, 2013

G.2 Decision Paper (November 19, 2014)

MARYLAND AVIATION ADMINISTRATION Decision Paper

Airport Noise Zone and Noise Abatement Plan Update Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall) COMAR Final Action

1. SUBJECT/ISSUE

The BWI Marshall Airport Noise Zone (ANZ) and Noise Abatement Plan (NAP) are being updated requiring the adoption of new COMAR regulations and approval by the Maryland Aviation Commission (Commission). The Maryland Aviation Administration (MAA) develops and certifies the ANZ pursuant to the Annotated Code of Maryland, Transportation Article Sections 5-804, 5-805 and 5-819. The MAA proposes to establish the updated ANZ and NAP for BWI Marshall by amending Regulation .01-1 under COMAR 11.03.01, and Regulation .12 under COMAR 11.03.01. In accordance with Transportation Article §5-201 (b)(2), Annotated Code of Maryland, the Commission is charged with the review and approval of the Regulation.

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 MAA to adopt an ANZ and NAP to control incompatible land development around BWI Marshall 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 the Airport determines the Noise Zone. For this ANZ update, the base year will be 2014 and the forecast contours are 2019 and 2024.

A comparison of the current 2007 ANZ with the proposed 2014 ANZ shows that the contours are similar in shape, but vary in some locations due to a number of operational details: changes in fleet mix and differences in number of operations, slight changes in flight tracks modeled, changes in runway utilization, and updates that have been made by the Federal Aviation Administration (FAA) in the Integrated Noise Model (INM) and its databases. MAA has adopted the FAA's INM for the calculation of cumulative noise exposure as it is the industry standard and required for other federal documents.

While in most places the proposed 2014 ANZ is smaller or comparable to the current 2007 ANZ, the proposed ANZ contours do extend to a small region further to the west along the planned Runway 10R/28L centerline. This change is due to the planned increased use of Runway 10R/28L and the updated length and position for the proposed 2014 ANZ compared to the planned Runway 10R/28L that was used for the current 2007 ANZ.

The table below presents a comparison of acreage, population, and housing unit counts for the proposed 2014 ANZ and the current 2007 ANZ. As shown, there is a decrease in total acreage within the proposed ANZ of 659 acres (approximately 13%), however there is a slight increase (approximately 5%) in housing units and people from the current 2007

ANZ to the proposed 2014 ANZ. The overall extent over residential areas of the current 2007 ANZ and proposed 2014 ANZ contours remain nearly unchanged, however small differences in the contours result in these changes in noise exposure.

Comparison of Noise Exposure for 2014 ANZ with current 2007 ANZ

Airport Noise Zone	Acreage	Estimated Housing Units	Estimated Population
Current 2007	5,172	1,406	3,429
Proposed 2014	4,513	1,481	3,591
Changes	-659	75	162

On May 22, 2013 the proposed ANZ and NAP update projects were presented to the Commission. The presentation included an overview of the operational Noise Abatement Procedures, land use zoning control process and the Homeowner Assistance Programs. Upon completion of the presentation, the Commission authorized the MAA to proceed with updating both the ANZ and NAP and to publish the proposed amendment to the Regulations in the Maryland Register. Attachment 1 shows the proposed changes to COMAR published as the Notice of Proposed Action, in the Maryland Register, Volume 41, Issue 20, October 3, 2014. This will be the sixth update of the ANZ and NAP for BWI Marshall since first established in 1976.

On October 21, 2014, a Public Workshop and Public Hearing were held. Only five citizens attended the hearing. Written comments were accepted October 3, 2014 through November 3, 2014. Three written comments were received and are discussed below:

- Comment regarding the impact of the one mile right turn off Runway 15R on the ANZ contour.
 Response: The noise contours presented in the ANZ are based on actual flight track patterns, including those making a right turn on departure from Runway 15R and heading over the Elmhurst and Severn neighborhoods during east flow operations. The modeled flight tracks shown on Figure 5 of the ANZ document reflect the tracks as they were used for modeling purposes.
- Comment regarding the noise associated with the ongoing closure of Runway 15Right/33left.
 Response: Modeled noise conditions for the ANZ are directed to reflect current and projected airport operations during normal operating conditions. Short term changes in operating patterns due to construction or runway maintenance activities are not included as part of existing or forecast noise modeling.
- Comment regarding the noise contribution of helicopters to the ANZ contours.
 Response: Helicopter operations were included in the modeling for the ANZ contours however the levels of these operations are small compared to the fixed wing aircraft and their noise levels do not cause changes in the DNL 65 dB contour.

None of the comments received affect the results of the Airport Noise Zone. A Public Workshop and Public Hearing Notice was published in four different local area newspapers and was delivered to 12 area public libraries along with the ANZ Maps and Executive Summary. The full ANZ document and related maps and materials have been made available at the MAA offices at 991 Corporate Boulevard in Linthicum, Maryland and on the MAA Community Relations website. Prior to the hearing, the Chief Executive Officers, Zoning Boards and Planning Directors of Anne Arundel, Howard and Baltimore Counties were given an opportunity to comment. Additionally, a direct mail notice was sent out to our Advisory Committee, Neighbors Committee, community associations and interested parties on the MAA mailing list. No additional comments were received through November 3, 2014.

3. CONCLUSION

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

4. RECOMMENDATION

The Maryland Aviation Commission approve the proposed amendment to Regulation .01, .01-1 and .12 under COMAR 11.03.01 Baltimore/Washington International Thurgood Marshall Airport. Maryland Aviation Commission approval is required before MAA can move forward with the Final Action.

Approved ✓ Disapproved Date November 19, 2014

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APPENDIX H OCTOBER 2014 DRAFT, PUBLIC HEARING AND PUBLIC COMMENT PERIOD NOTIFICATION AND RELATED MATERIALS

This appendix presents material related to distribution and notification (of availability for review and comment) of the October 2014 draft Airport Noise Zone. The distribution and notification process occurred in conjunction with the concurrent Noise Exposure Map update. This appendix also includes materials associated with the October 21, 2014 Public Hearing.

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H.1 Library Distribution



Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

MARYLAND AVIATION ADMINISTRATION 2014 AIRPORT NOISE ZONE / NOISE EXPOSURE MAP UPDATE

October 3, 2014

I acknowledge receipt of the following documents:

- ✓ Public Notice Document
- ✓ ANZ Executive Summary
- ✓ ANZ Map Set
- ✓ NEM Exec Summary
- ✓ NEM map set.

G.B. Glen Burnie Branch
Library Location

Mary Ann Keicher
Print Name

Mary Ann Keicher 10/3/14
Signature / Date

Easy come, easy go.

P.O. Box 8766
BWI Airport
Maryland 21240-0766

TOLL-FREE
1 800 I FLY BWI

FACSIMILE
410-850-4729

WEBSITE
www.bwiairport.com



Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

MARYLAND AVIATION ADMINISTRATION 2014 AIRPORT NOISE ZONE / NOISE EXPOSURE MAP UPDATE

October 3, 2014

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- ✓ ANZ Map Set
- ✓ NEM Exec Summary
- ✓ NEM map set.

Linthicum
Library Location

Adam Mazurek
Print Name

Adam R. Mazurek 7/0/3/14
Signature / Date

Easy come, easy go.

P.O. Box 8766
BWI Airport
Maryland 21240-0766

TOLL-FREE
1 800 | FLY BWI

FACSIMILE
410-850-4729

WEBSITE
www.bwiairport.com



Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

MARYLAND AVIATION ADMINISTRATION 2014 AIRPORT NOISE ZONE / NOISE EXPOSURE MAP UPDATE

October 3, 2014

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- ✓ Public Notice Document
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- ✓ ANZ Map Set
- ✓ NEM Exec Summary
- ✓ NEM map set.

Rivera Beach
Library Location

Karen Fobare
Print Name

Karen Fobare 10/3/14
Signature / Date

Easy come, easy go.

P.O. Box 8766
BWI Airport
Maryland 21240-0766

TOLL-FREE
1 800 I FLY BWI

FACSIMILE
410-850-4729

WEBSITE
www.bwiairport.com



Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

MARYLAND AVIATION ADMINISTRATION 2014 AIRPORT NOISE ZONE / NOISE EXPOSURE MAP UPDATE


October 3, 2014

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- ✓ Public Notice Document
- ✓ ANZ Executive Summary
- ✓ ANZ Map Set
- ✓ NEM Exec Summary
- ✓ NEM map set.

Severna Park
Library Location

ANDY WOLVERTON
Print Name

 10/3/14
Signature / Date

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P.O. Box 8766
BWI Airport
Maryland 21240-0766

TOLL-FREE
1 800 I FLY BWI

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410-850-4729

WEBSITE
www.bwairport.com



Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

MARYLAND AVIATION ADMINISTRATION 2014 AIRPORT NOISE ZONE / NOISE EXPOSURE MAP UPDATE

October 3, 2014

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- ✓ NEM Exec Summary
- ✓ NEM map set.

EIKRIDGE

Library Location

Phillip R. LORD

Print Name

Phillip R. Lord 10/3/2014

Signature / Date

P.O. Box 8766
BWI Airport
Maryland 21240-0766

TOLL-FREE
1 800 | FLY BWI

FACSIMILE
410-850-4729

WEBSITE
www.bwiairport.com

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Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

MARYLAND AVIATION ADMINISTRATION 2014 AIRPORT NOISE ZONE / NOISE EXPOSURE MAP UPDATE

October 3, 2014

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- ✓ ANZ Map Set
- ✓ NEM Exec Summary
- ✓ NEM map set.

Severn

Library Location

Sara Catlin

Print Name

[Handwritten Signature]

Signature / Date

Easy come, easy go.

P.O. Box 8766
BWI Airport
Maryland 21240-0766

TOLL-FREE
1 800 | FLY BWI

FACSIMILE
410-850-4729

WEBSITE
www.bwiairport.com



Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

MARYLAND AVIATION ADMINISTRATION 2014 AIRPORT NOISE ZONE / NOISE EXPOSURE MAP UPDATE

October 3, 2014

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- ✓ Public Notice Document
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- ✓ ANZ Map Set
- ✓ NEM Exec Summary
- ✓ NEM map set.

Savage
Library Location

Diane hi
Print Name

DLH 10/3/14
Signature / Date

Easy come, easy go.

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BWI Airport
Maryland 21240-0766

TOLL-FREE
1 800 | FLY BWI

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410-850-4729

WEBSITE
www.bwiairport.com



Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

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October 3, 2014

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- ✓ NEM Exec Summary
- ✓ NEM map set.

E. Col.

Library Location

Robert C. Usher

Print Name

Robert Usher 10/2/14

Signature / Date

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P.O. Box 8766
BWI Airport
Maryland 21240-0766

TOLL-FREE
1 800 I FLY BWI

FACSIMILE
410-850-4729

WEBSITE
www.bwiairport.com



Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

MARYLAND AVIATION ADMINISTRATION 2014 AIRPORT NOISE ZONE / NOISE EXPOSURE MAP UPDATE

October 3, 2014

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- ✓ Public Notice Document
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- ✓ ANZ Map Set
- ✓ NEM Exec Summary
- ✓ NEM map set.

Central Columbia
Library Location

Autumn Watton
Print Name

Autumn L. Watton / 10/3/14
Signature / Date

Easy come, easy go.

P.O. Box 8766
BWI Airport
Maryland 21240-0766

TOLL-FREE
1 800 I FLY BWI

FACSIMILE
410-850-4729

WEBSITE
www.bwiairport.com



Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

MARYLAND AVIATION ADMINISTRATION 2014 AIRPORT NOISE ZONE / NOISE EXPOSURE MAP UPDATE

October 3, 2014

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- ✓ Public Notice Document
- ✓ ANZ Executive Summary
- ✓ ANZ Map Set
- ✓ NEM Exec Summary
- ✓ NEM map set.

MILLER
Library Location

RHANDA LEASURE
Print Name

Rhonda Leasure
Signature / Date

Easy come, easy go.

P.O. Box 8766
BWI Airport
Maryland 21240-0766

TOLL-FREE
1 800 I FLY BWI

FACSIMILE
410-850-4729

WEBSITE
www.bwiairport.com



Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

MARYLAND AVIATION ADMINISTRATION 2014 AIRPORT NOISE ZONE / NOISE EXPOSURE MAP UPDATE


October 3, 2014

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- ✓ ANZ Executive Summary
- ✓ ANZ Map Set
- ✓ NEM Exec Summary
- ✓ NEM map set.

Arbatus
Library Location

Erin Oh
Print Name

 10/3/14
Signature / Date

Easy come, easy go.

P.O. Box 8766
BWI Airport
Maryland 21240-0766

TOLL-FREE
1 800 1 FLY BWI

FACSIMILE
410-850-4729

WEBSITE
www.bwiairport.com



Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

MARYLAND AVIATION ADMINISTRATION 2014 AIRPORT NOISE ZONE / NOISE EXPOSURE MAP UPDATE

October 3, 2014

I acknowledge receipt of the following documents:

- ✓ Public Notice Document
- ✓ ANZ Executive Summary
- ✓ ANZ Map Set
- ✓ NEM Exec Summary
- ✓ NEM map set.

Brooklyn Park
Library Location

Catherine McNamara
Print Name

Catherine McNamara 10/3/14
Signature / Date

P.O. Box 8766
BWI Airport
Maryland 21240-0766

TOLL-FREE
1 800 I FLY BWI

FACSIMILE
410-850-4729

WEBSITE
www.bwiairport.com

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H.2 Legal Notices

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H.2.1 Newspaper Certification Notices



Friday October 3 2014

WE HEREBY CERTIFY, that the annexed advertisement of Order No 996290

Maryland Aviation Administration
991 PO Box 8766
Bwi Airport, MD 21240-0766

was published in "THE BALTIMORE SUN" a daily newspaper printed and published in the City of Baltimore
on Friday October 3 2014

The Baltimore Sun Company,

By *Melissa Thompson*

Subscribed and sworn to before me this

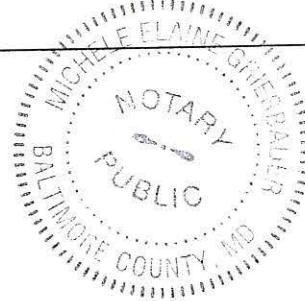
3 day of Oct 2014,

By _____

Michelle Elaine

Notary Public
My commission expires _____
7123

10/5/15





Sunday October 19 2014

WE HEREBY CERTIFY, that the annexed advertisement of Order No 996290

Maryland Aviation Administration
991 PO Box 8766
Bwi Airport, MD 21240-0766

was published in "THE BALTIMORE SUN" a daily newspaper printed and published in the City of Baltimore
on Sunday October 19 2014

The Baltimore Sun Company,

By

Julien Thompson

Subscribed and sworn to before me this 20 day of Oct 2014,

By

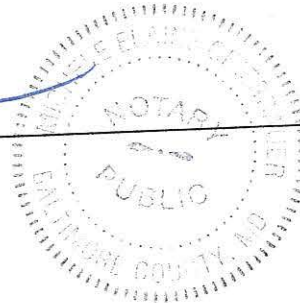
Michelle Elaine

Notary Public

My commission expires

10/5/15

7123



LEGAL NOTICES

PUBLIC NOTICE

Maryland Department of Transportation
 Maryland Aviation Administration

The Maryland Aviation Administration (MAA's) will conduct a Public Hearing pursuant to the Annotated Code of Maryland Transportation Article Section 5-806 (b) on the Proposed Airport Noise Zone (ANZ) and a concurrent Public Workshop pursuant to Title 14 Code of Federal Regulations Part 150, Subpart B, Section 150.21 (b) on the Noise Exposure Maps (NEM's) for Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall).

Tuesday, October 21, 2014
 5:30 pm - Public Review Area and Workshop Opens
 7:00 pm - ANZ Public Hearing Begins

Location
 Maryland Aviation Administration
 Assembly Room
 991 Corporate Boulevard
 Linthicum, MD 21090

The purposes of the ANZ Public Hearing and NEM Public Workshop are to afford all interested persons the opportunity to present their views regarding the proposal to revise the boundaries of the ANZ and NEM's. The proposed BWI Marshall ANZ is scheduled to be incorporated by reference into the Code of Maryland Regulations (COMAR) and will then be used to control land use development. The last ANZ revision was completed in 2007. The NEM's are scheduled to be submitted to the Federal Aviation Administration (FAA) and, when accepted, will be used to determine eligibility for federal noise abatement funds. The last NEM update was completed in 2005 and accepted by FAA in April 2006.

During the first ninety minutes, maps depicting the current and proposed boundaries of the BWI Marshall ANZ and NEM's will be on display for public review. Representatives of the MAA's will be available to answer questions and discuss points of interest at that time.

Beginning at 7:00 pm, a brief presentation will be made on the process and changes to the Maps. Following the presentation, formal comments from the public will be recorded before a hearing officer. Formal comments will continue to be accepted and the exhibit review area will remain open until 8:00 pm. Comments submitted for either the ANZ or the NEM projects/maps will be assumed to be submitted for both, if applicable.

To register in advance to present formal testimony at the public hearing or to be added to the mailing list, please contact Ms. Ellen Sample, Director, Office of Noise, Real Estate and Land Use Compatibility at 410-859-7375 or mail requests to her attention at the MAA's, P.O. Box 8766, BWI Airport, MD 21240. Requests to speak at the hearing should be received no later than 5:00 pm on Friday, October 17, 2014 in order to ensure proper scheduling. Elected officials and community leaders will be given the opportunity to speak before those on the speakers list. On the evening of the hearing, persons who desire to speak can also sign-up. They will follow those speakers on the previously established list. If a large number of speakers enroll, a limitation of time allotted to each speaker may be necessary. Handouts and forms for written comments will be available at the hearing.

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- Division of Noise, Real Estate and Land Use Compatibility, Maryland Aviation Administration, 991 Corporate Blvd., Linthicum, MD, 21090

- Local Libraries
Anne Arundel County
 Linthicum Branch
 Severn Community Branch
 Brooklyn Park Branch
 Riviera Beach Branch
 Glen Burnie Regional Branch
 Severn Park Branch
Howard County
 East Columbia Branch
 Central Branch
 Elkridge Branch
 Miller Branch
 Savage Branch
Baltimore County
 Arbutus Branch

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Anyone planning to attend this Public Hearing and who wishes to receive auxiliary aids, services, or accommodations is invited to contact Ms. Ellen Sample at least 48 hours in advance at 410-859-7375.

Notice on Limited English Proficiency Compliance:

Anyone planning to attend the Public Hearing, and is limited in their ability to speak or understand English and wishes to receive translation services is invited to contact Ms. Ellen Sample at least 48 hours in advance at 410-859-7375.

CITY OF BALTIMORE

ANNE ARUNDEL FORECLOSURE

THE FISHER LAW GROUP, PLLC
 9440 Pennsylvania Avenue-Suite 350
 Upper Marlboro, Maryland 20772
 Telephone (301) 599-7700
 Case No.: 02-C-13-184436

**FORECLOSURE SALE
 VALUABLE IMPROVED DWELLING**

**713 Hamlen Road,
 Glen Burnie, MD 21061**

In enforcement of a Security Instrument granted by Carl R. Hopewell and Linda F. Hopewell dated September 26, 2006 and recorded among the Land Records of Anne Arundel County, Maryland in Liber 18328 at folio 245, the undersigned, will sell at public auction at the Courthouse entrance of the:

CIRCUIT COURT FOR ANNE ARUNDEL COUNTY
 at the Court House Door, 7 Church Circle,
 Annapolis, Maryland 21401 on

Monday, October 6, 2014 at 11:30 AM

All that property described in said Security Instrument, being in the 3 Election District of Anne Arundel County, Maryland, and being improved by a dwelling bearing the street address of 713 Hamlen Road, Glen Burnie, MD 21061. Subject to all covenants, restrictions and easements of record, if any. Subject to the payment of annual ground rent of \$108.00, payable half-yearly on the 23rd day of January and July of each and every year. HOWEVER, PURCHASER ASSUMES AND AGREES TO PAY ALL UNPAID RENT AND COLLECTION. (NOTE WELL: For administrative convenience, other sales may have been scheduled for this specific time and date. Prior to commencement of the sales, an announcement will be made as to the order of sale. Additional information is available at www.first-legal.com.)

TERMS OF SALE: A cash or cash equivalent deposit of \$15,000.00 will be required at the time of sale, the balance to be payable in cash within ten (10) business days after ratification of the sale by the Circuit Court, with interest on said balance from the date of sale to date of receipt of funds by the undersigned at the rate of 8.24000% per annum. Failure of the purchaser to settle may result in resale of the property at purchaser's risk and cost, and forfeiture of deposit, at the election of the undersigned, who specifically preserve all legal and equitable remedies available to them. The undersigned reserve the right to waive the deposit requirements as to a purchaser representing the interests of the party secured by the Security Instrument. Sale is "AS-IS" and the undersigned make no warranty regarding the physical condition, physical description, title, or any other matter with respect to the property. All due and/or unpaid water and sewer facilities charges and front foot benefit payments are payable by the purchaser without adjustment. Taxes, rents (other than ground rents) and any other annually payable public charges and assessments, including any condominium fees and/or homeowner's association dues, if applicable, will be adjusted to the day of sale and thereafter assumed by the Purchaser. All costs of conveyancing, including transfer taxes and recordation taxes will be paid by the Purchaser. The Purchaser will pay a reasonable fee for any services rendered by counsel for the undersigned at the request of the purchaser or due to the failure of the purchaser to comply with the terms of sale. The Purchaser shall be responsible for obtaining possession of the property. In the event the undersigned are unable to convey marketable title or in the event the borrower entered into a repayment plan, reinstated or paid the loan off prior to the sale, or if for any other reason, the undersigned did not have the right to sell, the sale is null and void and the Purchaser is not entitled to any legal or equitable remedy other than return of the deposit without interest and any and all other claims of the purchaser are hereby released. Other terms and conditions may be announced at the sale.

JEFFREY B. FISHER, ET AL. for Substitute Trustees
 Matter No. 12-03860
 38-CC Sept. 19, 26, Oct. 3 994469

CEMETERY LOTS

3 MAUSOLEUMS FOR SALE Cedar Hills Cemetery, Richard HWY. 4th deck. Best offer 410-732-1720 or 443-687-4901

CEMETERY LOTS & VAULT 2 cemetery lots and 1 vault, Holly Hills Cemetery in Essex area. Asking \$5,500 or best offer. 410-953-9811

CEMETERY LOTS DULANEY VALLEY MEMORIAL GARDENS TWO BURIAL LOTS W/VAULTS IN FIELD OF HONOR NEAR FLAG. VALUE \$7000, ASKING \$5000 OR BEST OFFER. 410-798-7185

GARDEN OF FAITH 2 Adj. Lots 1st Miracle 3 & 4. \$6000 for both

LEGAL NOTICES

NOTICE OF FILING OF AN APPLICATION FOR CONVERSION

This is to inform the public that under 12 C.F.R. Part 192 of the Regulations of the Office of the Comptroller of the Currency (the "OCC"), application has been made on or about September 12, 2014 for Madison Bank of Maryland to convert from the mutual to the stock form of organization. Madison Bank of Maryland is located 1920 Rock Spring Road, Forest Hill, Maryland 21050.

THE FISHER LAW GROUP
 9440 Pennsylvania Avenue
 Upper Marlboro, Maryland
 Telephone (301) 599-7700
 Case No.: 02-C-14-18

**FORECLOSURE !
 VALUABLE IMPROVED I**

**3924 Old Birdsvill
 Harwood, MD 207**

In enforcement of a Security Instrument granted by Constance Belcher and Wade Belcher dated September 26, 2005 and recorded among the Land Records of Harwood County, Maryland in Liber 17320 at folio 245, the undersigned, will sell at public auction at the Courthouse entrance of the:

CIRCUIT COURT FOR ANNE ARUNDEL COUNTY
 at the Court House Door, 7 Church Circle,
 Annapolis, Maryland 21401 on

Monday, October 20, 2014

All that fee simple property described in said Security Instrument, being in the 1 Election District of Harwood County, Maryland, and being improved by a dwelling bearing the street address of 3924 Old Birdsvill Road, Harwood, MD 20776. Subject to all covenants, restrictions and easements of record, if any. (NOTE WELL: For administrative convenience, other sales may have been scheduled for this specific time and date. Prior to commencement of the sales, an announcement will be made as to the order of sale. Additional information is available at www.first-legal.com.)

TERMS OF SALE: A cash or cash equivalent deposit of \$31,000.00 will be required at the time of sale, the balance to be payable in cash within ten (10) business days after ratification of the sale by the Circuit Court, with interest on said balance from the date of sale to date of receipt of funds by the undersigned at the rate of 8.24000% per annum. Failure of the purchaser to settle may result in resale of the property at purchaser's risk and cost, and forfeiture of deposit, at the election of the undersigned, who specifically preserve all legal and equitable remedies available to them. The undersigned reserve the right to waive the deposit requirements as to a purchaser representing the interests of the party secured by the Security Instrument. Sale is "AS-IS" and the undersigned make no warranty regarding the physical condition, physical description, title, or any other matter with respect to the property. All due and/or unpaid water and sewer facilities charges and front foot benefit payments are payable by the purchaser without adjustment. Taxes, rents (other than ground rents) and any other annually payable public charges and assessments, including any condominium fees and/or homeowner's association dues, if applicable, will be adjusted to the day of sale and thereafter assumed by the Purchaser. All costs of conveyancing, including transfer taxes and recordation taxes will be paid by the Purchaser. The Purchaser will pay a reasonable fee for any services rendered by counsel for the undersigned at the request of the purchaser or due to the failure of the purchaser to comply with the terms of sale. The Purchaser shall be responsible for obtaining possession of the property. In the event the undersigned are unable to convey marketable title or in the event the borrower entered into a repayment plan, reinstated or paid the loan off prior to the sale, or if for any other reason, the undersigned did not have the right to sell, the sale is null and void and the Purchaser is not entitled to any legal or equitable remedy other than return of the deposit without interest and any and all other claims of the purchaser are hereby released. Other terms and conditions may be announced at the sale.

JEFFREY B. FISHER, ET AL. for Substitute Trustees
 Matter No. 13-03287
 40-BB October 3, 10, 17

LEGAL NOTICES

FIVE-YEAR REVIEW Former Naval Surface Warfare Center - Carderock Division - Annapolis Detachment Former David Taylor Research Center and Bay Head Road Annex

The Department of the Navy, in cooperation with the Maryland Department of the Environment (MDE), has begun the third five-year review of the remedies implemented at the above-named sites. The purpose of this review process is to ensure that the selected remedies are effectively protecting human health and the environment. The five-year review is mandated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (also known as Superfund) for sites where

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Baltimore, Maryland 21278-0001

October 16, 2014

THIS IS TO CERTIFY, that the annexed advertisement was inserted in the following:

- Howard County Times
- Columbia Flier

weekly newspapers published in Howard County, Maryland, once a week for two (2) successive weeks before the 17th day of October, 2014 that is to say, the same was inserted in the issues of October 9 and October 16, 2014.

THE BALTIMORE SUN MEDIA GROUP

By: Susan Wilkinson

PUBLIC NOTICE

**Maryland Department of Transportation
Maryland Aviation Administration**

The Maryland Aviation Administration (MAA) will conduct a Public Hearing pursuant to the Annotated Code of Maryland Transportation Article Section 5-806 (b) on the Proposed Airport Noise Zone (ANZ) and a concurrent Public Workshop pursuant to Title 14 Code of Federal Regulations Part 150, Subpart B, Section 150.21 (b) on the Noise Exposure Maps (NEM's) for Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall)

Tuesday, October 21, 2014
5:30 pm - Public Review Area and Workshop Opens
7:00 pm - ANZ Public Hearing Begins

Location
Maryland Aviation Administration
Assembly Room
991 Corporate Boulevard
Linthicum, MD 21090

The purposes of the ANZ Public Hearing and NEM Public Workshop are to afford all interested persons the opportunity to present their views regarding the proposal to revise the boundaries of the ANZ and NEM's. The proposed BWI Marshall ANZ is scheduled to be incorporated by reference into the Code of Maryland Regulations (COMAR) and will then be used to control land use development. The last ANZ revision was completed in 2007. The NEMs are scheduled to be submitted to the Federal Aviation Administration (FAA) and, when accepted, will be used to determine eligibility for federal noise abatement funds. The last NEM update was completed in 2005 and accepted by FAA in April 2006.

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To register in advance to present formal testimony at the public hearing or to be added to the mailing list, please contact Ms. Ellen Sample, Director, Office of Noise, Real Estate and Land Use Compatibility at 410-859-7375 or mail

Legal or Agency Order Summaries for 2734710

Company: BSC-BSMG
 Sold To #: CU00189074
 Sold To Name: MD AVIATION ADMINISTRATION
 PO #: TAXID#36-188355 ANZPUBLICHEARI
 Description: REQUESTS TO HER ATTENTION AT THE MAA, P.
 Comments:
 Reference #: 996613
 Bill To #: CU00189074
 Bill To Name: MD AVIATION ADMINISTRATION
 Bill To Address: PO Box 8766 *-BWI Airport*
 Baltimore, MD 21240

Insertion #	Day	Pub date	Product type	Product	Section	Class	Zone	Status	Gross Price
01-0	Thursday	10/09/2014	Classified Listings	Howard County Times	Classified	11518	Full Run	Invoiced	335.72
02-0	Thursday	10/16/2014	Classified Listings	Howard County Times	Classified	11518	Full Run	Invoiced	335.72
03-0	Thursday	10/09/2014	Online	CNG_Publicnoticeads.com	CNG_Publicnot ceads.com	11518		Invoiced	0.00
04-0	Thursday	10/09/2014	Online	Publicnoticeads.com	Publicnoticeads .com	11518		Invoiced	0.00
								Total	671.44

THIS IS NOT AN INVOICE
INVOICE WILL BE MAILED SEPARATELY

OFFICE OF
The Capital
and
Maryland Gazette

Published by
Capital Gazette Communications, Inc.
HOLDER OF CONTRACT FOR ANNE ARUNDEL COUNTY ADVERTISING

CERTIFICATE OF PUBLICATION

Annapolis, MD, October 20, 2014

We hereby certify that the annexed Public Hearing BWI Marshall

was published in The Capital, a newspaper published in the City of Annapolis, Anne Arundel County, MD

once a week for two successive weeks

before the 21st day of October, 2014

The insertions being made the 11th and 19th of
October, 2014

was published in the Maryland Gazette, a newspaper published in the City of Annapolis, Anne Arundel County, MD

once a week for two successive weeks

before the 21st day of October, 2014

The insertions being made the 8th and 18th of
October, 2014

Capital Gazette Communications, Inc.

By 

PUBLIC NOTICE
Maryland Department of
Transportation
Maryland Aviation Administration

The Maryland Aviation Administration (MAA) will conduct a Public Hearing pursuant to the Annotated Code of Maryland Transportation Article Section 5-806 (b) on the Proposed Airport Noise Zone (ANZ) and a concurrent Public Workshop pursuant to Title 14 Code of Federal Regulations Part 150, Subpart B, section 150.21 (b) on the Noise Exposure Maps (NEM's) for Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall).

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Elkridge Branch
Miller Branch
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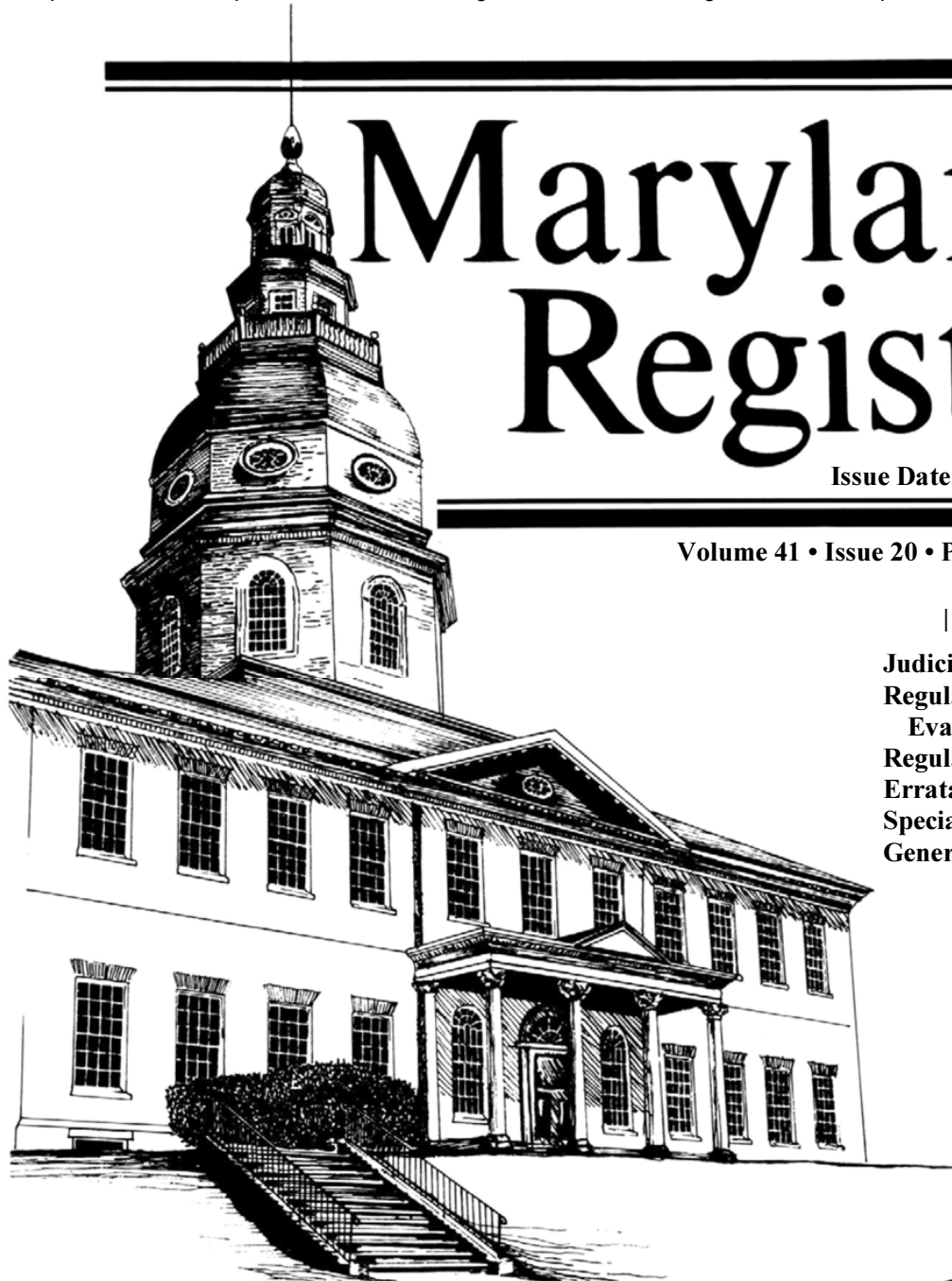
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2736441 10/19

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H.2.2 Maryland Register Notice for the BWI Marshall Airport Noise Zone Update Public Hearing



Maryland Register

Issue Date: October 3, 2014

Volume 41 • Issue 20 • Pages 1101—1190

IN THIS ISSUE

Judiciary
**Regulatory Review and
Evaluation**
Regulations
Errata
Special Documents
General Notices

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 September 15, 2014, 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 September 15, 2014.

Brian Morris
Acting Administrator, Division of State Documents
Office of the Secretary of State



PROPOSED ACTION ON REGULATIONS

1168

C. In addition to the requirements specified in §B of this regulation, an applicant for a license as a radiologist assistant shall have:

- (1) A current Maryland license as a radiographer;
- (2) Completed a radiologist-directed clinical preceptorship as a part of the educational program required by §B(6) of this regulation;
- (3) Current certification in advanced cardiac life support; and
- (4) Current certification as a radiologist assistant by the national certifying body as approved by the Board.

JOSHUA M. SHARFSTEIN, M.D.
Secretary of Health and Mental Hygiene

Title 11 DEPARTMENT OF TRANSPORTATION

Subtitle 03 MARYLAND AVIATION ADMINISTRATION

11.03.01 Baltimore/Washington International Thurgood Marshall Airport

Authority: Transportation Article, §§5-202, 5-204, 5-208, 5-805, 5-806, 5-819, Annotated Code of Maryland

Notice of Proposed Action [14-299-P-I]

The Executive Director of the Maryland Aviation Administration proposes to amend Regulations .01-1 and .12 under COMAR 11.03.01 Baltimore/Washington International Thurgood Marshall Airport. This action was considered by the Maryland Aviation Commission in an open meeting on May 22, 2013, notice of which was given pursuant to State Government Article §10-506(c), Annotated Code of Maryland.

Statement of Purpose

The purpose of this action is to incorporate by reference the new certified Baltimore/Washington International Thurgood Marshall Airport (BWI) Noise Zone, reflecting the new base year of 2014 and new future years of 2019 and 2024.

Comparison to Federal Standards

There is a corresponding federal standard to this proposed action, but the proposed action is not more restrictive or stringent.

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 Ellen Sample, Director, Office of Noise & Land Use Compatibility, MAA, P.O. Box 8766, BWI Airport MD 21240, or call 410-859-7925, or email to dsample@bwiairport.com, or fax to 410-859-7288. Comments will be accepted through November 3, 2014. A public hearing has been scheduled for Tuesday, October 21, 2014 at 991 Corporate Boulevard, Linthicum MD 21090.

Editor's Note on Incorporation by Reference

Pursuant to State Government Article, §7-207, Annotated Code of Maryland, the Certified BWI Airport Noise Zone has been declared a document generally available to the public and appropriate for incorporation by reference. For this reason, it will not be printed in the Maryland Register or the Code of Maryland Regulations (COMAR). Copies of this document are filed in special public depositories located throughout the State. A list of these depositories was published in 41:1 Md. R. 9 (January 10, 2014), and is available online at www.dsd.state.md.us. The document may also be inspected at the office of the Division of State Documents, 16 Francis Street, Annapolis, Maryland 21401.

.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, [43,] and 44.
 - (6)–(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, [43,] and 44.
 - (4) The noise zone is a composite of the 65, 70, and 75 L_{dn} noise contours for the base year of [2005] 2014 and future years of [2012] 2019 and [2017] 2024.
 - (5) (text unchanged)
- C. (text unchanged)

PAUL J. WIEDEFELD
Executive Director
Maryland Aviation Administration

Subtitle 05 MARYLAND PORT ADMINISTRATION

Notice of Proposed Action

[14-284-P]

The Administrator of the Maryland Port Administration proposes to amend:

- (1) Regulation .02 under COMAR 11.05.02 Hazardous Materials;
- (2) Regulations .02 — .05, .07 — .09, .12, and .14 under COMAR 11.05.03 Vehicle Access, Parking, and Operation on Maryland Port Administration Property; and
- (3) Regulation .03 under COMAR 11.05.07 Maryland Port Terminals, Properties, and Vessels Security.

Statement of Purpose

The purpose of this action is to revise regulations applicable to the permitting of motor vehicles, clarify the circumstances under which

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H.3 Website Content

11/12/2014

Maryland Aviation Administration - Community Relations



MARYLAND

DEPARTMENT OF TRANSPORTATION
Maryland Aviation Administration



[MAA Website](#) | [Contact Us](#) | [Site Map](#)

Community Relations



- [MAA Community Programs](#)
- [BWI Neighbors Committee](#)
- [Airport Noise & the Community](#)

Contact the Community Relations Department:

Office of Noise, Real Estate and Land Use Compatibility
P.O. Box 8766
BWI Airport, MD 21240-0766

Phone: 410-859-7375
Fax: 410-859-7288
[Email Us!](#)


Maryland Aviation Administration's (MAA) Community Relations website is part of the Community Outreach Program for the Office of Noise, Real Estate and Land Use Compatibility Planning. This program was established in order to provide an avenue of communication between MAA and the local communities. This program includes numerous activities such as BWI Neighbors Committee, Community Enhancement Grant Program, Quarterly Noise Report, Airline Progress Report, and noise monitoring.


Airport Revenue News recognizes BWI Marshall Airport's Community Outreach [More](#) ->

Maryland Aviation Administration Recognized with Educational Excellence Award by Local Chamber of Commerce [More](#) ->

BWI Thurgood Marshall Airport Wins Local Business Award [More](#) ->

Community News

 [Airport Noise Zone and Noise Exposure Map Updates 2014 Public Notice](#)

 [Runway Closures](#) - Please [click here](#) for current runway closure listings.

 [Submit Noise Complaints](#)

 [New Hours of Operation at Benson-Hammond House](#) - [Click for details](#).

 [Contact the MAA: Questions, Comments, Complaints?](#) **We want to hear from you!**

PUBLIC NOTICE

Maryland Department of Transportation Maryland Aviation Administration

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Central Branch

Elkridge Branch

Miller Branch

Savage Branch

Baltimore County

Arbutus Branch

Copies of the documents will also be available at the MAA's Community Relations website:

<http://www.maacommunityrelations.com/>

Notice on ADA compliance:

Anyone planning to attend this Public Hearing and who wishes to receive auxiliary aids, services, or accommodations is invited to contact Ms. Ellen Sample at least 48 hours in advance at 410-859-7375.

Notice on Limited English Proficiency Compliance:

Anyone planning to attend the Public Hearing, and is limited in their ability to speak or understand English and wishes to receive translation services is invited to contact Ms. Ellen Sample at least 48 hours in advance at 410-859-7375

11/12/2014

MAA - Community Relations Airport Noise Zone BWI



MARYLAND
DEPARTMENT OF TRANSPORTATION
Maryland Aviation Administration

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Community Relations








- [Homepage](#)
- [MAA Community Programs](#)
- [BWI Neighbors Committee](#)
- [Airport Noise & the Community](#)

Contact the Community Relations Department:

Office of Noise, Real Estate and Land Use Compatibility
P.O. Box 8766
BWI Airport, MD 21240-0766

Phone: 410-859-7375
Fax: 410-859-7288
[Email Us!](#)

2014 FAR Part 150 Noise Exposure Maps Update - BWI

-  [Public Notice](#)
-  [NEM Maps](#)
-  [NEM Executive Summary](#)
-  [NEM Main Document](#)
-  [NEM Appendices](#)

All documents are DRAFT for public review

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11/12/2014

MAA - Community Relations Airport Noise Zone BWI



- [Homepage](#)
- [MAA Community Programs](#)
- [BWI Neighbors Committee](#)
- [Airport Noise & the Community](#)

Contact the Community Relations Department:

Office of Noise, Real Estate and Land Use Compatibility
P.O. Box 8766
BWI Airport, MD 21240-0766

Phone: 410-859-7375
Fax: 410-859-7288
[Email Us!](#)

2014 Airport Noise Zone Update - BWI

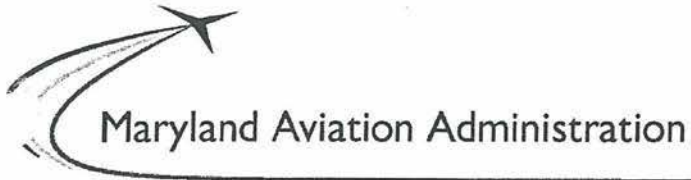
-  [Public Notice](#)
-  [ANZ Maps](#)
-  [ANZ Executive Summary](#)
-  [ANZ Main Document](#)
-  [ANZ Appendices](#)

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H.4 Notification Letters and Mailing Lists

December 2014



Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor

James T. Smith, Jr.
Secretary

Paul J. Wiedefeld, A.A.E.
Executive Director / CEO

October 6, 2014

The Honorable Laura A. Neuman
Anne Arundel County Executive
The Arundel Center
44 Calvert Street
Annapolis MD 21404

Dear County Executive Neuman:

The Maryland Aviation Administration (MAA) will be conducting 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) and pursuant to Title 14 Code of Federal Regulations, Part 150, Subpart B, Section 150.21 (b) on the Proposed Noise Exposure Maps (NEM) for Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall).

As required by the Annotated Code of Maryland Transportation Article Section 5-806 (d), we are providing you a copy of the proposed maps for review and comment prior to the Public Hearing. These updates are a public process which utilizes a Community Advisory Committee consisting of area residents, local organization representatives, planning agencies, public agencies and other interested parties. Anne Arundel County government was represented on the Advisory Committee by Ms. Lynn Miller of the Department of Planning and Zoning.

The Public Workshop and Public Hearing will be held at the MAA offices at 991 Corporate Boulevard in Linthicum MD, on Tuesday, October 21, 2014. The Workshop will be held from 5:30 p.m. until 7 p.m. and the Public Hearing will begin at 7 p.m. A Public Notice will be posted to the MAA's website at www.maacommunityrelations.com and will be advertised in local newspapers as well as the Baltimore Sun. If you have any comments, questions or concerns, please feel free to contact Ms. Ellen Sample, Director, Office of Noise, Real Estate and Land Use Compatibility Planning at 410-859-7375 or email at dsample@bwiairport.com. Ms. Sample would be happy to assist you.

Sincerely,

Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

Enclosures

cc: Ms. Lynn Miller, Planning Administrator, Anne Arundel County Government
Ms. D. Ellen Sample, Director of Noise, Real Estate & Land Use Compatibility, MAA

Ms. Marsha McLaughlin, Director
Dept. of Planning & Zoning
3430 Courthouse Drive
Ellicott City MD 21043

Mr. Larry R. Tom
Dept. of Planning & Zoning
2664 Riva Road
Annapolis MD 21401

Ms. Jennifer Terrasa, Chair
Howard County Council
George Howard Building
3430 Courthouse Drive
Ellicott City MD 21043

Ms. Mary Alter Ph.D, Chair
Anne Arundel County
Office of Planning & Zoning Advisory Board
2664 Riva Road
Annapolis MD 21401

The Honorable Ken Ulman
Howard County Executive
3430 Courthouse Drive
Ellicott City MD 21043

The Honorable Laura A. Neuman
Anne Arundel County Executive
The Arundel Center
44 Calvert Street
Annapolis MD 21404

The Honorable Kevin Kamenetz
Baltimore County Executive
400 Washington Avenue, MS 2M01A
Old Court House Mezzanine
Towson MD 21204

Mr. Thomas Quirk, Chairman
Baltimore County Council
400 Washington Avenue
Towson MD 21204

Ms. Andrea Van Arsdale, Director
Baltimore County Dept. of Planning
The Jefferson Building, Ste 101
105 West Chesapeake Avenue
Towson MD 21204

Maryland Aviation Administration

Paul J. Wiedefeld, A.A.E.
Executive Director / CEO

October 6, 2014

Mr. Thomas A. Priscilla, Jr., Airport Engineer
Federal Aviation Administration
Washington Airports District Office
23723 Airfreight Lane, Suite 210
Dulles, VA 20166

Dear Mr. Priscilla:

SUBJECT: DRAFT - Noise Exposure Map (NEM) Update pursuant to Title 14 Code of Federal Regulations, Part 150 for Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall).

The Maryland Aviation Administration (MAA) has prepared a draft BWI Marshall NEM Update dated September 2014. Enclosed please find five copies of the document for Federal Aviation Administration (FAA) review. The MAA is schedule to submit the final NEM before the end of the calendar year. As such, the MAA would appreciate FAA's comments by Monday, November 3, 2014. Upon receipt of the FAA's comments, MAA will review the comments with our consultant Harris Miller Miller and Hanson Inc., and schedule a conference call with FAA to discuss. Please note that four figures in this document meet Part 150 requirements when plotted at 1 inch equals 2,000 feet (Figures 14, 15, 20 and 21) and will be submitted at that scale with the final document.

The MAA appreciates your assistance and guidance through this process. Please advise Ms. Ellen Sample, MAA Director, Office of Noise, Real Estate and Land Use Compatibility, at 410-859-7925 if you have any questions or need additional information.

Sincerely,



Paul L. Shank, P.E., C.M.
Chief Engineer

Enclosures

cc: Ms. D. Ellen Sample, Director of Noise, Real Estate & Land Use Compatibility, MAA

December 2014



Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor

James T. Smith, Jr.
Secretary

Paul J. Wiedefeld, A.A.E.
Executive Director / CEO

October 8, 2014

Mr. Edward Huber
The Greater Elkridge Community Association
6615 Pheasant Drive
Elkridge MD 21075

Dear Mr. Huber:

SUBJECT: Public Hearing pursuant to the Annotated Code of Maryland Transportation Article Section 5-806 (b) on the Proposed Airport Noise Zone (ANZ) and a concurrent Public Workshop pursuant to Title 14 Code of Federal Regulations Part 150, Subpart B, Section 150.21 (b) on the Noise Exposure Maps (NEMs) for Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall).

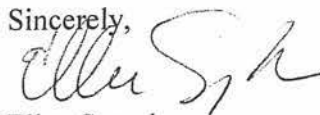
As a follow-up to our meeting on May 14, 2014, enclosed please find an Executive Summary and maps for both the BWI Marshall ANZ and the Federal Aviation Regulation Part 150 NEM Updates. The full documents can be viewed on the Maryland Aviation Administration's (MAA's) Community Relations website at www.maacommunityrelations.com.

The MAA will conduct the Public Hearing and Public Workshop referenced above, at the MAA offices at 991 Corporate Boulevard in Linthicum MD, on Tuesday, October 21, 2014. The Workshop will be held from 5:30 p.m. until 7:00 p.m. and the Public Hearing will begin at 7:00 p.m. A Public Notice will be posted to the MAA's website and will be advertised in local newspapers as well as the Baltimore Sun.

The purpose of the Public Hearing and Public Workshop is to afford all interested people the opportunity to present their views regarding the proposal to revise the boundaries of the ANZ and NEM's. The proposed BWI Marshall 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 NEMs are scheduled to be submitted to the Federal Aviation Administration (FAA) and, when accepted, will be used to determine eligibility for federal noise abatement funds.

If you have any questions, please feel free to contact me at 410-859-7925 or by email at dsample@bwiairport.com. Thank you for your participation in this process and we hope to see you on October 21, 2014.

Sincerely,



Ellen Sample
Director,
Office of Noise, Real Estate & Land Use Compatibility

Enclosures
Harris Miller Miller & Hanson Inc.

H-43

Mr. Edward Huber
Greater Elkridge Comm. Assoc.
6615 Pheasant Drive
Elkridge MD 21075

Senator James E. DeGrange, Sr.
James Senate Office Building
Room 101
11 Bladen St.
Annapolis MD 21401

Mr. Nancy Brown
Glen Burnie Improvement Assoc.
19 Georgia Ave., NW
Glen Burnie MD 21061

Mr. Rusty Bristow
Harmans Civic Association
7215 Ridge Rd.
Hanover MD 21076

Mr. Melvin Kelly
Severn Improvement Assoc.
768 Queenstown Rd.
Severn MD 21144

Mr. Richard Hanna
Timber Ridge Improvement Assoc.
7403 Hawkins Dr.
Hanover MD 21076

Mr. Stephen M. Batchelder
Air Traffic Manager
BWI Tower
BWI Airport MD 21240

Mr. Stephen L. Smith
Air Traffic Manager
FAA Potomac Consolidated TRACON
3699 Macintosh Dr.
Warrenton VA 20187

Greg Voos
Regional Representative
National Business Aviation Assoc.
1200 G St., NW, Suite 1100
Washington DC 20005

Mr. Craig Fuller, President
Aircraft Owners & Pilots Assoc.
421 Aviation Way
Frederick MD 21701

Mr. Jerome Fernandez
Signature Flight Support
Washington Dulles International Airport
23950 Wind Sock Dr., Suite 200
Dulles VA 20166

Ms. Linda Greene
Executive Director
BWI Business Partnership
1302 Concourse Dr., Suite 105
Linthicum MD 21090

Ms. Lynn Miller
Anne Arundel County
Office of Planning & Zoning
2664 Riva Rd.
Annapolis MD 21401

Mr. Eric Jordan
Elmhurst Improvement Assoc.
7848 Coldbrooke Dr.
Severn MD 21144

Mr. Ken Glendenning
Linthicum-Shipley Improvement Assoc.
602 Fairmount Rd.
Linthicum MD 21090

Mr. Liz Wagner
Ferndale-Linthicum Area
Community Council
239 Wicklow Ave.
Glen Burnie MD 21061

Mr. Marcus Brundge
Environmental Specialist
Washington Airport District Office
23723 Air Freight Lane, Ste 210
Dulles VA 20166

Mr. Bert Seither
Southwest Airlines
P.O. Box 28983
Baltimore MD 21240

Mr. Brian Muldoon
Howard County
Office of Planning and Zoning
3430 Courthouse Dr.
Ellicott City MD 21043

Maryland Aviation Administration

Paul J. Wiedefeld, A.A.E.
Executive Director / CEO

October 9, 2014

Dear Community Resident:

As an interested party, we would like to advise you that the Maryland Aviation Administration (MAA) will conduct a Public Hearing pursuant to the Annotated Code of Maryland Transportation Article Section 5-806 (b) on the proposed Airport Noise Zone (ANZ) and a concurrent Public Workshop pursuant to Title 14 Code of Federal Regulations Part 150, Subpart B, Section 150.21 (b) on the proposed Noise Exposure Maps (NEM's) for Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall).

The purpose of the ANZ Public Hearing and NEM Public Workshop is to afford all interested people the opportunity to present their views regarding the proposal to revise the boundaries of the ANZ and NEM's. The proposed BWI Marshall 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 NEMs are scheduled to be submitted to the Federal Aviation Administration (FAA) and when accepted, will be used to determine eligibility for federal noise abatement funds.

The Public Workshop and Public Hearing will be held at the MAA offices at 991 Corporate Boulevard in Linthicum MD, on Tuesday, October 21, 2014. The Workshop will be held from 5:30 p.m. until 7:00 p.m. and the Public Hearing will begin at 7:00 p.m. The full ANZ and NEM documents have been posted to the MAA's website at www.maacommunityrelations.com.

An Executive Summary and the maps for both the ANZ and NEM are available for review Monday through Friday at the MAA office listed below and at the local area libraries listed:


Office of Noise, Real Estate and Land Use Compatibility, Maryland Aviation
Administration, 991 Corporate Blvd., Linthicum, MD, 21090

Anne Arundel County
Linthicum Branch
Severn Community Branch
Brooklyn Park Branch
Riviera Beach Branch
Glen Burnie Regional Branch
Severna Park Branch

Howard County
East Columbia Branch
Central Branch
Elkridge Branch
Miller Branch
Savage Branch
Baltimore County
Arbutus Branch

If you have any comments, questions or concerns, please feel free to contact me at 410-859-7375 or email at dsample@bwiairport.com. We look forward to seeing you October 21, 2014.

Sincerely,



Ellen Sample, Director

Noise, Real Estate and Land Use Compatibility

Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport

Ms. Veronica Jagoe
Executive Office of Community
Anne Arundel County
P.O. Box 270
Annapolis MD 21401

Mr. George Cardwell
Office of Planning & Zoning
Anne Arundel County
2664 Riva Rd., MS 6403
Annapolis MD 21401

Ms. Tara Oursler
The Honorable C.A. Dutch
Ruppersberger's Office
375 W. Padonia Rd.
Timonium MD 21093

The Honorable Calvin Bell
Howard County Council
3430 Courthouse Dr.
Ellicott City MD 21032

The Honorable Courtney Watson
Howard County Council
3430 Courthouse Dr.
Ellicott City MD 21032

Mr. Paul Harrell
Elmhurst Improvement Assoc.
7904 Poplar Grove Rd.
Severn MD 21144

Ms. Sheila Raynor
Anne Arundel Co. Government
Office of Comm. Serv. MS1430
7409 Baltimore Annapolis Blvd.
Glen Burnie MD 21061

Mr. Mike Shylanski
Delmont Station Homeowners Assoc.
P.O. Box 867
Severna Park MD 21144

Ms. Cecilia Januszkiewicz
6412 Steel Flower Path
Columbia MD 21045

Ms. Tina Shanks
301 Johnson Farm Lane
Glen Burnie MD 21060

Mr. Michael Staiano
Staiano Engineering Inc.
1923 Stanley Ave.
Rockville MD 200851

Mr. Art Lisowsky
1529 Severn Chapel Rd.
Crownsville MD 21032

Mr. Mark Anderson
212 Cypress Ridge Rd.
Severna Park MD 21146

Ms. Catherine Devito
937 Sunny Brook Dr.
Glen Burnie MD 21060

Ms. Robin Cook
662 Rhone Court
Glen Burnie MD 21061

Juliet Page
253 Mill Church Rd.
Arnold MD 21012

Alice Cook
107 Mountain Rd.
Linthicum MD 21090

Mr. Gary Hanneken
620 Old Stage Rd.
Glen Burnie MD 21061

Mr. Tony Frank
5 Tomcat Lane
Glen Burnie MD 21060

Ms. Kandace Harries
14 Lennon Court
Ferndale MD 21061

Mr. Booker Madden
721 Snowden Lane
Glen Burnie MD 21061

Ms. Susan Mocko
6948 Ridge Rd.
Hanover MD 21076

Ms. Dina M. Bashman
793 Warren Ave.
Linthicum MD 21090

Mr. Daniel McLaughlin
1226 Severnview Dr.
Crownsville MD 21032

Ms. Patricia Hudson
Jessup Improvement Assoc.
7107 Forest Ave.
Hanover MD 21076

Mr. Reggie Dixon
7677 Ridge Chapel Rd.
Hanover MD 21076

Ms. Margaret Daniels
8449 Woodland Rd.
Millersville MD 21108

Mr. Walter Dirndorfer
6219 Woodland Rd.
Linthicum MD 21090

Mr. Bruce Fink
323 School Lane
Linthicum MD 21090

Cpt. Walter Stocknick
1920 Chapparral Court
Crownsville MD 21032

Mr. Joseph Boulter
8363 Sycamore Rd.
Millersville MD 21108

Mr. Fred Marc
St. Augustine's School
6112 Old Washington Rd.
Elkridge MD 21227

Mr. Joe LaCasio, Principal
Quarterfield Elementary School
7967 Quarterfield Rd.
Severna Park MD 21144

Yashwan Boodhoosingh
6025 Hanover Rd.
Hanover MD 21076

Old Brooklyn Park Comm. Assoc.
c/o Mr. Woody Bowen
P.O. Box 2834
Baltimore MD 21225

Donna Huddy
842 White Ave.
Linthicum MD 21090

Mr. James Wilkinson
9255 Brush Run
Columbia MD 21045

Ms. Kelly Pierson
929 Evergreen Road
Severn MD 21144

Ms. Ruth Carter
7515 Old Stage Rd.
Glen Burnie MD 21061

Ms. Ara Crowe
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Glen Burnie MD 21061

Ms. Patricia Beattey-Patterson
421 Ben Oaks Drive, East
Severna Park MD 21146

Mr. Joseph Pfeiffer
1703 Maple Ave.
Hanover MD 21076

Mr. Robert Haney
1412 Wigeon Way #302
Gambrells MD 21054

Ms. Laura C. English
455 Darton Court
Glen Burnie MD 21061

Mr. Richard Forgo
Linthicum-Shipley Improv. Assoc.
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Linthicum Heights MD 21090

Ms. Crystal Myers
10387 Launcelot Lane
Columbia MD 21044

Ms. Elizabeth Greene
Harmans Woods News
7720 Aragorn
Harmans MD 21076

Ms. Denise Harris
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Glen Burnie MD 21061

Ms. Sharon Stafford
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Hanover MD 21076

Mr. Riccobene
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Glen Burnie MD 21061

Mr. Lou Bova
5 D Street, N.W.
Glen Burnie MD 21061

Mr. William Felger
20 Hanford Drive
Harmans MD 21077

Mr. Michael Davie
1020 Summer Hill Dr.
Odenton MD 21113

Mr. Harry Matthews
7652 Harmans Rd.
Hanover MD 21076

Mr. Robert Krause
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Ellicott City MD 21043

Reverend Abraham Shanklin
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Hanover MD 21076

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Glen Burnie, MD 21061

Ms. Janice MacIntosh, Principal
Arthur Slade Regional School
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Glen Burnie MD 21061

Padraic Gray
6017 Florey Road
Hanover MD 21076

Mr. David Servinsky
7872 Sandy Pine Drive
Severn MD 21144

Mr. Charles Levay, President
Peach Orchard Civic Assoc.
7804 Elberta Dr.
Severn MD 21144

Owens
460 Phirne Ct. East
Glen Burnie MD 21061

Mr. Don Newhouse
14 Apple Tree Court
Catonsville MD 21228

Richard Chapman
Provinces Civic Assoc.
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Severn MD 21144

Mr. Michael O'Neill
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Germersville MD 21054

Ms. Roberta Boyle
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Severn MD 21144

Ms. Donna Sakenes
55 St. Andrews Rd.
Severna Park MD 21146

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8393 Greenstone Court
Millersville MD 21108

Ms. Martha Wilbur
307 Johnson Farm Lane
Glen Burnie MD 21061

Ms. Cookie Wineholt
811 Ritchie Hwy, Suite 100
Severna Park 21146

Mr. Rich Creech
1002 Thomas Rd.
Glen Burnie MD 21061

Mr. Birney Smith
c/o Parke West Homeowners Assoc.
P.O. Box 678
Severn MD 21144

Mr. Dennis Dabrowka
661 Rhone Court
Glen Burnie MD 21061

Mr. Louis Toth
751 White Oaks Ave.
Catonsville MD 21228

Mr. Cliff Kooser
8 Lennon Court
Ferndale MD 21061

Ms. Laura Donovan
114 Glendale Ave
Glen Burnie MD 21061

Mr. Allen G. Eckert
5 Raylene Court
Glen Burnie MD 21061

Mr. Dennis Schuman
42 Linwood Ave.
Glen Burnie MD 21061

Mr. Sean Hughes
14510 Dorsey Mill Rd.
Glenwood MD 21738-9320

Mr. Bill Szyperski
7921 Darien Dr.
Glen Burnie MD 21061

Ms. Debbie Cruder
514 Heavitree Garth
Severna Park MD 21146

Mr. Edward Guzinski
203 Maple Ave.
Glen Burnie MD 21061

Mr. Kevin Stearman
7650 Airpark Rd.
Gaithersburg MD 20879

Mr. Manuel Perez
508 McPherson
Glen Burnie MD 21061

Mr. Edmund Klebe
116 Dunrovin Ave.
Westminster MD 21158

Mr. David E. Barry
506 Devonshire Lane
Severna Park MD 21146

Mr. Raymond Ringgold
Delmont Improvement Assn. Inc.
1267 Delmont Rd.
Severn MD 21144

Ms. Marsha Willis
916 Timber Ridge Dr.
Hanover MD 21076

Mr. Ron Ulrich
100 St. Ives Dr.
Severna Park MD 21146


Julia Keif
1110 Crain Hwy. N.
Glen Burnie MD 21061

George Lutsche
432 Carvel Beach Rd.
Baltimore MD 21226

Richard Young
7506 Old Stage Rd.
Glen Burnie MD 21061

Ms. Wilma Brown
422 Bousch Place
Glen Burnie MD 21061

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Cohansey Court Condo
7611 McNamara Drive
Glen Burnie, MD 21061

**Crestwood Community
Association**
P.O. Box 114
Linthicum, MD 21090

**Danza Village Community
Association**
821 Meadow Road
Severn, MD 21144

Deep Run Civic Association
7107 Forest Avenue
Hanover MD 21076

Taxpayer's Improvement
Assoc. of Patapsco Park, Inc.
c/o Geraldine Bates
6012 Belle Grove Rd.
Baltimore MD 21225

Delmont Station Homeowners
P.O. Box 867
Severn, MD 21144

Dundee & Associates
P.O. Box 1297
Glen Burnie, MD 21060

**Elmhurst Improvement
Association**
7809 Walnut Tree Road
Severn, MD 21144

**Glen Burnie Improvement
Association**
19 Crain Highway South
Glen Burnie, MD 21060

**Woodlawn Heights Community
Association**
40 Glendale Avenue
Glen Burnie, MD 21061

Foxchase Community Association
Pat Kupfer, President
123 Foxview Dr.
Glen Burnie, MD 21061

**Timber Ridge Community
Association**
7425 Hickory Lane
Hanover, MD 21076

**Greater Ferndale Community
Association**
4 Greenwood Avenue
Ferndale, MD 21061

Greenbriar Homeowners
3 Green Knoll Blvd.
Hanover MD 21076

Old Brooklyn Park Comm. Assoc.
c/o Mr. Woody Bowen
P.O. Box 2834
Baltimore MD 21225

**Harundale Oakwood Park Civic
Association, Inc.**
P.O. Box 522
Glen Burnie, MD 21060

**Wicklow Woods Homeowners
Association**
11 Lennon Court
Glen Burnie MD 21061

Woodside Square Condo
578 Glen Court
Glen Burnie, MD 21061

**Woodcrest Homeowners
Association**
6319 Harris Heights Avenue
Glen Burnie, MD 21061

**Linthicum-Shipley Community
Association**
721 S. Hammonds Ferry Road
Linthicum, MD 21090

Maple Glen Estates
127 Sunlight Circle
Glen Burnie, MD 21061

**Merriweather Homeowners
Association**
7314 Musical Way
Severn, MD 21144

**Myers Estates Homeowners
Association**
7808 Stafford Hill Court
Glen Burnie, MD 21061


Redbridge Homeowner Assoc.
P.O. Box 441
Severn MD 21144

**N Linthicum Improvement
Association**
414 Laura Avenue
North Linthicum, MD 21090

New Cut Farms
8156 Silo Road
Severn, MD 21144

**North Glen Community
Association**
P.O. Box 481
Glen Burnie, MD 21061

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North District Police
Community Relations
937 Hammonds Lane
Baltimore MD 21225

Peach Orchard
P.O. Box 392
Severn MD 21144

Peach Orchard Homeowners
P.O. Box 841
Severn MD 21144

Provinces Civic Association
P.O. Box 313
Jessup MD 20794

Quail Run Association
P.O. Box 431
Severn MD 21144

Trailside Improvement Assoc.
435 Arbor Drive
Glen Burnie MD 21061

Severn Hills Homeowners Assoc.
7914 Severn Hills Way
Severn MD 21144

Severn Improvement Assoc.
P.O. Box 892
Severn MD 21144

December 2014



Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor

James T. Smith, Jr.
Secretary

Paul J. Wiedefeld, A.A.E.
Executive Director / CEO

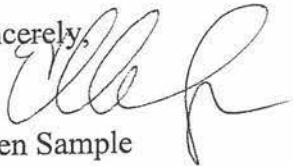
October 15, 2014

Mr. Marcus Brundage
Environmental Protection Specialist
FAA Washington Airport District Office
23723 Air Freight Lane, Suite 210
Dulles, VA 20166

Dear Mr. Brundage:

Enclosed please find the requested copies of the Executive Summaries and draft maps for updates to the proposed Noise Exposure Maps (NEMs) and Airport Noise Zone (ANZ) for Baltimore/Washington International Thurgood Marshall Airport. Please feel free to contact me at 410-859-7375 or email dsample@bwiairport.com, if you have any questions or need additional information.

Sincerely,



Ellen Sample
Director,
Office of Noise, Real Estate & Land Use Compatibility

Enclosure

December 2014



Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor

James T. Smith, Jr.
Secretary

Paul J. Wiedefeld, A.A.E.
Executive Director / CEO

October 15, 2014

The Honorable Benjamin L. Cardin
United States Senate
Tower I, Suite 1710
100 South Charles Street
Baltimore MD 21201

Dear Senator Cardin:

We would like to advise you that the Maryland Aviation Administration (MAA) will conduct a Public Hearing pursuant to the Annotated Code of Maryland Transportation Article Section 5-806 (b) on the proposed Airport Noise Zone (ANZ) and a concurrent Public Workshop pursuant to Title 14 Code of Federal Regulations Part 150, Subpart B, Section 150.21 (b) on the proposed Noise Exposure Maps (NEM) for Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall).

The purpose of the ANZ Public Hearing and NEM Public Workshop is to afford all interested people the opportunity to present their views regarding the proposal to revise the boundaries of the ANZ and NEM. The proposed BWI Marshall 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 NEM will be submitted to the Federal Aviation Administration (FAA) and when accepted, will be used to determine eligibility for federal noise abatement funds.

The Public Workshop and Public Hearing will be held at the MAA offices at 991 Corporate Boulevard in Linthicum MD, on Tuesday, October 21, 2014. The Workshop will be held from 5:30 p.m. until 7:00 p.m. and the Public Hearing will begin at 7:00 p.m. The full ANZ and NEM documents have been posted to the MAA's website at www.maacommunityrelations.com. The Executive Summary and maps for both the ANZ and NEM are also available for review Monday through Friday at MAA's Office of Noise, Real Estate and Land Use Compatibility located at 991 Corporate Blvd., Linthicum, MD and at local area libraries.

If you have any comments, questions or concerns, please feel free to contact Ms. Ellen Sample, Director, Office of Noise, Real Estate and Land Use Compatibility at 410-859-7375 or email at dsample@bwiairport.com. Ms. Sample would be happy to assist you.

Sincerely,

Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

cc: Ms. D. Ellen Sample, Director of Noise, Real Estate & Land Use Compatibility, MAA

The Honorable Benjamin L. Cardin
United States Senate
Tower I, Suite 1710
100 South Charles St.
Baltimore MD 21201

The Honorable C.A. Dutch Ruppertsberger
U.S. House of Representatives
375 West Padonia Road, Suite 200
Timonium MD 21093

The Honorable John P. Sarbanes
U. S. House of Representatives
600 Baltimore Avenue, Suite 303
Towson MD 21204

The Honorable Barbara Mikulski
United State Senate
503 Hart Senate Office Building
Washington DC 20510

The Honorable Bryan W. Simonaire
Senate of Maryland
James Senate Office Building, Room 414
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The Honorable John C. Astle
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The Honorable James N. Robey
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The Honorable Edward R. Reilly
Senate of Maryland
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The Honorable Guy Guzzone
Maryland House of Delegates
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The Honorable Tony McConkey
Maryland House of Delegates
House Office Building, Room 216
6 Bladen Street
Annapolis MD 21401

The Honorable Pamela G. Beidle
Maryland House of Delegates
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The Honorable Steven R. Schuh
Maryland House of Delegates
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The Honorable Elizabeth Bobo
Maryland House of Delegates
5561 Suffield Court
Columbia MD 21044-2774

The Honorable Michael E. Bush
Speaker of House of Delegates
State House, H-101
Annapolis MD 21401

The Honorable James E. Malone, Sr.
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Arbutus MD 21227-2604

The Honorable Don H. Dwyer, Jr.
Maryland House of Delegates
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Glen Burnie MD 21060-0667

The Honorable Shane E. Pendergrass
Maryland House of Delegates
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The Honorable Ron George
Maryland House of Delegates
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The Honorable Steven J. DeBoy, Sr.
Maryland House of Delegates
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The Honorable Theodore J. Sophocleus
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The Honorable Nicholas R. Kipke
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The Honorable Robert A. Costa
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The Honorable Mary Ann Love
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The Honorable Frank S. Turner
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The Honorable Cathleen M. Vitale, Esq.
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The Honorable Gail H. Bates
Maryland House of Delegates
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The Honorable Warren E. Miller
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The Honorable Daryl D. Jones
Anne Arundel County Council
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The Honorable James Benoit
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The Honorable Derek Fink
Anne Arundel County Council
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The Honorable Dick Ladd
Vice Chairman
Anne Arundel County Council
44 Calvert Street, 1st Floor
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The Honorable Chris Trumbauer
Anne Arundel County Council
44 Calvert Street, 1st Floor
Annapolis MD 21401

The Honorable Jerry Walker
Anne Arundel County Council
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H.5 Public Hearing (October 21, 2014)

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H.5.1 Sign-in Sheet



Updates to BWI Marshall Airport Noise Zone and
 Federal Aviation Regulation Part 150 Noise Exposure Maps
 Public Workshop and Hearing
 October 21, 2014

Print First/Last Name	Organization/Company	Email/Phone Number
KEU GLENDENNING	LINTHICUM - SHIPLEY IMP. ASSOC	410-859-8459
Lynn Miller	A.A. County Planning	410-222-7431
Paul Harrell	Elmhurst Improvement Assoc	410-969-4674
Nancy Higgins	The BWI Business Partnership	410 859 1000
Nancy Brown	GBIA	410-768-3782
JUSTIN ZEECH	LSIA	SESZECH@gmail.com
Adrienne Roper	Glen Burnie P Trust	410 693 8049 adrienne.rop@msn.com
Sarah Michailof	Straughan Environmental, Inc	minnesevan@yahoo.com



Updates to BWI Marshall Airport Noise Zone and
 Federal Aviation Regulation Part 150 Noise Exposure Maps
 Public Workshop and Hearing
 October 21, 2014

Print First/Last Name	Organization/Company	Email/Phone Number
Ellen Sample	MAA	dsample@bwiairport.com
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Andy Dickson	MAA	ADICKINSON@bwiairport.com
Karin Howell	MAA	Kharrela.burrows@bwiairport.com
Jeanette Brewer	MAA	jbrewer1@bwiairport.com
Leandra Donovan	Local	
Kathy Coyle	Hunt	
IGCY STEFANSKI	LOCAL	IGCY@LSSIGNS.COM
Allene 'A.I.' Durham	Stratgram Environmental	adurham@stratgramenvironmental.com

H.5.2 Presentation



Updates to BWI Marshall Airport Noise Zone and Part 150 Noise Exposure Maps

**Public Workshop and Hearing
October 21, 2014**



Introduction

The Maryland Aviation Administration (MAA) follows two processes to document and address aircraft noise at BWI Marshall:

- **The Federal process is called a Part 150 Study**
- **The Maryland State process is called an Airport Noise Zone**

Since many of the requirements for both processes are similar, the MAA is conducting them concurrently.

This presentation provides information on both processes, as well as results and next steps.



Noise Exposure Map and Airport Noise Zone Updates

What is a Part 150 Study?



Part 150

Title 14 of the Code of Federal Regulations Part 150 (Part 150) “Airport Noise Compatibility Planning” sets forth standards for airport operators to use in documenting noise exposure around airports and establishing programs to minimize noise-related land use incompatibilities.

It provides guidance for developing a Noise Exposure Map (NEM) and a Noise Compatibility Plan (NCP).

The Federal Aviation Administration (FAA) oversees the Part 150 process on behalf of the federal government.



Part 150

Part 150 is a voluntary federal program. FAA approval makes MAA eligible for federal funding of noise monitoring and mitigation programs such as our noise monitoring system and sound insulation program. The MAA completed its first Part 150 Study for BWI Marshall in 1989.

To date, MAA has received approximately \$80 million in federal funding for its noise programs because of its participation in Part 150.



Noise Exposure Map and Airport Noise Zone Updates

How is a Part 150 Study conducted?



Part 150 Process

Part 150 prescribes standards for:

- **Measuring noise**
- **Estimating cumulative noise exposure**
- **Describing other means to assess the impacts of noise**
- **Coordinating with local land use officials and other interested parties**
- **Documenting the analytical process**
- **Submitting documentation to the FAA**
- **Providing for FAA and public review processes**





Noise Exposure Map and Airport Noise Zone Updates

Part 150 Process (cont.)

Part 150 defines two types of formal submissions to the

FAA:

- (1) **Noise Exposure Map (NEM), which document current and future noise levels around the airport using noise contours and**
- (2) **Noise Compatibility Program (NCP), which identifies actions to monitor and mitigate aircraft noise.**

This project presents an updated NEM only.



Part 150 Process (cont.)

- **The FAA requires regular updates to the NEM in order to gain federal funding for MAA’s noise program activities, including:**
 - **Voluntary Residential Property Acquisition**
 - **Homeowners Assistance Program**
 - **Sound Insulation**
 - **Noise and Operations Monitoring System Replacement**
 - **Noise Land Inventory and Reuse Plan Update**

- **Following FAA acceptance of this NEM update, MAA intends to request the use of federal funds, or state funds subject to federal requirements, to continue in the near term the activities listed above.**



Noise Exposure Map and Airport Noise Zone Updates

What is an Airport Noise Zone?



Noise Exposure Map and Airport Noise Zone Updates

Airport Noise Zone

The Maryland Environmental Noise Act of 1974 provides for the protection of citizens from the impact of transportation-related noise. It requires MAA to adopt an Airport Noise Zone (ANZ) and Noise Abatement Plan (NAP) that provides the greatest protection to the public health and welfare in accordance with Maryland State law.



Noise Exposure Map and Airport Noise Zone Updates

Airport Noise Zone

The Code of Maryland Regulations (COMAR) also requires MAA to update the ANZ approximately every five years to account for changes in total annual aircraft operations, aircraft types, and aircraft flight paths that may result in changes to the overall aircraft noise levels.



Noise Exposure Map and Airport Noise Zone Updates

How is an Airport Noise Zone prepared?



Airport Noise Zone

The ANZ is determined by a composite of three noise contours: a base year contour, a five-year forecast, and a ten-year forecast. The largest of the three contours in any area around the Airport determines the Noise Zone, thereby offering protection within the largest of the existing or future noise exposure contours.

The MAA uses the ANZ to regulate incompatible land development around BWI Marshall.

Comparison of Airport Noise Zone and Noise Exposure Map Projects



Noise Exposure Map and Airport Noise Zone Updates

- **Both state and federal regulations require the use of the Day-Night Average Sound Level Metric to describe aircraft noise, abbreviated as
 - **Ldn in State Regulations/COMAR**
 - **DNL in Federal Regulations/Part 150****

- **Both state and federal regulations have a lower limit of Ldn/DNL of 65 dB; all land uses outside of Ldn 65 dB are considered compatible.**

Comparison of Airport Noise Zone and Noise Exposure Map Projects



Noise Exposure Map and Airport Noise Zone Updates

Airport Noise Zone:

- Enabled by Maryland Environmental Noise Act, 1974
- Noise impact determined by composite of three L_{dn} contour set:
 - Base year
 - 5-year forecast
 - 10-year forecast
- Allows MAA to regulate noise-incompatible development around state airports

Noise Exposure Maps:

- Enabled by Part 150, 1978
- Noise impact determined by DNL Contours for two scenarios:
 - Base year
 - 5-year forecast
- Determines eligibility for federal noise abatement funds



Noise Exposure Map and Airport Noise Zone Updates

Noise Contour Development



Noise Contour Development

- **MAA prepares noise contours using the FAA's required noise model, the Integrated Noise Model (INM)**
- **Noise contours for three different years are prepared:**
 - **Base Year (2014)**
 - **5-year Forecast (2019)**
 - **10-year Forecast (2024)**
- **The base year and 5-year forecast are used for the Noise Exposure Map (NEM) and the ANZ; in addition, the 10-year forecast is used for the ANZ.**



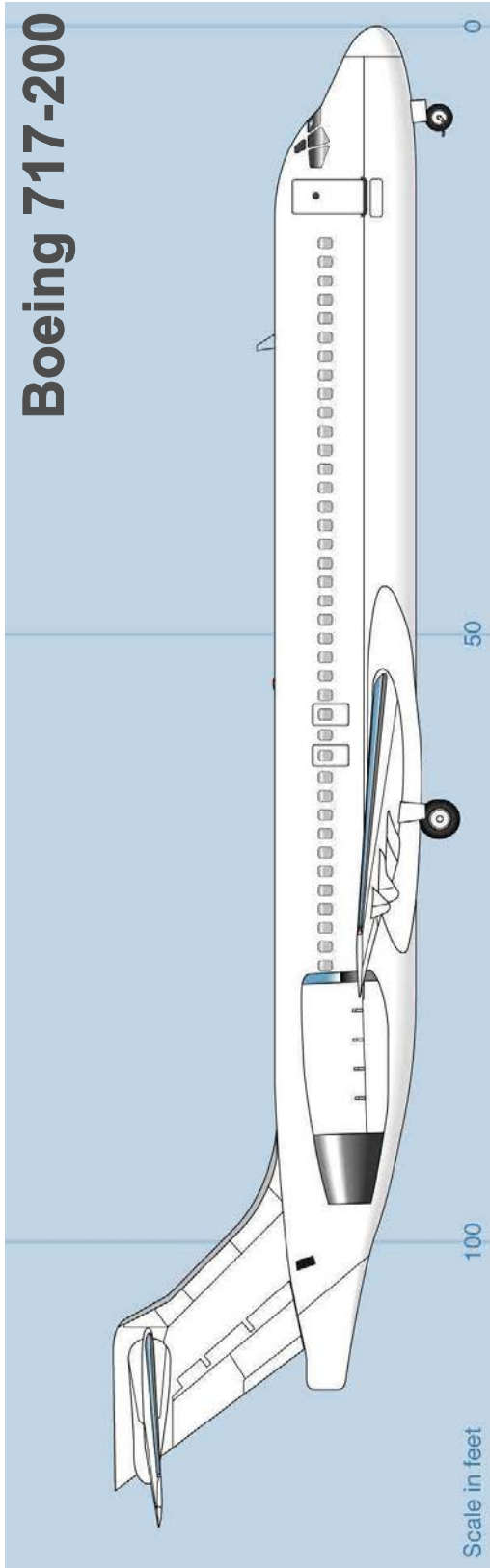
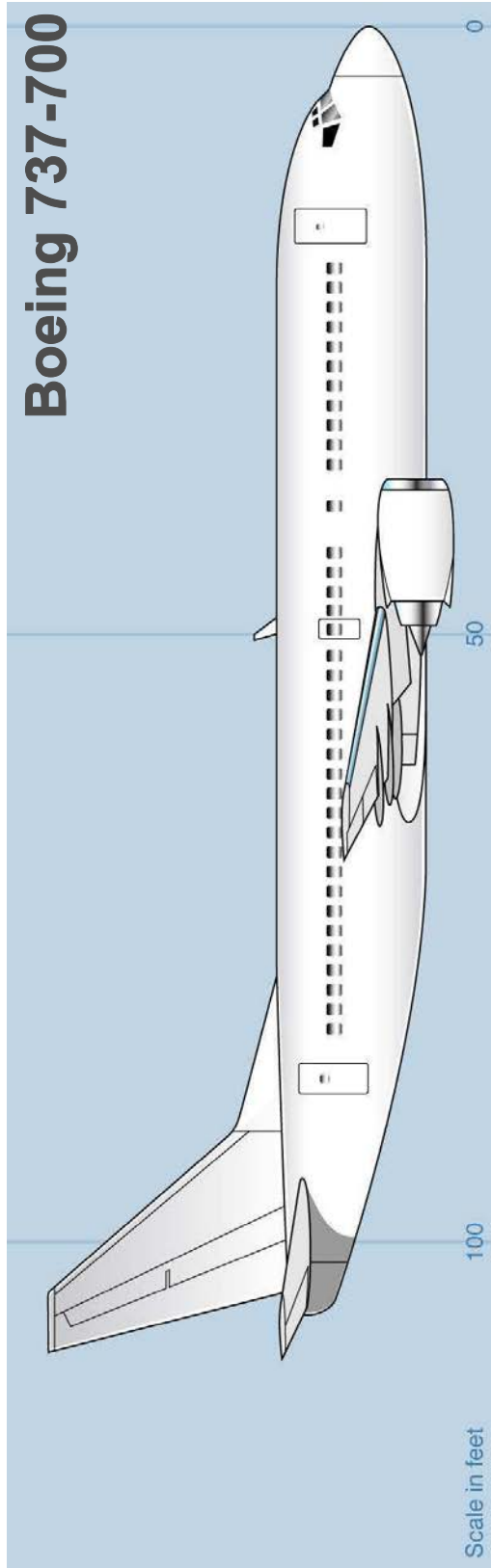
Noise Contour Preparation: Data Requirements

- **Operations**
 - Detailed breakdown by aircraft type
 - Annual average daily operations
- **Average runway use**
 - Average annual percentage use of all runways, by aircraft type
 - Non-typical runway closures are not included
- **Location and utilization of flight tracks**
 - We use RealContours™, which allows us to model every radar track

Operations – Typical aircraft at BWI Marshall Air Carrier



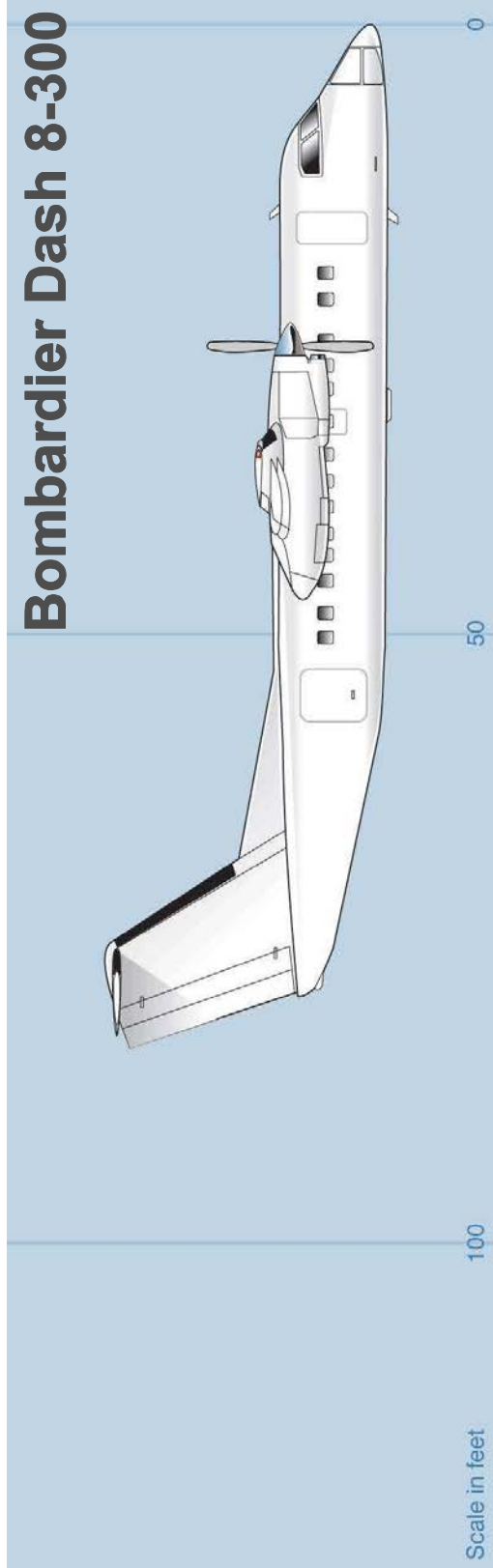
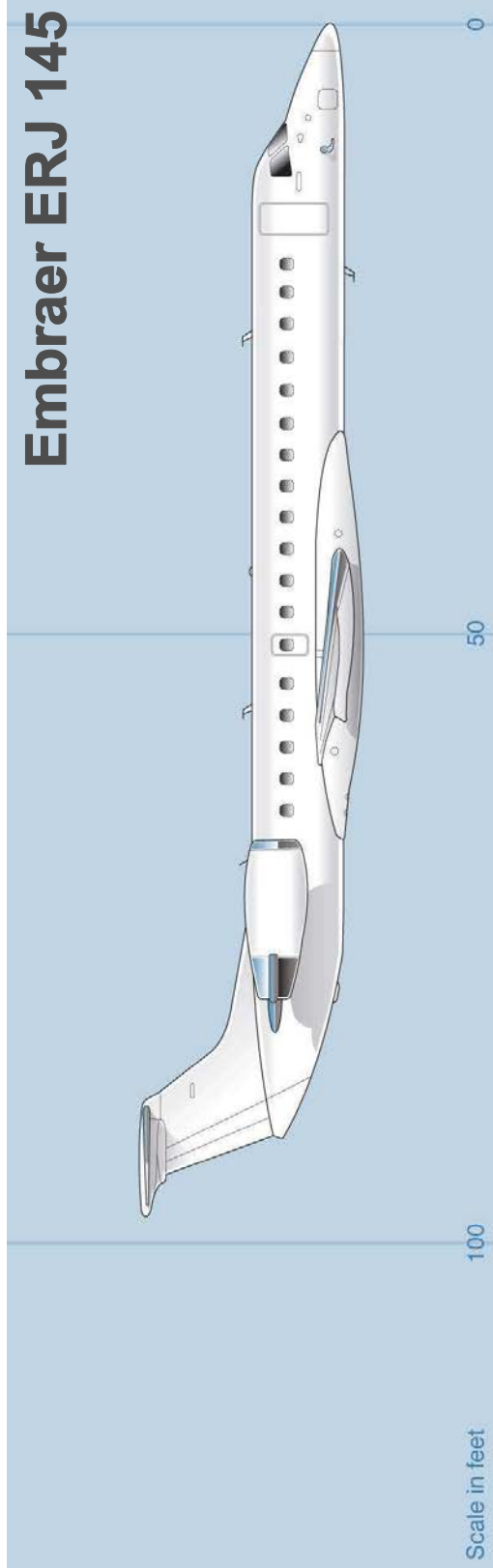
Noise Exposure Map and Airport Noise Zone Updates



Operations – Typical aircraft at BWI Marshall Air Taxi



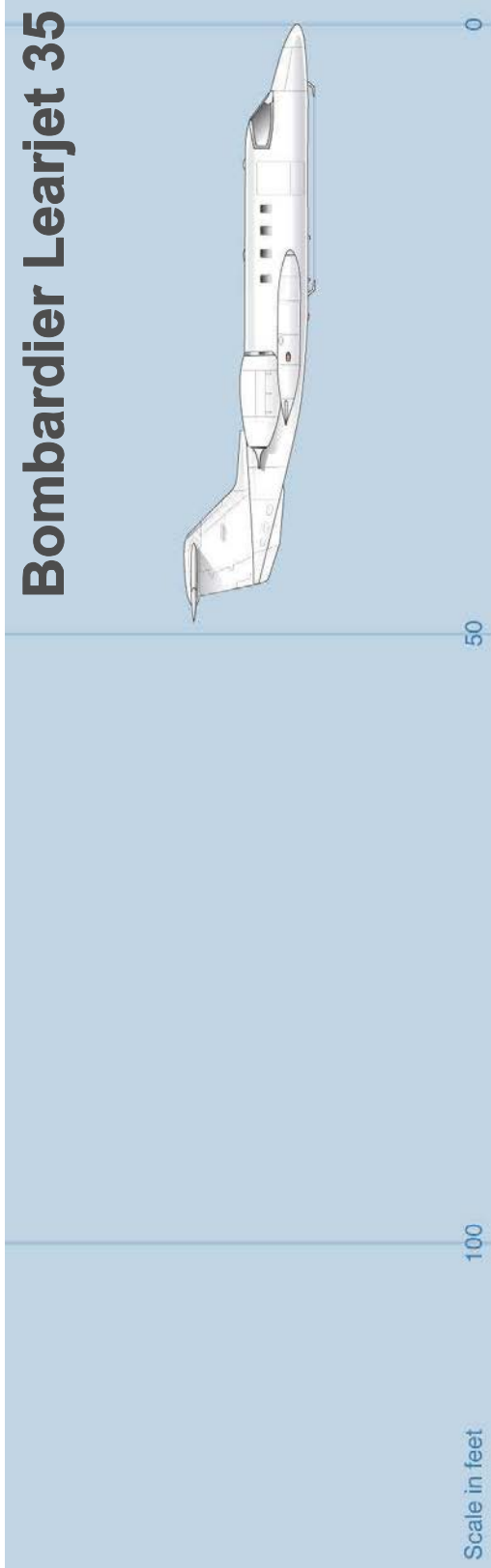
Noise Exposure Map and Airport Noise Zone Updates



Operations – Typical aircraft at BWI Marshall General Aviation



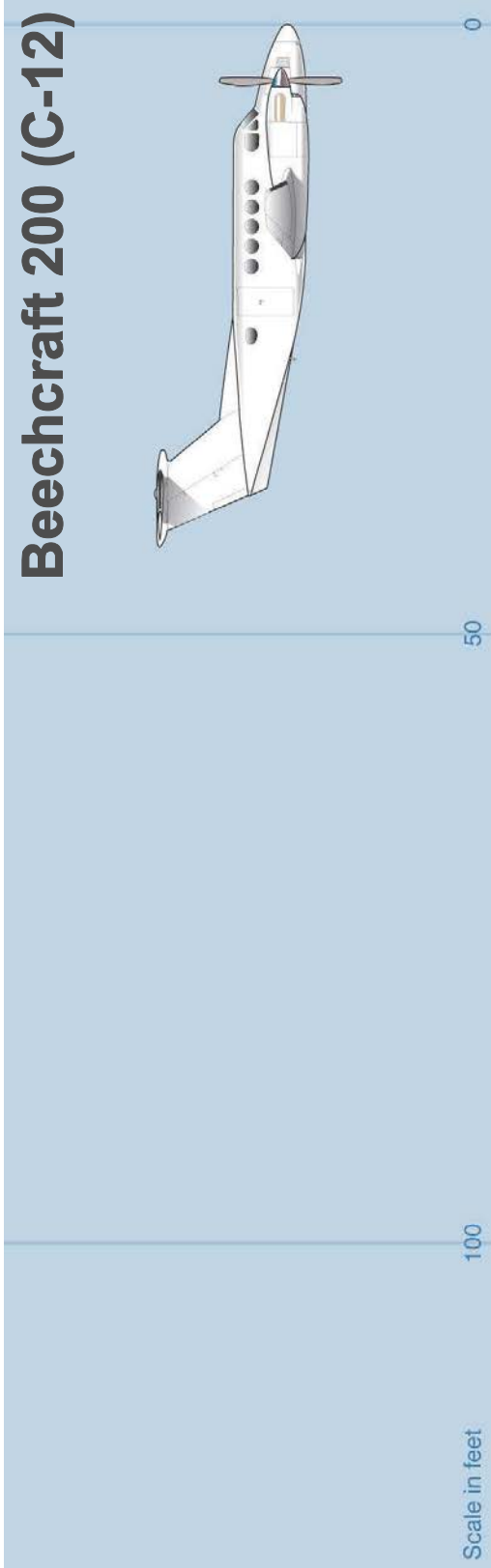
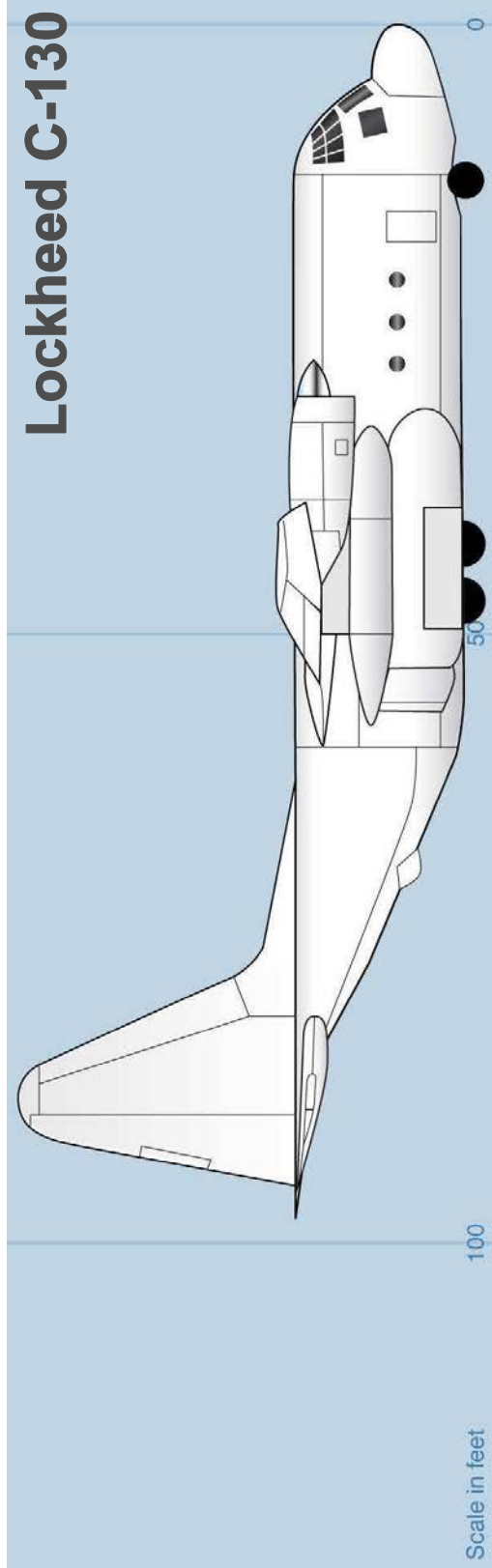
Noise Exposure Map and Airport Noise Zone Updates



Operations – Typical aircraft at BWI Marshall Military



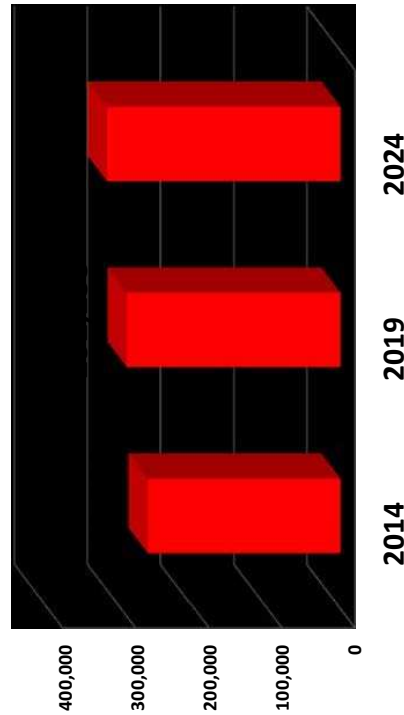
Noise Exposure Map and Airport Noise Zone Updates





Operations Summary

Operations



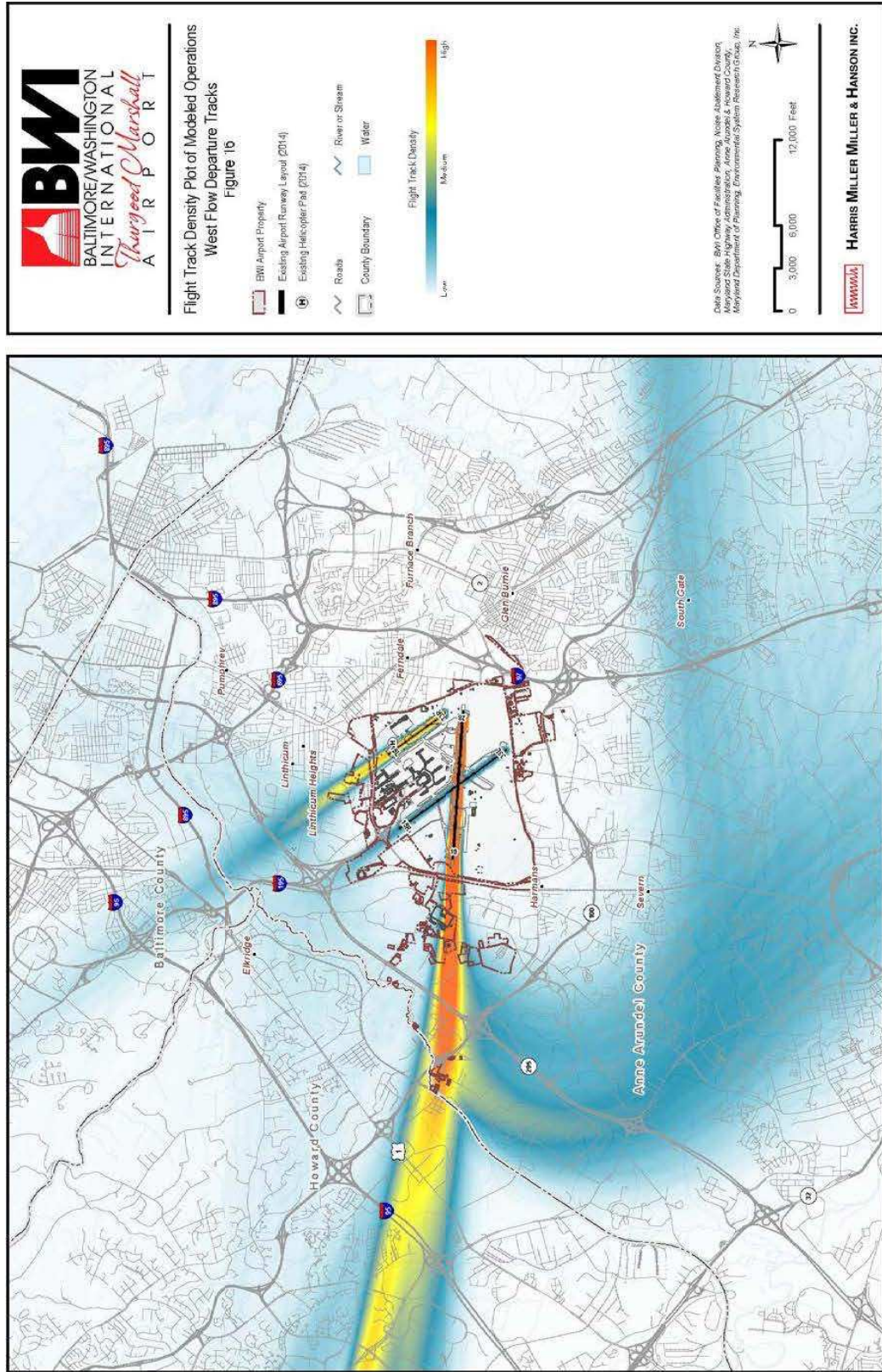
- FAA forecasts that total operations will grow by 21% from 2014 to 2024.
- Most of that growth will be in air carrier jets, such as 737's.
- Aircraft are also projected to get quieter over the next 10 years.

	FAA's Base Year forecast (2014)	FAA's 5-Year Forecast (2019)	FAA's 10-Year Forecast (2024)
Air Carrier	208,969	240,831	269,829
Air Taxi	38,329	34,359	31,697
General Aviation	15,272	16,103	16,978
Military	960	960	960
Total	263,530	292,253	319,464



Flight tracks - West Flow Departure Tracks

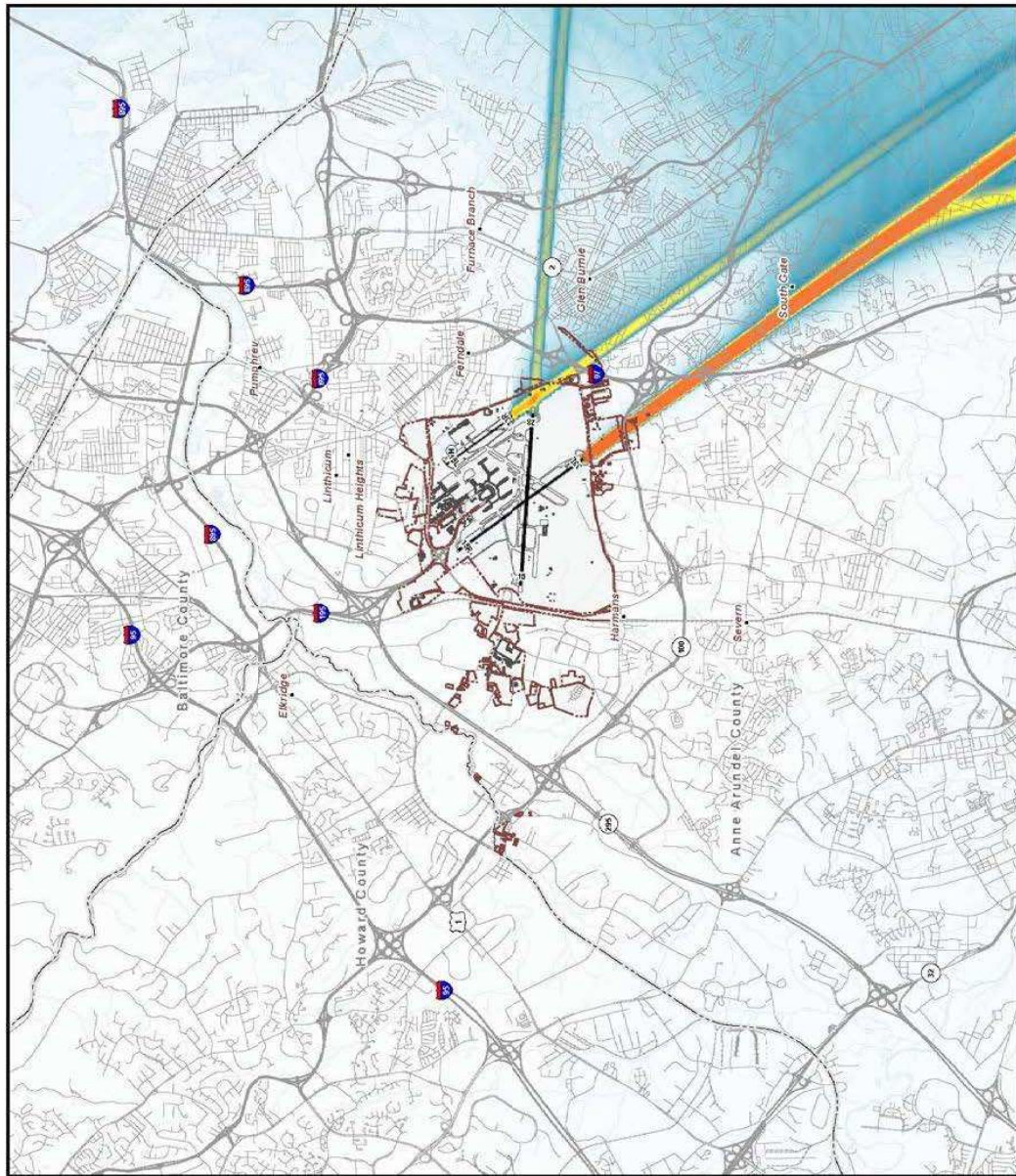
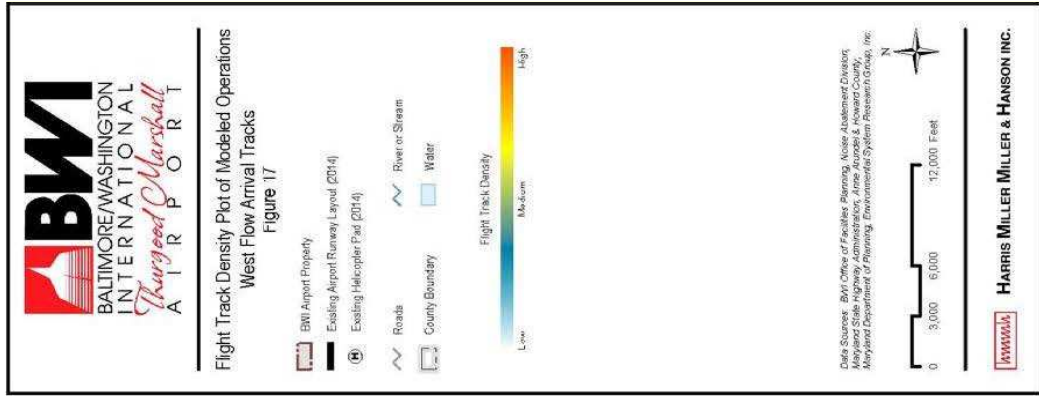
Noise Exposure Map and Airport Noise Zone Updates





Flight tracks - West Flow Arrival Tracks

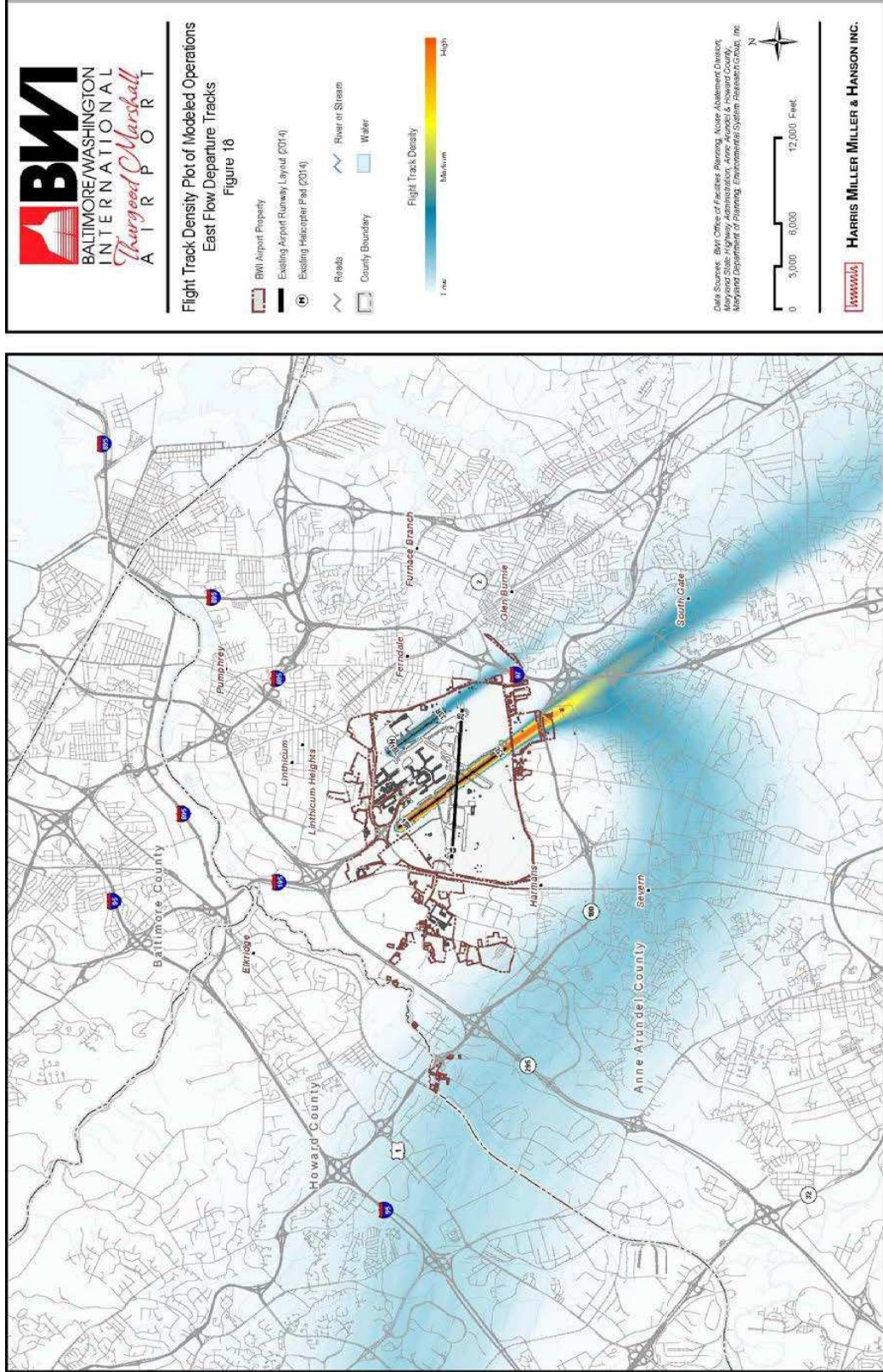
Noise Exposure Map and Airport Noise Zone Updates





Flight tracks - East Flow Departure Tracks

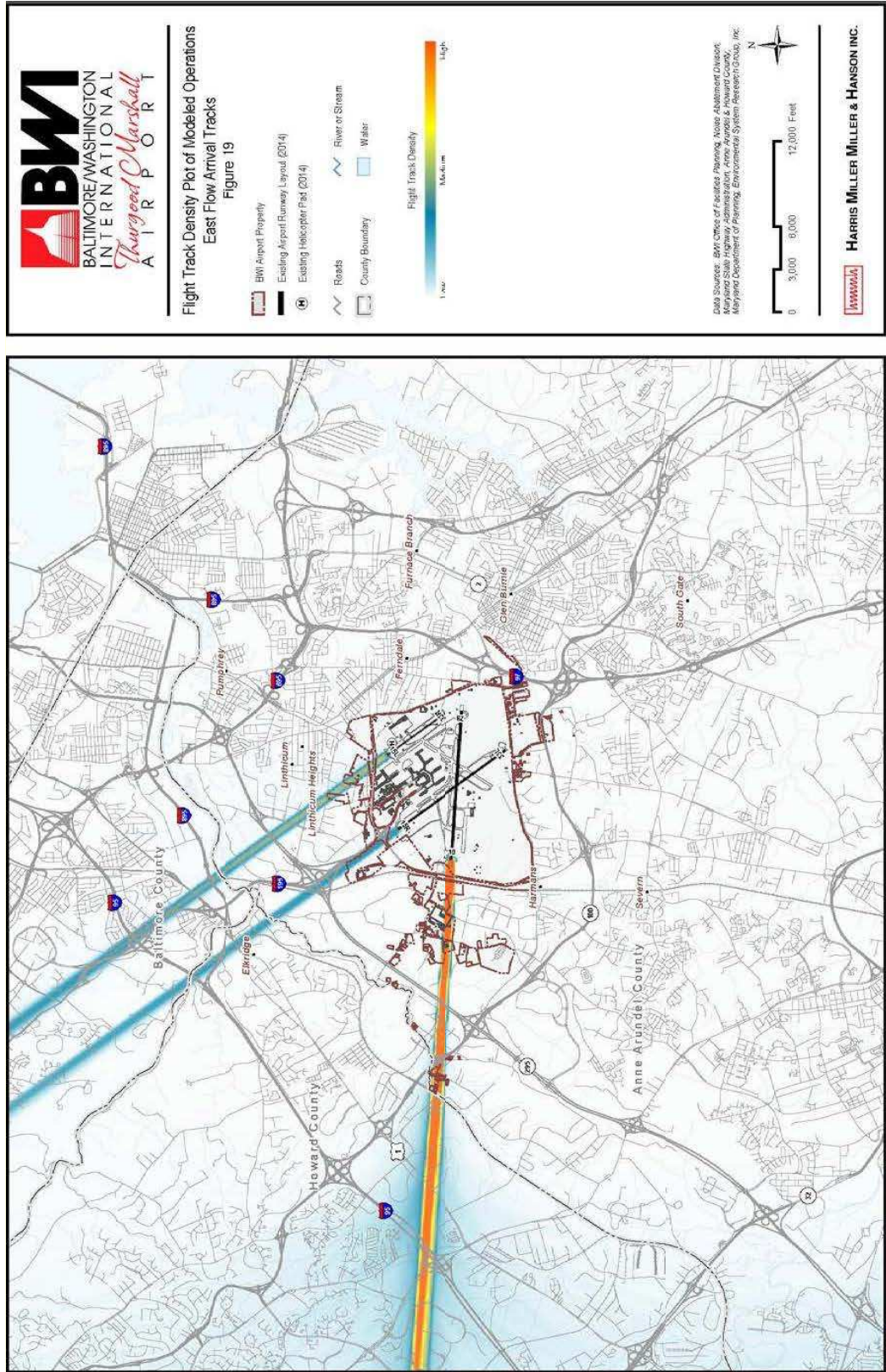
Noise Exposure Map and Airport Noise Zone Updates





Flight tracks - East Flow Arrival Tracks

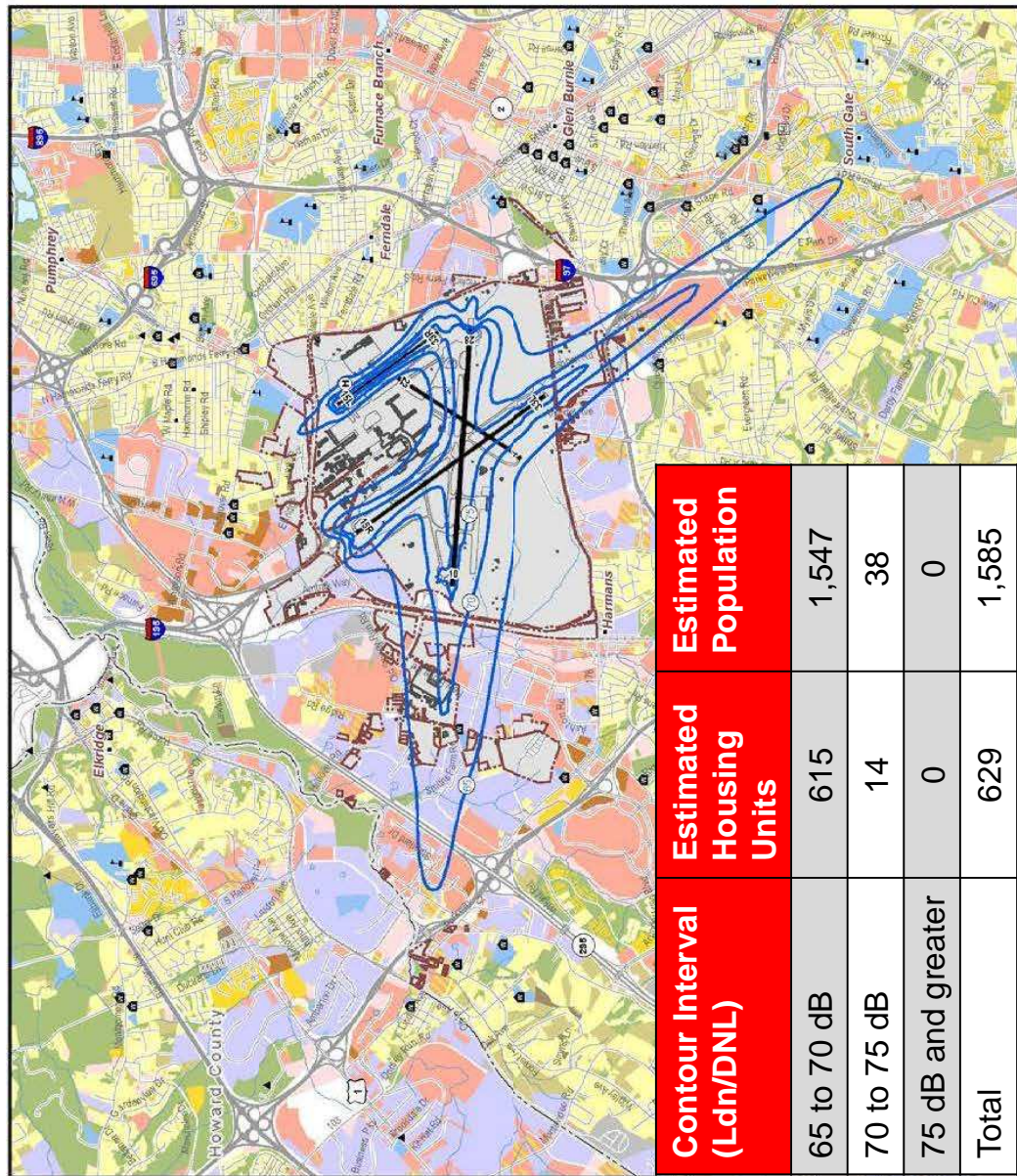
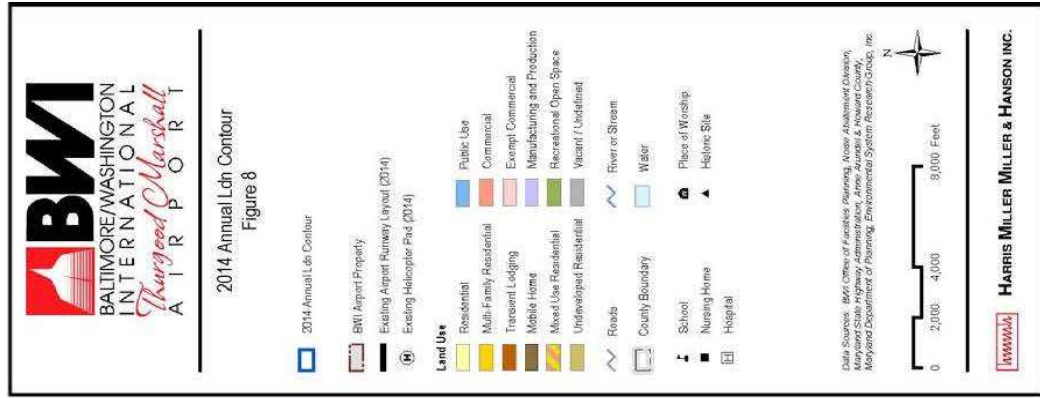
Noise Exposure Map and Airport Noise Zone Updates





Base Year (2014) DNL contours

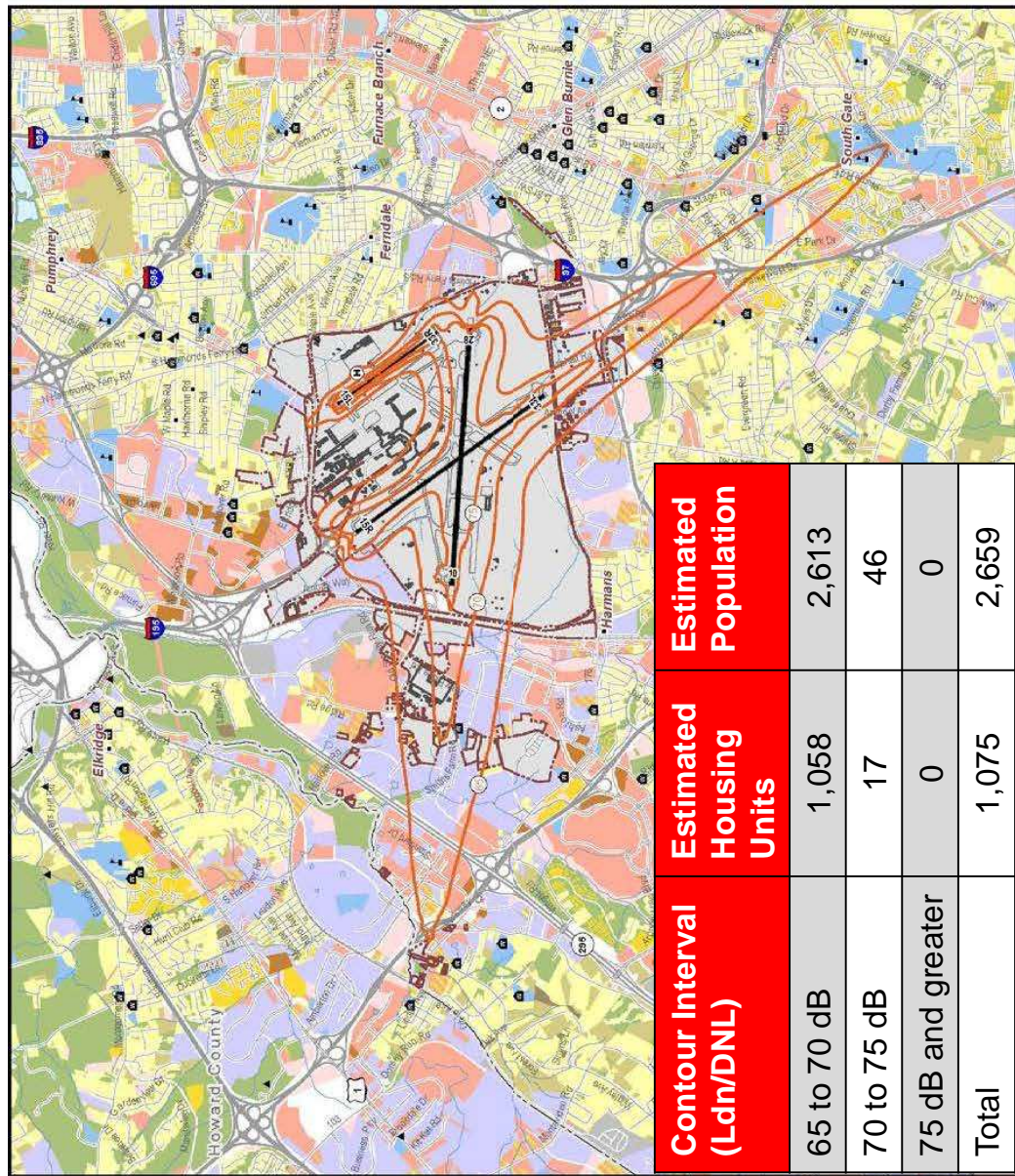
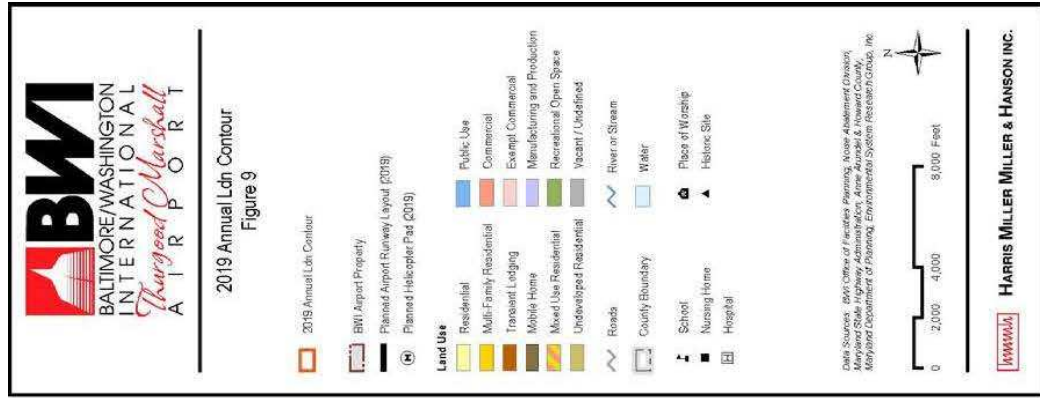
Noise Exposure Map and Airport Noise Zone Updates





5-Year Forecast (2019) DNL contours

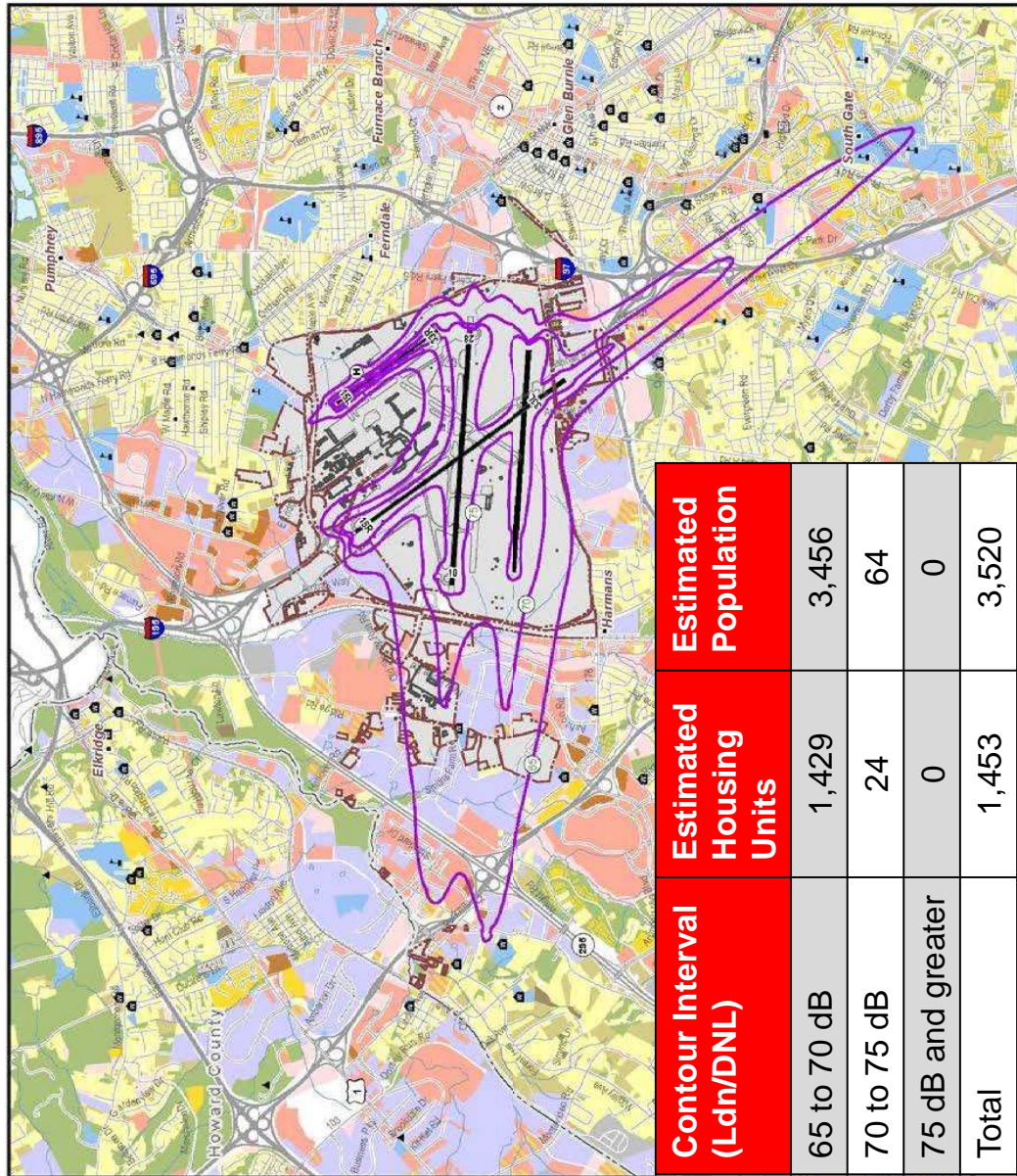
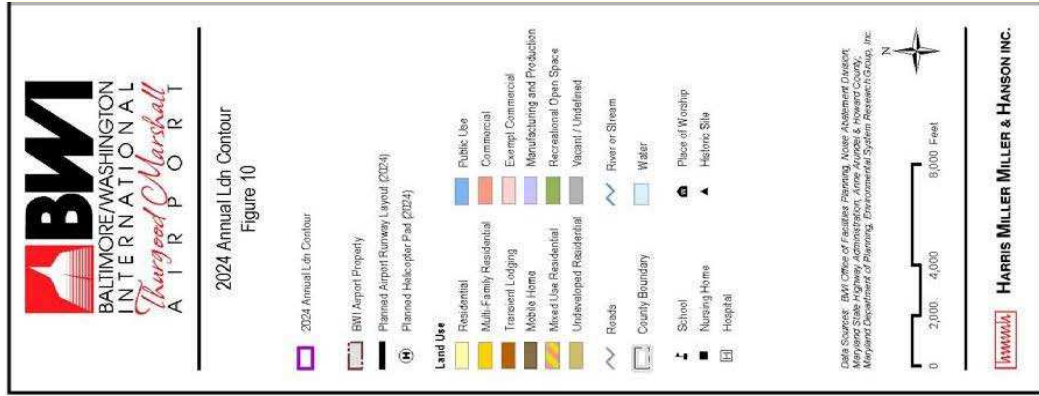
Noise Exposure Map and Airport Noise Zone Updates





10-Year Forecast (2024) DNL contours

Noise Exposure Map and Airport Noise Zone Updates



Contour Interval (Ldn/DNL)	Estimated Housing Units	Estimated Population
65 to 70 dB	1,429	3,456
70 to 75 dB	24	64
75 dB and greater	0	0
Total	1,453	3,520

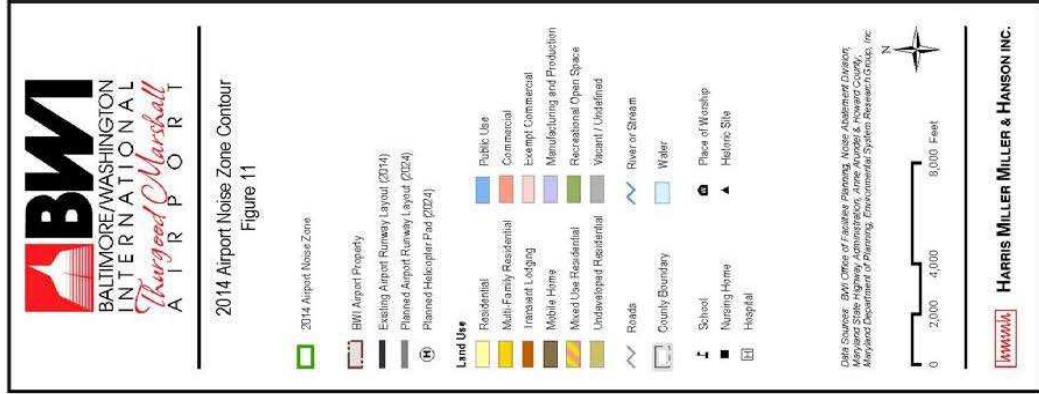
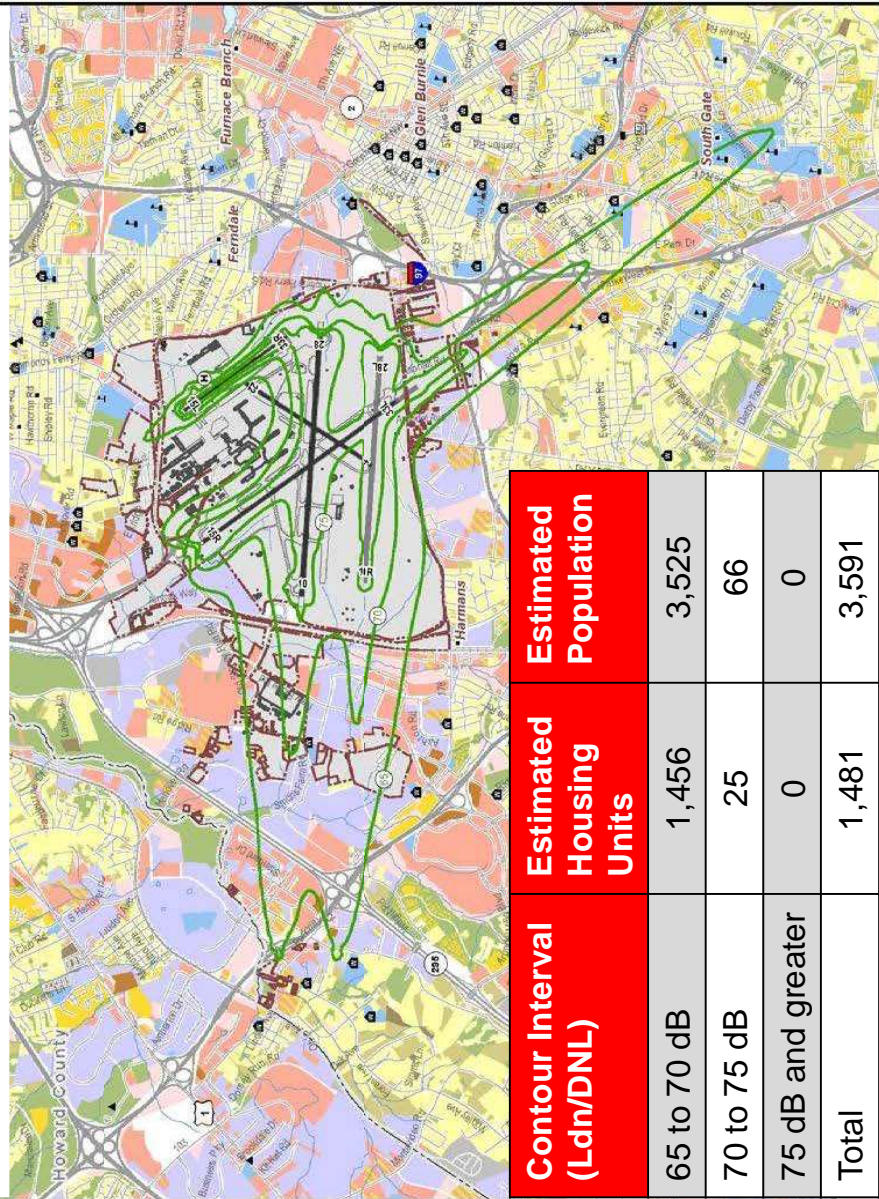
HARRIS MILLER MILLER & HANSON INC.



Noise Exposure Map and Airport Noise Zone Updates

2014 Airport Noise Zone

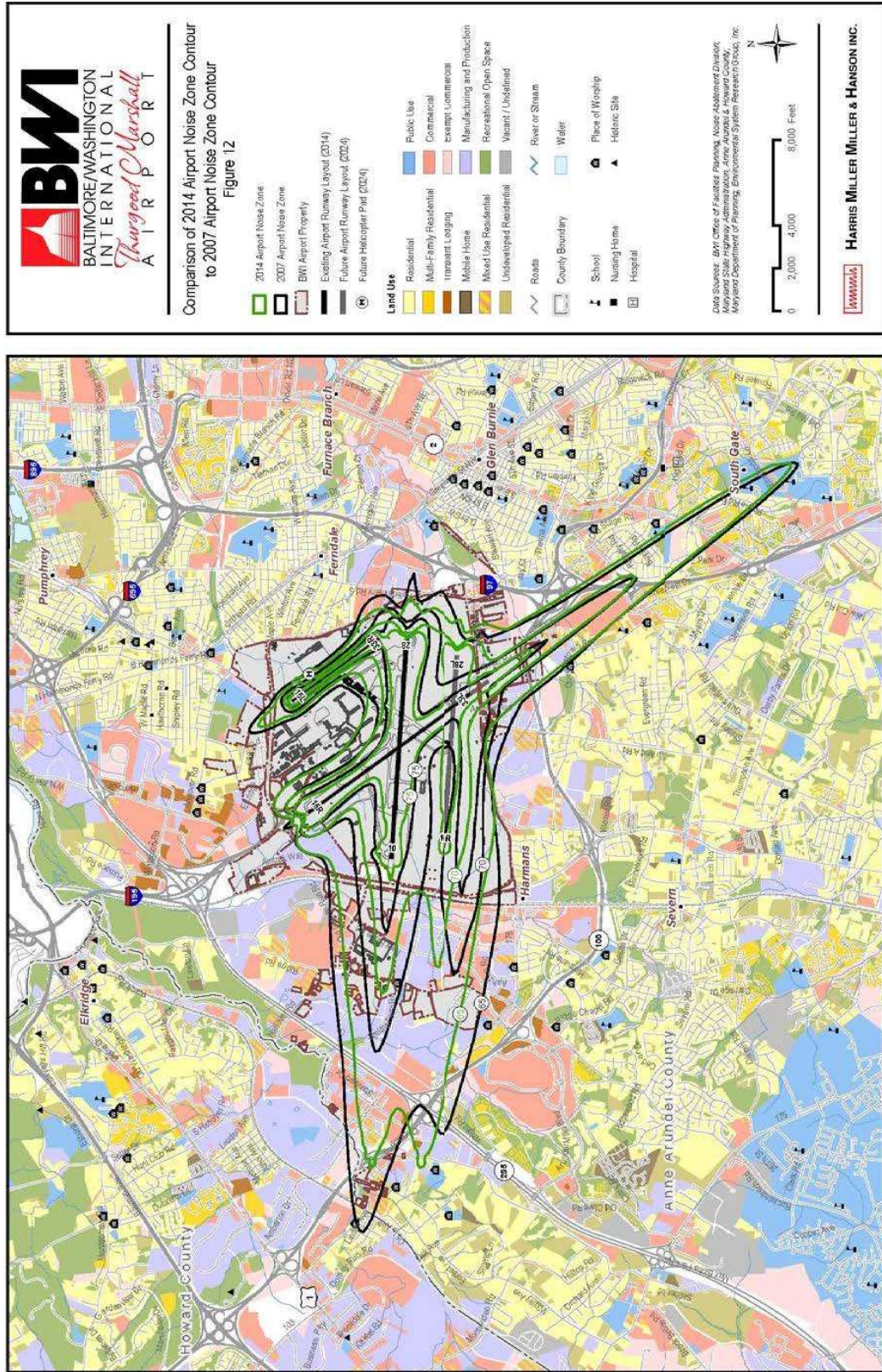
The ANZ is a composite of the Base, 5-Year Forecast and 10-Year Forecast contours





Proposed 2014 ANZ compared to 2007 ANZ

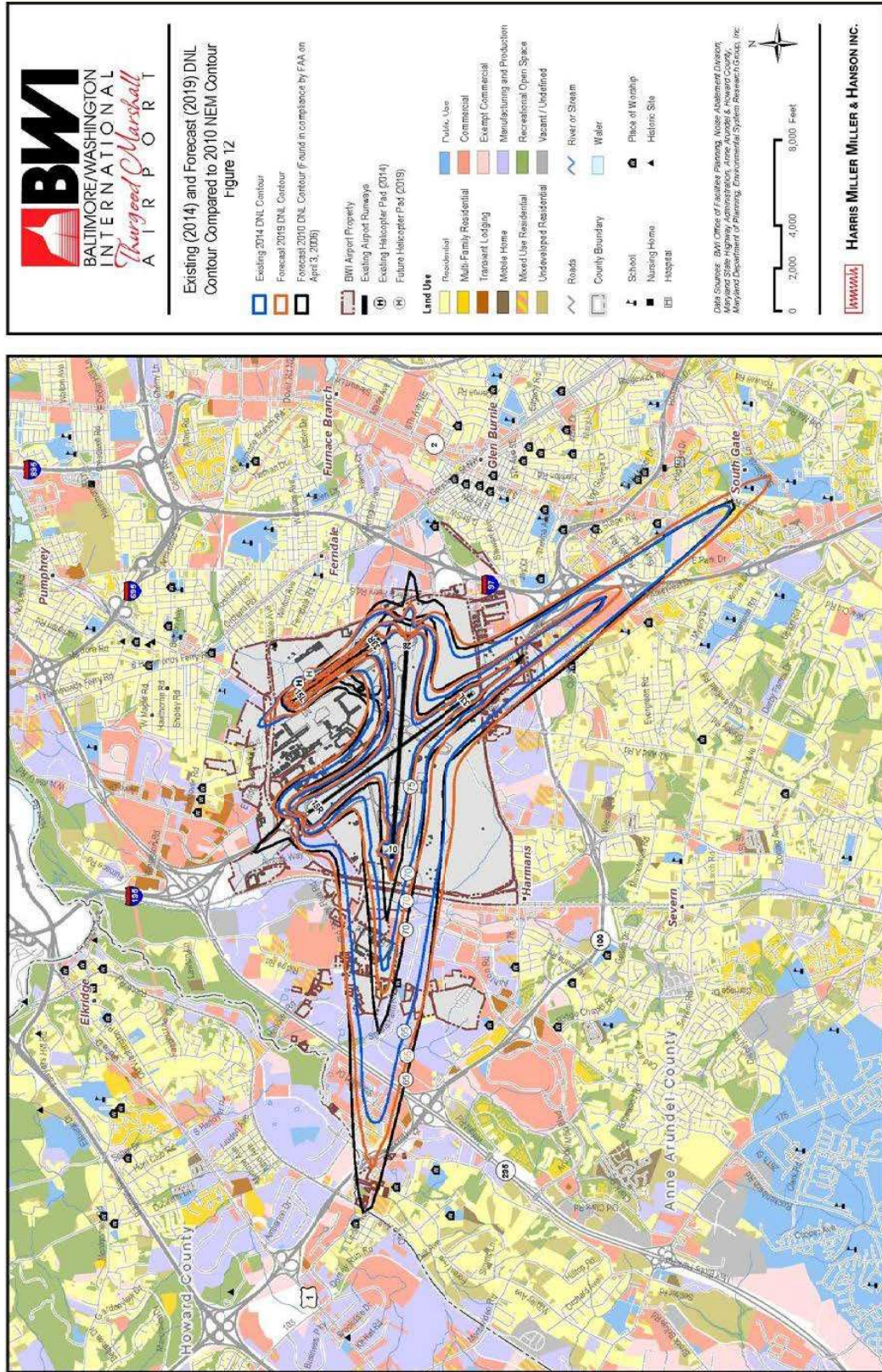
Noise Exposure Map and Airport Noise Zone Updates



Draft 2014 NEM and 2019 NEM compared to 2010 NEM contours (accepted by FAA in 2006)



Noise Exposure Map and Airport Noise Zone Updates





Residential Mitigation Status

The table below summarizes the number of residential units (single family or individual units in a multi-family complex) that already have been mitigated through one of MAA’s homeowner assistance or other land use programs, and those properties that are potentially eligible upon completion of this NEM update. Individual properties will be examined to determine additional federal and state eligibility requirements; that process will be done as property owners inquire on participating in the mitigation program.

Noise Level (DNL/ dB)	2014		2019	
	Previously Mitigated	Eligible for Mitigation	Previously Mitigated	Eligible for Mitigation
65 to 70 dB	295	320	366	692
70 to 75 dB	0	14	0	17
75 dB and greater	0	0	0	0
Total	295	334	366	709



Noise Exposure Map and Airport Noise Zone Updates

Schools within the NEM

School	Within 65 dB DNL/Ldn	
	2014 NEM	2019 NEM
Open Door Christian	✓	✓
Glen Burnie Park Elementary*	✓	✓
Rippling Woods Elementary**		✓

* Previously sound insulated

** Last evaluated for aircraft noise/sound insulation in the 1980s



Noise Exposure Map and Airport Noise Zone Updates

Outreach Efforts



Outreach Efforts

- **Neighbors Committee**
 - **April 23, 2013**
 - **March 18, 2014**
- **MAA has consulted with a Community Advisory Committee**
 - **Meeting May 14, 2015**
- **Maps have been made available at public libraries**
- **Extensive mailings advising of Neighbors Committee meetings and this October 21, 2014 Public Workshop/Hearing**
- **MAA prepared Executive Summaries for both projects**

Community Advisory Committee Roles



Noise Exposure Map and Airport Noise Zone Updates

- **Committee members are responsible for**
 - **Representing the interests of their organizations**
 - **Communicating progress with their constituents**
 - **Sharing their constituents' concerns and feedback**

Community Advisory Committee Members (Invited)



Noise Exposure Map and Airport Noise Zone Updates

Organization	Representing	Representative
Neighbors Committee	The Greater Elkridge Community Association Elmhurst Improvement Association Glen Burnie Improvement Association Harmans Civic Association Linthicum-Shipley Improvement Association Severn Improvement Association Timber Ridge Improvement Association Ferndale-Linthicum Area Community Council	Edward Huber Eric Jordan Nancy Brown (Chairman) Rusty Bristow Ken Glendenning Melvin Kelly (Chairman) Richard Hanna Liz Wagner
Elected Officials	Senate of Maryland	Sen. James E. DeGrange, Sr.
Federal Aviation Administration	BWI Air Traffic Control Tower Potomac TRACON Washington Airports District Office	Stephen M. Batchelder Steve Smith Marcus Brundage

Community Advisory Committee (continued)



Noise Exposure Map and Airport Noise Zone Updates

Organization	Representing	Representative
Aviation Representatives	National Business Aviation Association Aircraft Owners and Pilots Association Southwest Airlines Signature Flight Support BWI Business Partnership	Greg Voos Craig Fuller Bert Seither Jerome Fernandez Linda Greene
Public Planning Agencies	Howard County Office of Planning & Zoning Anne Arundel County Off. of Planning & Zoning	Brian Muldoon Lynn Miller
Maryland Aviation Administration	Director, Office of Noise, Real Estate and Land Use Compatibility Assistant Attorney General Director, Office of Planning and Environmental Services Chief Engineer, Facilities Development and Engineering	Ellen Sample Louisa Goldstein Wayne Schuster Paul Shank



Noise Exposure Map and Airport Noise Zone Updates

Next Steps

Noise Exposure Map (NEM):

- **Public Comment Period (30 days, ending November 3)**
- **MAA reviews and responds to public comments**
- **Submission to FAA - November 2014**
- **FAA reviews NEM and determines compliance with the regulation**
- **FAA publishes Notice of compliance in Federal Register**

Airport Noise Zone (ANZ):

- **Public Comment Period (30 days, ending November 3)**
- **MAA reviews and responds to public comments**
- **Maryland Aviation Commission considers approval of the proposed ANZ maps as regulations – November 2014**
- **Publish ANZ Regulations in COMAR by December 2014**



Public Comment Period (30 days)

- **Comment period for the NEM and ANZ started October 3, 2014 and ends November 3, 2014.**
- **Comments submitted for either the ANZ or the NEM projects/maps will be assumed to be submitted for both, if applicable.**
- **Comments may be made**
 - **Tonight – verbal**
 - **Tonight – written**
 - **Mailed to Maryland Aviation Administration**
 - **Instructions available in handouts**



Noise Exposure Map and Airport Noise Zone Updates

Thank you

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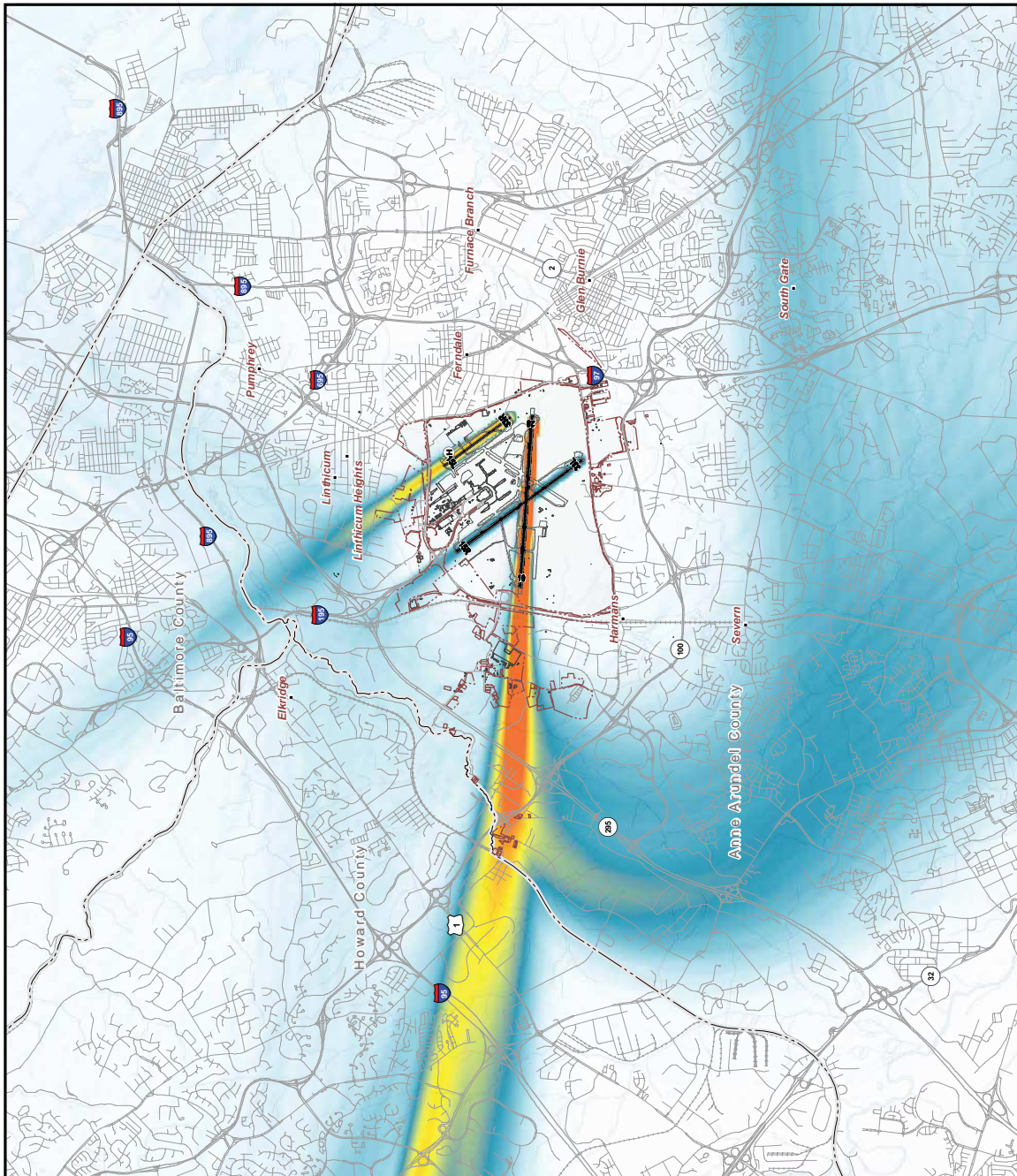
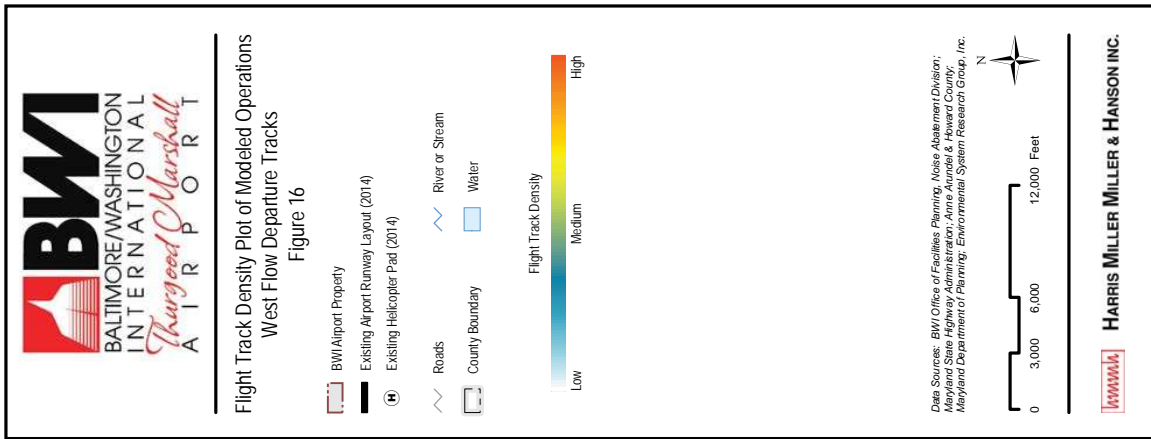
H.5.3 Display Boards



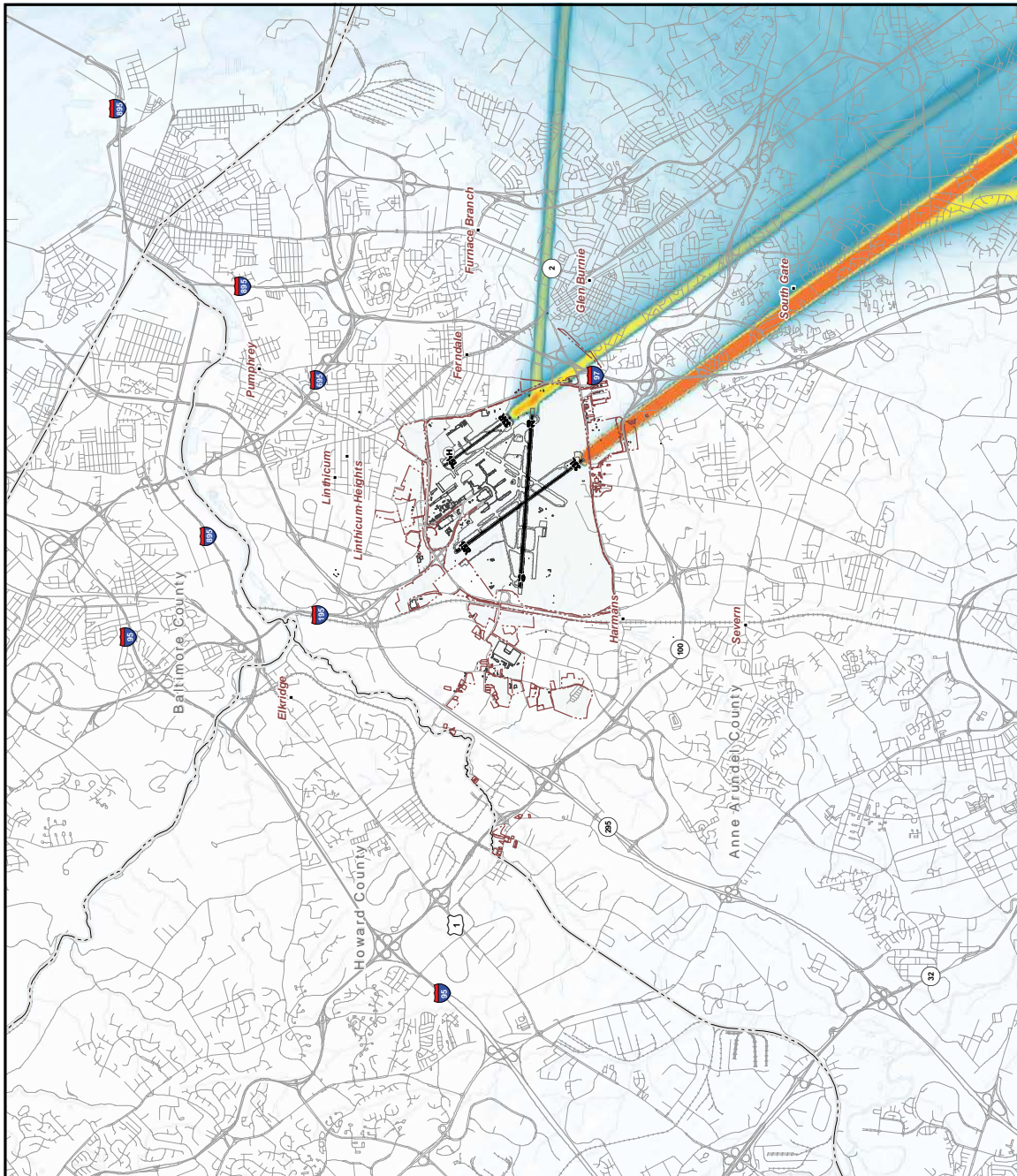
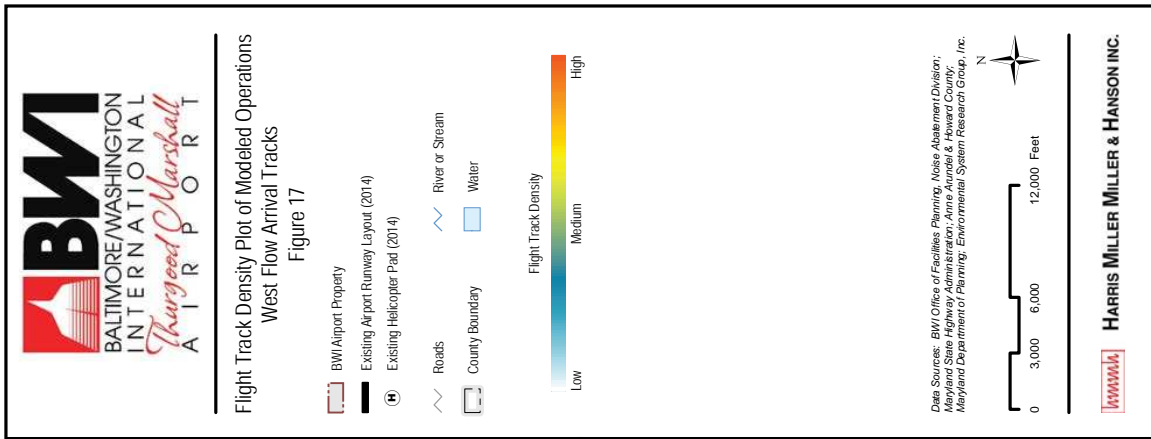
Welcome

Updates to BWI Marshall Airport Noise Zone and Federal Aviation Regulation Part 150 Noise Exposure Maps

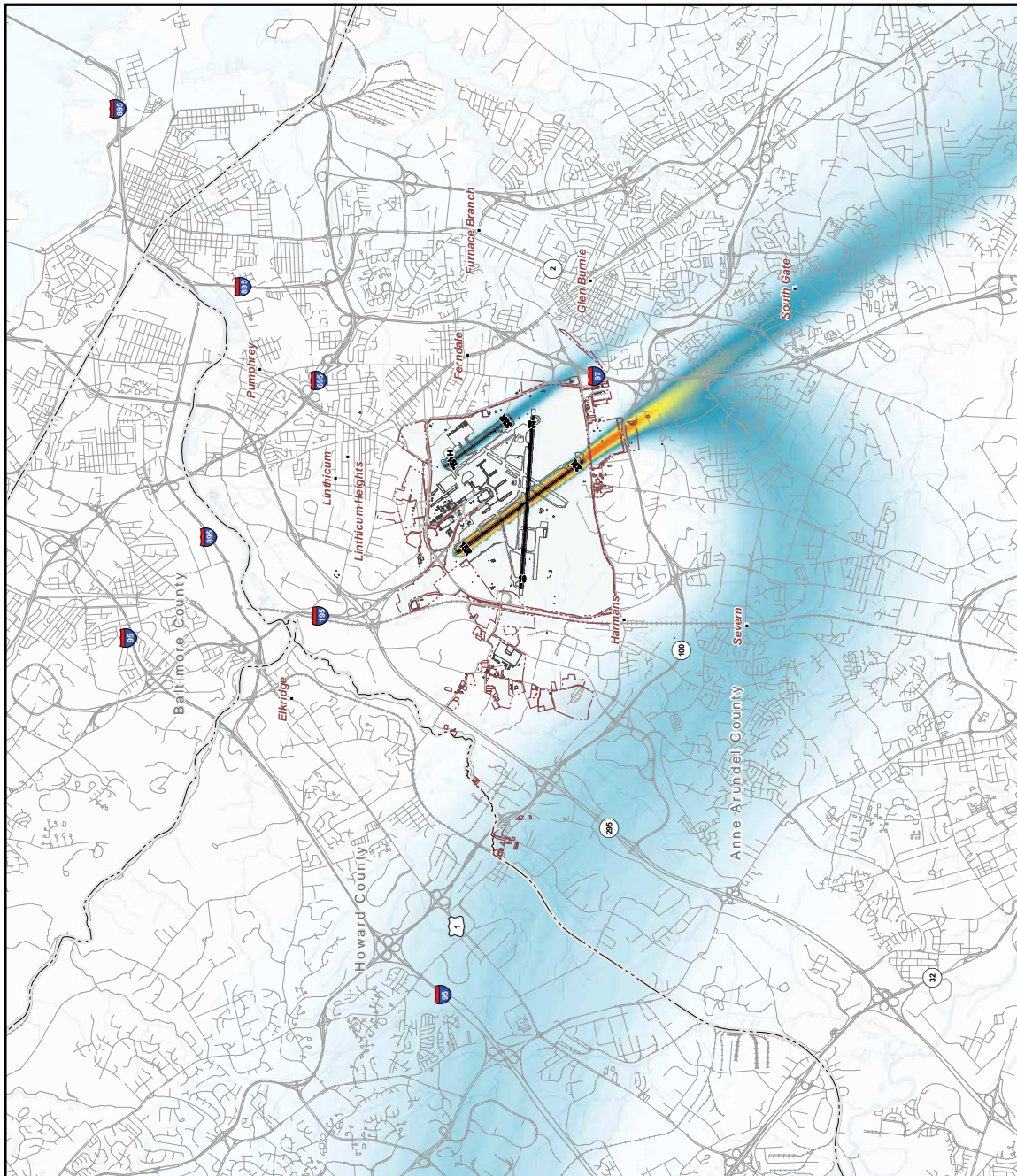
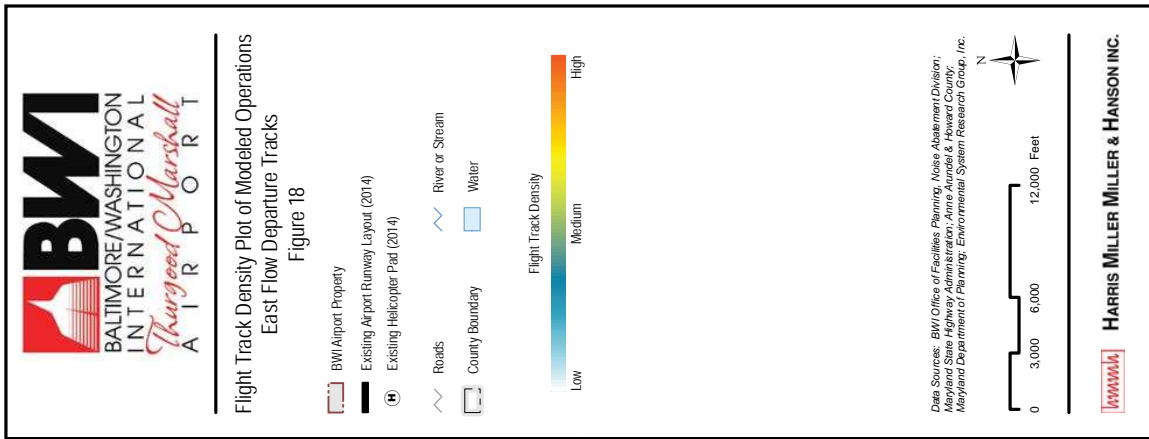
**Public Workshop and Hearing
October 21, 2014**



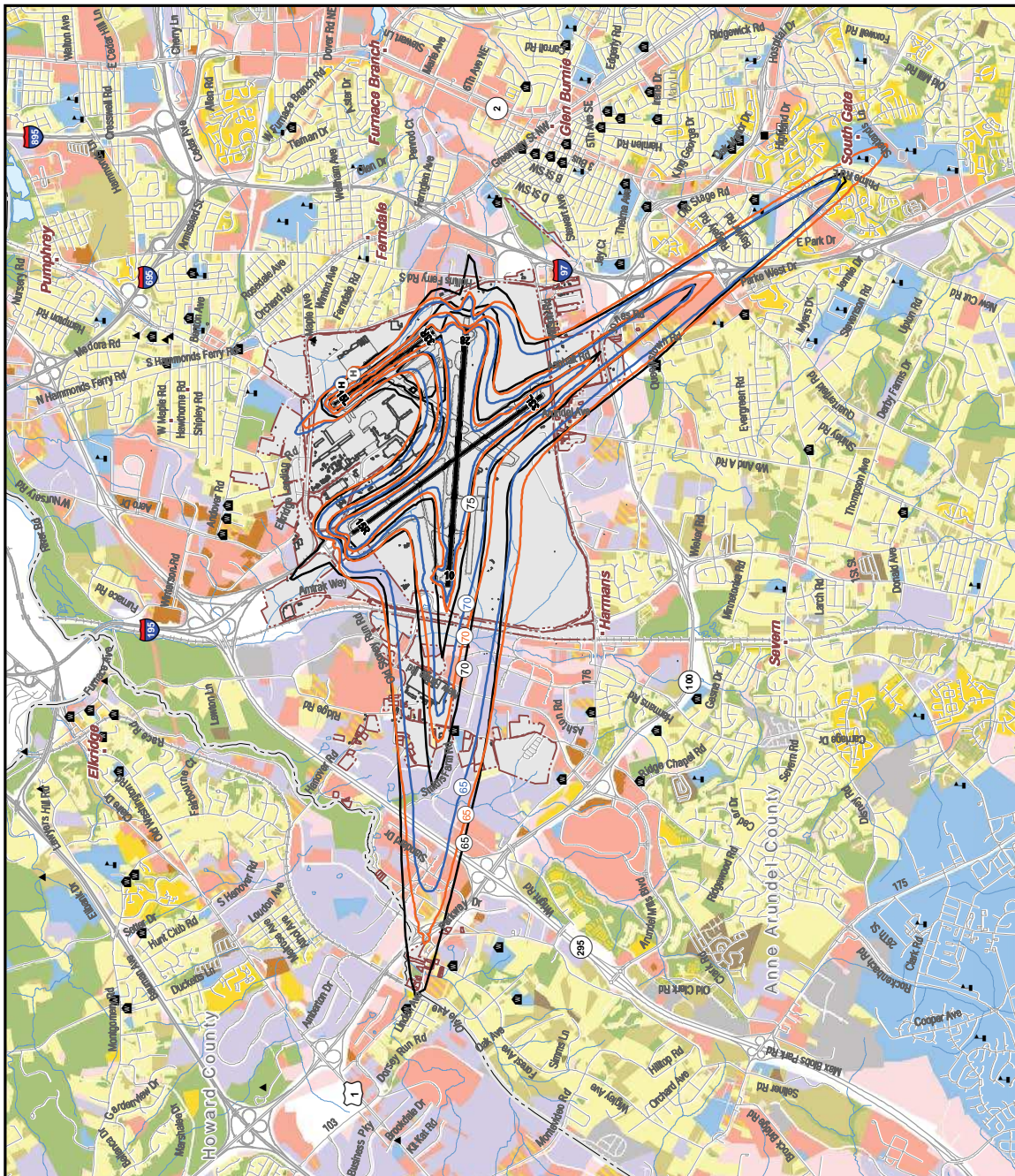
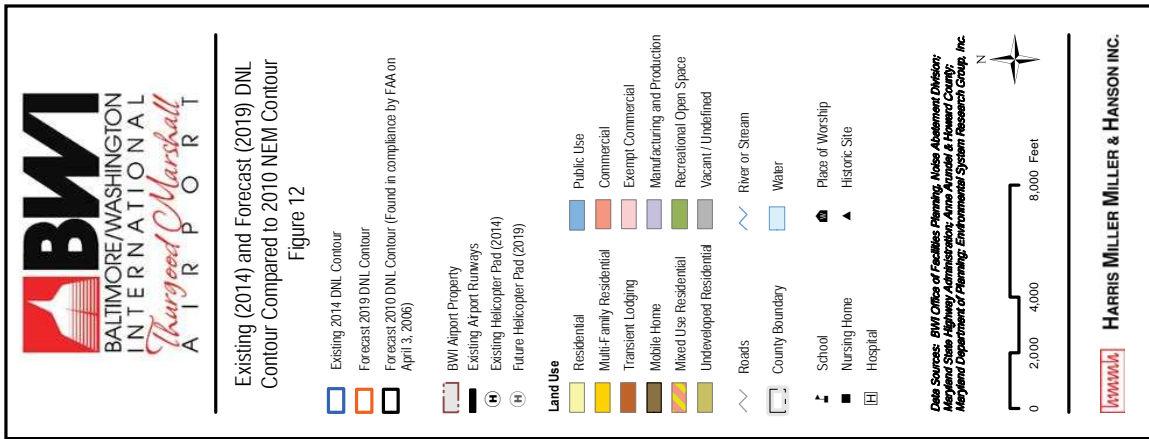
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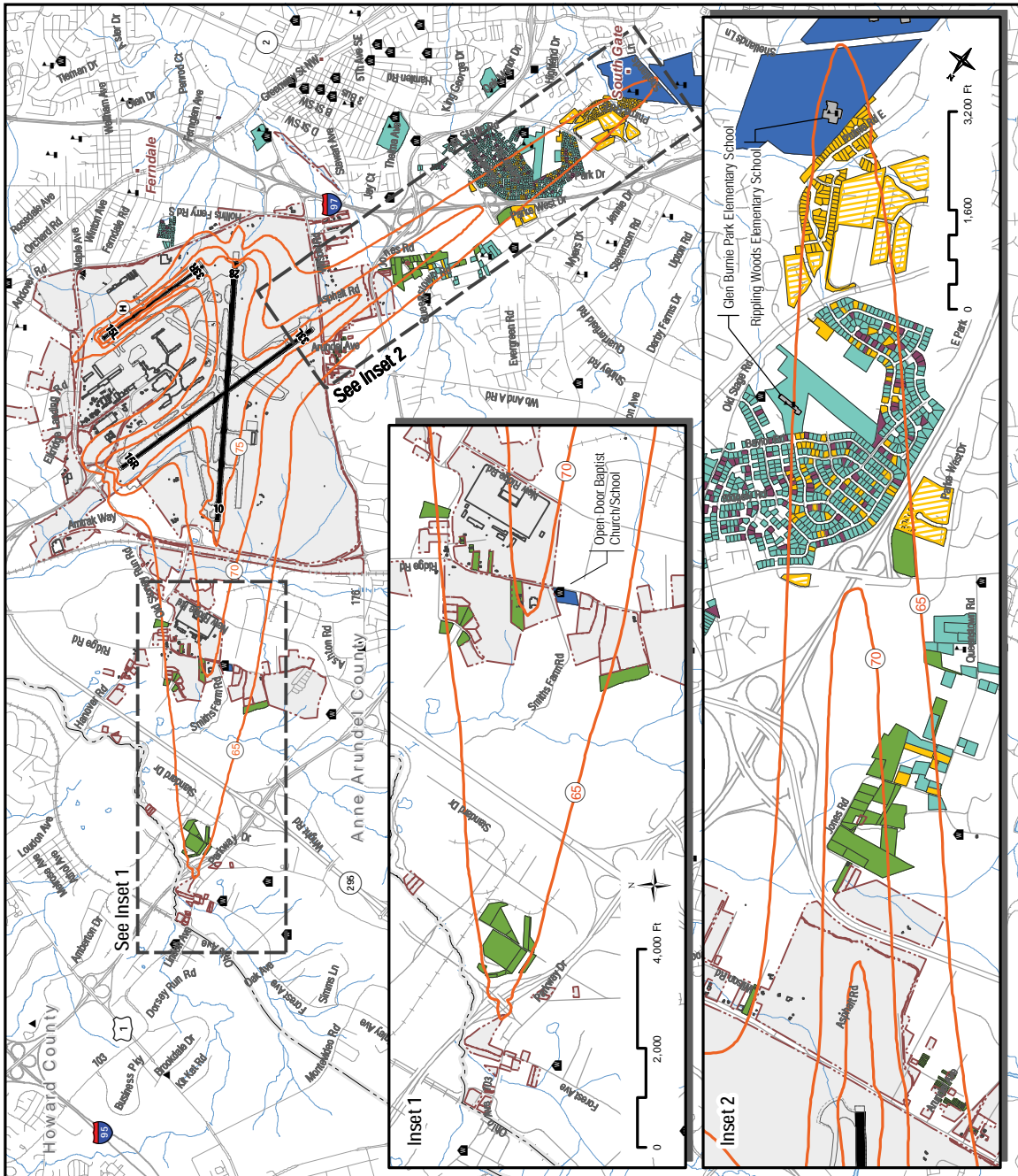
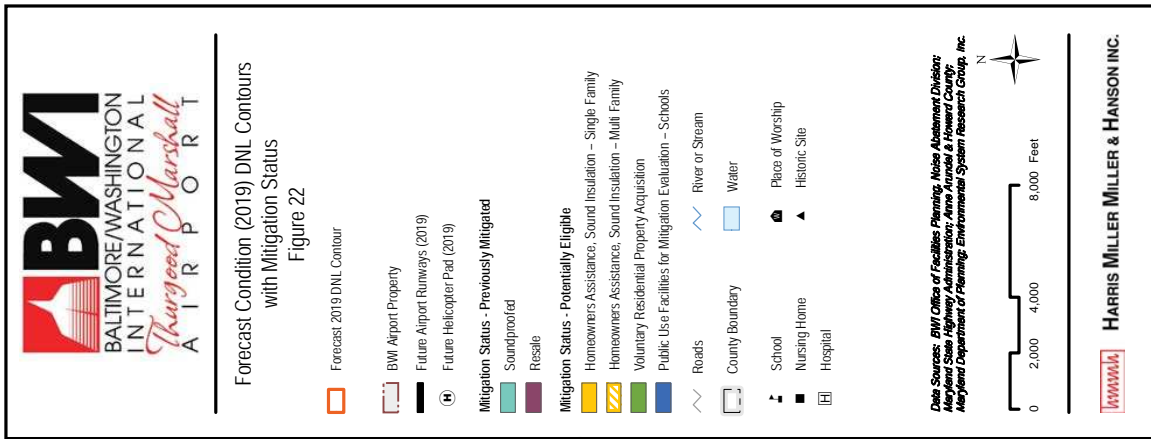
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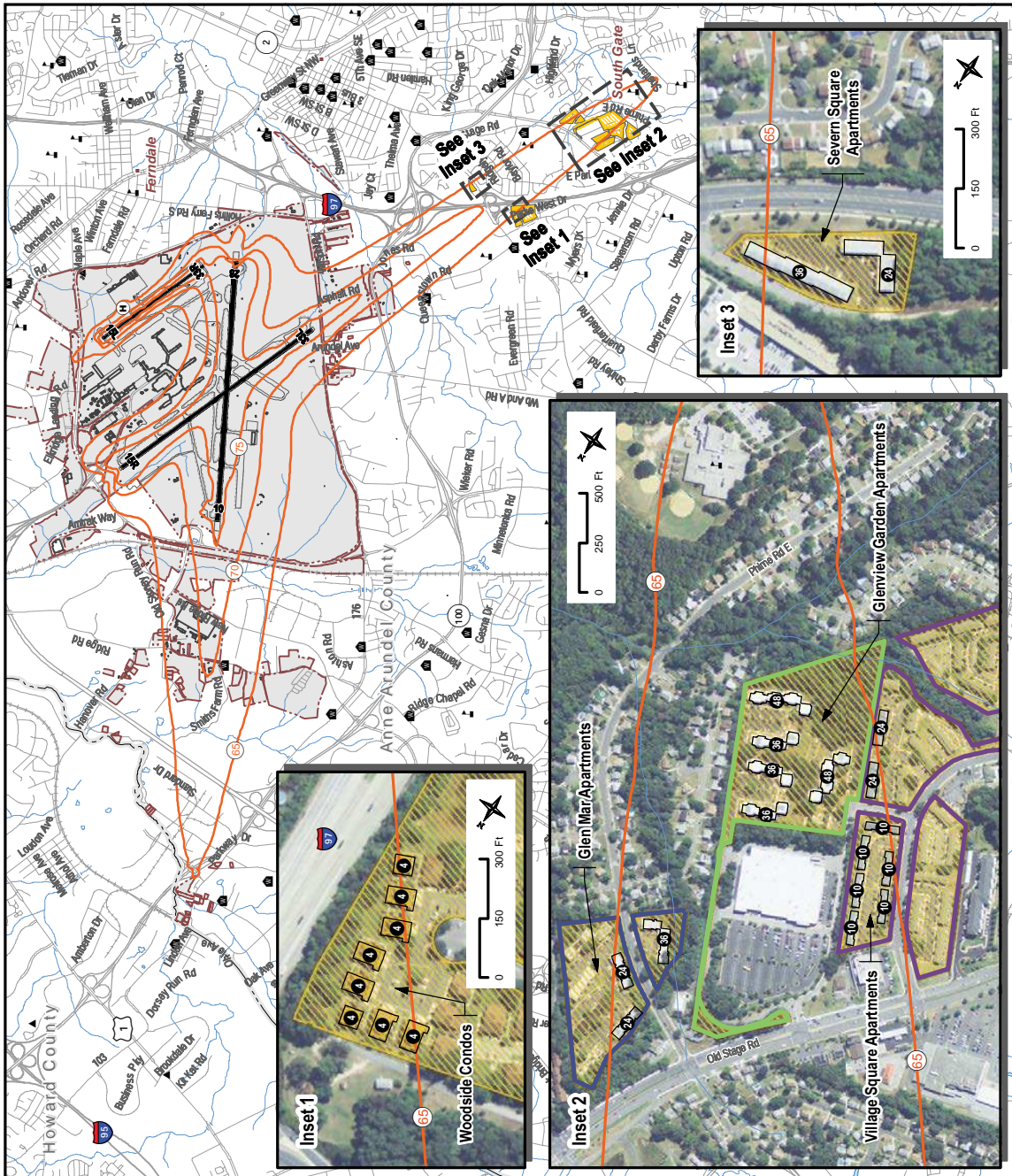
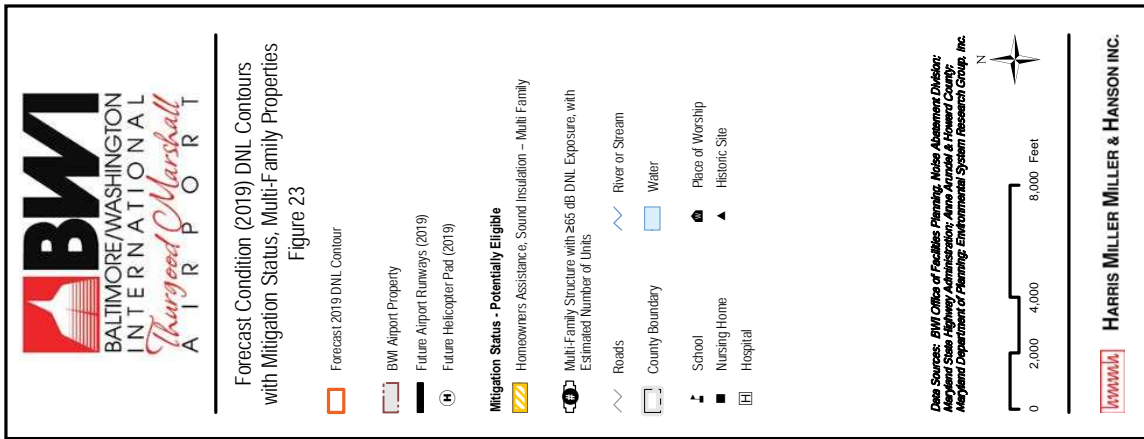


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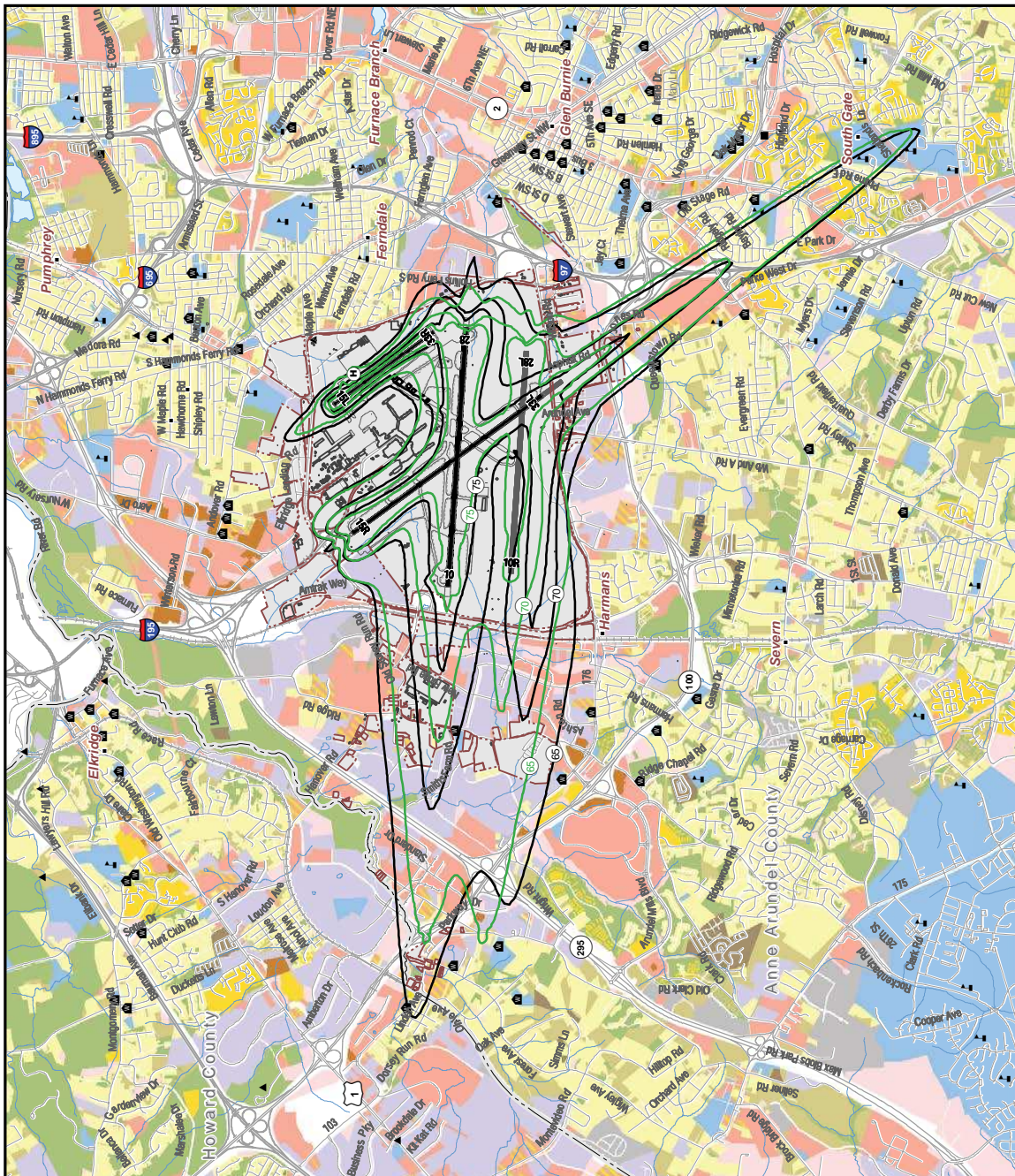
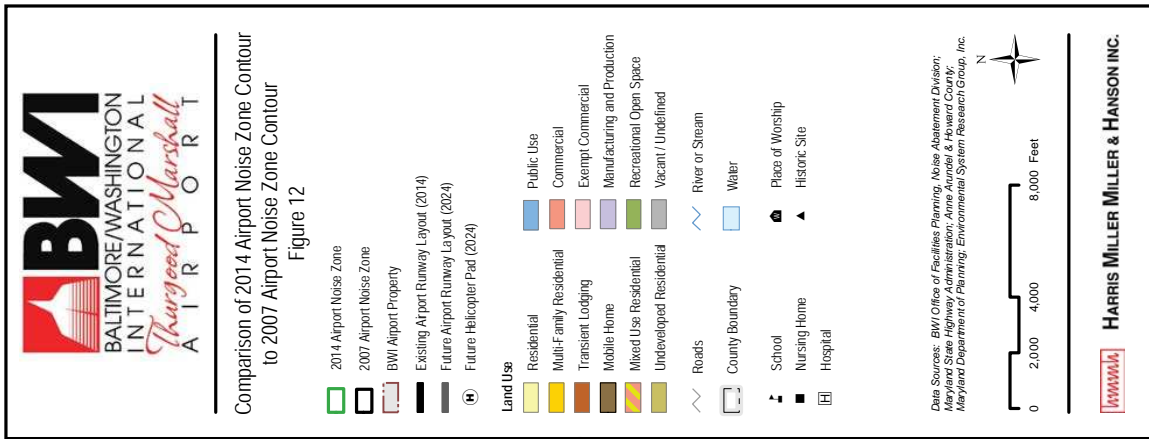


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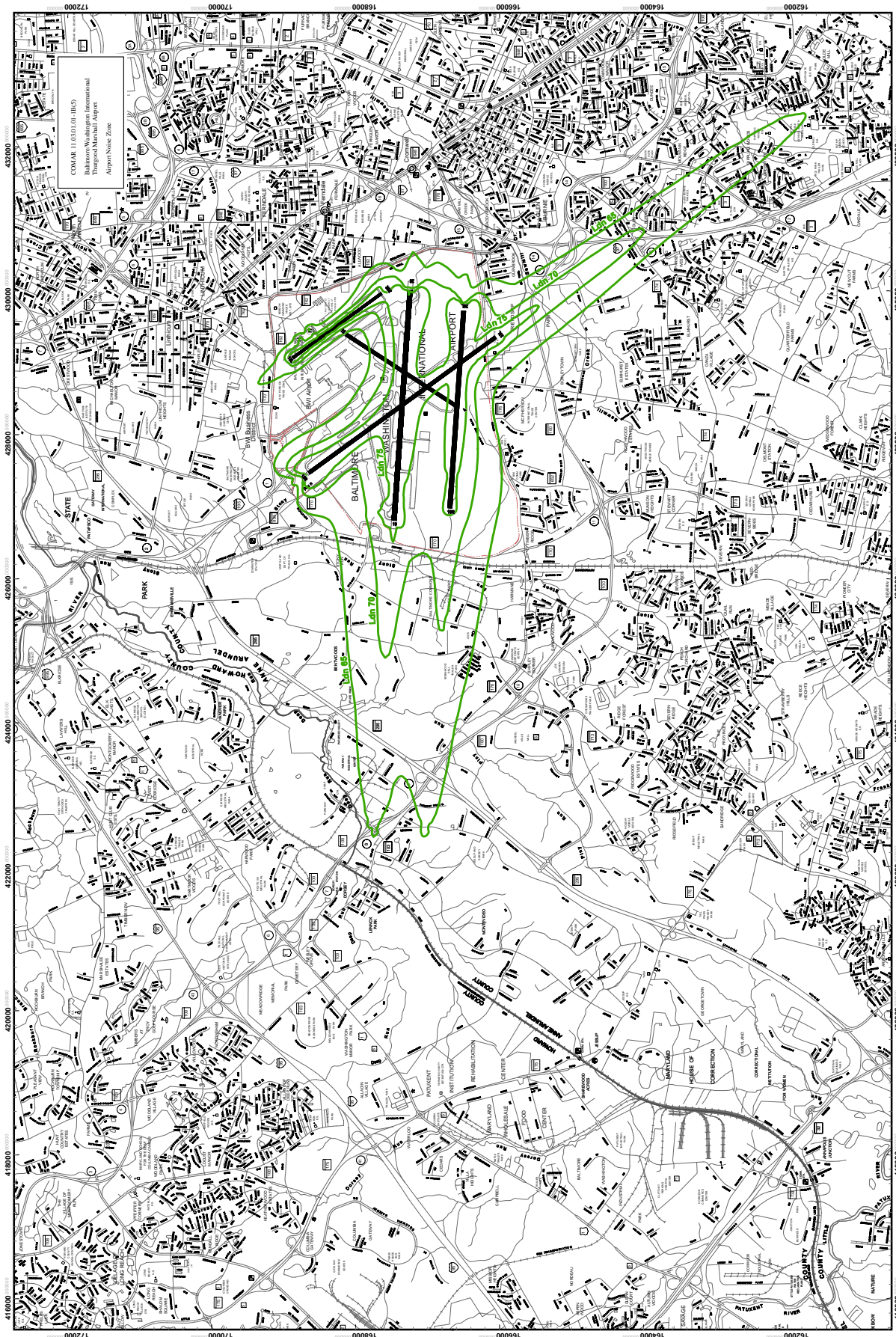


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Airport Noise Zone Update Baltimore/Washington International Thurgood Marshall Airport



Howard County & Anne Arundel County, Maryland

2014 Airport Noise Zone
Prepared June 30, 2014

2014 Airport Noise Zone

Map Sources: BMD Office of Facilities Planning, Noise Abatement Division, Maryland State Highway Administration, Maryland Department of Planning - 2011 MapCopyView, Environmental Systems Research Group, Inc., Harris Miller Miller & Hanson Inc.



Noise Exposure Map and Airport Noise Zone Updates

Next Steps

Noise Exposure Map (NEM):

- **Public Comment Period (30 days, ending November 3)**
- **MAA reviews and responds to public comments**
- **Submission to FAA - November 2014**
- **FAA reviews NEM and determines compliance with the regulation**
- **FAA publishes Notice of compliance in Federal Register**

Airport Noise Zone (ANZ):

- **Public Comment Period (30 days, ending November 3)**
- **MAA reviews and responds to public comments**
- **Maryland Aviation Commission considers approval of the proposed ANZ maps as regulations – November 2014**
- **Publish ANZ Regulations in COMAR by December 2014**

H.5.4 Public Hearing Transcript

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION

PUBLIC HEARING

PROPOSED AIRPORT NOISE ZONE
BALTIMORE WASHINGTON INTERNATIONAL
THURGOOD MARSHALL AIRPORT

TUESDAY, OCTOBER 21, 2014

991 Corporate Boulevard
Assembly Room A
Linthicum, Maryland 21090

7:00 p.m. - 8:00 p.m.

PRESENT FROM MAA:

ELLEN SAMPLE

RANDY DICKINSON

OTHERS PRESENT:

KEN GLENDENNING

PAUL HARRELL

LAURA DONOVAN

JUSTIN SZECH

REPORTED BY: KATHLEEN A. COYLE, Notary Public

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P R O C E E D I N G S

MS. SAMPLE: Thank you all for coming this evening. This public hearing is being held pursuant to the annotated code of Maryland Transportation Article Section 5-806(b) on the proposed airport noise zone. The airport noise zone is a State document which allows the Maryland Aviation Administration to control incompatible land development around BWI Airport. The public workshop held tonight was done pursuant to the federal code of regulations Part 150 and to review the noise exposure maps for BWI Marshall.

The noise exposure maps allow the MAA to apply for and obtain funds for sound insulation for properties impacted by noise around the airport. The opportunity for obtaining information and getting questions is in the public workshop where the staff is still available in there to review, answer your questions. The documents are available for you to look at. The documents here tonight are the forecast contour for the noise exposure map for 2019, for 2014, and for the airport noise zone that's proposed for

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1 2014. These documents are up here for your reference.
2 If you want to refer to them while you're making
3 comments with regard to the updates for either the
4 airport noise zone or the noise exposure map. Any
5 comments made on one document, if they apply to both,
6 will be applied to both.

7 Additionally, there are comment cards as you
8 come in the door. If you would prefer to present your
9 comments in written, we can take written and oral
10 comments. So the floor is open for anyone wishing to
11 come up and make comments on either the airport noise
12 zone or the noise exposure map. Thank you.

13 The floor is open.

14 VOICE: I wanted to make comments, but I
15 think I'll write them instead.

16 MS. SAMPLE: Okay.

17 VOICE: It's given the same --

18 MS. SAMPLE: Weight and merit. Yes.

19 VOICE: Okay.

20 MS. SAMPLE: They will be responded to and
21 incorporated in the documents.

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1 VOICE: Thank you.

2 MS. SAMPLE: Anyone else want an opportunity
3 to comment on the documents? We advertised it in the
4 paper. So the workshop was from 5:30 to 7:00. It will
5 remain open during the period of the public hearing.
6 If you want to go and take a look at something and then
7 come back. So at this point the floor is open to
8 anyone here that wants to make comments.

9 (No response.)

10 MS. SAMPLE: So that's it. I'm sorry. You
11 just came in. In the other room the boards are all set
12 up so if you want to go through and review the
13 information, the staff are in there to answer any
14 questions. Once you've had an opportunity to do that
15 if you have comments we'd be happy to get them here.

16 VOICE: Thank you. I just mentioned
17 something about that you've done your thing, and then
18 it goes up to FAA for approval. And they can approve
19 it or not. And how long does that take? And what if
20 they don't approve it? And then if they don't approve
21 it, then what happens?

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1 MS. SAMPLE: Then we're not eligible for
2 federal funding.

3 VOICE: At all? What if it goes -- okay. Say
4 some comment cards come in --

5 MS. SAMPLE: We're supposed to be off the
6 record here.

7 (Whereupon, at 8:00 p.m., the meeting
8 was adjourned.)

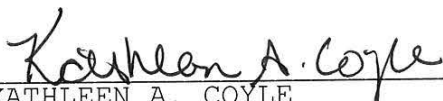
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CERTIFICATE OF NOTARY

I, KATHLEEN A. COYLE, the officer before whom the foregoing testimony was taken, do hereby certify that the witness whose testimony appears in the foregoing transcript was duly sworn by me; that the testimony of said witness was taken by me by stenomask means and thereafter reduced to typewriting by me or under my direction; that said testimony is a true record of the testimony given by said witness; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this testimony is taken; and, further, that I am not a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of the action.

This certification is expressly withdrawn and denied upon the disassembly or photocopying of the foregoing transcript of the proceedings or any part thereof, including exhibits, unless said disassembly or photocopying is done by the undersigned court reporter and/or under the auspices of Hunt Reporting Company, and the signature and original seal is attached thereto.


KATHLEEN A. COYLE
Notary Public in and for
the State of Maryland

My Commission Expires:
April 30, 2018

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APPENDIX I COMMENTS AND RESPONSES TO COMMENTS

COMMENT CARD

Name: Paul T. Harrell, Jr
Address: 7904 Poplar Grove Rd
Severn, MD 21144
Phone: 410-969-4674
Email: PTHARRELLJR
@GMAIL.COM

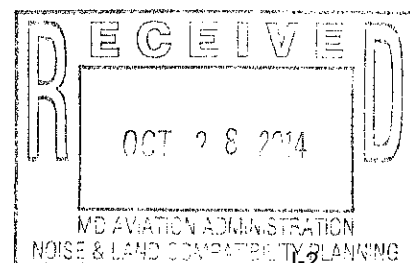


Comment Period for NEM and ANZ started October 3, 2014 and ends November 3, 2014.

Comments submitted for either the ANZ or the NEM projects/maps will be assumed to be submitted for both, if applicable.

I/we wish to comment or inquire about the following aspects of the project(s):

I am concerned that the noise contour maps do not adequately reflect the noise levels that exist when BWI Marshall Airport is operating with the East Flow Operations and the planes turn right shortly after takeoff, thus flying over the communities of Elmhurst and other surrounding neighborhoods. The noise contour maps show a narrow path straight out from the runway and don't seem to reflect the fact that a significant percentage of planes make the right turn when in the East Flow Operation. When these planes fly over Elmhurst, particularly in the evenings, any outdoor conversations must be paused until the plane passes. Representatives at the Public Workshop held at the MAA offices on October 21, 2014 explained the rationale for the right turns and currently I don't have a recommendation which would improve the situation within the existing air route constraints, but wanted to make sure that the decision makers were aware of the aggravation which residents of our community experience during these flights. If changes to the flight patterns are developed, please take this into consideration.



December 2014



Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor

James T. Smith, Jr.
Secretary

Paul J. Wiedefeld, A.A.E.
Executive Director / CEO

December 12, 2014

Mr. Paul T. Harrell, Jr.
7904 Poplar Grove Road
Severn MD 21144

SUBJECT: The Baltimore/Washington International Thurgood Marshall (BWI Marshall)
Airport Noise Zone (ANZ) and Noise Exposure Map (NEM) Updates

Dear Mr. Harrell, Jr.:

Thank you for your interest in the BWI Marshall ANZ and NEM Updates. We reviewed your comments which were received in our office on November 3, 2014.

Your comment expressed concern regarding the impact of the existing right turn off Runway 15R on the NEM and ANZ contours. The noise contours for both the ANZ and NEM are based on actual flight track patterns, including those making a right turn on departure from Runway 15R and heading over the Elmhurst community during east flow operations. The modeled flight tracks shown on Figure 5 of the ANZ document, which were reviewed with you on the evening of the public workshop, reflect the tracks as they were used for modeling purposes. The Day-Night Average Sound Level (DNL) contours use the annualized operations for all aircraft traffic patterns. The elongated shape of the contours extending along the Runway 15R/33L centerline to the southeast, is due to the higher number of west flow arrival operations to Runway 33L compared to the number of average daily Runway 15R departure operations occurring over Elmhurst. Departures from Runway 15R comprise less than 30 percent of the annual departures at the Airport and only a portion of those turn west over the Elmhurst area. Additionally, the right turn departure procedure for Runway 15R was evaluated extensively in the December 2005 NEM Update. Several alternate turn locations were evaluated at that time but unfortunately the FAA would not support a change to the existing location for safety reasons.

Thank you again for your interest in the BWI Marshall ANZ and NEM Updates. If you have any additional questions please feel free to contact me at 410-859-7925 or dsample@bwiairport.com.

Sincerely

Ms. Ellen Sample
Director,
Office of Noise, Real Estate & Land Use Compatibility

cc: Mr. Paul L. Shank, P.E., C.M., Chief Engineer, MAA

COMMENT CARD

Name: LAURA DONOVAN

Address: 114 GLENDALE AVE
GLEN BURNIE, MD 21061

Phone: _____

Email: _____



Comment Period for Noise Exposure Map (NEM) and Airport Noise Zone (ANZ) started October 3, 2014 and ends November 3, 2014. Comments submitted for either the ANZ or the NEM projects/maps will be assumed to be submitted for both, if applicable. Copies of the documents are available at the MAA's Community Relations website: <http://www.maacommunityrelations.com/>

I/we wish to comment or inquire about the following aspects of the project(s):

Proposed model probably INACCURATE = COMPUTER GENERATED NOT CONTINUOUS monitoring
Definitely incomplete = Neighborhoods AROUND Cromwell Light RAIL Station / GIANT GROCERY
Not included - PLANES come through VERY low, VERY low. Previous model was a 5 mile
RADIUS out FROM AIRPORT - included ALL SURROUNDING PROPERTIES = AIRPORT / PLANE
GROUND NOISE HAS BEEN INCREASING FOR YEARS IN SPITE OF CLAIMS THAT NEWER
AIRCRAFT ARE MORE QUIET. The last 4-5 YEARS, my home has BEEN ON A
HELICOPTER FLIGHT PATH + WE'VE BEEN EXCLUDED FROM YOUR NOISE ZONE. IF ANY AIRCRAFT
= PLANE, HELICOPTER, DRONE, SPACE SHIP IS FLYING OVER OR AROUND my home AT YOUR
DIRECTION OR TO AVOID BWI ACTIVITIES WE MUST BE INCLUDED IN YOUR NOISE CONTOUR
MEASUREMENTS. CIVILIAN, SERVICE + MILITARY HELICOPTERS FLY DIRECTLY OVER OR
NEAR my home FROM TREE TOP HEIGHT + HIGHER, SOME TIMES HOVERING UP TO AN HOUR
OR CONTINUOUSLY CIRCLING. AT TIMES THE NOISE + VIBRATION ARE SO EXTREME THE HOUSE
+ EVERYTHING IN IT SHAKE - INCLUDING PEOPLE. THE AIR PRESSURE DROPS + THE
CONCUSSION FEELS LIKE BEING REPEATEDLY PUNCHED IN THE CHEST - HARD. My home
+ my HEARING ARE BEING DAMAGED BY THIS. I'VE COMPLAINED FOR OVER 4 YEARS
+ KNOW OF NO ATTEMPTS TO MONITOR THE VIBRATIONS FROM THE SOUND WAVES
FROM THE HELICOPTERS. I AM CONCERNED FOR THE HEALTH OF MY FAMILY, + WORRIED
I WILL NOT BE ABLE TO SELL MY HOME. AS MAA IS UNDER FAA CONTROL, I WOULD LIKE →



Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor

James T. Smith, Jr.
Secretary

Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

December 12, 2014

Ms. Laura Donovan
114 Glendale Avenue
Glen Burnie MD 21061

SUBJECT: The Baltimore/Washington International Thurgood Marshall (BWI Marshall)
Airport Noise Zone (ANZ) and Noise Exposure Map (NEM) Updates

Dear Ms. Donovan:

Thank you for your interest in the BWI Marshall ANZ and NEM Updates. We reviewed your comments which were received in our office on November 3, 2014.

Your comments indicated that you did not feel that the ANZ and NEM noise contours reflect the noise levels in your area. The noise contours presented in the ANZ and NEM comply with all aspects of federal and state statutes regarding the calculation and reporting of airport noise exposure. The noise contours include the contributions of all aircraft arriving and departing BWI Marshall. As discussed in Section 4.2 in the NEM, and consistent with industry practice and federal guidance, the generation of noise contours over a large area requires estimates of noise exposure at thousands of locations, which is only possible through computer modeling. The noise modeling was conducted to a distance of no less than 5 nautical miles (approximately 6 statute miles) from each runway end, which includes many areas outside of the published contours. If an area such as the Cromwell light rail station lies outside of the contour, it does not indicate that noise levels were not modeled there. It simply indicates that the average annual noise level at that location was below the 65 Day-Night Average Sound Level (DNL) which is the lowest level noise contour in either the ANZ or NEM. Helicopter operations were included in the modeling.

Mr. Patrick McKay, Operations Manager of the Federal Aviation Administration (FAA) Air Traffic Control Tower at BWI Marshall has agreed to a meeting to discuss the helicopter traffic over your area. Give me a call at your convenience at 410-859-7925 to schedule the meeting. Additionally I have contacted the FAA Noise Ombudsman's Office to see if they have a toll free number for the public. I will contact you once they have responded.

Regarding public notice of the meeting on October 21, 2014, notification for the Public Workshop and Public Hearing was published in four different local area newspapers and was delivered to 12 area public libraries along with the ANZ and NEM Maps and Executive Summaries. The full ANZ and NEM documents and related maps and materials were made

Ms. Laura Donovan
Page Two

available at the MAA offices at 991 Corporate Boulevard in Linthicum, Maryland and on the MAA Community Relations website. A direct mail notice was sent out to our Advisory Committee, Neighbors Committee, community associations and interested parties on the MAA mailing list. Your suggestion of a direct mail to all residents in the surrounding area is a good idea and will be considered if we encounter another situation when the community may be affected by a similar project.

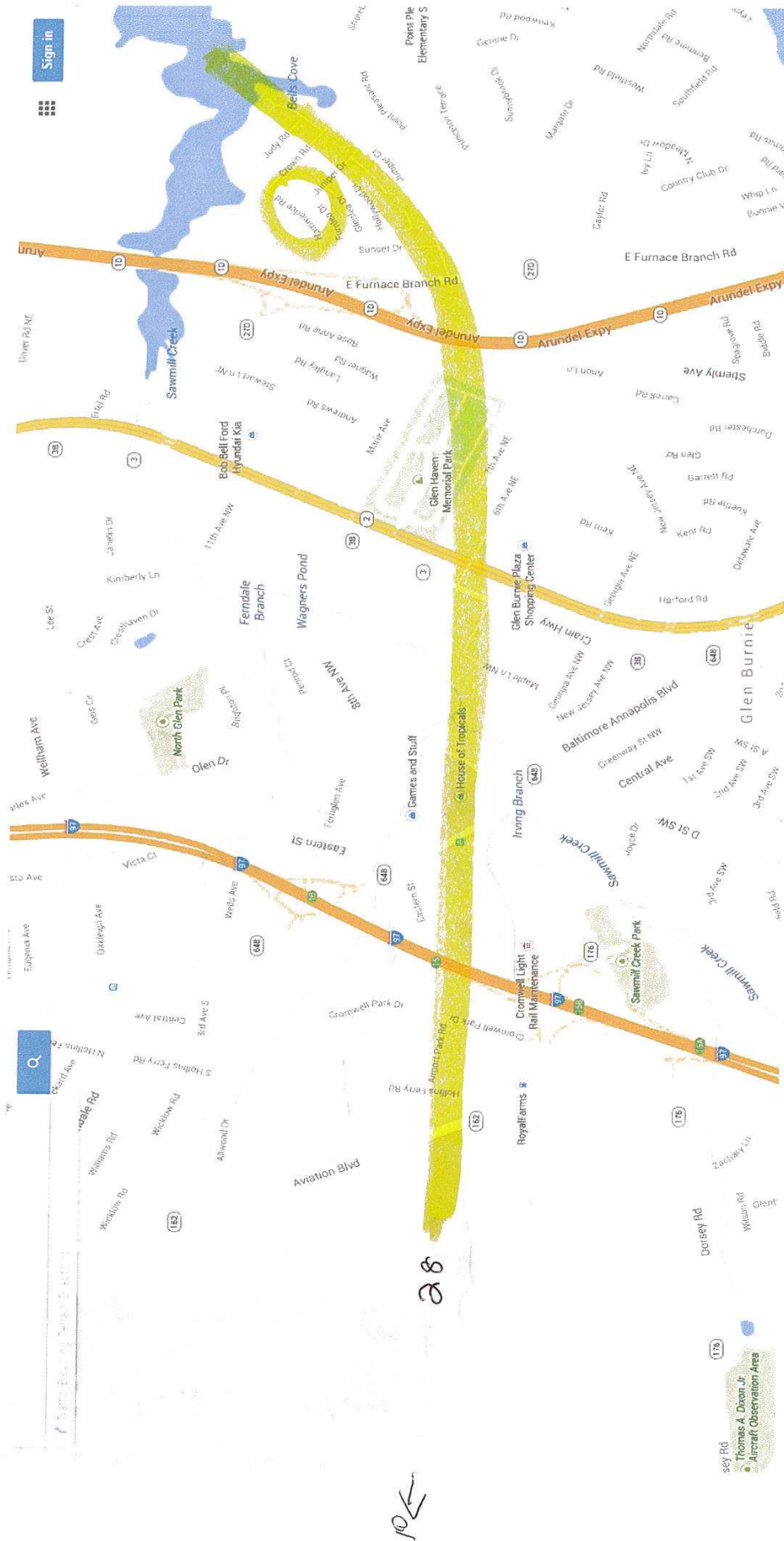
Thank you again for your interest in the BWI Marshall ANZ and NEM Updates. If you have any additional questions please feel free to contact me at 410-859-7925 or dsample@bwiairport.com.

Sincerely

A handwritten signature in blue ink, appearing to read "Ellen Sample".

Ms. Ellen Sample
Director,
Office of Noise, Real Estate & Land Use Compatibility

cc: Mr. Paul L. Shank, P.E., C.M., Chief Engineer, MAA
Mr. Patrick McKay, Operations Manager, FAA



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NO ←

The highlighted area is the landing path at my home. However, this is a low impact zone on the noise models presented. The FAA and MAA need to recompile noise levels for this area. When landing, planes land every 2 minutes between 4AM-2400 when this is a take-off runway, operations occur every 7 minutes.

Adrienne Roper
107 Hammarlee Rd
Glen Burnie, MD 21060
410 760 2349 Home
410 693 8049

The FAA and MAA models do not reflect
the reality of current operations as of 11/1/2014 on
runway 28/10.

December 2014



Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor

James T. Smith, Jr.
Secretary

Paul J. Wiedefeld, A.A.E.
Executive Director/CEO

December 12, 2014

Mr. Adrienne Roper
107 Hammarlee Road
Glen Burnie MD 21060

SUBJECT: The Baltimore/Washington International Thurgood Marshall (BWI Marshall)
Airport Noise Zone (ANZ) and Noise Exposure Map (NEM) Updates

Dear Mr. Roper:

Thank you for your interest in the BWI Marshall ANZ and NEM Updates. We reviewed your comments which were received in our office on November 3, 2014.

Your comment indicated that you did not feel that the ANZ and NEM noise contours reflect current conditions. Your area is affected by the temporary closure of Runway 15R/33L and the associated increase of aircraft arriving to Runway 10 and departing Runway 28. Updates to the ANZ and NEM incorporate noise modeling associated with the current year, five and ten year forecasted aircraft operations expected during normal operating conditions. The short term temporary changes in aircraft operations due to construction are not required to be included by the Federal Aviation Administration (FAA) as part of existing or forecast noise modeling.

The ongoing work on Runway 15R/33L is part of a federally mandated multi-year program to bring BWI Marshall's Runway Safety Areas (RSA) up to current FAA standards. As of the writing of this letter, December 16, 2014 is the construction contractor's current scheduled date for reopening the full length runway capable of accommodating most, if not all, air carrier operations at BWI in good weather conditions, called Visual Meteorological Conditions (VMC). The full-use runway capable of accommodating air carrier operations in both VMC and in inclement weather conditions, called Instrument Meteorological Conditions (IMC), is scheduled to occur in the spring of 2015. It should be noted that these reopening dates are later than originally planned and as a consequence, the MAA is assessing a form of penalties, called Liquidated Damages against the construction contractor.

Thank you again for your interest in the BWI Marshall ANZ and NEM Updates. If you have any additional questions please feel free to contact me at 410-859-7925 or dsample@bwiairport.com.

Sincerely

Ms. Ellen Sample
Director, Office of Noise, Real Estate & Land Use Compatibility

cc: Mr. Paul L. Shank, P.E., C.M., Chief Engineer, MAA