

Appendix D

How Air Quality is Measured in Denver: Monitoring and Modeling

Air quality is measured through a combination of *monitoring* (measuring the contents of the air with instruments) and *modeling* (computer programs that use actual air quality measurements from some areas to predict air quality in other areas, and into the future). Modeling is used in areas where there is little or no monitoring data.

For the past decade, the Denver Department of Environmental Health (DEH) has analyzed and performed both air *monitoring* and *modeling* throughout Denver, to better understand how air pollution varies across the region and over time.

The Colorado Department of Public Health and Environment (CDPHE) and the U.S. Environmental Protection Agency (EPA) perform regular sampling of air for various pollutants throughout the Denver Metro area, at a limited number of monitoring sites. Traditional air quality measures include fine particulate matter (small particles), ozone, carbon monoxide, and nitrogen oxides (all gases). CDPHE conducted specialized air monitoring in North Denver in 2000-2001, and again in 2002-03.

The City of Denver received a community-based air monitoring grant in 2005-06 that explored how air pollution varied throughout Denver, including at Swansea Elementary School. In addition, CDPHE and the City of Denver collect specialized air samples every few years as needed.

Denver is one of only a few local governments in the world that has performed citywide air pollution modeling to “fill in the gaps” between air sampling locations. That is, the City uses equations and computers to predict the amount of pollution that is in the air, for locations or times when measurements might not be available. These predictions, or modeled concentrations are tested by comparing them to real world data.