Louisville Metro Air Pollution Control District
$PM_{2.5}$ Monitoring Report
December 2015

This report summarizes $PM_{2.5}$ data collected by Federal Reference Method (FRM) samplers. Measurements are reported as 24-hour averages in micro-grams per cubic meter (µg/m^3). The data are subject to further quality assurance checks and are not final.

$PM_{2.5}$ Monthly Data Summary for November 2015

	Maximum		Minimum		Sample	Monthly
Site Name	**Conc.**	**Date**	**Conc.**	**Date**	**Recovery**	**Average**
Southwick	11.9	11/11/15	4.7	11/20/15	**	8.2
*Durrett Lane	13.6	11/11/15	6.0	11/20/15	**	9.8
Cannons Lane	11.2	11/11/15	3.9	11/20/15	**	7.8
Watson Lane	10.6	11/5/15	4.0	11/20/15	**	8.3
Overall	13.6	11/11/15	3.9	11/20/15	**	8.5

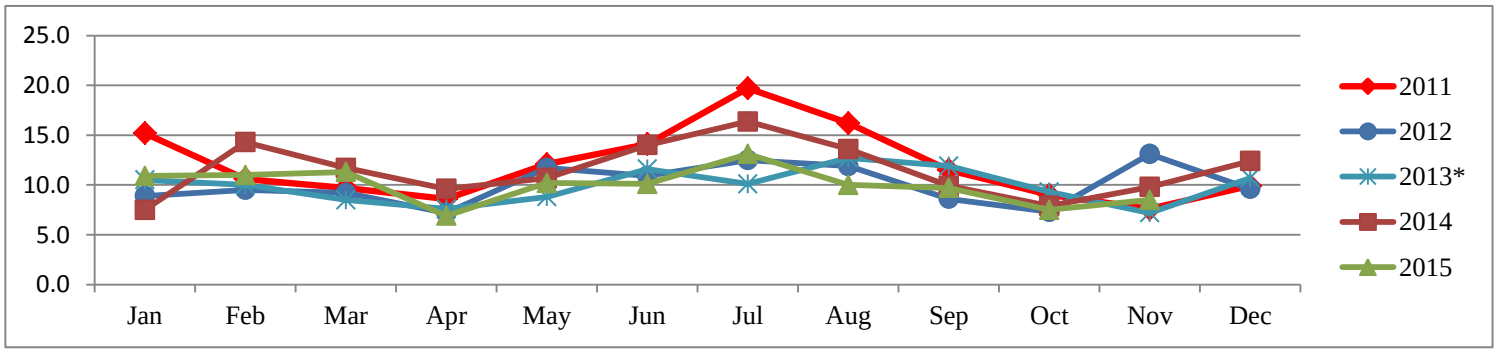
*Durrett Lane replaced Wyandotte on 1/1/2014 **Some data not available at this time

$PM_{2.5}$ Monthly Averages Tracking Table for 2005-2015

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Months >Annual Standard
2005	11.7	**17.1**	14.3	13.1	14.9	**19.6**	**20.2**	**19.8**	**24.1**	**16.1**	12.6	**15.5**	**7**
2006	10.3	13.0	12.5	1.0	11.9	**18.1**	**23.9**	**7.0**	3.0	3.0	2.0	11.1	**3**
2007	9.3	12.2	14.9	11.2	**18.4**	**19.9**	**18.3**	**22.8**	**16.9**	11.1	12.5	14.1	**5**
2008	11.8	12.0	11.9	11.6	12.1	11.8	**18.1**	**17.1**	**17.6**	10.6	14.3	9.4	**3**
2009	14.6	11.1	11.3	9.3	10.3	13.9	13.1	12.6	12.1	8.9	13.8	12.9	**0**
2010	13.3	**16.3**	12.2	12.2	11.0	14.1	**16.0**	**16.4**	11.0	**17.0**	12.6	13.7	**4**
2011	**15.2**	10.6	9.7	8.6	12.1	14.1	**19.7**	**16.2**	11.5	9.0	7.6	9.9	**3**
2012	8.9	9.5	9.2	7.2	11.7	10.9	12.5	11.9	8.6	7.3	13.1	9.6	**0**
2013*	10.5	10.0	8.5	7.6	8.8	11.6	10.1	**12.7**	11.9	9.3	7.2	10.7	**1**
2014	7.5	**14.3**	11.7	9.6	10.7	**14.0**	**16.4**	**13.6**	9.9	7.9	9.8	**12.4**	**5**
2015	10.9	11.0	11.3	6.9	10.2	10.1	**13.1**	10.0	9.7	7.5	8.5		**1**
Average	11.3	12.4	11.6	8.9	12.0	14.4	16.8	15.0	12.4	9.8	10.4	11.9	

*The new $PM_{2.5}$ standardof 12 µg/m^3 became effective on March 18, 2013

$PM_{2.5}$ Monthly Averages 5-Year Trend



National Ambient Air Quality Standards (NAAQS):
National Ambient Air Quality Standards consist of primary and secondary standards. The primary standards define levels of air quality which EPA judges are necessary, with an adequate margin of safety, to protect the public health. The secondary standards define levels of air quality which EPA judges necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. For $PM_{2.5}$ the levels of the primary and secondary standards are the same.

National Ambient Air Quality Standard for $PM_{2.5}$ - Annual Standard:
The annual standard is designed to provide an appropriate level of protection from long-term exposure to $PM_{2.5}$. The standard is met when the annual design value is less than or equal to 12 µg/m^3. The standard changed from 15 µg/m^3 to 12 µg/m^3 on March 18, 2013. The annual design value is calculated by averaging the annual means of 3 consecutive complete years of air quality data. The table below compares data collected from 2008 through year-to-date 2014 to the $PM_{2.5}$ annual standard.

$PM_{2.5}$ Annual Means and Annual Design Values

	Annual Means µg/m^3							Annual Design Values				
Site Name	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2008-2010**	**2009-2011**	**2010-2012**	**2011-2013**	**2012-2014**
Southwick	13.2	12.2	13.5	12.1	9.6	10.0	10.0	13.0	12.6	11.7	10.6	9.9
Durrett Lane*	13.4	12.5	13.8	12.3	10.3	10.2	10.2	**13.2**	**12.9**	12.1	**10.9**	**10.2**
Cannons Lane**	13.4	11.7	13.3	11.5	9.9	9.6	9.0	12.8	12.1	11.6	10.3	9.5
Watson Lane	12.8	11.6	14.8	11.9	10.3	9.9	9.9	13.1	12.8	**12.3**	10.7	10.0

Bold: Design value for Louisville *Durrett Lane replaced Wyandotte in 2014 ** Cannons Lane replaced Barret in 2009

National Ambient Air Quality Standard for $PM_{2.5}$ - 24-Hour (Daily) Standard:
The 24-hour standard is designed to provide an appropriate level of protection from short-term exposure to $PM_{2.5}$. The standard is met when the 24-hour design value is less than or equal to 35 µg/m^3. The design value is based on 3 consecutive complete years of air quality data and is calculated by taking the average of the 98th percentile value for each of the 3 years. The 98th percentile value is the 24-hour average out of a year of $PM_{2.5}$ monitoring data below which 98 percent of all 24-hour averages fall. The table below compares data collected from 2008 through year-to-date 2014 to the 24-hour standard for $PM_{2.5}$.

$PM_{2.5}$ Annual 98th Percentiles and 24-Hour Design Values

	Annual 98th Percentile Value µg/m^3							24-Hour Design Values				
Site Name	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2008-2010**	**2009-2011**	**2010-2012**	**2011-2013**	**2012-2014**
Southwick	28.7	26.5	33.1	29.6	19.4	19.6	23.5	**29.4**	**29.7**	**27.4**	22.9	20.8
Durrett Lane*	29.5	25.7	28.8	26.8	22.1	20.6	22.1	28.0	27.1	25.9	23.2	21.6
Cannons Lane**	30.7	24.1	25.8	26.8	19.5	20.0	21.7	26.9	25.6	24.0	22.1	20.4
Watson Lane	28.6	24.7	26.1	31.3	20.6	19.8	25.8	26.5	27.4	26.0	**23.9**	**22.1**

Bold: Design value for Louisville *Durrett Lane replaced Wyandotte in 2014 ** Cannons Lane replaced Barret in 2009

Louisville Metro Air Pollution Control District
Air Monitoring Report for Sulfur Dioxide (SO_2)
December 2015

On June 2, 2010, EPA strengthened the primary National Ambient Air Quality Standard for SO_2. Specifically, EPA replaced the existing annual (30 ppb) and 24-hour (140 ppb) primary standards with a new 1-hour standard set at 75 ppb. The 1-hour standard was set to better protect public health by reducing exposure to high short-term concentrations of SO_2. The new standard took effect August 23, 2010.

Exceedances of the 1-Hour SO_2 Standard:

An exceedance occurs when a measured 1-hour average is greater than 75 ppb. Since up to twenty-four 1-hour averages are recorded each day, multiple exceedances may occur in one day. However, only the maximum 1-hour average (Daily Max) for each day is used in determining if the area is in compliance with the standard. The table below indicates the number of exceedances and the daily maximums reported thus far this year. The data are subject to further quality assurance checks and are not final.

SO_2 Daily Maximums and Exceedances 2015 through November 30th

	Fire Arms Training		Watson Lane Elementary		Cannons Lane NCore		New Albany Indiana	
Date	Exceeds	Daily Max	Exceeds	Daily Max	Exceeds	Daily Max	Exceeds	Daily Max
01/08/15		21.0		43.2		10.3		20.7
01/10/15		-		2.9		18.8		42.2
01/14/15		-		11.5		23.0		7.2
02/04/15		9.8		54.3		15.4		4.4
02/24/15		10.1		49.4		19.2		10.5
02/25/15		23.0		1.0		10.9		7.0
03/09/15		32.1		3.9		3.3		31.3
03/15/15		4.3	1	**129.9**		9.8		3.2
03/21/15		4.5		22.6		13.8		3.8
04/12/15		8.1		28.1		2.2		4.7
04/13/15		4.6		22.7		2.6		13.4
04/16/15		21.4		0.4		1.4		11.5
04/21/15		5.0		20.3		6.9		1.9
05/06/15		18.8		40.5		1.0		1.8
05/08/15		4.9		53.1		9.4		8.3
05/11/15		2.7		35.7		4.7		13.6
6/4/2015		7.3		11.4		4.4		1.1
6/5/2015		2		7		*		2.9
6/7/2015		1.6		54		2.9		3.4
6/11/2015		3		12.7		2.6		13.6

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Air Monitoring Report for Sulfur Dioxide (SO_2)
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Continuation of SO_2 Daily Maximums and Exceedances through November 30th

Date	Fire Arms Training		Watson Lane Elementary		Cannons Lane NCore		New Albany Indiana	
	Exceeds	Daily Max	Exceeds	Daily Max	Exceeds	Daily Max	Exceeds	Daily Max
07/08/15		0.2		26.9		5.9		1.6
07/20/15		1.0		4.3		4.9		10.4
07/21/15		15.3		0.8		0.7		0.8
07/25/15		8.0		13.5		6.6		6.6
08/10/15		4.2		8.2		8.5		3.3
08/13/15		15.2		3.9		*		1.4
08/15/15		5.7		26.8		*		1.5
08/18/15		4.3		0.8		*		25.5
09/01/15		1.9		4.8		10.7		3.2
09/04/15		11.8		43.3		6.5		19.9
09/14/15		28.3		2.1		1.4		4.6
09/15/15		7.6		1.4		1.9		24.0
10/11/15		7.1		2.9		5.1		4.3
10/22/15		2.9		64.3		8.1		1.8
10/23/15		2.6		2.4		0.8		5.6
11/14/15		2.2		5.2		10.9		0.8
11/23/15		3.7		22.3		4.1		2.0
11/24/15		20.5		4.6		9.9		8.0
Totals/Max	0	32.1	1	**129.9**	0	23.0	0	42.2
99th Percentile		23.0		54.0		15.4		25.1

*data not available

Attainment of the SO_2 Standard:

Attainment of the new standard is achieved when the 3-year average of the 99th percentile annual distribution of the daily maxima is less than or equal to 75 ppb. Since this value can be calculated from historical data, the chart below indicates those values based on 2009-2015 data.

SO_2 Annual 99th Percentiles and Annual Design Values

	Annual 99th Percentiles (ppb)							Annual Design Values				
Site Name	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2009-2011**	**2010-2012**	**2011-2013**	**2012-2014**	**2013-2015**
Watson Lane	116	107	114	147	117	149	54	112.3	122.7	126.0	137.5	106.5
Fire Arms	96	100	35	39	32	42	23	76.8	57.8	35.2	37.5	32.2
*Cannons Lane	-	45	51	31	27	26	15	47.8	42.2	36.2	28.0	22.8
New Albany	125	123	33	29	24	39	25	93.5	61.5	28.5	30.8	29.5

*Sampling at Cannons Lane began 05-26-2010