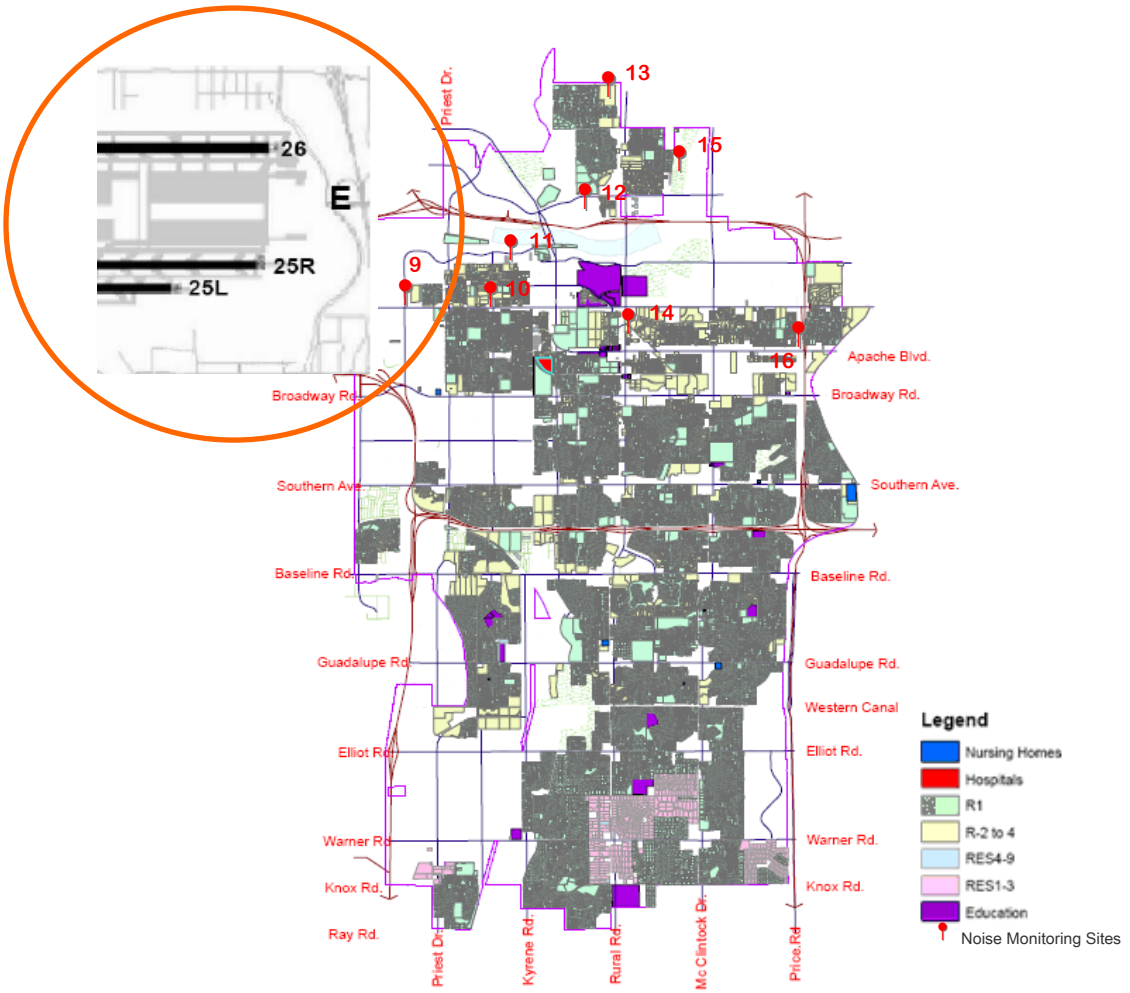
April 2011

Tempe

# Quarterly Noise Monitoring Report

## PHX East



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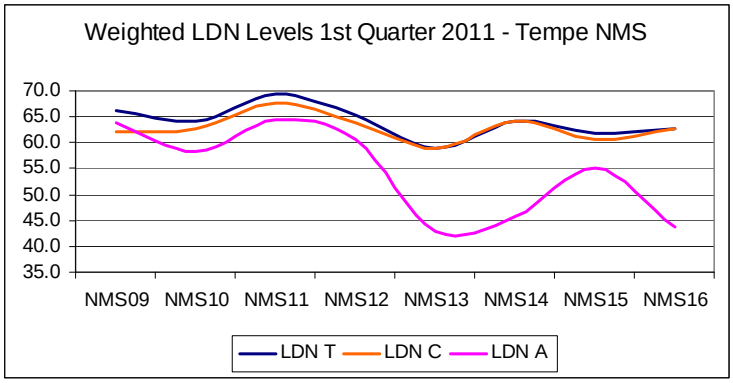
## Aviation Noise Monitoring

The Phoenix Sky Harbor International Airport Noise and Flight Track Monitoring System (NFTMS) has 8 fixed Noise Monitoring Sites (NMS) in Tempe located in neighborhoods around the Town Lake/ Rio Salado area in proximity of the 65 DNL noise exposure contour line for the airport. Through an agreement made with the City of Phoenix the City of Tempe can access noise monitoring data collected by the system and use supporting software that filters the data to indentify the noise energy contributions attributed to aircraft operations over areas the monitors are located.

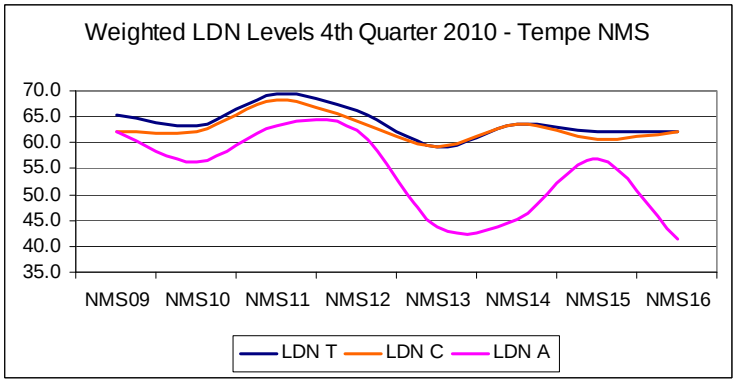
### A. Weighted Sound Exposure Levels

Average monthly sound exposure levels of aircraft events, are calculated from the Ldn or day-night average sound level also called DNL. This is a summary description of noise based on long-term equivalent level (Leq) with a penalty of 10 dB (A) added for nighttime sound occurring between 22.00-07.00 hours.




Average sound levels created by aircraft, Ldn A, are a product of detection tools built in to the NFTMS, which separate events registered at the monitoring site. The ambient sound events from sources picked up at a monitoring site, the Ldn C and events attributed to an aircraft over flight, the Ldn A. Ldn T is an expression of the total sound.

The graphs show that Ldn A decreases with distance to the airport's runways. A reduction in the Ldn A energy average of 5.6 dB occurred at NMS 15 in north Tempe comparing with the average level recorded the last quarter of 2010.

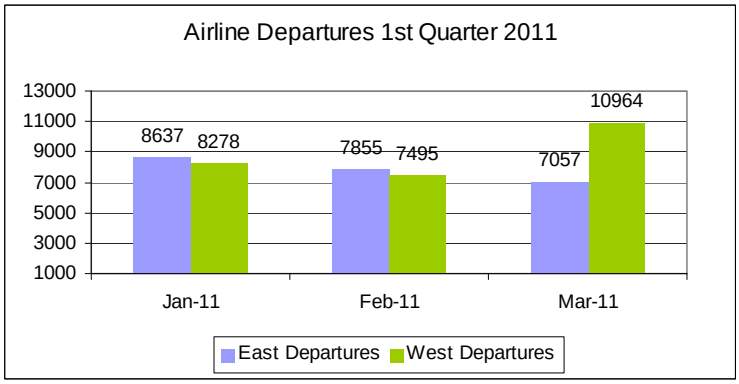



### B. East – West Equalization of Noise Burden

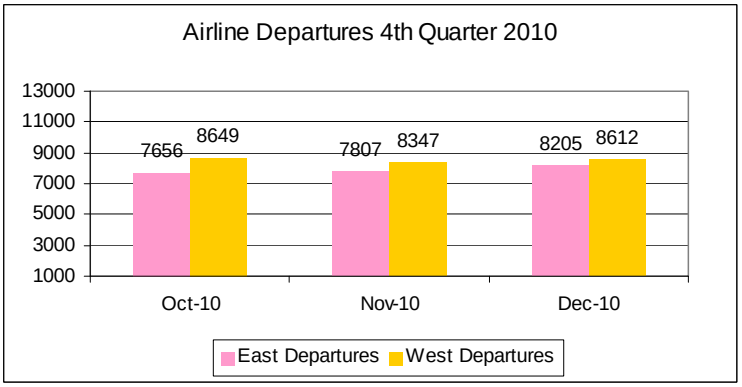
The airport Air Traffic Control Tower is directing large carrier departure traffic with the goal of accomplishing a 50/50 annualized east west split. A procedure for noise mitigation over Tempe delay air carrier turns away from the Salt River to the airspace over the Highway 202/ 101 intersection. There is no similar constraint for departure headings towards the west.

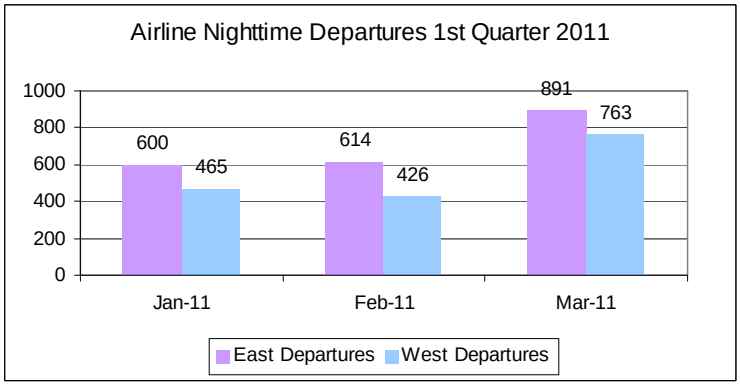
Carrier departure flow east and west are determined over the year by daily and seasonal changes in wind directions, and the cities of Tempe and Phoenix has agreed that airport

operations should attempt to distribute the noise burden from departing large commercial aircraft equally east and west on an annual basis.

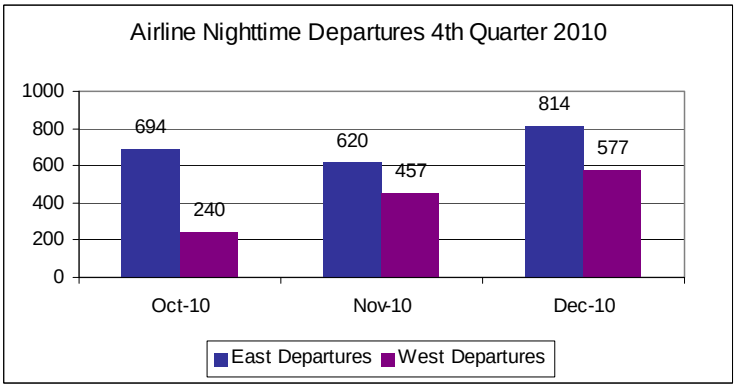


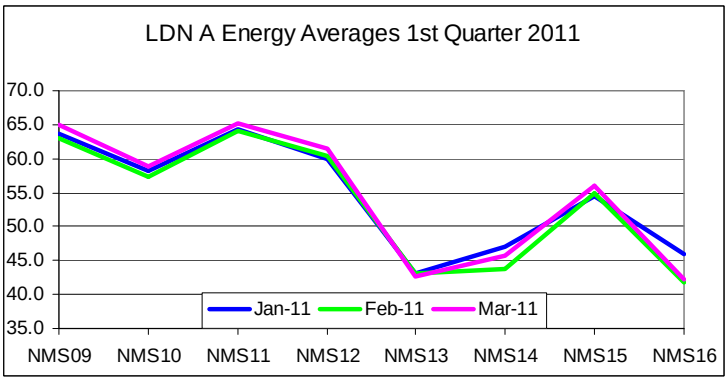

Large carrier departure activity shifted heavily towards the west during March 2010. Comparing with the last quarter of 2010, this amounted to an average growth in west departures of 2% and an average decrease in departure activity the east of 0.3%.



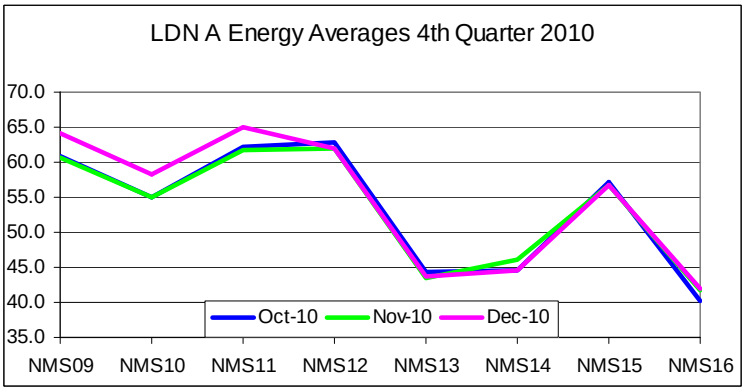




The growth in March 2011 west departure activity amounted to 13% increase in quarterly nighttime westbound departures occurring between 10:00 p.m. to 7:00 a.m. and a 0.5% decrease in eastbound nighttime departure activity compared to the last quarter of 2010.



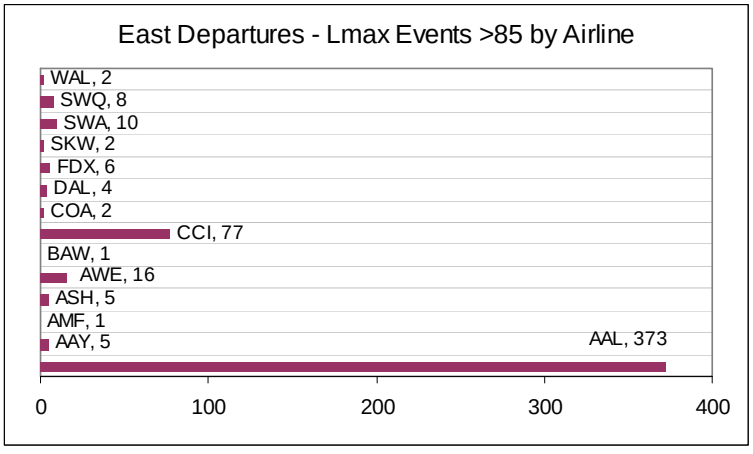



The average Ldn A levels registered at NMS 10 and 11 increased to levels closer to Ldn A registered NMS 9, which is the NMS in Tempe closest to the center and south runways. The previous quarter had two months with NMS 10 and 11 showing lower levels than the last month of the quarter.

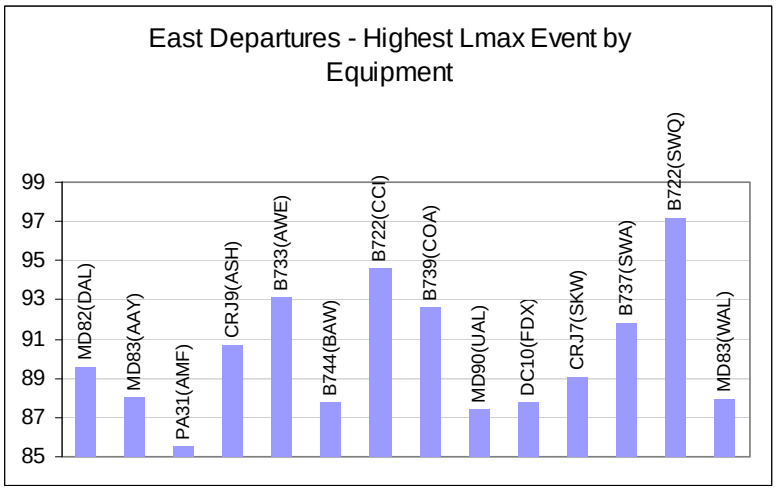



C. Registered Maximum Sound Energy Levels

The number of higher sound energy level events attributed to airline operations varies each month, which influences monthly Ldn average levels. Lmax is the maximum A- weighted sound level, dB (A) registered during a particular sound event. A-weighted means the sound is measured at frequencies that reflect the sensitivity ranges of the human ear.

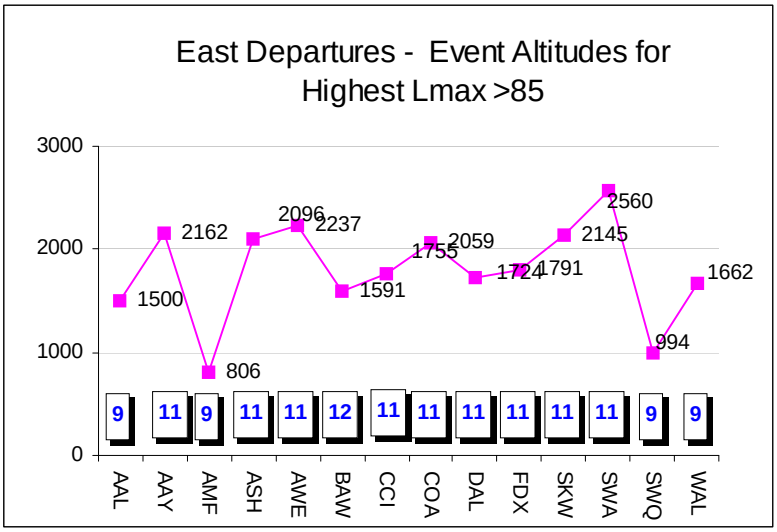


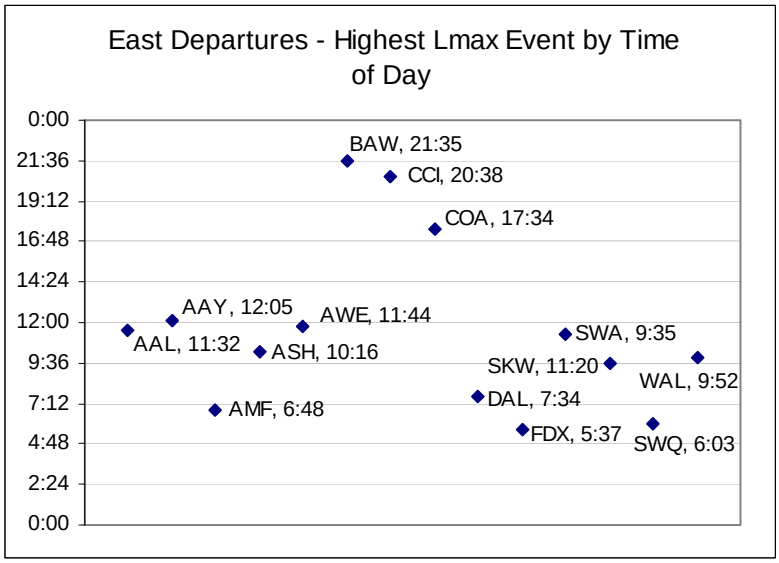

American Airlines and Capital Cargo had the most registrations of high Lmax levels. The carriers operate older fleets. One departure and or arrival can trigger events at more than one monitoring site. The chart displays events correlated to radar track data for the 1st quarter of 2011.




A Swift Air Boeing B727-200 cargo jet created the highest Lmax level among civil aircraft departing towards the east. Lmax 97.2 was registered at NMS 9 when the plane was climbing at 994 feet altitude.

The highest Lmax registered for US Airways/AWE and Southwest carriers occurred at higher departure altitudes on climb out over Tempe compared altitudes where the monitors registered the highest Lmax for other airlines.




Information about the NFTMS and the City of Tempe agreement with the City of Tempe are available at http://www.tempe.gov/aircraftnoise/