



## Appendix E

### Methodology for EJ and REIA

#### Appendix A:

#### Methodology for Assessing Potential Environmental Justice Concerns for KYTC Planning Studies

Updated: March 2014

#### Analysis

Environmental Justice (EJ) analysis is required for any study that may result in disproportionately high adverse impact on a minority, low income, elderly or disabled population in or near the Affected Community.

Examples of these studies include, but are not limited to:

- Corridor Studies
- Traffic Studies
- Small Urban Area Studies
- Feasibility Studies
- Interchange Justification Studies
- Interchange Modification Reports

Affected Communities (AC) with potential EJ impacts are determined by locating target populations of minority, low-income, disabled or elderly and calculating their percentage in the area relative to a reference community of comparison (COC). A determination may then be made if there are potential adverse impacts to the AC.

Potential communities of comparison:

- The county percentage
- Nearby block groups
- Kentucky percentage
- The United States percentage

The demographics of the study area should be defined using Block Group data accessed via the

American Community Survey 5 year data. KYTC will work in conjunction with the State Data Center to provide pertinent spatial data for minorities, low-income, elderly, and disabled populations on a yearly basis as the update schedule allows.

Target Population concentrations are considered elevated when:

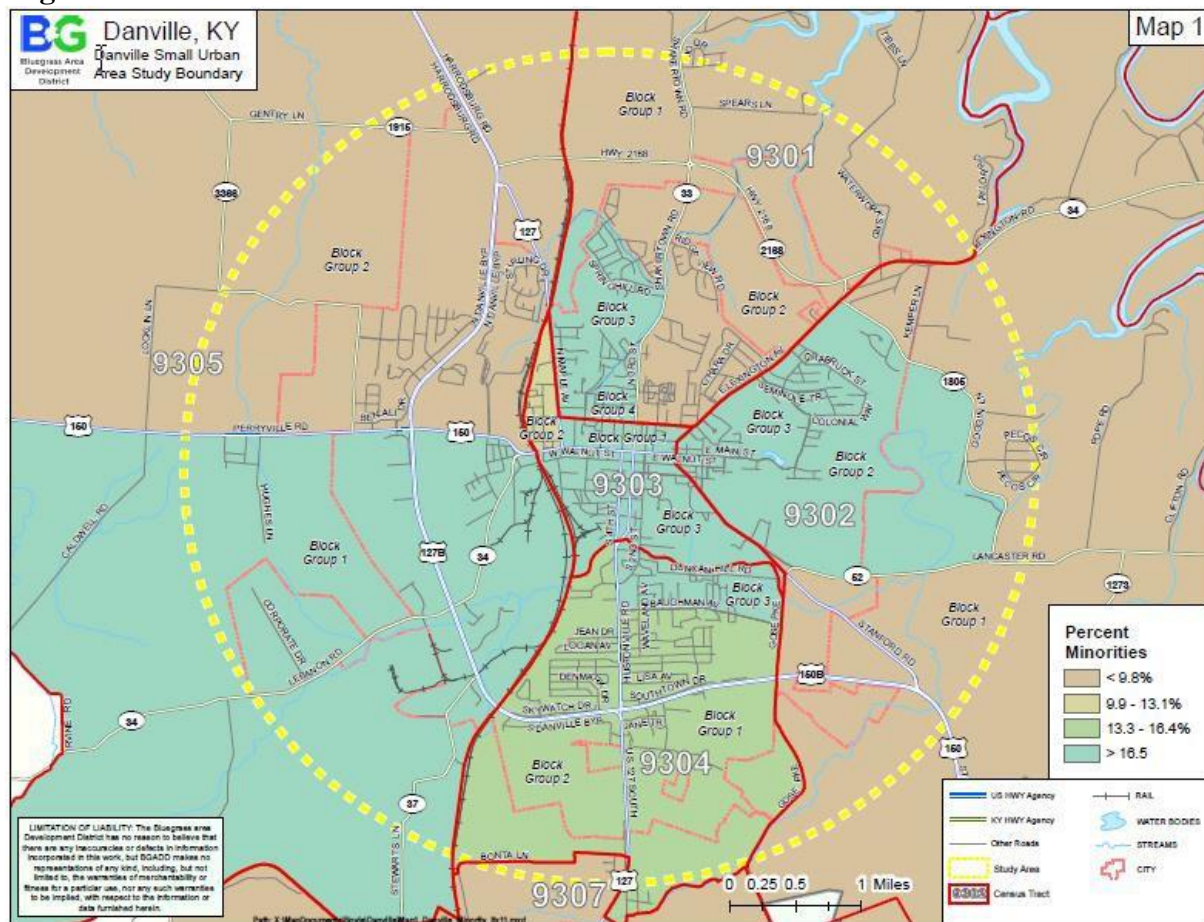
- Percentages of a population reach 25% greater than the county threshold
- Percentages of a population reach 50% or more of the affected community
- More than one EJ group is present

Thresholds or Census level of analysis from above, may be required pending size, sensitivity or other factors specific to given study. The selection of the appropriate unit of analysis may be a governing body's jurisdiction, a neighborhood, Census tract, or other similar unit that is to be chosen so as not to artificially dilute or inflate the affected population. If a level of analysis other than block group is needed, it should be agreed upon at the outset.

A map or shapefile of the alternatives will be provided by the consultant or KYTC to the applicable Area Development District (ADD). KYTC, in conjunction with the consultant, will review the ADD data for quality and completeness, and the consultant will summarize the information provided by the ADD in the final report. The full EJ should be placed in an Appendix.

Maps should be included in the EJ that depict the project area in relation to the Census tracts and block groups included in the analysis. Maps similar to **Figure 1** should be symbolized utilizing study and locality specific thresholds previously noted.

**Figure 1**



Information and data from PVA offices, social service agencies, local health organizations, local public agencies, and community action agencies may be used to supplement the Census data where necessary or applicable.

### **Additional Information**

In the event a study and accompanying EJ identify potentially adversely affected populations, the following information may be collected either through ADD, KYTC or consultant efforts as needed and under agreed upon terms.

- Community leaders or other contacts who may be able to represent these population groups and through which coordination efforts can be made.
- Locations of specific or identified minority, low-income, elderly, or disabled population groups within or near the project area. This may require some field review and/or discussions with knowledgeable persons to identify locations of public housing, minority communities, ethnic communities, etc., to verify Census data or identify changes that may have occurred since the last Census. Examples would be changes due to new residential developments in the area or increases in Asian and/or Hispanic populations.
- Concentrations or communities that share a common religious, cultural, ethnic, or other background, e.g., Amish communities.
- Communities or neighborhoods that exhibit a high degree of community cohesion or interaction and the ability to mobilize community actions at the start of community involvement.
- Concentrations of common employment, religious centers, and/or educational institutions with members within walking distance of facilities.
- Potential effects, both positive and negative, of the project on the affected groups as compared to the non-target groups. This may include, but not be limited to:
  - Access to services, employment or transportation.
  - Displacement of persons, businesses, farms, or non-profit organizations.
  - Disruption of community cohesion or vitality.
  - Effects to human health and/or safety.

### **Tips:**

- Only include data that is being analyzed. For instance there is no need to define Block Groups if they are not used. Similarly, Census Tracts should only be referenced as they relate to location of Block Groups discussed.
- Choropleth maps (shaded, color gradation) should be developed based on population percentage and threshold
- 1 page summary facing the adjacent related map is a functional, readily relatable format.

## **Appendix B: Attached Reports**

### **EJSCREEN Reports**

The following EJSCREEN reports were run for the Paducah Riverport Project with a 1 mile buffer as well as Census Tract 2114530100

- Standard Reports
  - EJSCREEN Report
  - ACS 2018 Report
  - Census 2010 sf Report

### **Neighborhoods at Risk Tool Summary Reports**

- Paducah and Census Tract 301

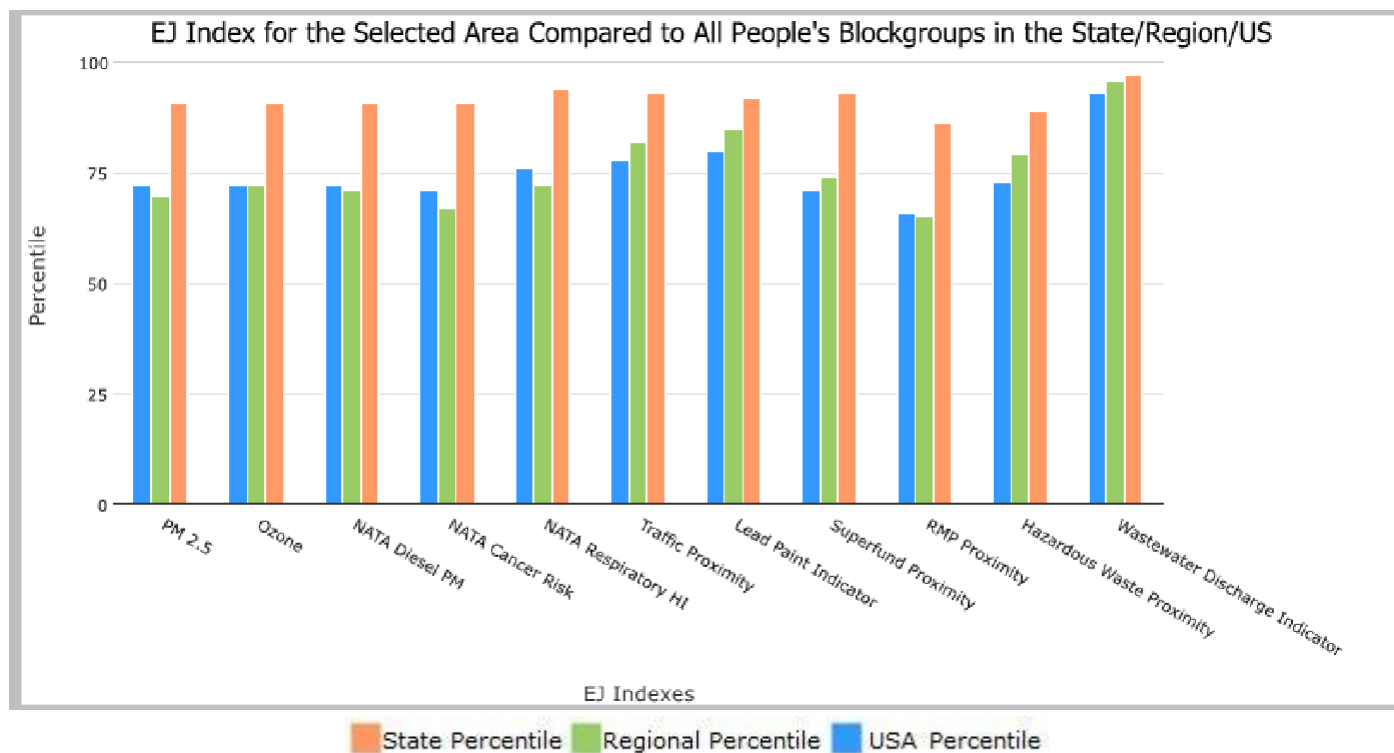
## EJSCREEN Report (Version 2020)

Tract: 21145030100, KENTUCKY, EPA Region 4

Approximate Population: 1,387

Input Area (sq. miles): 4.09

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
<b>EJ Indexes</b>			
EJ Index for PM2.5	91	70	72
EJ Index for Ozone	91	72	72
EJ Index for NATA* Diesel PM	91	71	72
EJ Index for NATA* Air Toxics Cancer Risk	91	67	71
EJ Index for NATA* Respiratory Hazard Index	94	72	76
EJ Index for Traffic Proximity and Volume	93	82	78
EJ Index for Lead Paint Indicator	92	85	80
EJ Index for Superfund Proximity	93	74	71
EJ Index for RMP Proximity	86	65	66
EJ Index for Hazardous Waste Proximity	89	79	73
EJ Index for Wastewater Discharge Indicator	97	96	93



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 2020)



Tract: 21145030100, KENTUCKY, EPA Region 4

Approximate Population: 1,387

Input Area (sq. miles): 4.09



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

## EJSCREEN Report (Version 2020)

Tract: 21145030100, KENTUCKY, EPA Region 4

Approximate Population: 1,387

Input Area (sq. miles): 4.09



Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
<b>Environmental Indicators</b>							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$ )	9.3	8.7	85	8.57	83	8.55	74
Ozone (ppb)	45.3	43.5	77	38	95	42.9	73
NATA* Diesel PM ( $\mu\text{g}/\text{m}^3$ )	0.418	0.383	62	0.417	50-60th	0.478	50-60th
NATA* Cancer Risk (lifetime risk per million)	32	31	66	36	<50th	32	50-60th
NATA* Respiratory Hazard Index	0.67	0.44	98	0.52	90-95th	0.44	90-95th
Traffic Proximity and Volume (daily traffic count/distance to road)	590	300	86	350	84	750	71
Lead Paint Indicator (% Pre-1960 Housing)	0.3	0.24	74	0.15	84	0.28	63
Superfund Proximity (site count/km distance)	0.047	0.039	75	0.083	57	0.13	40
RMP Proximity (facility count/km distance)	0.16	0.67	38	0.6	35	0.74	29
Hazardous Waste Proximity (facility count/km distance)	1.2	1.3	66	0.91	76	5	53
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.071	3.7	82	0.65	93	9.4	88
<b>Demographic Indicators</b>							
Demographic Index	50%	26%	92	37%	72	36%	73
People of Color Population	40%	15%	90	39%	58	39%	58
Low Income Population	60%	38%	84	36%	86	33%	88
Linguistically Isolated Population	3%	1%	86	3%	71	4%	64
Population With Less Than High School Education	26%	14%	86	13%	87	13%	86
Population Under 5 years of age	8%	6%	69	6%	72	6%	69
Population over 64 years of age	10%	16%	19	17%	24	15%	29

\* 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](http://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.



Location: User-specified point center at 37.063631, -88.577112

Ring (buffer): 1-miles radius

Description: Paducah McCracken Co Riverport

Summary of ACS Estimates		2014 - 2018	
Population		2,299	
Population Density (per sq. mile)		956	
People of Color Population		958	
% People of Color Population		42%	
Households		955	
Housing Units		1,181	
Housing Units Built Before 1950		268	
Per Capita Income		17,071	
Land Area (sq. miles) (Source: SF1)		2.40	
% Land Area		73%	
Water Area (sq. miles) (Source: SF1)		0.88	
% Water Area		27%	
	2014 - 2018 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	2,299	100%	332
Population Reporting One Race	2,165	94%	726
White	1,527	66%	295
Black	586	25%	300
American Indian	26	1%	35
Asian	0	0%	34
Pacific Islander	0	0%	11
Some Other Race	26	1%	51
Population Reporting Two or More Races	134	6%	119
Total Hispanic Population	247	11%	185
Total Non-Hispanic Population	2,052		
White Alone	1,341	58%	295
Black Alone	586	25%	300
American Indian Alone	24	1%	28
Non-Hispanic Asian Alone	0	0%	34
Pacific Islander Alone	0	0%	11
Other Race Alone	0	0%	11
Two or More Races Alone	102	4%	119
Population by Sex			
Male	1,068	46%	202
Female	1,231	54%	217
Population by Age			
Age 0-4	167	7%	75
Age 0-17	602	26%	181

Age 18+	1,697	74%	217
Age 65+	278	12%	96

**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) 2014 - 2018 .

# EJSCREEN ACS Summary Report



Location: User-specified point center at 37.063631, -88.577112

Ring (buffer): 1-miles radius

Description: Paducah McCracken Co Riverport

	2014 - 2018 ACS Estimates	Percent	MOE (±)
<b>Population 25+ by Educational Attainment</b>			
Total	1,472	100%	188
Less than 9th Grade	163	11%	69
9th - 12th Grade, No Diploma	247	17%	75
High School Graduate	600	41%	130
Some College, No Degree	351	24%	132
Associate Degree	110	7%	67
Bachelor's Degree or more	111	8%	53
<b>Population Age 5+ Years by Ability to Speak English</b>			
Total	2,132	100%	282
Speak only English	1,944	91%	274
Non-English at Home <sup>1+2+3+4</sup>	189	9%	112
<sup>1</sup> Speak English "very well"	86	4%	67
<sup>2</sup> Speak English "well"	61	3%	59
<sup>3</sup> Speak English "not well"	42	2%	48
<sup>4</sup> Speak English "not at all"	0	0%	11
<sup>3+4</sup> Speak English "less than well"	42	2%	48
<sup>2+3+4</sup> Speak English "less than very well"	103	5%	76
<b>Linguistically Isolated Households*</b>			
Total	17	100%	31
Speak Spanish	17	100%	29
Speak Other Indo-European Languages	0	0%	11
Speak Asian-Pacific Island Languages	0	0%	11
Speak Other Languages	0	0%	11
<b>Households by Household Income</b>			
Household Income Base	955	100%	116
< \$15,000	270	28%	90
\$15,000 - \$25,000	205	21%	80
\$25,000 - \$50,000	263	28%	77
\$50,000 - \$75,000	164	17%	74
\$75,000 +	53	6%	70
<b>Occupied Housing Units by Tenure</b>			
Total	955	100%	116
Owner Occupied	386	40%	91
Renter Occupied	569	60%	113
<b>Employed Population Age 16+ Years</b>			
Total	1,760	100%	202
In Labor Force	905	51%	186

Civilian Unemployed in Labor Force	75	4%	56
Not In Labor Force	855	49%	141

**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)

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

Location: User-specified point center at 37.063631, -88.577112

Ring (buffer): 1-miles radius

Description: Paducah McCracken Co Riverport

	2014 - 2018 ACS Estimates	Percent	MOE (±)
<b>Population by Language Spoken at Home*</b>			
Total (persons age 5 and above)	1,281	100%	235
English	1,065	83%	201
Spanish	211	16%	146
French	0	0%	11
French Creole	N/A	N/A	N/A
Italian	N/A	N/A	N/A
Portuguese	N/A	N/A	N/A
German	0	0%	11
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	0	0%	11
Chinese	0	0%	11
Japanese	N/A	N/A	N/A
Korean	0	0%	11
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	0	0%	11
Other Asian	0	0%	11
Tagalog	0	0%	11
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	0	0%	11
Hebrew	N/A	N/A	N/A
African	N/A	N/A	N/A
Other and non-specified	5	0%	8
Total Non-English	216	17%	309

**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) 2014 - 2018.

\*Population by Language Spoken at Home is available at the census tract summary level and up.

Location: User-specified point center at 37.063631, -88.577112  
Ring (buffer): 1-miles radius  
Description: Paducah McCracken Co Riverport

Summary	Census 2010
Population	2,143
Population Density (per sq. mile)	891
People of Color Population	648
% People of Color Population	30%
Households	971
Housing Units	1,165
Land Area (sq. miles)	2.40
% Land Area	73%
Water Area (sq. miles)	0.88
% Water Area	27%

Population by Race	Number	Percent
Total	2,143	100%
Population Reporting One Race	2,078	97%
White	1,523	71%
Black	506	24%
American Indian	10	0%
Asian	11	1%
Pacific Islander	0	0%
Some Other Race	28	1%
Population Reporting Two or More Races	65	3%
Total Hispanic Population	63	3%
Total Non-Hispanic Population	2,080	97%
White Alone	1,495	70%
Black Alone	504	24%
American Indian Alone	10	0%
Non-Hispanic Asian Alone	11	1%
Pacific Islander Alone	0	0%
Other Race Alone	2	0%
Two or More Races Alone	58	3%

Population by Sex	Number	Percent
Male	1,058	49%
Female	1,085	51%

Population by Age	Number	Percent
Age 0-4	155	7%
Age 0-17	505	24%
Age 18+	1,638	76%
Age 65+	295	14%

Households by Tenure	Number	Percent
Total	971	100%
Owner Occupied	448	46%
Renter Occupied	523	54%

**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.





# Neighborhoods at Risk

## Selected Tracts

Selected Location(s):

Paducah, KY

Comparison Location:

U.S.

Produced by

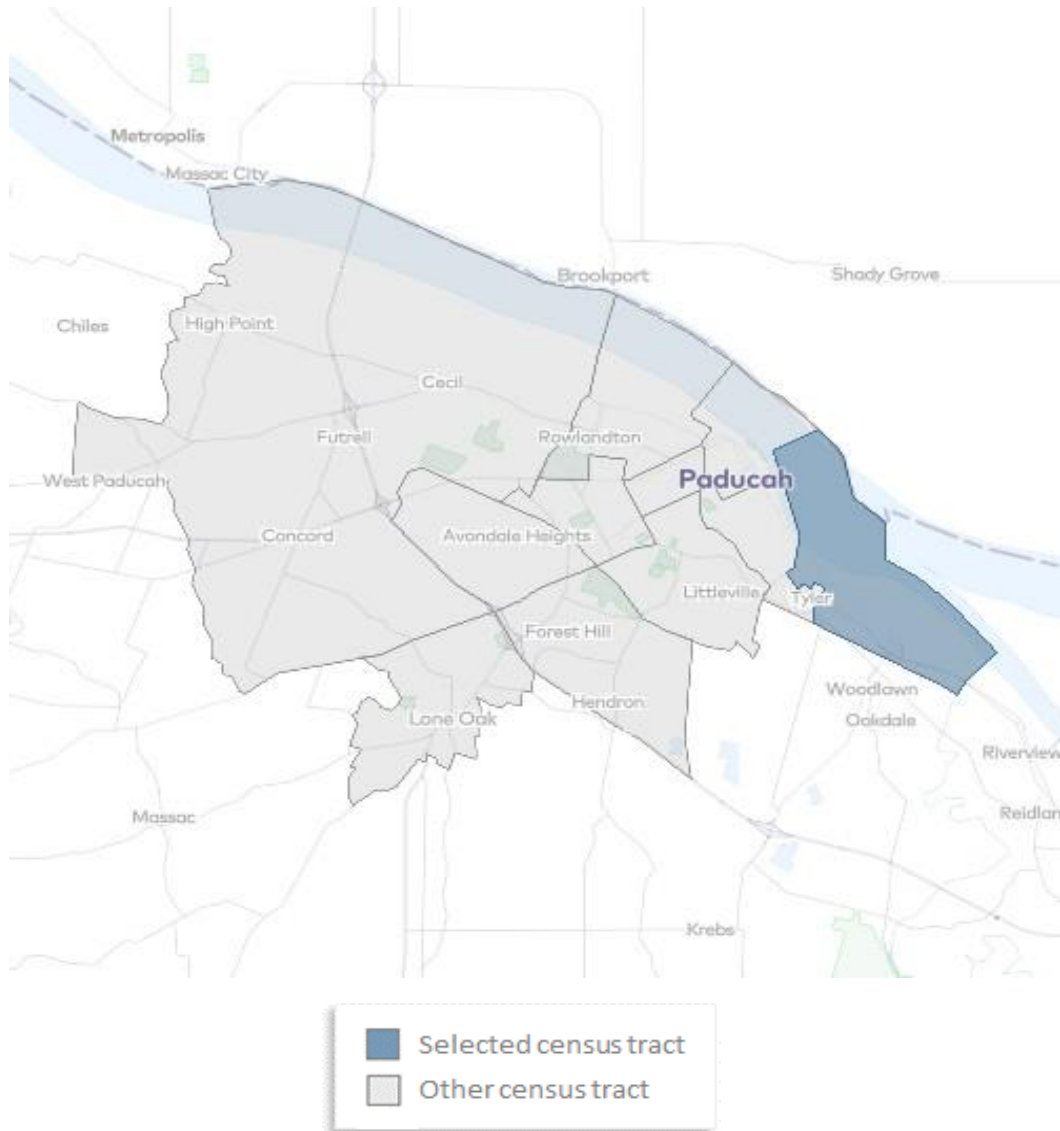
Headwaters Economics'

**Economic Profile System (EPS)**

June 5, 2021

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## Area of Interest



### Headwaters Economics

Headwaters Economics is an independent, nonprofit research group that works to improve community development and land management decisions: [headwaterseconomics.org](https://headwaterseconomics.org).

#### Neighborhoods at Risk

Neighborhoods at Risk is a free, web-based tool that provides cities with neighborhood-level information about at-risk populations and their vulnerability to the impacts of climate change.

**Free and easy-to-use:** Quickly create maps and reports of socioeconomic and climate data.

**Available nation-wide:** Explore socioeconomic and climate data for any community or county in the nation.

**Updated continuously:** Make use of the latest available, published government data.

[headwaterseconomics.org/apps/neighborhoods-at-risk](https://headwaterseconomics.org/apps/neighborhoods-at-risk)

# Neighborhoods at Risk

## Selected Tracts

### Table of Contents

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**Summary:** This front page shows a quick comparison for many of the indicators covered in this report.

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*Click the links above for quick access to report sections.*

# Neighborhoods at Risk

## Selected Tracts

### Summary

Indicators 2019*	Selected Tracts	U.S.	Percent Difference Selected Tracts vs. U.S.	
People under 5 years	6.3%	6.1%	3%	
People over 65 years	10.2%	15.6%	-42%	
People of color (including Hispanic)	35.2%	39.3%	-11%	
People who don't speak English well	3.2%	4.3%	-29%	
People without a high school degree	18.2%	12.0%	41%	
Families in poverty	28.9%	9.5%	101%	
Housing units that are rentals	61.3%	36.0%	52%	
Households with no car	5.3%	8.6%	-47%	
People with disabilities	12.5%	12.6%	-1%	
People without health insurance	26.8%	8.8%	101%	

**High Reliability:** Data with coefficients of variation (CVs) < 12% are in black to show that the sampling error is small.

**Medium Reliability:** Data with CVs between 12 & 40% are in orange. These values should be interpreted with caution.

**Low Reliability:** Data with CVs > 40% are displayed in red to indicate that the estimate is considered very unreliable.

\* ACS 5-year estimates: 2019 represents average characteristics from 2015-2019.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Neighborhoods at Risk, [headwaterseconomics.org/par](https://headwaterseconomics.org/par).

Find more reports like this at [headwaterseconomics.org/apps/neighborhoods-at-risk](https://headwaterseconomics.org/apps/neighborhoods-at-risk)

Summary

# Neighborhoods at Risk

## Selected Tracts

### Summary

#### What do we measure on this page?

This page shows a quick comparison for many of the indicators covered in this report to highlight how the selected tracts differ from the United States as a whole.

The percent, or relative, difference between the selected tracts and the U.S. is calculated by dividing the difference between the values by the arithmetic mean of the values.

#### Why is it important?

These indicators are all measures of a population more likely to experience adverse outcomes from disruptions due to extreme weather events, climate change, pollution, or limited health care access.

Particularly high percentages for any of these indicators may highlight populations that are at higher risk and in need of outreach from disaster planning, public health, or social service organizations.

CHANGES IN BOUNDARIES: Data describing change over time can be misleading when geographic boundaries have changed. The Census provides documentation about changes in boundaries at this site: [www.census.gov/geo/reference/boundary-changes.html](http://www.census.gov/geo/reference/boundary-changes.html)

Find more reports like this at [headwaterseconomics.org/apps/neighborhoods-at-risk](http://headwaterseconomics.org/apps/neighborhoods-at-risk)

Summary

# Neighborhoods at Risk

## Selected Tracts

### Families in Poverty

	Paducah, KY	Selected Tracts	U.S.
Total families for whom poverty status is determined, 2019*	5,561	253	79,114,031
Families in poverty	849	73	7,541,196
Families with children in poverty	734	73	5,581,063
Single mother families in poverty	614	41	3,385,236

#### Percent of Total, 2019\*

Families in poverty	15.3%	28.9%	9.5%
Families with children in poverty	13.2%	28.9%	7.1%
Single mother families in poverty	11.0%	16.2%	4.3%

#### Change in Percentage Points, 2010\*-2019\*

For example, if the value is 3% in 2010\* and 4.5% in 2019\*, the reported change in percentage points is 1.5.

Families in poverty	-6.7	-26.0	-0.5
Families with children in poverty	-4.1	-10.0	-0.8
Single mother families in poverty	0.2	-12.3	-0.5

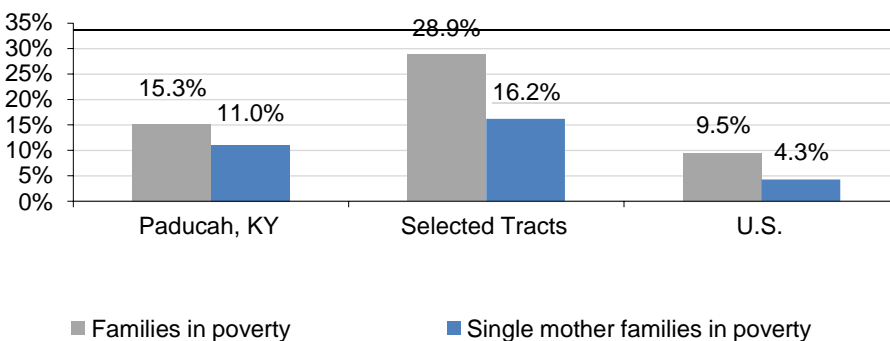
**High Reliability:** Data with coefficients of variation (CVs) < 12% are in black to indicate that the sampling error is relatively small.

**Medium Reliability:** Data with CVs between 12 & 40% are in orange to indicate that the values should be interpreted with caution.

**Low Reliability:** Data with CVs > 40% are displayed in red to indicate that the estimate is considered very unreliable.

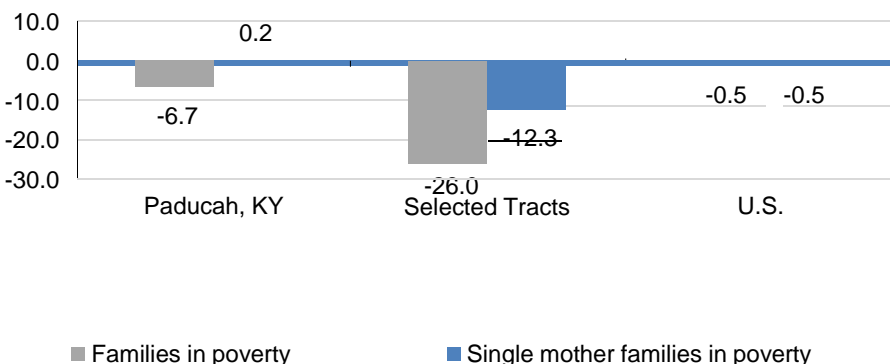
#### Families in Poverty, Percent of Total, 2019\*

- Selected Tracts has the largest share of single mother families in poverty (16.2%).



#### Families in Poverty, Change in Percentage Points, 2010\*-2019\*

- The largest change in the share of single mother families in poverty occurred in Selected Tracts, which went from 28.5% to 16.2%.



\* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C.,

Find more reports like this at [headwaterseconomics.org/apps/neighborhoods-at-risk](https://headwaterseconomics.org/apps/neighborhoods-at-risk)

Data and Graphics | Page 6



reported by Headwaters Economics' Neighborhoods at Risk, [headwaterseconomics.org/apps/neighborhoods-at-risk](https://headwaterseconomics.org/apps/neighborhoods-at-risk).

# Neighborhoods at Risk

## Selected Tracts

### Families in Poverty

#### What do we measure on this page?

This page describes the number of families living below the poverty line, and separately reports families with children and single mother families with children.

The Census defines a family as a group of two or more people who reside together and who are related by birth, marriage, or adoption.

The Census Bureau uses a set of income thresholds that vary by family size and composition to define who is poor. If the total income for a family or an unrelated individual falls below the relevant poverty threshold, then the family or an unrelated individual is classified as being "below the poverty level."

#### Why is it important?

Families in poverty may lack the resources to meet their basic needs. Their challenges cross the spectrum of food, housing, health care, education, vulnerability to natural disasters, and emotional stress.

To save money, families with low incomes often have to make lifestyle compromises such as unhealthy foods, less food, substandard housing, or delayed medical care.<sup>1</sup>

Lack of financial resources makes families in poverty more vulnerable to natural disasters. This is due to inadequate housing, social exclusion, and an inability to re-locate or evacuate.<sup>11, 2</sup>

Inadequate shelter exposes occupants to increased risk from storms, floods, fire, and temperature extremes.<sup>2</sup> Households with low incomes are more likely to have unhealthy housing such as leaks, mold, or rodents.<sup>5</sup>

The expense of running fans, air conditioners, and heaters makes low-income people hesitant to mitigate the temperature of their living spaces.<sup>1, 2</sup> Furthermore, those in high-crime areas may not want to open their windows.<sup>2</sup>

Families in poverty are disproportionately affected by higher food prices, which are expected to rise in response to climate change.<sup>1</sup>

Children in poor families, on average, receive fewer years of education compared to children in wealthier families.<sup>12</sup>

Low-income residents are less likely to have adequate property insurance, so they may bear an even greater burden from property damage due to natural hazards.<sup>2</sup>

Living in poverty can lead to a lack of personal control over potentially hazardous situations such as increased air pollution or flooding. Impoverished families may be less likely to take proactive measures to prevent harm.<sup>11</sup>

*Superscript numbers refer to references provided at the end of the report.*

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# Neighborhoods at Risk

## Selected Tracts

### Rental & Mobile Homes

	Paducah, KY	Selected Tracts	U.S.
Total Occupied Housing Units, 2019*	11,330	512	120,756,048
Rental Units	5,300	314	43,481,667
Mobile Homes	397	213	6,681,368

#### Percent of Total, 2019\*

Rental Units	46.8%	61.3%	36.0%
Mobile Homes	3.5%	41.6%	5.5%

#### Change in Percentage Points, 2010\*-2019\*

For example, if the value is 3% in 2010\* and 4.5% in 2019\*, the reported change in percentage points is 1.5.

Rental Units	-1.7	-12.3	4.4
Mobile Homes	1.3	8.0	-0.3

Median Home Value (MHV), 2019* (2014 \$s)	\$119,821	\$57,178	\$220,110
Change in MHV, 2010*-2019* (2014 \$s)	\$10,617	\$25,960	-\$3,521

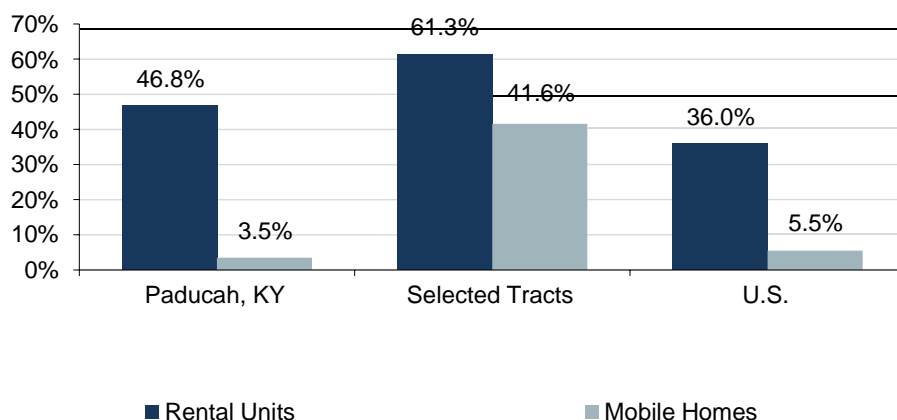
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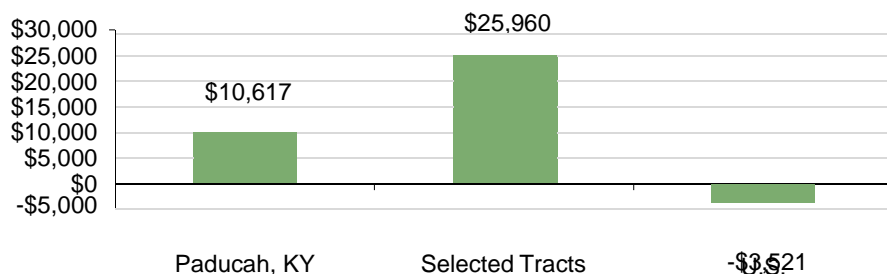
#### Rental Units and Mobile Homes as a Percent of Total Housing Units, 2019\*

- Selected Tracts has the largest share of rental units (61.3%).
- Selected Tracts has the largest share of mobile homes (41.6%).



#### Change in Median Home Value, 2010\*-2019\* (2014 \$s)

- The largest change in median home value occurred in Selected Tracts, which went from \$31,218 to \$57,178.



\* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Neighborhoods at Risk, [headwaterseconomics.org/apps/neighborhoods-at-risk](https://headwaterseconomics.org/apps/neighborhoods-at-risk).

# Neighborhoods at Risk

## Selected Tracts

### Rental & Mobile Homes

#### What do we measure on this page?

This page reports the numbers of housing units that are either rental units or mobile homes, and provides median home value.

#### Why is it important?

In general, home ownership contributes to well-being and stability. However, each type of living situation has its own risks and health concerns.

Home ownership is often associated with mental health benefits such as high self-esteem, a sense of control over one's living situation, and financial stability.<sup>13</sup>

The financial stress associated with losing one's home is heightened by people's emotional attachment to their home and their neighborhood.<sup>14</sup>

Homeowners typically pay a greater overall housing cost, but renters pay a larger proportion of their income. The high proportion of household costs for renters has further increased over the past 25 years.<sup>15</sup>

Rental homes are generally not maintained as well as those that are owned. Substandard housing conditions like dampness, mold, and exposure to toxic substances or allergens are linked with compromised health outcomes.<sup>13</sup>

Areas with high-density residences, such as urban areas, tend to have a greater proportion of renters.<sup>1</sup> High density living conditions and large, multistory apartment buildings exacerbate heat-related health stresses.<sup>4</sup>

Mobile homes are more likely to be damaged in extreme weather, which poses a risk for both the structure and the occupants.<sup>4,11</sup>

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# Neighborhoods at Risk

## Selected Tracts

### People of Color and Hispanics

	Paducah, KY	Selected Tracts	U.S.
Total Population, 2019*	24,894	1,211	324,697,795
White alone	18,275	934	235,377,662
Black or African American alone	5,420	234	41,234,642
American Indian alone	216	9	2,750,143
Asian alone	209	0	17,924,209
Native Hawaii & Other Pacific Is. alone	27	0	599,868
Some other race alone	192	3	16,047,369
Two or more races	555	31	10,763,902
Hispanic or Latino (of any race)	772	165	58,479,370
Not Hispanic or Latino	24,122	1,046	266,218,425
Not Hispanic & White alone	17,777	785	197,100,373
People of Color and Hispanics	7,117	426	127,597,422

#### Percent of Total, 2019\*

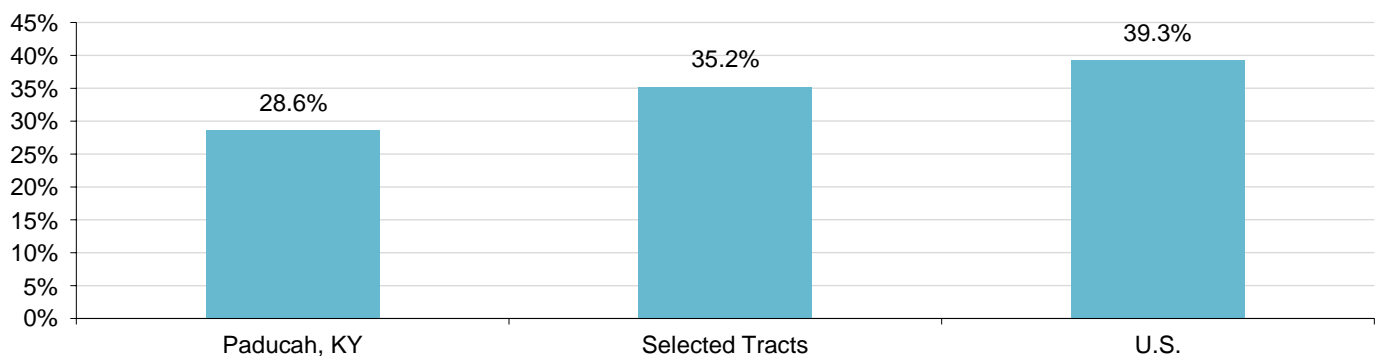
White alone	73.4%	77.1%	72.5%
Black or African American alone	21.8%	19.3%	12.7%
American Indian alone	0.9%	0.7%	0.8%
Asian alone	0.8%	0.0%	5.5%
Native Hawaii & Other Pacific Is. alone	0.1%	0.0%	0.2%
Some other race alone	0.8%	0.2%	4.9%
Two or more races	2.2%	2.6%	3.3%
Hispanic or Latino (of any race)	3.1%	13.6%	18.0%
Not Hispanic or Latino	96.9%	86.4%	82.0%
Not Hispanic & White alone	71.4%	64.8%	60.7%
People of Color and Hispanics	28.6%	35.2%	39.3%

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#### People of Color and Hispanics, Percent of Total, 2019\*



\* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

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# Neighborhoods at Risk

## Selected Tracts

### People of Color and Hispanics

#### What do we measure on this page?

Race is self-identified by Census respondents who choose the race or races with which they most closely identify. Included in "Other Races" are "Asian," "Native Hawaiian or Other Pacific Islander," and respondents providing write-in entries such as multiracial, mixed, or interracial.

Ethnicity has two categories: Hispanic or Latino, and Non-Hispanic or Latino. The federal government considers race and Hispanic origin to be two separate and distinct concepts. Hispanics and Latinos may be of any race.

"People of Color and Hispanics" is calculated by subtracting those who identify as both "Not Hispanic or Latino" and "White alone" from "Total Population."

#### Why is it important?

Race and ethnicity are strongly correlated with disparities in health, exposure to environmental pollution, and vulnerability to natural hazards.<sup>1</sup>

Research consistently has found race-based environmental inequities, including the tendency for minority populations to live closer to noxious facilities and Superfund sites, and to be exposed to pollution at greater rates than whites.<sup>7, 1</sup>

Many health outcomes are closely related to the local environment. Minority communities often have less access to parks and nutritious food, and are more likely to live in substandard housing.<sup>1</sup>

Minorities tend to be particularly vulnerable to disasters and extreme heat events. This is due to language skills, housing patterns, quality of housing, community isolation, and cultural barriers.<sup>8, 4</sup>

Blacks and Hispanics, two segments of the population that are currently experiencing poorer health outcomes, are an increasing percentage of the US population.<sup>1, 9</sup>

Research has identified measurable disparities in health outcomes between various minority and ethnic communities.

Across races, the rates of preventable hospitalizations are highest among black and Hispanic populations. Preventable hospital visits often reflect inadequate access to primary care. These types of hospital visits are also costly and inefficient for the health care system.<sup>5</sup>

Relative to other ethnicities and races, Hispanics and blacks are less likely to have health insurance, but rates of uninsured are dropping for both groups.<sup>10</sup>

Compared to other races, blacks have higher rates of infant mortality, homicide, heart disease, stroke, and heat-related deaths.<sup>5</sup>

Hispanics have higher rates of diabetes and asthma.<sup>5</sup>

American Indians have a distinct pattern of health effects different from blacks and Hispanics. Native populations are less likely to have electricity than the general population.<sup>2</sup> They have high rates of infant mortality, suicide and homicide, and nearly twice the rate of motor vehicle deaths than the U.S. average.<sup>5</sup>

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# Neighborhoods at Risk

## Selected Tracts

### Language Proficiency

	Paducah, KY	Selected Tracts	U.S.
Population 5 years or older, 2019*	23,269	1,135	304,930,125
Speak English "not well"***	124	36	13,193,113
Speak English "not well"***, percent	0.5%	3.2%	4.3%
Speak English "not well"***, change in percentage points**, 2010*-2019*	-0.4	3.2	-0.4

\*\*For example, if the value is 3% in 2010\* and 4.5% in 2015\*, the reported change in percentage points is 1.5.

\*\*\* Includes "not well" and "not well at all".

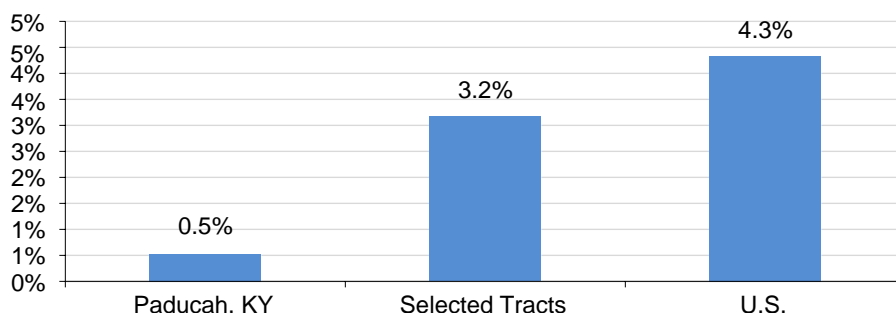
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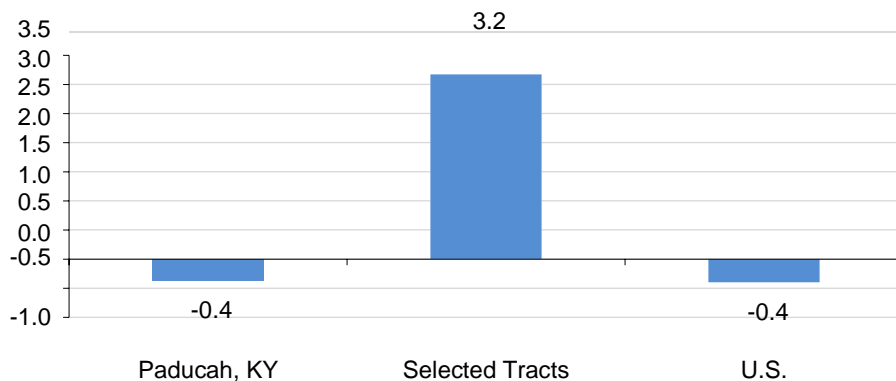
#### People Who Speak English "Not Well", Percent of Total, 2019\*

- The U.S. has the largest share of people who speak English "not well" (4.3%).



#### People Who Speak English "Not Well", Change in Percentage Points, 2010\*-2019\*

- The largest change in the share of people who speak English "not well" occurred in Selected Tracts, which went from 0.0% to 3.2%.



\* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Neighborhoods at Risk, [headwaterseconomics.org/apps/neighborhoods-at-risk](https://headwaterseconomics.org/apps/neighborhoods-at-risk).

# Neighborhoods at Risk

## Selected Tracts

### Language Proficiency

#### What do we measure on this page?

This page reports the results of self-rated English-speaking ability questions in the American Community Survey.

#### Why is it important?

Many aspects of life in the US assume basic fluency in English. Thus, people with limited language skills are at risk for inadequate access to health care, social services, or emergency services.

A person's ability to take action during an emergency is compromised by language and cultural barriers.<sup>4</sup>

Poor English skills can make it harder to follow directions or interact with agencies.<sup>4</sup>

Lack of language skills can also instill lack of trust for government agencies.

In many industries, poor English skills can make it harder for people to get higher wage jobs.<sup>1</sup>

Language barriers make it harder to obtain medical or social services; and make it more difficult to interact with caregivers.<sup>1</sup>

Limited English skills may result in isolation from other segments of the US population, and social isolation is a health risk.<sup>1</sup> However some minority communities can be very tightly-knit and not isolated, so this risk factor cannot be generalized across all populations.

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# Neighborhoods at Risk

## Selected Tracts

### Young & Elderly Populations

	Paducah, KY	Selected Tracts	U.S.
Total Population, 2019*	24,894	1,211	324,697,795
Under 5 years old	1,625	76	19,767,670
65 years and older	4,857	124	50,783,796
80 years and older	946	6	6,269,017

#### Percent of Total, 2019\*

Under 5 years old	6.5%	6.3%	6.1%
65 years and older	19.5%	10.2%	15.6%
80 years and older	3.8%	0.5%	1.9%

#### Change in Percentage Points, 2010\*-2019\*

For example, if the value is 3% in 2010\* and 4.5% in 2019\*, the reported change in percentage points is 1.5.

Under 5 years old	-0.4	-1.0	-0.5
65 years and older	1.4	0.1	2.9
80 years and older	0.7	-2.3	0.2

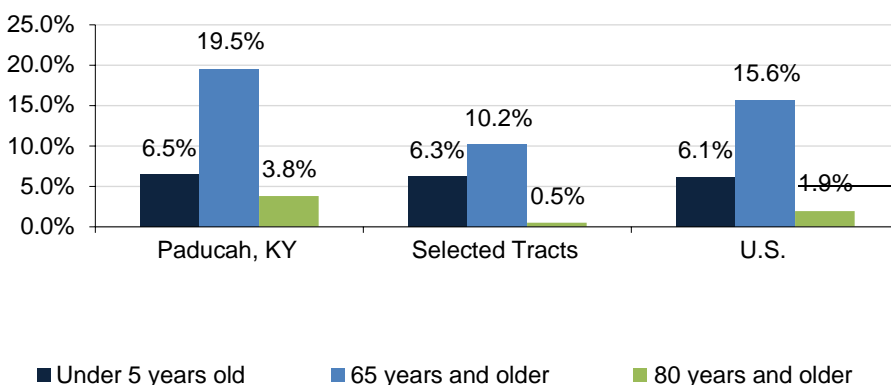
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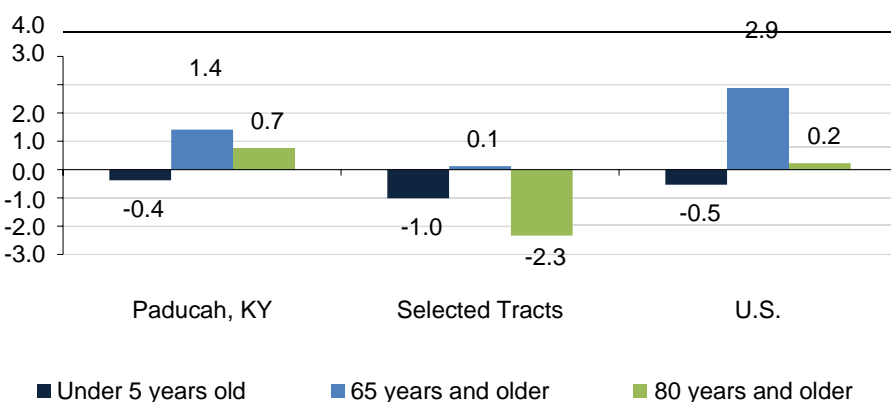
#### Population by Group, Percent of Total, 2019\*

- Paducah, KY has the largest share of people under 5 years old (6.5%).
- Paducah, KY has the largest share of people 80 years and older (3.8%).



#### Population by Group, Change in Percentage Points, 2010\*-2019\*

- The largest change in the share of people under 5 years old occurred in Selected Tracts, which went from 7.3% to 6.3%.
- The largest change in the share of people 80 years and older occurred in Selected Tracts, which went from 2.8% to 0.5%.



\* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Neighborhoods at Risk, [headwaterseconomics.org/apps/neighborhoods-at-risk](https://headwaterseconomics.org/apps/neighborhoods-at-risk).



# Neighborhoods at Risk

## Selected Tracts

### Young & Elderly Populations

#### What do we measure on this page?

This page describes the number of people by specific age category.

The "Under 5 years old" category includes individuals younger than 5 years old. The "65 years and older" category includes individuals age 65 and older and the "80 years and older" category includes individuals age 80 and older. The "80 years and older" category is a subset of the "65 years and older" category.

#### Why is it important?

Young children and older adults both are vulnerable segments of the population. Understanding the age profile of a community can help users determine the types of services likely to be needed.<sup>1</sup>

Children's developing bodies makes them particularly sensitive to health problems and environmental stresses.<sup>1</sup>

Childhood lays the foundations for lifelong health. Poor health during childhood increases the likelihood of problems throughout adulthood.<sup>2</sup>

Because so many factors of a child's life are determined during pregnancy, infancy, and early childhood, children in poverty are an especially vulnerable population. Lack of adequate care through the early phases of life is more prevalent in poor populations.<sup>2</sup>

Children spend more time outside and have a faster breathing rate than adults, so they are more at risk for respiratory problems related to ground level ozone, airborne particulates, wildfire smoke, and allergens. Allergens are associated with climate change due to changing plant communities and longer pollen seasons.<sup>3, 4</sup>

Because their immune systems are not fully developed, children are more sensitive to infectious diseases. Natural disasters can breach public water supplies, compromise sanitation, and spread illness. Children are more vulnerable to these hazards compared to adults.<sup>3</sup>

Older adults also are at increased risk of compromised health related to environmental hazards and climate change.

Age is the single greatest risk factor related to illness or death from extreme heat.<sup>4</sup>

The elderly are more likely to have pre-existing medical conditions or compromised mobility, which reduces their ability to respond to natural disasters.<sup>3</sup>

The likelihood of chronic disease increases with age.<sup>1, 5</sup>

Older adults are more susceptible to air pollution such as ground level ozone, particulate matter, or dust. Increased dust is associated with drought, wildfires, and high wind events.<sup>3, 6</sup>

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# Neighborhoods at Risk

## Selected Tracts

### Educational Attainment

	Paducah, KY	Selected Tracts	U.S.
Total Population 25 years or older, 2019*	17,850	847	220,622,076
No high school degree	2,043	154	26,472,261
No high school degree, percent	11.4%	18.2%	12.0%
No high school degree, change in percentage points**, 2010*-2019*	-6.9	-20.6	-3.0

\*\*For example, if the value is 3% in 2010\* and 4.5% in 2019\*, the reported change in percentage points is 1.5.

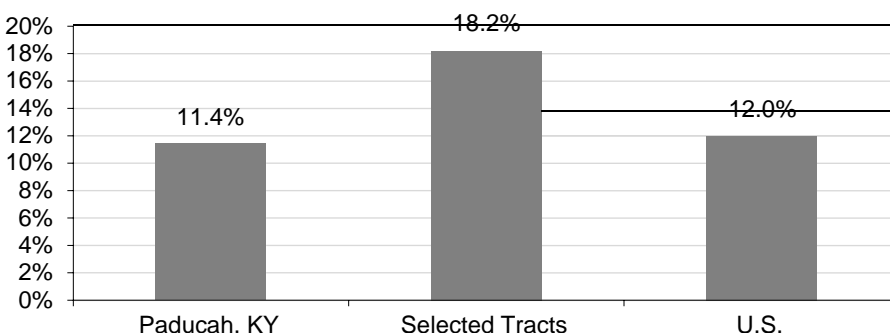
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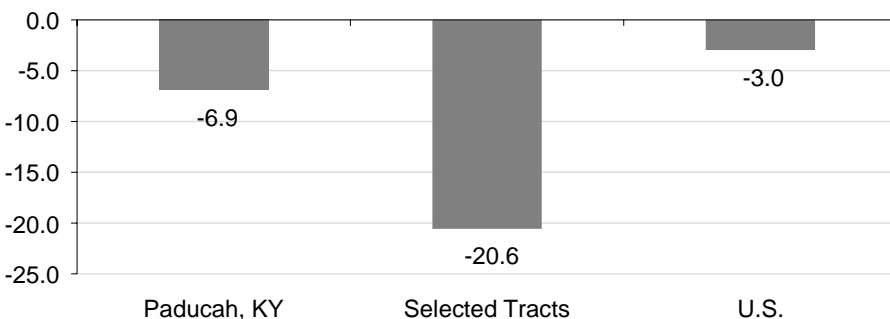
#### Population with Less than High School Education, Percent of Total, 2019\*

- Selected Tracts has the largest share of people with less than a high school education (18.2%).



#### Population with Less than High School Education, Change in Percentage Points, 2010\*-2019\*

- The largest change in the share of people with less than a high school degree occurred in Selected Tracts, which went from 38.7% to 18.2%.



\* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C.,

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# Neighborhoods at Risk

## Selected Tracts

### Educational Attainment

#### What do we measure on this page?

This page describes levels of educational attainment, which refers to the highest degree or level of schooling completed by people 25 years and over.

#### Why is it important?

High school completion is used as a proxy for overall socioeconomic circumstances. Lack of education is strongly correlated with poverty and poor health.

People without a high school degree are more than twice as likely to live in inadequate housing compared to those with some college education.<sup>5</sup>

A study in California found the lack of a high school degree was the factor most closely related to social vulnerability to climate change.<sup>4</sup>

Thirty-eight percent of Americans without a high school degree do not have health insurance, compared to 10 percent with a college degree.<sup>7</sup>

The rate of diabetes is much greater for those without a high school degree. Incidence of this disease is more than double the rate of those who attended education beyond high school.<sup>5</sup>

Binge drinking is most severe among those without a high school degree. This demographic group had the highest risk of binge drinking across all measured categories (such as income, race, ethnicity, or disability status).<sup>5</sup>

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# Neighborhoods at Risk

## Selected Tracts

### Potentially Vulnerable Households

	Paducah, KY	Selected Tracts	U.S.
Total Occupied Households, 2019*	11,330	512	120,756,048
People > 65 years & living alone	836	12	4,527,381
Single female households	1,633	91	15,016,964
with children < 18 years	1,171	75	9,427,068
Households with no car	1,337	27	10,395,713

#### Percent of Total, 2019\*

People > 65 years & living alone	7.4%	2.3%	3.7%
Single female households	14.4%	17.8%	12.4%
with children < 18 years	10.3%	14.6%	7.8%
Households with no car	11.8%	5.3%	8.6%

#### Change in Percentage Points, 2010\*-2019\*

For example, if the value is 3% in 2010\* and 4.5% in 2019\*, the reported change in percentage points is 1.5.

People > 65 years & living alone	0.4	-3.5	-0.8
Single female households	-0.2	-14.3	-0.2
with children < 18 years	-0.1	-11.7	0.0
Households with no car	-0.5	-23.7	-77.3

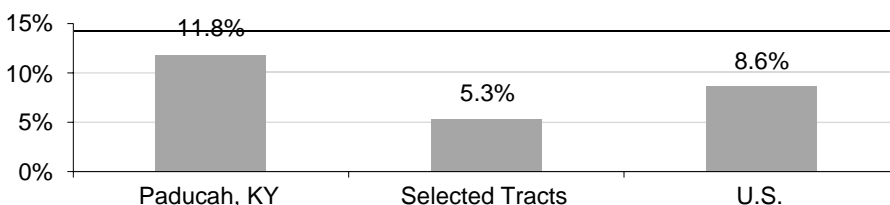
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#### People > 65 Yrs and Living Alone as a Percent of Total Households, 2019\*

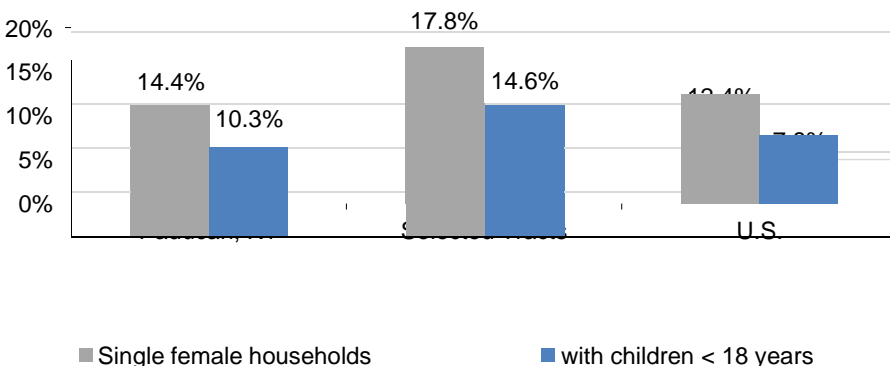
- Paducah, KY has the largest share of households with people over 65 living alone (7.4%).



#### Single Female Households as a Percent of Total Households, 2019\*

- Selected Tracts has the largest share of single female households (17.8%).

- Selected Tracts has the largest share of single female households with children < 18 years (14.6%).



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# Neighborhoods at Risk

## Selected Tracts

### Potentially Vulnerable Households

#### What do we measure on this page?

This page describes household types that are associated with increased hardship, including the elderly living alone, single female households, single female households with children, and households without a car.

#### Why is it important?

Older adults are more likely to have compromised health and are less able to overcome disease. Living alone exacerbates health risks, and many health outcomes are worsened by social isolation.

Social isolation is strongly linked to poor health such as premature death, smaller chances of survival after a heart attack, depression, and greater levels of disability from chronic diseases.<sup>2</sup>

People 65 and older are particularly vulnerable to heat-related illness,<sup>4</sup> which is exacerbated by social isolation.

Households headed by women face challenges related to income, education, and food security. These factors make it more difficult to respond to health, environmental, or climate risks.

Female-headed households are more likely to be living in poverty. This is most prevalent among black, Hispanic, and Native American households.<sup>16</sup>

In 2014, 35 percent of female-headed households were food insecure, compared to 14 percent of all households.<sup>17</sup> Single mothers may be burdened by providing basic needs such as food and housing, which can make the urgency of other risks seem less important.<sup>18</sup>

Single-mother families are disproportionately exposed to hazardous levels of air pollution.<sup>4</sup>

Single mothers tend to be less educated and less affluent than the general population, which puts them at greater risk during natural disasters.<sup>18</sup>

Access to a car is linked with higher wages and more financial stability, and can help families relocate or evacuate in the event of emergencies.

People who own cars are more likely to be employed, work longer hours, and earn more than those who do not.<sup>19</sup>

Access to a car has measurable benefits for those receiving public assistance. Welfare recipients with access to a car were more likely to work more hours and get higher-paying jobs, and had a greater chance of leaving welfare.<sup>20</sup>

During emergencies, natural disasters, and extreme weather events, people who do not have a car are less likely to evacuate or have access to emergency response centers.<sup>4</sup>

During heat waves, people without a car are less able to go to community cooling centers or cooler areas.<sup>4</sup>

Pedestrian fatalities are more than twice as likely in poor urban neighborhoods than in wealthier parts of cities.<sup>21</sup>

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# Neighborhoods at Risk

## Selected Tracts

### Potentially Vulnerable People

	Paducah, KY	Selected Tracts	U.S.
Total civilian noninstitutionalized population, 2019*	23,732	1,211	319,706,872
People w/ disabilities	4,352	151	40,335,099
People w/o health insurance	1,973	324	28,248,613

#### Percent of Total, 2019\*

Percent of people w/ disabilities	18.3%	12.5%	12.6%
Percent of people w/o health insurance	8.3%	26.8%	8.8%

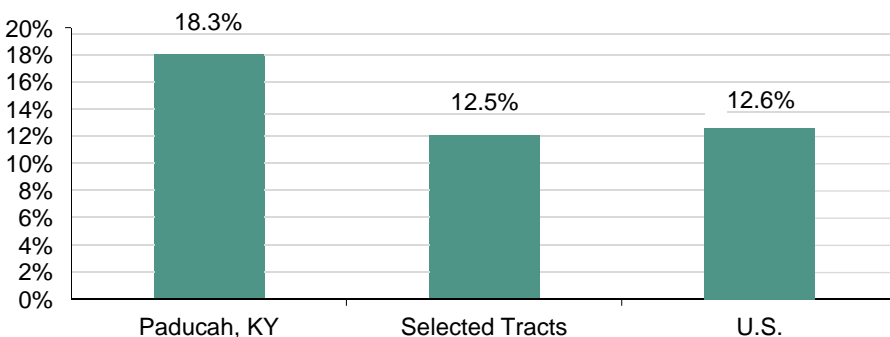
**High Reliability:** Data with coefficients of variation (CVs) < 12% are in black to indicate that the sampling error is relatively small.

**Medium Reliability:** Data with CVs between 12 & 40% are in orange to indicate that the values should be interpreted with caution.

**Low Reliability:** Data with CVs > 40% are displayed in red to indicate that the estimate is considered very unreliable.

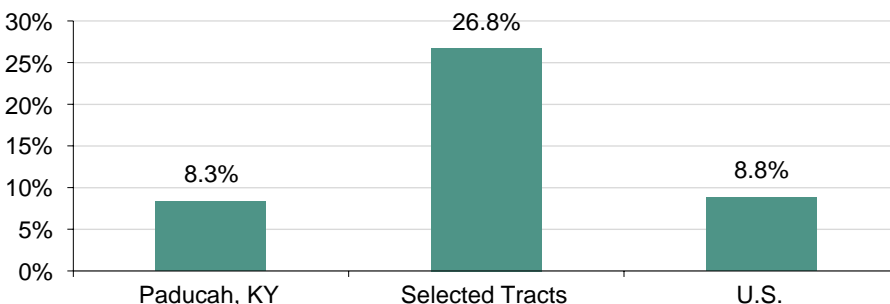
#### People with Disabilities, Percent of Total, 2019\*

- Paducah, KY has the largest share of the noninstitutionalized population that is disabled (18.3%).



#### People without Health Insurance, Percent of Total, 2019\*

- Selected Tracts has the largest share of the noninstitutionalized population without health insurance (26.8%).



\* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Neighborhoods at Risk, [headwaterseconomics.org/apps/neighborhoods-at-risk](https://headwaterseconomics.org/apps/neighborhoods-at-risk).

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# Neighborhoods at Risk

## Selected Tracts

### Potentially Vulnerable People

#### What do we measure on this page?

This page describes groups of people that are associated with increased hardship, including people with disabilities and people without health insurance.

#### Why is it important?

Disabled people are subject to health complications that make environmental risks more consequential.

Disabled people are less likely to have health insurance, compared to the non-disabled population.<sup>5</sup>

Being confined to a bed raises heat mortality.<sup>2</sup>

Extreme weather events or natural disasters may result in limited access to medical care. This is particularly consequential for those who already have compromised health.<sup>3</sup>

People who lack health insurance are disadvantaged by several different mechanisms. They may avoid or delay diagnoses, treatment, and/or medication and thus may increase their odds of poor health. They do not have a regular place of care, and they are not benefitting from the standard of care that is afforded many Americans.

Households living in poverty are more likely to be uninsured. More than one quarter of uninsured households live in poverty.<sup>10</sup>

People with lower educational attainment are more likely to be uninsured.<sup>5</sup>

People without health insurance are less likely to have a regular source of care, and less likely to receive preventive, primary, and specialty care services.<sup>32,33</sup> This risk is particularly evident among racial and ethnic minorities.<sup>5</sup>

People without health insurance are more likely to use the hospital emergency department for standard health care needs.<sup>5</sup>

About 25% of uninsured adults report having either delayed or gone without care in the past year because of costs.<sup>23</sup>

Uninsured people are more likely to skip medications due to the costs, and some providers are less likely to prescribe medications to uninsured patients.<sup>24</sup>

People who do not have health insurance suffer greater health consequences from air pollution compared to those with insurance.<sup>4</sup>

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# Neighborhoods at Risk

## Selected Tracts

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## Selected Tracts

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