

# Louisville Metro Air Pollution Control District

## 8-Hr Ozone Monitoring Report

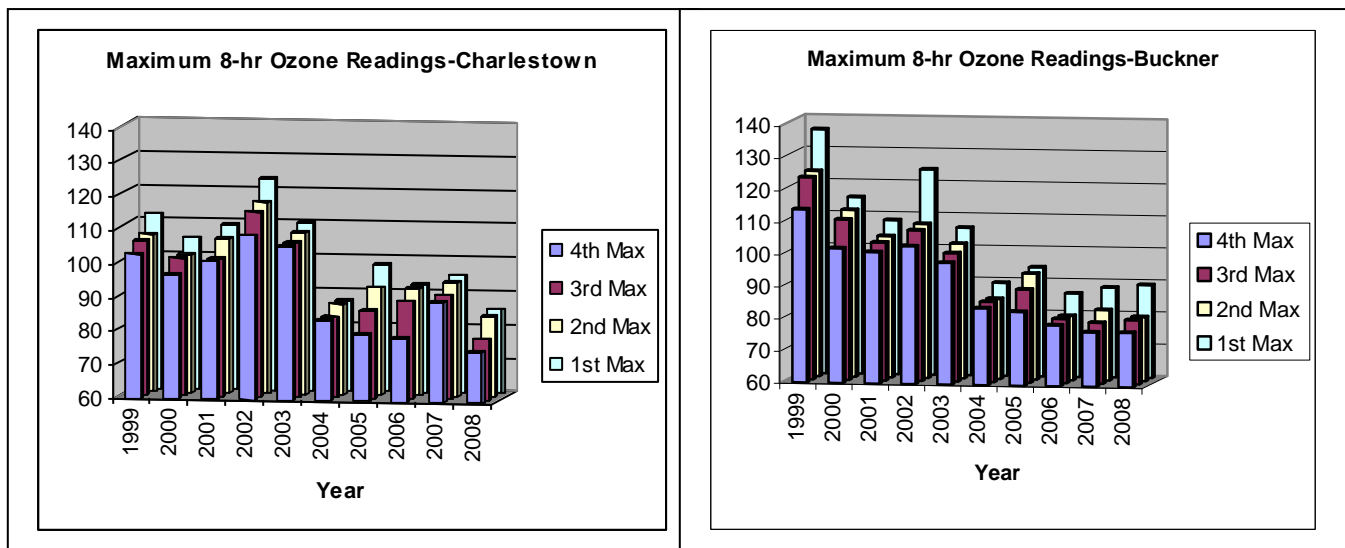
### August 2008

This report summarizes ozone data measured by Automated Equivalent Method (AEM) samplers located within the Louisville Metropolitan Statistical Area through August 2008. The data are subject to further quality assurance checks and are not final.

**Table 1: 2008 8-Hr Ozone Monitoring Summary Report**

			Charlestown (CH)	New Albany (NA)	Bates (BA)	Watson (WS)	WLKY- TV (WK)	Buckner (BK)	Shepherd- ville (SH)		
Date	# of 8-Hour Exceeds	# of Days with Exceeds	Clark Co. IN	Floyd Co. IN	Jefferson Co. KY	Jefferson Co. KY	Jefferson Co. KY	Oldham Co. KY	Bullitt Co. KY	FCST AQI / Max. AQI	# AQA
4/17/08	0	0	73	61	71	64	65	67	72	40/93	0
5/29/08	1	1	ND	67	67	<b>83</b>	67	71	63	47/119	0
6/15/08	0	0	58	57	74	66	61	65	63	56/97	0
7/11/08	0	0	70	58	66	58	61	75	56	137/100	1
7/16/08	0	0	62	74	64	67	63	63	60	106/100	1
7/17/08	1	1	73	<b>84</b>	66	68	68	70	61	111/122	1
7/18/08	3	1	<b>78</b>	<u>75</u>	<b>76</b>	65	69	<b>89</b>	67	106/135	1
7/19/08	1	1	71	72	67	55	64	<b>80</b>	62	104/111	1
7/27/08	1	1	65	70	71	68	66	64	<b>87</b>	25/129	0
7/28/08	4	1	<b>84</b>	<b>77</b>	<b>76</b>	70	<u>68</u>	<b>77</b>	64	65/122	0
7/29/08	3	1	<b>85</b>	<b>91</b>	<u>72</u>	67	<b>89</b>	75	66	103/140	1
8/3/08	0	0	53	57	53	62	52	57	53	114/58	1
8/4/08	0	0	<u>75</u>	62	60	61	68	64	56	122/100	1
8/5/08	0	0	ND	56	55	57	42	52	66	127/71	1
8/18/08	0	0	68	60	71	74	63	57	<u>69</u>	65/97	0
8/19/08	2	1	68	70	70	<b>82</b>	67	70	<b>76</b>	114/116	1
8/20/08	0	0	60	66	65	75	61	42	68	106/100	1
8/24/08	1	1	74	62	68	50	61	<b>80</b>	45	60/111	0
8/30/08	0	0	67	66	62	<u>75</u>	65	74	59	44/100	0
Totals	17	9	3	3	2	2	1	4	2		11

Values in Bold exceed the 2008 ozone standard (values  $\geq 76$  ppb) Underlined values are the 4<sup>th</sup> highest values recorded at each site  
 #AQA is the number of Air Quality Alerts Issued (Air Quality Index in the Unhealthy for Sensitive Groups Range or Higher)  
 ND=No data available

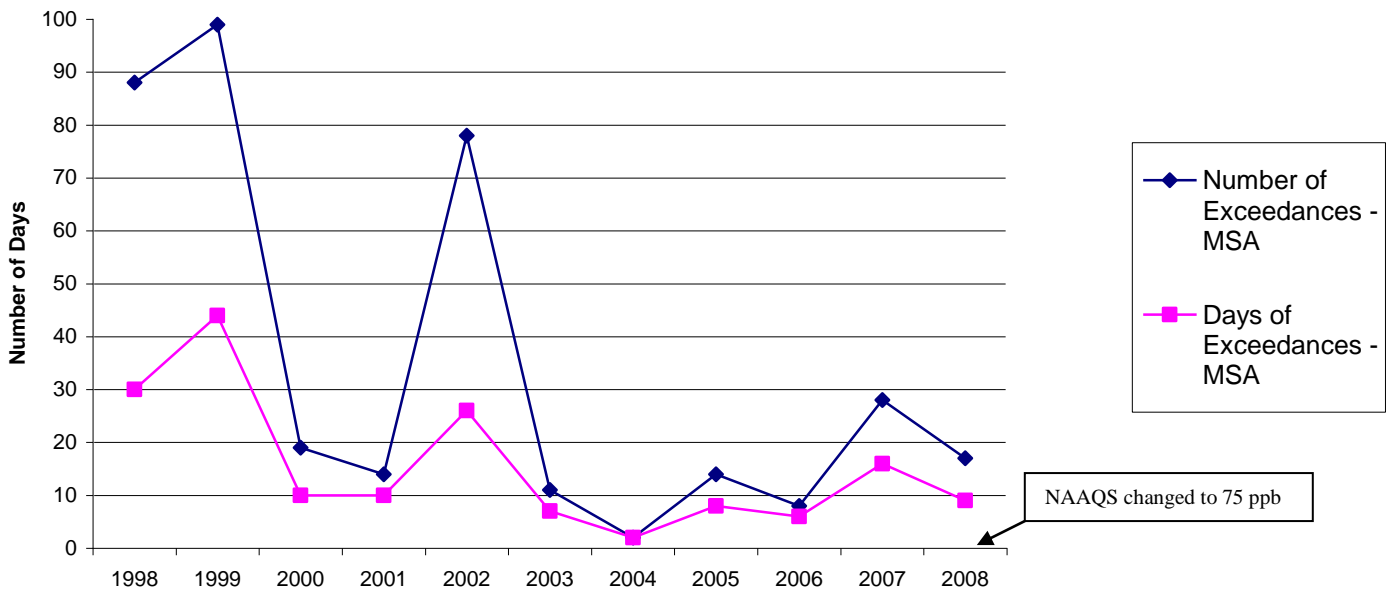


**8-Hour Ozone Exceedances:** An ozone exceedance occurs when the highest 8-hour average for each day is greater than the National Ambient Air Quality Standard (NAAQS). For 1998-2007 the NAAQS was 80 ppb and the exceedances reported for that time period are based on that standard. In 2008 the NAAQS was changed to 75 ppb and the exceedances (8-hour average  $\geq 76$  ppb) reported are based on the new standard.

**Table 2: 1998 – 2008 8-Hour Ozone Exceedance Summary**

Year	Charlestown (CH)	New Albany (NA)	Bates (BA)	Watson (WS)	WLKY-TV (WK)	Buckner (BK)	Shepherdsville (SH)	Louisville MSA Total		Jefferson County Total	
								Exceedances	Days	Exceedances	Days
1998	22	14	10	11	7	12	12	88	30	28	15
1999	11	10	16	13	4	34	11	99	44	33	22
2000	4	0	5	1	3	4	2	19	10	9	6
2001	4	0	2	1	1	4	2	14	10	4	3
2002	17	13	4	15	7	12	10	78	26	26	19
2003	4	4	1	0	0	2	0	11	7	1	1
2004	0	0	1	0	0	0	1	2	2	1	1
2005	3	2	0	4	1	4	0	14	8	5	4
2006	3	1	0	1	0	3	0	8	6	1	1
2007	8	3	8	4	2	3	0	28	16	14	11
2008	3	3	2	2	1	4	2	17	9	5	5

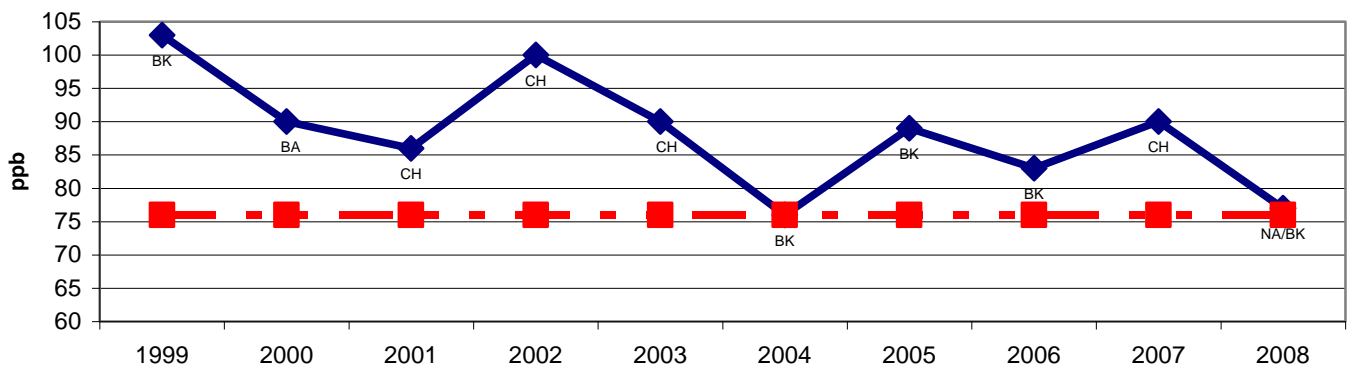
## Historical Graph of 8-Hour Ozone Exceedances



**Table 3: 1999-2008  
8-Hour Ozone 4<sup>th</sup> Maximums**

Year	Louisville MSA	Charlestown (CH)	New Albany (NA)	Bates (BA)	Watson (WS)	WLKY-TV (WK)	Buckner (BK)	Shepherdsville (SH)
1999	103	89	94	97	100	86	103	93
2000	90	85	77	90	76	84	85	82
2001	86	86	76	81	81	77	86	82
2002	100	100	97	85	96	88	91	91
2003	90	90	86	72	75	73	82	72
2004	76	74	71	70	70	68	76	68
2005	89	80	80	79	85	74	89	80
2006	83	79	76	74	77	67	83	71
2007	90	90	82	86	85	79	84	78
2008	77	75	75	72	75	68	77	69

## 8-Hour Ozone Annual 4<sup>th</sup> Maximum Readings for Louisville MSA



**8-Hr NAAQS:** Attainment of the new 8-Hour Ozone National Ambient Air Quality Standard at an individual monitor is achieved when the three-year average of the annual fourth-highest daily maximum (4<sup>th</sup> maximum) 8-hr average ozone concentration is less than 76 ppb. This three-year average is the design value for that monitor.

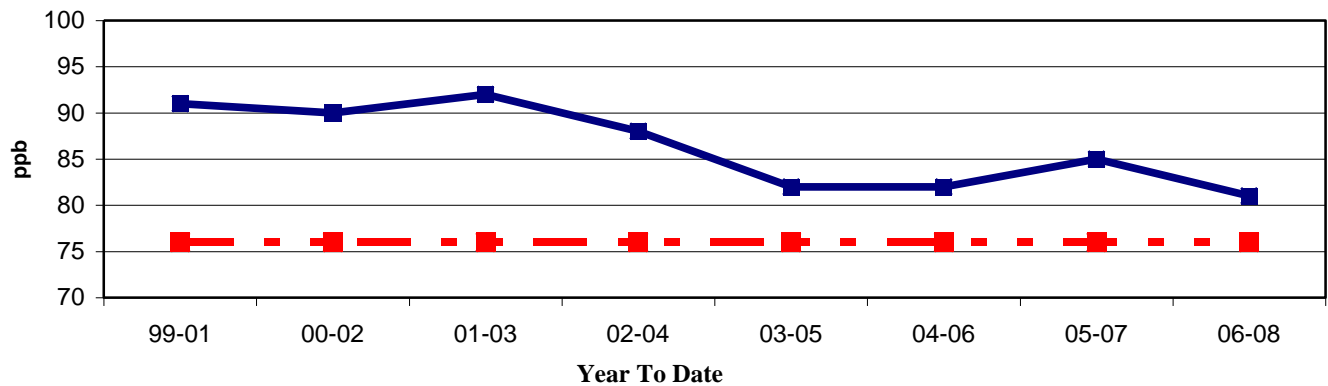
**Table 4: 8-Hour Ozone Design Value Summary**

Year	Louisville MSA	Charlestown (CH)	New Albany (NA)	Bates (BA)	Watson (WS)	WLKY-TV (WK)	Buckner (BK)	Shepherdsville (SH)
99-01 Avg.	<b>91 BK</b>	86	82	89	85	82	<b>91</b>	85
00-02 Avg.	<b>90 CH</b>	<b>90</b>	83	85	84	83	87	85
01-03 Avg.	<b>92 CH</b>	<b>92</b>	86	77	84	79	86	81
02-04 Avg.	<b>88 CH</b>	<b>88</b>	84	74	80	76	82	77
03-05 Avg.	<b>82 BK</b>	81	79	73	76	71	<b>82</b>	73
04-06 Avg.	<b>82 BK</b>	77	75	72	77	69	<b>82</b>	73
05-07 Avg.	<b>85 BK</b>	83	79	79	82	73	<b>85</b>	76
06-08 Avg.	<b>81 CH/BK</b>	<b>81</b>	78	77	79	71	<b>81</b>	73

Bold –Design Value Sites for respective periods.

**8-Hour Ozone Design Value Trend Chart for Louisville MSA**

Using the 2008 Standard as the Trend Line





## National Ambient Air Quality Standards (NAAQS):

National Ambient Air Quality Standards consists 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<sub>2.5</sub> the levels of the Primary and Secondary Standards are the same.

### Annual Standard:

The annual standard is designed to provide an appropriate level of protection from long-term exposures to PM<sub>2.5</sub>. Table 3 compares data collected from 2002 through year-to-date 2008 to the Annual National Ambient Air Quality Standard for PM<sub>2.5</sub>. The Annual National Ambient Air Quality Standard for PM<sub>2.5</sub> is met when the annual design value is less than or equal to 15.0 µg/m<sup>3</sup>. The design value is based on 3 consecutive, complete years of air quality data and is calculated by taking the 3-year average of annual means.

**Table 3: PM<sub>2.5</sub> Annual Means and Annual Design Values**

Site Name	Annual Means µg/m <sup>3</sup>							Annual Design Values 2002-2004	Annual Design Values 2003-2005	Annual Design Values 2004-2006	Annual Design Values 2005-2007	Annual Design Values 2006-2008
	2002	2003	2004	2005	2006	2007	2008 <sup>1</sup>					
Southwick	17.2	16.0	14.5	16.6	14.9	15.1	13.8	<b>15.9</b>	<b>15.7</b>	<b>15.3</b>	<b>15.5</b>	14.6
Wyandotte	17.5	15.4	14.0	16.4	15.1	14.9	14.0	15.6	15.3	15.2	15.5	<b>14.7</b>
Barret	16.4	15.5	13.7	16.7	13.9	15.1	13.9	15.2	15.3	14.8	15.2	14.3
Watson	15.7	14.9	12.6	16.4	13.4	15.7	13.3	14.4	14.6	14.1	15.1	14.1

**BOLD:** Design value site for Louisville. <sup>1</sup>Year-to-date data for 2008.

### 24-Hour Standard:

The 24-Hour standard is designed to provide an appropriate level of protection from short-term exposures to PM<sub>2.5</sub>. Table 4 compares data collected from 2002 through year-to-date 2008 to the 24-Hour National Ambient Air Quality Standard for PM<sub>2.5</sub>. In December 2006 the EPA changed the 24-hour standard from 65µg/m<sup>3</sup> to 35µg/m<sup>3</sup>. The standard is met when the 24-Hour design value is less than or equal to 35µg/m<sup>3</sup>. The design value is based on 3 consecutive, complete years of air quality data and is calculated by taking the average of the 98<sup>th</sup> percentile value for each of the 3 years. The 98<sup>th</sup> percentile is the daily value out of a year of PM<sub>2.5</sub> monitoring data below which 98 percent of all daily values fall.

**Table 4: PM<sub>2.5</sub> Annual 98<sup>th</sup> Percentiles and 24-Hour Design Values**

Site Name	Annual 98 <sup>th</sup> Percentile Value. µg/m <sup>3</sup>							24-Hour Design Values 2002-2004	24-Hour Design Values 2003-2005	24-Hour Design Values 2004-2006	24-Hour Design Values 2005-2007	24-Hour Design Values 2006-2008
	2002	2003	2004	2005	2006	2007	2008 <sup>1</sup>					
Southwick	46.5	36.3	30.6	42.9	36.0	34.1	29.8	37.8	<b>36.6</b>	<b>36.5</b>	37.7	<b>33.3</b>
Wyandotte	45.4	37.9	30.6	40.1	36.3	33.7	29.3	<b>38.0</b>	36.2	35.7	36.7	33.1
Barret	44.7	35.5	28.8	43.2	36.7	37.2	25.1	36.3	35.8	36.2	<b>39.0</b>	33.0
Watson	30.5	33.0	25.8	36.5	28.4	36.3	28.6	29.8	31.8	30.2	33.7	31.1

**BOLD:** Design Value for Louisville. <sup>1</sup>Year-to-date data for 2008.

In 2007 the District submitted Exceptional Events Demonstrations to EPA indicating that certain monitoring data collected in 2004-2007 have been flagged under the exceptional event rule. EPA has reviewed those demonstrations and the data in tables 3 and 4 have been adjusted to exclude the data for which they concurred.