**Proximity Tool Overview**

The Proximity Tool is used to characterize the size and demographic make-up of populations living within a user specified area around facilities or other locations of interest. User inputs to the tool include an ID for each facility/location, the latitude and longitude for each facility/location, and the radius of the circular area of interest surrounding each facility/location in kilometers (km) up to 50 km (e.g., 5 km radius).

The total population within a specified radius around each facility is the sum of the population for every census block within that radius, based on each block’s population provided by the 2020 Decennial Census.[[1]](#footnote-1) For the demographic analysis, statistics on total population, race, ethnicity, age, education level, poverty status, limited English speaking household, and disabilities are obtained from the Census’ American Community Survey (ACS) 5-year averages for 2018-2022.[[2]](#footnote-2) These data are provided at the block group and tract level.

The Proximity Tool identifies all census blocks with centroids[[3]](#footnote-3) located within the user specified radius of the latitude/longitude location of each facility/location, and then links each block with census-based demographic data. To estimate block level demographic percentages based on race, ethnicity, age, income relative to the poverty level, adults without a high school diploma, and limited English speaking, the demographic characteristics of a given block group are presumed to also describe each census block located within that block group. To estimate block level demographic percentages for people with one or more disabilities, the demographic characteristics of a given tract are presumed to also describe each census block located within that tract.

In addition to facility-specific demographics, the Proximity Tool also computes the demographic composition of the populations within the specified radii for all facilities as a whole (e.g., source category-wide). The source category-wide computation accounts for neighboring facilities with overlapping study areas and ensures populations in common are counted only once in the demographic analysis. Finally, the Proximity Tool allows comparison of the facility-specific and source category-wide demographics at each user-specified radius (e.g., 5 km) to the demographic composition of the nationwide U.S. population.

It should be noted that proximity to affected facilities does not indicate that any exposures or impacts will occur and should not be interpreted as a direct measure of exposure or impact.

1. U.S. Census Bureau, 2020 Census, United States: <https://www.census.gov/programs-surveys/decennial-census/decade/2020/2020-census-main.html> [↑](#footnote-ref-1)
2. U.S. Census Bureau, Five-year American Community Survey – 2018-2022, United States: <https://www.census.gov/programs-surveys/acs/news/data-releases/2022/release.html>. For more information about the ACS visit <https://www.census.gov/programs-surveys/acs/about.html>. [↑](#footnote-ref-2)
3. A census block centroid is considered a central location of the block polygon it represents and contains the same census-based information as the block polygon (e.g., the same population). See <https://www2.census.gov/geo/pdfs/reference/GARM/glosGARM.pdf> [↑](#footnote-ref-3)