BE AIR AWARE

SEDGWICK • BUTLER • HARVEY • SUMNER

Wichita Metropolitan Statistical Area

Ozone Advance Program

2021 Path Forward Plan

November 2021

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Executive Summary

The City of Wichita acts as the representational body for the Wichita Metropolitan Statistical Area (MSA) made up of four counties: Sedgwick, Butler, Harvey and Sumner and submits the yearly Ozone Advance-Path Forward update report to the EPA and the public on the local actions being taken to reduce ozone-forming emissions. The Path Forward is a living document, meant to result in ozone reductions while maintaining public awareness of air quality as a priority while continuing to meet the needs of health, the environment, and the economy.

Over the last several years air quality staff at the City of Wichita have worked tirelessly to promote air quality friendly behaviors not only to the public but also within city staff. Regionally, the City has promoted that local governments and businesses in the region submit their own Ozone Action Plans, which list projects, activities, or programs that the business, agency or organization is currently doing or intends to do to decrease ozone-forming emissions.

This report includes efforts by the City of Wichita, local stakeholders, private and public entities, and other key players for the City.

1. Introduction

As participants in the EPA Ozone Advance Program, the City of Wichita submits annual updates of measures and programs in their Path Forward. These documents intend to describe the measures and/or programs that South Central Kansas is taking to reduce ozone-forming emissions.

1.1 Background

The Wichita Air Quality Control program began in 1971 in cooperation with the Kansas Department of Health and Environment, Bureau of Air. The City of Wichita monitors ambient air for the criteria pollutants ozone (ground level), nitrogen oxides, sulfur dioxide, and particulate matter in accordance with regulations set forth in the federal Clean Air Act. Lead and carbon monoxide are no longer monitored in the Wichita area, on a continuous basis, due to significant decreases in these pollutants since the 1970s. Wichita has been in compliance with all six criteria pollutant standards since 1989.

Ozone is an air pollutant that can cause lung damage in healthy people and can have severe effects on sensitive groups like children, the elderly, and people with respiratory diseases, like asthma and emphysema. The ozone standard is designed to protect the most sensitive groups in our population.

Wichita MSA residents most susceptible to health effects of high ozone:[1]

- Children (<18): 168,315 people (27% of the population)

[1] Based on 2010 U.S. Census data

- Seniors (65+): 77,109 people (12% of the population)
- Adults (18-64) with asthma: 52,772 (8.4% of the population)
- 298,196 people in the Wichita MSA (47% of the total population) are vulnerable to elevated ozone levels

Ozone is formed when the nitrogen oxides (NOx) and volatile organic compounds (VOCs) from vehicle exhaust, paint, solvents, gasoline vapors, and industrial processes react with heat and sunlight.

NOx + VOCs + Heat + Sunlight = Ozone

The Wichita MSA is taking proactive steps to avoid exceeding the 8-hour ozone standard and protect the physical health of residents by participating in the voluntary EPA program called Ozone Advance. This collaborative effort between EPA, the Kansas Department of Health and Environment (KDHE) and the Wichita MSA encourages expeditious reductions in ozone levels in order to ensure protection of human health, remain in attainment of the federal ozone standard and efficiently direct resources towards actions that address ozone precursors.

The City of Wichita submitted a "sign-up letter" to the EPA in August 2012 on behalf of the Wichita MSA. This Path Forward lists voluntary actions, steps, strategies and programs that the Wichita MSA will work to implement in order to reduce ozone precursors. Sustainable and other environmentally friendly actions that are currently implemented are also listed.

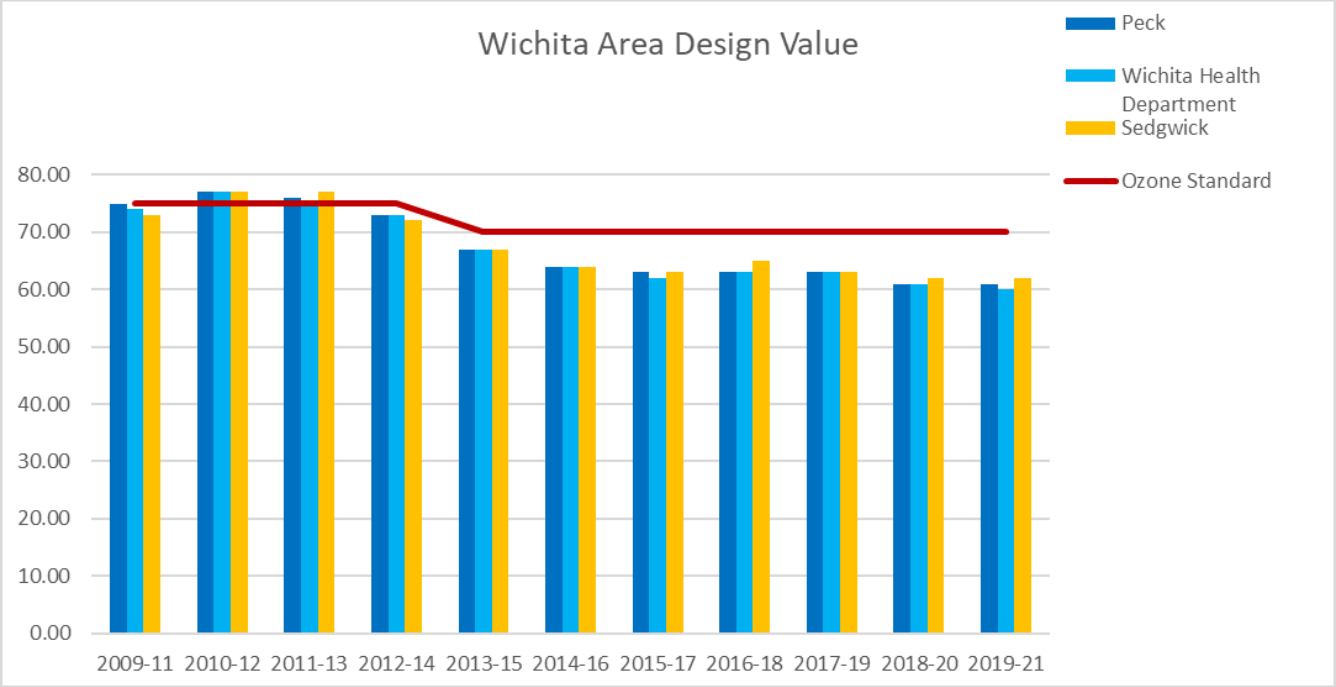
2. Wichita MSA Air Quality

2.1 Current Ozone Status

In 2015, the Environmental Protection Agency (EPA) revised the federal ozone standard to 0.070 parts per million (ppm). As of 2021, the Wichita Metropolitan Statistical Area is in compliance, or in attainment with the federal standard for ozone with a 3-year rolling average of 0.062ppm. The EPA may designate the Wichita MSA as nonattainment if the "design value," a three-year rolling average of the fourth highest daily 8-hour average, at any one of the ozone monitors (located south in Peck, Downtown Wichita, and north in Sedgwick) exceeds the 0.070ppm limit during ozone season (March 1 – October 31.)

Monitoring Sites	13-15	14-16	15-17	16-18	17-19	18-20	19-21
NAAQS Standard	75	70	70	70	70	70	70
Peck	67	64	63	63	63	61	61
Wichita Health Department	67	64	62	63	63	61	60
Sedgwick	67	64	63	65	63	62	62

Table 1. Summary of fourth highest 8-hour Ozone Values average (PPM). Highlighted values indicate an exceedance of the National Ambient Air Quality Standards for Ozone (NAAQS).Figure 1. 3-year average of the fourth highest 8-hour ozone reading, in ppm, at each of the three ozone monitors in the Wichita MSA.



The Wichita MSA is located in the South Central region of Kansas. Hot, dry summers are the norm and create the perfect weather conditions for NOx and VOC emissions to reach and create ozone. As a result, elevated ozone levels were measured in 2011 and 2012, increasing the 3-year average during that time. In 2014 and 2015, a combination of community efforts, cooler temperatures and increased rainfall dramatically decreased ozone levels, lowering the 3-year average to below the newly revised National Ambient Air Quality Standard of 0.070 parts per million.

Currently, the Wichita area complies with the National Ambient Air Quality Standards for Ozone (NAAQS) with a 3-year average of 0.062ppm. However, the city acknowledges that work must continue as standards will continue to be revised and likely lowered.

A nonattainment designation may result in stringent regulatory requirements, increased fuel costs, loss of federal highway or transit funding, restrictive permitting and mandatory emissions offsetting. This would not only affect local industry but all residents of the Wichita MSA.

2.2 Sources of Ozone Precursors

The National Emissions Inventory (NEI) is a comprehensive and detailed estimate of air emissions of both Criteria and Hazardous air pollutants from all air emissions sources. The NEI is prepared every three years by the EPA based primarily upon emission estimates and emission model inputs provided by State, Local, and Tribal air agencies for sources in their jurisdictions, and supplemented by data developed by the EPA. The NEI contains much data; however, the following will focus on nitrogen oxides (NOx) and volatile organic compound (VOC) emissions, the two main precursors of ozone formation.
NOx and VOC emissions are described according to source categories.

- **On-road Mobile Sources** include motorized vehicles that are normally operated on public roadways for transportation of passengers or freight. This includes passenger cars, motorcycles, minivans, sport-utility vehicles, light-duty trucks, heavy-duty trucks and buses.
- **Non-road Mobile Sources** include aircraft, locomotives and other non-road engines and equipment such as lawn and garden equipment, construction equipment, engines used in recreational activities and portable industrial, commercial and agricultural engines.
- **Nonpoint Sources** include any stationary sources not required to have emission permits. The term refers to smaller and more diffuse sources within a relatively small geographic area.
- **Point Sources** include large, stationary emissions sources that can be located on a map.

Wichita MSA NOx and VOC emissions[2]:

- Ozone forms through reactions between NOx and VOC emissions.
    - Local NOx emissions: about 70 tons per day.
    - Local VOC emissions: about 75 tons per day.

Sources of NOx and VOC emissions are on-road, non-road, point, and area sources.

- On-road mobile sources (cars, buses, trucks) account for
    - 47% of NOx
    - 20% of VOC

[2] Based on 2017 NEI data

- Non-road mobile sources (construction equipment, farm equipment, trains, and airplanes):
    - 17% of NOx
    - 9% of VOC
- Point (large stationary/permitted) sources:
    - 15% of NOx
    - 13% of VOC
- Area (small stationary)
    - 20% of NOX
    - 58% of VOC

3. Ozone Advance Projects

In the Wichita MSA, there are a number of programs and activities currently implemented to address ozone-forming emissions and air quality. Some of these are led by private entities, businesses, non-profits or cities while the City of Wichita's Be Air Aware Program leads others. Some of these projects are then reported to the City of Wichita and are included in the Ozone Advance data collection.

3.1 Public Outreach and Education

Strategy	Impact	Performance Measure	Target Date	Lead Agency	Current Status and Outcome
Be Air Aware - Public outreach and education program	Increased air quality education and awareness to promote reduction in ozone causing emissions.	•Number of website "hits" and pledges submitted throughout campaign and/or year. • Number of people reached throughout events such as presentations at educational facilities or local stakeholders	Ongoing during Ozone season, yearly	City of Wichita-Department of Public Works and Utilities-Strategic Services Division	•Continued marketing strategies including social media promotions, transit bus with Be Air Aware wrap. •Continued use of "Beeatrice," the City of Wichita's air quality mascot. •During COVID, staff created a Beeatrice coloring contest to engage children in thinking about healthy environments and air quality. Public response to this was very positive.

Strategy	Impact	Performance Measure	Target Date	Lead Agency	Current Status and Outcome
					• Website (www.BeAirAwareKS.org) with useful information regarding ozone awareness, air quality, consequences of bad air quality, and tips to reduce ozone-causing emissions. •Website includes a "take the pledge" section where members of the community and stakeholders can take the pledge to "be air aware" and reduce their ozone causing emissions. •In 2021 BeAirAwareKS.org has had 3,885 visits and has topped 35,907 visits since it was created in 2018.
April Burn Ban – in 2010 Kansas Administrative regulation 28-19-645a, created open burning regulations including the April Burn Ban in support of the State of Kansas Flint Hills smoke Management Plan.	Reduction in ozone causing emission caused by field burning	Number of counties denied fire permits	Ongoing /yearly	•State of Kansas •Kansas Department of Health and Environment (KDHE) •In the Wichita Metropolitan Area the following counties: • Sedgwick • Butler • Cowley	The ban ran from April 1st to the 31st and will be re-instated yearly. During the 2021 season there was one ozone exceedance reported within the Wichita MSA in June. There were no exceedances in April.

3.2 Partnerships

Organization	Impact	Performance Measure	Target Date	Lead Agency	Current Status and Outcome
JumpStart – Be Air Aware partnership	Higher use of high ethanol fuels on internal combustion vehicles lessens ozone-causing emissions	Number of people utilizing high ethanol fuel over regular, mid or high-grade gasoline.	Ongoing	• City of Wichita Department of Public Works and Utilities-Strategic Services Division • JumpStart Gas Stores	JumpStart has been a continuous supporter of the Be Air Aware program by displaying advertisements with tips and facts at every store, and providing discounts on high ethanol fuel during ozone alert days.
Wichita State University Non-Point Source Research	Better targeted Ozone Action Plans	Ozone Action Plans Received	Ongoing	• City of Wichita Department of Public Works and Utilities-Strategic Services and Division • Wichita State University	The City of Wichita has used the completed research to better target non-point sources for recommending Ozone Action Plans. The research will continue to be useful in targeting sources in the future.
City of Augusta Ozone Action Plan	Reduction in ozone causing emissions and public education to residents regarding air quality.	Continuing updates to their Ozone Action Plan	Ongoing	• City of Wichita • City of Augusta	City of Augusta joined the City of Wichita in creating an Ozone Action Plan that encourages ozone emission reduction. These include: • Reduction in idling and increased walking by City Meter Readers. • Vehicle Emission Reductions • Local Air Quality program, planned for 2020

					(postponed due to COVID). • Community Development projects
Wichita State University Litter Study	This study will help pinpoint the sources of litter in the Wichita area to assist local leaders in taking actionable steps to reduce litter.	Sources identified	December 2021	Wichita State University Environmental Finance Center	The litter study will be completed towards the end of this year and compiled into a final report for local leaders and community members to access.

3.3 Energy

Strategy	Impact	Performance Measure	Target Date	Lead Agency	Current Status and Outcome
Renewables Direct Program- in July 2018, Evergy, formerly Westar, announced a new program, which was designed to allow large customers the opportunity to reduce dependency on non-renewable energy sources by enrolling businesses to receive	Reduction in energy derived from fossil fuels.	Number of businesses in the Wichita Metropolitan Area enrolled in the program.	Ongoing	• Evergy • Private Businesses	• The Kansas Corporation Commission approved a 300-acre wind farm in Nemaha County. The farm began operations in November 2020. It generates up to 300 megawatts of clean energy. • Fourteen Kansas organizations enrolled in the program including the following in the Wichita Metropolitan

electricity from a wind farm.					Statistical Area: Ardent Mills (Newton & Wichita), Cargill Cummings (Wichita), Cox Communications (multiple Kansas locations), Sedgwick County Zoo (Wichita), and Veteran's Affairs Medical Centers (Wichita), among others. • Over the last 10 years Evergy increased its energy generation by renewables by more than 1,250%, and has reduced carbon dioxide emission by nearly 40% since 2005.

3.4 Transportation

Strategy	Impact	Performance Measure	Target Date	Lead Agency	Current Status and Outcome
Wichita Transit Electric Bus Upgrade - City of Wichita Transit department has purchased electric buses to	By substituting aging diesel-ran equipment, for zero-emission electric buses reduces the emission of ozone-causing chemicals into the air. Furthermore, an increase in public	Number of electric buses in fleet.	Ongoing	Wichita Transit	• The City of Wichita currently has eleven fully electric buses. • City of Wichita has a goal to replace all City buses with fully electric buses by 2030.

Strategy	Impact	Performance Measure	Target Date	Lead Agency	Current Status and Outcome
replace their aging fleet. - Half of all the energy used to charge these vehicles will come from clean sources.	interest in such equipment could increase ridership.				
Veterans Ride Free Program –In July 2020 a partnership between United Way of the Plains, Robert J. Dole VA Medical Center and Wichita Transit resulted in a new program that offers free rides on public transit to any veteran with a valid ID.	Free rides for Veterans reduces the need for transportation via personal vehicles or rideshare services, reducing ozone-forming emissions.	Number of riders utilizing the program	Two-year pilot program	• United Way of the Plains • Dole VA Medical Center • Wichita Transit	• Over 33,000 free rides have been given to Veterans since the start of the program
Wichita Transit Ridership	Increase in ridership usually correlates with a decrease in driving lowering ozone-forming emissions.	Number of riders	Ongoing	Wichita Transit	• In 2020 819,207 rides were taken through Wichita public transit • 729,781 rides have been taken to date in 2021

3.5 Other Green Projects & Initiatives

Strategy	Impact	Performance Measure	Target Date	Lead Agency	Current Status and Outcome
Wichita Sustainability Integration Board – Established in 2021 the board will work to provide recommendations for sustainable projects, programs, and policies to the City Council.	Ensures sustainability is integrated throughout different City departments and will help bring forward climate adaptation and mitigation strategies	Number of projects or policies recommended Number of projects evaluated using sustainability matrix	Winter 2021-ongoing	City of Wichita	The board will have its first meeting in December. Development of a sustainability assessment matrix is underway to assist members in providing effective, actionable recommendations to improve economic, environmental, and societal elements of sustainability.
Water Conservation Rebate Program -Provides rebates to citizens in the form of a credit to their water account for purchasing approved water efficient appliances or other devices that help to conserve water.	Results in improved water usage and conservation due to high efficiency appliances.	Number of rebates given out	Ongoing, yearly	City of Wichita Public Works & Utilities	90% of funds have been used for rebates so far this year.
Plastic Bag Task Force	Team will work to formulate actions to decrease single-use plastic locally.	Percent reduction in plastic bag usage in Wichita	Early 2022	City of Wichita Public Works & Utilities	The Task Force is poised to take a recommendation to Mayor and Council on actions to decrease plastic bag usage in early 2022.

Conclusion

The Wichita Metropolitan Statistical Area (MSA) has complied with all EPA standards regarding air quality since 1989. However, understanding the impact that poor air quality could have on public health and the local economy, the City of Wichita has taken a proactive measure to address air quality concerns by joining the Ozone Advance program and continuing to improve strategies.

This initiative includes internal City actions such as the City's no-idling policy (A.R. 9.1), an education and outreach program known as "Be Air Aware," and municipal partnerships with cities in the surrounding counties.

Looking forward, the City of Wichita will continue to be a regional leader and work with surrounding communities to create awareness and spur actions to reduce ozone-forming emissions, creating a safe and clean community where people want to live and grow.