



# ***Noise Compatibility***

**2011 Year End Report**

**March 30, 2012**

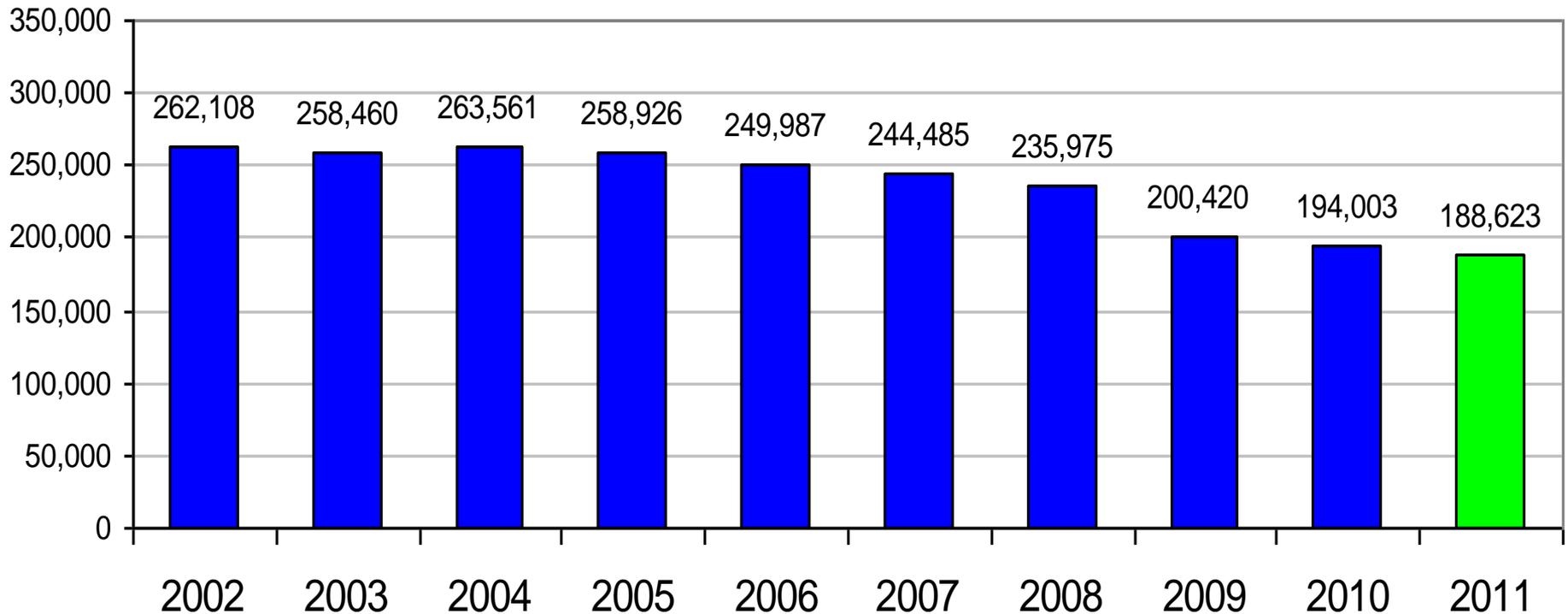
# *Noise Highlights of 2011*



- Airport operations for Year 2011 were down 2.77%, compared to Year 2010
- Noise Compatibility Plan Update (FAR Part 150 Study)
  - The Noise Exposure Maps (NEM) were submitted to the FAA for approval in April 2011
  - The Noise Compatibility Program Update was submitted to the FAA for approval in May 2011
- Runway 10/28 project is now complete
  - The runway was closed between April 1 and December 15, 2011
  - EMAS (Engineered Material Arresting System) is in place to prevent runway over-runs
- CLE Master Plan was submitted to the FAA for approval in June 2011
- Noise Complaints for Year 2011 were down 37.2%, compared to Year 2010.

# Aircraft Operations

## Cleveland Total Operations 2002 - 2011



There were 188,623 landings and takeoffs in 2011; this is 2.77% below 2010 and 5.89% below 2009.

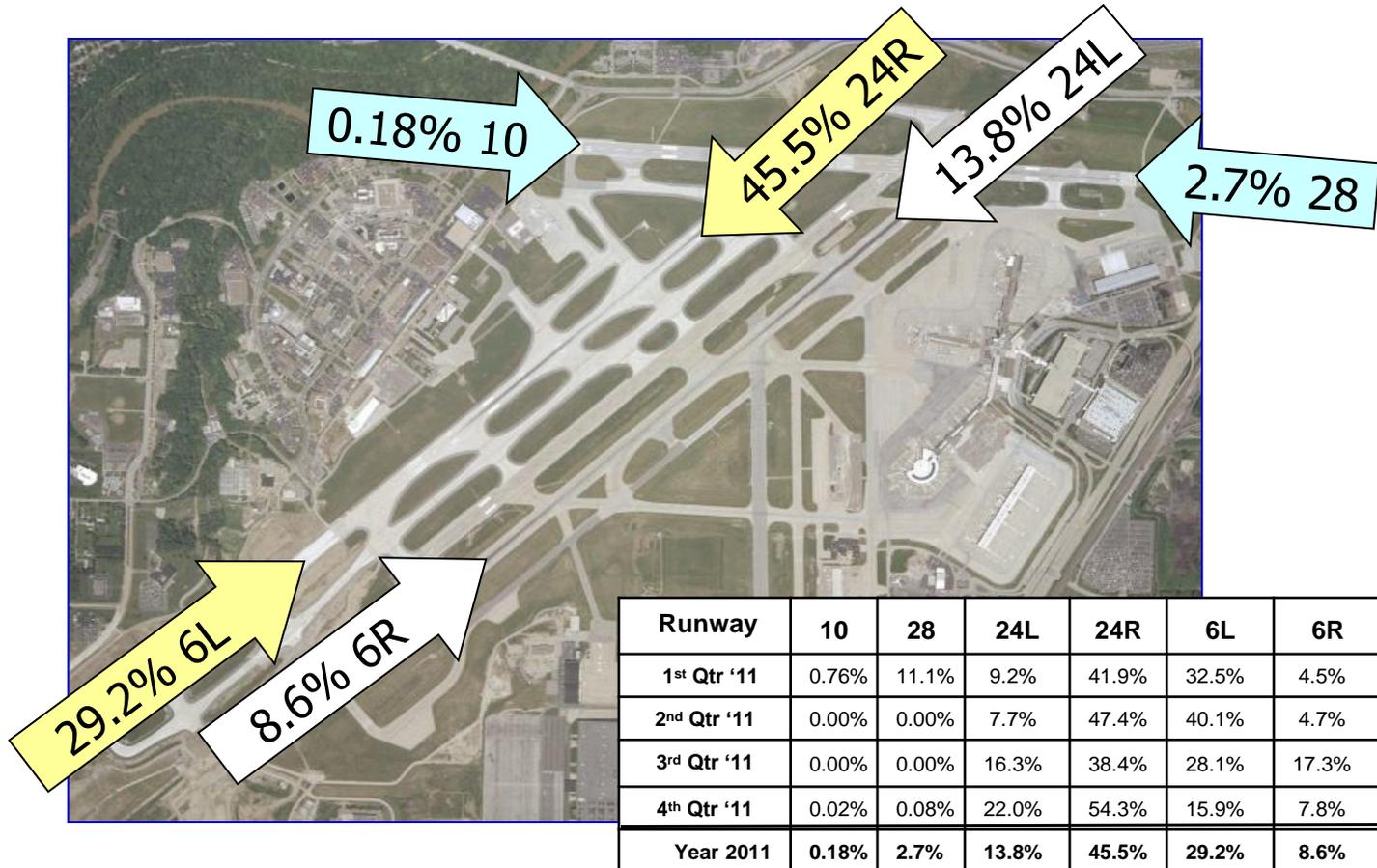
Source: FAA Control Tower Traffic Count Reports

## Landings & Takeoffs

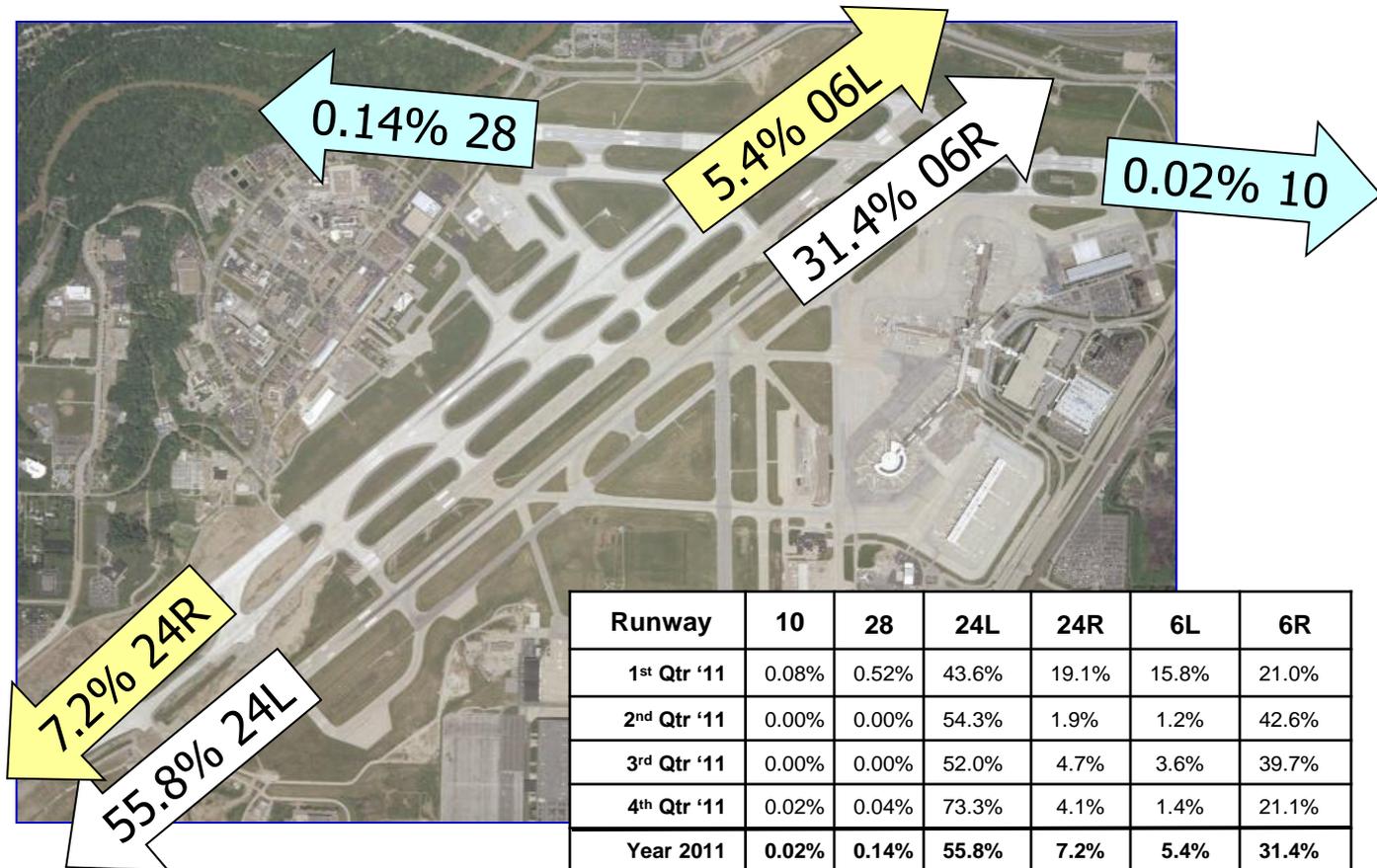
	2011 Activity		2010 Activity	
Commercial				
-Stage 2 with hush kit	882	0.47%	594	0.31%
-Heavy (Includes all B757s)	3,798	2.01%	5,738	2.96%
-MD80 Series	1,951	1.03%	139	0.07%
-Other Stage 3	45,894	24.33%	46,787	24.12%
-Regional Jet	86,566	45.89%	98,706	50.88%
-Turboprop	37,595	19.93%	28,646	14.77%
Air Taxi	3,023	1.60%	4,300	2.22%
General Aviation	8,649	4.59%	8,730	4.50%
Military	265	0.14%	363	0.19%
<b>Total</b>	<b>188,623</b>	<b>100.00%</b>	<b>194,003</b>	<b>100.00%</b>

All aircraft above are Stage 3 certified with the exception of some Military aircraft and about 2% of General Aviation aircraft, counting helicopters. A hush kit reduces noise enough to meet Stage 3 levels, but well short of the noise level of typical aircraft originally manufactured as Stage 3.

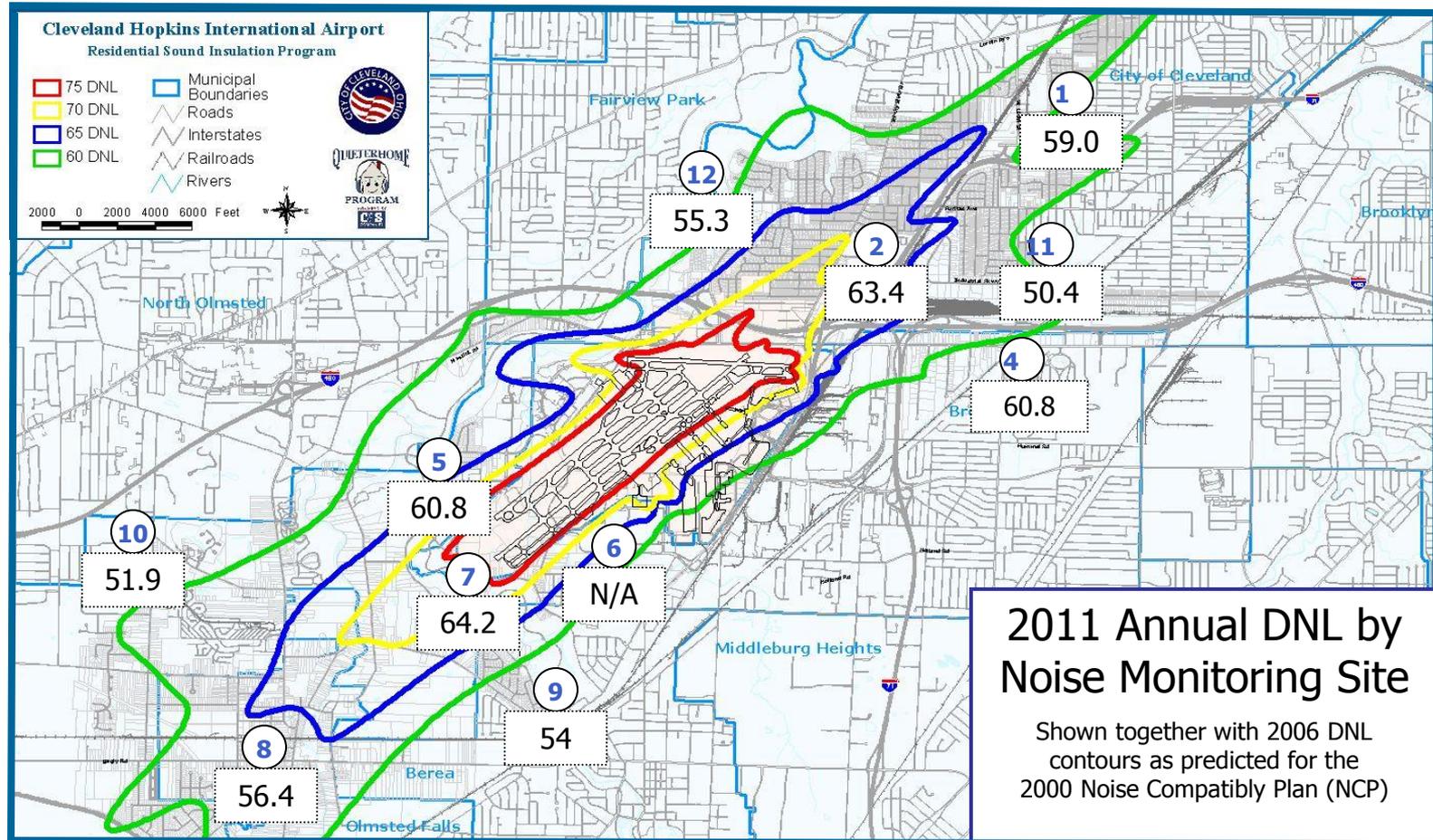
# Runway Use: Year 2011 Landings



# Runway Use: Year 2011 Take-Offs

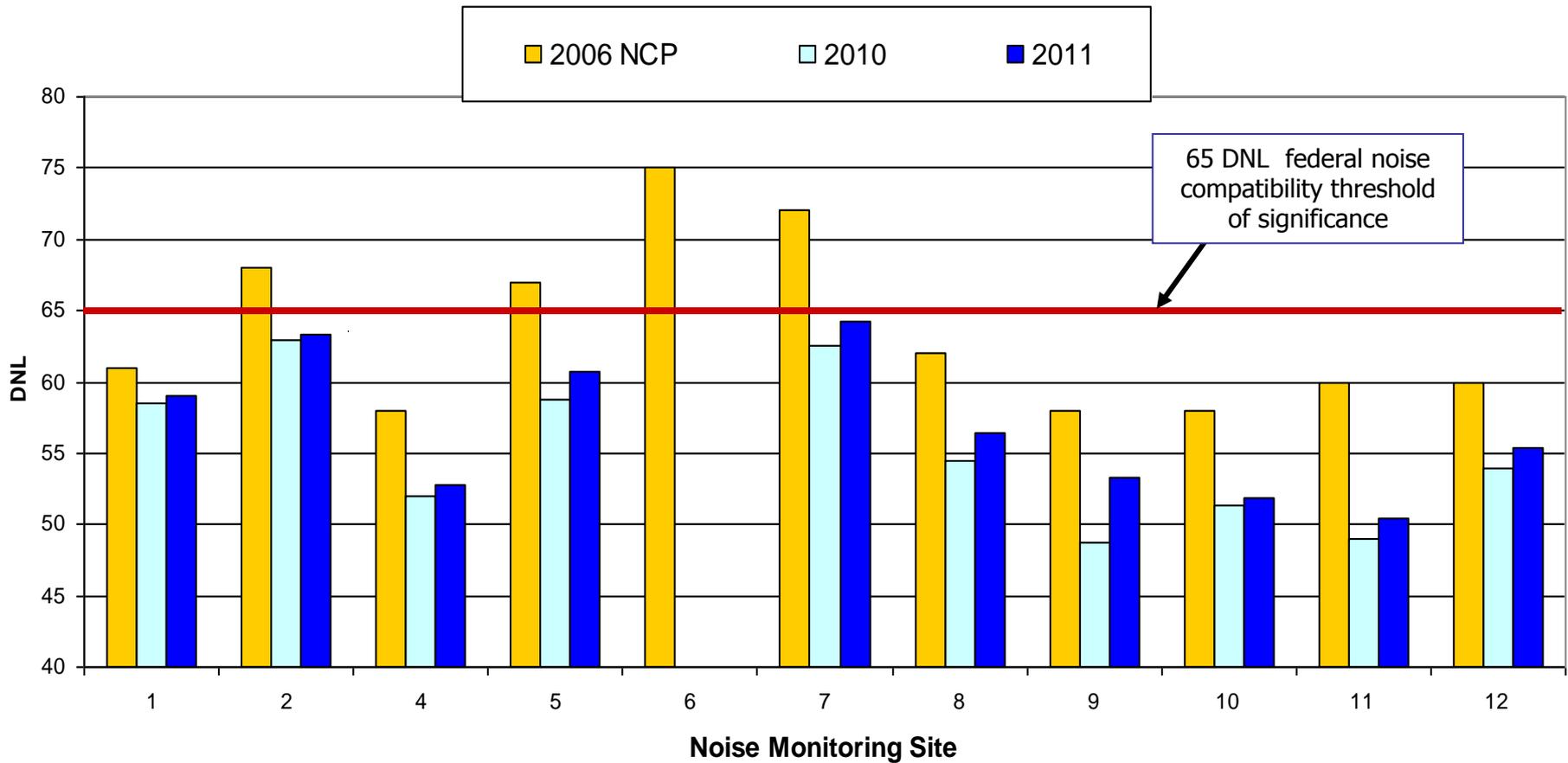


# Aircraft Noise: 2011 Annual DNL



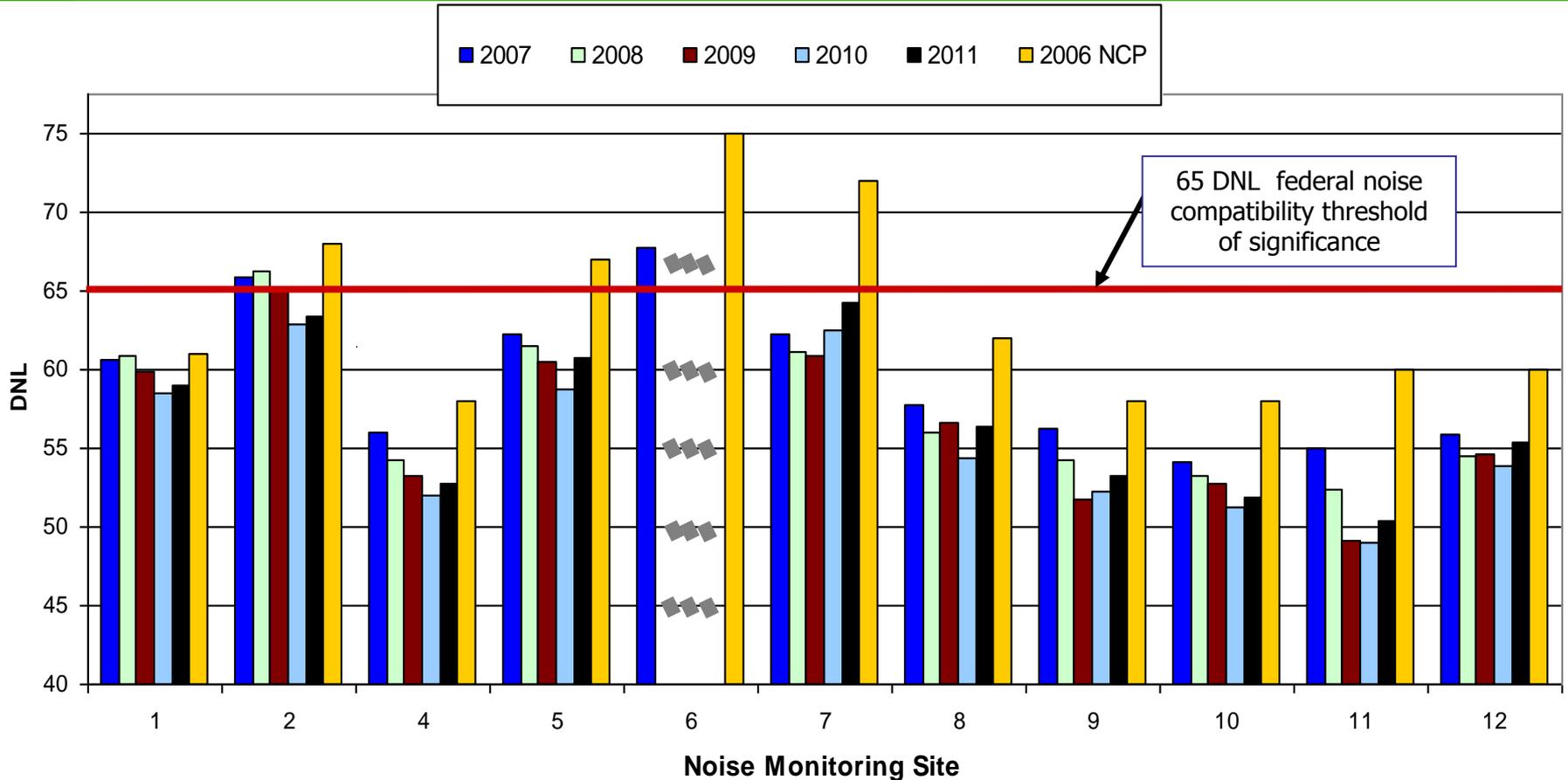
Due to outages and malfunctions, the DNL calculations for NMS01, 02, 04, 05, 07, 08, 10, 11 and 12 were based on the following number of days respectively 364, 315, 305, 354, 365, 349, 332, and 352 days. NMS09 had 44 days of data, mostly from Jan and Feb, and its DNL was estimated from flight data.

# DNL Change from 2010 to 2011



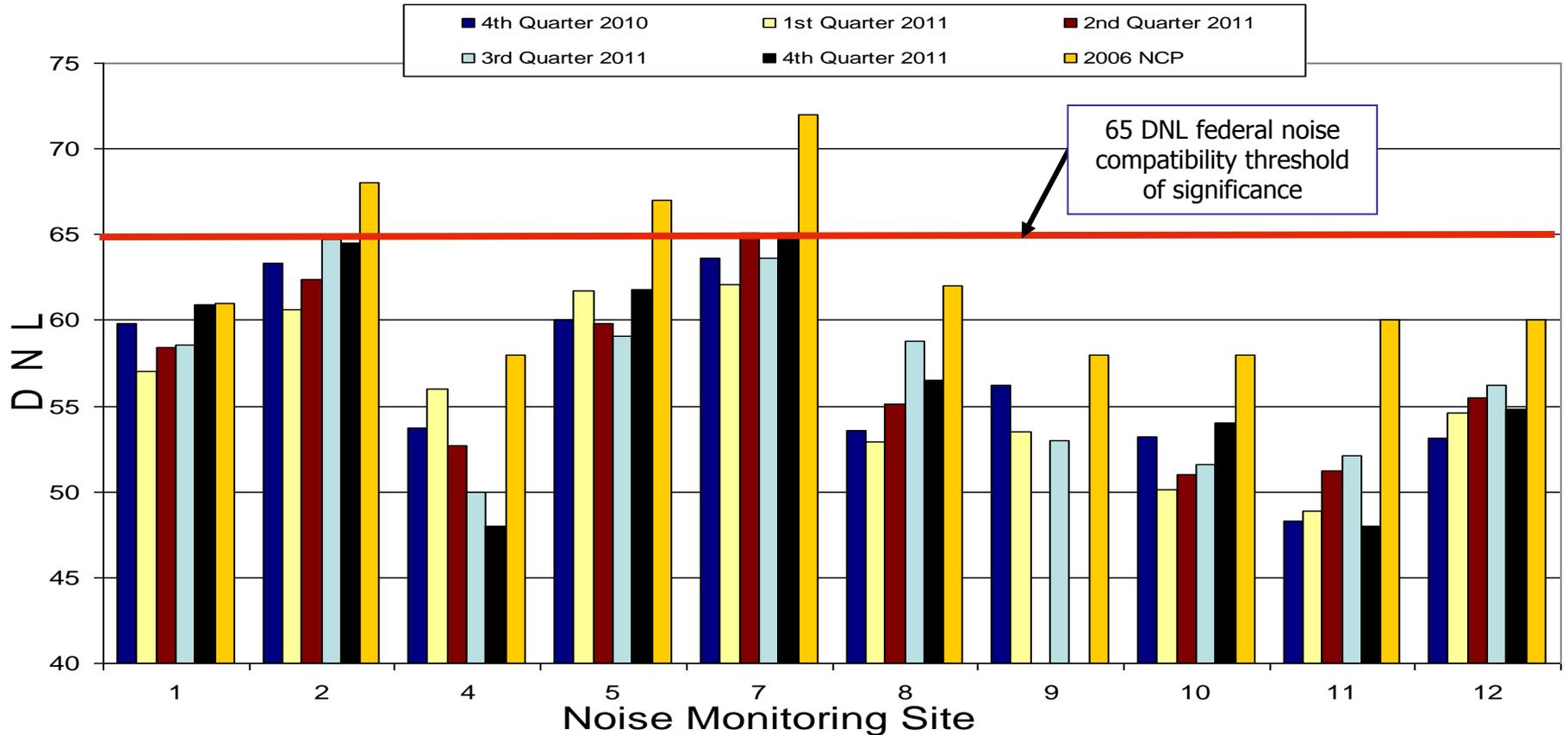
NMS06 was disconnected from power, dismantled and placed in storage in November 2008 due to runway expansion.

# DNL Comparison by Year



NMS06 was disconnected from power, dismantled and placed in storage in November 2008 due to runway expansion. Less than 6 months of data is available from 2008.

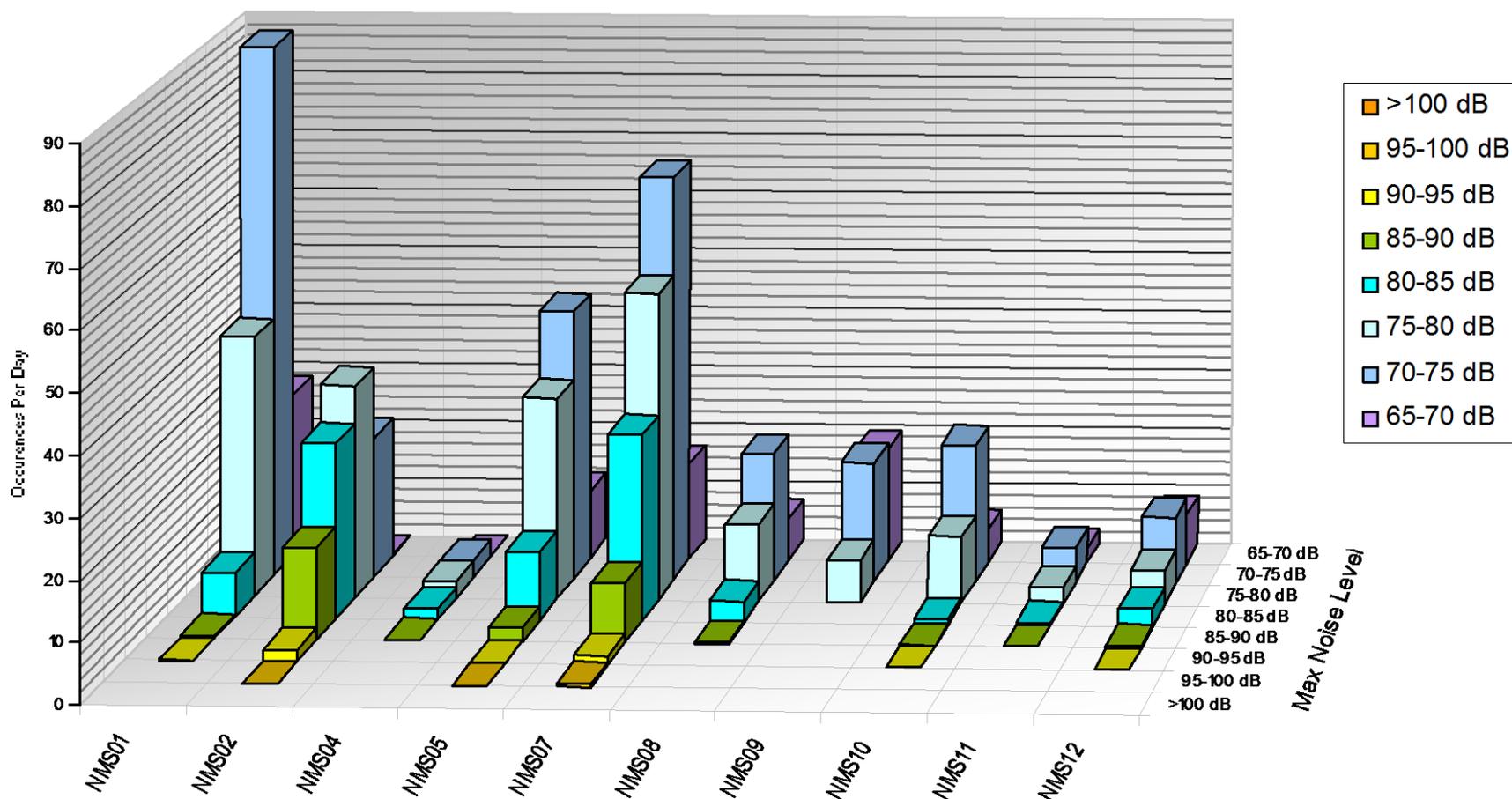
# Five Qtr DNL Comparison



Due to malfunctions, 2011 data for NMS09 was unavailable except for Jan, the 1<sup>st</sup> half of Feb, one day in July, a few days in Aug and Sep, and two half days in Oct. NMS04 data was missing from Nov 2 to the end of the year. NMS11 data was missing from Nov 16 to the end of the year. NMS06 was disconnected from power, dismantled and placed in storage in November 2008 due to runway expansion.

# Distribution of Noise Events

Distribution of Lmax, Averaged by Day, 4th Qtr 2011



## Top 3 Lmaxs at each NMS, 4<sup>th</sup> Qtr, (1 of 2)

<b>NMS</b>	<b>Lmax (dB)</b>	<b>Aircraft</b>	<b>Operation</b>	<b>Time and date</b>	<b>Sound Exposure Level (dB)</b>	<b>Duration (sec)</b>
NMS01	91.6	Boeing 757-300	Arrival on Rwy 24R	11/12/11 3:07 PM	99.1	41.5
NMS01	91.5	MD-11	Arrival on Rwy 24L	10/14/11 5:54 AM	98.4	33.0
NMS01	91.5	Piaggio P-180 Avanti	Arrival on Rwy 24R	11/14/11 7:05 PM	97.9	62.5
NMS02	97.9	Military	Arrival on Rwy 24L	11/14/11 11:53 AM	102.2	22.5
NMS02	97.6	DC8-60	Arrival on Rwy 24L	12/21/11 4:28 AM	102.9	22.5
NMS02	97.4	B737-800	Arrival on Rwy 24L	10/ 7/11 2:33 PM	105.4	30.0
NMS04	88.0	DC9-50	Departure off Rwy 6R	10/ 1/11 9:49 AM	94.0	26.0
NMS04	86.1	DC9-50	Take-off Roll on Rwy 24L	10/24/11 8:30 AM	92.9	30.0
NMS04	85.7	DC9-50	Departure off Rwy 6R	10/27/11 8:07 AM	93.3	31.0
NMS05	95.6	Helicopter (Boeing Chinook)	Departure near SW corner of airfield	12/ 1/11 8:45 AM	100.5	31.5
NMS05	94.0	Boeing 727-200	Take-off Roll on Rwy 6R	11/22/11 11:09 PM	102.4	70.0
NMS05	93.2	MD-83	Departure off Rwy 24R	11/ 1/11 1:31 PM	100.0	33.5
NMS07	99.9	Learjet 25	Departure off Rwy 24R	10/ 5/11 1:58 PM	106.2	33.5
NMS07	99.6	Boeing 727-100	Departure off Rwy 24L	12/ 9/11 12:19 PM	106.7	47.0
NMS07	99.1	DC9-50	Departure off Rwy 24L	10/22/11 9:47 AM	106.5	44.5

Sound Exposure Level is a measure that takes into account all noise over the entire duration of an event.

# Top 3 Lmaxs at each NMS, 4<sup>th</sup> Qtr, (2 of 2)



NMS	Lmax (dB)	Aircraft	Operation	Time and date	Sound Exposure Level (dB)	Duration (sec)
NMS08	88.2	MD-82	Departure off Rwy 24L	11/16/11 1:23 PM	94.2	27.0
NMS08	87.4	Piaggio P-180 Avanti	Arrival on Rwy 6R	12/ 5/11 7:06 PM	97.6	52.0
NMS08	87.1	MD-82	Departure off Rwy 24L	12/28/11 1:45 PM	95.5	42.0
NMS09	79.8	Boeing 737-700	Departure off Rwy 24L	10/ 9/11 1:06 PM	89.2	27.0
NMS09	78.3	Boeing 737-700	Departure off Rwy 24L	10/10/11 6:04 AM	89.0	29.0
NMS09	78.2	Embraer ERJ-170	Departure off Rwy 24L	10/10/11 7:20 AM	87.2	26.5
NMS10	94.0	Boeing 727-100	Departure off Rwy 24L	12/ 9/11 12:20 PM	101.7	58.0
NMS10	88.6	Boeing 727-200	Departure off Rwy 24L	12/13/11 10:56 PM	97.4	58.5
NMS10	88.5	MD-82	Departure off Rwy 24L	12/30/11 6:37 PM	94.0	34.0
NMS11	85.7	DC9-50	Departure off Rwy 6R	10/ 3/11 8:09 AM	92.6	30.0
NMS11	85.4	MD-83	Departure off Rwy 6R	10/ 7/11 6:53 AM	93.7	33.5
NMS11	84.4	De Havilland Canada DHC-8-200 Dash 8	Departure off Rwy 6R	10/19/11 9:30 AM	91.7	32.5
NMS12	93.4	MD-82	Departure off Rwy 6R	10/27/11 6:49 AM	99.3	33.0
NMS12	92.2	MD-83	Departure off Rwy 6R	11/21/11 6:46 AM	98.2	33.5
NMS12	91.3	MD-82	Departure off Rwy 6R	10/ 3/11 1:38 PM	98.2	28.5

\*The helicopter lift-off may be outside the airport. It eventually lands at or near Burke Lakefront Airport.  
 Sound Exposure Level is a measure that takes into account all noise over the entire duration of an event.

# Noise Hotline



City	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual	%	Callers	%
Berea	1	0	1	0	2	1.05%	2	4.0%
Brook Park	3	0	3	0	6	3.14%	4	8.0%
Cleveland	27	50	31	36	144	75.39%	12	24.0%
Fairview Park	5	3	5	3	16	8.38%	12	24.0%
Lakewood	0	0	0	0	0	0.00%	0	0.0%
Middleburg Hts.	0	0	0	0	0	0.00%	0	0.0%
North Olmsted	0	0	1	0	1	0.52%	1	2.0%
Olmsted Falls	0	1	3	0	4	2.09%	3	6.0%
Olmsted Twp.	0	0	2	0	2	1.05%	2	4.0%
Parma	4	0	0	0	4	2.09%	3	6.0%
Parma Heights	0	0	0	0	0	0.00%	0	0.0%
Rocky River	0	5	3	0	8	4.19%	7	14.0%
Westlake	0	0	1	0	1	0.52%	1	2.0%
Other	1	2	0	0	3	1.57%	3	6.0%
<b>Total 2011</b>	<b>41</b>	<b>61</b>	<b>50</b>	<b>39</b>	<b>191</b>	<b>100.0%</b>	<b>50</b>	<b>100.0%</b>
Total 2010	52	157	74	21	304	100.0%	70	100.0%

**There was a 37.2% reduction in noise complaints for Year 2011, as compared to Year 2010.**

# 2011 Annual Complaint Map

## LEGEND

Complaints per household

-  1 complaint
-  2 to 5 complaints
-  6 or more
-  Noise Monitoring Station



# 2012 Forward Plan



- Noise Compatibility Plan Update (FAR Part 150 Study)
  - As of February 2012, the FAA has not given approval of the FAR Part 150 Study update submitted in 2011
- Labor Day Air show to be held at Burke Lakefront Airport featuring the Navy Blue Angels
- CLE Master Plan approval to be obtained from FAA
- There are no planned construction projects for 2012 that would require runway closures over an extended period of time.

**CLE.**  
**Going places.™**

