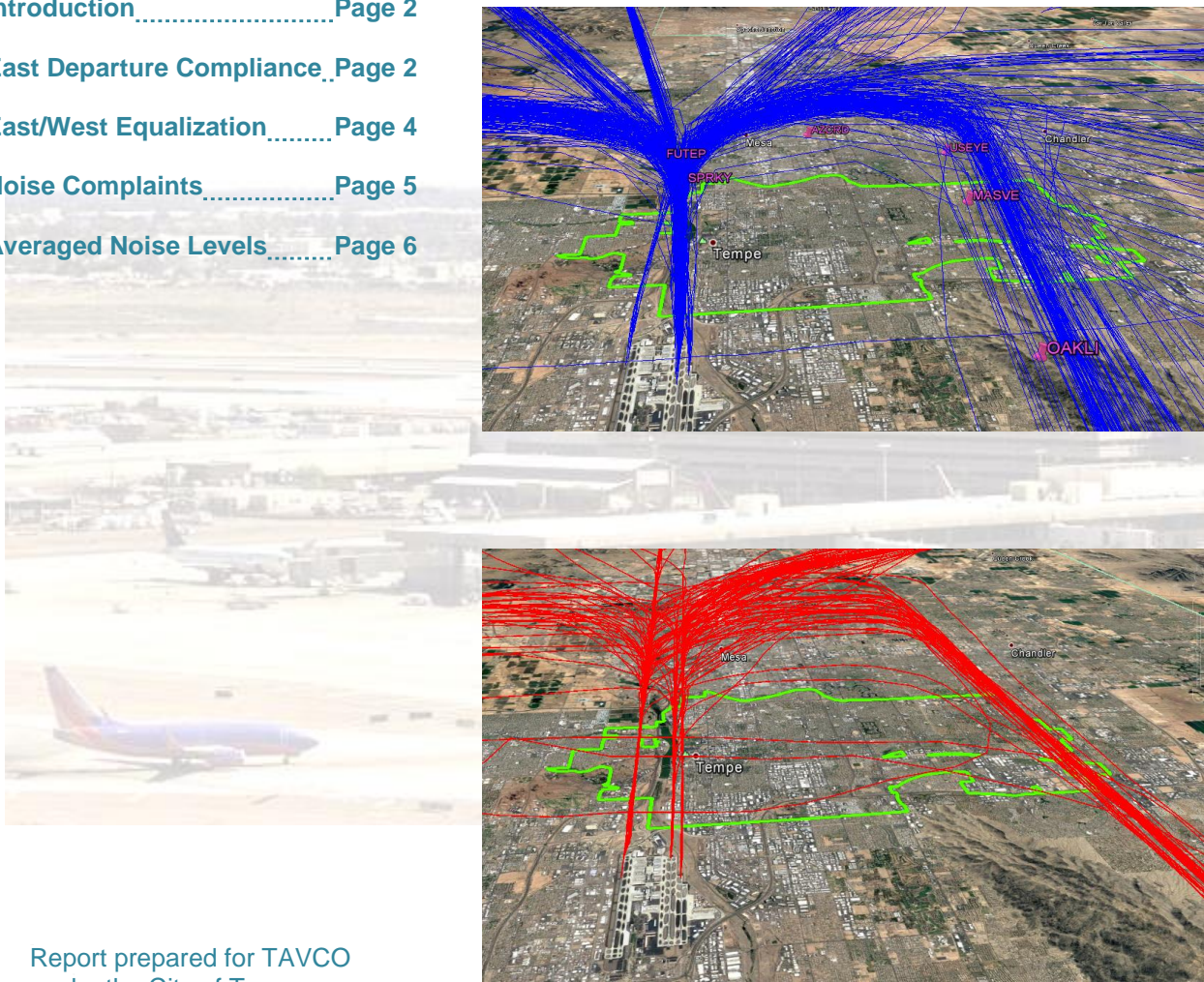


# 2017

# Noise Mitigation Monitoring Summary PHX East

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Report prepared for TAVCO  
by the City of Tempe  
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## 1. Introduction

This summary is an annual account for the Tempe Aviation Commission (TAVCO) of how airlines operations at Phoenix Sky Harbor International Airport complied with noise mitigation flight procedures over the City of Tempe. TAVCO consists of nine Tempe residents appointed by the Tempe Mayor with approval of the Tempe City Council to assist and give advice on how to deal with airport operation impacts on Tempe residents and the implementation of a 1994 noise mitigation agreement with the City of Phoenix. The City of Tempe is located directly east of the Phoenix Sky Harbor International Airport. The airport is owned and operated by the City of Phoenix and expanded in October 2000 with a third parallel runway (7R/25L). After the FAA in 2002 suspended the implementation of a side step visual approach procedure to the new runway agreed upon between the two cities, the following two flight procedures remain in place to mitigate noise impact from large aircraft over Tempe:

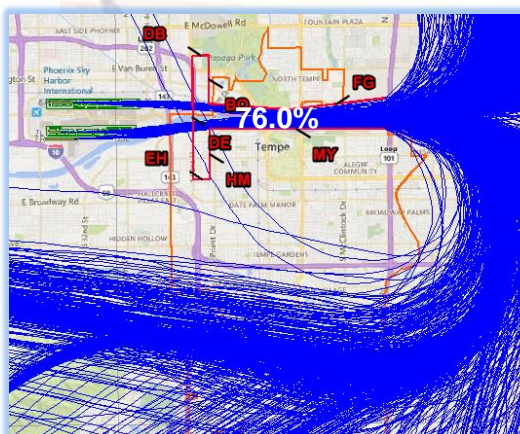


- The 4-DME Standard Instrument Departure Procedure to keep jet and large turboprop aircraft that depart to the east over the Salt River/Tempe Town Lake area before they make turns towards their route destinations.
- Annual equalization of all turbojet and large turboprop aircraft departing east and west of the airport during daytime and nighttime hours.

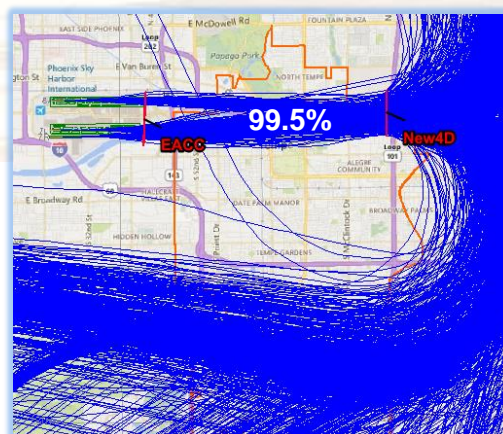
## 2. East Departure Compliance

### Compliance Rates

Under the Tempe and Phoenix intergovernmental agreement on noise mitigation flight procedures dated September 2, 1994 a measure was developed to track how large aircraft complied with the 4-DME instrument departure procedure to the east. The City of Phoenix implemented a gate the large aircraft had to pass through to avoid violating the procedure. This is an imaginary vertical line at 4-DME used as a filter in the Noise and Flight Track Monitoring System (NFTMS) for the Phoenix Sky Harbor International Airport. TAVCO developed a “Corridor”, which was based on Standard Instrument Departure procedures that were in use when the intergovernmental agreement with the City of Phoenix was made.



Jet departure tracks during the month of December 2017 inside the Tempe Corridor are shown in blue color with the annual compliance rate for the Tempe Corridor.



Jet departure tracks over the same period inside the Phoenix Gate depicted in blue with the annual compliance rate for the Phoenix Gate.

Large turboprop aircraft are not included in the depictions. These aircraft are routinely routed outside the 4-DME gate on approximate departure angles of 120° towards the southeast and 60° towards the northeast.



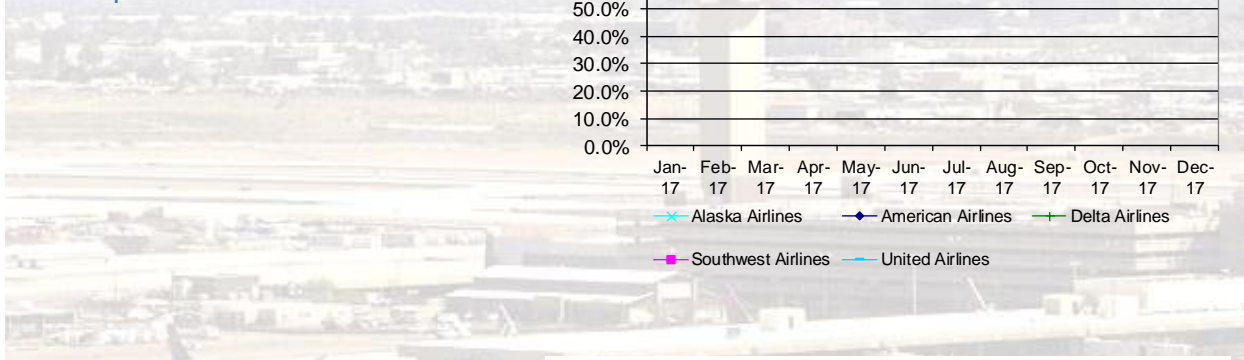
## 2017 Noise Mitigation Monitoring Summary PHX East

The annual average compliance rates are based on monthly numbers from the TAVCO Noise Mitigation Monitoring Reports. Typically, cross winds of 10 knots or more has been used to filter out deviations due to weather.

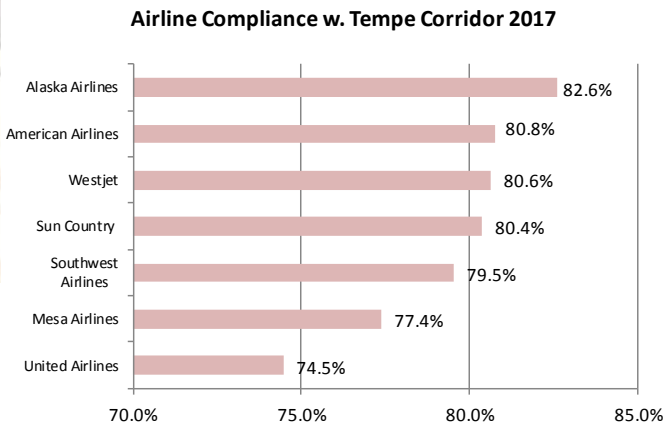
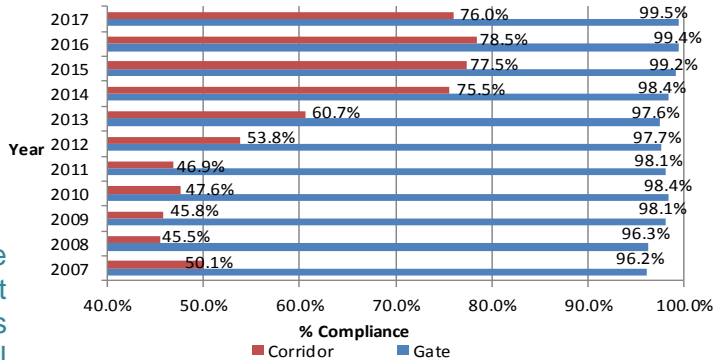
Compared to 2016 daytime jet and large turboprop departures towards the east decreased 10.3%, and night-time departures increased 1.9%. Overall departures and arrival operations by these aircraft east of the airport decreased 8.7%.

### Large Carrier Compliance

The graph shows corridor compliance rates for some of the airport's busiest airlines.



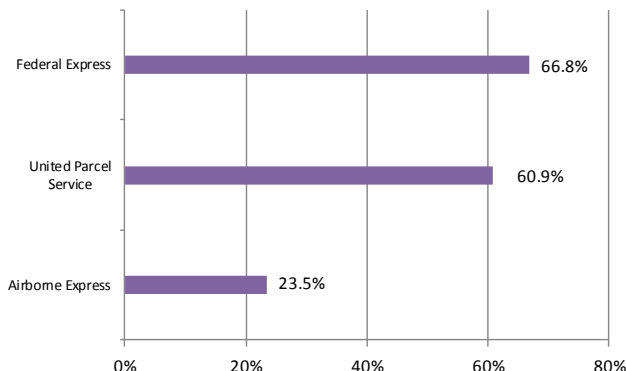
Among the larger carriers, Alaska and American Airlines had best average compliance rates with the Tempe Corridor during 2017. Only airlines with on average  $\geq 10$  departures to the east per month are included on this graph.



Top All Cargo Carriers

Among the larger, all cargo carriers FedEx had on average best compliance with the Tempe Corridor during 2017.

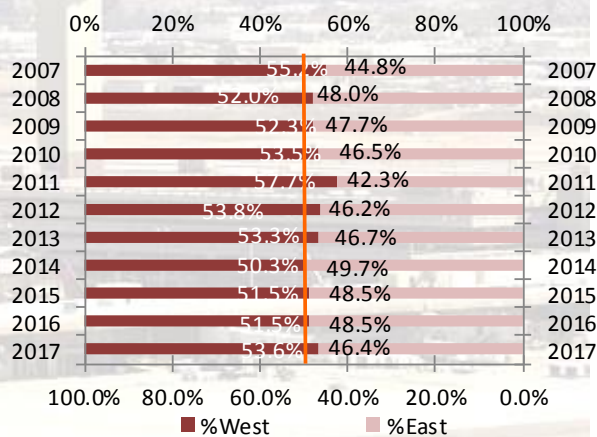
All Cargo Airline Compliance w. Tempe Corridor 2017



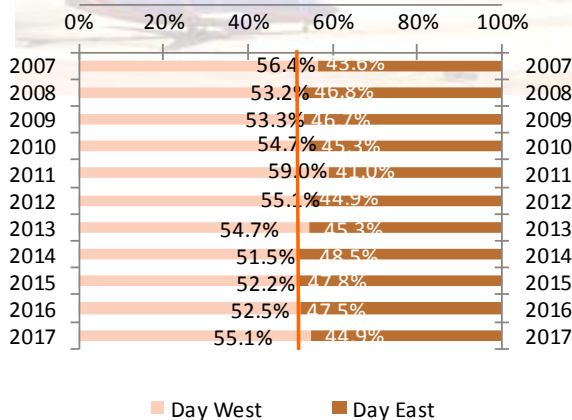
3. East/West Equalization

The annual split in all turbojet and large turboprop aircraft departures to the east and west of the Phoenix Sky Harbor International Airport differs between day- and day nighttime hours. The most of these operations goes towards the west when both day- and nighttime hours are combined. Departure traffic during the night and early hours of the day is predominantly going towards the east.

Annual Equalization (Day&Night)

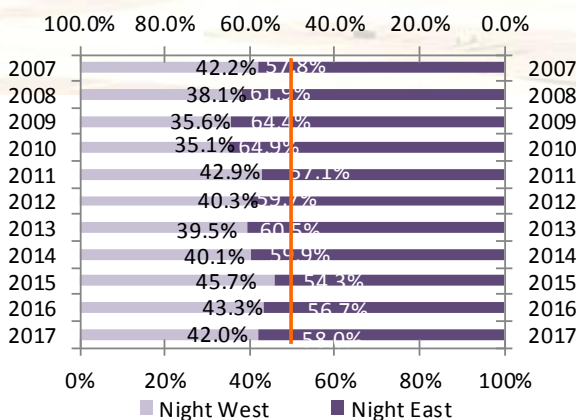


Day Equalization



Day = 7: 00 a.m. to 10:00 p.m. local time

Night Equalization



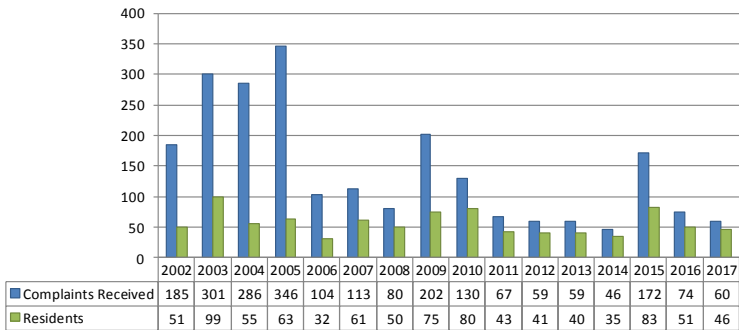
Night = 10:00 p.m. to 7:00 a.m.

### 4. Noise Complaints

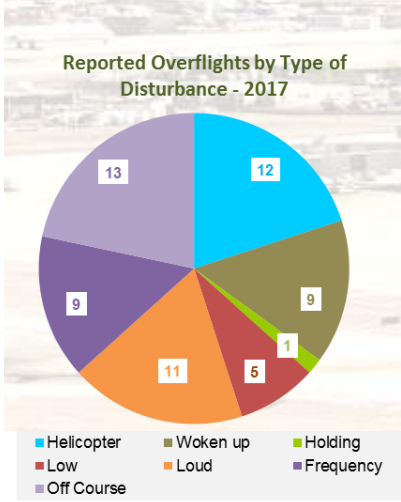
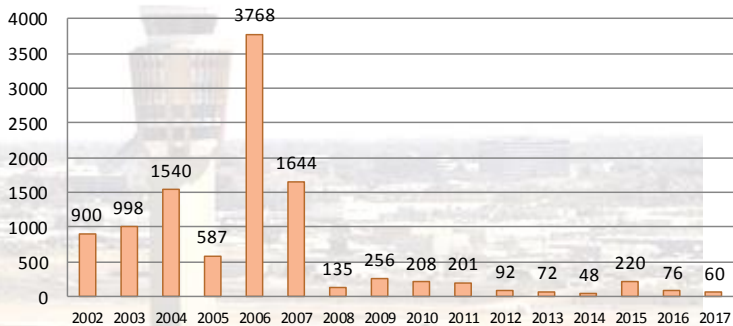
The City of Tempe started registering aircraft noise complaints from Tempe residents in October 2000 after the opening of the third runway at Phoenix Sky Harbor International Airport.

The flow of arrival operations has become more efficient due to the RNAV/RNP flight procedures that the airlines are using. It makes the air traffic flow more constant over areas of Tempe during peak hours. Commercial aircraft typically depart with high frequency in the morning hours to the east and line up to land from the east during afternoon hours.

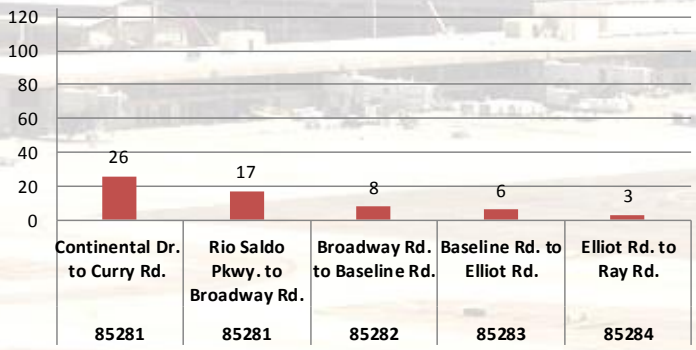
Most of the complaints on airline traffic have traditionally come from residents living in north Tempe neighborhoods where aircraft are at lower altitudes. In 2017 complaints were back to more originating for north Tempe households.



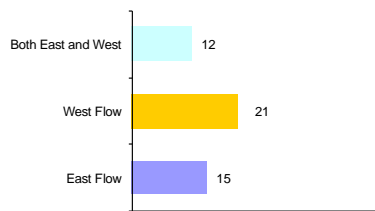
Number of Flights Addressed in Complaints to the City of Tempe



2017 Complaints by Area



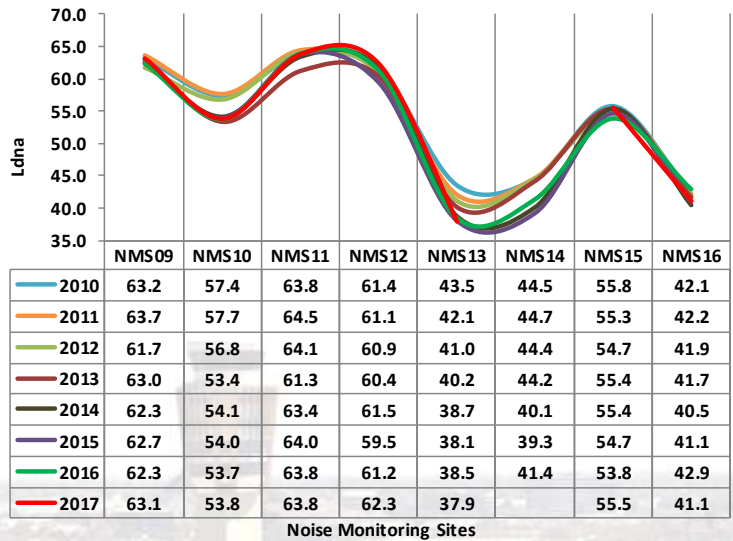
Reported Overflights by PHX Traffic Flow - 2017



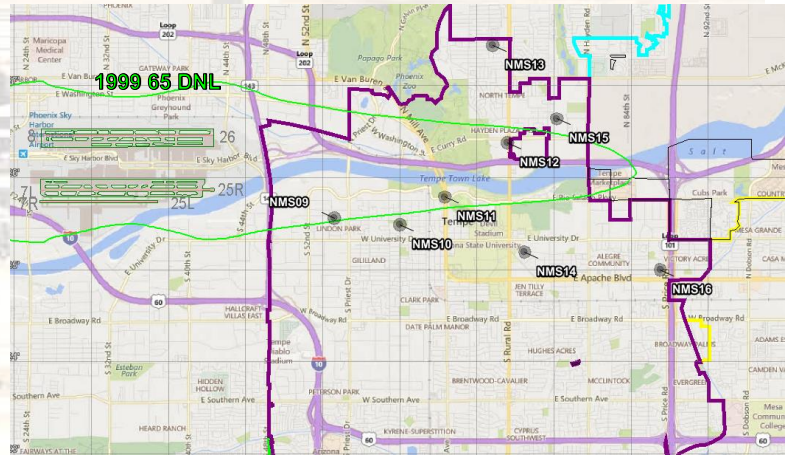
## 5. Averaged Noise Levels

Annual (Day-Night) average sound levels, Ldn (A), registered at fixed monitoring sites operated by the City of Phoenix during 2017, were comparable to 2016 levels. NMS 14 was shut down because of construction work at the Valor on Eighth project.

LDNA Annual Sound Energy Average



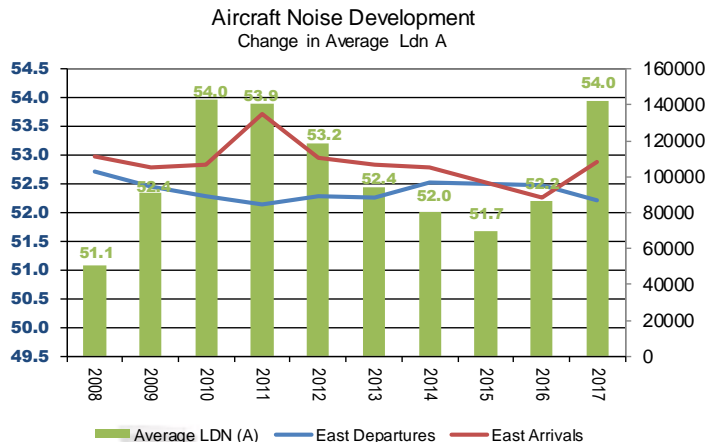
Eight noise monitoring sites are located in Tempe north and south of the Salt River riverbed in neighborhoods close to the main flight paths for the Phoenix Sky Harbor International Airport.



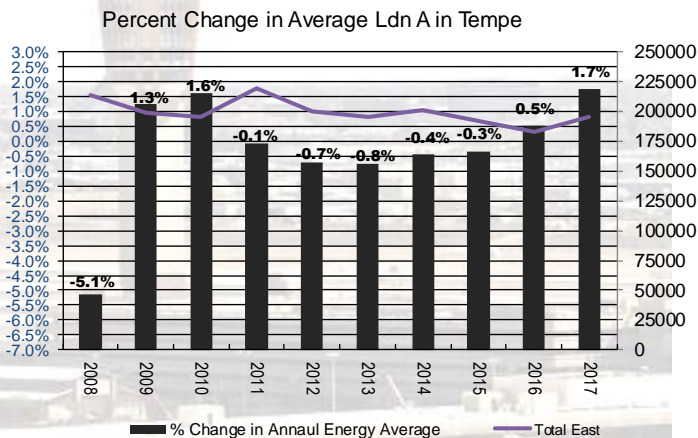


## 2017 Noise Mitigation Monitoring Summary PHX East

The overall number of large aircraft arrival operations over Tempe increased in 2017 compared to 2016, but the volume of departure operations decreased. One monitor being off line the whole year reduced the year combined average Ldn (A-weighted) sound level to seven of the monitoring sites in Tempe.



The airport Ldn (A) average at east side monitors was up 1.7 % compared to the average reached in 2016.



The equivalent continuous sound pressure level, Leq (A), was up by 2.9 %.

