

Summary

Community Air Monitoring Project St. Paul - West Side



What we monitored

We monitored air quality for fine particles (PM_{2.5}) and air toxics (carbonyls, metals and volatile organic compounds-VOCs) in the St. Paul West Side neighborhood.

Why is it important?

People exposed to air pollution are at increased risk for adverse health effects. This can include shortness of breath, asthma, heart attacks or stroke. Studies show that low-income communities might be unfairly affected by pollution from industrial, highway or air traffic sources.

Monitoring in these communities can help us to better understand the community's air quality and how it compares to other monitoring sites.

Highlights and key findings

About this study

In 2013, the Minnesota Legislature provided funding for a two-year air monitoring study to measure air quality in Minnesota communities where low income communities might be disproportionately impacted by pollution from highway traffic, air traffic, and industrial sources.

- We put an air monitoring station in the St. Paul West Side neighborhood. This station monitored air quality for three months from April 1, 2014 to June 30, 2014.
- Although only a three-month study, for comparison purposes, we compared the monitored data with annual air quality health standards. We also compared the data with other air data collected during the same time period at other monitors.
- All average daily PM_{2.5} values were below the daily PM_{2.5} standard of 35 micrograms per cubic meter (µg/m³).

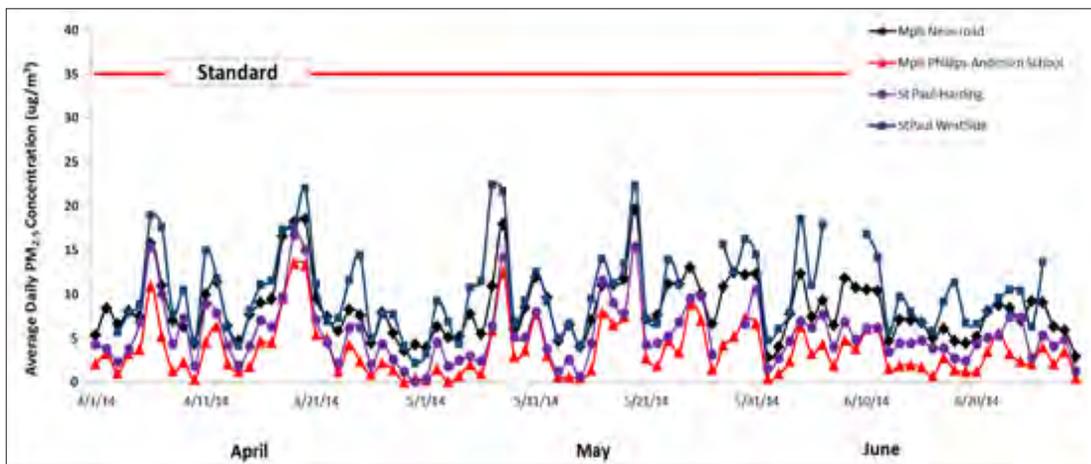
Average daily PM_{2.5} values measured at the St. Paul West Side monitor were generally higher than values seen at most other sites for a majority of the monitoring days but followed a similar daily trend as other metro sites.

- Of the 74 air toxic chemicals measured for this project, the levels of 46 chemicals were so low that they were not detected by the monitor.
- All average VOC and carbonyl values were below health benchmarks except for formaldehyde. The average values of formaldehyde at most monitoring sites in the Twin Cities metro were slightly above health benchmarks. Higher formaldehyde values are expected in warmer months and are lower in winter months.
- Of the detected metals, the three-month average metal values were higher at this site than the other Twin Cities metro sites, but all were below annual health benchmarks except for arsenic. The MPCA is working to better understand these results.



Fine particles (PM_{2.5})

This graph shows the average daily PM_{2.5} values at the St. Paul West Side and other metro air monitors. The average daily trends were similar across the monitors. While all average daily PM_{2.5} values were below the daily PM_{2.5} standard of 35 µg/m³, average daily values measured at the St. Paul West Side monitor were generally higher than those seen at most other sites for a majority of the monitoring days.

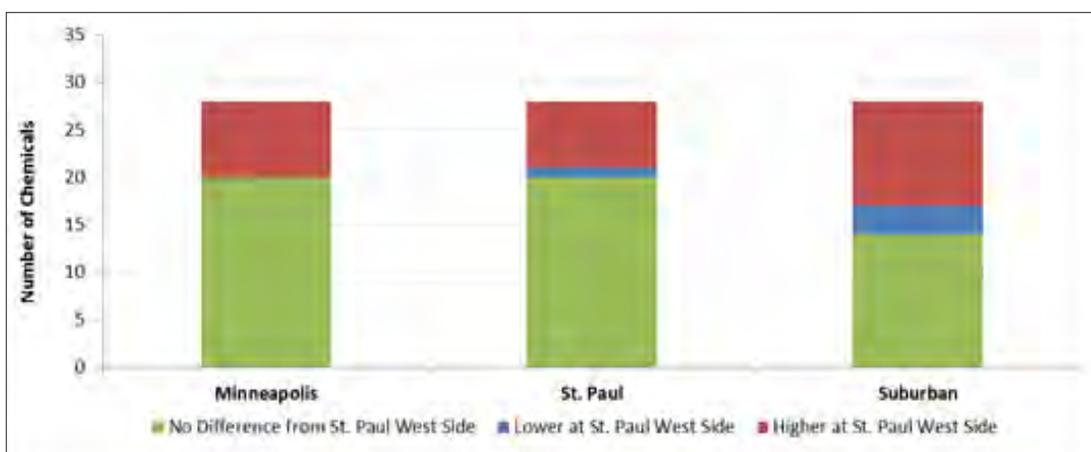


Air toxics

Of the 74 air toxics measured, 28 were detected at the St. Paul West Side monitor.

The majority of air toxics measured were not significantly* different from levels measured at other Twin Cities monitoring sites. With the exception of formaldehyde and arsenic, all other average parameter values were at or below the established health benchmark values. The three-month formaldehyde average* for this monitor (3.5 µg/m³) and for most other metro air monitors were above the long-term health benchmark (2 µg/m³). The three-month arsenic average* (0.0046 µg/m³) was above the long-term health benchmark (0.0023 µg/m³).

This graph shows the number of air toxics that differed between the St. Paul West Side monitor and other Twin Cities monitors.



*Kaplan-Meier non-parametric non-detects data analysis

Project website

For more information on the community air monitoring project, please visit www.pca.state.mn.us/9xc4ahc or call either 651-296-6300 or 1-800-657-3864 and ask for air data analysis staff.

More information about the MPCA's air monitoring program is available on the web at <http://www.pca.state.mn.us/ruu6fhw>.

