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## Definitions

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

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

**Decibel (dBA):** An exponential unit of measurement of sound pressure adjusted for the human ear's response to particular frequencies.

**Day-Night Average Sound Level (DNL or Ldn):** A descriptor of 24-hour noise that assigns a nighttime penalty.

**Sound Exposure Level (SEL):** A term used to describe noise from a single event. It takes into account both the maximum level (Lmax) and duration of the event.

This report was prepared by the Maryland Aviation Administration Division of Real Estate and Noise Abatement. For further information, please call 410.859.7375.





**Maryland Aviation Administration**  
Division of Real Estate and Noise Abatement  
Quarterly Noise Report

**Fourth Quarter 2015**

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## Summary

This report provides a review of the aviation noise abatement program for the fourth quarter of 2015 (October 1 to December 31). Included in this report is information on jet aircraft operations, observance rates for noise abatement procedures, complaints received about aircraft noise, and community outreach efforts by the Maryland Aviation Administration (MAA). Information on noise levels at permanent noise monitoring sites will be provided in future reports when new noise monitors are installed.

- Average daily jet flights were approximately 614 per day during the 4<sup>th</sup> Quarter of 2015, compared to 561 per day for the 4<sup>th</sup> Quarter of 2014.
- Night-time operations averaged 85 per night for the 4<sup>th</sup> Quarter of 2015, compared to 65 per night in the 4<sup>th</sup> Quarter of 2014.
- A total of 659 calls and e-mail complaints were made to the Noise Office during the 4<sup>th</sup> Quarter of 2015 compared to 314 calls/e-mails during the 4<sup>th</sup> Quarter of 2014.
- The Airport operated in west flow operations for 72 percent of the time during the 4<sup>th</sup> Quarter of 2015.

## Aviation News Items of Interest

- Runway 10-28, one of the major commercial runways at Baltimore/Washington International Thurgood Marshall (BWI Marshall) Airport, reopened following months of major construction. The runway was temporarily closed in late August as part of a comprehensive series of airfield improvements. The closure was necessary in order to complete pavement work, taxiway improvements, and installation of new navigational equipment as required by Congress and the Federal Aviation Administration (FAA).
- The USO of Metropolitan Washington-Baltimore (USO-Metro) has named the Maryland Aviation Administration (MAA) to its 2015 Circle of Stars. USO-Metro established its Circle of Stars program to recognize outstanding businesses and organizations that support the USO's important programs, events, and services. "The USO does incredible work on behalf of our service members and military families, and we are honored to host the USO International Gateway Lounge here at BWI Marshall," said Ricky Smith, Executive Director and Chief Executive Officer of the MAA. "We are very grateful for this Circle of Stars recognition.
- A new, inviting dining option is now open for travelers at BWI Marshall Airport. The Firkin & Flyer offers a comfortable restaurant, bar, and lounge modeled after a traditional neighborhood British pub. Located on the B/C Connector near Concourse C, the Firkin & Flyer includes a large, 3,700-square-foot dining area and bar, along with a separate 1,075-square-foot lounge.

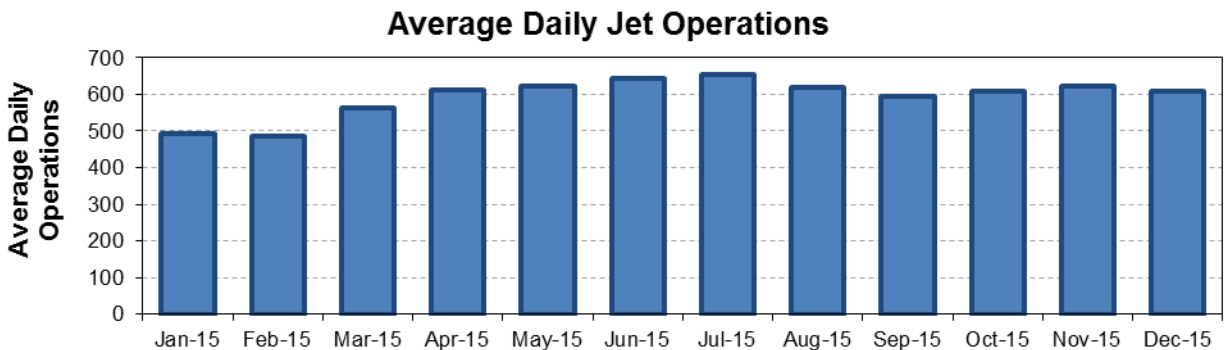
## Airport Operations

This section presents information on the level of operational activity at BWI Marshall, including air traffic levels by jet aircraft, runway use, and flight corridors.

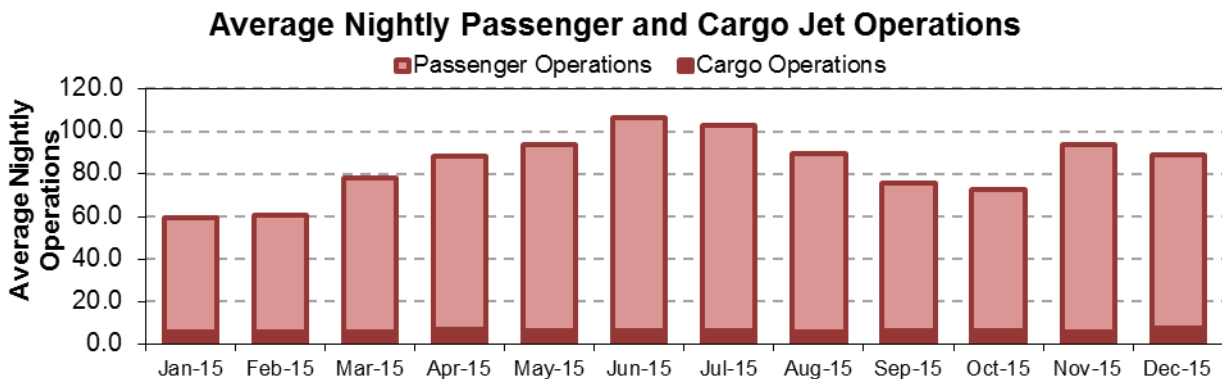
### Overall Activity Levels and Nighttime Activity

The graph below presents the average number of daily jet flights at BWI Marshall, including all arrivals and departures by business jets and air carrier aircraft. The figure also presents data for the preceding nine months, for a twelve-month total.

The average daily number of jet operations during the 4<sup>th</sup> Quarter of 2015 was 614 as compared with 561 in the 4<sup>th</sup> Quarter of 2014. Overall traffic levels were approximately 9.3% higher than the same period during 2014.



The following figure presents nighttime air carrier, business jets and cargo jet operations. At BWI Marshall, a nighttime operation is defined as an arrival flight or departure flight that occurs between the hours of 10 pm and 7 am. The average number of nighttime jet operations was approximately 85 per night during the 4<sup>th</sup> Quarter of 2015, compared to 65 per night during 4<sup>th</sup> Quarter of 2014. The average number of nighttime cargo operations was approximately 7 per night during the 4<sup>th</sup> Quarter of 2015, compared to 6 per night during 4<sup>th</sup> Quarter of 2014.



## Runway Use

The MAA maintains a preferential runway use program to minimize the aircraft noise impact on neighboring communities. For noise abatement purposes, west flow (aircraft departures to the west) is more desirable since a smaller population is impacted by aircraft noise when BWI Marshall operates in a west flow direction. Prevailing wind speed, direction and weather factors determine the direction of air traffic flow. Aircraft usually take off and land into the wind to meet safety and operational requirements. From August 31, 2015 to November 26<sup>th</sup>, 2015, Runway 10/28 was closed for a runway rehabilitation project. During this closure, both west and east flow runway configurations were altered. Most notably, arrivals on Runway 15R and departures on Runway 33L were common during this period causing an increase in aircraft overflights to the northwest of BWI Marshall.

The figures below show all jet<sup>1</sup> runway use for the 4<sup>th</sup> Quarter of 2015. During east flow, all jet aircraft primarily depart from Runway 15R and arrive on Runway 10. During west flow, all jet aircraft primarily depart from Runway 28 and arrive on Runway 33L. Historical trends result in annual average west flow of about 70%. During the closure of Runway 10/28, Runway 15R was the primary runway for both arrivals and departures in east flow and Runway 33L was the primary runway for both arrivals and departures in west flow.



All Jet Arrival Runway Use, 4th Quarter of 2015

All Jet Departure Runway Use, 4th Quarter of 2015

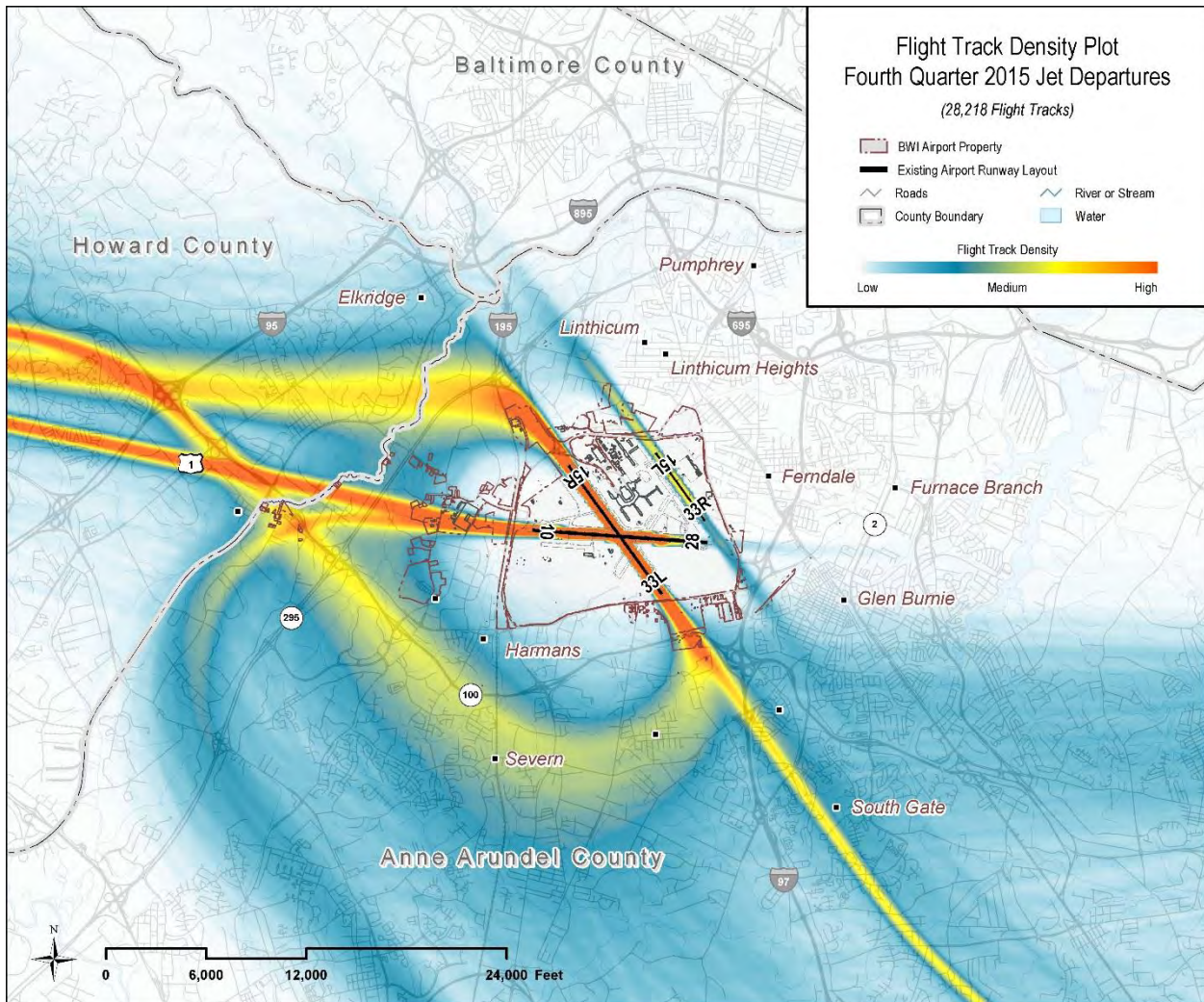
<sup>1</sup> "All jet" includes commercial air carrier as well as private (corporate) jet aircraft.

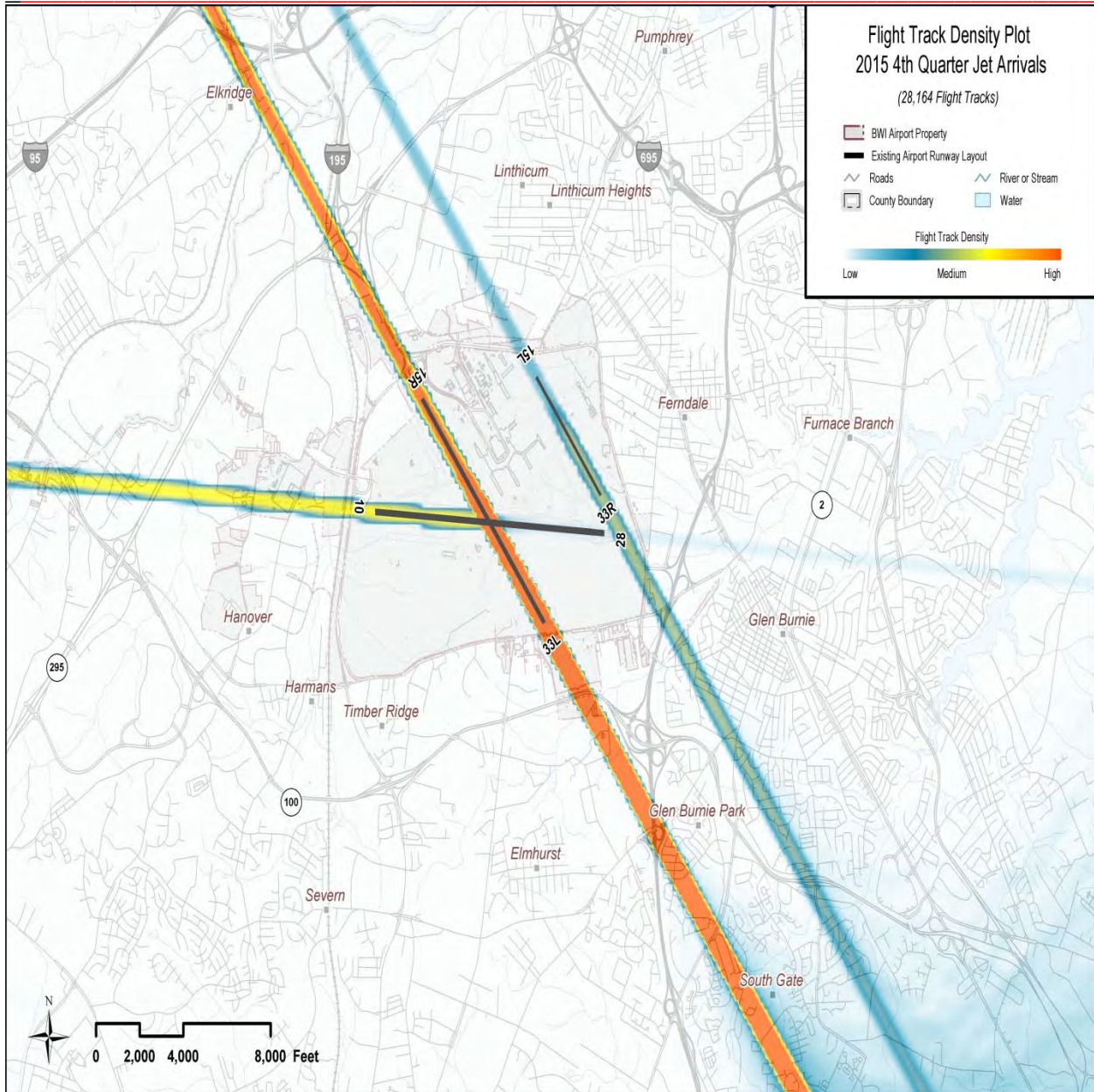
## Flight Corridors

The following figures depict the flight corridors at BWI Marshall for the following conditions and groups of aircraft as derived from BWI Marshall's current noise and operations monitoring systems:

- All jet departures in west flow
- All jet departures in east flow
- All jet arrivals

These "flight track density plots" use color gradations to depict the flight track geometry, dispersion, and relative frequency of air traffic. The color ranges are assigned based on the relative density of aircraft operations during the 4<sup>th</sup> Quarter of 2015.





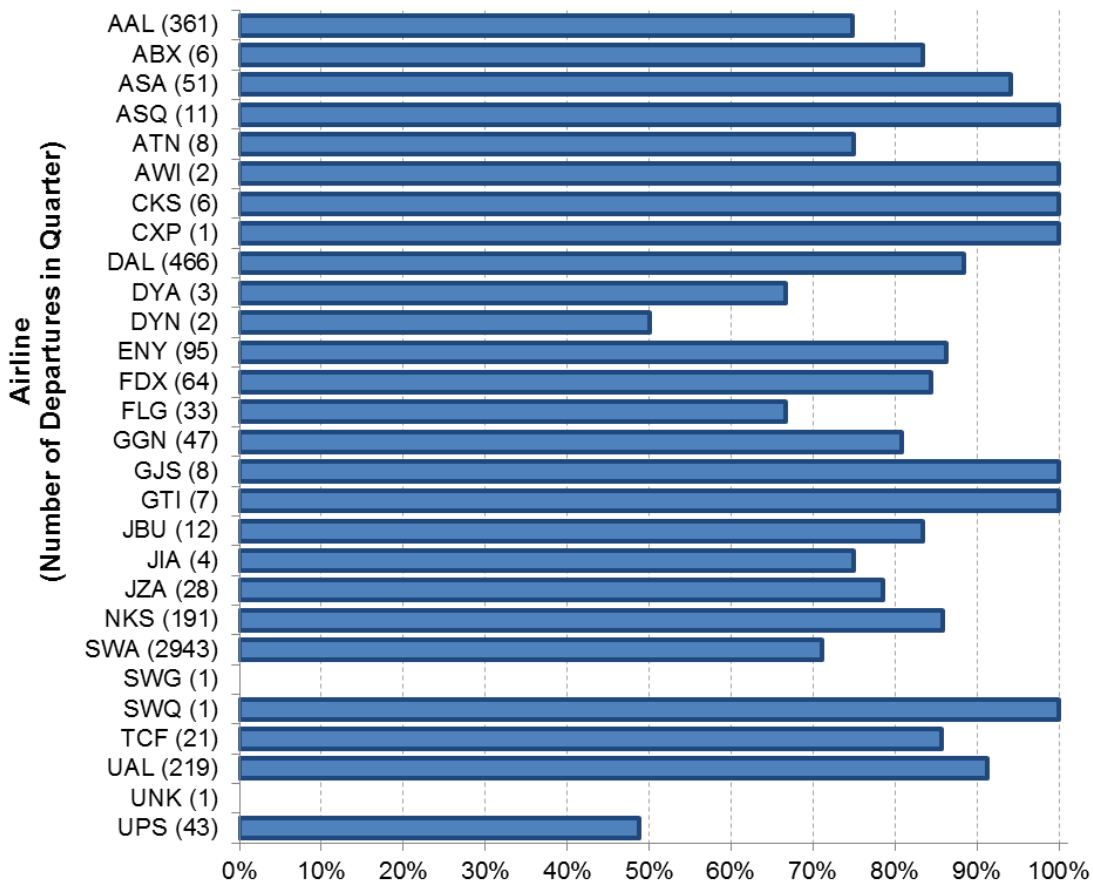
## Observance of Noise Abatement Procedures

In order to encourage on-going compliance with the voluntary noise abatement procedures developed for BWI Marshall, a *Quarterly Airline Performance Report* is generated for the major carriers and cargo operators. Data is obtained from our noise and flight track monitoring system and the two noise abatement procedures of most interest to the local communities are evaluated. These procedures are:

1. Runway 15 Right departures initiating their right turns at, but not prior to, 1 DME
2. Runway 28 departures initiating their turns at, but not prior to, 3 DME

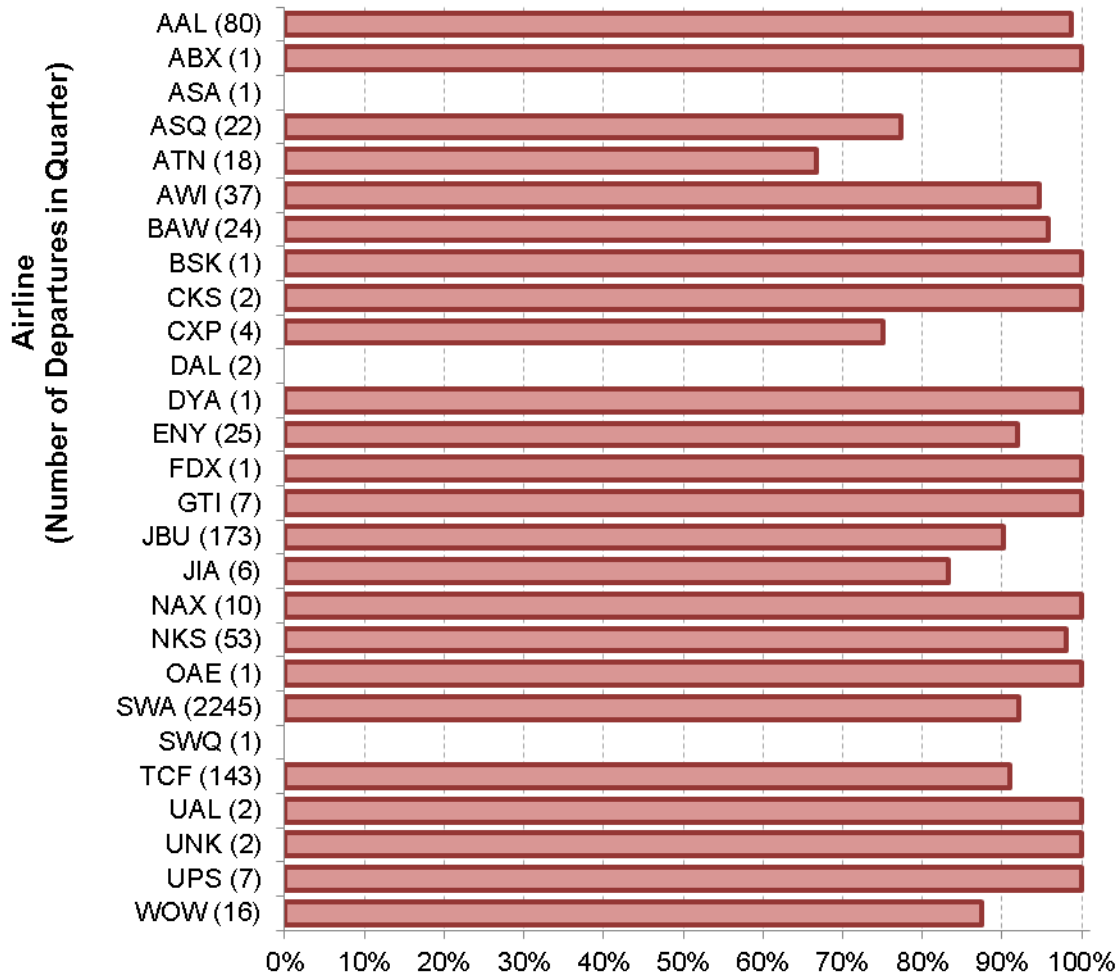
The following graphs show the percentage of flights for each airline which comply with each of the two procedures. DME stands for Distance Measuring Equipment, and is measured slant range from the navigational aid located near the center of the Airport. One DME equals one nautical mile.

**Percentage of Runway 15R Departures  
Turning Beyond 1 DME - Fourth Quarter 2015**





**Percentage of Runway 28 Departures  
Turning Beyond 3 DME - Fourth Quarter 2015**



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## **Outreach**

The MAA engages in on-going efforts to enhance the level of communication and interaction between the Airport and area residents. The MAA Community Outreach Programs encourage the exchange of information between the MAA and local community groups and residences by providing a contact point for listening to and responding to Airport-related community concerns. These programs also supplement the efforts of the BWI Marshall Neighbors' Committee to promote the active participation of local residents in Airport issues.

The Division of Real Estate and Noise Abatement monitors services provided to the local community to promote public education, communication and the number of responses to requests for portable noise monitoring. Specific services or activities provided by the MAA and the Noise Office are listed below, along with the number of events or reports.

### **Public Education & Activities –4<sup>th</sup> Quarter of 2015**

Committee/Community Meetings	3
Community Noise Monitoring Reports	3
Airport Zoning Permits	57
Mailings	1

### **Community Enhancement Grant Program**

Maryland Senate Bill 276 established an 11-member "Citizens Committee for the Enhancement of Communities Surrounding Baltimore/Washington International Thurgood Marshall Airport." The intent of this legislation is to provide some benefit to those citizens living in communities impacted by the daily operation of BWI Marshall by allowing them the opportunity to apply for grants for transportation-related projects such as sidewalks, speed humps, street lights, etc. These communities must be located within the most recently certified Airport Noise Zone or within two miles of the outermost noise contour.

The Community Enhancement Grant Committee met on December 2, 2015. Four grant applications were submitted for review. Three were recommended for approval are as follows:

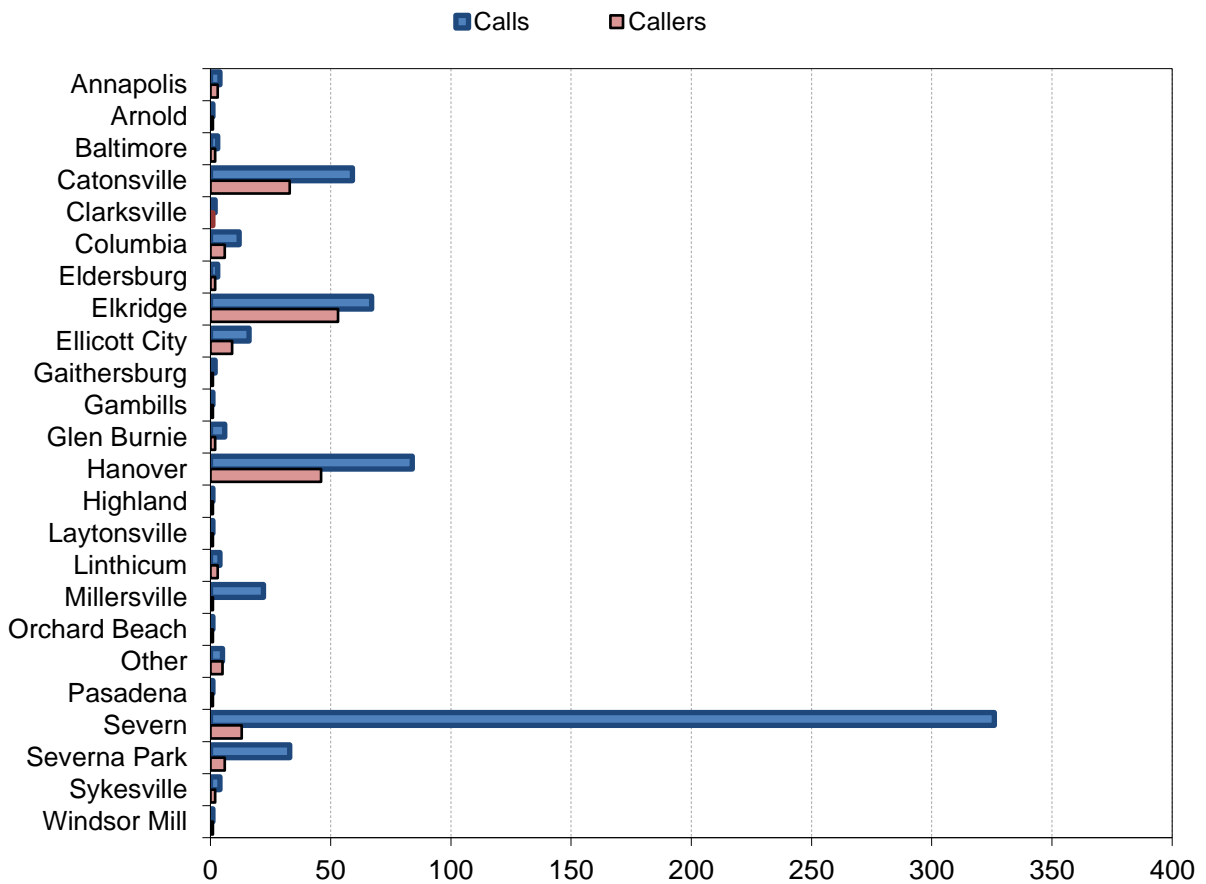
- Glen Burnie Improvement Association applied for walkway and fencing project at \$190,415.39 and the committee recommendation was approved for \$190,415.39.
- Linthicum Shipley Improvement Association applied for sidewalk project at \$43,231.00 and the committee recommendation was approved for \$43,231.00.
- Elvation Towne Condominium regime II applied for sidewalk project at \$40,057.00 and the committee recommendation was approved for \$40,057.00.

**Airport Noise Hotline Calls**

The MAA maintains a 24-hour Airport Noise Hotline at 410-859-7021. Staff is available during normal business hours to discuss aircraft noise concerns directly with callers. Voicemail is available for recording noise concerns at night and on weekends. The graph below shows the number of calls, e-mails and callers per community for the quarter.

From August 31, 2015 to November 26<sup>th</sup>, 2015, Runway 10/28 was closed for a runway rehabilitation project. During this closure, both west and east flow runway configurations were altered. As a result, there were 659 calls (195 callers) during the 4<sup>th</sup> Quarter of 2015 compared to 314 calls during the 4<sup>th</sup> Quarter of 2014.

**Number of Noise Calls and Callers per Community**



**659 total calls**

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## **BWI Marshall Neighbors Committee**

The BWI Marshall Neighbors Committee was established in December 1983 and serves as a liaison between the Airport and the surrounding communities to ensure continuing and timely discussion of mutual airport and community interests. The Committee serves as a forum for exchanging information, ideas and suggestions. Examples of interests include, but are not limited to:

1. Ground access (highways, light rail, etc.),
2. Long-range transportation planning issues,
3. Operational changes (construction, maintenance and air traffic control),
4. Noise abatement and other environmental issues,
5. Parking and ground transportation; and
6. Land use planning.

The BWI Marshall Neighbors Committee consists of the following groups:

- Columbia Council (*inactive*)
- Greater Elkridge Community Association
- Elmhurst Improvement Association
- Glen Burnie Improvement Association
- Glen Burnie Park Civic Association (*inactive*)
- Ferndale Area Community Council
- Greater Pasadena Council (*inactive*)
- Harmans Civic Association
- Linthicum/Shipleigh Improvement Association
- Severn Improvement Association
- Timber Ridge Improvement Association

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## **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 a certified Airport Noise Zone (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. Both were updated in 1982, 1988, 1993, 1998, and 2007. The latest update to the ANZ became effective on December 22, 2014.

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 outline of the ANZ, thereby offering protection within the largest of the existing or future noise contours.

The contours depict the Day-Night Average Sound Level (DNL) around BWI Marshall. Both the State of Maryland and the FAA require the use of the DNL metric by all airports conducting environmental studies. The FAA also requires the use of its standard computer model known as the Integrated Noise Model (INM) for developing noise contours. The current 2014 ANZ is depicted on the following page.

## **Noise Monitoring Program**

The MAA operates a permanent noise monitoring system that operates 24 hours per day, seven days a week. The noise monitoring equipment in place at BWI Marshall was installed in the late 1980's and is approaching the end of its useful life due to the age of the equipment and the inability to obtain replacement parts. Once a new system is installed, we will resume the presentation of noise data by tables and graphs.

