

DESCRIPTION

Poor air quality can affect lung and heart health. Scientific studies have shown that exposure to poor air quality can lead to a sore throat, persistent cough, burning eyes, wheezing, shortness of breath or chest pain. Elevated pollution levels can also trigger asthma attacks, hospital admissions and emergency room visits, heart attacks, and premature death.¹

The Air Quality Index, or AQI, was developed by the U.S. Environmental Protection Agency (EPA) to provide a simple, uniform way to report daily air quality conditions. Minnesota AQI numbers are determined by hourly measurements of five pollutants: fine particles (PM2.5), ground-level ozone (O3), sulfur dioxide (SO2), nitrogen dioxide (NO2), and carbon monoxide (CO). The pollutant with the highest AQI value determines the overall AQI for that hour; fine particles and ozone are the primary pollutants causing air alerts.²

The Minnesota Pollution Control Agency (MPCA) uses hourly air pollution monitoring results and daily air quality forecasts to determine whether air pollution concentrations have reached air quality alert levels. An air quality alert is issued when measured or forecasted air quality conditions are expected to result in an AQI of 101 or higher, meaning that adverse health effects can be expected for populations that are sensitive to air pollution.³

HOW WE ARE DOING

The number of good AQI days has been increasing over time while the number of moderate and higher days has been decreasing. The number of “unhealthy for sensitive groups” and “unhealthy” days is more variable, as it is driven by differences in weather conditions that affect air quality. Ramsey County in 2016 had two total “unhealthy” days. In the Twin Cities for 2015, there were seven alert days for AQI.

The number of AQI days in each category varies by region of the state. Typically, areas in the northern half of the state have the highest number of good days. The Twin Cities routinely has the fewest number of good days, due in part to the density of air pollution sources such as cars, trucks, homes, and industry in the metropolitan area.⁴

The number of air alert days per year across Minnesota has generally been declining over time (the slight increase noted for 2015 was primarily due to increased wildfire activity). On most days, air quality across Minnesota is healthy to breathe, but on some days each year the air can reach unhealthy levels.⁵

BENCHMARK INDICATOR

Healthy People 2020: Reduce the number of days the Air Quality Index (AQI) exceeds 100.

U.S. Target: 10% improvement.

DISPARITIES

Air pollution disproportionately impacts the health of some communities. Areas with higher concentrations of people living in poverty and people of color tend to experience higher levels of air pollution than those in predominantly white and higher-income areas, and are

Information to note

- Overall, the number of good air quality days in Ramsey County is increasing.
- The Twin Cities routinely has the fewest number of good air quality days, compared to other regions of the state.
- An air quality alert is issued when the AQI exceeds 100.

Community voice

“Pollution in the air, smoking.”
- White Female, age 10-24

509 respondents mentioned the physical environment as a factor that influenced their health. Of these, 68 mentioned the adverse effects of air pollution.

¹About air quality data. Health effects associated with poor air quality. Minnesota Pollution Control Agency. <https://www.pca.state.mn.us/air/about-air-quality-data>. Accessed January 16, 2018.

²About air quality data. AQI monitor locations. Minnesota Pollution Control Agency. <https://www.pca.state.mn.us/air/current-condition-details>. Accessed January 16, 2018.

³About air quality data. Issuing Air Quality Alerts. Minnesota Pollution Control Agency. <https://www.pca.state.mn.us/air/about-air-quality-data>. Accessed January 16, 2018.

⁴Annual AQI summary reports. Minnesota Pollution Control Agency. <https://www.pca.state.mn.us/air/annual-aqi-summary-reports>. Accessed January 16, 2018.

⁵Air Quality Index: facts and figures. Minnesota Department of Health. https://apps.health.state.mn.us/mndata/air_aqi. Accessed January 16, 2018.

more vulnerable to air pollution-related health impacts, largely due to underlying health inequities. In addition, there have historically been more pollution sources, including busy roadways, located in lower-income neighborhoods and communities of color.⁶

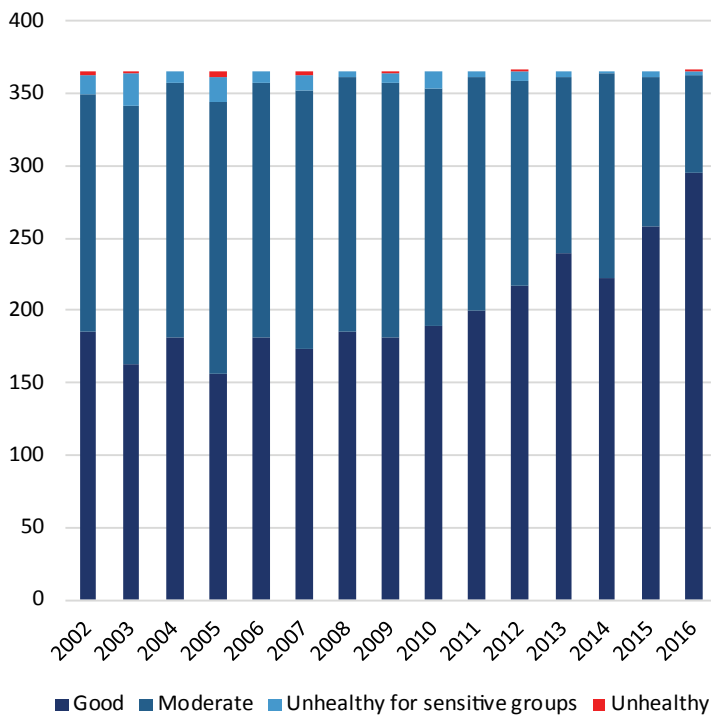
RISK FACTORS

Those especially sensitive to air pollution include: individuals with preexisting lung or heart disease, the elderly, children, and participants in activities that require heavy or extended exertion outdoors.

WHAT RAMSEY COUNTY GOVERNMENT IS DOING

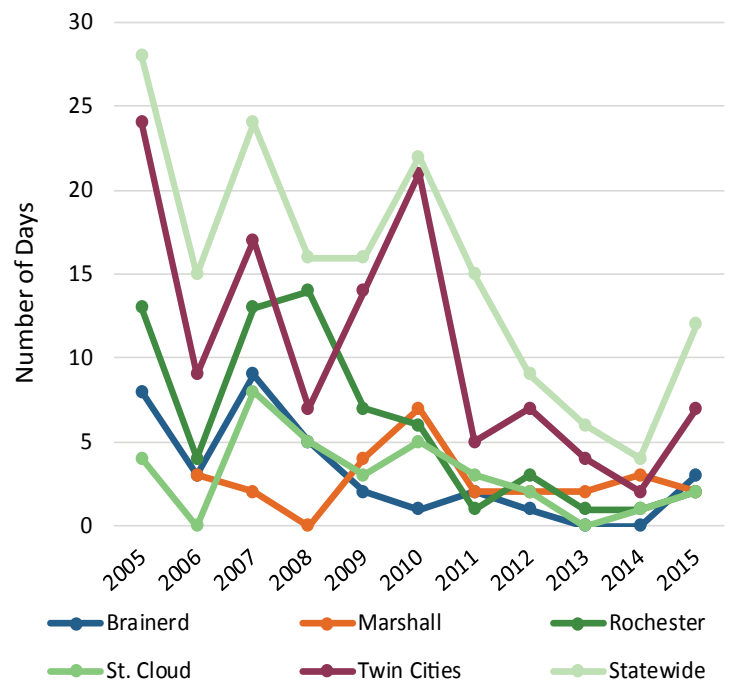
Ramsey County shares air quality alerts with the public through social media, including guidance on actions individuals can take to reduce exposure to unhealthy air. Through its website, Ramsey County promotes the resources produced by “Be Air Aware,” a joint project of the Minnesota Department of Health and the Minnesota Pollution Control Agency that provides information about the connection between air pollution and associated health effects. More work needs to be done to understand the interaction between air pollution and health inequities, and to address the disparities they produce. Saint Paul - Ramsey County Public Health engages in this work in partnership with the Minnesota Pollution Control Agency, the Minnesota Department of Health, and others.

Annual Air Quality Index (AQI) Days, Twin Cities



Source: Minnesota Pollution Control Agency.⁷

Air Alert Days by Select Regions Over Time, Minnesota



Source: Minnesota Pollution Control Agency.⁸

⁶ The air we breathe: The state of Minnesota’s air quality 2017. Minnesota Pollution Control Agency. <https://www.pca.state.mn.us/sites/default/files/Iraq-1sy17.pdf>. Accessed January 16, 2018.

⁷ Minnesota Pollution Control Agency. <https://www.pca.state.mn.us/air/annual-aqi-summary-reports>. Accessed January 16, 2018.

⁸ Minnesota Pollution Control Agency. https://apps.health.state.mn.us/mndata/air_aqi. Accessed January 16, 2018.