



Methodology for Air Quality Profiles

A resource of the City Clean Air Hub (cityairhub.org)

Local health impact estimates are based on census tract scale health impact analysis conducted in BenMAP-CE by BenMAP Analytics. Data inputs included: population by age and location (from the 2020 US Census), baseline health incidence rates by age and location, baseline and control exposures for each pollutant of interest (from CDC's National Environmental Public Health Tracking Network for ozone and PM_{2.5}; Nawaz et al. 2025 for NO₂) and exposure response functions based on peer-reviewed epidemiological literature. Baseline incidence and exposure response functions used in the health impact analysis are all based on inputs previously selected and validated by US EPA.

Census tract-level estimates of annual pediatric asthma cases attributable to nitrogen dioxide exposure, respiratory emergency room visits attributable to ozone exposure and premature deaths attributable to ozone and particulate matter (PM_{2.5}) exposure were spatially aggregated for municipal boundaries for the 498 largest continental U.S. cities, county boundaries for all U.S. counties, and metropolitan areas (CBSAs) from the 2020 US Census. Economic valuation of health burdens are based on estimates of pollution-attributable mortality and use a value of statistical life (VSL) of \$10.7 million (in 2022 \$), in line with recent US EPA guidelines for economic valuation of health impacts (US EPA, 2024).

Complete methodology, code, and input datasets are available in this Github repository.

Resources

Nawaz, M.O., Goldberg, D.L., Kerr, G.H. and Anenberg, S.C., 2025. TROPOMI satellite data reshape NO₂ air pollution land-use regression modeling capabilities in the United States. *ACS ES&T Air*, 2(2), pp.187-200.

U.S. EPA. 2024. Guidelines for Preparing Economic Analyses (3rd edition). Report number EPA-240-R-24-001. Washington, DC.