

Final 2023 Ozone Season Summary for the Kansas City Region

Summary

The Air Quality Maintenance Area for the Greater Kansas City Region includes Wyandotte and Johnson Counties in Kansas; and Clay, Platte and Jackson Counties in Missouri. From March 1 – October 31, 2023, there were 14 Ozone Alerts issued, and regional monitors recorded 16 days with eight-hour ozone concentrations exceeding the 70 part-per-billion (ppb) standard. Table 1 shows both the number of each type of forecast and the actual number of days within each category.

Table 1. Forecast and Monitor Results

	Green	Yellow	Orange	Red
Actual	142	87	15	1
Forecasted	143	88	14	0

2015 Ozone National Ambient Air Quality Standard

The current national standard for ground-level ozone is 70 ppb averaged over eight hours. To promote public awareness, EPA has created the Air Quality Index (AQI); a tool that associates colors and health messages with ranges of various air pollutant concentrations. Table 2 shows the ozone concentrations associated with each AQI color.

Table 2. Air Quality Index under the 2015 Ozone Standard

Category	AQI Value	2015 8-hour ozone (ppb)
Good (Green)	0 – 50	0 – 54
Moderate (Yellow)	51 – 100	55 – 70
Unhealthy for Sensitive Groups (Orange)	101 – 150	71 – 85
Unhealthy (Red)	151 – 200	86 – 105
Very Unhealthy (Purple)	201 – 300	106 – 200
Hazardous (Maroon)	301 – 500	> 200

2023 Monitor Map

Ozone measurements defining the air quality for the Greater Kansas City Air Quality Maintenance area are made at six monitors. Two additional nearby monitors at Trimble and Leavenworth provide useful forecasting information, and two distant monitors at Chanute and El Dorado offer some forecasting guidance on how pollution is moving into and out of our region. Map 1, on the next page, shows the location of nearby monitors and their current design value.

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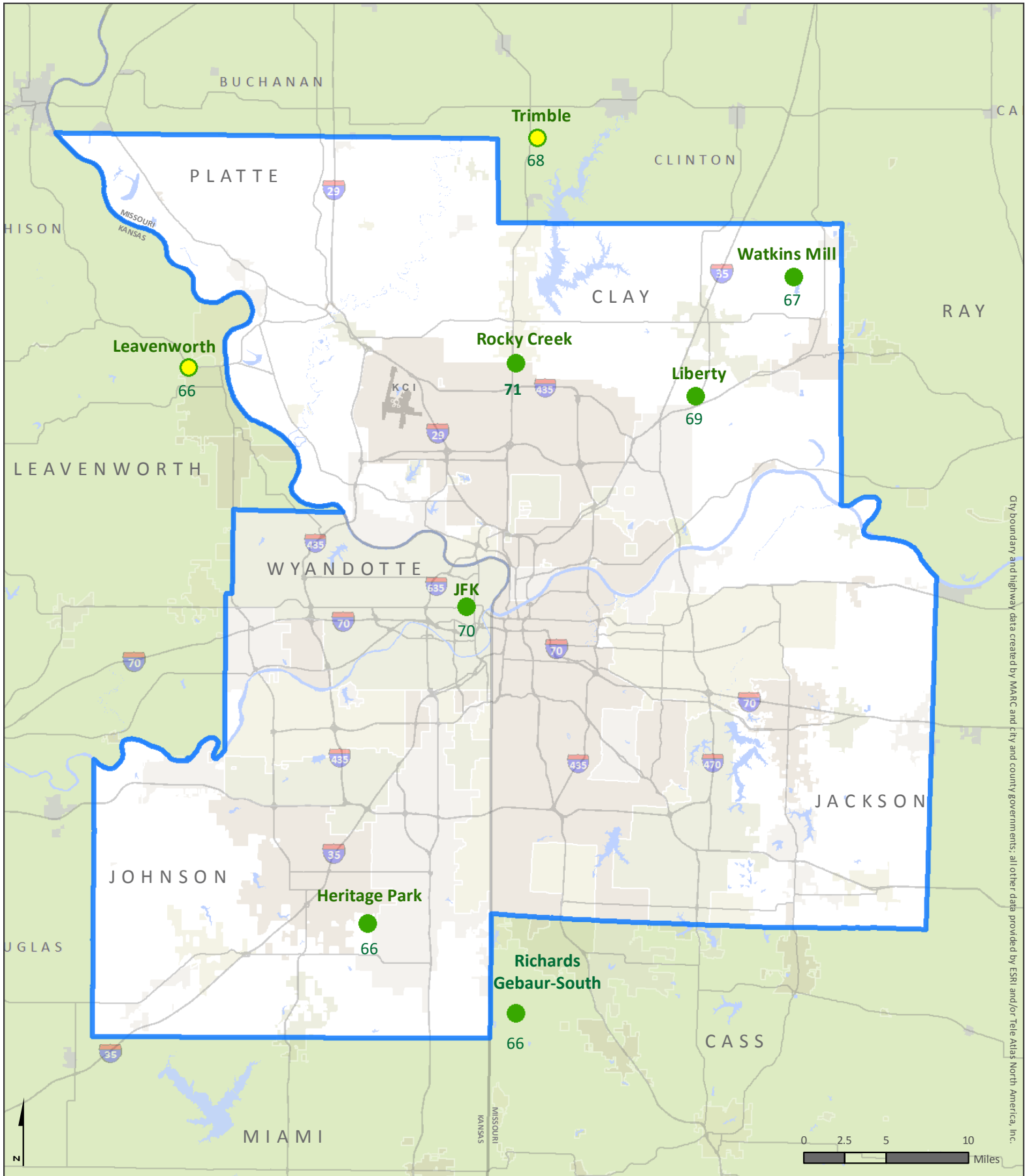
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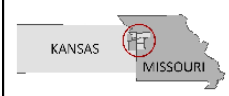
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Air Quality Monitoring Stations



City boundary and highway data created by MARC and city and county governments; all other data provided by ESRI and/or Tele Atlas North America, Inc.



- in area monitor
- out of area monitor
- Number = current Design Value.

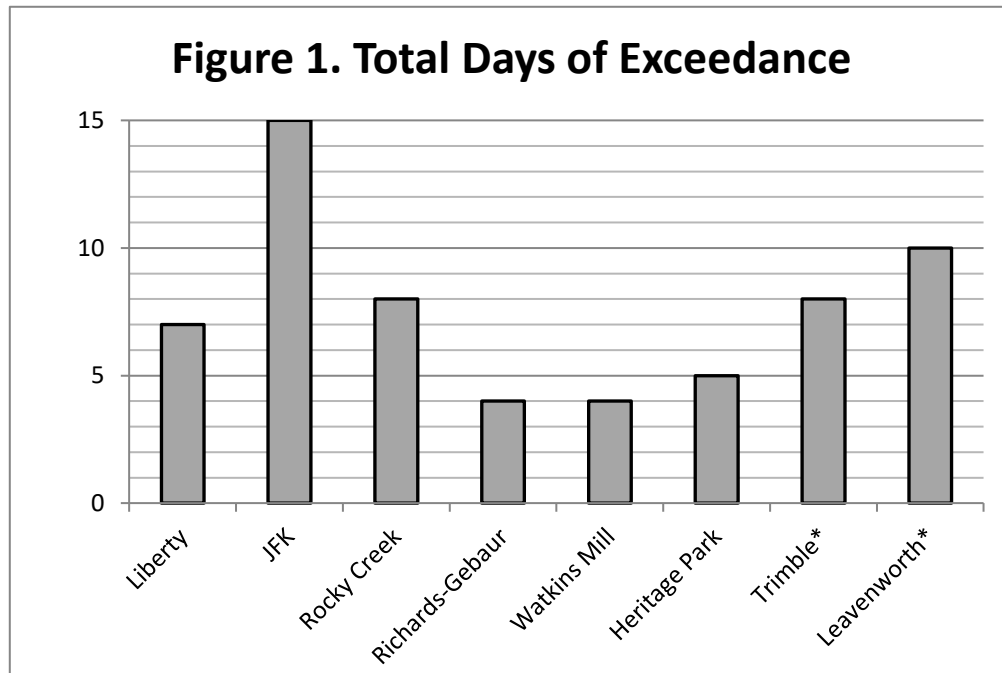
 Air Quality Maintenance Area

Note: Monitor stations not shown above - El Dorado Springs & Chanute



2023 Ozone Data & SkyCasts

Figure 1 below lists the number of days each monitor recorded eight-hour average values exceeding the 70-ppb standard.



Appendix A, at the end of this report, summarizes the SkyCasts and highest daily eight-hour monitor ozone readings for the 2023 ozone season. It includes all days that were forecasted to be a yellow or Ozone Alert day *or* had a maximum eight-hour ozone reading greater than or equal to 55 ppb. *Green SkyCast days with maximum eight-hour ozone values less than 55ppb—days that were accurately forecasted to be green—will not be listed.*

Following the daily maximum data, Appendix B focuses in on those days where area monitors recorded eight-hour peak values exceeding the 70-ppb standard and the dates on which the exceedances occurred. This table shows both pollution levels and the pervasiveness of exceedances in the region on that given day.

Kansas City Ozone Design Values, 2017 – 2023

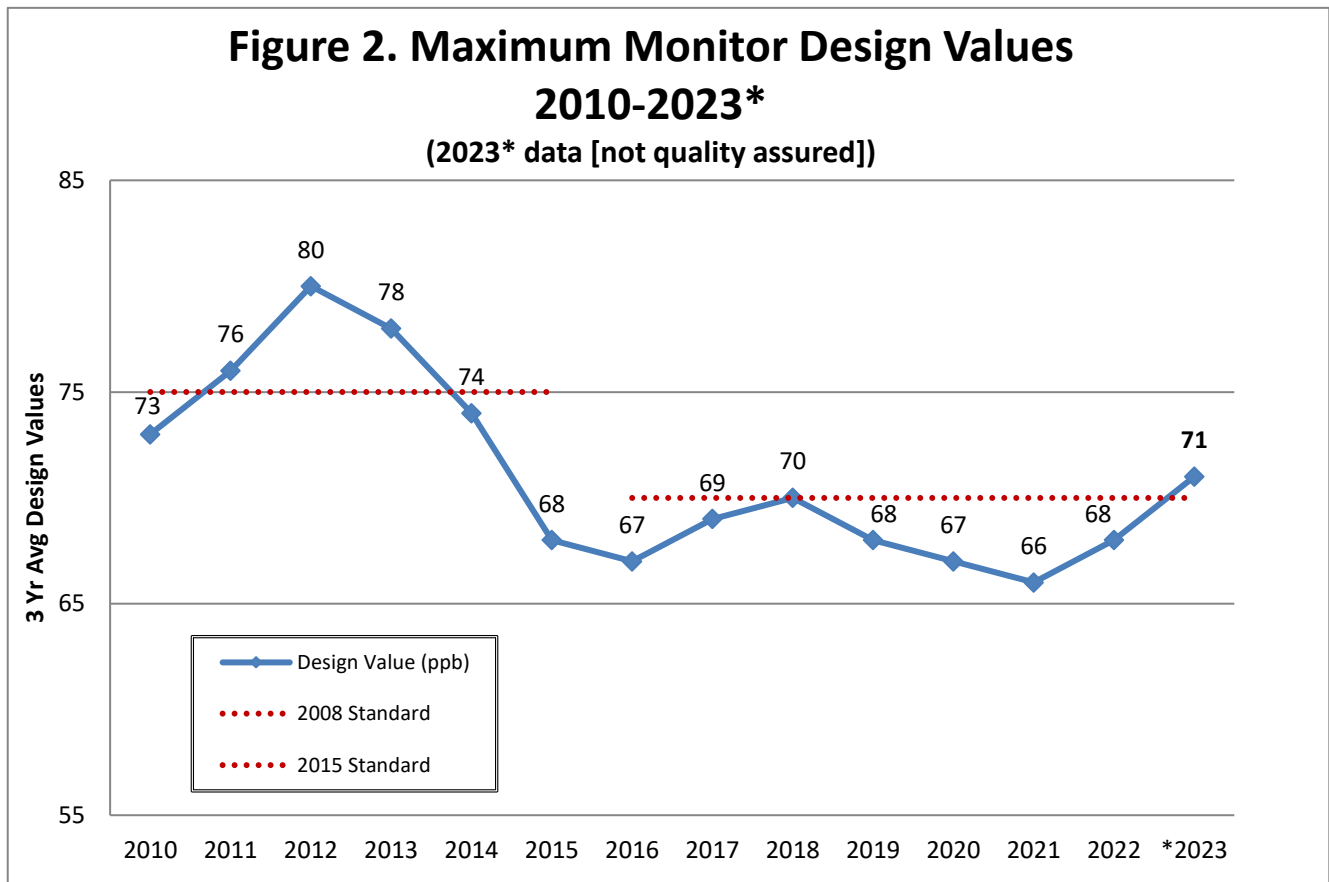
An individual daily 8-hr exceedance of the eight-hour ozone standard at a monitored location does not necessarily result in a violating monitor. Compliance with the eight-hour ozone standard is based on the *three-year average of the fourth-highest ozone reading* from each monitor. Given the nature of its importance, this critical value – called the “Design Value,” is shown on Map 1 along with the region’s ozone monitors. Table 3 on the following page displays the critical fourth-highest eight-hour readings of the 2023 season that cause a violation of the design value. We have had one monitor that tentatively is in current violation. For reference of recent historical trends, Appendix C contains both the fourth-high eight-hour readings as well as the design values for 2017 – 2023.

**Table 3. 2023 Fourth-High Values That Would Trigger a Violation
(70-ppb is the current standard)**

Missouri	8-Hr Value (ppb)	Kansas	8-Hr Value (ppb)
<i>Design Value Level</i>	70	<i>NAAQS Level</i>	70
Liberty	80	JFK (KCK)	79
Watkins Mill	82	Heritage Park	86
Rocky Creek	73	Leavenworth	89
Richards Gebauer	87		
Trimble	85		

*Bold text indicates the tentative monitor that exceeded the 2023 critical value.

Under the 2015 eight-hour standard, *violations* will occur when the three-year average is 71 ppb or higher. Figure 2 shows the trendline of design values, or three-year averages of the fourth-high eight-hour readings, from 2010 to 2023.



**Appendix A. Summary of SkyCasts and Daily Maximum Eight-hour Ozone Values
March 1 – October 31, 2023**

Date	Daily Max 8-Hr Value (ppb)*	Monitor(s) Recording Max Value	SkyCast	Date	Daily Max 8-Hr Value (ppb)*	Monitor(s) Recording Max Value	SkyCast
March				5/25	77	JFK	Yellow
3/5	56	Rocky Creek, Watkins Mill	Green	5/26	63	Heritage Park, JFK	Green
April				5/27	66	JFK	Green
4/2	59	Watkins Mill	Green	5/28	66	Watkins Mill, JFK	Orange
4/8	54	Watkins Mill	Yellow	5/29	63	Rocky Creek	Yellow
4/11	56	Watkins Mill	Green	5/30	63	Rocky Creek	Yellow
4/13	55	Rocky Creek	Yellow	5/31	52	Rocky Creek, JFK	Yellow
4/14	60	Rocky Creek	Yellow	June			
4/17	55	Rocky Creek	Green	6/1	63	Rocky Creek	Yellow
4/18	63	Rocky Creek	Yellow	6/2	56	JFK	Yellow
4/19	47	Rocky Creek	Yellow	6/3	77	JFK	Yellow
4/25	55	Rocky Creek	Green	6/4	76	JFK	Yellow
4/27	58	Rocky Creek	Green	6/5	71	JFK	Orange
4/28	50	Richards Gebauer, JFK	Yellow	6/6	92	JFK	Orange
May				6/7	77	JFK	Orange
5/3	59	JFK	Green	6/8	61	JFK	Yellow
5/4	59	Watkins Mill	Green	6/9	74	JFK	Yellow
5/6	56	Heritage Park, Rocky Creek, JFK, Liberty	Yellow	6/10	56	Heritage Park, Richards Gebauer	Yellow
5/7	64	Watkins Mill	Green	6/11	51	Richards Gebauer, Liberty, JFK	Yellow
5/8	66	Heritage Park	Yellow	6/13	62	JFK	Yellow
5/9	55	Rocky Creek, JFK	Yellow	6/14	75	JFK	Yellow
5/10	59	Rocky Creek	Green	6/15	84	JFK	Orange
5/13	65	Rocky Creek	Yellow	6/16	72	JFK	Orange
5/14	52	Rocky Creek	Yellow	6/17	62	Rocky Creek	Yellow
5/17	70	JFK	Yellow	6/18	59	JFK	Green
5/18	62	Watkins Mill, Liberty	Yellow	6/19	69	JFK	Orange
5/21	62	Rocky Creek	Green	6/20	76	JFK	Orange
5/22	68	Rocky Creek	Yellow	6/21	76	JFK	Orange
5/23	60	JFK	Yellow	6/22	66	JFK	Yellow
5/24	63	Rocky Creek	Yellow	6/23	70	Rocky Creek	Yellow

*The 2023 eight-hour monitored ozone readings have not been quality assured and may contain errors. Readings in **bold** represent eight-hour peak concentrations above the 70 ppb standard.

Date	Daily Max 8-Hr Value (ppb)*	Monitor(s) Recording Max Value	SkyCast	Date	Daily Max 8-Hr Value (ppb)*	Monitor(s) Recording Max Value	SkyCast
6/24	52	Heritage Park, Liberty	Yellow	8/19	63	Rocky Creek	Yellow
6/25	55	Heritage Park, JFK	Green	8/20	62	Richards Gebauer	Yellow
6/26	61	Liberty	Yellow	8/21	64	Heritage Park	Orange
6/27	60	JFK	Yellow	8/22	66	JFK	Orange
6/28	57	Rocky Creek	Orange	8/23	62	Watkins Mill	Yellow
6/29	70	Heritage Park, JFK	Yellow	8/24	63	JFK	Yellow
6/30	74	Rocky Creek	Yellow	8/25	62	JFK	Yellow
July				8/28	74	JFK	Yellow
7/2	57	JFK	Yellow	8/29	61	JFK	Green
7/3	74	JFK	Yellow	8/30	45	Heritage Park	Yellow
7/4	64	Watkins Mill	Orange	8/31	55	JFK	Green
7/5	59	Richards Gebauer	Green	September			
7/6	53	Heritage Park	Yellow	9/1	60	JFK	Yellow
7/9	56	Heritage Park	Yellow	9/2	73	JFK	Yellow
7/10	70	Watkins Mill	Yellow	9/3	63	JFK	Yellow
7/11	58	Watkins Mill	Orange	9/4	68	JFK	Yellow
7/12	56	Rocky Creek	Yellow	9/5	58	Heritage Park, Richards Gebauer	Yellow
7/13	60	JFK	Yellow	9/7	66	Heritage Park	Yellow
7/14	68	Rocky Creek	Yellow	9/8	57	Heritage Park	Yellow
7/15	55	Liberty, JFK	Yellow	9/9	58	Heritage Park	Yellow
7/19	37	Heritage Park	Yellow	9/10	58	Rocky Creek	Yellow
7/20	53	Heritage Park	Yellow	9/13	55	Rocky Creek	Yellow
7/22	52	JFK	Yellow	9/15	61	Liberty	Yellow
7/23	54	Heritage Park, Liberty	Yellow	9/18	63	Rocky Creek	Yellow
7/24	54	Liberty	Yellow	9/19	57	Rocky Creek	Yellow
7/25	54	Rocky Creek, JFK	Yellow	9/26	58	Heritage Park	Green
7/26	60	Liberty	Yellow	9/27	56	JFK	Yellow
7/27	53	Liberty	Yellow	9/28	63	JFK	Yellow
7/28	59	Watkins Mill	Yellow	9/29	63	Rocky Creek	Yellow
7/29	49	Heritage Park	Yellow	9/30	63	Rocky Creek	Yellow
August				October			
8/8	66	Liberty	Yellow	10/1	59	Rocky Creek	Yellow
8/10	61	Rocky Creek, Liberty	Yellow	10/2	59	Rocky Creek	Yellow
8/11	64	JFK	Yellow	10/3	50	Rocky Creek, Liberty, JFK	Yellow
8/12	61	JFK	Yellow				

*The 2023 eight-hour monitored ozone readings have not been quality assured and may contain errors. Readings in **bold** represent eight-hour peak concentrations above the 70 ppb standard.

**Appendix B. Eight-Hour Ozone Exceedances
March 1 – October 31, 2023**

Daily Maximum 8-Hour Value (ppb)								
Date	Liberty	JFK	Rocky Creek	Richards-Gebauer	Watkins Mill	Heritage Park	Trimble*	Leavenworth*
5/24								74
5/25	74	77	76	73	71	73	76	79
5/27								74
5/28								73
5/29							71	
6/3	74	77	74		74		76	74
6/4	71	76	72	75		75	73	
6/5		71					71	
6/6	76	92	75	83	75	91	78	72
6/7		77		74		73	71	73
6/9	71	74	71					79
6/14	73	75	74					
6/15	80	84	77		71			
6/16		72						
6/20		76						73
6/21		76				72		
6/30			74					
7/3		74						
8/22								71
8/28		74						
9/2		73					76	

*The Trimble and Leavenworth monitors are outside the maintenance area boundary but are used to verify SkyCast ozone forecasts due to their proximity to the boundary.

Appendix C. Fourth-High Readings and Design Values, 2017-2023

	<u>Fourth-High Eight-Hour Values</u>							<u>Design Values</u>				
	17	18	19	20	21	22	23	17-19	18-20	19-21	20-22	21-23
Missouri												
Liberty	69	74	63	65	64	69	74	68	67	64	66	69
Watkins Mill	69	72	63	65	65	66	71	68	66	64	65	67
Rocky Creek	70	72	62	65	71	69	74	68	66	66	68	71
Richards Gebauer	63	66	64	58	63	63	73	64	62	61	61	66
Trimble	66	69	62	63	63	65	76	65	64	62	63	68
Kansas												
JFK (KCK)	61	69	58	63	70	64	77	62	63	63	65	70
Heritage Park	59	66	54	55	64	63	73	59	58	57	60	66
Leavenworth	59	64	61	59	63	61	74	60	61	61	61	66

*The 2023 eight-hour monitored ozone readings have not been quality assured and may contain errors. Readings in **bold** represent design values above the 70-ppb standard.