The Alamo in San Antonio, Texas. From Unsplash

SAN ANTONIO'S POPULATION IS DRASTICALLY INCREASING

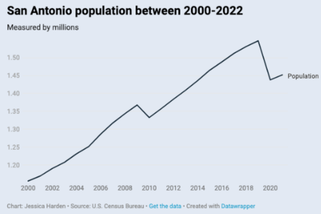
BUT AIR POLLUTION LEVELS AREN'T

BY JESSICA HARDEN

With a population of 1.45 million, San Antonio was ranked as the seventh most populous city and was the fastest-growing city in terms of numeric population growth in 2021, according to a press release from the U.S. Census Bureau.

Larger urban populations lead to an increase in air pollution, but the population-pollution rate is different for every city, according to a study done by NASA.

Even though San Antonio's population increased by 25% since 2000, and larger populations lead to more pollution, there was not an overall increase in air pollution.



The Environmental Protection Agency tracks and regulates six main air pollutants: carbon monoxide, lead, nitrogen oxides, ground-level ozone, particle matter and sulfur oxides, according to the agency's website.

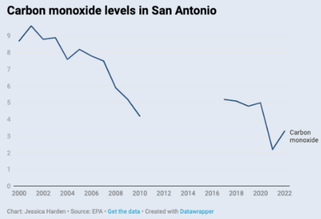
The pollutant levels are recorded using the Air Quality Index (AQI). The index runs on a scale from zero to 500 with higher values representing higher concentrations of pollutants, according to the EPA.

Values between zero and 50 are classified as good, and values between 51 and 100 are classified as moderate, according to the EPA.

The EPA tracked carbon monoxide, nitrogen oxide, ozone and fine particulate matter in San Antonio between 2000 and 2021.

Fossil fuel-powdered engines, such as cars and construction equipment, are the highest contributor to carbon monoxide levels, according to the Texas Commission on Environmental Quality.

Exposure to carbon monoxide reduces oxygen delivery to the body. Lower levels of exposure can cause vision problems and reduce manual dexterity; exposure to higher levels can lead to death, according to the Texas Commission.

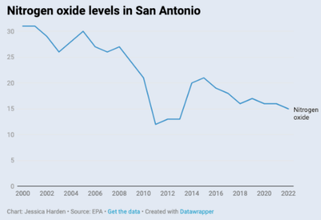


The yearly average AQI for carbon monoxide in San Antonio has not exceeded 9.6 since 2000, according to data from the EPA.

Carbon monoxide level data was unavailable for the years 2011-2016.

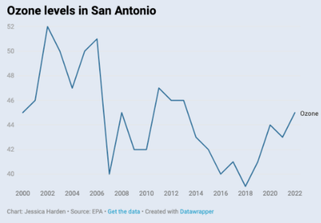
Carbon monoxide levels overall decreased, with small increases in 2001, 2003, 2005 and 2020. The average AQI for 2021 was 3.3.

Nitrogen oxides are formed the same way as carbon monoxide. Short-term exposure can lead to coughing and difficulty breathing, but long-term exposure can lead to the development of asthma, according to the EPA.



Nitrogen oxide levels in San Antonio decreased overall since 2000. The highest AQI average was 31 in 2000 and 2001, and the lowest was 12 in 2011. The yearly AQI average for 2021 was 15, according to data from the EPA.

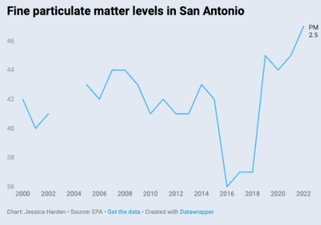
When nitrogen oxides react with volatile organic compounds and sunlight, it creates ground-level ozone. Volatile organic compounds are man-made chemicals produced during the manufacturing of paints, pharmaceuticals and refrigerants. Exposure to ground-level ozone has similar effects as nitrogen oxides and can cause permanent lung damage during long-term exposure, according to the EPA.



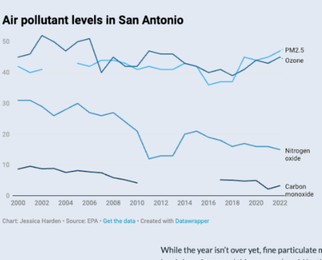
The rate of change in ozone levels in San Antonio was inconsistent. Both 2000 and 2021 had AQI rates of 45. The average AQI rates for 2002 and 2006 were classified as moderate, and every other year was classified as good, according to data from the EPA.

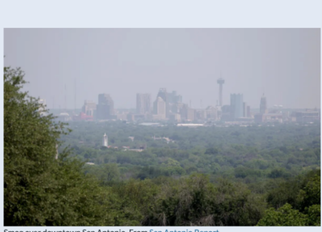
Fine particulate matter is particles of solids or liquids, such as dust or smoke, in the air that are 2.5 microns or less in diameter, according to the Texas Commission.

Particulate matter can irritate the eyes, nose and throat, but fine particulate matter can get into deep parts of the lungs and into the bloodstream. It can cause lung cancer and heart attacks in individuals with heart disease, according to the CDC.



In San Antonio, fine particulate matter is increasing. While the average AQI levels haven't passed 50, they increased from 36 to 47 between 2016 and 2021. Data was unavailable for 2003 and 2004, but there wasn't a steady direction of change between 2000 and 2016, according to data from the EPA.





Smog over downtown San Antonio. From San Antonio Report

While the year isn't over yet, fine particulate matter, ground-level ozone and carbon monoxide levels have increased this year, and could be the results of the rapid population growth in 2021.