

## Air Quality in Minneapolis: A Neighborhood Approach - Executive Summary

A brief overview of the information presented in detail in the short and full reports.

### Introduction

The purpose of the *Air Quality in Minneapolis: A Neighborhood Approach* study is to evaluate air quality at a more detailed level than is currently available. Regional air quality is traditionally monitored from locations on top of buildings, well above breathing height, that are several miles from each other to understand the ambient air we all breathe. This study examines air quality at a finer-scale, sampling ground level air where people live, work, and play in Minneapolis.

### Health Benchmarks

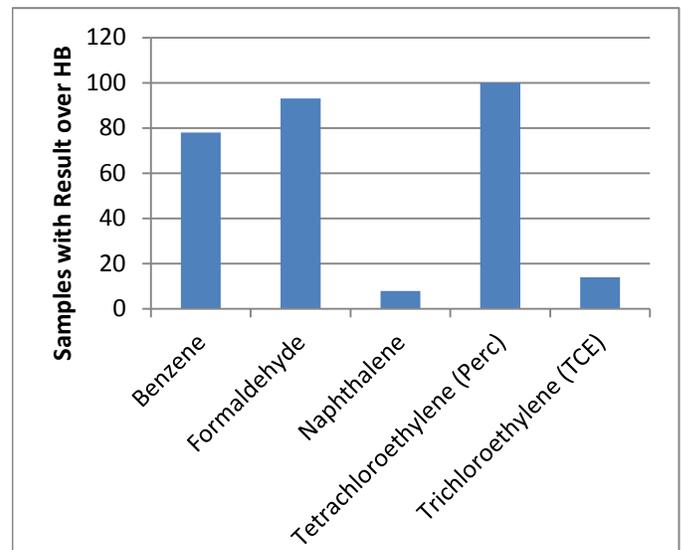
Health benchmarks (HBs) are values developed from scientific studies that are used to assess the health risks associated with air toxics. A health benchmark is the concentration of a chemical that is likely to pose little or no risk to human health. We choose to use HBs as a screening tool for our study. Therefore, we used the most conservative (lowest) values available which are usually for chronic (long-term to life-time) exposure. While each of our samples only represents the air composition over a 72-hour period and is not a long-term average, comparison to chronic HBs allows us to locate areas that could potentially pose a health concern over time. We have chosen to only report on VOCs that had results over a Minnesota Department of Health defined HB.

### At a Glance

- Results showed relatively clean air in Minneapolis
- However, the results also showed us areas of possible concern for 5 chemicals (see chart below)
- 900 samples collected at over 100 locations across Minneapolis
- 61 volatile organic compounds (VOCs) analyzed in each sample
- 44,349 results were non-detect
- 9,650 results were detected
- 328 results detected above health benchmark

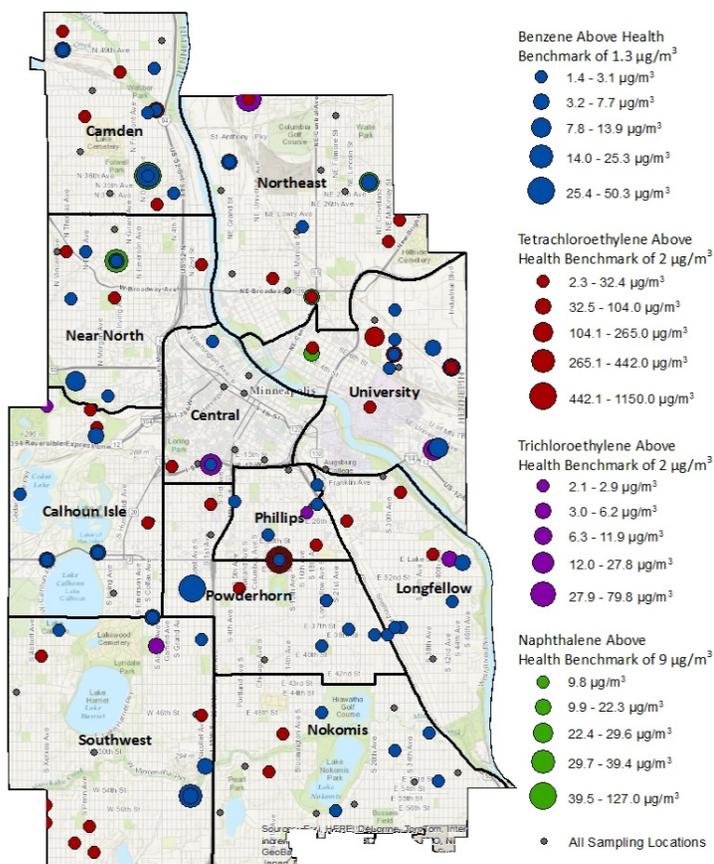
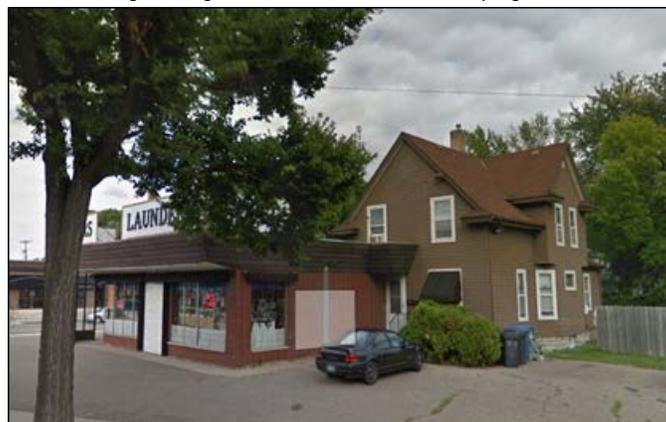
### VOCs above Health Benchmark

Five VOCs were found to be over their associated HB in at least one sample. The number of samples in which they were found over their HB is out of 900 total samples, except for formaldehyde which had a fewer number of samples (114 total). However, every detect result for formaldehyde was found to be above the health benchmark.



VOCs were found across the City. The size of the dot corresponds with the level found in that sample and is not a geographic spread or reach. Sample locations with no result over the HB are indicated with a small gray point. Formaldehyde is not shown on the map due to a varied sampling approach.

*Elite Cleaners in South Minneapolis recently switched to green technologies using the Green Business Cost Share program*



- We have already started additional focused sampling at and around dry-cleaning facilities in order to determine the extent that Perc is being emitted and is transported into the surrounding neighborhood.
- The City of Minneapolis is hoping to further understand the results of this study by working in partnership with Virginia Tech to develop a land-use regression model (LUR). LUR is a statistical-empirical approach to model the spatial patterns of air quality. LUR is a useful tool for estimating concentrations at locations where measurements are not available.

## Next Steps

- The Minneapolis Health Department has already begun putting this data to use. We have been working with our local businesses through the [Green Business Cost Share Program](#) to reduce emissions in Minneapolis. We will apply this approach to all dry-cleaners continuing to use tetrachloroethylene (Perc) in Minneapolis. To date 5 dry-cleaners have stopped using Perc through this program. 24 businesses have taken advantage of the program resulting in 19 tons of emission reduction in Minneapolis.

## Conclusion

The average results across the study confirm that air in Minneapolis is relatively good across the entire city. Hundreds of samples came back with few or no chemicals of concern. However, there were many sample results that had chemicals over health benchmarks. Some of these results were expected, such as benzene and formaldehyde that come from transportation sources. There were also elevated levels of chemicals like tetrachloroethylene, primarily found in dry cleaning operations, observed in samples taken across the entire city. While much of the study showed how clean the air is in Minneapolis, there were also results that are of possible concern to public health. To see these results in depth, review the *Air Quality in Minneapolis: A Neighborhood Approach Short Report or Full Report*.