National Neighborhood Data Archive (NaNDA): Polluting Sites by Census Tract, United States, 2000-2018

openICPSR-159961
nanda_pollutst_tract_2000-2018_01P.dta
nanda_pollutst_tract_2000-2018_01P.csv
nanda_pollutst0018T_01P.sas7bdat

Overview and Data Dictionary

Documentation Version: 1.0
Last updated: 1/20/2022

Dataset Overview

Description

This dataset contains counts of polluting sites in each United States census tract and within a 0.5-mile buffer to capture spillover effects. Polluting sites are taken from the US Environmental Protection Agency's (EPA) Toxics Release Inventory. These facilities are typically larger and involved in manufacturing, metal mining, electric power generation, chemical manufacturing, and hazardous waste treatment.

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Funding Sources

- United States Department of Health and Human Services. Administration for Community Living. National Institute on Disability, Independent Living, and Rehabilitation Research (90RTHF0001)
- United States Department of Health and Human Services. National Institutes of Health. National Institute on Aging (RF1-AG-057540)

Data Sources

We obtained latitudes and longitudes of polluting sites from the Toxics Release Inventory (TRI) published by the U.S. Environmental Protection Agency (2018) for reporting years 2000 through 2018. Agencies with ten or more employees that manufacture, process, or use chemicals from a list maintained by the EPA are required to self-report data for the TRI annually (U.S. Environmental Protection Agency, 2021).

Census tracts are taken from the U.S. Census Bureau's (2010) TIGER/Line census tract shapefiles.

Coverage

The dataset contains one observation per census tract in the United States, including U.S. island territories.

Methodology

This dataset is one of several created to investigate the impact of disamenities (Weiss et al., 2011) on neighborhood walkability. Walkability blends geography, urban planning, and public health to measure how friendly an area is to walking through built and social environmental features such as pedestrian street design, transit nodes, land use mix, parks, greenspace, and welcoming public spaces (Sallis et al., 2009, Chudyk et al. 2017). However, neighborhood disamenities such as crime, pedestrian safety (e.g. due to high volumes of traffic), and noxious land uses might inhibit walkability by dissuading people from using neighborhood resources such as parks and recreational facilities (Weiss et al., 2011). In addition, residence in neighborhoods with a high density of traffic and industrial facilities has been shown to contribute to chronic respiratory morbidity in children, which may have broad implications for other urban populations that commonly have high asthma prevalence and exposure to a high density of traffic and stationary air pollution sources (Patel, 2011).

To create this dataset, we obtained the latitudes and longitudes of all polluting sites appearing in file type 1A (Facility, Chemical, Releases, and Other Waste Management Summary Information) of the EPA's Toxics Release Inventory (TRI) in reporting years 2000 through 2018. Using

ArcGIS Pro, we created 0.5-mile buffers around all U.S. census tracts, then performed a spatial join to assign each polluting site's latitude and longitude to the census tracts (plus buffers) within which it falls. (Polluting locations for which census tracts could not be determined are excluded from this dataset.) We selected a 0.5-mile buffer to approximate the effect of sites not only within a neighborhood itself, but in nearby or adjoining neighborhoods. Finally, we counted the total number of polluting sites within each census tract plus buffer in each year.

Related Datasets

Data users interested in walkability and neighborhood disamenities (such as pollution and traffic) might find useful data in these other NaNDA datasets:

- Primary and secondary roads by census tract, United States, 2010
- Street connectivity by census tract, United States, 2010
- Traffic volume by census tract, United States, 1963-2019

Data users interested in other resources that contribute to walkability, such as parks, public transit, and retail and other destinations, may find the following additional NaNDA datasets to be of use:

- Arts, entertainment, and recreation services by census tract, United States, 2003-2017
- Eating and drinking places by census tract, United States, 2003-2017
- Retail establishments by census tract, United States, 2003-2017
- Parks by census tract, United States, 2018
- Public transit stops by census tract, United States, 2016-2018

Variables

Variable	Type	Obs	Unique	Mean	Min	Max	Label
tract_fips10	string	1408546	74134	.	.	.	Census tract FIPS code, 2010 TIGER/Line shapefiles
year	int	1408546	19	2009	2000	2018	Year of EPA TRI report
count_tri_facilities	int	1408546	37	0.310271	0	40	Number of EPA Toxics Release Inventory sites in tract + 0.5 mile buffer

References

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