Air quality has improved across the U.S.; however, there are inequalities in the distribution of primary pollutants such as nitrogen dioxide (NO₂), and many urban areas continue to experience unhealthy levels of ozone (O₃). While advances in satellite remote sensing bring new opportunities to describe intraurban inequalities, it is generally assumed that time-averaging is required to improve observation spatial detail. As a result, there is little understanding of how neighborhood-level inequalities are coupled to regional air pollution issues even though NO₂ is an O₃ precursor. First, we demonstrate daily TROPOMI observations capture ~65%–90% of intraurban NO₂ inequalities despite their coarse spatial resolution. We use high spatial resolution (250 m x 560 m) measurements from GEOstationary Coastal and Air Pollution Events (GEO-CAPE) Airborne Simulator (GCAS) collected during the NASA Tracking Aerosol Convection ExpeRiment–Air Quality (TRACER-AQ) study in September 2021 as a standard of comparison. We calculate daily TROPOMI NO₂ inequalities over 2018–2021 and construct wind clusters during O₃ season to explore covariation between NO₂ inequalities and O₃. We investigate NO₂ and O₃ chemical relationships and describe O₃ air quality co-benefits to reducing NO₂ inequalities.