



# ***Noise Compatibility***

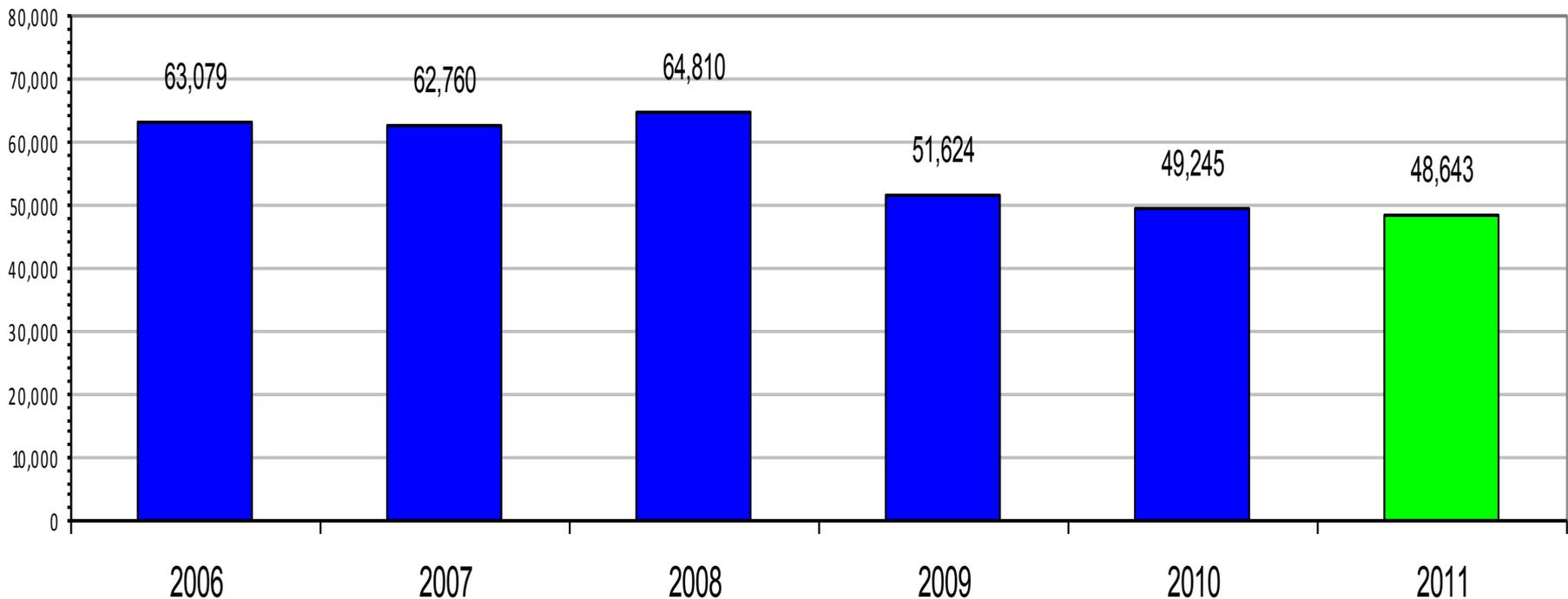
**2<sup>nd</sup> Quarter, 2011**

September 23, 2011

# Aircraft Operations



## Cleveland 2<sup>nd</sup> Qtr. Operations 2006 - 2011



There were 48,643 landings and takeoffs in the 2<sup>nd</sup> qtr. of 2011; this is 1.22% below the 2<sup>nd</sup> qtr. 2010.

Source: FAA Control Tower Traffic Count Reports

# Fleet Mix : 2<sup>nd</sup> Qtr, 2011 vs. 2<sup>nd</sup> Qtr, 2010

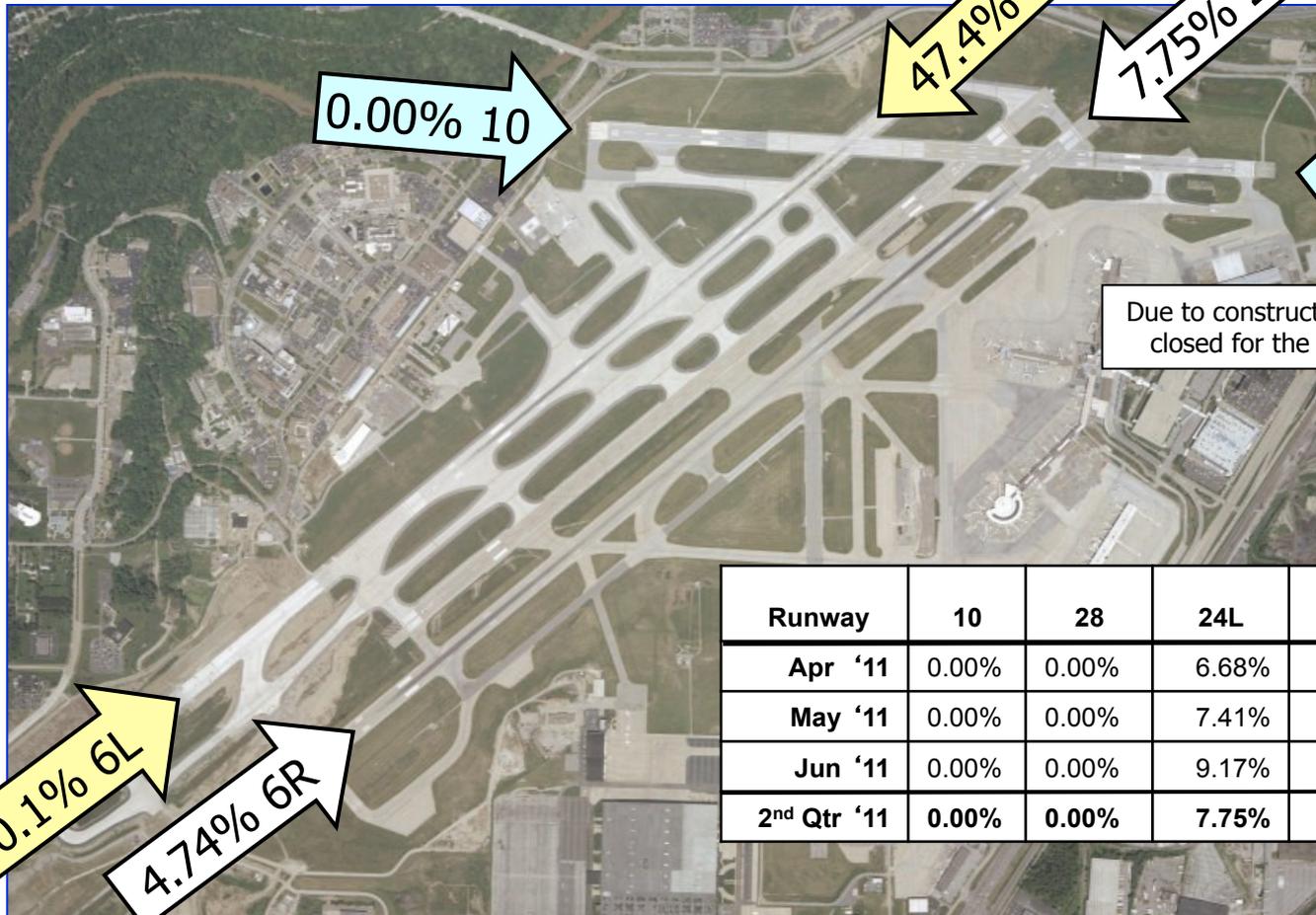


## Landings & Takeoffs

	2 <sup>nd</sup> Qtr, 2011		2 <sup>nd</sup> Qtr, 2010	
Commercial				
-Stage 2 with hush kit	216	0.44%	127	0.26%
-Heavy (incl. all B757s)	941	1.93%	785	1.59%
-MD80 series	565	1.16%	23	0.05%
-Other Stage 3	11,977	24.62%	12,335	25.05%
-Regional Jet	22,215	45.67%	25,601	51.99%
-Turboprop	9,687	19.91%	7,353	14.93%
Air Taxi	753	1.55%	649	1.32%
General Aviation	2,216	4.56%	2,284	4.64%
Military	73	0.15%	88	0.18%
<b>Total</b>	<b>48,643</b>	<b>100.00%</b>	<b>49,245</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.

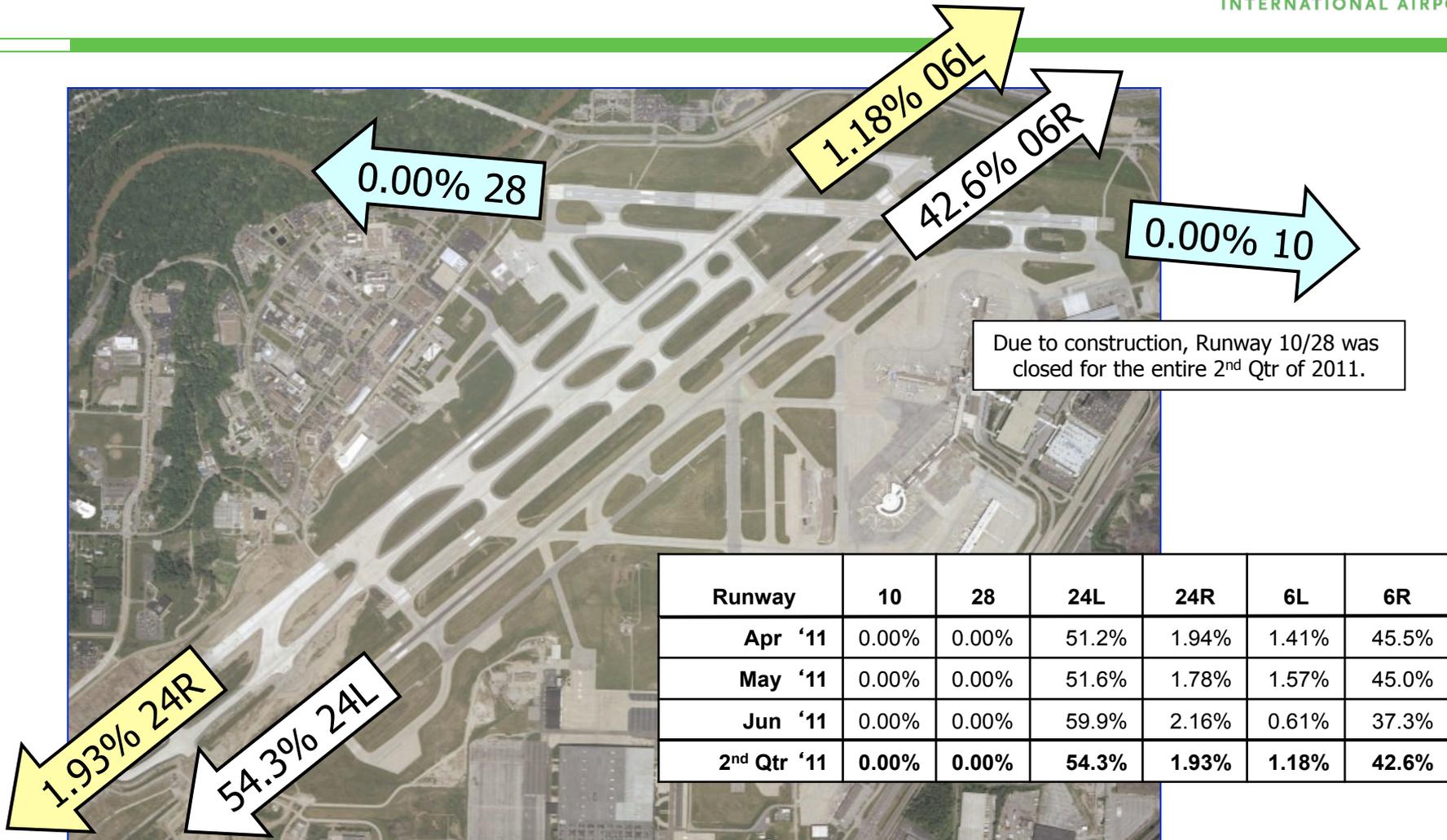
# Runway Use: 2<sup>nd</sup> Qtr, 2011 Landings



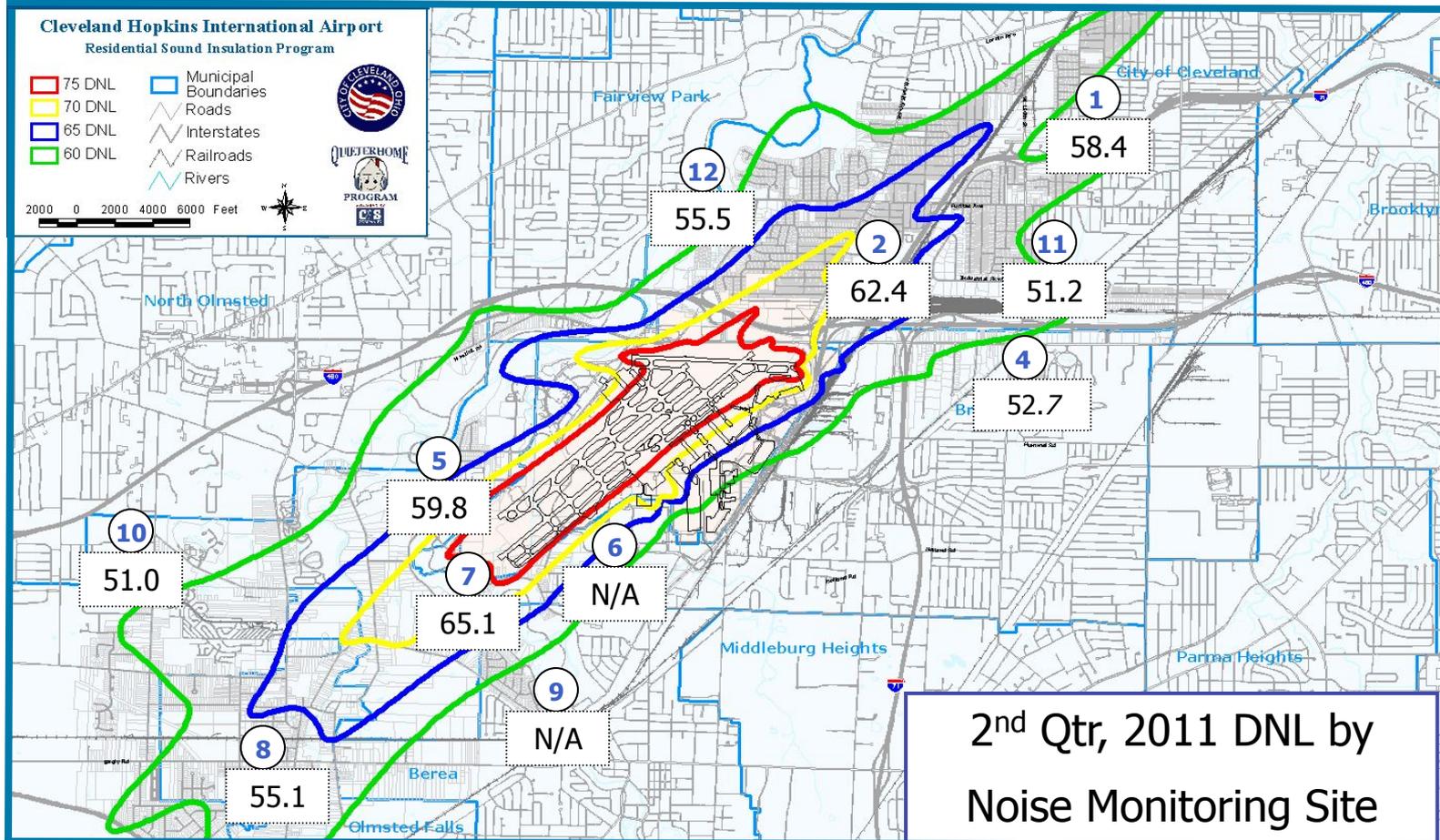
Due to construction, Runway 10/28 was closed for the entire 2<sup>nd</sup> Qtr of 2011.

Runway	10	28	24L	24R	6L	6R
Apr '11	0.00%	0.00%	6.68%	45.5%	43.8%	4.02%
May '11	0.00%	0.00%	7.41%	45.1%	42.5%	4.93%
Jun '11	0.00%	0.00%	9.17%	51.3%	34.2%	5.28%
<b>2<sup>nd</sup> Qtr '11</b>	<b>0.00%</b>	<b>0.00%</b>	<b>7.75%</b>	<b>47.4%</b>	<b>40.1%</b>	<b>4.74%</b>

# Runway Use: 2<sup>nd</sup> Qtr, 2011 Take-Offs

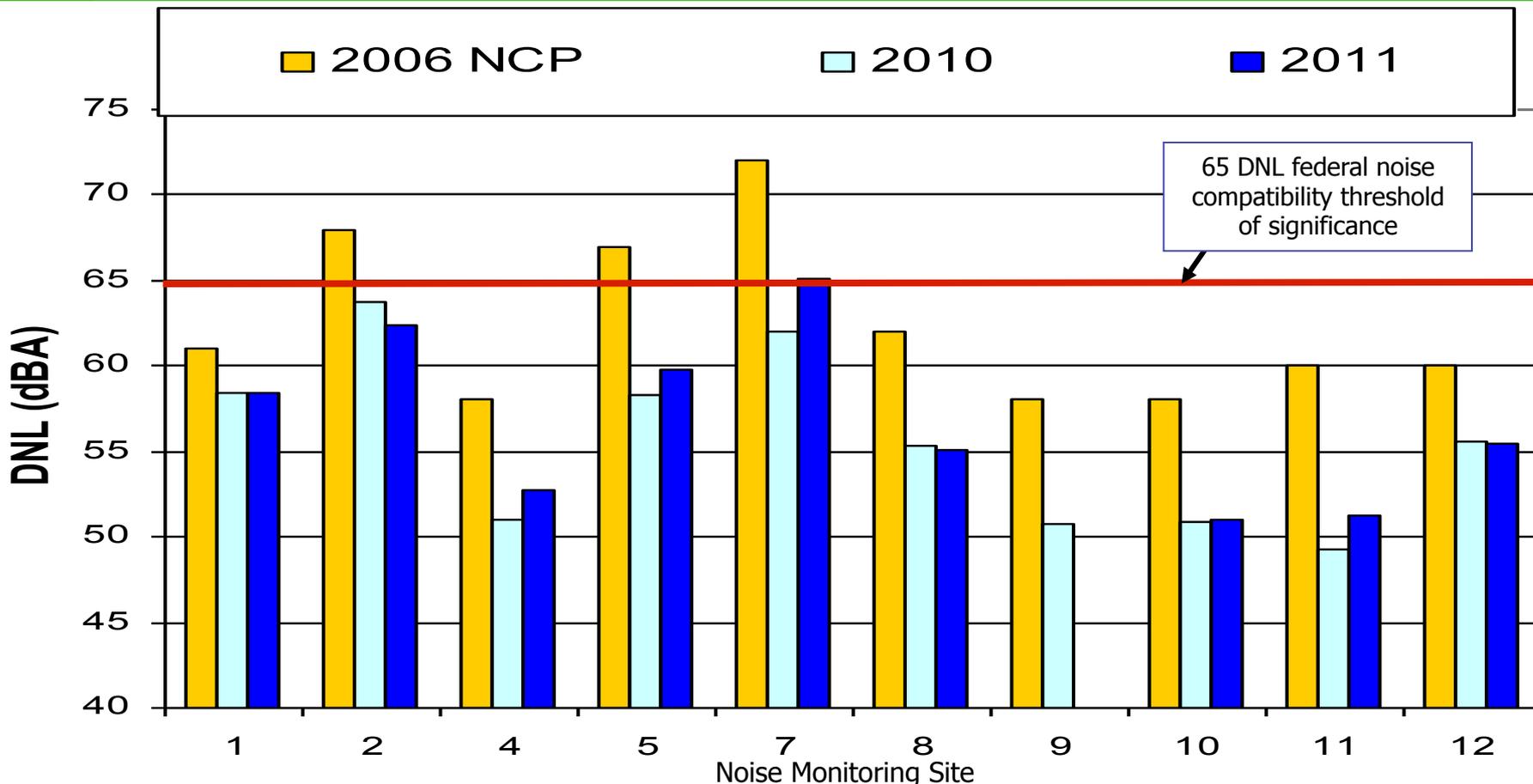


# Aircraft Noise



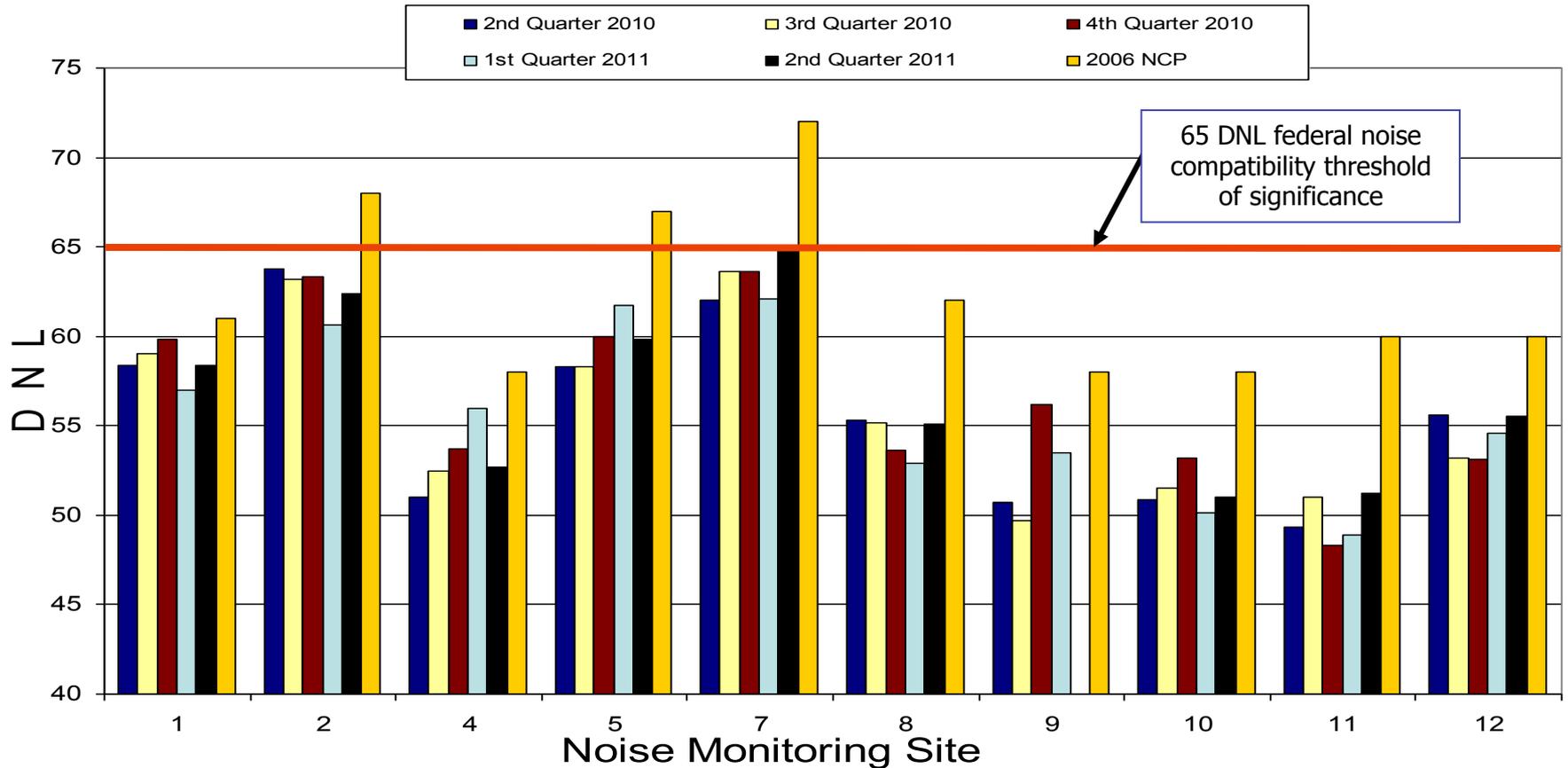
Due to malfunctions, data for NMS09 was unavailable except for less than 12 hours on each of eight days between May 23 and Jun 30. Based on the frequency that each aircraft type approached NMS09 during night-time and day-time hours, and comparison with past months, the DNL should be around 51 dB. NMS06 was disconnected from power, dismantled and placed in storage in November 2008 due to runway expansion.

# DNL: 2<sup>nd</sup> Qtr, 2011 vs. 2<sup>nd</sup> Qtr, 2010



Due to malfunctions, data for NMS09 was unavailable except for less than 12 hours on each of eight days between May 23 and Jun 30. Based on the frequency that each aircraft type approached NMS09 during night-time and day-time hours, and comparison with past months, the DNL should be around 51 dB. NMS06 was disconnected from power, dismantled and placed in storage in November 2008 due to runway expansion.

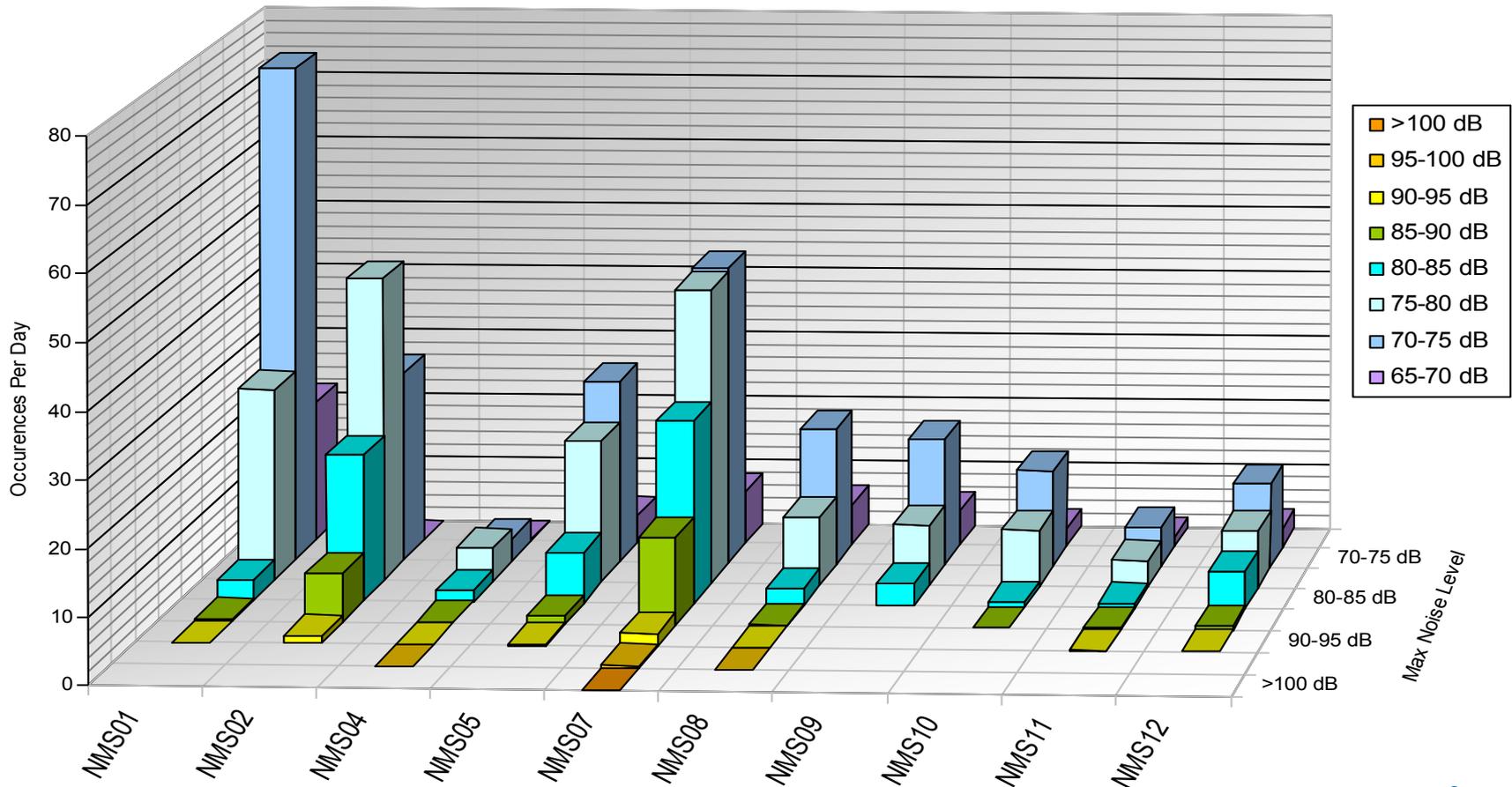
# Five Qtr DNL Comparison



Due to malfunctions, data for NMS09 was unavailable except for less than 12 hours during each of eight days between May 23 and Jun 30. Based on the frequency that each aircraft type approached NMS09 during night-time and day-time hours, and comparison with past months, the DNL should be around 51 dB. 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, 2<sup>nd</sup> Qtr 2011



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



NMS	Lmax (dB)	Aircraft	Operation	Time and date	Sound Exposure Level (dB)	Duration (sec)
NMS01	91.0	DC9-50	Arrival on Rwy 24R	4/ 4/2011 9:03 PM	97.0	33.0
NMS01	89.8	DC9-50	Arrival on Rwy 24R	4/10/2011 9:05 PM	97.1	31.0
NMS01	89.3	Military Jet	Arrival on Rwy 24L	6/19/2011 1:10 PM	96.8	39.0
NMS02	98.1	DC9-50	Departure off Rwy 6R	5/15/2011 7:06 AM	104.7	26.0
NMS02	96.3	DC9-50	Departure off Rwy 6L	5/27/2011 7:02 AM	103.6	36.5
NMS02	96.0	MD82	Departure off Rwy 6R	4/21/2011 12:44 PM	102.1	29.0
NMS04	95.7	B727-200	Departure off Rwy 6L	4/ 8/2011 11:28 PM	101.7	34.5
NMS04	89.9	MD88	Departure off Rwy 6R	6/14/2011 7:14 AM	97.2	30.0
NMS04	89.7	DC9-50	Departure off Rwy 6R	5/16/2011 7:03 AM	97.9	33.5
NMS05	95.0	DC9-50	Take-off Roll on Rwy 6R	4/30/2011 7:08 AM	103.9	77.0
NMS05	94.8	B737-200	Departure off Rwy 24R	4/26/2011 10:10 AM	100.7	51.5
NMS05	93.8	NASA jet (S3)	Departure off Rwy 24L	5/13/2011 9:33 AM	98.8	16.0
NMS07	107.0	B727-200	Departure off Rwy 24L	6/22/2011 11:57 PM	112.9	38.0
NMS07	103.9	B727-200	Departure off Rwy 24L	5/3/2011 11:03 PM	110.0	34.5
NMS07	99.9	B737-200	Departure off Rwy 24L	6/17/2011 9:03 AM	106.0	50.5

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, 2<sup>nd</sup> Qtr, (2 of 2)



NMS	Lmax (dB)	Aircraft	Operation	Time and date	Sound Exposure Level (dB)	Duration (sec)
NMS08	90.5	MD82	Departure off Rwy 24L	4/20/2011 6:28 PM	96.5	34.5
NMS08	89.6	MD82	Departure off Rwy 24L	6/21/2011 6:54 AM	96.5	34.5
NMS08	87.4	MD83	Arrival on Rwy 6R	5/9/2011 11:46 AM	94.1	26.5
NMS09	84.8	B737-300	Departure off Rwy 24L	6/21/2011 4:50 PM	90.9	24.0
NMS09	83.3	B737-200	Departure off Rwy 24L	5/22/2011 10:50 PM	92.8	38.5
NMS09	82.8	B737-300	Departure off Rwy 24L	6/ 1/2011 1:16 PM	89.0	21.0
NMS10	88.0	MD87	Departure off Rwy 24L	5/18/2011 7:20 PM	95.8	38.0
NMS10	85.7	MD82	Departure off Rwy 24L	5/ 1/2011 7:01 AM	92.7	31.0
NMS10	85.6	B722	Departure off Rwy 24L	5/ 5/2011 10:56 PM	92.7	25.0
NMS11	90.8	DC9-50	Departure off Rwy 6L	5/27/2011 7:02 AM	98.8	32.0
NMS11	90.6	DC9-50	Departure off Rwy 6R	4/25/2011 7:06 AM	98.4	32.0
NMS11	90.6	Military Jet	Departure off Rwy 6R	4/ 7/2011 4:59 PM	95.9	24.5
NMS12	93.0	MD82	Departure off Rwy 6R	5/ 9/2011 7:01 AM	98.9	32.5
NMS12	92.6	MD82	Departure off Rwy 6R	5/ 8/2011 2:17 PM	99.0	31.0
NMS12	92.6	MD82	Departure off Rwy 6R	4/24/2011 8:43 PM	98.6	37.0

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# Noise Hotline (216.898.5220)



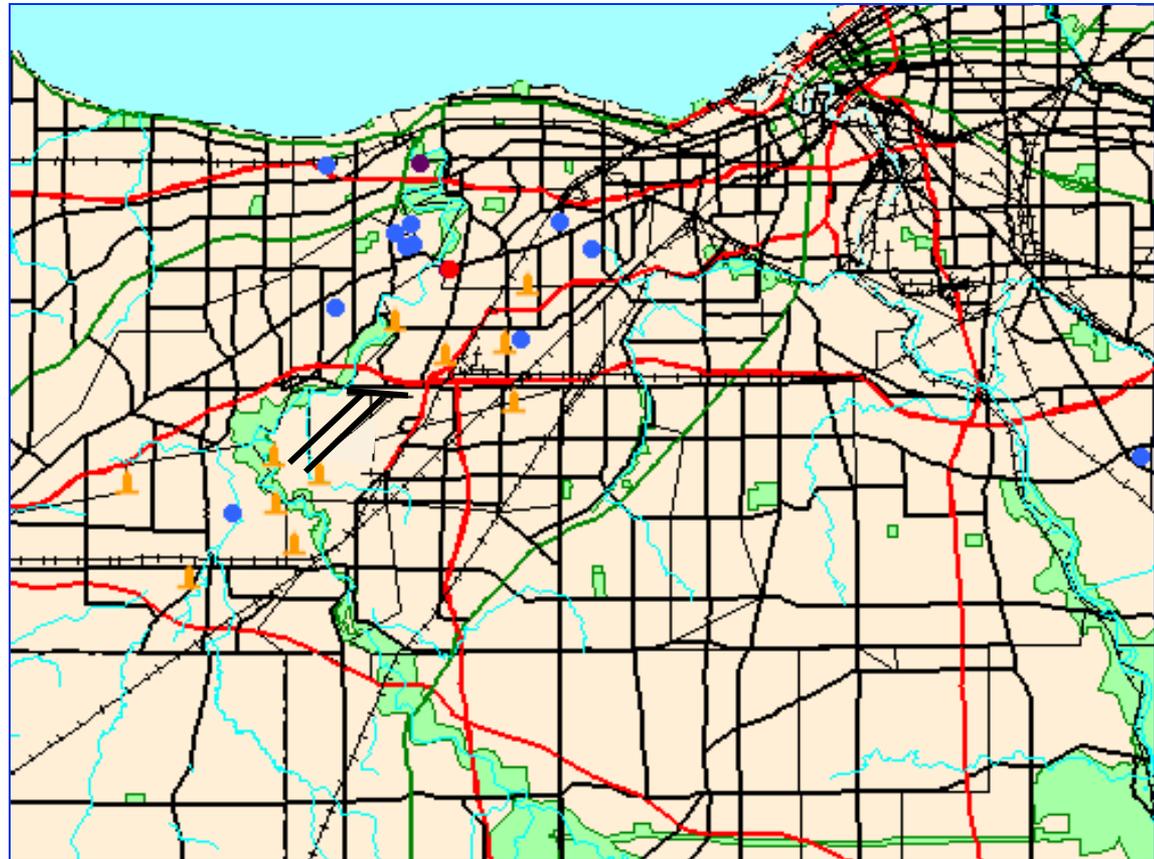
	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>2nd Qtr</b>	<b>%</b>	<b>Callers</b>	<b>%</b>
Berea	0	0	0	0	0.00%	<b>0</b>	0.00%
Brook Park	0	0	0	0	0.00%	<b>0</b>	0.00%
Cleveland	31	13	6	50	81.97%	<b>5</b>	33.33%
Fairview Park	0	1	2	3	4.92%	<b>3</b>	20.00%
Lakewood	0	0	0	0	0.00%	<b>0</b>	0.00%
Middleburg Hts.	0	0	0	0	0.00%	<b>0</b>	0.00%
North Olmsted	0	0	0	0	0.00%	<b>0</b>	0.00%
Olmsted Falls	0	0	1	1	1.64%	<b>1</b>	6.67%
Olmsted Twp	0	0	0	0	0.00%	<b>0</b>	0.00%
Parma	0	0	0	0	0.00%	<b>0</b>	0.00%
Parma Heights	0	0	0	0	0.00%	<b>0</b>	0.00%
Rocky River	1	2	2	5	8.20%	<b>4</b>	26.67%
Westlake	0	0	0	0	0.00%	<b>0</b>	0.00%
Other	1	1	0	2	3.28%	<b>2</b>	13.33%
<b>Total (2011)</b>	<b>33</b>	<b>17</b>	<b>11</b>	<b>61</b>	<b>100.00%</b>	<b>15</b>	<b>100.00%</b>
<b>Total (2010)</b>	<b>31</b>	<b>32</b>	<b>106</b>	<b>169</b>	<b>100.00%</b>	<b>17</b>	<b>100.00%</b>

# Complaint Location Map: 2<sup>nd</sup> Qtr, 2011

## LEGEND

Complaints per household

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



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