

# LIFE AT THE FENCELINE

## Understanding Cumulative Health Hazards in Environmental Justice Communities

### THE PROBLEM

In Charleston and across the United States, industrial and commercial facilities that can cause catastrophic harm through explosions or toxic releases operate often without the knowledge of the residents, business owners, schools, and medical facilities nearby. Serious chemical releases at the approximately 12,500 high-risk facilities that are part of the US Environmental Protection Agency's "Risk Management Plan" (RMP) program because they use or store highly hazardous chemicals are frighteningly common. From 2004-2013 there were over 1,500 reported chemical releases or explosions at RMP facilities that caused over \$2 billion in property damage, evacuation or "shelter in place" of half a million people, 17,099 injuries, and 58 deaths (US EPA).

The Charleston area—and West Virginia in general—has suffered many serious chemical incidents, including those listed below.

- In August 2008, a fire and explosion at the Bayer CropScience pesticide manufacturing facility in Institute, WV killed two workers, injured eight others, and caused more than 40,000 Kanawha County residents to be instructed to shelter in place (US Chemical Safety Board).
- In January 2010, the DuPont plant in Belle, WV had three separate chemical releases, including the release of more than 5,000 pounds of methyl chloride for several days before it was detected, and the release of highly toxic phosgene gas which killed one worker (US Chemical Safety Board).
- In August 2016, as documented by the US National Transportation Safety Board, a rail tank car at the Axiall Corporation chemical manufacturing facility in New Martinsville, WV cracked, releasing its entire 17,000-gallon (90-ton) load of chlorine. The large



West Virginia contains many dangerous chemical and energy facilities.

The DuPont  
chemical plant  
in Belle, WV  
circa 1973



vapor cloud—which created both a toxic inhalation hazard and risk of immediate death—triggered the evacuation of several nearby communities. The rail car that ruptured was being filled for the first time following repair for serious corrosion and cracking issues.

Many communities like Charleston with concentrations of high-risk chemical facilities face multiple hazards, including potential chemical disasters, lack of access to healthy foods, daily exposure to toxic chemicals released into the air by industrial facilities, and even chemical exposures from everyday products in their homes. These health hazards are often amplified by other factors such as

## RESEARCH FINDINGS

Details on the study methodology are included in the full report *Life at the Fenceline: Understanding Cumulative Health Hazards in Environmental Justice Communities*, available at [www.ej4all.org/life-at-the-fenceline](http://www.ej4all.org/life-at-the-fenceline).

Overall findings for the nine communities studied are:

1. In most of the areas researched, large majorities of the population live in fenceline zones around highly hazardous facilities, and most schools and medical institutions are located in these zones, at much greater rates than nationally.
2. Fenceline zones around hazardous facilities are disproportionately Black, Latino, and impoverished, and face multiple health hazards and risks.

lack of access to health care; lack of quality public services and infrastructure; higher rates of diseases like diabetes and asthma; and stress from poverty, unemployment, and crime, among other factors.

People Concerned About Chemical Safety (PCACS) in Charleston, and community organizations in eight other areas of the US, worked together through the Environmental Justice Health Alliance for Chemical Policy Reform (EJHA) to research who lives in the “fenceline” zones (within three miles) near high-risk RMP facilities, what hazards they face, and possible solutions. The research addressed several interconnected issues:

- Who lives in fenceline zones near high-risk chemical facilities included in the EPA’s RMP program?
- What cancer risks and potential for respiratory illness related to toxic air pollution exposure (from both RMP facilities and other sources) do the people living in these fenceline zones face?
- What is the demographic profile of people living in areas within the fenceline zones that have Low Incomes and Low Access to healthy foods (known as LILA areas), two key indicators of unequal risks and health impacts?
- Where are important institutions, such as schools, hospitals and nursing facilities, and dollar stores (which in many areas are the only source of household products and food, and can contribute chemical exposures from the products they sell, or could choose to support health by selling nontoxic products and healthy foods) located in fenceline zones?

3. The most vulnerable neighborhoods—areas that are both low income and have low access to healthy foods—are even more heavily and disproportionately impacted.

Specific research findings for Charleston appear on page 4.

### Cancer and Respiratory Hazard Data

In our findings, cancer risk from toxic air pollution, and potential for respiratory illness from air pollution, are based on EPA’s National Air Toxics Assessment data, including the Respiratory Hazard Index (RHI). For a full explanation, see Appendix A (Methodology) of the full report.

## SOLUTIONS: What can be done to address these health and safety risks?

In order to protect communities, workers, businesses, and the environment, the EJHA and PCACS recommend that local, state, and federal governments:

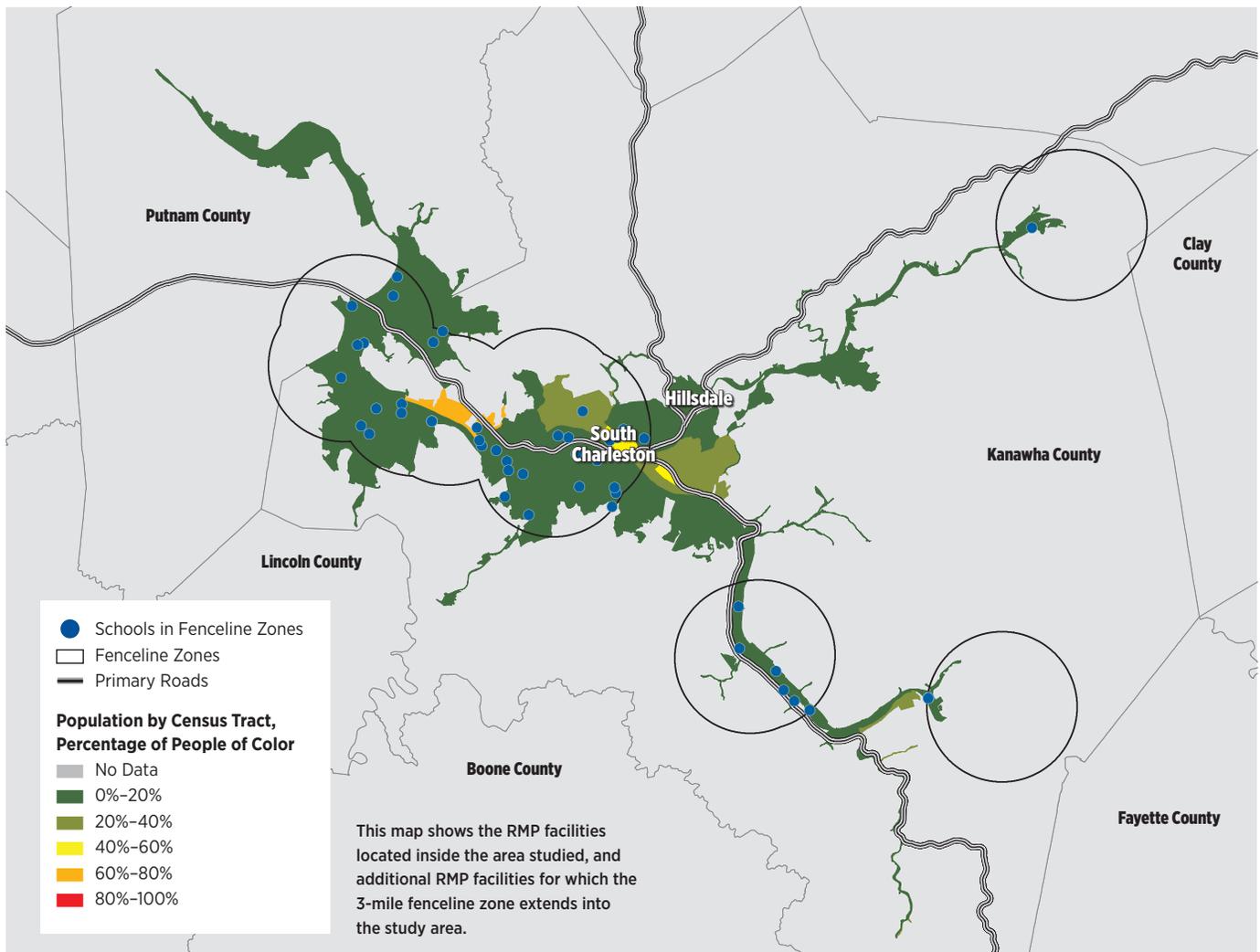
1. Require that facilities that use or store hazardous chemicals adopt safer chemicals and processes whenever possible;
2. Ensure that facilities share information on hazards and solutions, and emergency response plans, with fenceline communities and workers;
3. Require that polluting facilities continuously monitor, report, and reduce their fenceline-area emissions and health hazards;
4. Prevent the construction of new or expanded chemical facilities near homes and schools, and

the siting of new homes and schools near facilities that use or store hazardous chemicals;

5. Require publicly accessible, formal health-impact assessments and mitigation plans to gauge the cumulative impact of hazardous chemical exposures on fenceline communities;
6. Strengthen the enforcement of existing environmental and workplace health and safety regulations.

In addition, dollar store chains should implement broad policies to remove hazardous chemicals from the products they sell, stock fresh and healthy foods, and source safer products and foods locally and regionally.

### Hazardous Facility Fenceline Zones, Schools, and Race in Charleston

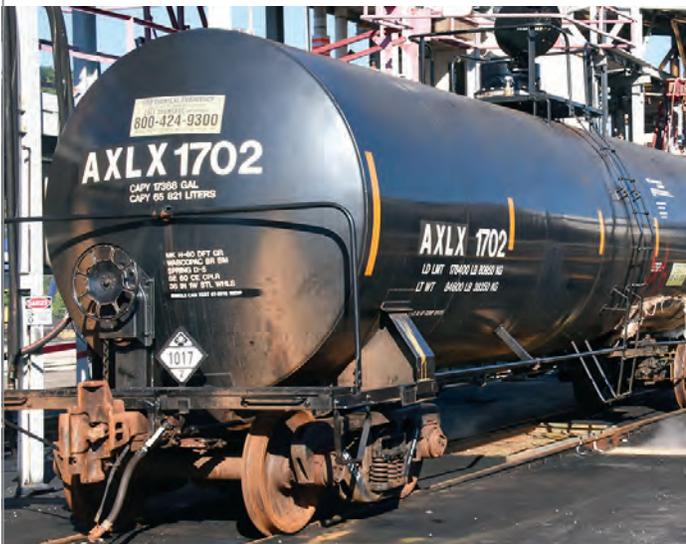


## RESULTS: CHARLESTON, WEST VIRGINIA

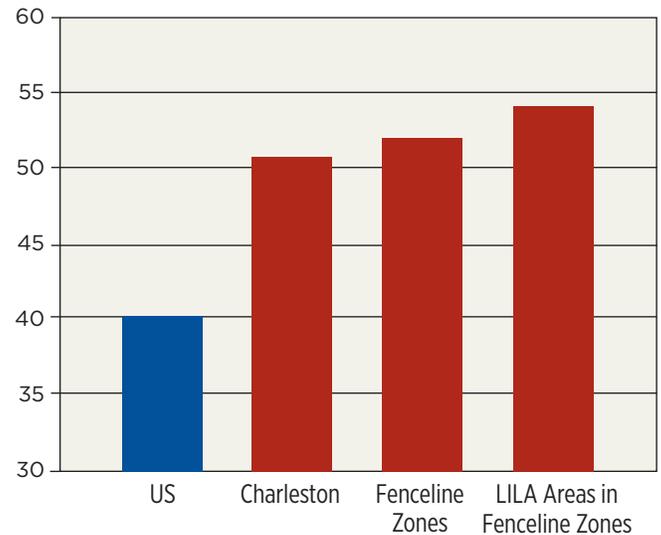
There are 13 RMP facilities located in Charleston.

### KEY FINDINGS

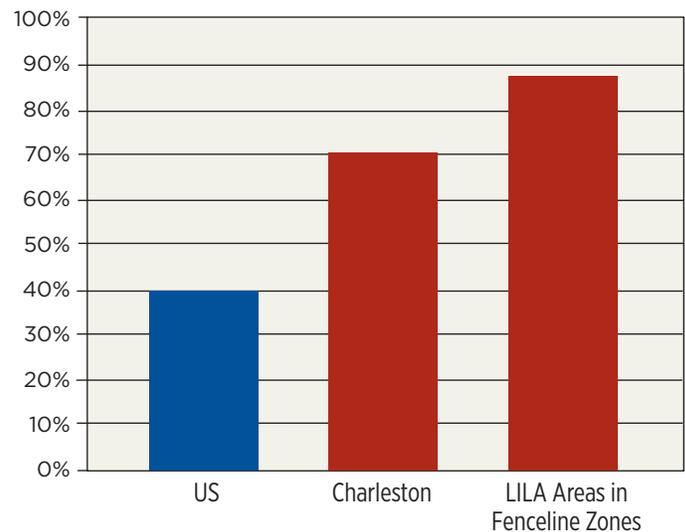
- Seventy percent of people in Charleston live within 3 miles of an RMP facility, an 80% increase over the national rate.
- Eighty-seven percent of Charleston residents who live in low-income/low food access areas also live in fenceline zones (more than twice the rate of all US residents who live in RMP facility fenceline zones, which is 39%).
- People living in Charleston face the highest cancer risk (approximately 51 cancers per million people) from toxic air pollutants of all 9 areas included in this report. Those risks increase further for those living in low-income/low food access areas within 3 miles of an RMP facility.
- The percentage of people in poverty in low-income/low food access areas within 3 miles of an RMP facility is 43% higher than for those in poverty in Charleston overall.
- The average household income for those living in low-income/low food access areas within 3 miles of an RMP facility is 28% lower than for all those living in Charleston.
- More than half of Charleston schools and almost 30% of medical facilities are located within 3 miles of an RMP facility.
- All of Charleston's 13 RMP facilities have at least one dollar store located within 3 miles, and more than two-thirds (68%) of all dollar stores are located within 3 miles of an RMP facility.



### Cancer Risk from Air Pollution



### Residents in Fenceline Zones

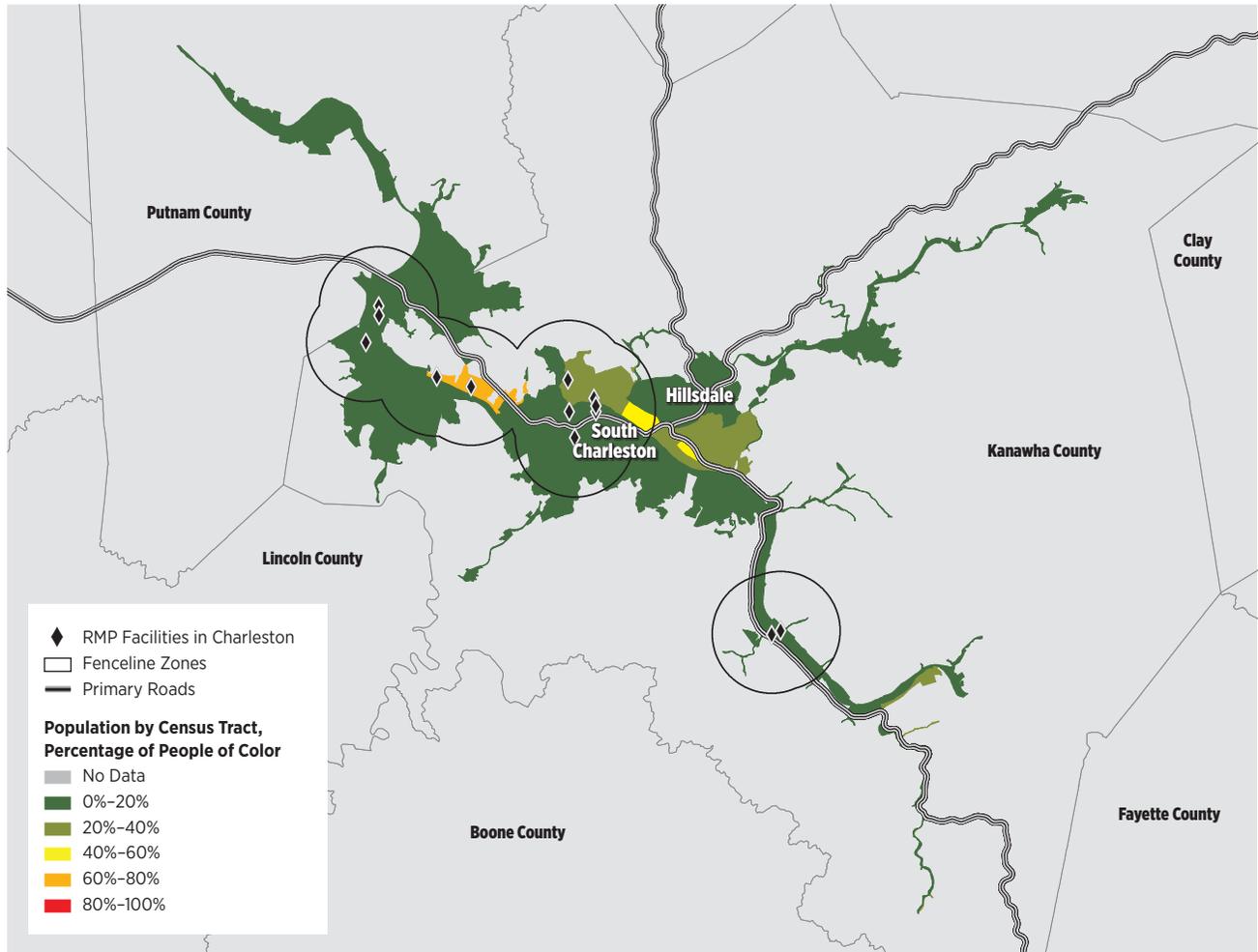


**70% OF THE POPULATION OF**  
the Charleston Urban Area lives within  
3 miles of an RMP facility.

Left: This rail car at the Axiall chemical facility in New Martinsville, WV released 90 tons of toxic chlorine gas in 2016.

## Hazardous Facilities and Race in Charleston

For additional maps and other information about Charleston, visit <https://ej4all.org/life-at-the-fenceline>.



## Charleston Data Summary

	Charleston Totals	Charleston 3 Mile Totals	Charleston 3 Mile LILA* Totals
<b>Weighted Cancer</b>	50.83	52.04	54.01
<b>Weighted RHI</b>	2.39	2.26	2.40
<b>Percent Black</b>	6.0%	6.3%	10.0%
<b>Percent Hispanic</b>	1.1%	0.9%	0.9%
<b>Percent White</b>	86.5%	86.8%	80.1%
<b>Percent Children</b>	19.7%	20.5%	19.9%
<b>Percent Poverty</b>	15.7%	15.6%	22.5%
<b>Average Household Income</b>	\$65,555	\$61,227	\$47,166
<b>Average Home Value</b>	\$145,940	\$132,790	\$97,039
<b>Percent HS Graduate or Less</b>	41.7%	43.6%	52.8%
<b>Percent College Degree or More</b>	26.7%	25.3%	16.2%

\* LILA—Areas with Low-Income populations with Low Access to healthy foods.  
 Note: Highlighted numbers indicate a substantial difference from the full city or county, and the full 3-mile areas data.

## Critical Institutions and Students in Charleston Fenceline Zones

	Charleston Totals	Charleston Fenceline Zones
Dollar Stores	37	25 (68%)
Medical Facilities	7	2 (29%)
Schools	83	47 (57%)
Students	28,934	17,675 (61%)

## FIGHTING BACK

Community, worker, business, and health organizations in West Virginia and nationally are working to address these problems and implement safe, just, and sustainable solutions.

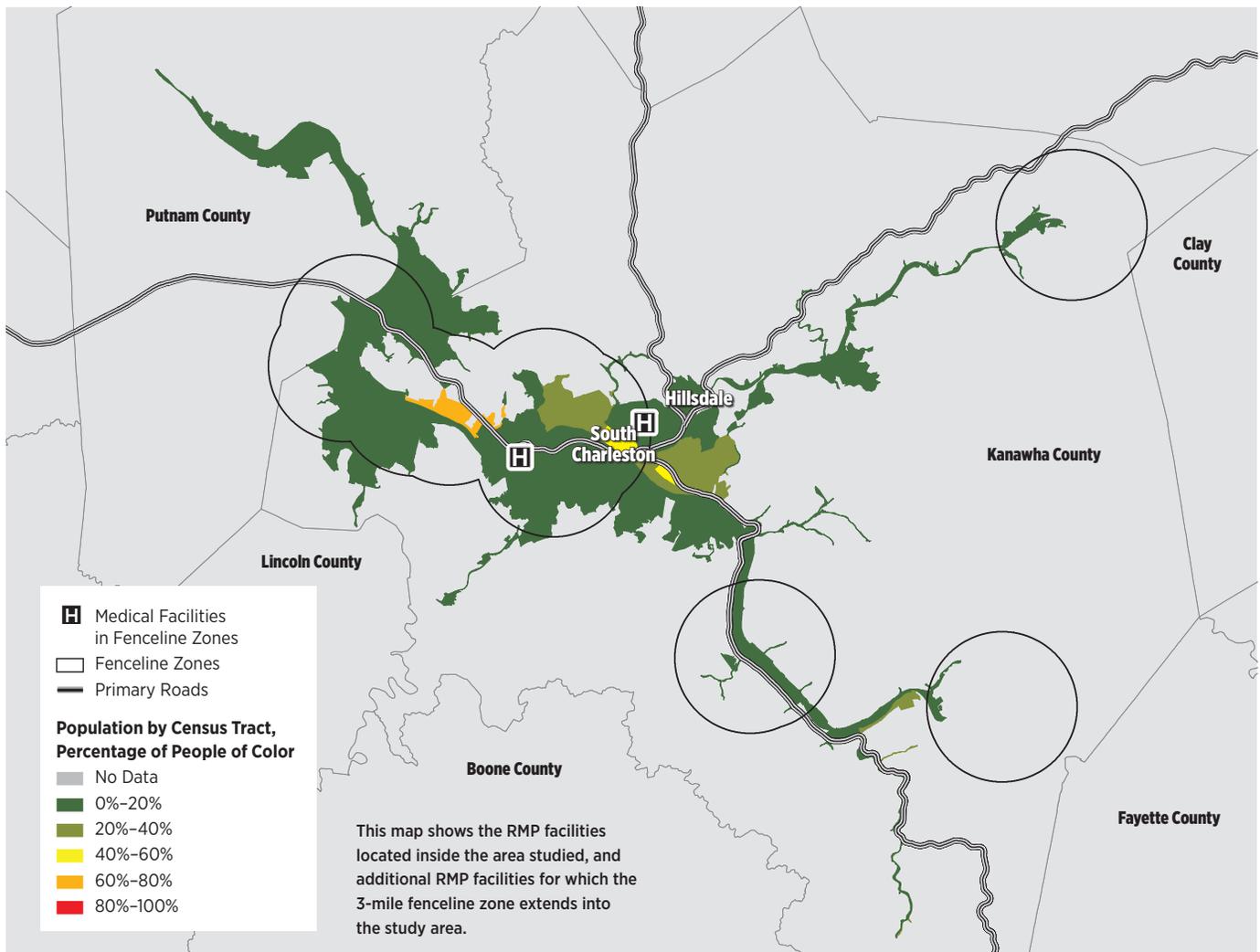
In Charleston, People Concerned About Chemical Safety (PCACS) promotes international human rights pertaining to environmental and chemical safety through education

and advocacy, and serves as a watchdog that ensures existing chemical safety laws are upheld by facilities in our communities.

PCACS is part of the national Environmental Justice Health Alliance for Chemical Policy Reform (EJHA), a network of grassroots organizations in more than 13 states that advocates for just, sustainable solutions to the health and environmental hazards faced by communities disproportionately impacted by toxic chemicals.

EJHA works to prevent chemical disasters by uniting communities at the fenceline of hazardous chemical facilities with national allies and experts to prevent catastrophic chemical releases from the nation's high-risk chemical facilities through information disclosure, community and worker involvement, and transition to safer chemicals and technologies.

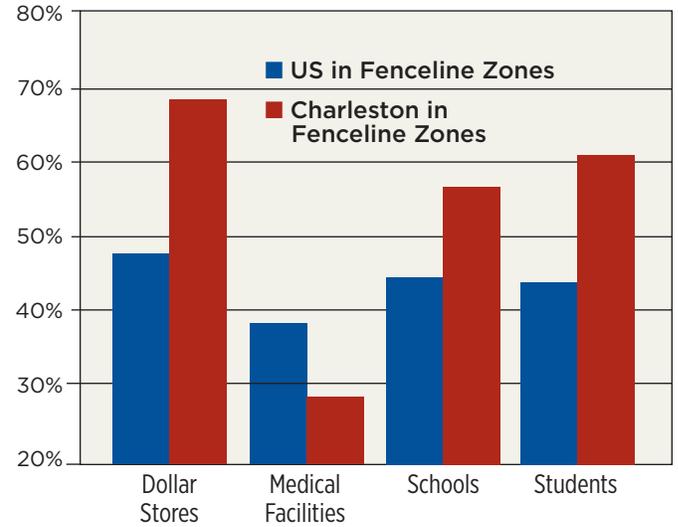
## Hazardous Facility Fenceline Zones, Medical Facilities, and Race in Charleston



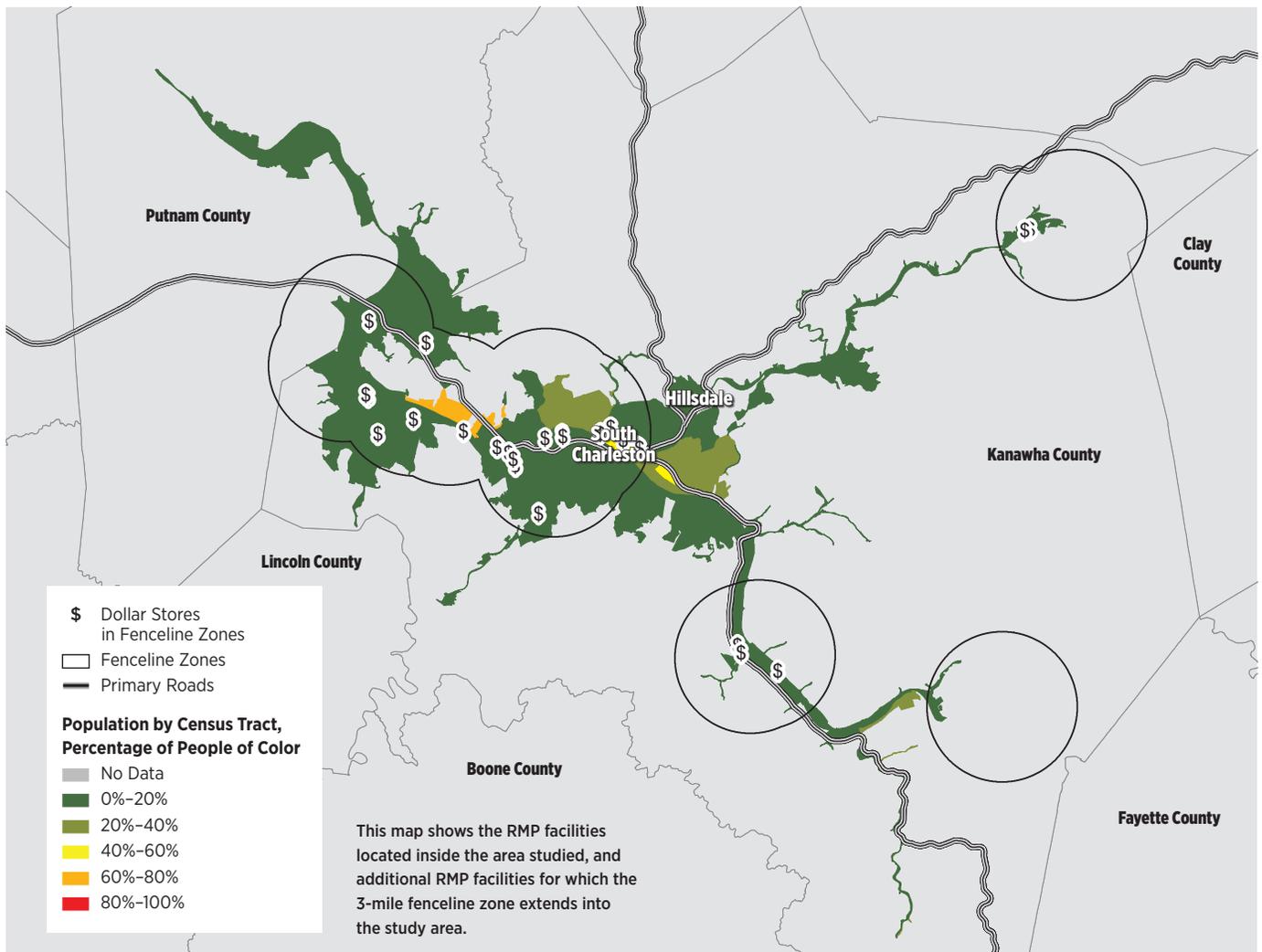
EJHA's Campaign for Healthier Solutions (CHS) works with discount retailers (dollar stores) to help them protect their customers and the communities in which they operate, and grow their businesses, by implementing corporate policies to phase out harmful chemicals in the products they sell, and by stocking safer products and healthier foods that support the communities in which their stores operate.

EJHA is part of the Coming Clean collaborative, which works to reform the toxic chemical and fossil fuel industries so they are no longer a source of harm, and to secure the systemic changes necessary for clean production, safe renewable energy, and a sustainable economy to flourish.

### Critical Institutions and Students in Charleston Fenceline Zones Compared to National Rate



### Hazardous Facility Fenceline Zones, Dollar Stores, and Race in Charleston



## LEARN MORE & GET INVOLVED

Visit [www.ej4all.org/life-at-the-fenceline](http://www.ej4all.org/life-at-the-fenceline) to:

- Read the full *Life at the Fenceline* report
- Check the interactive map to find out if where you, your family, and friends live, work, or go to school is near a dangerous chemical facility

Read EJHA reports on chemical facility risks and dollar store products:

- Who's In Danger: Race, Poverty, and Chemical Disasters  
<https://ej4all.org/assets/media/documents/ej4all-Who'sInDangerReport.pdf>
- A Day Late and a Dollar Short: Discount Retailers are Falling Behind on Safer Chemicals  
[https://ej4all.org/assets/media/documents/Report\\_ADayLateAndADollarShort.pdf](https://ej4all.org/assets/media/documents/Report_ADayLateAndADollarShort.pdf)

Contact People Concerned  
About Chemical Safety

<http://peopleconcernedaboutmic.com>

**Environmental Justice Health Alliance** for Chemical Policy Reform

coming clean

CAMPAIGN FOR  
**Healthier  
Solutions**



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**Coming Clean** is a national environmental health and justice collaborative of 200 organizations working to reform the chemical and fossil fuels industries so they are no longer a source of harm, and to secure systemic changes that allow a safe chemical and clean energy economy to flourish. Learn more at [www.comingcleaninc.org](http://www.comingcleaninc.org).

**The Environmental Justice Health Alliance for Chemical Policy Reform** supports diverse movement towards safe chemicals and clean energy that leaves no community or worker behind. EJHA is a network of grassroots environmental justice organizations in communities that are disproportionately impacted by toxic chemicals, from old contaminated sites, ongoing exposure to polluting facilities, and toxic chemicals in household products and foods. Learn more at [www.ej4all.org](http://www.ej4all.org).

**The Campaign for Healthier Solutions**, hosted by Coming Clean and EJHA, is made up of interested organizations, dollar store customers, and investors who seek to work with discount retailers to help them protect their customers and the communities in which they operate, and also grow their business, by implementing corporate policies to identify and phase out harmful chemicals in the products they sell. Learn more at [www.nontoxicdollarstores.org](http://www.nontoxicdollarstores.org).

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