Maryland Aviation Administration

Division of Noise, Real Estate and Land Use Compatibility

Quarterly Noise Report

Third Quarter 2014

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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 Noise, Real Estate and Land Use Compatibility Planning. For further information, please call 410.859.7375.

Summary

This report provides a review of the aviation noise abatement program for the third quarter of 2014 (August 1st to October 31st). 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 Adminstration (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 591 per day during the 3rd quarter of 2014, compared to 650 per day for the 3nd quarter of 2013.
- Night-time operations averaged 90 per night for the 3rd quarter of 2014 which is compared to 82 for the 3rd quarter of 2013.
- A total of 283 calls and e-mail complaints were made to the Noise Office during the 3rd quarter of 2014 compared to 142 calls/e-mails during the 3rd quarter of 2013. The significant change is attributed to the mandated runway improvement projects and alternating flight patterns for the surrounding community.
- The Airport operated in west flow operations for 70 percent of the time during the 3nd quarter of 2014.

Aviation News Items of Interest

- BWI Marshall recently added new charging station to power passengers' electronic devices on Concourse D. In total, the charging stations offer 184 new outlets and USB ports for travelors to charge their cell phones, tablets, laptops and other devices. The MAA is converting old pay phone banks to these new stations. Additional charging stations are expected to be in place later in 2014.
- The Star Spangled Air Show will take place over Fort McHenry and the surrounding waters on September 13 and 14. This air show is part of the Star-Spangled Spectacular, a 10 day festival to celebrate the 200th anniversary of the end of the War of 1812 and the creation of our national anthem.
- For the second year, BWI Bike Rental will provide bike rental service on weekends when the temperature is above 50 degrees. Located at 2301 Dorsey Rd in Glen Burnie, the shop is convenient to the 11 mile BWI Trail. Adult, children's, and tandem bikes are available for rental.

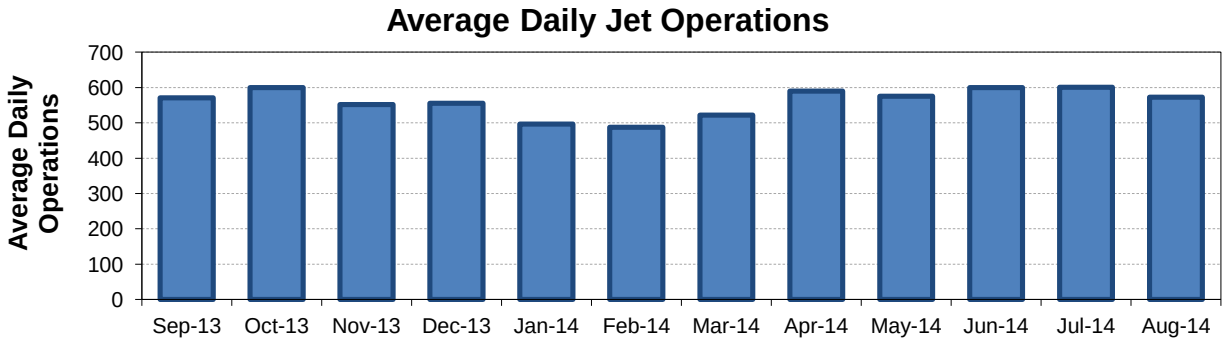
Airport Operations

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.

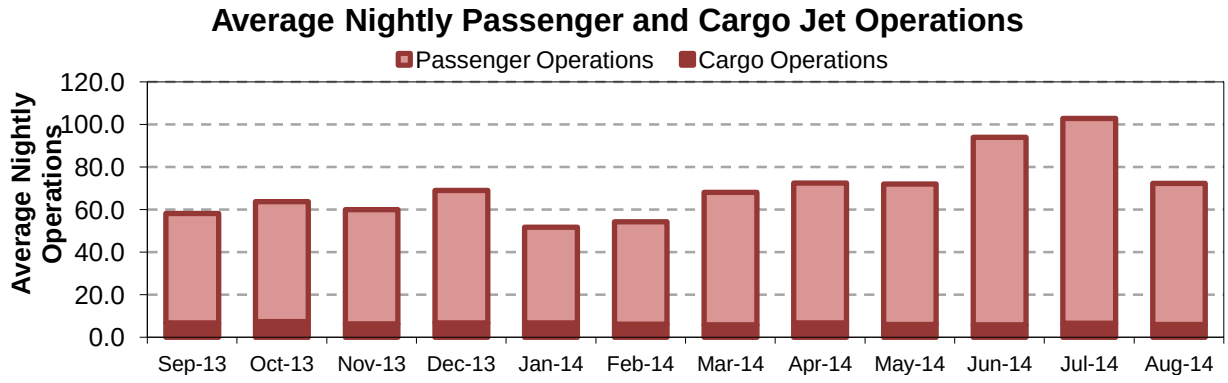
Overall Activity Levels and Nighttime Activity

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 3rd Quarter of 2014 was 591 as compared with 650 in the 3rd Quarter of 2013. Overall traffic levels were approximately 9% lower than the same period during 2013.



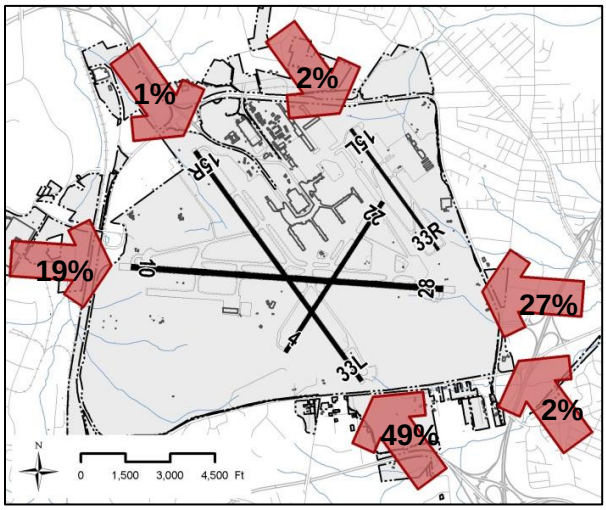
The following figure presents nighttime air carrier, business jets and cargo jet operations. At BWI Marshall, a nighttime operation is defined as an arrival flight or departure flight that occurs between the hours of 10 pm and 7 am. The average number of nighttime jet operations was approximately 90 per night during the 3rd Quarter of 2014 which is compared to 82 during 3rd Quarter of 2013. The average number of nighttime cargo operations was approximately 6 per night during the 3rd Quarter of 2014 compared to 7 per night 3rd Quarter of 2013.



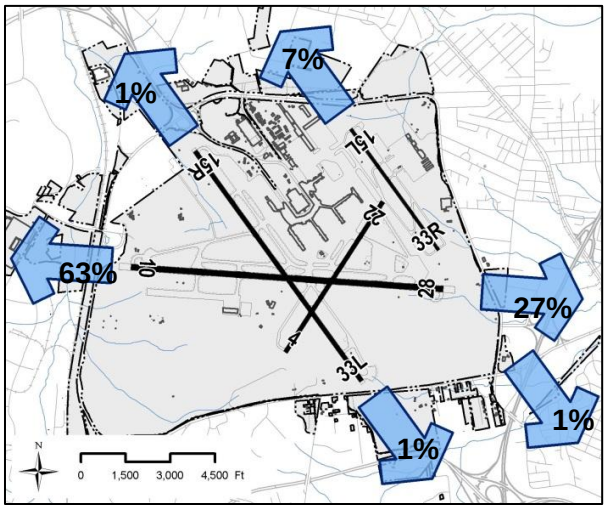
Runway Use

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.

The figures below show all jet[1] runway use for the 3rd Quarter of 2014. During east flow, all jet aircraft primarily depart from Runway 15R and arrive on Runway 10. During west flow, all jet aircraft normally depart from Runway 28 and arrive on Runway 33L. Historical trends result in annual average west flow of about 70%.



All Jet Arrival Runway Use, 3rd Quarter 2014



All Jet Departure Runway Use, 3rd Quarter 2014

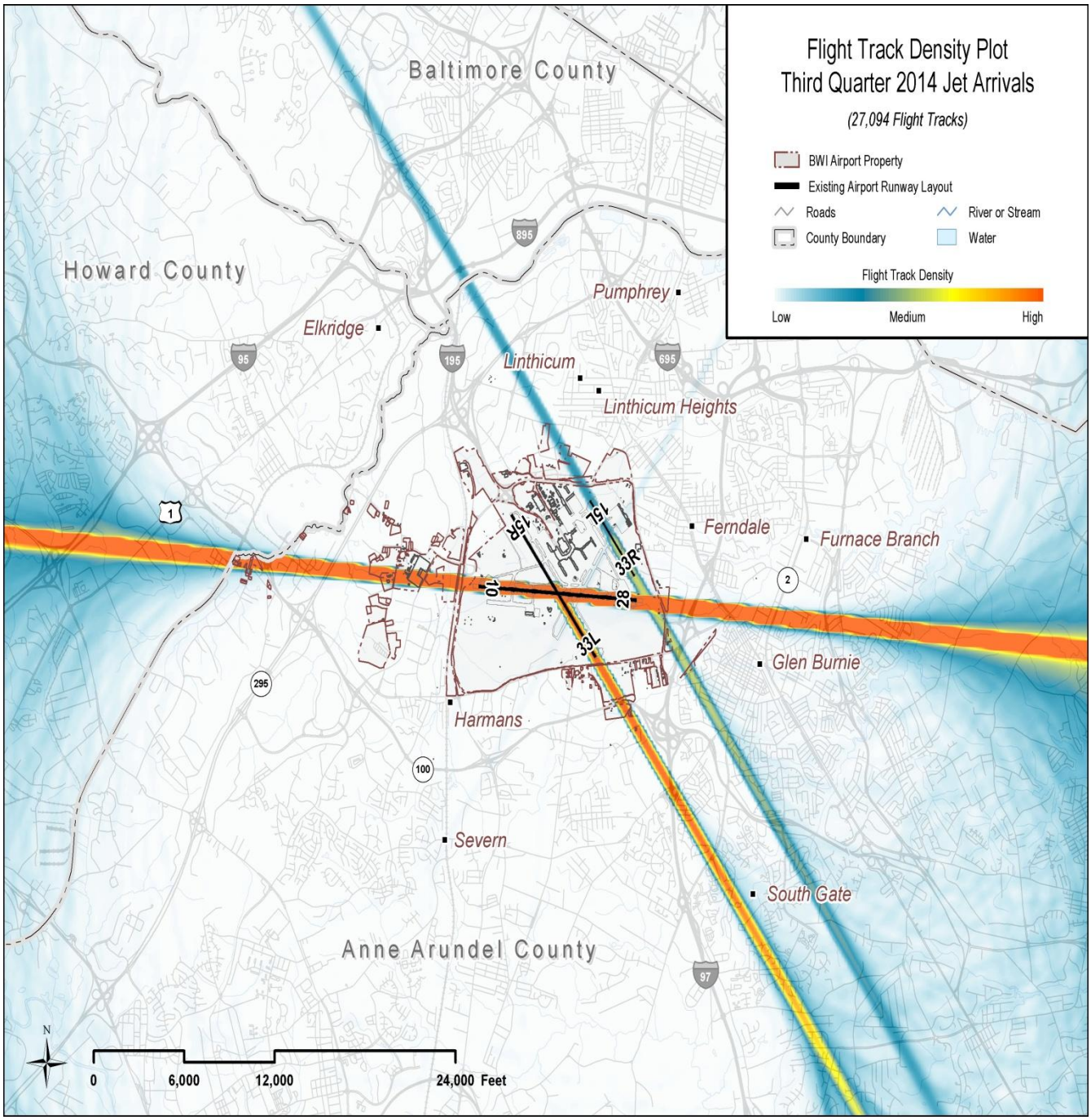
Flight Corridors

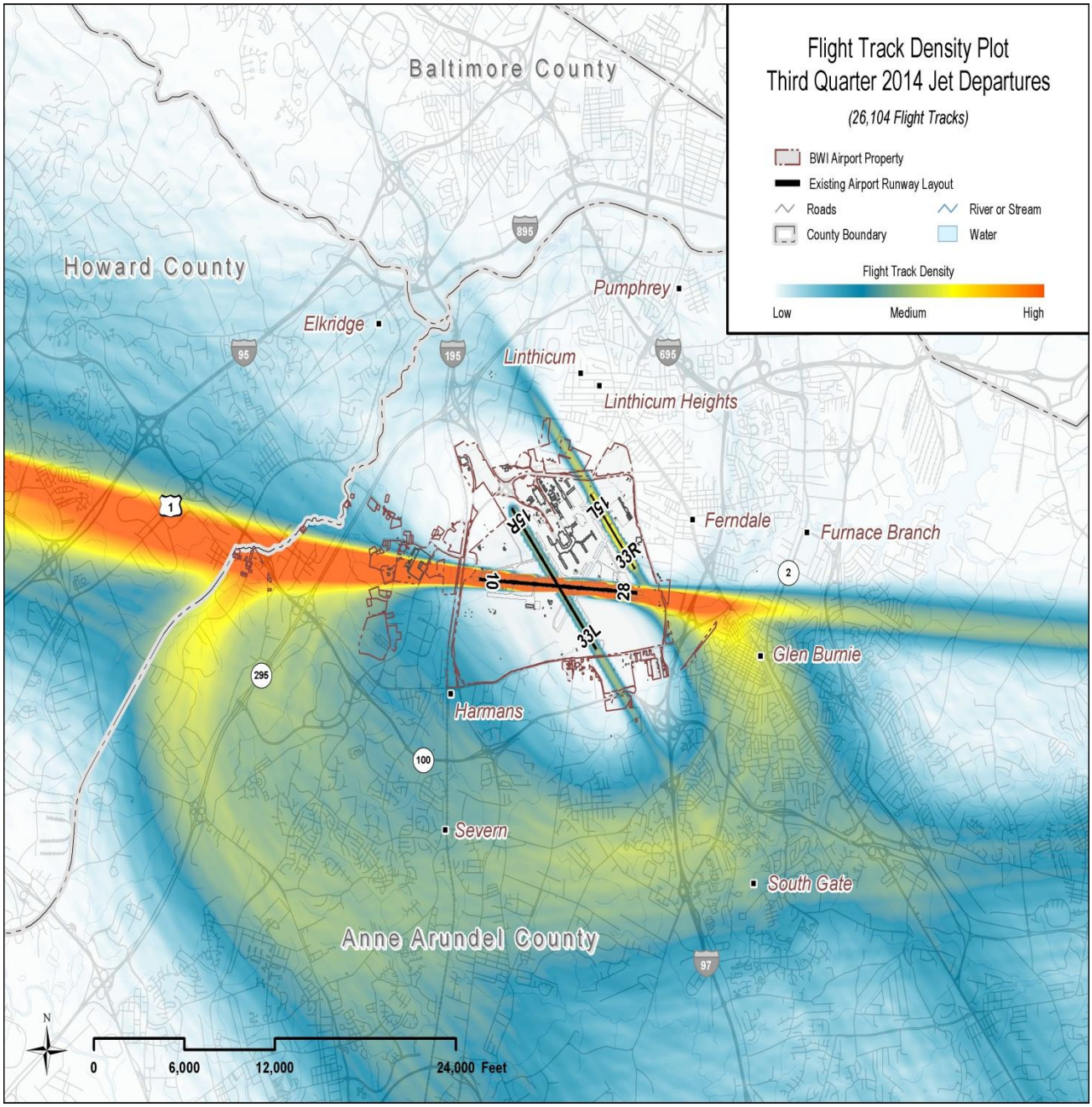
The following figures depict the flight corridor density at BWI Marshall for the arraival and departure air traffic in East and West flow departures:

- 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 overflights in areas of interest. The color ranges are assigned based on the relative density of aircraft operations.

[1] "All jet" includes commercial air carrier as well as private (corporate) jet aircraft.


Flight Track Density Plot
Third Quarter 2014 Jet Arrivals
(27,094 Flight Tracks)
BWI Airport Property
Existing Airport Runway Layout
Roads
River or Stream
County Boundary
Water
Flight Track Density
Low
Medium
High
Baltimore County
Howard County
Anne Arundel County
Pumphrey
Elkridge
Linthicum
Linthicum Heights
Ferndale
Furnace Branch
Glen Burnie
Harmans
Severn
South Gate
15R
15L
33R
10
28
33L
895
95
195
695
1
2
295
100
97
N
0
6,000
12,000
24,000 Feet

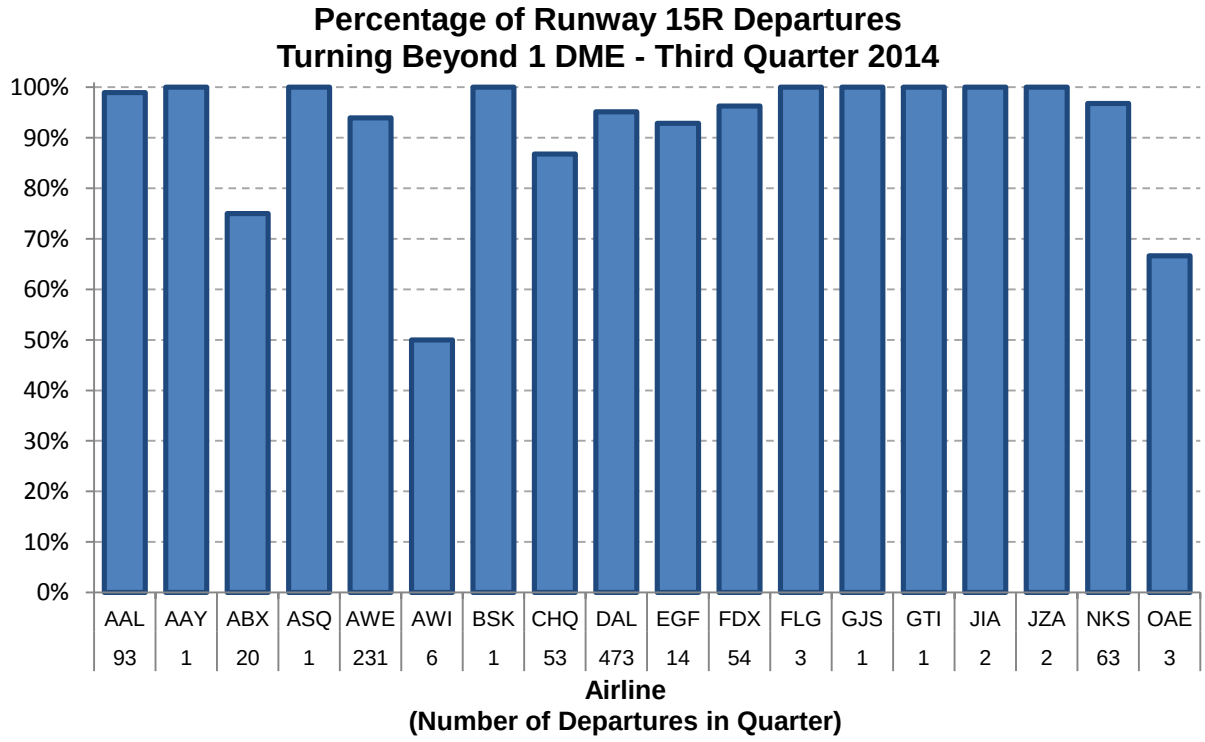

Flight Track Density Plot
Third Quarter 2014 Jet Departures
(26,104 Flight Tracks)
BWI Airport Property
Existing Airport Runway Layout
Roads
River or Stream
County Boundary
Water
Flight Track Density
Low
Medium
High
Baltimore County
Howard County
Anne Arundel County
Elkridge
Pumphrey
Linthicum
Linthicum Heights
Ferndale
Furnace Branch
Glen Burnie
Harmans
Severn
South Gate
15R
15L
33R
10
28
33L
N
0
6,000
12,000
24,000 Feet

Observance of Noise Abatement Procedures

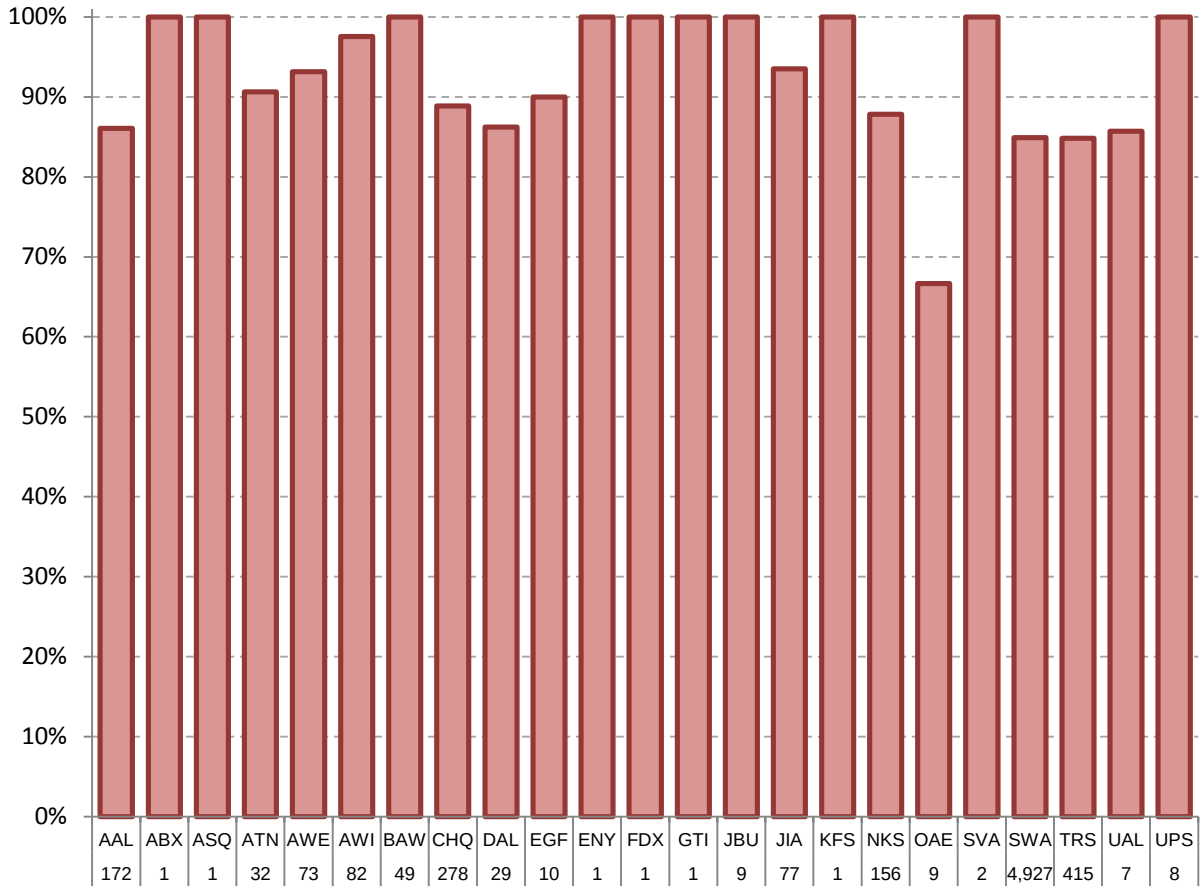
In order to encourage on-going compliance with the voluntary noise abatement procedures developed for BWI Marshall, a *Quarterly Airline Performance Report* is generated for the major carriers and cargo operators. Data is obtained from our noise and operations monitoring system and the two noise abatement 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 were derived from the Quarterly Airline Performance Report for the 3rd Quarter of 2014. They 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 slantrange from the navigational aid located near the center of the Airport. One DME equals one nautical mile.



Percentage of Runway 28 Departures
Turning Beyond 3 DME - Third Quarter 2014



Airline
(Number of Departures in Quarter)

Outreach

The MAA engages in on-going efforts to enhance the level of communication and interaction between the Airport and area residents. The MAA Noise Office provides 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 Noise, Real Estate and Land Use Compatibility Planning 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 –3rd Quarter 2014

Committee Meetings	1
Community Meetings	0
Community Noise Monitoring Reports	2
Airport Zoning Permits	61
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 in August 2014. Three grants were submitted for consideration and one grant was approved for funding. The total amount awarded was $73,331.30.

The 3rd Quarter 2014 specific grant information is as follows:

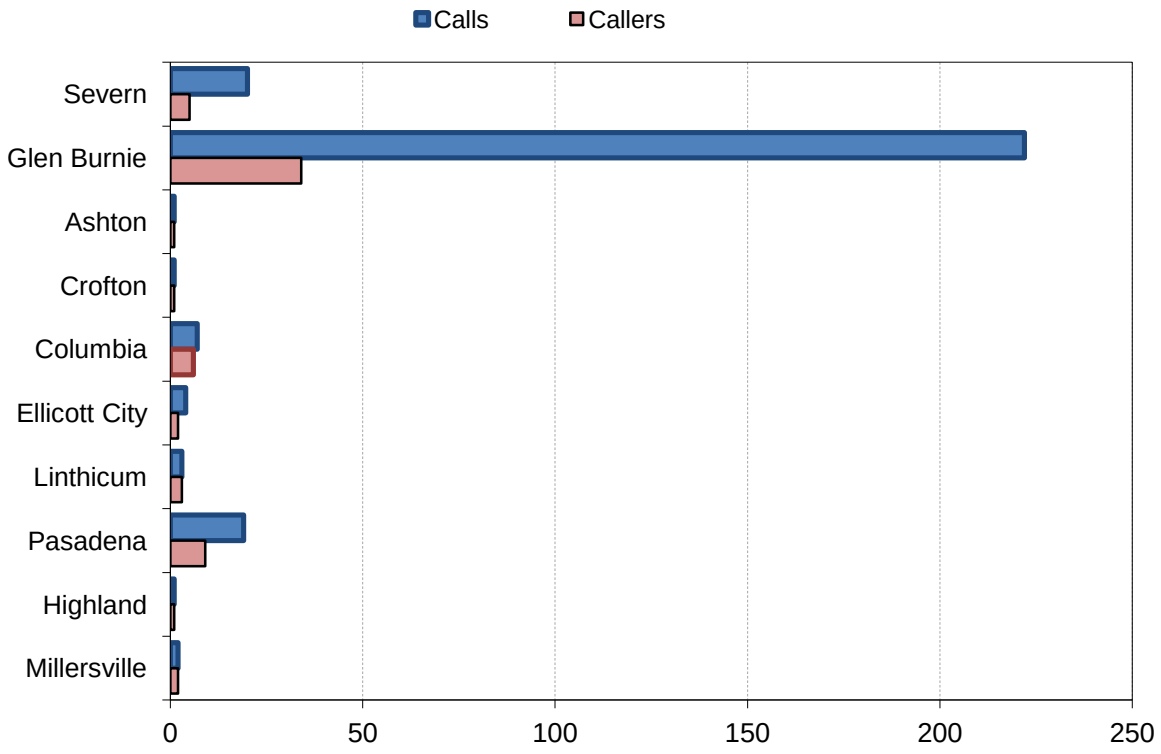
1. Grant #15-01 Hawk's Ridge Homeowners Association for fencing; $8,147. The Committee did not recommend funding this application.
2. Grant #15-02 Linthicum Shipley Improvement Association for sidewalks; $73,331.30
3. Grant #15-03 Severn Crest Homeowners Association for street repair; $18,060. The Committee did not recommend funding this application.

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.

There were 283 calls during the 3rd Quarter of 2014 compared to 71 calls during the 3rd Quarter of 2013. The significant change is attributed to the mandated runway improvement projects and alternating flight patterns for the surrounding community.

Number of Noise Calls and Callers per Community



283 total calls

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
- Greater Elkridge Community Association
- Elmhurst Improvement Association
- Glen Burnie Improvement Association
- Glen Burnie Park Civic Association
- Ferndale Area Community Council
- Greater Pasadena Council
- Harmans Civic Association
- Linthicum/Shipley Improvement Association
- Severn Improvement Association
- Timber Ridge Improvement Association

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.

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 the new system is installed, we will resume the presentation of noise data by tables and graphs.