Environmental Justice Analysis

Irvington Generating Station
Proposed PSD Air Quality Permit #1052
February 2018

Project Description

Pima County Department of Environmental Quality (PDEQ), is proposing to issue a Prevention of Significant Deterioration (PSD) permit under section 165 of the Clean Air Act (CAA) that would authorize the major modification to the existing major source operating as the Irvington Generating Station (IGS) in accordance with the CAA PSD requirements.

The Tucson Electric Power Company ("TEP") owns and operates the Irvington Generating Station ("IGS"), also known as the H. Wilson Sundt Generating Station, pursuant to Class I Air Quality Permit No. 1052 issued by PDEQ. The IGS is located within the City of Tucson, on the south-western boundary of Davis-Monthan Air-force base adjacent to Interstate-10, approximately two miles northeast of Tucson International Airport. The facility currently comprises six electric generating units with a combined, nominal, net generating capacity of 470 megawatts ("MW"). TEP seeks to expand the IGS to install up to ten natural gas-fired, reciprocating internal combustion engines ("RICE"), each with a nominal net generating capacity of 19 MW. In conjunction with the RICE project, TEP will permanently cease operation of existing steam generating units Units 1 and 2, leaving the facility with a nominal, net generating capacity of 498 MW. The proposed RICE project constitutes a major modification for certain pollutants under the preconstruction PSD permitting regulations and requires a significant revision under the Title V / Class I operating permit regulations.

Background for the Environmental Justice Analysis for the Project

Executive Order 12898, entitled "Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations," states in relevant part that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." Section 1-101 of Exec. Order 12898, Vol. 59 Fed Reg 32, (Feb. 16, 1994). Based on this Executive Order, the EPA's Environmental Appeals Board (EAB) has held that environmental justice issues must be considered in connection with the issuance of federal Clean Air Act (CAA) Prevention of Significant Deterioration (PSD) permits issued by EPA Regional Offices and states acting under delegations of Federal authority. EPA Regional Offices and their delegates in the states have for several years incorporated environmental justice considerations into their review of applications for PSD permits under 40 CFR 52.21. The EAB reinforced the importance of completing an environmental justice analysis. PDEQ determined that there may be minority or low-income populations potentially affected by the proposed action on the TEP Prevention of Significant Deterioration (PSD) permit application, and determined that it would be appropriate to prepare an Environmental Justice Analysis for this action, which is provided below.

Regulatory Framework for the PDEQ's PSD Permitting Decision for the Project

The PSD program is a preconstruction review and permitting program applicable to certain new major stationary sources and major modifications at existing major stationary sources. The specific requirements under the PSD program applicable to stationary sources where PDEQ is the permitting authority are in the Code of Federal Regulations 40 CFR 52.21. The PSD program applies to any regulated NSR pollutant (as defined in 40 CFR 52.21). The TEP RICE project would be a major modification to an existing major source that is in an area designated as attainment for all NAAQS.

The applicability of the PSD program to a stationary source must be determined in advance of construction or modification and is pollutant-specific. The primary criterion is whether a proposed project is sufficiently large (in terms of its emissions) to be a major stationary source or major modification. If the potential emissions from the project meet or exceed the levels that are considered a major stationary source or a major modification, a PSD permit must be issued before construction of the project and will cover all regulated NSR pollutants emitted in significant amounts (as defined in 40 CFR 52.21).

PDEQ has determined that a PSD permit is required for the TEP RICE project because it will cause a net emissions increase in particulate matter (PM) less than 10 microns in diameter (PM_{10}); PM less than two microns in diameter ($PM_{2.5}$); carbon monoxide (CO); volatile organic compounds (VOC); and greenhouse gases (GHG), specifically carbon dioxide (CO_2), methane (CH4), nitrous oxide (N_2O), and sulfur hexafluoride (SF_6). See Table 1 below.

Table 1 Potential to Emit and PSD Applicability

PSD Pollutant	TEP RICE Project Increase (TPY)	Net Emission Increase (TPY)	Significant Level (TPY)	Subject to PSD?
NO_X	170.0	30.6	40	No
VOC	227.8		40	Yes
CO	299.6		100	Yes
PM_{10}	114.1		15	Yes
$PM_{2.5}$	114.1		10	Yes
GHG (as CO_2e)	792,631		75,000	Yes
GHG	791,048		Any Increase	Yes
SO_2	14.2		40	No
Sulfuric Acid Mist	2.2		25	No
PM	0.5		25	No

In addition, the PSD permitting program requires that PSD sources be subject to the best available control technology (BACT) for each emission unit subject to PSD review. The PDEQ proposed permit for the TEP RICE project includes, among other requirements, the use of BACT to limit emissions of VOC, CO, PM_{10}, $PM_{2.5}$, and GHGs to the greatest extent feasible.

Role of the National Ambient Air Quality Standards

For purposes of Executive Order 12898, EPA and PDEQ has recognized that, in the context of an environmental justice analysis, compliance with the applicable NAAQS is generally emblematic of achieving a level of public health protection that demonstrates that PDEQ's issuance of the permit for the proposed facility will not have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations due to exposure to the relevant criteria pollutants. This is because NAAQS are health-based standards, designed to protect human health with an adequate margin of safety, including sensitive populations such as children, the elderly, and asthmatics.

The studies assessed by the EPA in setting NAAQS and the integration of the scientific evidence presented therein have undergone extensive critical review by the EPA, the Clean Air Scientific Advisory Committee (CASAC), and the public. See, e.g., national Ambient Air quality Standards for Ozone, Final Rule, 80 Fed. Reg.

> "The rigor of that review makes these studies, and their integrative assessment, the most reliable source of scientific information on which to base decisions on the NAAQS, decisions that all parties recognize as of great import. NAAQS decisions can have profound impacts on public health on public health and welfare, and NAAQS decisions should be based on studies that have been rigorously accessed in an integrative manner not only by PDEQ and EPA but also by the statutory mandated independent advisory committee, as well as the public review that accompanies this process."

Id. at 65299. Further, in determining that the NAAQS are set with an adequate margin of safety, "PDEQ and the EPA considers such factors as the nature and severity of the health effects, the size of sensitive population(s) at risk, and the kind and degree of the uncertainties that must be addressed." *Id*. at 65295. Considering these characteristics of the process for setting the standards, the EAB generally "relies on and defers to the Agency's cumulative expertise when upholding a permit issuer's environmental justice analysis based on a proposed facility's compliance with the relevant NAAQS in a PSD appeal." Shell II, Slip Op. at 74. Pursuant to Clean Air Act section 165(a)(3), a PSD permit may not be issued unless the owner or operator of the proposed source demonstrates, among other things, that the facility will not cause or contribute to air pollution in excess of any NAAQS applicable to the PSD permit decision. 42 U.S.C. § 7475(a)(3); see also 40 CFR 52.21(k) and 52.21(i)(2).

A PSD air quality dispersion modeling analysis was prepared for the three criteria pollutants that trigger PSD review, CO, PM_{10}, $PM_{2.5}$.

- CO (1-hr and 8-hr average)
- $PM_{2.5}$ (24-hr and annual)
- PM_{10} (24-hr and annual)

PSD requirements do not necessitate an analysis for criteria pollutants that do not trigger PSD review. The project emissions of nitrogen oxides (NO_X) were calculated as the emissions from the proposed ten RICE units minus the emissions from the natural gas-fired units to be retired (No. 1 and No. 2). The resulting NO_X emissions are below the NO_X significant emission rate of 40 tons per year (TPY). Therefore, the NO_X emissions do not trigger New Source Review under PSD regulations and air dispersion modeling was not performed NO_X.

As part of our PSD review for the proposed Project, PDEQ has conducted an air quality analysis for the Project and has determined that the proposed Project's projected emissions will not cause or contribute to a violation of the applicable NAAQS for these pollutants[1]. Using that information for our environmental justice analysis, we have determined that the Project's compliance with the applicable NAAQS is sufficient to satisfy Executive Order 12898 as to those regulated pollutants in the context of our PSD permit decision for the Project.

Local Area and Demographics

Local Area

The IGS is located on private land in Township 15 South, Range 14 East, Section 3; southeast of the Gila and Salt River Baseline and Meridian, Pima County, Arizona. Geographic coordinates for the center of the IGS are latitude 32.1581660, longitude - 110.8994510. The project area is located in the City of Tucson, north of Interstate 10 and east of Alvernon (Figure 1-1).

Figure 1-1 Ariel View of the TEP RICE Project Location at the Irvington Generating Station

[1] The PDEQ proposed PSD permit does not regulate or otherwise contain emission limitations for lead or SO_2. The TEP RICE Project is not expected to emit lead, and the Project's SO_2 emissions are estimated to be 14.2 tons per year, which is well below the 40 tons per year significant emissions rate for SO_2 that would trigger PSD review. See 40 CFR 52.21(b)(23)(i); 52.21(j)(2); 52.21(m)(1).

Tucson has an estimated population of 526,000, up slightly from 520,000 at the 2010 census. The Tucson metropolitan area is larger with an estimated population of 994,000. Tucson is the second-most populous city in Arizona after Phoenix. Tucson has a population density of 2,794 people per square mile.

Tucson has a strong temporary population, which grows and recedes seasonally. Much of the city's economy is centered on the University of Arizona, which is the city's second largest employer, as well as tourism, with over 3.5 million people visiting the city each year. Along with vacationers, there are a large number of winter residents (snowbirds) who come for the mild winters. Many own second homes in the area[2].

Demographics

The EPA's screening and demographic evaluation for potential environmental justice concerns focused on the primary populations that are expected to see air quality impacts from the Project above current baseline levels of air pollutants. As noted above, however, all air quality impacts of the Project have been demonstrated to be below the applicable health-based NAAQS. The identified "Impact Area" for purposes of this Environmental Justice Analysis encompasses approximately 38 square miles and includes a population of 92,084. The Impact Area includes the area to the north of the proposed Project to Sam Lena Recreational Area, areas to the west to S Calle Santa Cruz, areas east to S Pantano Road, a significant portion of Davis-Monthan Air Force Base and to the south of the Project to E Corona Road.

To help formulate a plan for the outreach activities related to the Project, PDEQ reviewed the matrics for Pima County, the State of Arizona, and the United States. See Table 2 below.

Table 2: Average Demographic Information for Proposed Project Location and Surrounding Areas

City/Area	Population 2010 Census	Percent Minority	Low Income Population	Percent Linguistically Isolated	Percent w/o High School Diploma	Percent under Age 5	Percent Over 65
Impact Area	94,228	85%	63%	15%	32%	8%	9%
City of Tucson	573,322	56%	51%	6%	17%	6%	13%
Pima County	998,537	46%	40%	4%	12%	6%	17%
Arizona	6,641,928	43%	39%	5%	14%	7%	15%
United States	308,758,105	37%	35%	5%	14%	6%	14%

Demographic information was obtained through the EPA's EJSCREEN mapping tool: Environmental Justice Screening and Mapping Tool. https://ejscreen.epa.gov/mapper/ or the U.S. Census Bureau

Minority and Low Income Populations – The Impact Area and the Tucson City Area are well above the County, State and U.S. averages for percent minority populations. The percentage of low income populations in the Impact Area and the City of Tucson are higher compared with the County, State, and U.S. averages.

[2] See http://worldpopulationreview.com/us-cities/tuscon-population/

Linguistic Isolation – Linguistic isolation limits a household's capacity for civic engagement in the regulatory process.[3] Linguistic isolation in Arizona is equal to the national average of five percent, and Pima County is slightly lower at 4%. However, the Impact Area and the City of Tucson are above the national average for linguistic isolation, and above the County and State averages. Of those linguistically isolated, Spanish is the language predominantly spoken.

Education levels – Education level is another factor that may influence susceptibility and vulnerability to air pollution. Limited formal education is a barrier to employment, health care and social resources, and can increase the risk of poverty, stress, and impacts from environmental stressors. The Impact Area and the City of Tucson are generally higher than State and County averages with respect to this factor.

Environmental Public Health Data – The Center for Disease Control and Prevention (CDC) provides environmental health data for Pima County that is available here: https://ephtracking.cdc.gov/InfoByLocation/

In general, the demographic information provided in the CDC database for Pima County is consistent with the demographic information provided above. The database also provides other information such as asthma rates, population proximity to highways, access to parks, extreme heat days, number of high ozone days, and smoking rates. However, much of this data is not provided in a comparable format. We note that the CDC information does indicate that Pima County has current asthma rates higher than the national average, 8.9% versus 7.0%, respectively, as of 2012. As such, we looked at current asthma prevalence rates data from the Centers for Disease Control and Prevention, which indicated the asthma rate was 9.6% in 2014 in Arizona as compared to a national rate of 8.4%[4].

Air Quality in Pima County and Potential Project Impacts

Pima County is designated as attainment or unclassifiable for PM_{10}, $PM_{2.5}$, NO_2, CO, SO_2 and lead NAAQS, however this region is very close to non-attainment of the EPA ground level ozone.

Impact of the Project's Emissions

PDEQ's environmental justice analysis focuses on the potential effects on minority and low-income and other populations from emissions that may affect the NAAQS that are applicable in the Project's PSD permit application. For this Project, we have reviewed impacts on the NAAQS for CO (1-hr and 8-hr average), $PM_{2.5}$ (24-hr and annual), and PM_{10} (24-hr). The referenced Air Quality Dispersion Modeling Report in footnote 4 of this page also provides a demonstration to address impacts of emissions on Ozone (O_3). USEPA has provided draft guidance on the development of modeled emission rates for precursor emissions, such as emissions of NO_X and VOC, that may result in an increase in ambient O_3 relative to the 8-hour O_3 NAAQS. Pima County has determined from the modeling results for the Project that the Project would not cause or contribute to a violation of the applicable health based NAAQS for any of the pollutants regulated under the PSD permit.[5] Furthermore, VOC emissions from the proposed Project will have an insignificant impact on ambient O_3 concentrations.[6]

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[3] A linguistically isolated household is defined by the U.S. Census Bureau as a household in which no member 14 years old and over (1) speaks only English or (2) speaks a non-English language and speaks English "very well." In other words, all members 14 years old and over have at least some difficulty with English.

[4] See https://www.cdc.gov/asthma/most_recent_data_states.htm

[5] See page 4-13 Air Quality Dispersion Modeling Report in Support of the Application for a Prevention of Significant Deterioration (PSD) Authorization and Significant Revision to Class I Air Quality Permit for Irvington Generating Station – Rev 2

[6] *Ibid.*

The modelling report considered impacts assessed using an EPA preferred and recommended modelling system "AERMOD". Five years (2012-2016) of representative meteorological data were used as input to AERMOD. Significance for 24-hour and annual PM2.5 is determined by averaging the maximum daily concentrations for each year modeled at each receptor over the 5 years and comparing to the Significant Impact Level (SIL), which are used as a compliance demonstration tool (AERMOD performs this calculation internally). All other pollutants/averaging periods are determined by comparing the maximum concentration for any year modeled to the SIL. Since the exhaust parameters and emission rates vary by operating load, minimum (25%), mid-range (50%), and full load (100%) were modeled and compared against the SILs.

For those pollutants and averaging periods with modeled concentrations less than their SILs, no further modeling was required because, by definition, those pollutants and averaging periods cannot cause or contribute to a violation of a NAAQS. A comparison of the overall maximum modeled concentrations with the SILs, across all operating loads (25%, 50%, and 100%) is presented in Table 3 for the worst-case emission rates. As is depicted in Table 3, all modeled concentrations are below their respective SILs. As such, no further analyses were required for these pollutants.

Table 3 Summary of Maximum AERMOD Concentrations to Significant Impact Levels

Pollutant	Averaging Period	Min-Load (25%) Maximum Concentration ($\mu g/m^3$)	Mid-Load (50%) Maximum Concentration ($\mu g/m^3$)	Max-Load (100%) Maximum Concentration ($\mu g/m^3$)	Significant Impact Level ($\mu g/m^3$)	Significant? (Yes or No)
CO	1-Hour[1]	78.350	55.117	31.111	2000	N
	8-Hour[1]	34.635	26.587	20.103	500	N
PM_{10}	24-Hour[1]	1.269	1.283	1.120	5	N
	Annual	0.190	0.194	0.167	1	N
$PM_{2.5}$	24-Hour[2]	1.012	1.039	0.925	1.2	N
	Annual[2]	0.181	0.182	0.157	0.3	N

Note: Bold italicized numbers indicate the maximum modeled concentration for each criteria pollutant.
[1] Highest concentration over the 5 year metrological period (2012-2016) modelled.
[2] Maximum concentration averaged over 5-years.

As stated above, the NAAQS are health-based standards and are designed to protect public health with an adequate margin of safety, including sensitive subpopulations. Considering the modeled results for the Project in light of the health-based nature of the applicable NAAQS, PDEQ has determined that the projected emissions of these pollutants from the Project will not result in disproportionately high and adverse human health or environmental effects on any population, including minority populations and low-income populations.

Outreach Activities for Pima County's Proposed PSD Permit Decision

PDEQ is undertaking various actions to provide public participation opportunities to the local community for its proposed PSD permit decision for the Tucson Electric Power RICE Project. On February 15, 2018, PDEQ will host a public information (open house) meeting in the vicinity of the proposed Project to provide interested community members the opportunity to learn about the Project and the PDEQ's permitting process and to informally discuss the potential air quality impacts of the Project. In light of the linguistically isolated Spanish-speaking population in the local community, English-Spanish translation services will be made available at the meeting.

PDEQ is issuing its public notice for the proposed PSD permit in both English and Spanish. Both versions of the notice are being provided to the public through PDEQ website, as well as being provided directly to those on our distribution list for those who have requested to be notified. In addition, the notice is being mailed to over 9,500 businesses and households located near the proposed Project and will be posted in Libraries and community centers near the facility.

PDEQ's proposed PSD permit for the Project, the accompanying technical support documents, and the public notice will be available for review on the PDEQ website and at the PDEQ office located: 33 N Stone Ave, Suite 700, Tucson, Arizona, 85737.

PDEQ issued a news release to local TV, Radio and print media including media with a focus on the Hispanic community. The main website for PDEQ includes a 'Featured News' section that provides a link to the news release.

PDEQ is providing an approximately 30-day public comment period for its proposed PSD permit decision for the TEP RICE project. We have also scheduled a public hearing on March 1, 2018 near the proposed Project to take oral and written comments on the Project.

All information in the administrative record related to our proposed PSD permit decision for the Project can be found through this webpage:
http://webcms.pima.gov/cms/One.aspx?portalId=169&pageId=363558

Attachment A

Analysis

Attachment B

Environmental Justice

Attachment A

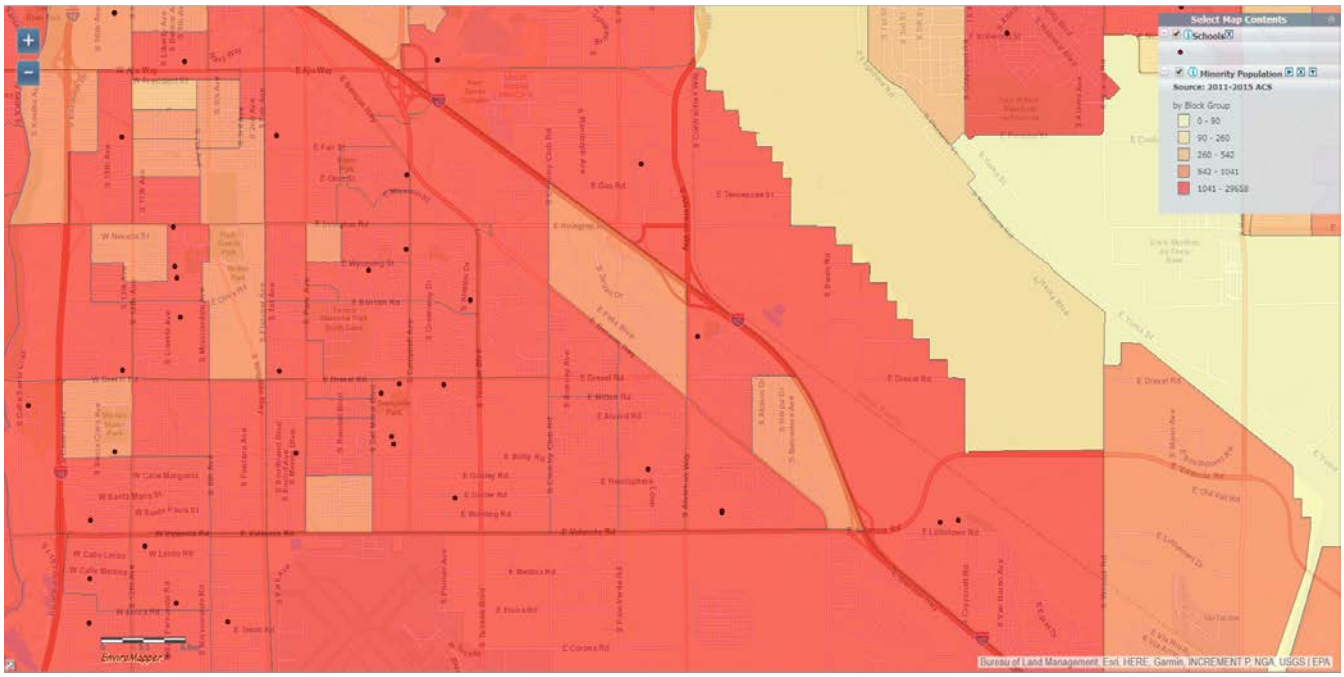
Analysis

EJ PROJECT

https://www.epa.gov/ejscreen

The EPA developed an environmental justice integrative geographic information system, or GIS, mapping and screening tool called, "EJSCREEN" (http://www2.epa.gov/ejscreen). EJSCREEEN is based on nationally accredited and validated data from the US Census Bureau's American Community Survey 2008-2012 that allows one to combine environmental and demographic indicators to generate specific maps or reports. For this report, EJSCREEN was utilized to identify potential environmental justice individuals and communities that surround the spatial location of interest (TEP; 3950 E Irvington Rd, Tucson AZ 85706). The potential environmental justice individuals and communities of interest include: individuals below the poverty level, the minority population, and Spanish-speaking individuals.

Figure 1: EJSCREEN Minority Population Map in the Project Area

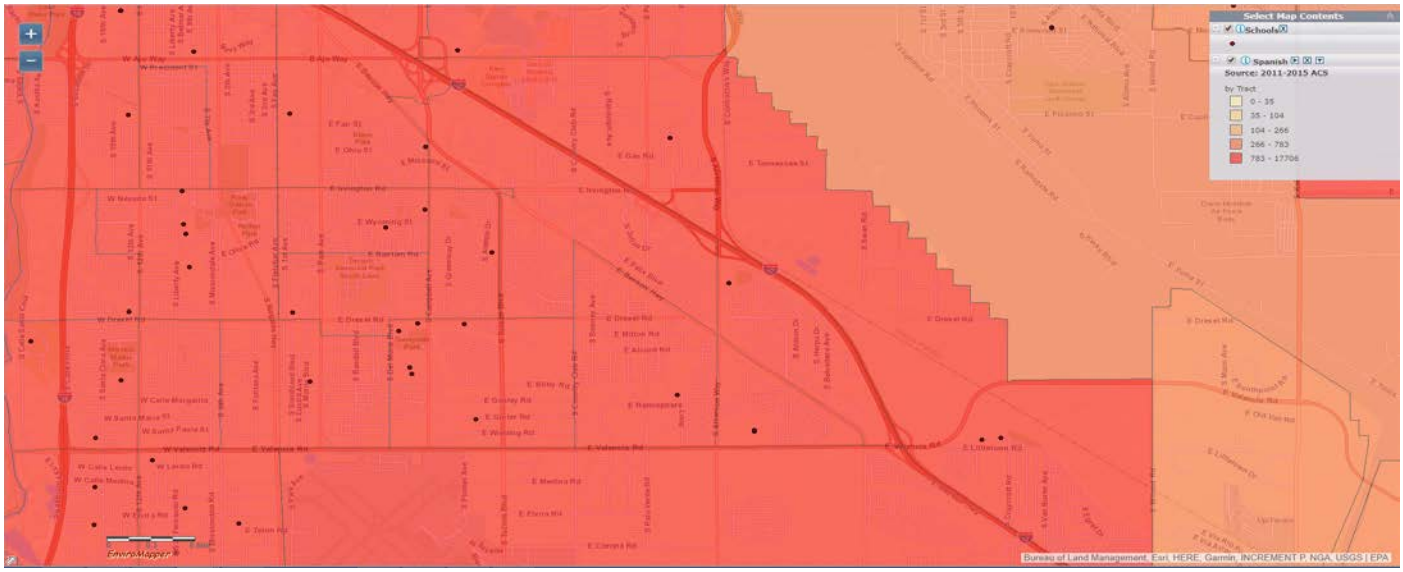


Source: https://ejscreen.epa.gov/mapper/

Figure 1 represents the EJSCREEN Minority Population Index map near the spatial location of interest (TEP Plant; 3950 E Irvington Rd, Tucson, AZ 85706). EJSCREEN lists the Minority Population Index by reporting the number of minority individuals by block group. Block groups are statistical divisions of census tracts that are used to present data and control block numbering. A block group consists of clusters of blocks within the same census tract that have the same first digit of their four-digit census number. As the number of minority individuals'

increase in a specific block area, the shade of color becomes darker, which represents a higher population of minority individuals in that specific area. These color coded census blocks call attention to certain locations with higher minority populations and allow for a more accurate depiction of the true population around the spatial location of interest.

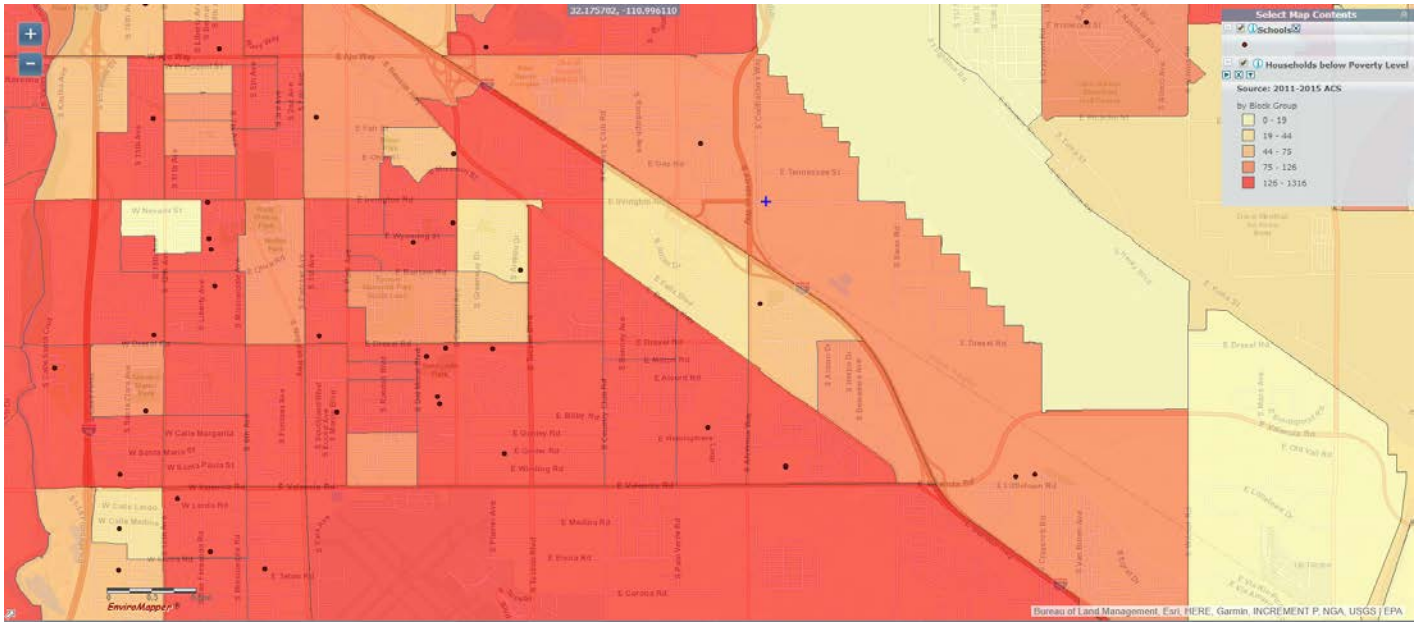
Figure 2: EJSCREEN Spanish Speaking Individuals Map in the Project Area



Source: https://ejscreen.epa.gov/mapper/

Figure 2 represents the EJ Spanish Speaking Individuals map near the spatial location of interest (TEP Plant; 3950 E Irvington Rd, Tucson, AZ 85706). EJSCREEN lists the Spanish Speaking Individuals by reporting the number of Spanish speaking individuals by tract. Tracts are small, relatively permanent statistical subdivisions of a country delineated by local participants as part of the U.S. Census Bureau's Participant Statistical Areas Program. As the number of Spanish speaking individuals' increase in a specific tract, the shade of color becomes darker, which represents a higher population of Spanish speaking individuals in that specific area. These color coded tract areas call attention to certain locations with higher Spanish speaking individuals and allow for a more accurate depiction of the true population around the spatial location of interest.

Figure 3: EJSCREEN Households below Poverty Level Map in the Project Area



Source: https://ejscreen.epa.gov/mapper/

Figure 3 represents the EJ Households below Poverty Level map near the spatial location of interest (TEP Plant; 3950 E Irvington Rd, Tucson, AZ 85706). EJSCREEN lists the Households below Poverty Level by block groups. As the number of households below poverty level increases, the shade of color becomes darker, which represents a higher population in households below poverty level in that specific area. These color coded block groups call attention to certain locations of households below poverty level that surround the spatial location of interest. The color coded map allows for more accurate depiction of the surrounding households' income levels, which illustrates a clearer picture of the socioeconomic status of households that surround the spatial location of interest.

Attachment B

Environmental Justice

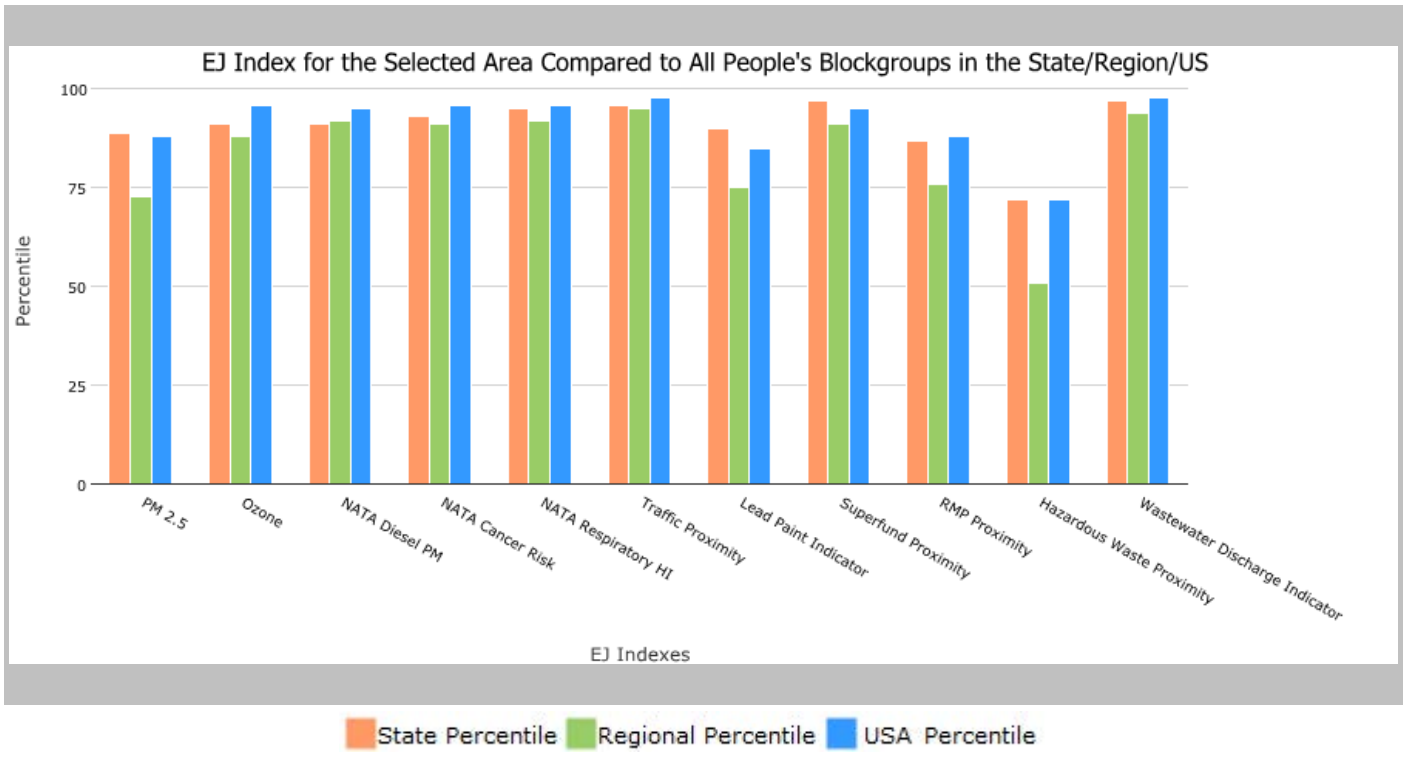
EJSCREEN Report (Version 2017)

the User Specified Area, ARIZONA, EPA Region 9

Approximate Population: 94,228

Input Area (sq. miles): 38.84

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	89	73	88
EJ Index for Ozone	91	88	96
EJ Index for NATA* Diesel PM	91	92	95
EJ Index for NATA* Air Toxics Cancer Risk	93	91	96
EJ Index for NATA* Respiratory Hazard Index	95	92	96
EJ Index for Traffic Proximity and Volume	96	95	98
EJ Index for Lead Paint Indicator	90	75	85
EJ Index for Superfund Proximity	97	91	95
EJ Index for RMP Proximity	87	76	88
EJ Index for Hazardous Waste Proximity	72	51	72
EJ Index for Wastewater Discharge Indicator	97	94	98



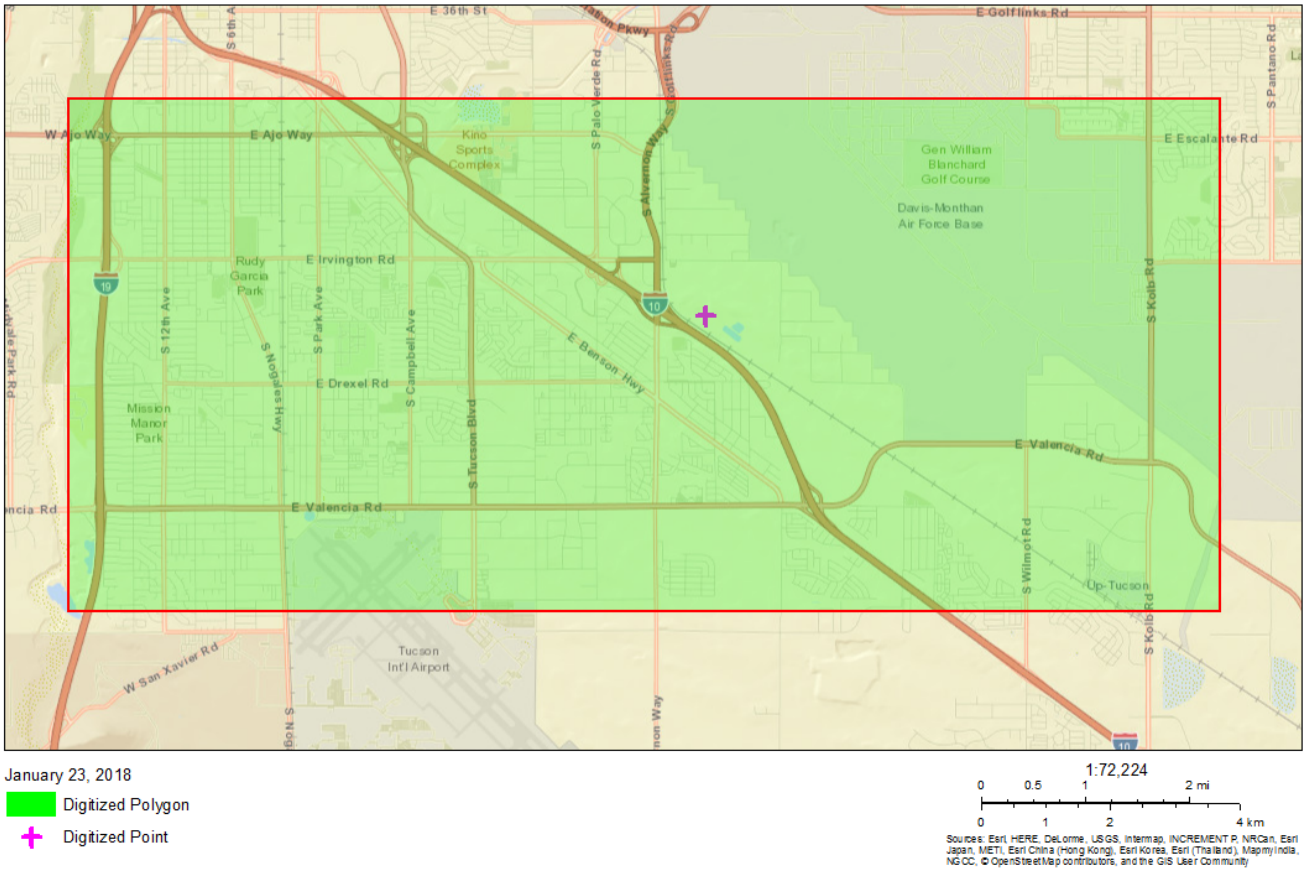
This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

EJSCREEN Report (Version 2017)

the User Specified Area, ARIZONA, EPA Region 9

Approximate Population: 94,228

Input Area (sq. miles): 38.84



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJSCREEN Report (Version 2017)

the User Specified Area, ARIZONA, EPA Region 9

Approximate Population: 94,228

Input Area (sq. miles): 38.84

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m^3)	6.38	6.7	32	9.9	5	9.14	5
Ozone (ppb)	45.1	46.4	19	41.8	67	38.4	92
NATA* Diesel PM (µg/m^3)	1.56	1.11	75	0.978	80-90th	0.938	80-90th
NATA* Cancer Risk (lifetime risk per million)	56	44	94	43	90-95th	40	90-95th
NATA* Respiratory Hazard Index	2.8	1.5	94	2	80-90th	1.8	80-90th
Traffic Proximity and Volume (daily traffic count/distance to road)	3300	830	90	1100	90	590	96
Lead Paint Indicator (% Pre-1960 Housing)	0.18	0.091	83	0.24	54	0.29	48
Superfund Proximity (site count/km distance)	0.17	0.079	93	0.15	82	0.13	82
RMP Proximity (facility count/km distance)	0.52	0.63	67	0.98	52	0.73	61
Hazardous Waste Proximity (facility count/km distance)	0.01	0.068	17	0.12	5	0.093	6
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	1.2	2.4	92	13	91	30	96
Demographic Indicators							
Demographic Index	73%	41%	85	47%	84	36%	90
Minority Population	85%	43%	86	59%	75	38%	87
Low Income Population	63%	39%	80	36%	84	34%	88
Linguistically Isolated Population	15%	5%	89	9%	77	5%	89
Population With Less Than High School Education	32%	14%	85	17%	79	13%	90
Population Under 5 years of age	8%	7%	69	7%	71	6%	74
Population over 64 years of age	9%	15%	44	13%	41	14%	31

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

EJSCREEN Census 2010 Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-mile radius
Description:

Summary	Census 2010
Population	93,244
Population Density (per sq. mile)	2,424
Minority Population	78,028
% Minority	84%
Households	28,346
Housing Units	31,549
Land Area (sq. miles)	38.46
% Land Area	100%
Water Area (sq. miles)	0.00
% Water Area	0%

Population by Race	Number	Percent
Total	93,244	-------
Population Reporting One Race	89,711	96%
White	53,186	57%
Black	3,275	4%
American Indian	3,509	4%
Asian	1,116	1%
Pacific Islander	121	0%
Some Other Race	28,504	31%
Population Reporting Two or More Races	3,533	4%
Total Hispanic Population	71,153	76%
Total Non-Hispanic Population	22,091	24%
White Alone	15,216	16%
Black Alone	2,711	3%
American Indian Alone	1,988	2%
Non-Hispanic Asian Alone	978	1%
Pacific Islander Alone	91	0%
Other Race Alone	111	0%
Two or More Races Alone	996	1%

Population by Sex	Number	Percent
Male	46,153	49%
Female	47,091	51%

Population by Age	Number	Percent
Age 0-4	8,821	9%
Age 0-17	30,284	32%
Age 18+	62,960	68%
Age 65+	7,534	8%

Households by Tenure	Number	Percent
Total	28,346	
Owner Occupied	17,275	61%
Renter Occupied	11,071	39%

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, Census 2010 Summary File 1.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-mile radius
Description:

Summary of ACS Estimates	2011 - 2015
Population	94,228
Population Density (per sq. mile)	2,449
Minority Population	79,668
% Minority	85%
Households	28,870
Housing Units	32,206
Housing Units Built Before 1950	1,886
Per Capita Income	13,858
Land Area (sq. miles) (Source: SF1)	38.47
% Land Area	100%
Water Area (sq. miles) (Source: SF1)	0.00
% Water Area	0%

	2011 - 2015 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	94,228	100%	825
Population Reporting One Race	91,009	97%	2,156
White	64,831	69%	859
Black	3,550	4%	253
American Indian	3,154	3%	306
Asian	873	1%	142
Pacific Islander	71	0%	62
Some Other Race	18,531	20%	534
Population Reporting Two or More Races	3,219	3%	208
Total Hispanic Population	72,886	77%	743
Total Non-Hispanic Population	21,342		
White Alone	14,560	15%	463
Black Alone	2,931	3%	253
American Indian Alone	2,009	2%	297
Non-Hispanic Asian Alone	835	1%	136
Pacific Islander Alone	40	0%	62
Other Race Alone	94	0%	104
Two or More Races Alone	873	1%	204
Population by Sex			
Male	46,140	49%	518
Female	48,088	51%	480
Population by Age			
Age 0-4	7,889	8%	211
Age 0-17	29,103	31%	399
Age 18+	65,124	69%	557
Age 65+	8,795	9%	135

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race. N/A means not available.
Source: U.S. Census Bureau, American Community Survey (ACS) 2011 - 2015.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-mile radius
Description:

	2011 - 2015 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	52,887	100%	482
Less than 9th Grade	7,789	15%	136
9th - 12th Grade, No Diploma	9,106	17%	172
High School Graduate	15,749	30%	335
Some College, No Degree	16,041	30%	350
Associate Degree	3,602	7%	193
Bachelor's Degree or more	4,203	8%	179
Population Age 5+ Years by Ability to Speak English			
Total	86,339	100%	812
Speak only English	31,335	36%	456
Non-English at Home[1+2+3+4]	55,004	64%	667
[1]Speak English "very well"	35,157	41%	621
[2]Speak English "well"	8,783	10%	180
[3]Speak English "not well"	7,056	8%	203
[4]Speak English "not at all"	4,009	5%	139
[3+4]Speak English "less than well"	11,065	13%	232
[2+3+4]Speak English "less than very well"	19,847	23%	274
Linguistically Isolated Households*			
Total	4,322	100%	131
Speak Spanish	4,292	99%	130
Speak Other Indo-European Languages	9	0%	21
Speak Asian-Pacific Island Languages	21	0%	31
Speak Other Languages	0	0%	17
Households by Household Income			
Household Income Base	28,870	100%	183
< $15,000	6,200	21%	137
$15,000 - $25,000	5,176	18%	124
$25,000 - $50,000	8,983	31%	186
$50,000 - $75,000	4,699	16%	167
$75,000 +	3,812	13%	168
Occupied Housing Units by Tenure			
Total	28,870	100%	183
Owner Occupied	16,964	59%	184
Renter Occupied	11,906	41%	164
Employed Population Age 16+ Years			
Total	68,379	100%	577
In Labor Force	42,855	63%	371
Civilian Unemployed in Labor Force	6,390	9%	178
Not In Labor Force	25,525	37%	434

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race. N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2011 - 2015.

*Households in which no one 14 and over speaks English "very well" or speaks English only.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-mile radius
Description:

	2011 - 2015 ACS Estimates	Percent	MOE (±)
Population by Language Spoken at Home*			
Total (persons age 5 and above)	86,339	100%	812
English	N/A	N/A	N/A
Spanish	N/A	N/A	N/A
French	N/A	N/A	N/A
French Creole	N/A	N/A	N/A
Italian	N/A	N/A	N/A
Portuguese	N/A	N/A	N/A
German	N/A	N/A	N/A
Yiddish	N/A	N/A	N/A
Other West Germanic	N/A	N/A	N/A
Scandinavian	N/A	N/A	N/A
Greek	N/A	N/A	N/A
Russian	N/A	N/A	N/A
Polish	N/A	N/A	N/A
Serbo-Croatian	N/A	N/A	N/A
Other Slavic	N/A	N/A	N/A
Armenian	N/A	N/A	N/A
Persian	N/A	N/A	N/A
Gujarathi	N/A	N/A	N/A
Hindi	N/A	N/A	N/A
Urdu	N/A	N/A	N/A
Other Indic	N/A	N/A	N/A
Other Indo-European	N/A	N/A	N/A
Chinese	N/A	N/A	N/A
Japanese	N/A	N/A	N/A
Korean	N/A	N/A	N/A
Mon-Khmer, Cambodian	N/A	N/A	N/A
Hmong	N/A	N/A	N/A
Thai	N/A	N/A	N/A
Laotian	N/A	N/A	N/A
Vietnamese	N/A	N/A	N/A
Other Asian	N/A	N/A	N/A
Tagalog	N/A	N/A	N/A
Other Pacific Island	N/A	N/A	N/A
Navajo	N/A	N/A	N/A
Other Native American	N/A	N/A	N/A
Hungarian	N/A	N/A	N/A
Arabic	N/A	N/A	N/A
Hebrew	N/A	N/A	N/A
African	N/A	N/A	N/A
Other and non-specified	N/A	N/A	N/A
Total Non-English	N/A	N/A	N/A

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race. N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2011 - 2015.
*Population by Language Spoken at Home is available at the census tract summary level and up.

EJSCREEN Report (Version 2017)

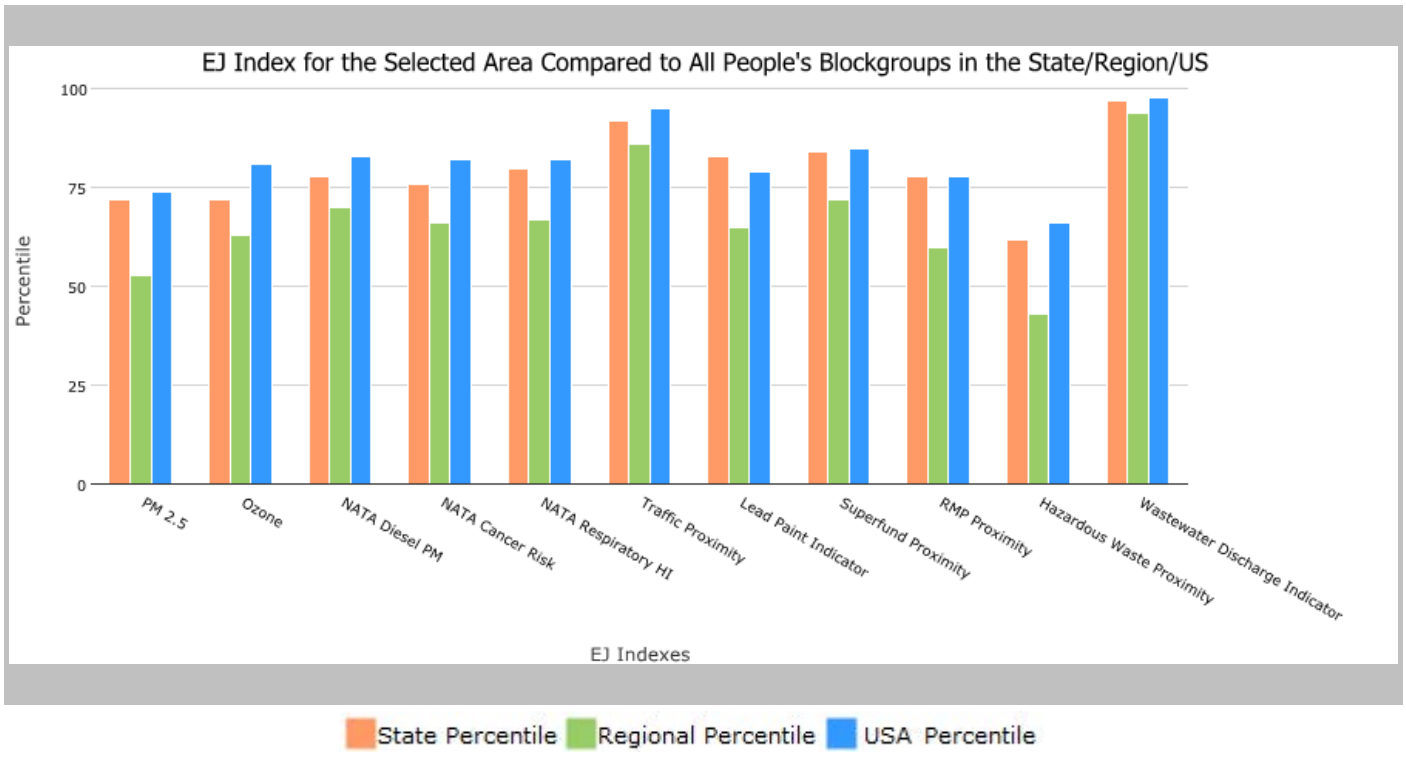
the User Specified Area, ARIZONA, EPA Region 9

Approximate Population: 573,322

Input Area (sq. miles): 292.23

City of Tucson (The study area contains 1 blockgroup(s) with zero population.)

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	72	53	74
EJ Index for Ozone	72	63	81
EJ Index for NATA* Diesel PM	78	70	83
EJ Index for NATA* Air Toxics Cancer Risk	76	66	82
EJ Index for NATA* Respiratory Hazard Index	80	67	82
EJ Index for Traffic Proximity and Volume	92	86	95
EJ Index for Lead Paint Indicator	83	65	79
EJ Index for Superfund Proximity	84	72	85
EJ Index for RMP Proximity	78	60	78
EJ Index for Hazardous Waste Proximity	62	43	66
EJ Index for Wastewater Discharge Indicator	97	94	98



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

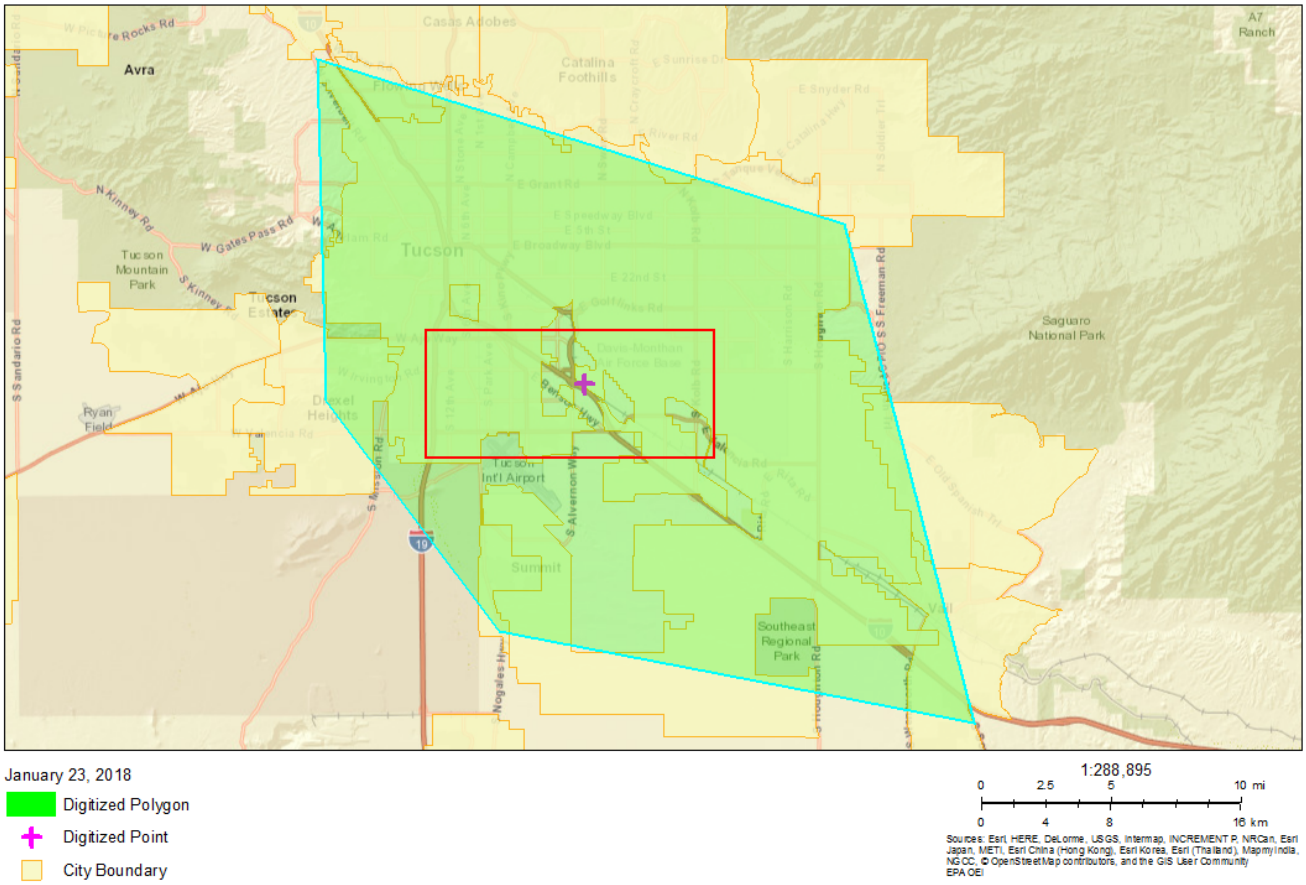
EJSCREEN Report (Version 2017)

the User Specified Area, ARIZONA, EPA Region 9

Approximate Population: 573,322

Input Area (sq. miles): 292.23

City of Tucson (The study area contains 1 blockgroup(s) with zero population.)



Sites reporting to EPA	
Superfund NPL	1
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJSCREEN Report (Version 2017)

the User Specified Area, ARIZONA, EPA Region 9

Approximate Population: 573,322

Input Area (sq. miles): 292.23

City of Tucson (The study area contains 1 blockgroup(s) with zero population.)

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m^3)	6.24	6.7	28	9.9	5	9.14	4
Ozone (ppb)	45.3	46.4	23	41.8	68	38.4	93
NATA* Diesel PM (µg/m^3)	0.963	1.11	49	0.978	50-60th	0.938	60-70th
NATA* Cancer Risk (lifetime risk per million)	50	44	74	43	70-80th	40	80-90th
NATA* Respiratory Hazard Index	2	1.5	80	2	50-60th	1.8	60-70th
Traffic Proximity and Volume (daily traffic count/distance to road)	2700	830	88	1100	88	590	95
Lead Paint Indicator (% Pre-1960 Housing)	0.23	0.091	86	0.24	59	0.29	54
Superfund Proximity (site count/km distance)	0.091	0.079	78	0.15	60	0.13	63
RMP Proximity (facility count/km distance)	0.31	0.63	57	0.98	41	0.73	50
Hazardous Waste Proximity (facility count/km distance)	0.011	0.068	20	0.12	6	0.093	7
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	1.2	2.4	93	13	91	30	96
Demographic Indicators							
Demographic Index	53%	41%	70	47%	60	36%	76
Minority Population	56%	43%	69	59%	46	38%	71
Low Income Population	51%	39%	69	36%	72	34%	77
Linguistically Isolated Population	6%	5%	73	9%	52	5%	75
Population With Less Than High School Education	17%	14%	67	17%	58	13%	70
Population Under 5 years of age	6%	7%	50	7%	51	6%	55
Population over 64 years of age	13%	15%	60	13%	61	14%	52

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

EJSCREEN Census 2010 Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-mile radius
Description: City of Tucson

Summary	Census 2010
Population	566,777
Population Density (per sq. mile)	1,996
Minority Population	308,943
% Minority	55%
Households	219,467
Housing Units	246,228
Land Area (sq. miles)	283.91
% Land Area	100%
Water Area (sq. miles)	0.29
% Water Area	0%

Population by Race	Number	Percent
Total	566,777	-------
Population Reporting One Race	543,043	96%
White	391,194	69%
Black	27,076	5%
American Indian	16,470	3%
Asian	15,068	3%
Pacific Islander	1,195	0%
Some Other Race	92,040	16%
Population Reporting Two or More Races	23,734	4%
Total Hispanic Population	247,408	44%
Total Non-Hispanic Population	319,369	56%
White Alone	257,834	45%
Black Alone	24,234	4%
American Indian Alone	10,307	2%
Non-Hispanic Asian Alone	14,294	3%
Pacific Islander Alone	990	0%
Other Race Alone	827	0%
Two or More Races Alone	10,883	2%

Population by Sex	Number	Percent
Male	281,062	50%
Female	285,715	50%

Population by Age	Number	Percent
Age 0-4	39,895	7%
Age 0-17	136,343	24%
Age 18+	430,434	76%
Age 65+	67,371	12%

Households by Tenure	Number	Percent
Total	219,467	
Owner Occupied	118,590	54%
Renter Occupied	100,877	46%

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, Census 2010 Summary File 1.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-mile radius
Description: City of Tucson

Summary of ACS Estimates	2011 - 2015
Population	573,322
Population Density (per sq. mile)	2,019
Minority Population	321,195
% Minority	56%
Households	219,881
Housing Units	249,451
Housing Units Built Before 1950	21,135
Per Capita Income	21,010
Land Area (sq. miles) (Source: SF1)	283.95
% Land Area	100%
Water Area (sq. miles) (Source: SF1)	0.26
% Water Area	0%

	2011 - 2015 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	573,322	100%	1,149
Population Reporting One Race	550,206	96%	3,238
White	424,316	74%	1,147
Black	27,376	5%	464
American Indian	16,379	3%	470
Asian	15,374	3%	368
Pacific Islander	995	0%	202
Some Other Race	65,766	11%	587
Population Reporting Two or More Races	23,116	4%	348
Total Hispanic Population	258,191	45%	1,135
Total Non-Hispanic Population	315,131		
White Alone	252,127	44%	739
Black Alone	24,760	4%	462
American Indian Alone	10,433	2%	427
Non-Hispanic Asian Alone	14,473	3%	331
Pacific Islander Alone	894	0%	202
Other Race Alone	686	0%	310
Two or More Races Alone	11,757	2%	333
Population by Sex			
Male	285,188	50%	610
Female	288,134	50%	574
Population by Age			
Age 0-4	36,543	6%	408
Age 0-17	129,225	23%	512
Age 18+	444,097	77%	630
Age 65+	74,703	13%	288

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race. N/A means not available.
Source: U.S. Census Bureau, American Community Survey (ACS) 2011 - 2015.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-mile radius
Description: City of Tucson

	2011 - 2015 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	356,522	100%	482
Less than 9th Grade	25,314	7%	211
9th - 12th Grade, No Diploma	34,880	10%	184
High School Graduate	88,521	25%	335
Some College, No Degree	124,045	35%	377
Associate Degree	29,475	8%	193
Bachelor's Degree or more	83,762	23%	358
Population Age 5+ Years by Ability to Speak English			
Total	536,779	100%	812
Speak only English	345,337	64%	627
Non-English at Home[1+2+3+4]	191,443	36%	667
[1]Speak English "very well"	131,527	25%	621
[2]Speak English "well"	27,719	5%	228
[3]Speak English "not well"	21,332	4%	219
[4]Speak English "not at all"	10,865	2%	168
[3+4]Speak English "less than well"	32,196	6%	246
[2+3+4]Speak English "less than very well"	59,916	11%	274
Linguistically Isolated Households*			
Total	13,560	100%	142
Speak Spanish	10,921	81%	130
Speak Other Indo-European Languages	655	5%	86
Speak Asian-Pacific Island Languages	1,412	10%	92
Speak Other Languages	571	4%	73
Households by Household Income			
Household Income Base	219,881	100%	233
< $15,000	43,247	20%	199
$15,000 - $25,000	33,192	15%	190
$25,000 - $50,000	63,147	29%	213
$50,000 - $75,000	36,032	16%	189
$75,000 +	44,262	20%	342
Occupied Housing Units by Tenure			
Total	219,881	100%	233
Owner Occupied	112,471	51%	230
Renter Occupied	107,410	49%	232
Employed Population Age 16+ Years			
Total	458,456	100%	687
In Labor Force	280,517	61%	553
Civilian Unemployed in Labor Force	31,483	7%	242
Not In Labor Force	177,939	39%	647

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race. N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2011 - 2015.

*Households in which no one 14 and over speaks English "very well" or speaks English only.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-mile radius
Description: City of Tucson

	2011 - 2015 ACS Estimates	Percent	MOE (±)
Population by Language Spoken at Home*			
Total (persons age 5 and above)	536,779	100%	812
English	N/A	N/A	N/A
Spanish	N/A	N/A	N/A
French	N/A	N/A	N/A
French Creole	N/A	N/A	N/A
Italian	N/A	N/A	N/A
Portuguese	N/A	N/A	N/A
German	N/A	N/A	N/A
Yiddish	N/A	N/A	N/A
Other West Germanic	N/A	N/A	N/A
Scandinavian	N/A	N/A	N/A
Greek	N/A	N/A	N/A
Russian	N/A	N/A	N/A
Polish	N/A	N/A	N/A
Serbo-Croatian	N/A	N/A	N/A
Other Slavic	N/A	N/A	N/A
Armenian	N/A	N/A	N/A
Persian	N/A	N/A	N/A
Gujarathi	N/A	N/A	N/A
Hindi	N/A	N/A	N/A
Urdu	N/A	N/A	N/A
Other Indic	N/A	N/A	N/A
Other Indo-European	N/A	N/A	N/A
Chinese	N/A	N/A	N/A
Japanese	N/A	N/A	N/A
Korean	N/A	N/A	N/A
Mon-Khmer, Cambodian	N/A	N/A	N/A
Hmong	N/A	N/A	N/A
Thai	N/A	N/A	N/A
Laotian	N/A	N/A	N/A
Vietnamese	N/A	N/A	N/A
Other Asian	N/A	N/A	N/A
Tagalog	N/A	N/A	N/A
Other Pacific Island	N/A	N/A	N/A
Navajo	N/A	N/A	N/A
Other Native American	N/A	N/A	N/A
Hungarian	N/A	N/A	N/A
Arabic	N/A	N/A	N/A
Hebrew	N/A	N/A	N/A
African	N/A	N/A	N/A
Other and non-specified	N/A	N/A	N/A
Total Non-English	N/A	N/A	N/A

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race. N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2011 - 2015.
*Population by Language Spoken at Home is available at the census tract summary level and up.

EJSCREEN Report (Version 2017)

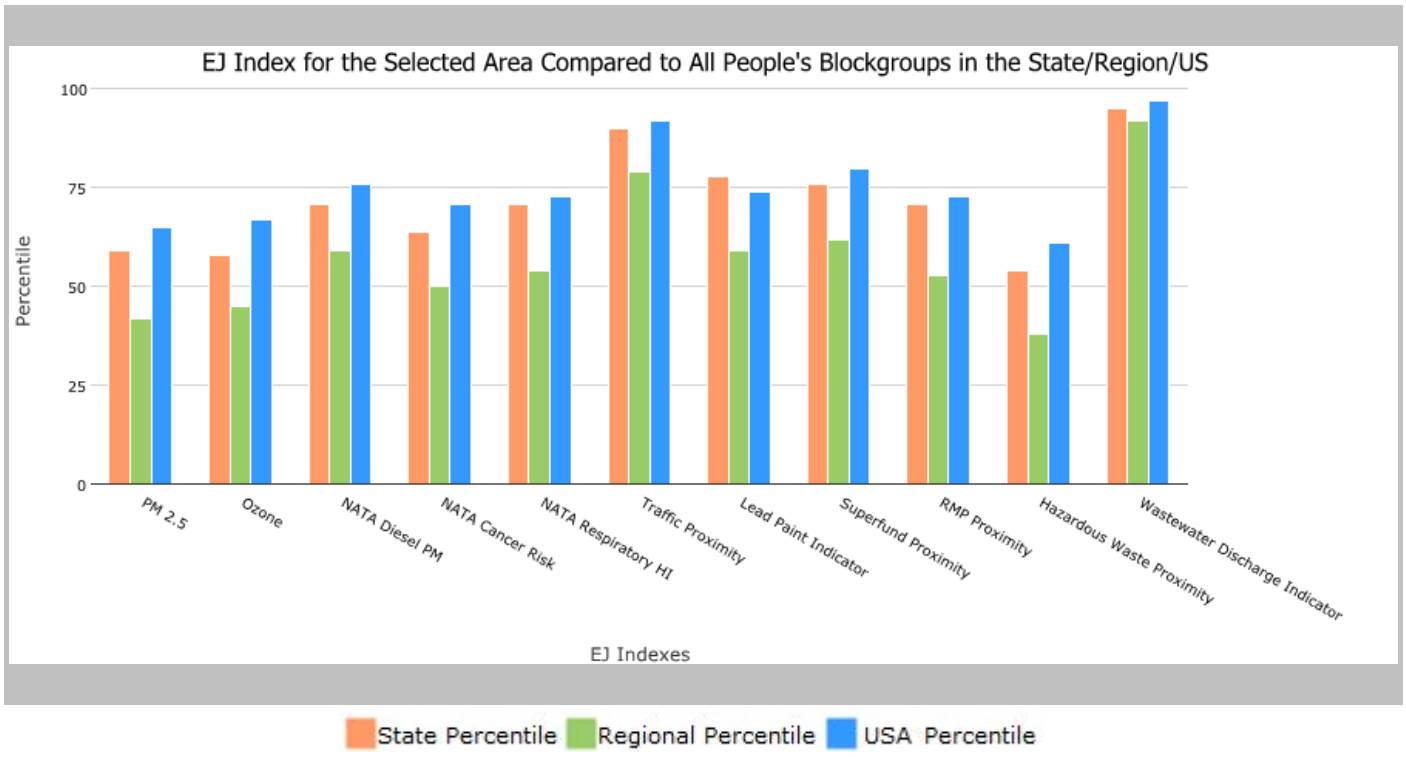
County: Pima, ARIZONA, EPA Region 9

Approximate Population: 998,537

Input Area (sq. miles): 9189.02

Pima (The study area contains 1 blockgroup(s) with zero population.)

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	59	42	65
EJ Index for Ozone	58	45	67
EJ Index for NATA* Diesel PM	71	59	76
EJ Index for NATA* Air Toxics Cancer Risk	64	50	71
EJ Index for NATA* Respiratory Hazard Index	71	54	73
EJ Index for Traffic Proximity and Volume	90	79	92
EJ Index for Lead Paint Indicator	78	59	74
EJ Index for Superfund Proximity	76	62	80
EJ Index for RMP Proximity	71	53	73
EJ Index for Hazardous Waste Proximity	54	38	61
EJ Index for Wastewater Discharge Indicator	95	92	97



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

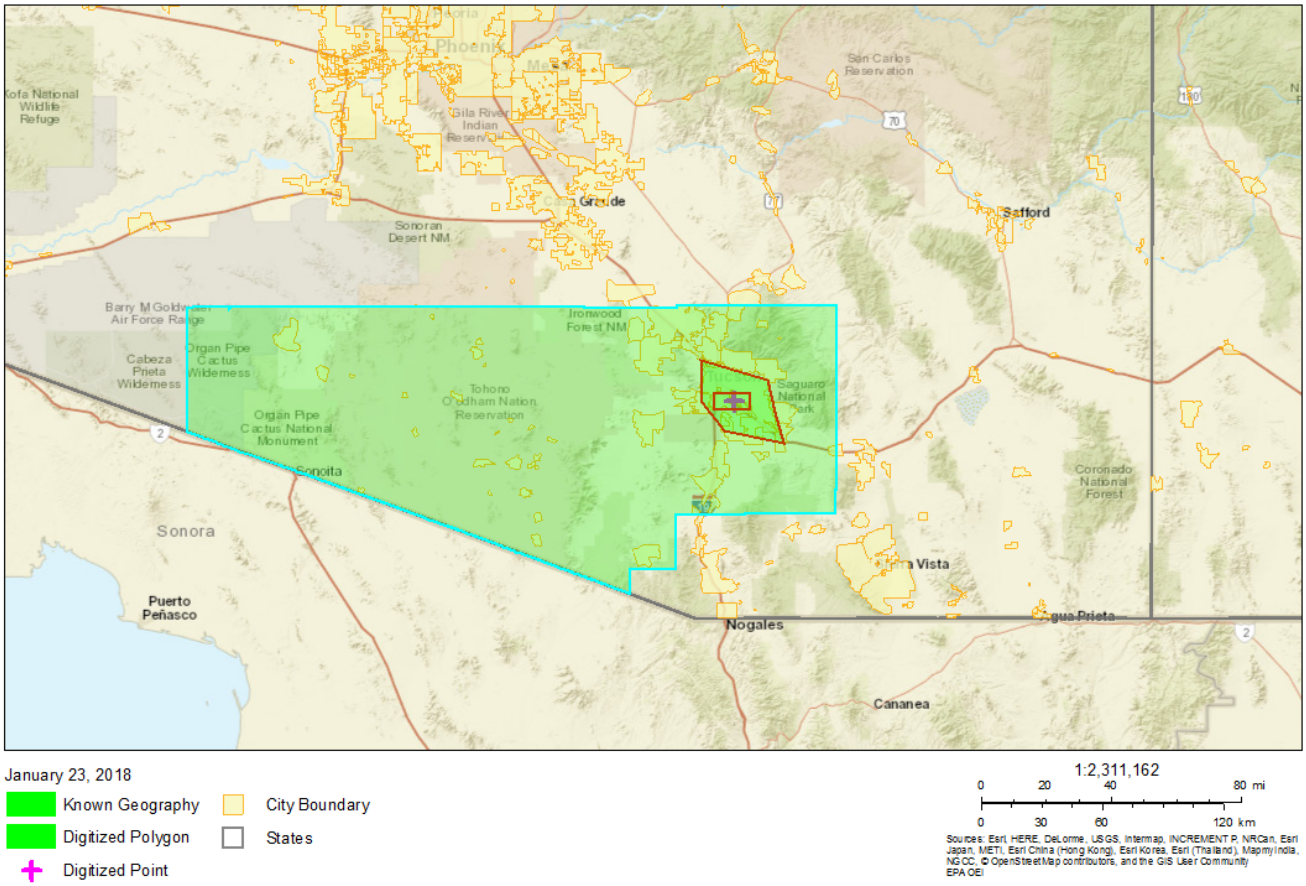
EJSCREEN Report (Version 2017)

County: Pima, ARIZONA, EPA Region 9

Approximate Population: 998,537

Input Area (sq. miles): 9189.02

Pima (The study area contains 1 blockgroup(s) with zero population.)



Sites reporting to EPA	
Superfund NPL	1
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJSCREEN Report (Version 2017)

County: Pima, ARIZONA, EPA Region 9

Approximate Population: 998,537

Input Area (sq. miles): 9189.02

Pima (The study area contains 1 blockgroup(s) with zero population.)

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m^3)	6.07	6.7	24	9.9	4	9.14	3
Ozone (ppb)	45.3	46.4	22	41.8	68	38.4	93
NATA* Diesel PM (µg/m^3)	0.715	1.11	38	0.978	<50th	0.938	<50th
NATA* Cancer Risk (lifetime risk per million)	44	44	43	43	50-60th	40	60-70th
NATA* Respiratory Hazard Index	1.6	1.5	58	2	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	1900	830	85	1100	83	590	93
Lead Paint Indicator (% Pre-1960 Housing)	0.14	0.091	80	0.24	51	0.29	43
Superfund Proximity (site count/km distance)	0.07	0.079	64	0.15	50	0.13	54
RMP Proximity (facility count/km distance)	0.21	0.63	47	0.98	30	0.73	40
Hazardous Waste Proximity (facility count/km distance)	0.011	0.068	22	0.12	7	0.093	7
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	1.3	2.4	93	13	91	30	96
Demographic Indicators							
Demographic Index	43%	41%	60	47%	45	36%	66
Minority Population	46%	43%	60	59%	36	38%	65
Low Income Population	40%	39%	56	36%	60	34%	63
Linguistically Isolated Population	4%	5%	66	9%	43	5%	69
Population With Less Than High School Education	12%	14%	57	17%	49	13%	58
Population Under 5 years of age	6%	7%	47	7%	48	6%	52
Population over 64 years of age	17%	15%	72	13%	76	14%	71

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

EJSCREEN ACS Summary Report

Location: Pima County
Ring (buffer): 0-mile radius
Description:

Summary of ACS Estimates	2011 - 2015
Population	998,537
Population Density (per sq. mile)	109
Minority Population	462,572
% Minority	46%
Households	389,658
Housing Units	446,769
Housing Units Built Before 1950	24,091
Per Capita Income	25,729
Land Area (sq. miles) (Source: SF1)	9,187.04
% Land Area	100%
Water Area (sq. miles) (Source: SF1)	2.04
% Water Area	0%

	2011 - 2015 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	998,537	100%	0
Population Reporting One Race	960,971	96%	9,361
White	777,699	78%	3,096
Black	36,123	4%	1,087
American Indian	32,656	3%	1,121
Asian	27,498	3%	817
Pacific Islander	1,454	0%	213
Some Other Race	85,541	9%	3,027
Population Reporting Two or More Races	37,566	4%	1,776
Total Hispanic Population	356,589	36%	0
Total Non-Hispanic Population	641,948		
White Alone	535,965	54%	408
Black Alone	32,586	3%	762
American Indian Alone	24,333	2%	740
Non-Hispanic Asian Alone	26,127	3%	715
Pacific Islander Alone	1,351	0%	214
Other Race Alone	1,384	0%	474
Two or More Races Alone	20,202	2%	1,304
Population by Sex			
Male	491,108	49%	68
Female	507,429	51%	68
Population by Age			
Age 0-4	60,124	6%	98
Age 0-17	220,513	22%	1,806
Age 18+	778,024	78%	3,761
Age 65+	171,231	17%	1,999

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race. N/A means not available.
Source: U.S. Census Bureau, American Community Survey (ACS) 2011 - 2015.

EJSCREEN ACS Summary Report

Location: Pima County
Ring (buffer): 0-mile radius
Description:

	2011 - 2015 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	658,596	100%	81
Less than 9th Grade	33,331	5%	1,338
9th - 12th Grade, No Diploma	48,458	7%	1,550
High School Graduate	150,306	23%	2,347
Some College, No Degree	227,070	34%	3,008
Associate Degree	56,565	9%	1,599
Bachelor's Degree or more	199,431	30%	2,616
Population Age 5+ Years by Ability to Speak English			
Total	938,413	100%	82
Speak only English	669,630	71%	3,064
Non-English at Home[1+2+3+4]	268,783	29%	3,171
[1]Speak English "very well"	191,374	20%	3,053
[2]Speak English "well"	37,602	4%	1,358
[3]Speak English "not well"	27,302	3%	1,144
[4]Speak English "not at all"	12,505	1%	899
[3+4]Speak English "less than well"	39,807	4%	1,455
[2+3+4]Speak English "less than very well"	77,409	8%	1,990
Linguistically Isolated Households*			
Total	16,783	100%	787
Speak Spanish	12,895	77%	663
Speak Other Indo-European Languages	1,146	7%	246
Speak Asian-Pacific Island Languages	2,034	12%	280
Speak Other Languages	708	4%	204
Households by Household Income			
Household Income Base	389,658	100%	2,028
< $15,000	57,323	15%	1,577
$15,000 - $25,000	48,411	12%	1,634
$25,000 - $50,000	102,244	26%	2,178
$50,000 - $75,000	69,323	18%	1,826
$75,000 +	112,357	29%	2,071
Occupied Housing Units by Tenure			
Total	389,658	100%	2,028
Owner Occupied	238,329	61%	2,286
Renter Occupied	151,329	39%	2,370
Employed Population Age 16+ Years			
Total	803,330	100%	597
In Labor Force	474,421	59%	2,921
Civilian Unemployed in Labor Force	46,994	6%	2,055
Not In Labor Force	328,909	41%	3,082

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race. N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2011 - 2015.

*Households in which no one 14 and over speaks English "very well" or speaks English only.

EJSCREEN ACS Summary Report

Location: Pima County
Ring (buffer): 0-mile radius
Description:

	2011 - 2015 ACS Estimates	Percent	MOE (±)
Population by Language Spoken at Home*			
Total (persons age 5 and above)	938,413	100%	82
English	669,630	71%	3,524
Spanish	221,947	24%	2,951
French	3,248	0%	491
French Creole	178	0%	206
Italian	944	0%	215
Portuguese	617	0%	229
German	4,157	0%	516
Yiddish	175	0%	99
Other West Germanic	437	0%	205
Scandinavian	276	0%	100
Greek	559	0%	160
Russian	1,686	0%	501
Polish	549	0%	189
Serbo-Croatian	615	0%	241
Other Slavic	542	0%	231
Armenian	159	0%	102
Persian	1,082	0%	396
Gujarathi	321	0%	215
Hindi	891	0%	302
Urdu	459	0%	231
Other Indic	1,408	0%	468
Other Indo-European	514	0%	229
Chinese	5,843	1%	792
Japanese	1,516	0%	357
Korean	1,660	0%	431
Mon-Khmer, Cambodian	263	0%	157
Hmong	63	0%	88
Thai	525	0%	188
Laotian	103	0%	129
Vietnamese	2,807	0%	596
Other Asian	1,201	0%	368
Tagalog	2,171	0%	426
Other Pacific Island	1,100	0%	397
Navajo	1,476	0%	350
Other Native American	3,709	0%	405
Hungarian	136	0%	80
Arabic	2,748	0%	519
Hebrew	605	0%	174
African	1,908	0%	620
Other and non-specified	185	0%	104
Total Non-English	268,783	29%	3,525

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race. N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2011 - 2015.
*Population by Language Spoken at Home is available at the census tract summary level and up.

EJSCREEN Census 2010 Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-mile radius
Description:

Summary	Census 2010
Population	6,392,017
Population Density (per sq. mile)	56
Minority Population	2,696,370
% Minority	42%
Households	2,380,990
Housing Units	2,844,526
Land Area (sq. miles)	113,594.08
% Land Area	100%
Water Area (sq. miles)	396.22
% Water Area	0%

Population by Race	Number	Percent
Total	6,392,017	-------
Population Reporting One Race	6,173,717	97%
White	4,667,121	73%
Black	259,008	4%
American Indian	296,529	5%
Asian	176,695	3%
Pacific Islander	12,648	0%
Some Other Race	761,716	12%
Population Reporting Two or More Races	218,300	3%
Total Hispanic Population	1,895,149	30%
Total Non-Hispanic Population	4,496,868	70%
White Alone	3,695,647	58%
Black Alone	239,101	4%
American Indian Alone	257,426	4%
Non-Hispanic Asian Alone	170,509	3%
Pacific Islander Alone	10,959	0%
Other Race Alone	8,595	0%
Two or More Races Alone	114,631	2%

Population by Sex	Number	Percent
Male	3,175,823	50%
Female	3,216,194	50%

Population by Age	Number	Percent
Age 0-4	455,715	7%
Age 0-17	1,629,014	25%
Age 18+	4,763,003	75%
Age 65+	881,831	14%

Households by Tenure	Number	Percent
Total	2,380,990	
Owner Occupied	1,571,687	66%
Renter Occupied	809,303	34%

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, Census 2010 Summary File 1.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-mile radius
Description:

Summary of ACS Estimates	2011 - 2015
Population	6,641,928
Population Density (per sq. mile)	58
Minority Population	2,889,075
% Minority	43%
Households	2,412,212
Housing Units	2,890,664
Housing Units Built Before 1950	96,655
Per Capita Income	25,848
Land Area (sq. miles) (Source: SF1)	113,592.99
% Land Area	100%
Water Area (sq. miles) (Source: SF1)	396.74
% Water Area	0%

	2011 - 2015 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	6,641,928	100%	0
Population Reporting One Race	6,430,083	97%	26,822
White	5,210,335	78%	10,167
Black	281,576	4%	2,672
American Indian	294,721	4%	2,084
Asian	200,090	3%	1,909
Pacific Islander	12,471	0%	774
Some Other Race	430,890	6%	9,216
Population Reporting Two or More Races	211,845	3%	4,480
Total Hispanic Population	2,014,711	30%	0
Total Non-Hispanic Population	4,627,217		
White Alone	3,752,853	57%	834
Black Alone	264,119	4%	2,194
American Indian Alone	265,099	4%	1,532
Non-Hispanic Asian Alone	194,757	3%	1,797
Pacific Islander Alone	11,422	0%	633
Other Race Alone	7,077	0%	816
Two or More Races Alone	131,890	2%	2,706
Population by Sex			
Male	3,299,088	50%	845
Female	3,342,840	50%	845
Population by Age			
Age 0-4	433,835	7%	392
Age 0-17	1,617,289	24%	5,400
Age 18+	5,024,639	76%	10,025
Age 65+	1,020,075	15%	5,618

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race. N/A means not available.
Source: U.S. Census Bureau, American Community Survey (ACS) 2011 - 2015.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-mile radius
Description:

	2011 - 2015 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	4,361,304	100%	754
Less than 9th Grade	271,415	6%	4,139
9th - 12th Grade, No Diploma	337,830	8%	4,231
High School Graduate	1,063,765	24%	6,346
Some College, No Degree	1,489,284	34%	8,833
Associate Degree	370,569	8%	4,183
Bachelor's Degree or more	1,199,010	27%	6,806
Population Age 5+ Years by Ability to Speak English			
Total	6,208,093	100%	280
Speak only English	4,536,673	73%	7,708
Non-English at Home[1+2+3+4]	1,671,420	27%	8,355
[1]Speak English "very well"	1,101,276	18%	7,930
[2]Speak English "well"	250,339	4%	4,099
[3]Speak English "not well"	200,134	3%	3,674
[4]Speak English "not at all"	119,671	2%	2,905
[3+4]Speak English "less than well"	319,805	5%	4,684
[2+3+4]Speak English "less than very well"	570,144	9%	6,225
Linguistically Isolated Households*			
Total	111,499	100%	2,283
Speak Spanish	84,112	75%	2,035
Speak Other Indo-European Languages	6,676	6%	617
Speak Asian-Pacific Island Languages	11,338	10%	622
Speak Other Languages	9,373	8%	552
Households by Household Income			
Household Income Base	2,412,212	100%	7,194
< $15,000	311,015	13%	4,053
$15,000 - $25,000	268,065	11%	3,555
$25,000 - $50,000	620,653	26%	5,657
$50,000 - $75,000	446,513	19%	4,933
$75,000 +	765,966	32%	6,198
Occupied Housing Units by Tenure			
Total	2,412,212	100%	7,194
Owner Occupied	1,513,861	63%	9,091
Renter Occupied	898,351	37%	5,792
Employed Population Age 16+ Years			
Total	5,207,123	100%	1,676
In Labor Force	3,106,324	60%	8,229
Civilian Unemployed in Labor Force	275,712	5%	3,860
Not In Labor Force	2,100,799	40%	8,647

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race. N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2011 - 2015.

*Households in which no one 14 and over speaks English "very well" or speaks English only.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-mile radius
Description:

	2011 - 2015 ACS Estimates	Percent	MOE (±)
Population by Language Spoken at Home*			
Total (persons age 5 and above)	6,208,093	100%	280
English	4,536,673	73%	8,777
Spanish	1,272,191	20%	8,028
French	17,161	0%	1,217
French Creole	769	0%	319
Italian	7,010	0%	878
Portuguese	3,919	0%	565
German	22,354	0%	1,261
Yiddish	449	0%	137
Other West Germanic	2,518	0%	415
Scandinavian	2,710	0%	421
Greek	3,162	0%	564
Russian	8,044	0%	1,103
Polish	5,874	0%	732
Serbo-Croatian	8,082	0%	1,162
Other Slavic	4,263	0%	721
Armenian	914	0%	363
Persian	6,861	0%	1,000
Gujarathi	3,965	0%	662
Hindi	9,538	0%	1,101
Urdu	2,328	0%	589
Other Indic	9,087	0%	1,070
Other Indo-European	7,237	0%	913
Chinese	29,733	0%	1,724
Japanese	6,473	0%	810
Korean	10,526	0%	1,148
Mon-Khmer, Cambodian	1,856	0%	446
Hmong	253	0%	185
Thai	3,117	0%	571
Laotian	1,580	0%	450
Vietnamese	22,504	0%	1,756
Other Asian	16,184	0%	1,280
Tagalog	23,037	0%	1,451
Other Pacific Island	7,289	0%	823
Navajo	82,956	1%	1,521
Other Native American	26,687	0%	1,208
Hungarian	1,466	0%	288
Arabic	20,113	0%	1,886
Hebrew	2,402	0%	466
African	12,068	0%	1,361
Other and non-specified	4,740	0%	902
Total Non-English	1,671,420	27%	8,781

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race. N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2011 - 2015.
*Population by Language Spoken at Home is available at the census tract summary level and up.

Pima County, Arizona†

POPULATION: 998,050

INCOME

Average Household Income

Pima County: $43,926

Arizona: $48,504

Residents who live below the poverty line

19.3%

Pima County

18.6%

Arizona

QUICK FACTS:

Out of 10 people living in this county

SEX

5 are male & 5 are female

AGE

About 3 are between the ages of 0 and 19 years

About 2 are between the ages of 20 and 34 years

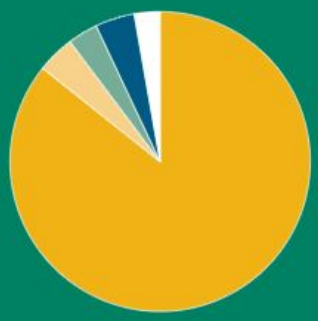
About 2 are between the ages of 35 and 49 years

About 4 are 50 years and older

ETHNICITY

4 are Hispanic and 6 are non-Hispanic

RACE



White Black Asian Native American Other

Asthma†

Asthma is a chronic disease that affects the airways that carry oxygen in and out of the lungs. Asthma can cause

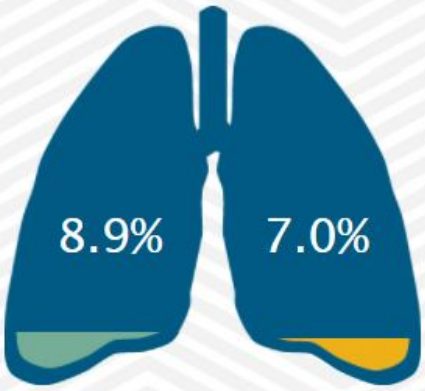
- shortness of breath,
- wheezing,
- coughing, and
- tightness in the chest.

Asthma attacks have been linked to many factors, including exposure to environmental hazards like

- allergens,
- tobacco smoke, and
- indoor and outdoor air pollution.

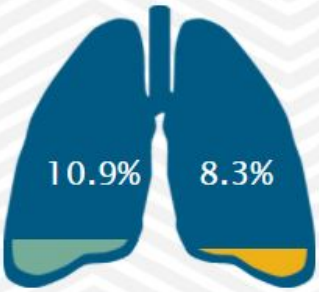
Asthma can be controlled by taking medication and avoiding triggers that can cause an attack.

Percent of **adults** who currently have asthma



Arizona National

Percent of **children** who currently have asthma



Arizona National

Air Quality: Ground-Level Ozone†

Ozone occurs naturally in the sky and helps protect us from the sun's harmful rays. But ground-level ozone can be bad for your health and the environment. Ground-level ozone is one of the biggest parts of smog.

When ozone levels are above the national standard, everyone should try to limit their contact with it by reducing the amount of time spent outside.

Pima County residents were exposed to unhealthy levels of ozone for **0 Days** in 2012.

Check the EPA's Air Quality Index (AQI) at AirNow.gov to see the current air quality conditions for your location. You can use the AQI to plan your daily activities to reduce exposure to ozone.

Pima County residents were exposed to unhealthy levels of ozone for **0 Days** in 2012.

Air Quality: Particulate Matter†

Air pollution is a leading environmental threat to human health. Particles in the air like dust, dirt, soot, and smoke are one kind of air pollution called particulate matter. Fine particulate matter, or $PM_{2.5}$, is so small that it cannot be seen in the air. Breathing in $PM_{2.5}$ may

- lead to breathing problems,
- make asthma symptoms or some heart conditions worse, and
- lead to low birth weight.

The national standard for annual $PM_{2.5}$ levels is **12.0µg/m³**. When $PM_{2.5}$ levels are above 12, this means that air quality is more likely to affect your health.

In 2012, the annual level of $PM_{2.5}$ in **Pima County** was **7.2µg/m³**. *

* Micrograms per cubic meter (µg/m³)

ANNUAL AMBIENT CONCENTRATION OF $PM_{2.5}$

7.2µg/m³*

Pima County, Arizona

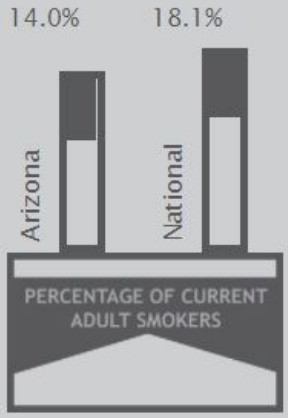
12.0µg/m³*

Annual National Standard

*Micrograms Per Cubic Meter (µg/m³)

Smoking†

Tobacco use is the single most preventable cause of death and disease in the United States. Smoking harms nearly every organ of the body. It causes many diseases and reduces the health of smokers in general. The negative health effects from cigarette smoking account for an estimated 500,000 deaths, or nearly 1 of every 5 deaths, each year in the United States.



Extreme Heat†

Extreme summer heat is increasing in the United States, and climate projections indicate that extreme heat events will be more frequent and intense in coming decades. Extremely hot weather can cause illness or even death. Knowing how hot it gets in your area can help you prepare for extremely hot temperatures and prevent heat related illness.

Pima County had **110 Days** with maximum temperatures above 90°F during May–September 2013.

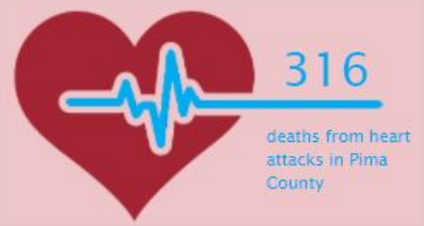
with temperatures above 90°F

Heat-related death or illnesses are preventable if you follow a few simple steps.

- Stay cool.
- Stay hydrated.
- Stay informed.

Heart Attacks†

The environment is one of several factors that can lead to an increased risk for heart disease. High levels of air pollution and extreme hot and cold temperatures have been linked to increases in heart disease and deaths from heart attacks. A heart attack happens when a part of the heart muscle dies or gets damaged because of reduced blood supply.

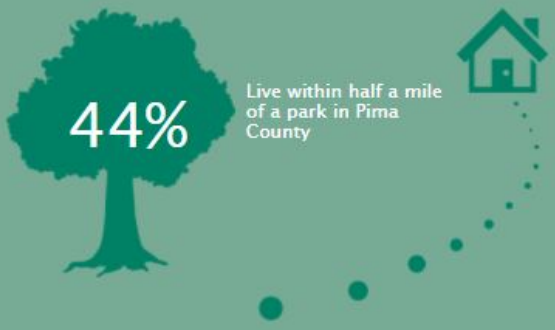


In 2015, there were

- **316 deaths** from heart attacks in Pima County.
- **1,702 deaths** from heart attacks in Arizona.

Access To Parks†

Having access to places for physical activity, like parks, encourages people to get active and do so more often. The closer you live to a park, the more likely you are to walk or bike there. Walking and biking to parks can decrease air pollution and car crashes, which in turn, can reduce chronic disease rates and traffic-related injuries.



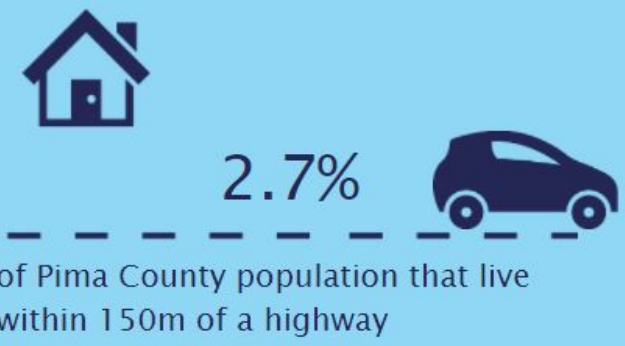
In 2010,

44% of people living in **Pima County** lived within half a mile of a park.

38% of people living in **Arizona** lived within half a mile of a park.

Proximity To Highways†

Traffic-related air pollution is a major cause of unhealthy air quality, especially in urban areas. Many health problems have been linked to exposure to traffic-related air pollution. The closer your home or school is to a major highway, the more likely you and your family are to be exposed to traffic-related air pollution.



In 2010, **2.7%** of the population of Pima County lived within 150 meters* of a major highway.

In 2010, **3.5%** of Pima County public schools (preK-4th grade) were sited within 150 meters* of a major highway.

* 150 meters is about 2 blocks.