

ENVIRONMENTAL JUSTICE HEALTH ALLIANCE FOR CHEMICAL POLICY REFORM  
COMING CLEAN | CAMPAIGN FOR HEALTHIER SOLUTIONS

# LIFE AT THE FENCELINE

Understanding Cumulative Health Hazards  
in Environmental Justice Communities





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ENVIRONMENTAL JUSTICE HEALTH ALLIANCE FOR CHEMICAL POLICY REFORM  
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**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).

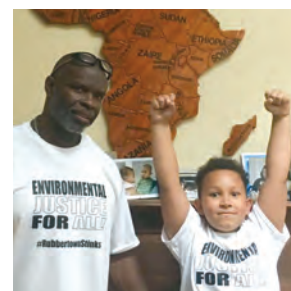
**The Campaign for Healthier Solutions**, hosted by Coming Clean and EJHA, is made up of interested organizations, dollar store customers, and investors who seek to work with discount retailers to help them protect their customers and the communities in which they operate, and also grow their business, 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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## EXECUTIVE SUMMARY

**A**cross the United States, the health and safety of people who live, work, play, and learn near thousands of industrial and commercial facilities that use or store extremely dangerous chemicals is at risk of a major chemical release or explosion at any time. Compared to national averages, a significantly greater proportion of Blacks (African Americans), Latinos (Hispanics), and people at or near poverty levels tend to live in close proximity to the most hazardous facilities. Compounding these risks, a large and growing body of research has found that people of color and those living in poverty are exposed to higher levels of environmental pollution than Whites or people not living in poverty.

Exposure to toxic air pollution and stress related to fear of potential chemical disasters increase the health burden on these communities. These hazards are amplified by other negative socioeconomic and health factors, including higher rates of diseases such as diabetes and asthma; lack of access to healthy foods; exposure to toxic chemicals in products sold at discount retail stores; substandard housing; and stress from racism, poverty, unemployment, and crime; among other factors. Addressing the cumulative impacts of these various environmental health risks and social determinants of health on these overburdened communities is the foundation of Environmental Justice (EJ).

The research reported here builds on many previous reports and studies, as well as a robust and expanding body of scientific and technical literature, on Environmental Justice and social determinants of health. We examined who is potentially impacted, and their health risks from multiple chemical hazards and toxic air pollution exposures, in the following areas: Los Angeles, as well as Kern, Fresno, and Madera counties, CA; Houston and Dallas, TX; Louisville, KY; Albuquerque, NM; and Charleston, WV.



**Two-thirds of people in Louisville (pictured above) live near high-risk chemical facilities, a common situation in communities like those studied for this report.**

We looked at several interconnected issues:

- Who lives in close proximity to the most hazardous industrial and commercial facilities (and is therefore at greatest risk from a major chemical release or explosion)?
- What are the cancer risks and the potential for respiratory illness from toxic air pollution exposure for those living in a “fenceline zone” within 3 miles of a hazardous facility?
- Do these communities have access to healthy foods?
- Where are critical institutions—schools, hospitals, and discount retail (“dollar”) stores—located in these fenceline areas?

## OVERALL FINDINGS

The results of the analyses conducted for this report demonstrate that the health and safety of communities closest to some of the nation's most dangerous industrial and commercial facilities are at risk from multiple threats, including potential chemical releases or explosions, daily exposure to toxic air pollution, and poor nutrition from a lack of access to healthy foods (along with other hazards and impacts not specifically studied here). The population of these fenceline areas is disproportionately Black, Latino, and living in poverty. Many of these communities also rely heavily, or solely, on dollar stores for household necessities and in some cases food, making these retailers potential sources of either additional toxic exposures or safer products and healthier foods (depending on the corporate policies they implement or fail to adopt).

Analysis of the 9 areas studied for this report clearly shows that:

- 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.** In 7 of the 9 areas researched for this report, two-thirds of the population or more live in fenceline zones (much greater than the national rate of 39%). In most of the areas studied, at least two-thirds of all schools and 70% of medical facilities are located in fenceline zones (compared to 45% of US schools and 39% of US hospitals and nursing homes).
- 2. Fenceline zones around hazardous facilities are disproportionately Black, Latino, and impoverished.** The percentage of Blacks or Latinos living within 3 miles of a Risk Management Plan (RMP) facility was higher than for the entire area in every study area, and often much higher than for the US as a whole. In 7 of the 9 areas researched, the percentage of people living in poverty within 3 miles of an RMP facility is higher than for those living in poverty in the entire area, and often much higher than for the US as a whole.
- 3. People living in hazardous facility fenceline zones face multiple health hazards and risks.** In addition to the constant threat of catastrophic chemical releases or explosions, in every area researched for this report

fenceline zones face higher risk of cancer from toxic air pollution than the entire area (and often much higher than for the US as a whole). In 8 of the 9 areas, the potential for respiratory illness is higher in fenceline zones than for the entire area, and in every area is above the national rate. The percentage of fenceline zone residents who also live in a low-income/low food access area is higher than for the entire city or county in all 9 areas (and two to three times the national rate in most areas).

- 4. The most vulnerable neighborhoods—areas that are both low-income and have low access to healthy foods—are even more heavily and disproportionately impacted.** In every area studied, low-income/low food access areas within fenceline zones have higher poverty rates, greater percentages of residents who are people of color, and higher cancer risk and respiratory hazard from toxic air pollution than for the whole fenceline zones or the entire city or county, often much higher.

In comparing data from the fenceline zone areas with the entire urban area or county, overall key findings for the 9 areas researched include:

- In 7 of the 9 areas, more than two-thirds of the population (over 67%) lives in a fenceline zone (within three miles of a facility that is part of the US Environmental Protection Agency's Risk Management Program for the most hazardous facilities), a much higher rate than the 39% of the US population that lives in such fenceline zones.
- In 7 of the 9 areas researched, the percentage of people living in poverty within 3 miles of an RMP facility is higher than for those living in poverty in the entire area (and in the other two areas the poverty rate is equal).
- In all of the communities studied, the percentage of people living in areas with Low Incomes and Low Access to healthy foods (LILA areas) within 3 miles of an RMP facility is higher than the percentage of residents of the entire community who live in low-income/low food access areas, and in some cases substantially higher.
- In 8 of the 9 areas studied, 71% to 100% of people who live in low-income areas that also have low access to healthy foods also live within a hazardous facility fenceline zone.





Members of Texas Environmental Justice Advocacy Services (tejas) and other organizations demand action to prevent chemical disasters at a federal Listening Session on chemical facility safety in Houston, TX.

**IN 8 OF THE 9 AREAS STUDIED,** 71% to 100% of people who live in low-income areas that also have low access to healthy foods also live within a hazardous facility fenceline zone.

- The percentage of Blacks or Latinos living within 3 miles of an RMP facility was higher than for the entire area in all of the study areas, and this difference rises significantly in areas with low incomes and low access to healthy foods within many fenceline zones.
- Cancer risks in fenceline zones are higher than for the entire area in all 9 areas studied, and the potential for suffering respiratory illness from exposure to toxic air pollution is higher in fenceline zones in 8 of the 9 areas. For people living in areas with low incomes and low access to healthy foods within fenceline zones, these risks increase further in all 9 areas studied.
- At least two-thirds of all schools are located within 3 miles of an RMP facility in 6 of the 9 areas.

- At least half of all medical facilities are located within 3 miles of an RMP facility in all but one area. At least 70% of medical facilities are located in these fenceline zones in 6 out of the 9 areas.

### NATIONAL FINDINGS

- About 124 million people, 39% of the U.S. population, live within three miles of approximately 12,500 high-risk chemical facilities (those in the RMP program).
- Almost half (45%) of the approximately 125,000 schools in the US are located within 3 miles of RMP facilities. This puts more than 24 million children as well as staff at these schools at particular risk from a catastrophic chemical facility incident.
- About 4 in 10 (39%) of the almost 11,000 medical facilities (hospitals and nursing homes) in the US are near RMP facilities. A major chemical facility incident near these medical facilities could have catastrophic impacts on patients and staff.
- Almost one-half (about 13,000) of the almost 27,000 dollar stores owned by the largest US chains are located within three miles of an RMP facility. Toxic chemicals in products and unhealthy foods available at these stores add to the potential health impacts on fenceline communities.

## KEY URBAN AREA OR COUNTY FINDINGS

### *Los Angeles, California*

- More than 8.7 million people, or 72% of people in Los Angeles, live within 3 miles of the area's 141 RMP facilities, which is 85% higher than the national rate.
- In areas with low incomes and low access to healthy foods within the fenceline zones around RMP facilities, Latinos make up more than two-thirds of the population, which is 42% greater than the percentage of Latinos in Los Angeles. Also, the percentage of Blacks in areas with low incomes and low access to healthy foods within the 3-mile zones is 44% greater than for the LA area as a whole.

### *Fresno County, California*

- Almost 637,000 people, or 68% of Fresno County residents, live within 3 miles of the 77 RMP facilities there, a 73% increase over the national rate.
- The percentage of Latinos in areas with low incomes and low access to healthy foods within fenceline zones is 23% greater than for Latinos in Fresno County overall.

### *Kern County, California*

- Almost 581,000 people, or 68% of Kern county residents, live within 3 miles of the county's 97 RMP facilities, a 74% increase over the national rate.
- While Latinos represent just over 50% of the county's population, 65% of people living in areas with low incomes and with low access to healthy foods within the 3-mile fenceline zones are Latino, which is 29% higher than the full county.

### *Madera County, California*

- 100% of people living in areas with low incomes and low access to healthy foods also live within 3 miles of an RMP facility, more than twice the percentage of Madera County residents who live within the fenceline zones (47%).
- The potential for suffering respiratory illness from toxic air pollution exposure is 33% higher for those living within 3 miles of an RMP facility compared to Madera County overall. Those in areas with low incomes and low access to healthy foods within the fenceline zones face a 24% higher cancer risk from air pollution, which is the highest risk of all 9 areas included in this report.

### *Louisville, Kentucky*

- More than 600,000 people, or 67% of Louisville residents, live within 3 miles of the area's 23 RMP facilities, a 72% increase over the national rate. Ninety-two percent of people living in areas with low incomes and low access to healthy foods live within these fenceline zones, a 37% increase compared to all Louisville residents living within 3 miles of an RMP facility.
- The percentage of people living in poverty in areas with low incomes and low access to healthy foods within 3 miles of an RMP facility is 94% greater than for Louisville overall. The percentage of Blacks living in low-income/low food access areas within fenceline zones is twice that of Louisville as a whole (39% compared to 18%).

### *Albuquerque, New Mexico*

- The potential for suffering respiratory problems from toxic air pollution exposure is 25% higher for those in areas with low incomes and low access to healthy foods within RMP facility fenceline zones compared to Albuquerque overall, while cancer risk from air pollution is 10% higher.
- The percentage of Latinos in areas with low incomes and low access to healthy foods within fenceline zones is 32% greater than for Albuquerque overall, and is more than twice the rate for whites in these areas.

### *Dallas, Texas*

- Almost 3.5 million people, or 72% of Dallas residents, live within 3 miles of the area's 108 RMP facilities, an 85% increase over the national rate.
- While Latinos make up less than one-third Dallas's population, more than half of people in areas with low incomes and low access to healthy foods within the 3-mile fenceline zones are Latino, a 62% increase. The percentage of Latinos in these areas is more than twice the rate for whites.

### *Houston, Texas*

- Almost 3.6 million people, or three-quarters of Houston residents, live within 3 miles of the 191 RMP facilities in the area, a 92% increase above the national rate.
- Seventy-eight percent of all Houston medical facilities and 72% of schools are within 3 miles of an RMP facility.

### *Charleston, West Virginia*

- Seventy percent of people in Charleston live within 3 miles of an RMP facility, an 80% increase over the national rate.
- People living in Charleston face the highest cancer risk from toxic air pollutants of all 9 areas included in this report. Those risks increase further for those living within 3 miles of an RMP facility in areas with low incomes and with low access to healthy foods.

## **RECOMMENDATIONS AND SOLUTIONS**

**Ensure that facilities that use or store hazardous chemicals adopt safer chemicals and processes.** Switching to inherently safer chemicals and technologies—which removes underlying hazards - is the most effective way to prevent deaths and injuries from chemical disasters (as well as eliminate ongoing emissions of the replaced chemicals).

**Ensure that facilities share information on hazards and solutions, and emergency response plans, with fenceline communities and workers.** Facility employees and fenceline communities can only participate effectively in their own protection if they have full access to information and meaningful access to decision-making processes. First responders must know what hazards they face.

**Require large chemical facilities to continuously monitor, report and reduce their fenceline-area emissions and health hazards.** Unplanned, smaller releases of toxic chemicals often precede more serious incidents at chemical facilities and may themselves directly impact the health of people living in nearby communities. Continuous, publicly available monitoring of air emissions will improve community knowledge of hazards and potentially help prevent minor issues from leading to major disasters.

**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.** The siting of new facilities that use or store hazardous chemicals, or expansion of existing ones, near homes, schools, or playgrounds significantly increases the possibility that a chemical release or explosion will result in a disaster. Similarly, new homes, schools, and playgrounds should not be sited near hazardous facilities.



Michele Roberts of Coming Clean and the Environmental Justice Health Alliance supports action to remove chemical hazards.

**Require publicly accessible, formal health-impact assessments and mitigation plans to gauge the cumulative impact of hazardous chemical exposures on fenceline communities.** Federal, state, and local agencies should assess, with full participation by the affected communities, the potential impact of unplanned chemical releases and the cumulative impacts of daily air-pollution exposures on the health of fenceline communities.

**Strengthen the enforcement of existing environmental and workplace health and safety regulations.** Congress should increase funding to the EPA, OSHA, and the states for expanding inspections and improving the enforcement of environmental and workplace health and safety laws, so that problems in chemical facilities can be identified before they lead to disasters.

**Dollar store chains should develop and implement broad policies to identify and remove hazardous chemicals from the products they sell, stock fresh and healthy foods, and source safer products and foods locally and regionally.** Given their presence in many communities of color and low-income fenceline communities, the largest dollar store chains are in a unique position to benefit the health and welfare of these communities where they operate, while growing and benefiting their own businesses, by providing safer products and healthier foods.

## CHAPTER ONE INTRODUCTION

**A**cross the United States, the health and safety of people who live, work, play, learn, and pray near thousands of industrial and commercial facilities that use or store extremely dangerous chemicals is at risk of a major chemical release or explosion at any time.

Approximately 124 million people across the United States, almost 40% of the US population, live within three miles of high-risk chemical facilities.<sup>1</sup> Their health, wellbeing, and even cultures are endangered by the threat of a catastrophic explosion or release, and other determinants of health, including lack of access to healthy foods, and daily exposure to toxic chemicals released into the air by industrial facilities, from everyday household products, and from building materials used to construct their homes.

Previous research found that these “fenceline” areas nearest hazardous facilities are often primarily composed of low-income people of color, especially Blacks (African Americans) and Latinos (Hispanics).<sup>2,3</sup> Exposure to toxic air pollution<sup>4</sup> and stress related to fear of potential chemical plant disasters

increase the health burden on these Environmental Justice (EJ) communities. These hazards are amplified by other negative socioeconomic and health factors, including higher rates of diseases such as diabetes and asthma, substandard housing, stress from racism, poverty, unemployment, and crime, among other factors.<sup>5</sup>

Adding to the health burden for these communities are harmful chemicals in foods and household products often found in discount retailers (“dollar stores”)<sup>6</sup> and lack of access to healthier foods.<sup>7</sup> Dollar stores are often located in small rural towns or in urban neighborhoods where they might be the only place to buy essential household items, including food. For example, Family Dollar has specifically targeted areas where they may be the only store selling food.<sup>8</sup> Many communities served by dollar stores are predominantly communities of color or low-income communities that have reduced access to quality medical care, fresh and healthy food, and public services, which are critical to overall health and to withstanding chemical exposures. Because of their presence in so many fenceline communities, dollar stores are in a unique position to either contribute to the health burden faced by these

### What is Environmental Justice?

**E**nvironmental Justice—as both a principle and a movement—arose in response to disproportionate exposure of communities of color and low-income communities (referred to as Environmental Justice communities) to harmful pollution, toxic sites and facilities, and other health and environmental hazards. While these people and communities have known about the hazards they face for a long time, beginning in the early 1980s new research helped document these harms and support action to address them. Grassroots leaders in many EJ communities began organizing and networking to address disproportionate toxic impacts wherever people live, work, play, learn, or worship. In 1991, the First National People

of Color Environmental Leadership Summit adopted 17 Principles of Environmental Justice. Over the past 40 years, EJ organizing has led to President Clinton’s Executive Order on Environmental Justice, to the establishment of EPA’s Office of Environmental Justice and National Environmental Justice Advisory Council, to the adoption of some form of EJ policies in many states, and to concrete actions to protect EJ communities from environmental health hazards. However, disproportionate toxic threats are still a daily fact of life in communities of color, low-income communities, and Indigenous communities across the United States, which Environmental Justice organizations work to address.



Residents of Wilmington, DE are campaigning for solutions to toxic air pollution and high-risk chemical facilities in their community.

communities, or help to provide solutions (by stocking healthier foods and safer products).\*

This report builds on a substantial body of previous Environmental Justice research. From its beginning, the Environmental Justice movement has worked to assess and address cumulative health, environmental, and social impacts<sup>9</sup> that disproportionately impact communities of color, low-income communities, and Indigenous communities. For more than twenty-five years, Environmental Justice researchers and organizers have documented disproportionate impacts and advocated for changes to address these inequities. Many reports and articles document their results and successes.<sup>10,11,12,13,14</sup>

In response to Environmental Justice organizing, in 1994 President Bill Clinton issued Executive Order 12898 on Environmental Justice (“Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations”) which directed each federal agency

to “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...”<sup>15</sup>

The EJ Executive Order continues to inform federal policy making and enforcement over twenty years later, despite attempts by the Administration of George W. Bush to remove race from consideration in US Environmental Protection Agency (EPA) environmental justice determinations.<sup>16</sup> EPA now defines Environmental Justice as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.”<sup>17</sup> However, the Agency also clarifies that “no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies.”<sup>18</sup>

\* Throughout this report, “dollar stores” refers generally to discount retail stores, which are primarily those operated by the largest US discount retail chains (Dollar General and Dollar Tree, which also owns Family Dollar), and is not meant to indicate any one specific company. Any direct references to specific companies or their stores list the company by name.

EPA's current Environmental Justice Strategic Plan (EJ 2020 Action Agenda) recognizes disproportionate impacts on communities of color, low-income communities, and Indigenous communities, and commits the Agency to "achieving better environmental outcomes and reducing disparities in the nation's most overburdened communities."<sup>19</sup>

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**EJHA'S EFFORTS TO PREVENT** chemical disasters unite communities at the fenceline of hazardous chemical facilities with facility employees, supported by national advocates and experts. Key prevention measures include disclosure of information on hazards and alternatives, community and worker involvement, and transition to safer chemicals and processes.

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Responding to the urgent need for action to address the numerous hazards and harms that disproportionately affect people of color and low-income people, the Environmental Justice Health Alliance for Chemical Policy Reform (EJHA) has networked community organizations across the United States to organize and campaign for solutions. EJHA works to address the multiple harms caused by the hazardous chemical and energy industries—including waste, pollution, and health hazards—that disproportionately target and impact communities of color, Indigenous communities, and low-income communities. These communities along the "fenceline" of industry are exposed to multiple hazards at high rates, and have the least resources to influence and respond.

EJHA's efforts to prevent chemical disasters unite communities at the fenceline of hazardous chemical facilities with facility employees, supported by national advocates and experts. Key prevention measures include disclosure of information on hazards and alternatives, community and worker involvement, and transition to safer chemicals and processes. As the EJ movement has demonstrated, and EJHA agrees, these solutions can also help to mitigate the worsening climate crisis (which also disproportionately affects already overburdened communities).

EJHA's Campaign for Healthier Solutions (CHS) encourages discount retailers (dollar stores) to protect their customers, workers, and the communities in which they operate, and grow their businesses, through corporate policies to identify and phase out harmful chemical substances in the products they sell (which are often produced in countries such as China, and then transported to the US). The campaign asks dollar stores to stock safer products and healthier foods, especially when these can be sourced from local farms, community businesses, or cooperatives, in order to support the communities where their stores operate.

The research reported here builds on many previous reports and studies, as well as a robust and expanding body of scientific and technical literature on Environmental Justice and social determinants of health, including the 2014 EJHA report *Who's in Danger? Race, Poverty, and Chemical Disasters*. We examined the following areas: Los Angeles, as well as Kern, Fresno, and Madera counties, CA; Houston, TX; Dallas, TX; Louisville, KY; Albuquerque, NM; Charleston, WV. The areas selected for inclusion in this report have community-based advocacy efforts underway to address the large numbers of industrial and commercial facilities with hazardous chemicals, high environmental pollution levels, as well as the large numbers of dollar stores and lack of access to healthy foods in their communities.

In order to understand who is potentially impacted and the health risks from the multiple hazards and exposures in these communities, we looked at several interconnected issues:

- Who lives in close proximity to the most hazardous facilities? Specifically, what is the demographic profile of people living within 3 miles of high-risk chemical facilities included in the EPA Risk Management Plan (RMP) program?
- What are the cancer risks and the potential for respiratory illness from toxic air pollution exposure for those living within these 3-mile fenceline areas?
- Do these communities have access to healthy foods? What is the demographic profile of those living in areas within these fenceline zones that are considered low income and with low access to healthy foods?
- Where are critical institutions (schools, hospitals, and dollar stores) located within the fenceline areas in these communities?

Although the analysis for this report did not look specifically at the age or condition of housing in these communities,

previous research has extensively documented that many communities of color and low-income communities suffer from a lack of access to safe and quality housing, which in turn negatively impacts health. According to the US Surgeon General, “Many of the disparities in health status among subpopulations may be linked to poor access to safe and healthy homes, which is most prevalent among lower income populations, populations with disabilities, and minority populations.”<sup>20</sup>

Not only are “blacks and low-income people . . . more likely than the general population to be in housing that has extreme physical problems,”<sup>21</sup> it is also true that “low-income people and African Americans are much more likely to be exposed to, and therefore suffer, the effects of poor indoor air quality than the general population.”<sup>22</sup> Indoor toxic exposures may include chemicals such as formaldehyde or volatile organic compounds released from building materials; lead released from paint, water pipes, or other sources; and chemicals released from furniture and everyday household or consumer products.<sup>23</sup>

We encourage additional research into the multiple hazards and stressors that affect communities near the fenceline of hazardous facilities, and environmental justice communities in general, including the availability, quality, and safety of housing.

## FENCELINE COMMUNITIES FACE MULTIPLE ENVIRONMENTAL HAZARDS AND HEALTH RISKS

### *Hazardous Chemical Facilities*

Hazardous chemical releases from industrial and commercial facilities into surrounding communities are all too common. The EPA’s Risk Management Plan program (RMP) covers about 12,500 of the nation’s most high-risk facilities that produce, use, or store significant amounts of certain highly toxic or flammable chemicals. These facilities must prepare plans for responding to a worst-case incident such as a major fire or explosion that releases a toxic chemical into the surrounding community. The chemical disaster zones for these facilities often extend up to 25 miles or more and include hundreds of thousands of people, hundreds of schools, many hospitals, and thousands of small and large businesses. Collectively, these facilities endanger as many as 177 million people.<sup>24</sup>

The EPA estimates that about 150 “reportable” incidents of unplanned chemical releases (separate from the daily toxic emissions that are allowed under most operating permits) occur each year at RMP facilities. The EPA notes that these incidents “pose a risk to neighboring communities and workers because they result in fatalities, injuries, significant property damage, evacuations, sheltering in place, or environmental damage.”<sup>25</sup> EPA records show that from



Members of Rubbertown Emergency ACTION (REACT) work to stop toxic air pollution in Louisville.

**TABLE 1**

**Top Five States with the Most RMP Facility Incidents Over Five Years**

State	RMP Facilities	Incidents	Injuries	Evacuated	Property Damage
Texas	1,457	178	185	12,277	\$644,367,042
Louisiana	327	118	222	9,706	\$216,709,465
California	863	75	15,098	75,526	\$9,081,573
Illinois	918	58	46	173	\$5,354,288
Oklahoma	304	57	20	54	\$36,270,405

Over 1 in 10 RMP facilities in the US are located in Texas. Over five years, Louisiana had 1 reported chemical incident for every three RMP facilities in the state.

Source: RTKNET. RMP facilities and accidents by state, compiled from data last released on January 31, 2017 obtained from EPA's Risk Management System database. <http://www.rtk.net/rmp/tables.php?tabtype=t3&subtype=a&sorttype=inc>, search done on May 15, 2018.

2004-2013 there were more than 1,500 chemical releases reportable under the RMP program, about 500 of which had off-site impacts (or about one release with off-site impacts every week). These incidents caused nearly 60 deaths, 17,000 injuries and requests for medical treatment, almost 500,000 people evacuated or sheltered-in-place, and more than \$2 billion in property damages, even though the decade studied did not include a truly catastrophic incident.<sup>26</sup> Chemical releases can also seriously disrupt local economies and cause severe economic damage. The Freedom Industries toxic spill into the Elk River near Charleston, WV, in January 2014 cost local businesses and the local economy \$19 million a day.<sup>27</sup>

In January 2017, the EPA adopted revisions to its chemical facility safety (RMP) rule that could prevent disasters and improve the ability of communities to prepare for—and respond to—incidents at these dangerous facilities.<sup>28</sup> However, implementation of the revised RMP rule was placed on hold by the Trump Administration EPA, which delayed the rule's implementation until February 19, 2019<sup>29</sup> and on May 17, 2018 proposed to roll back almost all of these modest safety improvements.<sup>30</sup>

People living nearest to these high-risk chemical facilities (known as the fenceline areas or zones), and the businesses, schools, and hospitals in these areas, are especially at risk from disasters. They are at greatest risk of immediate death or injury, are likely to be exposed to the highest level of toxic chemicals released, and have the least amount of time to evacuate or otherwise protect themselves. In 2012, a major explosion at the Chevron oil refinery in Richmond, California resulted in over 15,000 residents seeking medical attention over the next several weeks, including 20 people who were hospitalized.<sup>31</sup> According to the US Chemical Safety Board, a major release of highly toxic

**PEOPLE LIVING NEAREST TO** these high-risk chemical facilities (known as the fenceline areas or zones), and the businesses, schools, and hospitals in these areas, are especially at risk from disasters.

hydrogen fluoride gas into the densely populated community of Torrance, CA following an explosion at the Chevron refinery there in 2015 was only avoided by chance.<sup>32</sup>

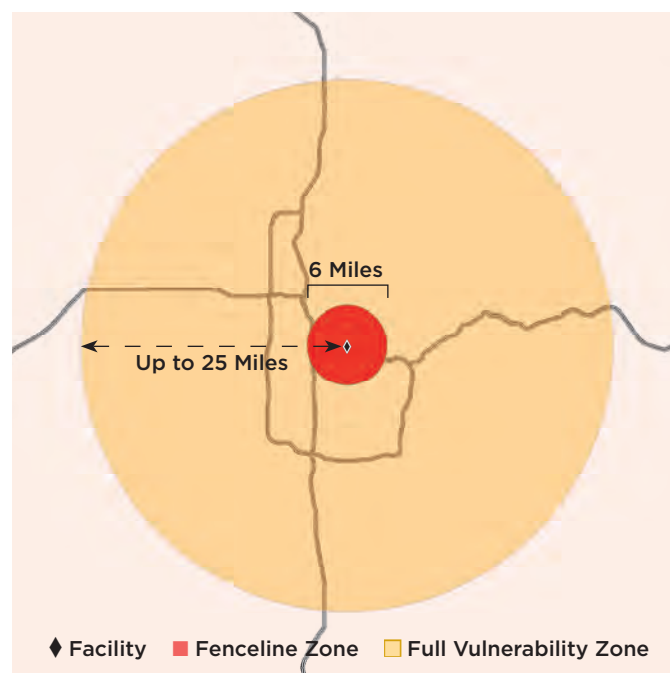
Several reports and studies have documented the disproportionate representation of low-income populations and people of color in fenceline communities around hazardous facilities. A 2001 study of chemical facilities in Florida found that a significantly large proportion of both non-White and impoverished individuals resided in areas potentially exposed to multiple accidental releases.<sup>33</sup> A 2004 study found that larger, more chemical-intensive facilities tend to be located in counties with larger Black populations and in counties with high levels of income inequality. It also found a greater risk of incidents at facilities in heavily Black counties.<sup>34</sup>

More recently, a 2014 report from the Environmental Justice Health Alliance examined the demographics of the populations in fenceline zones around 3,433 of the most hazardous RMP facilities. The report, *Who's in Danger?*, found that the percentage of Blacks in the fenceline zones around those facilities is 75% greater than for the US as a whole, while the percentage of Latinos in the fenceline zones is 60% greater than for the US as a whole. Additionally, the poverty rate in these zones is 50% higher



than for the US as a whole.<sup>35</sup> A 2016 report from the Center for Effective Government found that people of color are almost twice as likely as Whites to live within one mile of RMP facilities, with poor Black and Latino children more than twice as likely to live in these areas compared to white children who are living above the poverty line. The report also found that chemical facilities in communities of color have almost twice the rate of incidents compared to those in predominately white neighborhoods.<sup>36</sup>

**FIGURE 1**  
Sample Vulnerability Zone and Fenceline Zone



**BOX 1**

**“Fenceline Zones” in This Report**

In this report, “fenceline zone” refers to areas within 3 miles of a facility included in the EPA’s Risk Management Plan (RMP) program. The full chemical disaster vulnerability zones for these facilities extend up to 25 miles. The vulnerability zones are calculated by the companies themselves as part of worst-case chemical release scenario analysis required under the RMP program. The scenarios are projections that the chemical facilities report to the EPA, and include the maximum area of potential serious harm from a worst-case release of chemicals. The people living or working closest to these hazardous facilities, and the institutions like schools and hospitals nearest to them, are at the greatest risk from a chemical release or explosion and have the least ability to quickly respond or evacuate.

***Toxic Air Pollution***

A large and expanding body of scientific literature has documented the disproportionate exposure of people of color, and particularly poor people of color, to high levels of toxic air pollution and resulting health impacts. A 2006 study found that cancer risks associated with toxic air pollution were highest in Census tracts located in 309 highly segregated metropolitan areas. Disparities in cancer risks between racial/ethnic groups were also wider in more segregated metropolitan areas.<sup>37</sup> A recent national study found that air pollution from industrial facilities is likely to disproportionately impact low-income and nonwhite communities, and that these disproportionalities become even greater when considering the smaller group of facilities that generate the majority of air pollution exposure risk (“the worst-of-the worst”).<sup>38</sup> Other studies have documented disproportionate cancer risks for low-income people of color from exposure to toxic air pollution in Baltimore,<sup>39</sup> Southern California,<sup>40</sup> and Houston,<sup>41</sup> among other locations. The higher air pollution exposure in EJ communities compounds the impact of the disproportionate underlying health status in these communities. For example, in the case of asthma, older Blacks are almost three times more likely than whites to die from asthma-related causes, and Black children die from asthma at eight times the rate of white children.<sup>42</sup>

While most studies have separately examined the demographics of fenceline communities at risk of chemical disasters or from daily toxic air pollution exposure, two recent studies focused on Houston looked at both of these hazards together. A 2014 study found that Houston neighborhoods with a higher percentage of Hispanic residents, lower percentage of homeowners, and higher income inequality face significantly greater exposure to both chronic and acute pollution risks.<sup>43</sup> A 2016 report from the Union of Concerned Scientists and the Texas Environmental Justice Advocacy Services (T.E.J.A.S.) found that a substantially larger percentage of people located within one mile of RMP facilities in two predominantly low-income Latino east Houston neighborhoods face higher cancer risks and potential respiratory illness when compared to two predominantly White and wealthier west Houston communities.<sup>44</sup>

***Toxic Chemicals in Household Products***

Extensive research over several decades (including testing of consumer and household products, household dust, indoor air, and testing of human blood, urine, and hair

samples) has proven that many chemicals used in everyday consumer products, household products such as furniture, building materials, cosmetics and personal care products, and even food packaging are released into homes and absorbed, ingested, or inhaled by people. Scientific studies have linked many of these chemicals to serious health problems, including cancer, learning disabilities and other neurodevelopmental issues, obesity, reproductive health effects, and more. Increasing pressure from consumers, communities, scientists, medical professionals, and businesses has led many states, the federal government, and even large retail companies like Walmart and Target to take concrete actions to identify and remove hazardous chemicals from everyday products.<sup>45</sup>

Most families buy consumer and household products, including food, from local retail stores. Almost 27,000 discount retail stores (“dollar stores”)<sup>46</sup> across the United States belonging to the major dollar store chains (the giants Dollar General and Dollar Tree/Family Dollar, and smaller chains like 99 Cents Only) often serve as the primary, or only, source of household products and food for many low-income communities. Many communities served by dollar stores are predominantly communities of color or low-income communities that are already



Residents of Albuquerque (pictured above) and many other fenceline communities depend on dollar stores for household products and food.

## INCREASING PRESSURE FROM

consumers, communities, scientists, medical professionals, and businesses has led many states, the federal government, and even large retail companies like Walmart and Target to take concrete actions to identify and remove hazardous chemicals from everyday products.

disproportionately exposed to chemical hazards, health effects linked to environmental pollution exposures, and substandard or hazardous housing conditions. As noted earlier, we looked at the presence of dollar stores in fence-line zones near high-risk facilities along with other data to better understand the range of hazards, health determinants, and possible solutions faced by these “hot spot” communities.

While retail competitors like Walmart<sup>47</sup> and Target<sup>48</sup> have adopted comprehensive policies to know, disclose, and address many chemicals of concern throughout their supply chains, the major dollar store chains have until recently lagged behind in their efforts to address toxic chemicals in the products they sell. Although the largest dollar store chains have taken some limited steps to address some toxic chemicals in their products mostly in response to federal and state requirements, analyses of a sample of products from these stores found high levels of toxic chemicals in many products. A 2012 report found that 39% of vinyl packaging sold by discount retailers contained levels of cadmium or lead that violate state laws.<sup>49</sup> The 2015 Campaign for Healthier Solutions report *A Day Late and a Dollar Short* found that 81% of the dollar store products tested contained at least one hazardous chemical above levels of concern, compared to established standards based on a sample of 164 products purchased from the major chains. At least 71% of the products tested from each dollar store chain contained one or more hazardous chemicals above levels of concern.<sup>50</sup>

In June 2017, Dollar Tree disclosed that the company had notified suppliers of its intent to eliminate seventeen hazardous chemicals from the products it stocks by 2020, including several chemicals not currently restricted by the federal or state governments. This action by Dollar Tree is

an important first step by a national discount retail chain, and we encourage other chains to adopt similar actions. Dollar Tree also needs to make its action more fully transparent to customers and shareholders by disclosing the letters it has sent to suppliers, and by publicly reporting on progress toward its goals.

### ***Lack of Access to Healthy Foods***

Dollar stores are often the only source of food in many low-income communities, including both urban and rural areas. A lack of supermarkets in these communities, and the typically limited availability of healthy foods offered in discount retail stores, result in restricted access to healthy foods.\* Nationally, an estimated 52.5 million people, or 17% of the US population, have low access to a supermarket.<sup>51</sup> A review of studies of neighborhood differences in access to food found that residents of neighborhoods who have better access to supermarkets and limited access to convenience stores tend to have healthier diets and lower levels of obesity, and that residents of low-income, minority, and rural neighborhoods are most often affected by poor access to supermarkets and healthful foods.<sup>52,53</sup> Conversely, a lack of access to healthy foods has been linked to higher levels of obesity<sup>54</sup> as well as hypertension and diabetes<sup>55</sup> and cancer.<sup>56</sup> Nationally, the occurrence of diabetes in Hispanic and Black people is 66% and 77% higher, respectively, compared to non-Hispanic Whites,<sup>57</sup> while obesity rates for Blacks and Hispanics are 47% and 30% higher.<sup>58</sup>

Research has found that communities comprised of low-income residents and people of color often lack access to the healthier foods available in supermarkets. A study of 28,000 US ZIP codes found that ZIP codes representing low-income areas had only 75% as many chain supermarkets available as ZIP codes representing middle-income areas. The availability of chain supermarkets in predominantly Black neighborhoods was found to be roughly one-half that in their counterpart white neighborhoods, with even less relative availability in urban areas. ZIP codes with higher proportions of Hispanic residents had only 32% as many chain supermarkets available as primarily non-Hispanic neighborhoods.<sup>59</sup> A review of studies on neighborhood disparities in access to fast-food outlets and convenience stores found that low-income neighborhoods offered greater access to those food sources that promote unhealthy eating.<sup>60</sup>

Ironically, agricultural workers may not only live in fence-line zones near hazardous facilities, and be exposed to toxic air pollution where they live as well as to hazardous pesticides on the job,<sup>61</sup> but also have low access to healthy foods, even though they work to plant or harvest fresh produce as farmworkers. For example, in the three central California counties studied in this report (which are heavily agricultural counties that contain many farms and large populations of agricultural workers), the percentage of low-income Latinos who live within 3 miles of a hazardous chemical facility and also have low access to healthy foods was 23% to 33% higher than the percentage of Latinos in the county as a whole.

### ***What We Studied***

The analysis conducted for this study examined the demographics of the populations, as well as locations of schools, medical facilities (hospitals and nursing homes), and dollar stores, in 9 metropolitan areas or counties potentially impacted by a toxic chemical release due to their close proximity to many hazardous chemical

#### **BOX 2**

#### **What is a “LILA” Area?**

Access to healthy foods is a critical factor for individual, family, and community health. The US Department of Agriculture’s (USDA) Economic Research Service notes that “limited access to supermarkets, supercenters, grocery stores, or other sources of healthy and affordable food may make it harder for some Americans to eat a healthy diet.” USDA defines Low Access to healthy food as “being far from a supermarket, supercenter, or large grocery store.”

Income is also an important factor in family and community health and wellbeing. The US Department of Treasury defines Low-Income areas as those with poverty rates of 20% or greater, or that meet other criteria.

Some communities have Low Access to healthy foods and are also Low Income. These Low-Access and Low-Income areas are called LILA areas. More background on LILA areas can be found at <https://www.ers.usda.gov/data-products/food-access-research-atlas/documentation>.

\* We used a US Department of Agriculture definition of “lack of access to healthy foods,” which is not living within ½ mile of a supermarket in urban areas, or within 10 miles of a supermarket in a rural area.

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## RECOGNIZING THAT CHILDREN

and those in medical facilities would be especially vulnerable during a chemical release or explosion nearby, and are especially vulnerable to toxic exposures, we assessed the number of schools and medical facilities within 3 miles of an RMP facility in these communities.

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facilities. We also assessed the additional health risks from toxic air pollution as well the demographic profile of the fenceline zones around hazardous facilities, and also in areas within fenceline zones that are considered Low Income and with Low Access to healthy foods (known as LILA areas).

Analysis of the data from the six urban areas and the three counties included in this report focused primarily on the demographics of people living within 3 miles of high-risk chemical facilities (i.e., fenceline areas). To assess additional health risks in these fenceline communities, we examined the cancer risks and respiratory hazards from toxic air pollution, dollar store locations for potential exposure to toxic chemicals from products (and as potential sources of safer products and healthy foods), as well as low access to healthy foods for those in low-income areas. Recognizing that children and those in medical facilities would be especially vulnerable during a chemical release or explosion nearby, and are especially vulnerable to toxic exposures, we assessed the number of schools and medical facilities within 3 miles of an RMP facility in these communities.

To assess the cancer risks and potential respiratory hazards from residents' exposure to toxic air pollution in the 9 areas, we used data from the EPA's National Air Toxics Assessment (NATA). The NATA was developed primarily as a tool to inform both national and more localized efforts to collect air toxics information and characterize emissions (e.g., to prioritize pollutants or geographical areas of interest for more refined data collection such as monitoring). The 2011 NATA data, the most recent available, include data for 140 toxic air pollutants from a broad spectrum

of sources including large industrial facilities, such as refineries and power plants, and smaller sources, such as gas stations, oil and gas wells, and chrome-plating operations. Other pollution sources include cars, trucks, and off-road sources such as construction equipment and trains, as well as pollution formed by chemical reactions in the atmosphere.

The EPA calculates the amount of air pollution faced by people at the census-tract level and then uses health benchmarks to estimate cancer risks and respiratory health hazards from the combined effect of those exposures. Cancer risks are expressed as the projected number of cancers per million people based on a 70-year lifetime of exposure. The national average cancer risk is 40 cancers per million people, based on the 2011 data. By comparison, when the EPA sets pollution control limits for individual toxic air pollutants under the Clean Air Act, the lifetime cancer risk target for the general population is one additional cancer per million people.

The Respiratory Hazard Index (RHI) represents the ratio of pollutant levels compared to EPA benchmarks established as not likely to cause non-cancer respiratory illnesses based on a lifetime of exposure. An index value greater than 1 indicates the potential for adverse health impacts, with increasing concern for suffering respiratory health effects as the value increases.

The cancer risk and respiratory hazard values are based on numerous modeled data and therefore should be viewed as estimates of average population risks and hazards rather than exact risk numbers for a particular person. Although NATA estimates cancer risks and non-cancer hazards for numerous toxic air pollutants, additional chemicals might exist that are not identified or for which data on these health impacts are unavailable. Therefore, these risk and hazard estimates represent only a subset of the total potential cancer and non-cancer risks associated with air toxics exposures. These risk estimates also do not consider ingestion or the breathing of indoor sources of air toxics as an additional exposure pathway. In other words, the actual cancer risk and respiratory hazard from toxic pollution faced by people living in the areas we researched is almost certainly greater than these limited data show.

A full description of data sources and methodology can be found in Appendix A.

## CHAPTER TWO KEY FINDINGS

The results of the analyses conducted for this report demonstrate that the health and safety of communities closest to some of the nation’s most dangerous industrial and commercial facilities are at risk from multiple threats, including potential chemical releases or explosions, daily exposure to toxic air pollution, and poor nutrition from a lack of access to healthy foods (along with other hazards and impacts not specifically studied here). The population of these fenceline areas is disproportionately Black, Latino, and living in poverty. Many of these communities also rely heavily, or solely, on dollar stores for household necessities and in some cases food, making these retailers potential sources of either additional toxic exposures or safer products and healthier foods (depending on the corporate policies they implement or fail to adopt).

Analysis of the 9 areas studied for this report clearly shows that:

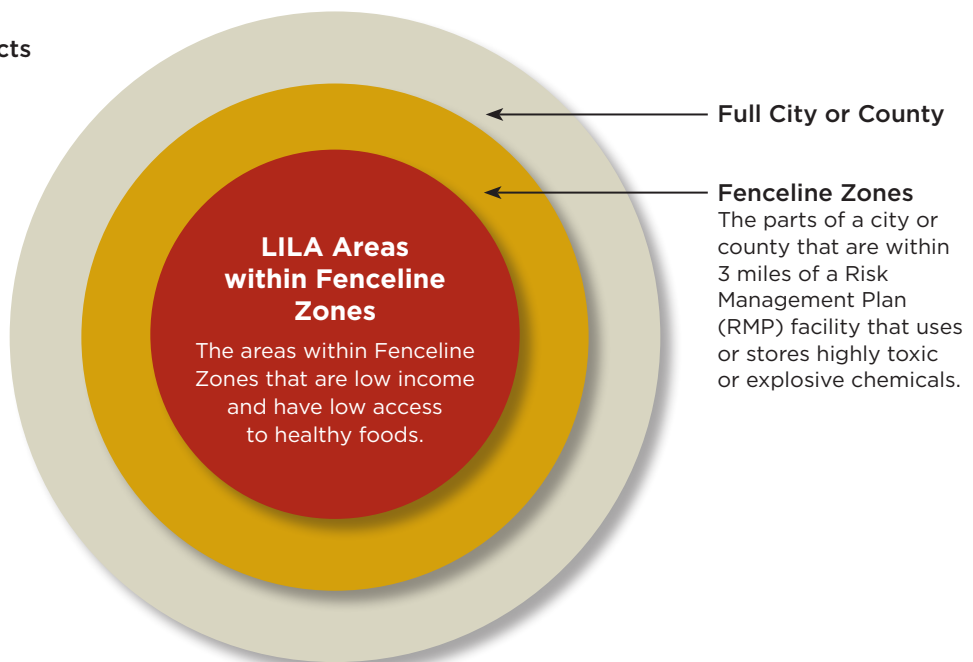
1. In most of the areas researched, large majorities of the population live in fenceline zones around highly

hazardous facilities, and most schools and medical institutions are located in these zones, at much greater rates than nationally. In seven of the nine areas researched for this report, two-thirds of the population or more live in fenceline zones (much greater than the national rate of 39%). In most of the areas studied, two-thirds of all schools and 70% of medical facilities are located in fenceline zones (compared to 45% of US schools and 39% of US hospitals and nursing homes).

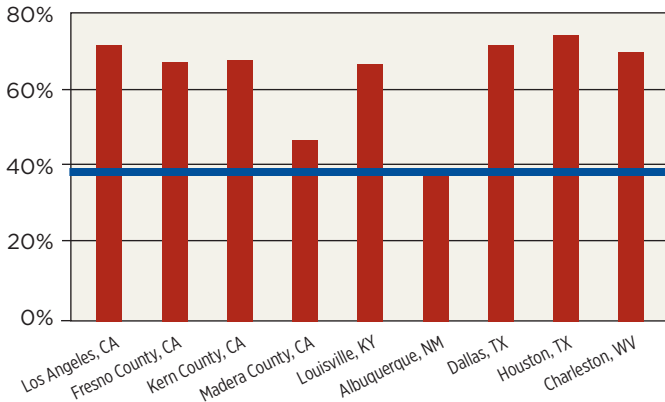
2. Fenceline zones around hazardous facilities are disproportionately Black, Latino, and impoverished. The percentage of Blacks or Latinos living within 3 miles of an RMP facility was higher than for the entire area in every study area, and often much higher than for the US as a whole. In 7 of the 9 areas researched, the percentage of people living in poverty within 3 miles of an RMP facility is higher than for those living in poverty in the entire area, and often much higher than for the US as a whole.
3. People living in hazardous facility fenceline zones face multiple health hazards and risks. In addition

**FIGURE 2**  
Increasing Hazards and Impacts

Our research found that hazards and impacts become more severe and more disproportionate when moving from the whole US to the nine cities or counties studied, to the fenceline zones and low-income/low food access areas within those cities or counties, and especially to LILA areas (low-income areas with low access to healthy foods) within fenceline zones.

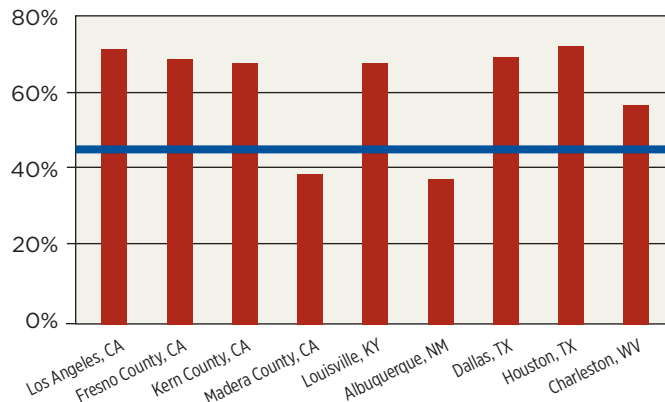


**FIGURE 3**  
Population in Fenceline Zones



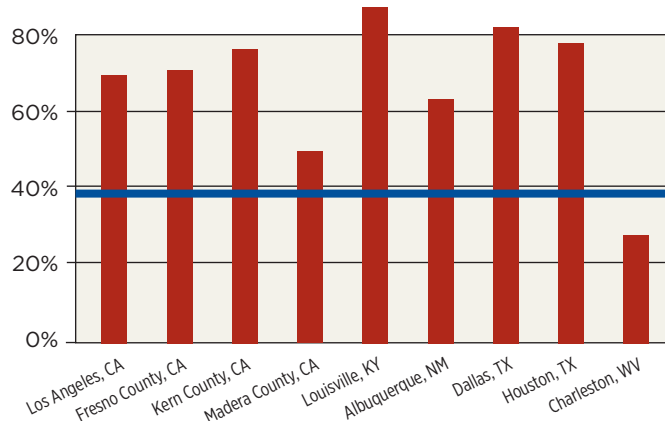
In 7 of the 9 areas researched for this report, two-thirds of the population or more live in fenceline zones near hazardous facilities (much greater than the national rate of 39%, marked by the blue horizontal line).

**FIGURE 4**  
Schools in Fenceline Zones



In 6 of the 9 areas studied, at least two-thirds of all schools are located within 3 miles of a hazardous RMP facility (much greater than the national rate of 45%, marked by the blue horizontal line).

**FIGURE 5**  
Medical Facilities in Fenceline Zones



In 6 of the 9 areas studied, at least 70% of hospitals and nursing homes are located in fenceline zones (much greater than the national rate of 39%, marked by the blue horizontal line).

to the constant threat of catastrophic chemical releases or explosions, in every area researched for this report fenceline zones face higher risk of cancer from toxic air pollution than the entire area (and often much higher than for the US as a whole). In 8 of the 9 areas, the potential for respiratory illness is higher in fenceline zones than for the entire area, and in every area is above the national rate. The percentage of fenceline zone residents who also live in a low-income/low food access area is higher than for the entire city or county in all 9 areas (and two to three times the national rate in most areas).

4. The most vulnerable neighborhoods—areas that are both low income and have low access to healthy foods—are even more heavily and disproportionately impacted. In every area studied, low-income/low food access areas within fenceline zones have higher poverty rates, greater percentages of residents who are people of color, and higher cancer risk and respiratory hazard rates from toxic air pollution than for the whole fenceline zones or the entire city or county, often much higher.

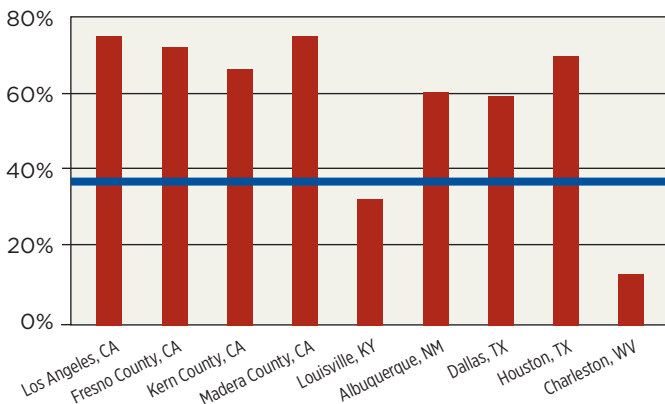
In comparing data from the fenceline zones with the entire urban area or county, key findings include:

- In 7 of the 9 areas we researched, more than two-thirds of the population (over 67%) lives in a fenceline zone within 3 miles of a facility that is part of the EPA’s Risk Management Program (RMP), and sometimes in more than one such zone. Nationally, 39% of the US population lives within 3 miles of an RMP facility.
- In 7 of the 9 areas researched, the percentage of people living in poverty within 3 miles of an RMP facility is higher than for those living in poverty in the entire area (and in the other two areas the poverty rate is equal).
- In all of the communities studied, the percentage of people living in areas with Low Incomes\* and Low Access to healthy foods (known as LILA areas) within 3 miles of an RMP facility is higher than the percentage of residents of the entire community who live in low-income/low food access areas, and in some cases substantially higher.
- In 8 of the 9 areas studied, 71% to 100% of people who live in low-income areas that also have low access to healthy foods also live within a hazardous facility fenceline zone.

\* The US Department of Health and Human Services defines “low income” as incomes less than twice that of the national poverty income guideline (e.g., \$49,200 for a family of 4). Source: <https://aspe.hhs.gov/poverty-guidelines>.

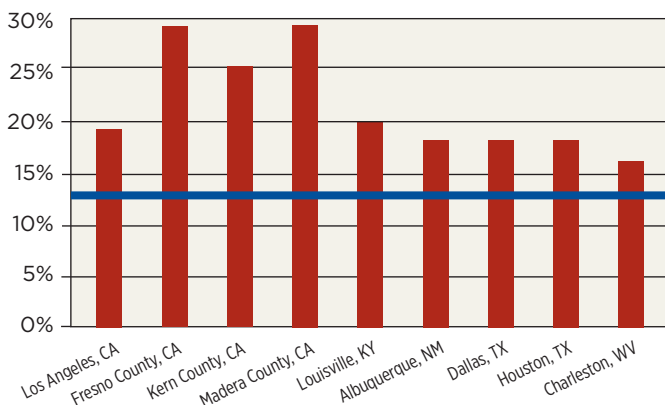
- The percentage of Blacks or Latinos living within 3 miles of an RMP facility was higher than for the entire area in all of the study areas, and this difference rises significantly in areas with low incomes and low access to healthy foods within many fenceline zones.
- Cancer risks in fenceline zones are higher than for the entire area in all 9 areas, and the potential for suffering respiratory illness from exposure to toxic air pollution is higher in fenceline zones in 8 of the 9 areas. For people living in areas with low incomes and low access to healthy foods within fenceline zones, these risks increase in all 9 areas.
- At least two-thirds of all schools are located within 3 miles of an RMP facility in 6 of the 9 areas (compared to 45% nationally).

**FIGURE 6**  
Race in Fenceline Zones



In 7 of the 9 areas studied, the percentage of fenceline zone residents who are people of color is much higher than the percentage of people of color in the whole US population.

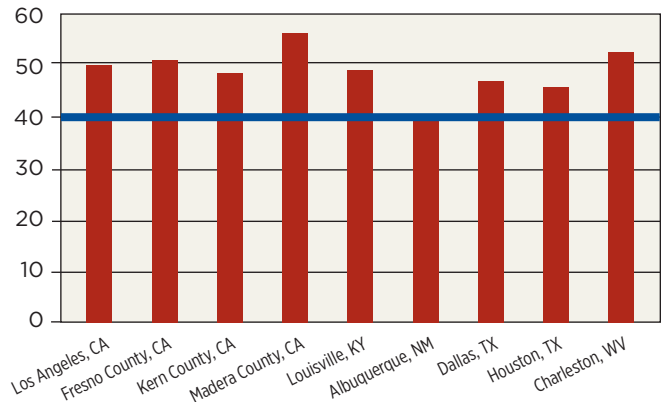
**FIGURE 7**  
Poverty in Fenceline Zones



The poverty rate within fenceline zones in all nine of the cities or counties we studied is higher than the national rate of 13.5% (marked by the horizontal blue line). In 7 of the 9 areas researched, the percentage of people living in poverty within 3 miles of an RMP facility is higher than for those living in poverty in the entire area, and often much higher than for the US as a whole.

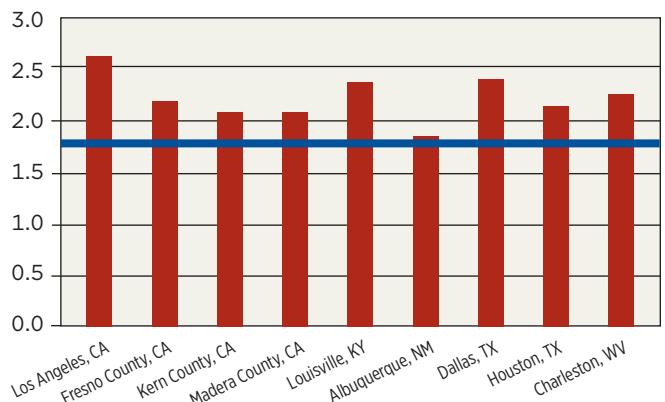
- At least half of all medical facilities (hospitals and nursing homes) are located within 3 miles of an RMP facility in all but one area. At least 70% of medical facilities are located in these fenceline zones in 6 out of the 9 areas. Nationally, only 39% of medical facilities are in fenceline zones.
- In 8 of the 9 areas, at least two-thirds (68%) of dollar stores are located within fenceline zones (compared to less than half of all dollar stores nationally).

**FIGURE 8**  
Cancer Risk from Air Pollution in Fenceline Zones



The EPA estimates that the national average risk of cancer from a lifetime of exposure to toxic air pollution at 2011 levels is 40 cases per million people. Within fenceline zones in the 9 cities or counties we studied, the risk is the same or higher in every case, and often much higher. Cancer risks within fenceline zones in these cities or counties are higher than for the entire area in all 9 areas studied.

**FIGURE 9**  
Respiratory Hazard in Fenceline Zones



The EPA assesses risk of non-cancer respiratory illness from air pollution using its Respiratory Hazard Index (see Appendix A for more on RHI). In 8 of the 9 areas studied, the potential for respiratory illness is higher in fenceline zones than for the entire area. In every area studied, the RHI in fenceline zones is above the national index value of 1.8. It is important to note that even the national RHI is 80% greater than the level of toxic air pollution exposure that would represent no health concern (an index value of 1).

## CHAPTER THREE RESULTS

### THE NATIONAL SCOPE

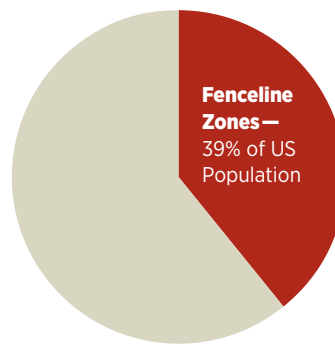
EPA's Risk Management Plan (RMP) program includes approximately 12,500 industrial and commercial facilities that produce, use, or store significant quantities of certain highly toxic and flammable chemicals. These facilities pose serious risk to nearby residents, workers, and businesses because a major incident would result in deaths, injuries, significant property damage, evacuations, sheltering in place, or environmental damage. Almost 124 million people (39% of the US population) live within 3 miles of an RMP facility.

Almost half (45%) of the approximately 125,000 schools in the US are located within 3 miles of RMP facilities.<sup>62</sup> This puts more than 24 million children as well as staff at these schools at particular risk from a catastrophic chemical facility incident. For example, the West Middle School in West, TX was severely damaged by an explosion at a fertilizer storage facility on April 17, 2013. A greater tragedy was averted only because the explosion happened during the night rather than during school hours.

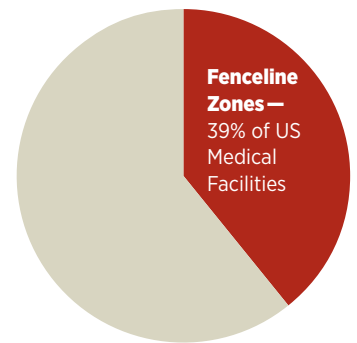
About 4 in 10 (39%) of the almost 11,000 medical facilities (hospitals/nursing homes) in the US, are near RMP facilities.<sup>63</sup> A major chemical facility incident near these medical facilities could have catastrophic impacts on patients and staff. Due to physical damage and/or chemical exposure, the facility may also be unable to accept patients from the surrounding community.

Almost one-half (about 13,000) of the almost 27,000 dollar stores in the US\* are located within three miles of an RMP facility.<sup>64</sup> Toxic chemicals in products and unhealthy foods available at these stores add to the potential health impacts on fenceline communities that also must contend with health risks from chemical facility releases, and often are exposed to high levels of toxic pollution and are poor with low access to healthy foods.

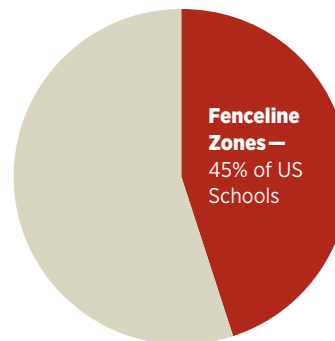
**FIGURE 10**  
124 Million US Residents  
Live within 3 Miles of  
an RMP Facility



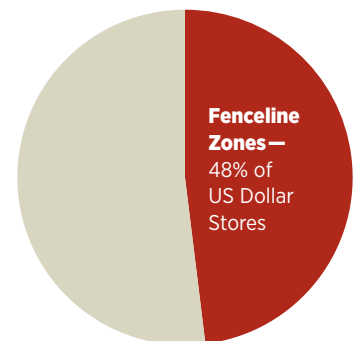
**FIGURE 12**  
4 of 10 Hospitals and  
Nursing Homes in the  
US are within 3 Miles  
of an RMP Facility



**FIGURE 11**  
24 Million Children  
Attend School within 3  
Miles of an RMP Facility



**FIGURE 13**  
13,000 of 27,000 Dollar  
Stores are within 3 Miles  
of an RMP Facility



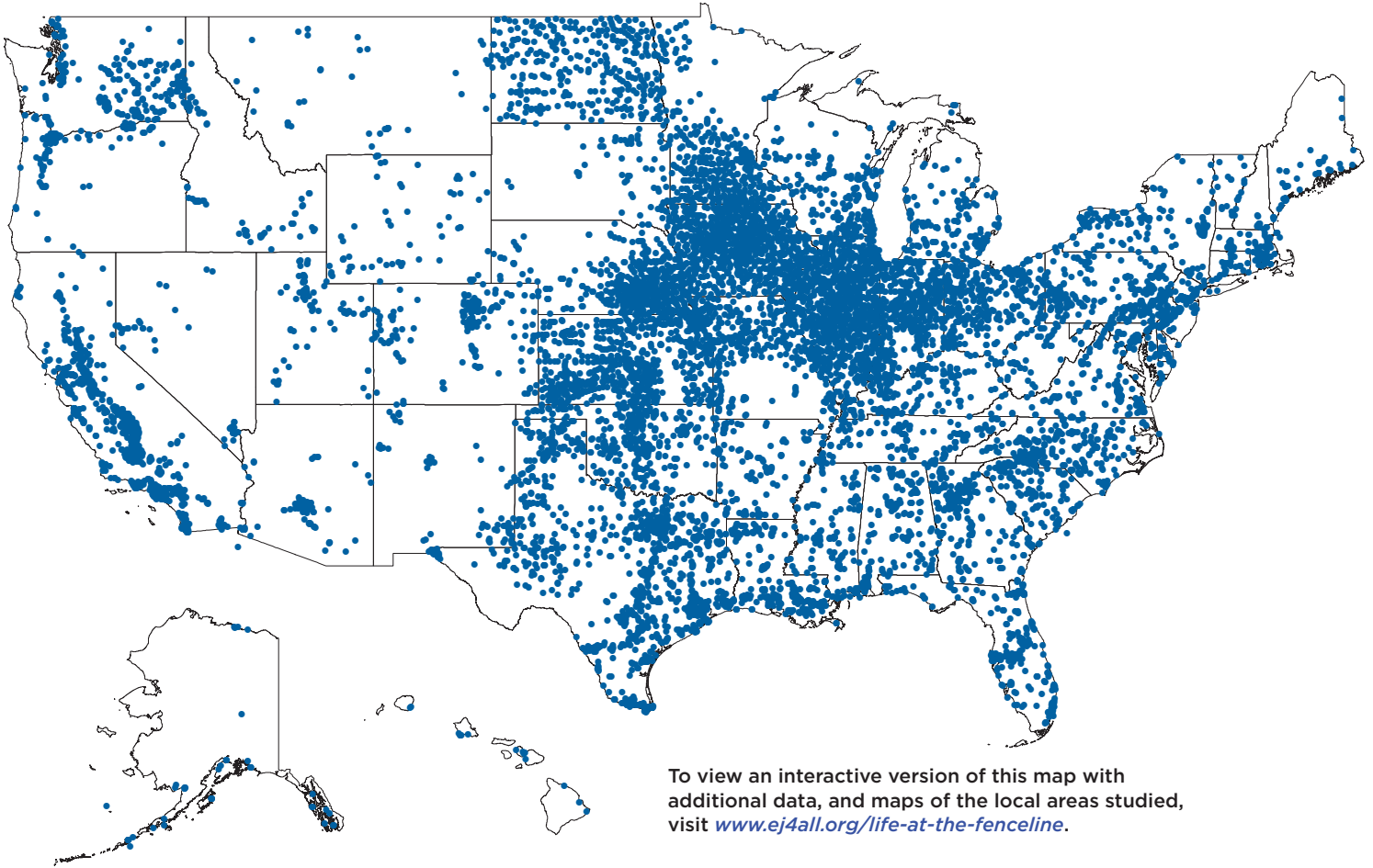
### EPA'S RISK MANAGEMENT PLAN

program includes approximately 12,500 industrial and commercial facilities that produce, use, or store significant quantities of certain highly toxic and flammable chemicals.

\* The vast majority of these stores are operated by the largest chains: Family Dollar and Dollar Tree (now owned by the same parent company), and Dollar General.



**FIGURE 14**  
12,493 Active RMP Facilities in the US



To view an interactive version of this map with additional data, and maps of the local areas studied, visit [www.ej4all.org/life-at-the-fenceline](http://www.ej4all.org/life-at-the-fenceline).

## RESULTS FOR STUDY AREAS

### *Population Demographics*

- In 7 of the 9 areas examined, more than two-thirds (67%) of the people in each area live within 3 miles of an RMP facility (compared to only 39% nationally).
- In 7 of the 9 areas, the percentage of people living within 3 miles of an RMP facility who are poor is disproportionately higher than for the entire area.
- In all but one of the areas, the percentage of people of color living within 3 miles of an RMP facility was higher than for the entire area, especially for Blacks and Latinos, and in 7 of 9 areas is much higher than the national rate (38%).
- In 7 of the 9 areas, average home values within 3 miles of an RMP facility are lower compared to the entire area.
- In all but one of the areas, average household incomes were lower, sometimes substantially, for those living within 3 miles of an RMP facility compared to the entire area.

- In all 9 areas, the percentage of people with a high school or less education was higher for those living within 3 miles of an RMP facility compared to the entire area. In all but one area, the percentage of people with a college degree or higher was lower for those living within 3 miles of an RMP facility compared to the entire area.

### *Health Risks*

- In all but 1 of the 9 areas, the cancer risk from toxic air pollution exposure for all people living in the entire area assessed was higher than the national average.
- For those living within 3 miles of an RMP facility, the cancer risk was higher than for the entire area in all 9 areas studied. The cancer risk for those living in areas with low incomes and low access to healthy foods within the fenceline zones was even higher in all 9 areas, in some cases substantially higher.

- In 6 of the 9 areas studied, the RHI (respiratory hazard) value from toxic air pollution exposure was greater than 2, indicating a significant potential for suffering respiratory illness.
- In 8 of 9 areas, the RHI values were higher for those living within 3 miles of an RMP facility than for the entire area, and increased further (to above 2) in all 9 areas for those living in parts of the fenceline zones with low incomes and low access to healthy foods.

***Low Income with Low Access to Healthy Foods***

- In every area, the percentage of the population living in low-income/low food access areas is significantly higher than the national rate, and is at least twice as high in 5 of the 9 areas.
- In all 9 areas, people living in areas with low incomes and low access to healthy foods within 3 miles of an RMP facility face higher health risks, and the percentage of people of color is greater, often substantially, compared to those living in parts of the 3-mile zones that are not low-income/low food access.

**IN EVERY AREA,** the percentage of the population living in low-income/low food access areas is significantly higher than the national rate, and is at least twice as high in 5 of the 9 areas.

**TABLE 2**  
Demographic Data and Health Risks

	Albuquerque Totals/ 3 miles/3 miles LILA	Charleston Totals/ 3 miles/3 miles LILA	Dallas Totals/ 3 miles/3 miles LILA	Houston Totals/ 3 miles/3 miles LILA
<b>Weighted RHI</b>	1.74/1.86/2.17	2.39/2.26/2.40	2.37/2.40/2.48	2.09/2.13/2.29
<b>Weighted Cancer Risk</b>	38.25/39.45/41.91	50.83/52.04/54.01	46.25/46.58/47.67	44.74/45.57/47.26
<b>% Poverty</b>	18.4/18.4/28.0	15.7/15.6/22.5	16.3/17.7/27.2	17.2/18.4/28.5
<b>% White</b>	41.5/40.1/26.3	86.5/86.8/80.1	42.4/40.8/22.5	32.9/30.6/12.1
<b>% Black</b>	2.6/2.5/2.9	6.0/6.3/10.0	17.3/16.5/21.7	18.6/19.5/25.5
<b>% Hispanic</b>	48.4/50.1/64.0	1.1/0.9/0.9	31.5/34.7/51.0	39.0/40.2/56.1
<b>% Children</b>	23.3/23.0/24.3	19.7/20.5/19.9	26.9/26.9/29.4	27.1/26.7/28.8

	Fresno Totals/ 3 miles/ 3 miles LILA	Kern Totals/ 3 miles/ 3 miles LILA	Madera Totals/ 3 miles/ 3 miles LILA	Los Angeles Totals/ 3 miles/ 3 miles LILA	Louisville Totals/ 3 miles/ 3 miles LILA
<b>Weighted RHI</b>	2.06/2.19/2.37	1.91/2.07/2.24	1.56/2.07/2.11	2.59/2.63/2.83	2.26/2.37/2.46
<b>Weighted Cancer Risk</b>	48.62/50.57/52.02	45.69/48.20/49.60	46.37/56.32/57.27	50.17/50.22/52.06	47.35/48.85/50.86
<b>% Poverty</b>	27.6/29.4/37.8	23.4/24.7/34.1	22.3/28.6/35.2	17.6/18.6/24.8	16.0/19.6/31.1
<b>% White</b>	31.3/27.8/17.9	37.1/34.1/23.5	38.3/22.5/17.0	27.9/23.4/11.0	72.8/67.5/49.1
<b>% Black</b>	4.8/4.9/6.2	5.3/6.0/5.8	3.3/2.8/2.5	6.6/6.8/9.5	17.8/22.5/39.3
<b>% Hispanic</b>	51.7/54.2/63.4	50.6/52.6/65.3	52.8/70.0/75.8	47.3/52.4/67.4	4.5/4.8/6.1
<b>% Children</b>	29.0/29.8/31.6	29.3/29.9/32.6	27.4/32.1/34.5	23.1/24.0/26.9	22.6/22.3/23.9

**City/County Totals:** Result for the entire city or county.

**3 miles:** The Fenceline Zones within 3 miles of an RMP facility.

**3 miles LILA:** Low Income and Low Access to food areas within Fenceline Zones.

See Appendix A for explanations of RHI (Respiratory Hazard Index) and Cancer Risk.

**TABLE 3**

**RMP Facilities, Dollar Stores, Schools, and Medical Facilities in Study Areas**

	RMP Facilities	RMP Facilities With Dollar Stores Within 3 Miles	% of RMP Facilities With Dollar Stores Within 3 Miles	Schools	Schools Within 3 Miles of an RMP Facility	% of Schools Within 3 Miles of an RMP Facility	Medical Facilities	Medical Facilities Within 3 Miles of an RMP Facility	% of Med Facilities that are Within 3 Miles of an RMP Facility
Los Angeles, CA	141	137	97.2%	3,972	2,828	71.1%	148	103	69.6%
Louisville, KY	23	23	100.0%	343	230	67.1%	16	14	87.5%
Albuquerque, NM	7	7	100.0%	279	106	37.9%	11	7	63.6%
Charleston, WV	13	13	100.0%	83	47	56.6%	7	2	28.6%
Dallas, TX	108	103	95.4%	1,821	1,251	68.7%	78	65	83.3%
Houston, TX	191	176	92.1%	1,624	1,165	71.7%	51	40	78.4%
Fresno Co., CA	77	52	67.5%	389	266	68.3%	49	35	71.4%
Kern Co., CA	97	29	29.9%	306	206	67.3%	30	23	76.7%
Madera Co., CA	7	3	42.9%	90	35	38.9%	10	5	50.0%



In communities across the US, people live, work, and play at the fenceline of high-risk chemical facilities.

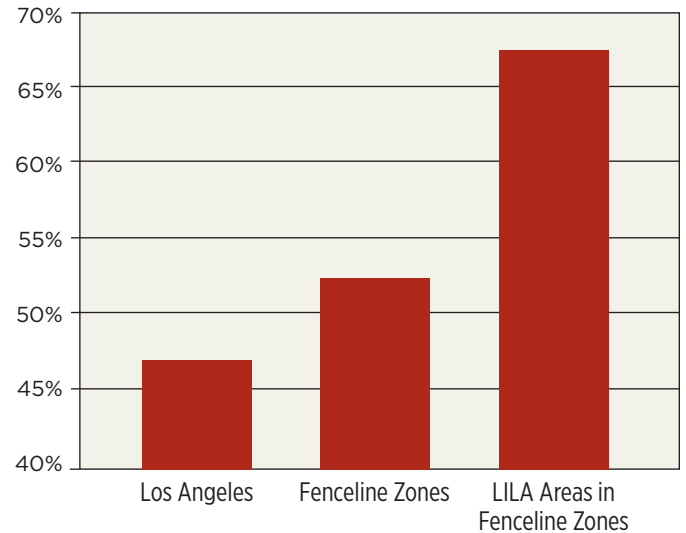
## RESULTS: LOS ANGELES, CALIFORNIA

Los Angeles, our nation's second most populous urban area, is home to 141 RMP facilities, second only to Houston of all the areas studied for this report.

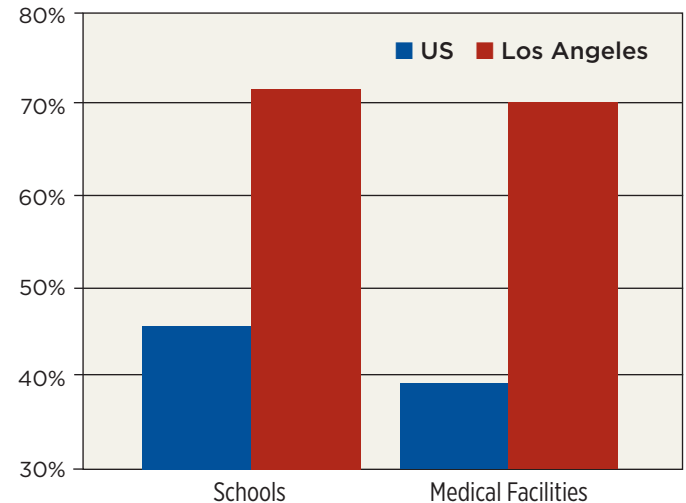
### KEY FINDINGS

- More than 8,760,000 people, or 72% of people in Los Angeles, live within 3 miles of an RMP facility, which is 85% higher than the national rate. Eighty-two percent of people who live in areas with low incomes and low access to healthy foods also live within 3 miles of an RMP facility.
- The percentage of Latinos (Hispanics) who live in 3-mile zones is 11% higher than for the entire urban area (52% compared to 47%). More striking however, Latinos make up more than two-thirds of the population in low-income/low food access areas within fenceline zones, which is 42% greater than the representation of Latinos in Los Angeles.
- The percentage of Blacks in areas with low incomes and low access to healthy foods in the 3-mile zones is 44% greater than for the LA area as a whole.
- The potential for suffering respiratory illness is 9% higher for those living in low-income/low food access areas with fenceline zones compared to the Los Angeles urban area overall, which already has the highest potential for respiratory illness from toxic air pollution (a Respiratory Hazard Index of 2.59) of all the areas included in the study.
- Seventy-one percent of LA schools are located within 3 miles of an RMP facility, as are 70% of medical facilities. This represents a 56% and 79% increase over national percentages for schools and medical facilities, respectively, in these zones.
- Seventy-nine percent of all dollar stores in Los Angeles are located in 3-mile fenceline zones around RMP facilities.

### Latino Population



### Schools and Medical Facilities in Fenceline Zones



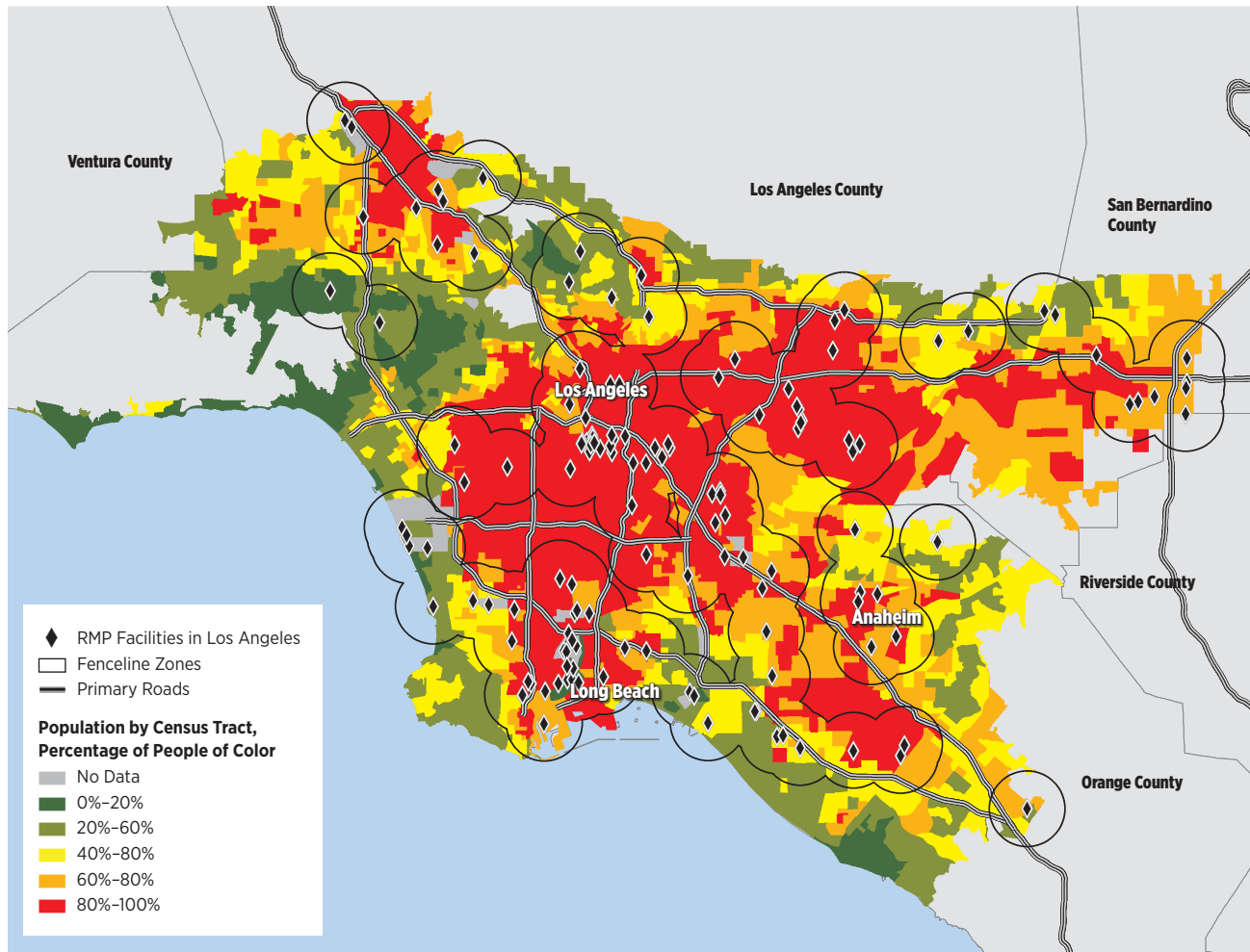
Jose Bravo of the Just Transition Alliance and Campaign for Healthier Solutions calls on EPA to prevent chemical disasters in Los Angeles.



**72% OF THE POPULATION OF** the Los Angeles Urban Area lives within 3 miles of an RMP facility.

## Hazardous Facilities and Race in Los Angeles

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



## Los Angeles Data Summary

	Los Angeles Totals	Los Angeles 3 Mile Totals	Los Angeles 3 Mile LILA* Totals
<b>Weighted Cancer</b>	50.17	50.22	52.06
<b>Weighted RHI</b>	2.59	2.63	2.83
<b>Percent Black</b>	6.6%	6.8%	9.5%
<b>Percent Hispanic</b>	47.3%	52.4%	67.4%
<b>Percent White</b>	27.9%	23.4%	11.0%
<b>Percent Children</b>	23.1%	24.0%	26.9%
<b>Percent Poverty</b>	17.6%	18.6%	24.8%
<b>Average Household Income</b>	\$83,392	\$76,452	\$53,876
<b>Average Home Value</b>	\$550,046	\$475,194	\$314,249
<b>Percent HS Graduate or Less</b>	43.1%	47.4%	61.2%
<b>Percent College Degree or More</b>	28.0%	24.1%	13.7%

\* LILA—Areas with Low-Income populations with Low Access to healthy foods (see Box 2 on p.13).  
Note: Highlighted numbers indicate a substantial difference from the full city or county, and the full 3-mile areas data.

## RESULTS: FRESNO COUNTY, CALIFORNIA

There are 77 RMP facilities located in Fresno County.

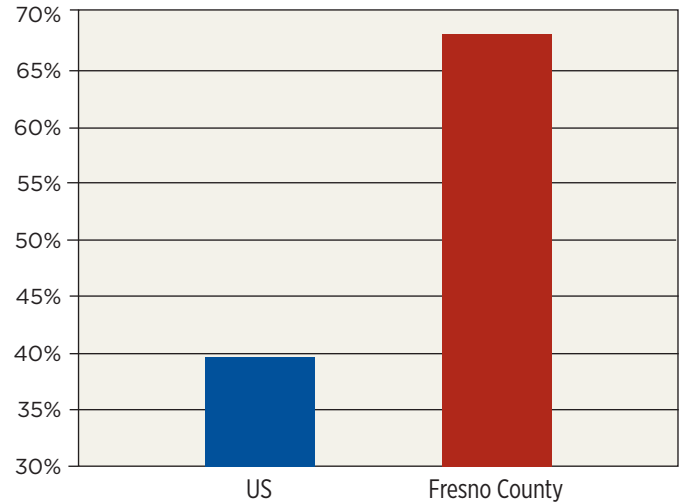
### KEY FINDINGS

- Almost 637,000 people, or 68% of Fresno County residents, live within 3 miles of an RMP facility, a 74% increase over the national rate.
- The percentage of Latinos in areas with low incomes and low access to healthy foods in fenceline zones is 23% greater than for Latinos in Fresno County overall.
- Average household income for those in areas with low incomes and low access to healthy foods is 29% less than for Fresno County overall.
- The potential for suffering respiratory illness from toxic air pollution exposure is 15% higher for those in areas with low incomes and low access to healthy foods within fenceline zones compared to Fresno County overall, while cancer risks are 7% greater.
- Sixty-eight percent of Fresno County schools and 71% of medical facilities are located within 3 miles of an RMP facility.
- Seventy-four percent of all dollar stores are within 3 miles of an RMP facility.

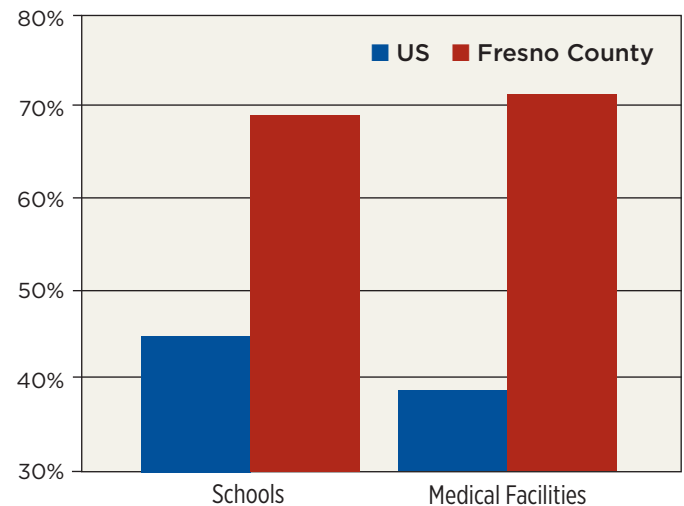


Members of Lideres Campesinas (which works in Fresno, Kern, and Madera Counties) call on dollar stores to remove toxic chemicals from the products they sell.

### Percent of Residents in Fenceline Zones Compared to National



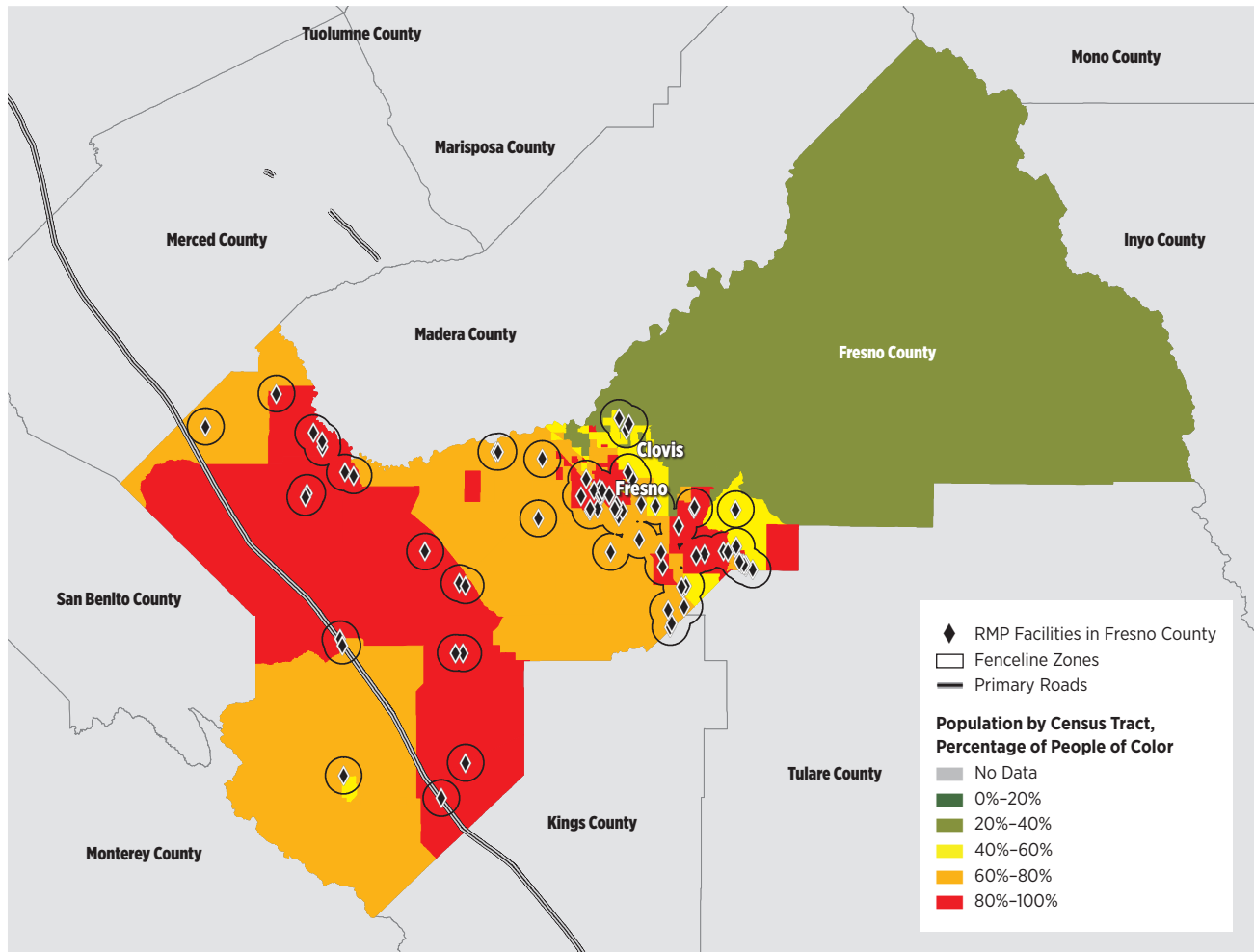
### Schools and Medical Facilities in Fenceline Zones



**68% OF THE POPULATION OF** Fresno County lives within 3 miles of an RMP facility.

## Hazardous Facilities and Race in Fresno County

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



## Fresno County Data Summary

	Fresno Co. Totals	Fresno Co. 3 Mile Totals	Fresno 3 Mile LILA* Totals
Weighted Cancer	48.62	50.57	52.02
Weighted RHI	2.06	2.19	2.37
Percent Black	4.8%	4.9%	6.2%
Percent Hispanic	51.7%	54.2%	63.4%
Percent White	31.3%	27.8%	17.9%
Percent Children	29.0%	29.8%	31.6%
Percent Poverty	27.6%	29.4%	37.8%
Average Household Income	\$62,411	\$59,806	\$44,332
Average Home Value	\$221,576	\$206,867	\$155,918
Percent HS Graduate or Less	49.9%	51.9%	62.8%
Percent College Degree or More	17.6%	16.6%	9.0%

\* LILA—Areas with Low-Income populations with Low Access to healthy foods (see Box 2 on p.13).  
 Note: Highlighted numbers indicate a substantial difference from the full city or county, and the full 3-mile areas data.

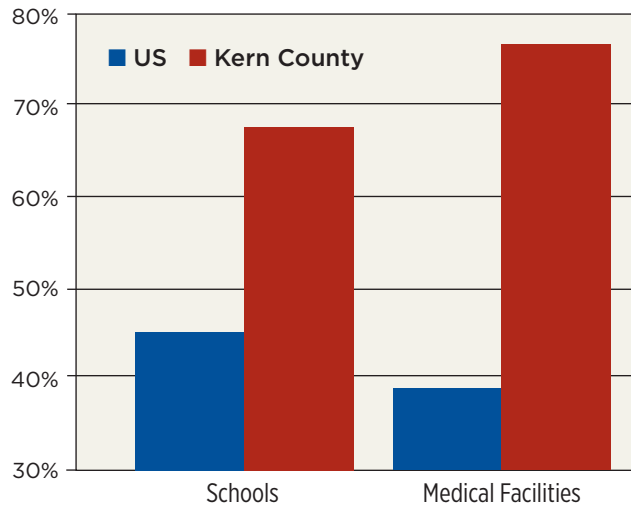
## RESULTS: KERN COUNTY, CALIFORNIA

There are 97 RMP facilities located in Kern County.

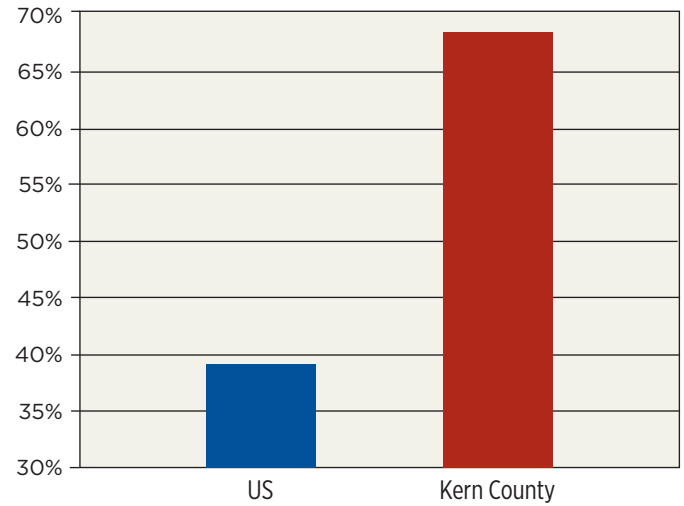
### KEY FINDINGS

- Almost 581,000 people, or 68% of Kern county residents, live within 3 miles of an RMP facility, a 74% increase over the national rate.
- While Latinos represent just over 50% of the county's population, 65% of people living in areas with low incomes and low access to healthy foods within the 3-mile fenceline zones are Latino, a 29% increase.
- The potential for suffering respiratory illness from toxic air pollution exposure is 17% higher for those living in low-income/low food access areas within fenceline zones compared to Kern County overall, while cancer risks are 9% greater.
- More than two-thirds of all Kern County schools and more than three-quarters of medical facilities are located within 3 miles of an RMP facility.
- Seventy-two percent of all dollar stores in Kern County are located within 3 miles of an RMP facility.

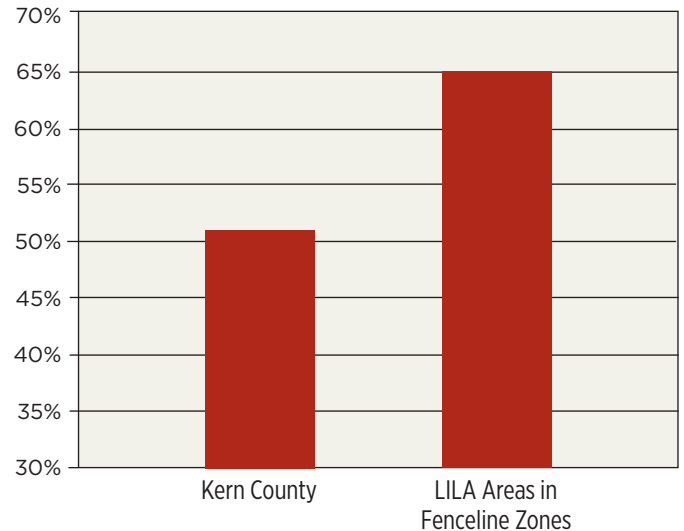
### Schools and Medical Facilities in Fenceline Zones



### Percent of Residents in Fenceline Zones Compared to National



### Latino Population

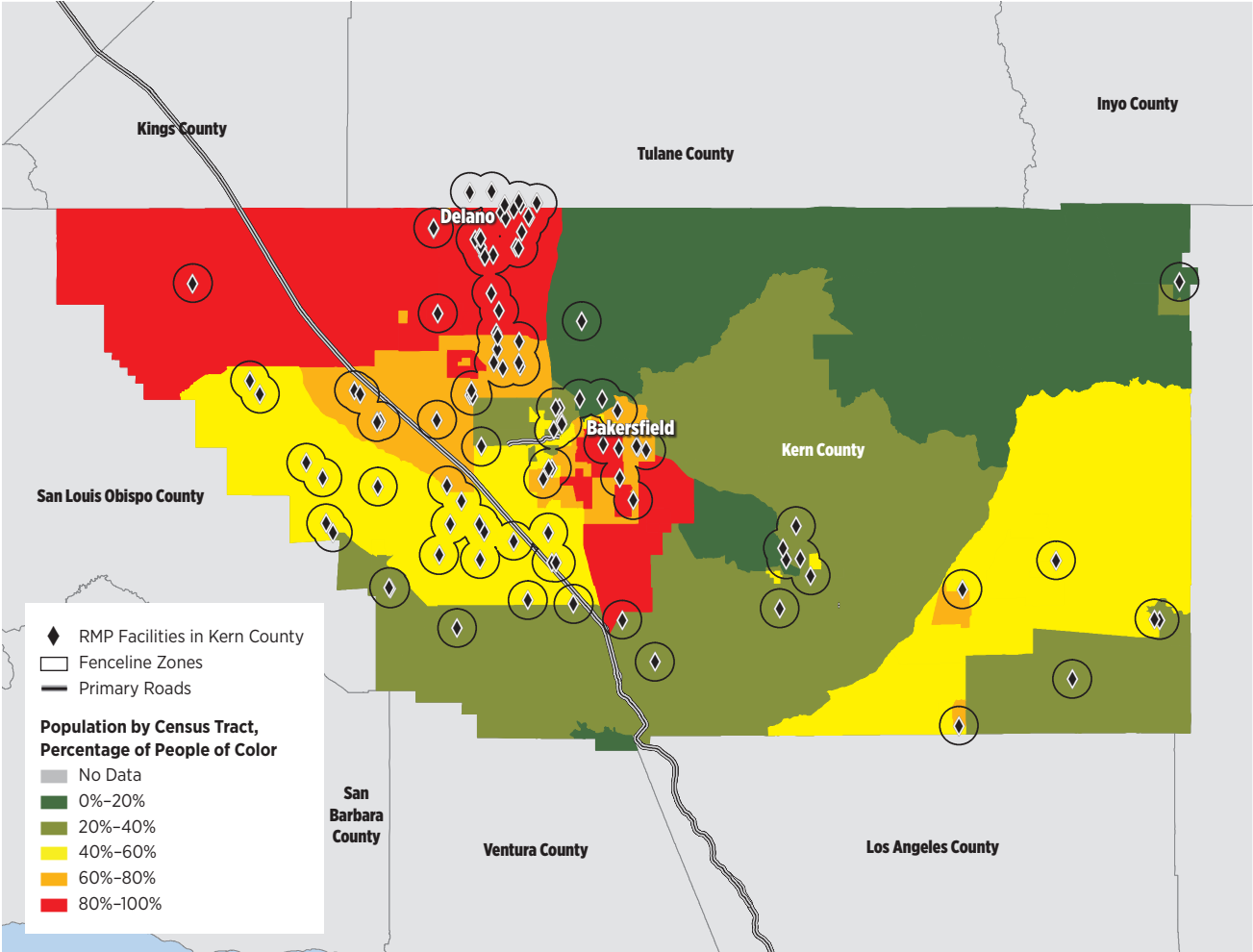


**68% OF THE POPULATION** of Kern County lives within 3 miles of an RMP facility.



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

### Hazardous Facilities and Race in Kern County



### Kern County Data Summary

	Kern Co. Totals	Kern Co. 3 Mile Totals	Kern County 3 Mile LILA* Totals
<b>Weighted Cancer</b>	45.69	48.20	49.60
<b>Weighted RHI</b>	1.91	2.07	2.24
<b>Percent Black</b>	5.3%	6.0%	5.8%
<b>Percent Hispanic</b>	50.6%	52.6%	65.3%
<b>Percent White</b>	37.1%	34.1%	23.5%
<b>Percent Children</b>	29.3%	29.9%	32.6%
<b>Percent Poverty</b>	23.4%	24.7%	34.1%
<b>Average Household Income</b>	\$65,432	\$63,516	\$46,082
<b>Average Home Value</b>	\$188,274	\$183,073	\$136,360
<b>Percent HS Graduate or Less</b>	53.5%	54.0%	65.8%
<b>Percent College Degree or More</b>	14.1%	13.8%	7.3%

\* LILA—Areas with Low-Income populations with Low Access to healthy foods (see Box 2 on p.13).  
 Note: Highlighted numbers indicate a substantial difference from the full city or county, and the full 3-mile areas data.

## RESULTS: MADERA COUNTY, CALIFORNIA

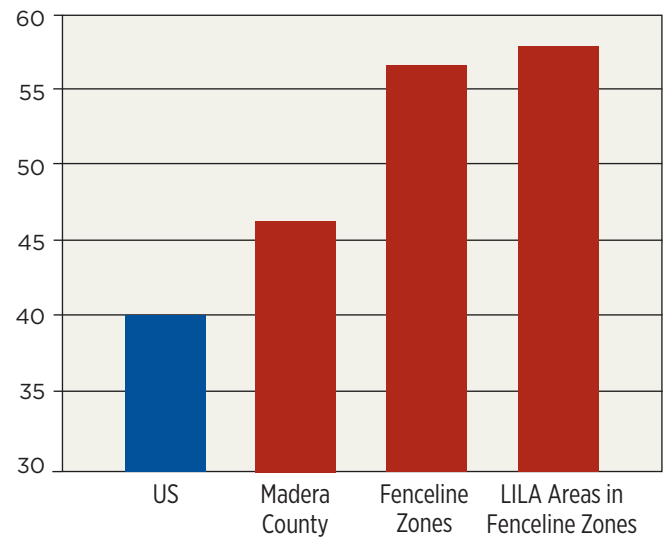
Madera County contains seven RMP facilities.

### KEY FINDINGS

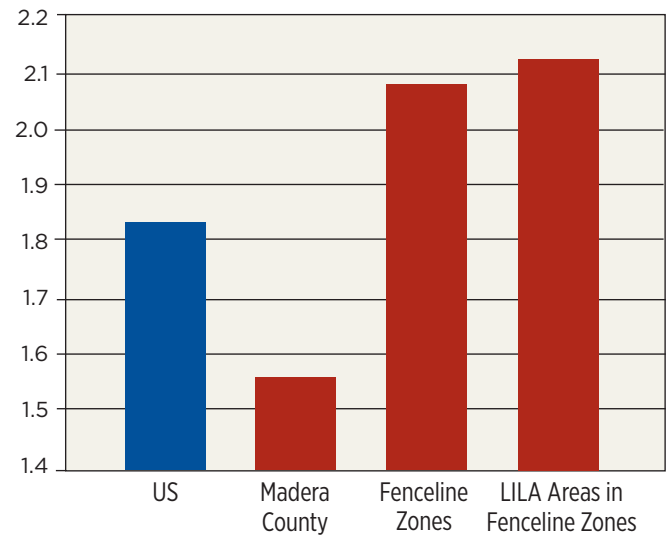
- More than 77,000 people, or 47% of Madera County residents, live within 3 miles of an RMP facility, a 21% increase over the national rate.
- Strikingly, almost 100% of those living in low-income/low food access areas in Madera County also live within 3 miles of an RMP facility, a rate that is more than twice the percent of county residents who live within fenceline zones (47%).
- The potential for suffering respiratory illness from toxic air pollution exposure is 33% higher for those living within 3 miles of an RMP facility compared to Madera County overall, and those living in low-income/low food access areas within these fenceline zones face a 35% higher risk.
- Cancer risk from exposure to toxic air pollution is 21% higher for those living within 3 miles of an RMP facility compared to Madera County overall. Those living in low-income/low food access areas within fenceline zones face a 24% higher cancer risk (about 57 cancers per million people), which is the highest risk of all 9 areas included in this report.
- While Latinos make up about 53% of the county's population, 70% of people living within 3 miles of an RMP facility are Latino, a 33% increase over their overall county representation. Latinos make up 76% of the population in low-income/low food access areas within these fenceline zones, a 44% increase over their overall county representation.
- The percentage of people living in poverty within 3 miles of an RMP facility is 28% greater than for Madera County overall. More strikingly, the poverty rate in low-income/low food access (LILA) areas within 3 miles of an RMP facility is 58% greater than for the country as a whole.
- Twenty-seven percent of Madera County residents are children, but 35% of the residents of low-income/low food access areas within fenceline zones are children, a 26% increase.
- The average household income for those living within 3 miles of an RMP facility is 17% lower than for Madera County overall. For those living in areas with low incomes and low access to healthy food, the drop in average household incomes doubles to 34%.

- Half of all medical facilities in Madera County are located within 3 miles of an RMP facility, as are 39% of schools.
- Seventy-five percent of all dollar stores in Madera County are located within 3 miles of an RMP facility, and 43% of RMP facilities have a dollar store within 3 miles.

### Cancer Risk from Air Pollution

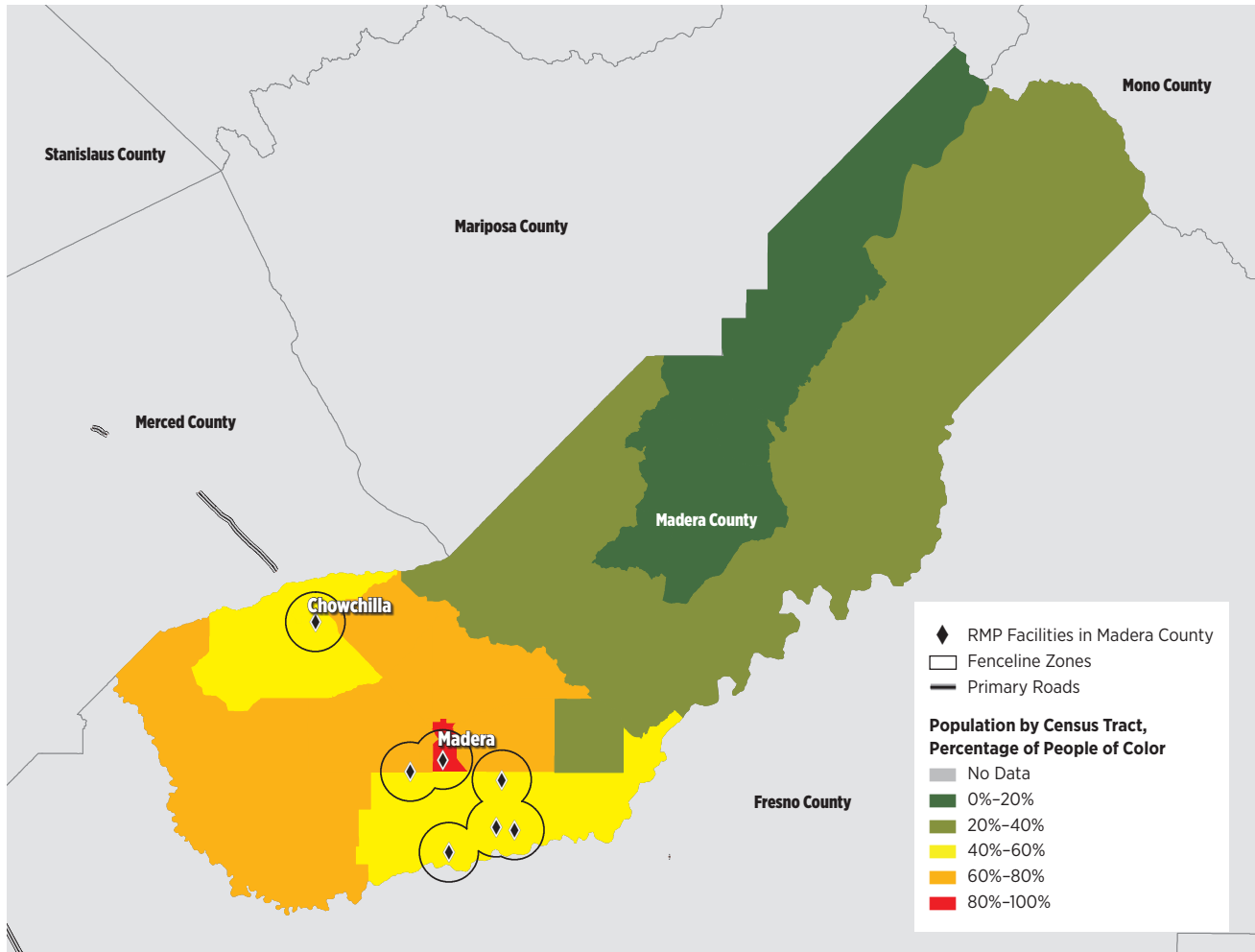


### Respiratory Hazard from Air Pollution



## Hazardous Facilities and Race in Madera County

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



## Madera County Data Summary

	Madera Co. Totals	Madera Co. 3 Mile Totals	Madera County 3 Mile LILA* Totals
<b>Weighted Cancer</b>	46.37	56.32	57.27
<b>Weighted RHI</b>	1.56	2.07	2.11
<b>Percent Black</b>	3.3%	2.8%	2.5%
<b>Percent Hispanic</b>	52.8%	70.0%	75.8%
<b>Percent White</b>	38.3%	22.5%	17.0%
<b>Percent Children</b>	27.4%	32.1%	34.5%
<b>Percent Poverty</b>	22.3%	28.6%	35.2%
<b>Average Household Income</b>	\$63,832	\$52,779	\$42,043
<b>Average Home Value</b>	\$242,651	\$186,986	\$154,031
<b>Percent HS Graduate or Less</b>	51.7%	63.0%	71.2%
<b>Percent College Degree or More</b>	14.4%	9.3%	6.0%

\* LILA—Areas with Low-Income populations with Low Access to healthy foods (see Box 2 on p.13).  
 Note: Highlighted numbers indicate a substantial difference from the full city or county, and the full 3-mile areas data.

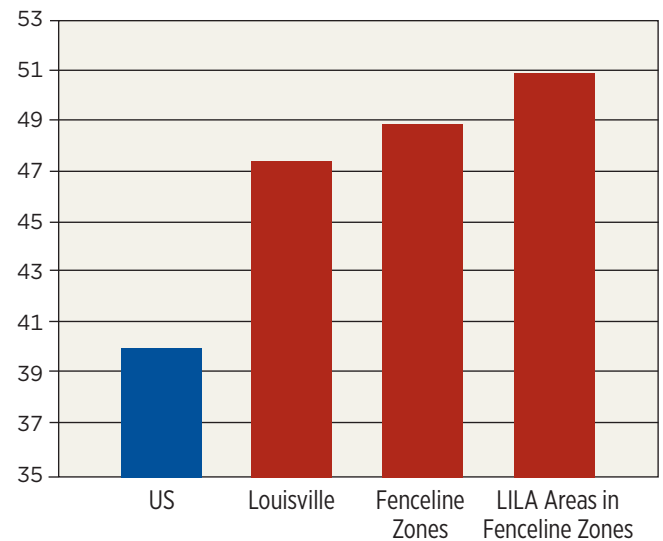
## RESULTS: LOUISVILLE, KENTUCKY

There are 23 RMP facilities located in Louisville.

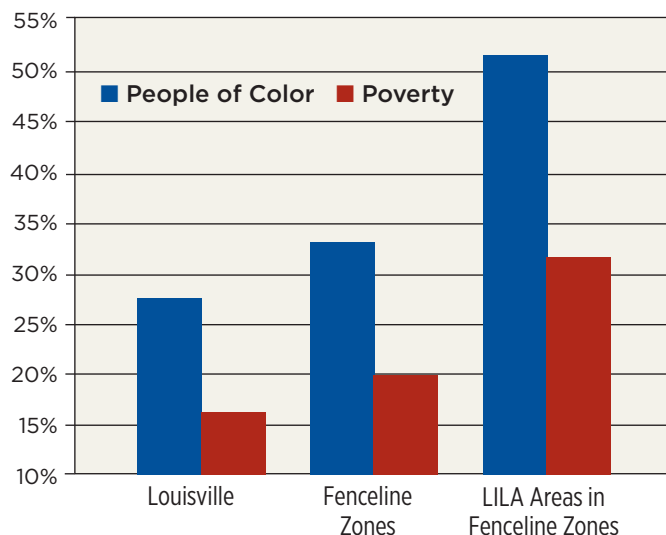
### KEY FINDINGS

- Almost 606,000 people, or 67% of Louisville residents, live within 3 miles of an RMP facility, a 72% increase over the national rate.
- Ninety-two percent of Louisville residents who live in low-income/low food access (LILA) areas also live within a fenceline zone, a rate 37% greater than for all residents.
- The potential for suffering respiratory illness from toxic air pollution exposure is 9% higher for those in low-income/low food access areas within fenceline zones compared to Louisville overall, while cancer risks for those living in these areas are 7% greater.
- The percentage of people living in poverty within 3 miles of an RMP facility is 23% greater than for Louisville overall. This difference increases substantially to 94% greater for low-income/low food access areas within the fenceline zones.
- The average household income for those living in low-income/low food access areas within fenceline zones is 41% lower than for all those living in Louisville.
- While Blacks make up 18% of Louisville's population, 23% of people living within 3 miles of an RMP facility are Black, a 28% increase over their overall county representation. Strikingly, in low-income/low food access areas within fenceline zones, Blacks make up 39% of the population, more than twice the city rate.
- All of Louisville's 23 RMP facilities have at least one dollar store located within 3 miles, and 73% of all dollar stores are located within 3 miles of an RMP facility.
- More than two-thirds (67%) of Louisville schools are located within 3 miles of an RMP facility, as are 88% of medical facilities.

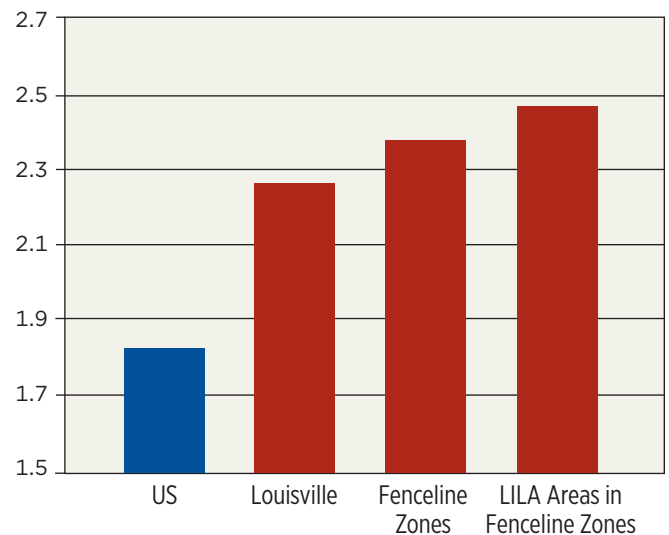
### Cancer Risk from Air Pollution



### Race and Poverty in Louisville

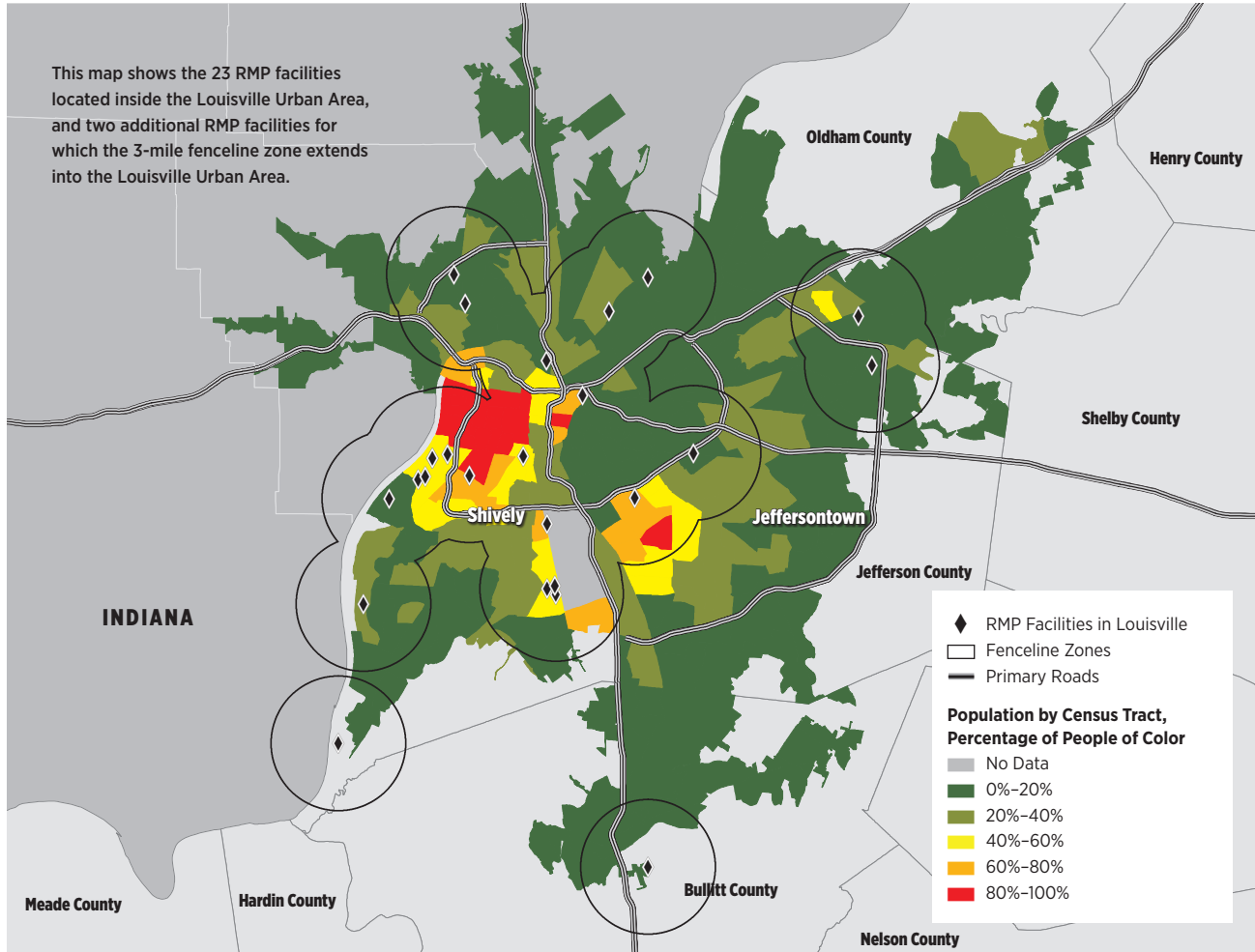


### Respiratory Hazard from Air Pollution



## Hazardous Facilities and Race in Louisville

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



## Louisville Data Summary

	Louisville Totals	Louisville 3 Mile Totals	Louisville 3 Mile LILA* Totals
<b>Weighted Cancer</b>	47.35	48.85	50.86
<b>Weighted RHI</b>	2.26	2.37	2.46
<b>Percent Black</b>	17.8%	22.5%	39.3%
<b>Percent Hispanic</b>	4.5%	4.8%	6.1%
<b>Percent White</b>	72.8%	67.5%	49.1%
<b>Percent Children</b>	22.6%	22.3%	23.9%
<b>Percent Poverty</b>	16.0%	19.6%	31.1%
<b>Average Household Income</b>	\$66,720	\$60,889	\$39,452
<b>Average Home Value</b>	\$181,660	\$170,253	\$103,050
<b>Percent HS Graduate or Less</b>	40.8%	43.1%	54.4%
<b>Percent College Degree or More</b>	26.8%	24.8%	13.9%

\* LILA—Areas with Low-Income populations with Low Access to healthy foods (see Box 2 on p.13).  
 Note: Highlighted numbers indicate a substantial difference from the full city or county, and the full 3-mile areas data.

## RESULTS: ALBUQUERQUE, NEW MEXICO

There are seven RMP facilities located in Albuquerque.

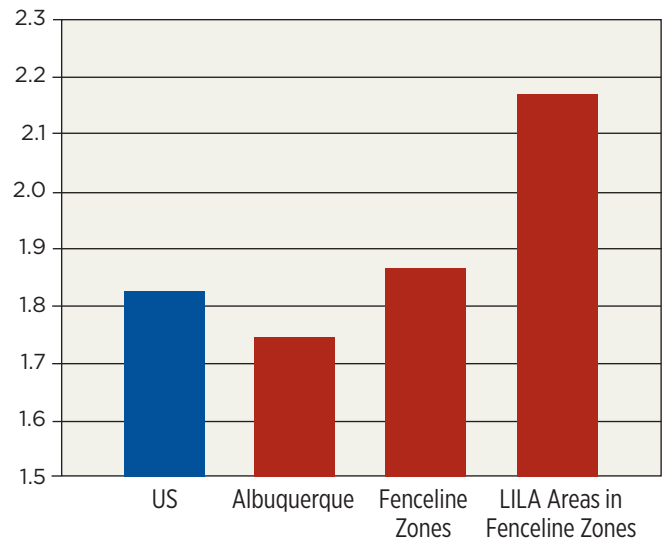
### KEY FINDINGS

- More than 268,000 people, or 39% of people living in Albuquerque, live within 3 miles of an RMP facility.
- The potential for suffering respiratory problems from toxic air pollution exposure is 25% higher for those in low-income/low food access areas within fenceline zones compared to Albuquerque overall, while cancer risk is 10% higher.
- The percentage of Latinos in low-income/low food access areas within fenceline zones is 32% greater than for Latinos in Albuquerque overall, and is more than twice the rate for whites in these areas.
- The average household income for those living in low-income/low food access areas within 3 miles of an RMP facility is 26% lower than for Albuquerque as a whole.
- The percentage of those living in areas with low incomes and low access to healthy foods who have a high school or less education is 36% greater than for Albuquerque overall. The percentage of those living in low-income/low food access areas with a college degree or more education is 39% lower than for Albuquerque overall.

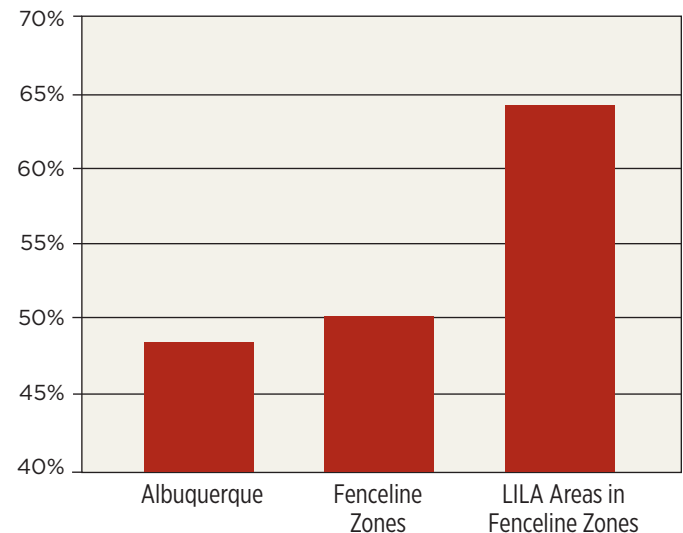


Leaders of the Campaign for Healthier Solutions, Los Jardines Institute, and allies call on dollar stores to sell healthier foods and safer products.

### Respiratory Hazard from Air Pollution



### Latino Population

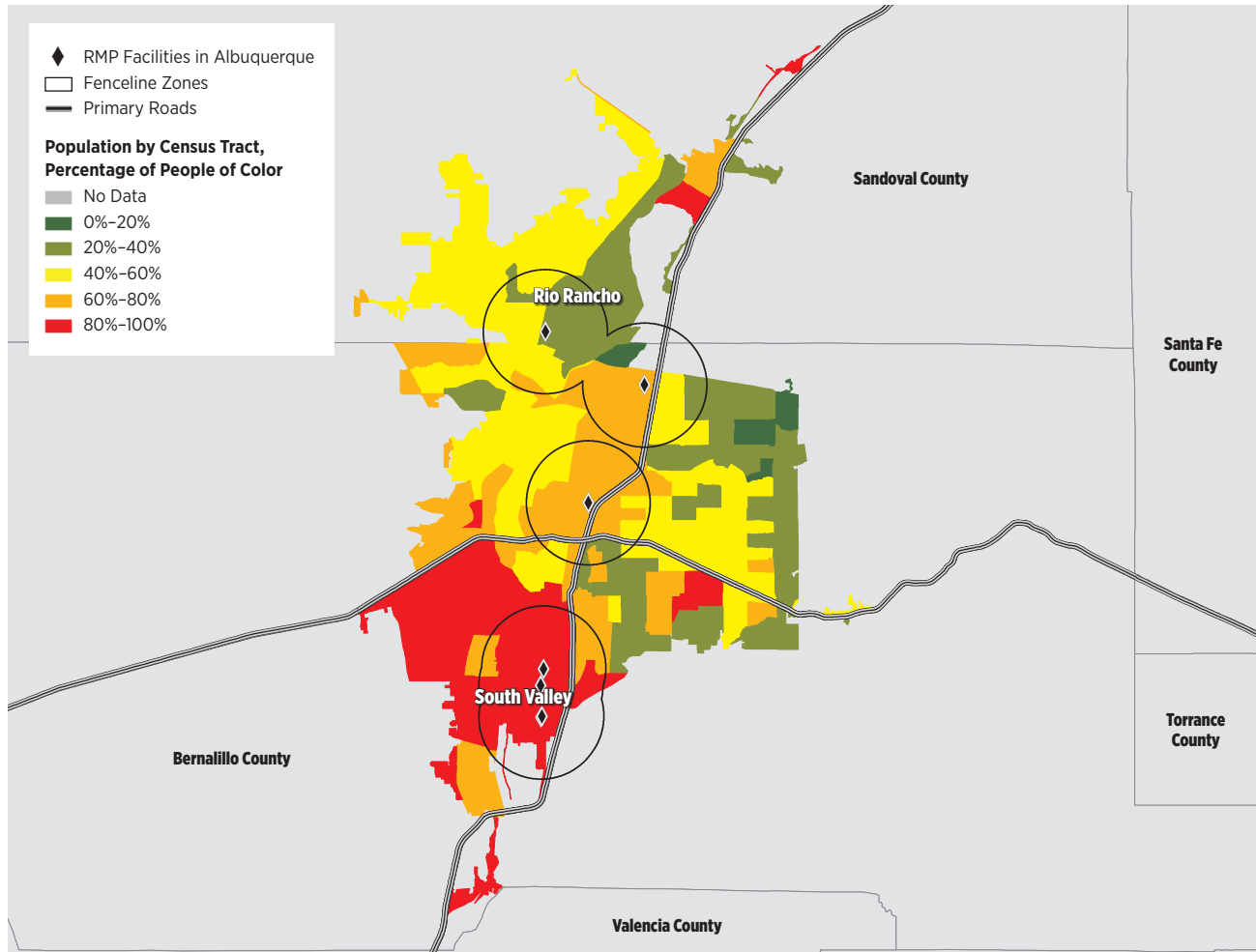


### 39% OF THE POPULATION OF

Albuquerque lives within 3 miles of an RMP facility.

## Hazardous Facilities and Race in Albuquerque

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



## Albuquerque Data Summary

	Albuquerque Totals	Albuquerque 3 Mile Totals	Albuquerque 3 Mile LILA* Totals
<b>Weighted Cancer</b>	38.25	39.45	41.91
<b>Weighted RHI</b>	1.74	1.86	2.17
<b>Percent Black</b>	2.6%	2.5%	2.9%
<b>Percent Hispanic</b>	48.4%	50.1%	64.0%
<b>Percent White</b>	41.5%	40.1%	26.3%
<b>Percent Children</b>	23.3%	23.0%	24.3%
<b>Percent Poverty</b>	18.4%	18.4%	28.0%
<b>Average Household Income</b>	\$65,170	\$65,970	\$47,908
<b>Average Home Value</b>	\$209,745	\$219,400	\$150,054
<b>Percent HS Graduate or Less</b>	36.2%	37.4%	50.2%
<b>Percent College Degree or More</b>	29.4%	29.6%	18.9%

\* LILA—Areas with Low-Income populations with Low Access to healthy foods (see Box 2 on p.13).  
 Note: Highlighted numbers indicate a substantial difference from the full city or county, and the full 3-mile areas data.

## RESULTS: DALLAS, TEXAS

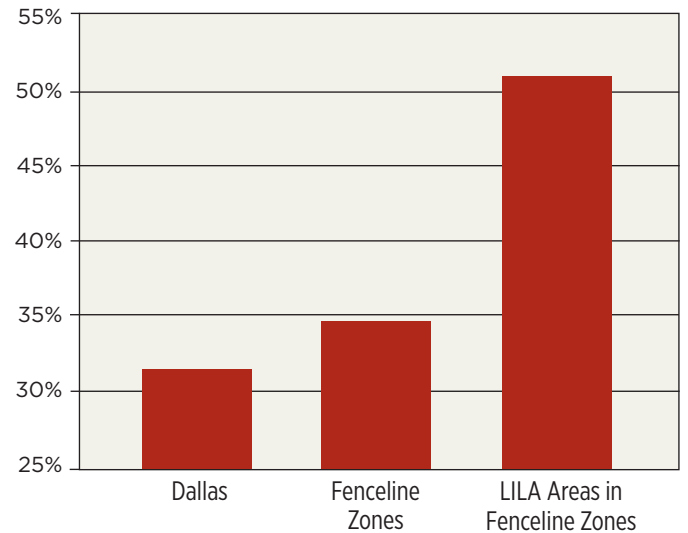
There are 108 RMP facilities located in Dallas.

### KEY FINDINGS

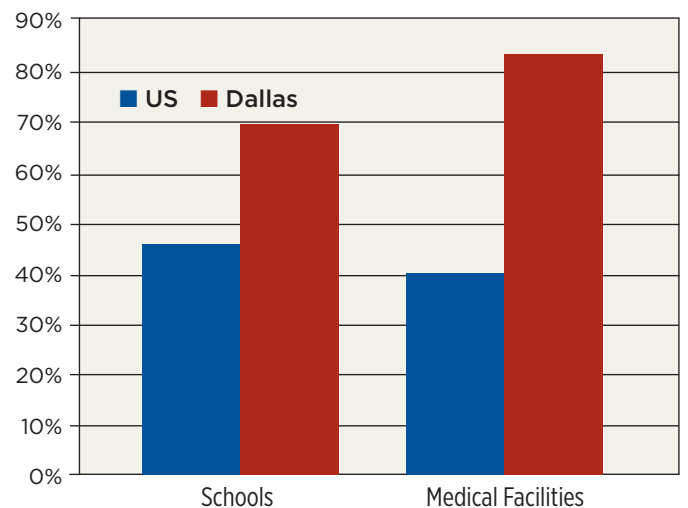
- Almost 3.5 million people, or 72% of Dallas residents, live within 3 miles of an RMP facility, an 85% increase over the national rate.
- Seventy-nine percent of people living in low-income/low food access areas in Dallas also live within 3 miles of an RMP facility.
- The percentage of people living in poverty in low-income/low food access areas within 3 miles of an RMP facility is 67% higher than for those in poverty in Dallas overall.
- The average household income for those living in low-income/low food access areas within 3 miles of an RMP facility is 39% lower than for all those living in Dallas.
- While Latinos make up less than one-third Dallas's population, more than half of people in low-income/low food access areas within 3 miles of an RMP facility are Latino, a 62% increase. The percentage of Latinos is more than twice the rate for whites in low-income/low food access areas within the fenceline zones.
- Blacks make up 17% of the Dallas population, but constitute 22% of people in areas with low incomes and low access to healthy foods within in the 3-mile fenceline zones, a 25% increase.
- More than 80% of all medical facilities in Dallas are located within 3 miles of an RMP facility, as are more than two-thirds of schools.
- Ninety-five percent of RMP facilities in Dallas have a dollar store within 3 miles, and 70% of dollar stores are located within 3 miles of an RMP facility.



### Latino Population



### Schools and Medical Facilities in Fenceline Zones



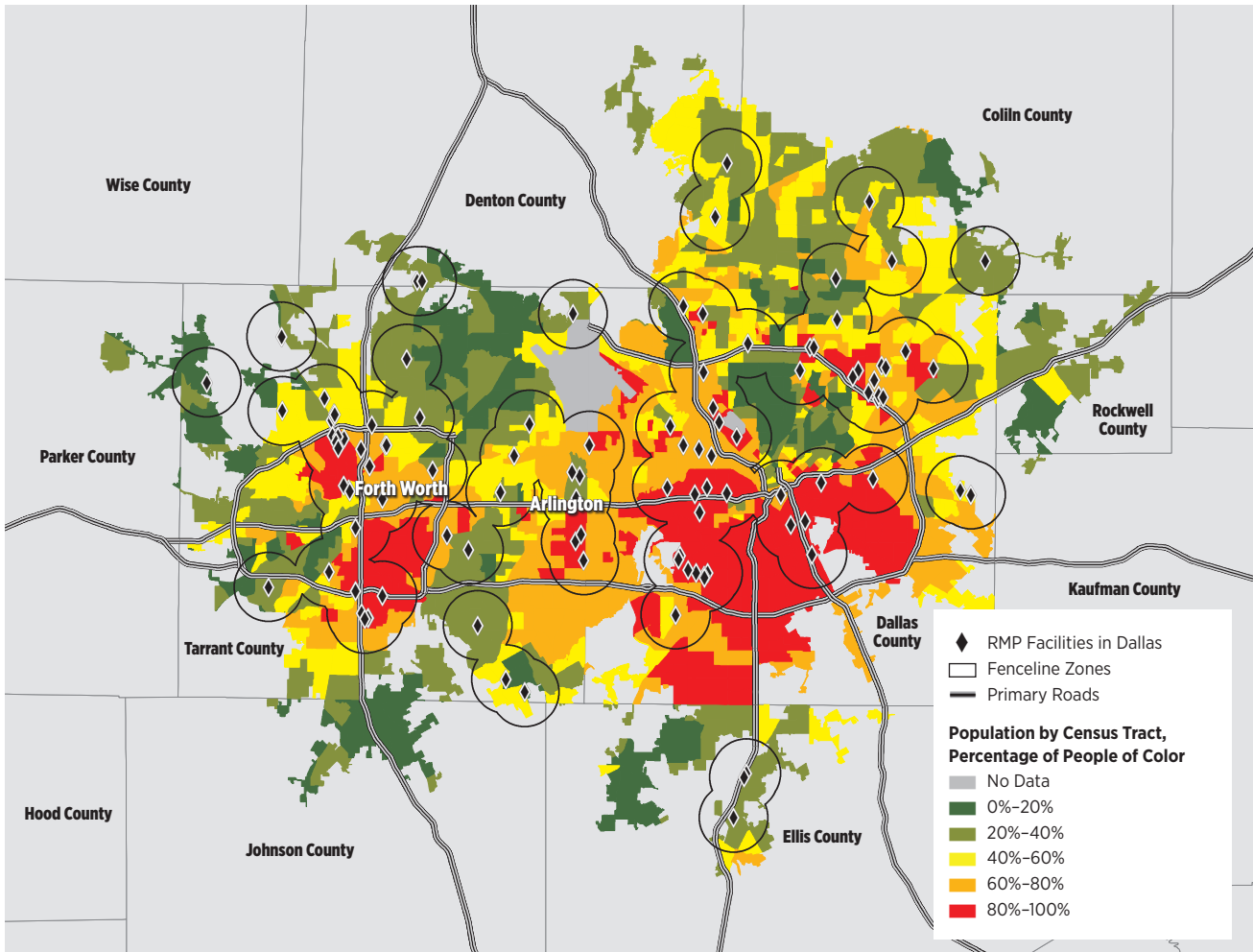
**72% OF THE POPULATION OF** the Dallas Urban Area lives within 3 miles of an RMP facility.

Left: A 2007 explosion at Southwest Industrial Gases in Dallas sent flaming debris onto highways and buildings.



## Hazardous Facilities and Race in Dallas

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



## Dallas Data Summary

	Dallas Totals	Dallas 3 Mile Totals	Dallas 3 Mile LILA* Totals
<b>Weighted Cancer</b>	46.25	46.58	47.67
<b>Weighted RHI</b>	2.37	2.40	2.48
<b>Percent Black</b>	17.3%	16.5%	21.7%
<b>Percent Hispanic</b>	31.5%	34.7%	51.0%
<b>Percent White</b>	42.4%	40.8%	22.5%
<b>Percent Children</b>	26.9%	26.9%	29.4%
<b>Percent Poverty</b>	16.3%	17.7%	27.2%
<b>Average Household Income</b>	\$80,130	\$74,771	\$49,036
<b>Average Home Value</b>	\$204,060	\$189,682	\$114,414
<b>Percent HS Graduate or Less</b>	39.5%	42.6%	60.7%
<b>Percent College Degree or More</b>	30.6%	28.1%	14.4%

\* LILA—Areas with Low-Income populations with Low Access to healthy foods (see Box 2 on p.13).  
 Note: Highlighted numbers indicate a substantial difference from the full city or county, and the full 3-mile areas data.

## RESULTS: HOUSTON, TEXAS

There are 191 RMP facilities located in Houston, the most of any of the areas included in this report.

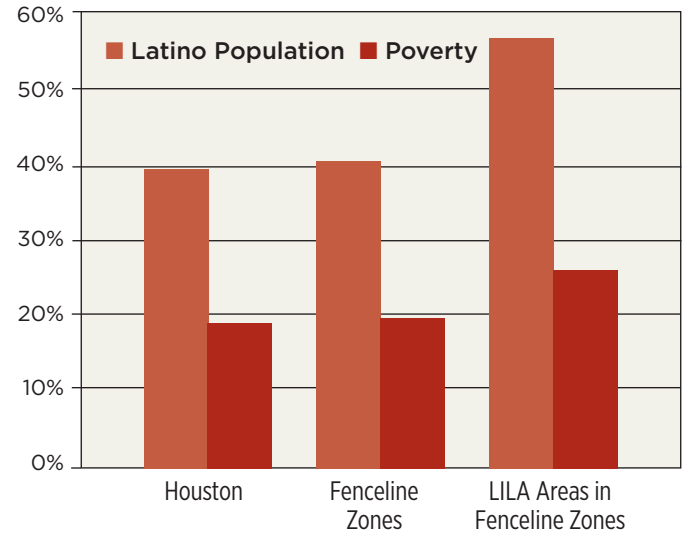
### KEY FINDINGS

- Almost 3.6 million people, or three-quarters of Houston residents, live within 3 miles of an RMP facility, a 92% increase above the national rate.
- Eighty-two percent of Houston residents who live in low-income/low food access areas also live within RMP facility fenceline zones.
- The percentage of people in poverty in low-income/low food access areas within 3 miles of an RMP facility is 66% higher than for those in poverty in Houston overall.
- The average household income for those living in low-income/low food access areas within the fenceline zones is 41% lower than for all those living in Houston.
- Latinos make up 39% of Houston's population but represent 56% of those living in low-income/low food access areas within 3 miles of an RMP facility (a 44% greater rate). Blacks comprise 19% of the Houston population, but make up 26% of those living in low-income/low food access areas within the fenceline zones (a 37% greater rate).
- Seventy-eight percent of all Houston medical facilities and 72% of schools are within 3 miles of an RMP facility.
- Ninety-two percent of RMP facilities in Houston have a dollar store within 3 miles and almost three-quarters of all dollar stores are located within 3 miles of an RMP facility.

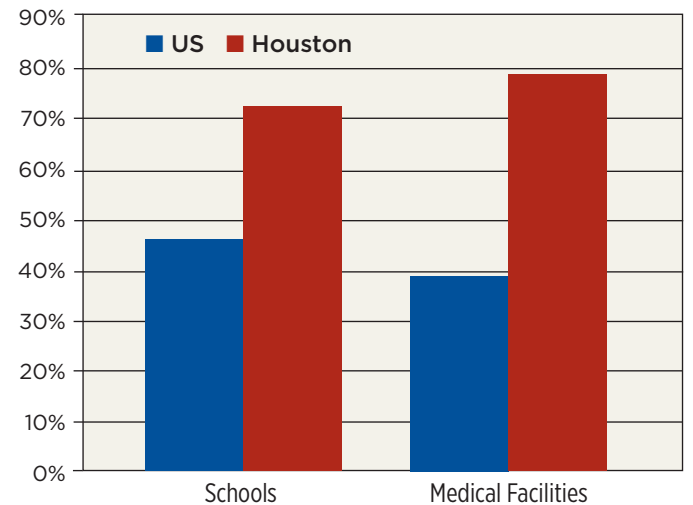


Houston contains 191 high-risk chemical facilities.

### Latino Population and Poverty in Houston



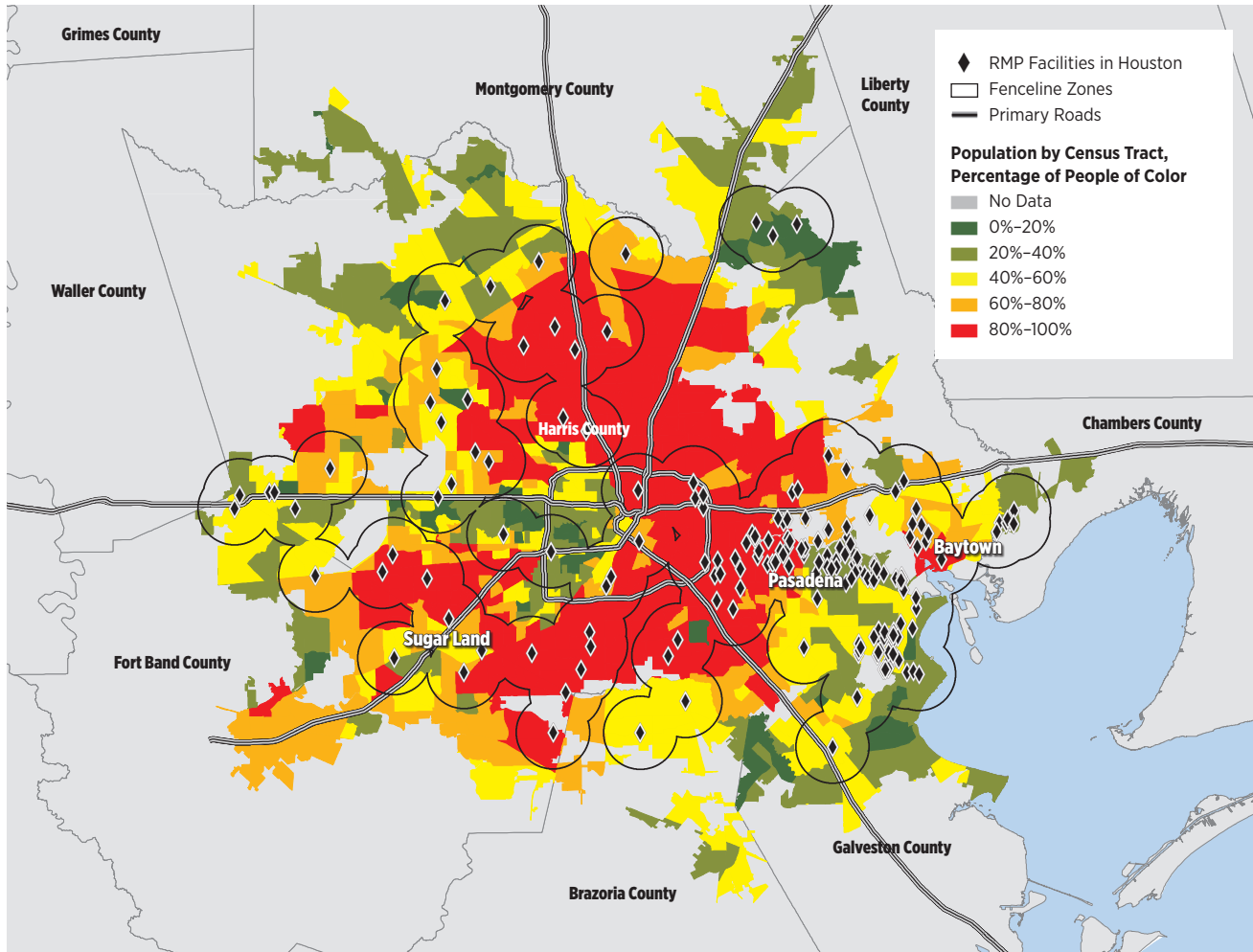
### Schools and Medical Facilities in Fenceline Zones



**75% OF THE POPULATION OF** Houston lives within 3 miles of an RMP facility.

## Hazardous Facilities and Race in Houston

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



## Houston Data Summary

	Houston Totals	Houston 3 Mile Totals	Houston 3 Mile LILA* Totals
<b>Weighted Cancer</b>	44.74	45.57	47.26
<b>Weighted RHI</b>	2.09	2.13	2.29
<b>Percent Black</b>	18.6%	19.5%	25.5%
<b>Percent Hispanic</b>	39.0%	40.2%	56.1%
<b>Percent White</b>	32.9%	30.6%	12.1%
<b>Percent Children</b>	27.1%	26.7%	28.8%
<b>Percent Poverty</b>	17.2%	18.4%	28.5%
<b>Average Household Income</b>	\$82,920	\$80,522	\$48,832
<b>Average Home Value</b>	\$197,888	\$201,040	\$105,512
<b>Percent HS Graduate or Less</b>	42.1%	43.2%	61.6%
<b>Percent College Degree or More</b>	28.8%	28.1%	13.9%

\* LILA—Areas with Low-Income populations with Low Access to healthy foods (see Box 2 on p.13).

Note: Highlighted numbers indicate a substantial difference from the full city or county, and the full 3-mile areas data.

## RESULTS: CHARLESTON, WEST VIRGINIA

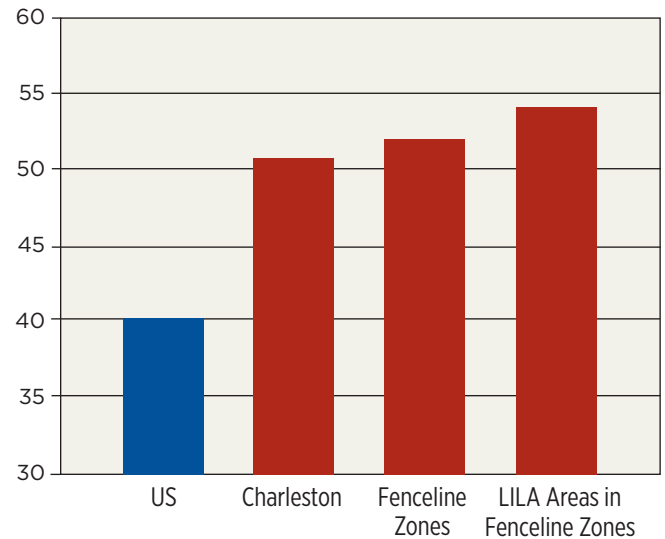
There are 13 RMP facilities located in Charleston.

### KEY FINDINGS

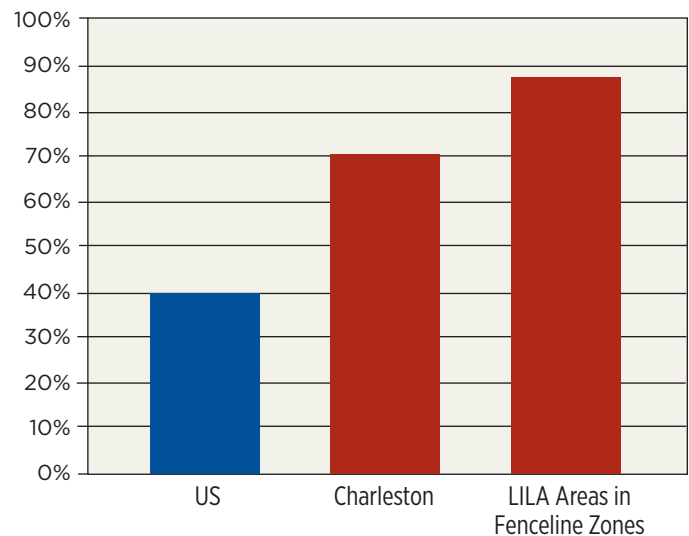
- Seventy percent of people in Charleston live within 3 miles of an RMP facility, an 80% increase over the national rate.
- Eighty-seven percent of Charleston residents who live in low-income/low food access areas also live in fenceline zones (more than twice the rate of all US residents who live in 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 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

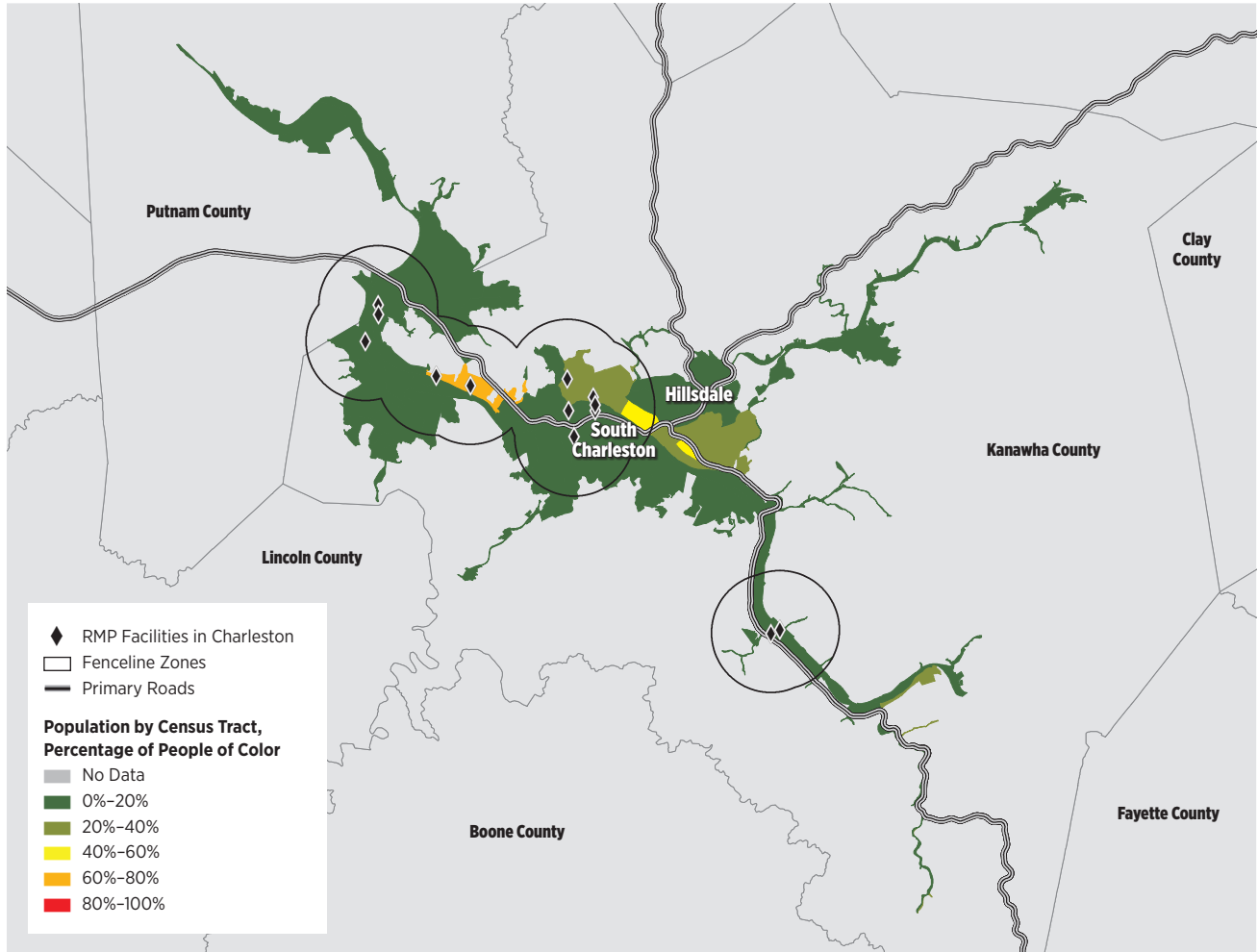


**70% OF THE POPULATION OF**  
the Charleston Urban Area lives within  
3 miles of an RMP facility.

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 (see Box 2 on p.13).  
 Note: Highlighted numbers indicate a substantial difference from the full city or county, and the full 3-mile areas data.

## CHAPTER FOUR CONCLUSIONS

The findings of this report demonstrate that the health and safety of communities closest to some of the nation's most dangerous industrial and commercial facilities are at risk from multiple threats, including potential chemical releases or explosions, daily exposure to toxic air pollution, and poor nutrition from a lack of access to healthy foods (along with other hazards and impacts not specifically studied here). The population of these “fenceline” areas is disproportionately Black, Latino, and living in poverty. Many of these communities also rely heavily, or solely, on dollar stores for household necessities and in some cases food, making these retailers potential sources of either additional toxic exposures or safer products and healthier foods (depending on the corporate policies they implement or fail to adopt).

**All of the areas researched for this report face serious health risks from hazardous chemical facilities, toxic air pollution, and lack of access to healthy food.** The 9 cities or counties researched for this report contain significant concentrations of industrial and commercial facilities that use or store highly hazardous chemicals, creating the constant threat of a catastrophic chemical release or explosion. The risk of cancer from toxic air pollution is greater than the national rate in all 9 areas, and the potential for respiratory illness from air pollution is substantial in all 9 areas. The percentage of city or county residents living in Low-Income areas that also have Low Access to healthy foods (LILA areas) is higher than for the US as a whole in all 9 areas, and is twice as high or greater in 5 of the 9 areas.

**Fenceline zones around hazardous facilities in these areas are disproportionately Black, Latino, and impoverished.** The percentage of Blacks or Latinos living within 3 miles of an RMP facility was higher than for the entire area in every study area, and often much higher than for the US as a whole. In 7 of the 9 areas researched, the

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### THE FINDINGS OF THIS REPORT

demonstrate that the health and safety of communities closest to some of the nation's most dangerous industrial and commercial facilities are at risk from multiple threats, including potential chemical releases or explosions, daily exposure to toxic air pollution, and poor nutrition from a lack of access to healthy foods.

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percentage of people living in poverty within 3 miles of an RMP facility is higher than for those living in poverty in the entire area, and often much higher than for the US as a whole.

**People living in hazardous facility fenceline zones face multiple health hazards and risks.** In 7 of the 9 areas researched for this report, two-thirds or more of the population live in fenceline zones around highly hazardous industrial or commercial facilities (much higher than the national rate of 39%). In all of the areas researched for this report, fenceline zones face higher risk of cancer from toxic air pollution than the entire city or county, and in 8 of the 9 areas the potential for respiratory illness is higher in fenceline zones. From 26% to 54% of the population of fenceline zones also live in low-income/low food access areas (compared to only 18% of the US population).

**Some neighborhoods are even more heavily and disproportionately impacted.** In 8 of the 9 areas studied, 71% to 100% of people who live in low-income areas that also have low access to healthy foods also live within a

hazardous facility fenceline zone. In every area studied, low-income/low food access areas within fenceline zones have higher poverty rates, greater percentages of residents who are people of color, and higher cancer risks and potential for respiratory illnesses from toxic air pollution than for the whole fenceline zones or the entire city or county, often much higher.

**Action to address these hazards is urgently needed.**

Significant and rapid improvements in public laws and regulations at the national, state, and municipal levels, and in corporate policies and practices, are urgently needed to protect the health and wellbeing of at-risk communities in the 9 areas we researched and elsewhere. The commonsense solutions identified below can address the cumulative health and safety risks to fenceline communities discussed in this report, including chemical facility disasters, chronic exposure to toxic air pollution, and toxic chemicals in household products.

**RECOMMENDATIONS AND SOLUTIONS**

The first four recommendations and proposed solutions that follow aim to improve the safety of high-risk industrial facilities, expand communities' access to information

about the hazards posed by nearby facilities, and improve community preparedness for responding to a toxic chemical release. They may have the additional benefit of reducing the daily load of toxic air pollution that affects these communities. The last three recommendations and proposed solutions address both the acute risks from unplanned chemical releases and the risks from daily chronic exposure to toxic air pollution, as well as exposure to toxic chemicals from dollar store products.

**1. Ensure that facilities that use or store hazardous chemicals adopt safer chemicals and processes.**

Switching to inherently safer chemicals and technologies—which removes underlying hazards—is the most effective way to prevent deaths and injuries from chemical disasters (as well as eliminate ongoing emissions of the replaced chemicals). Companies should seek out and adopt safer alternatives when possible. Government at all levels should require hazardous industrial and commercial facilities to assess whether they could use safer chemicals or processes, and adopt them whenever feasible, using the methods and systems already widely available.



2. **Ensure that facilities share information on hazards and solutions, and emergency response plans, with fenceline communities and workers.** Facility employees and fenceline communities can only participate effectively in their own protection if they have full access to information and meaningful access to decision-making processes. Federal, state, and local authorities should ensure that communities have access to information on hazards and emergency planning conducted under federal and state programs, and that they have information on facility hazards submitted to states under the Emergency Planning and Community Right-to-Know Act. Local residents, trained health care professionals, emergency responders, and health-care providers need this information to prepare for and effectively respond to chemical releases and explosions. Communities should be included in emergency response planning and implementation.
3. **Require large chemical facilities to continuously monitor, report and reduce their fenceline-area emissions and health hazards.** Unplanned, smaller releases of toxic chemicals often precede more serious incidents at chemical facilities and may themselves directly impact the health of people living in nearby communities. Fenceline community residents should be able to easily access information (based on continuous monitoring that is independently validated) on emissions coming from facilities that use or release hazardous chemicals, along with information about the chemicals' health hazards, and be easily able to participate in and act on response measures. The EPA should expand current requirements for benzene monitoring by oil refineries to include other toxic air pollutants and require air emissions monitoring at other types of major industrial facilities. This information will allow communities to understand hazards and participate in shaping solutions.
4. **Prevent the construction of new or expanded chemical facilities near homes and schools, or the siting of new homes and schools near facilities that use or store hazardous chemicals.** The siting of new facilities that use or store hazardous chemicals, or expansion of existing ones, near homes, schools, or playgrounds significantly increases the possibility that an unplanned chemical release will result in a disaster. Similarly, new homes, schools, and playgrounds should not be sited near hazardous facilities. Municipal authorities should

adopt and enforce local ordinances that require an assessment of the potential health and safety risks when siting homes, schools, and other public facilities. Authorities at all levels should reject new or expansion requests whenever there will not be an adequate safety buffer zone between the facility and homes, schools, or playgrounds. Requiring a buffer zone between these areas and polluting sources may also reduce residents' daily exposure to toxic chemical pollution.

5. **Require publicly accessible, formal health-impact assessments and mitigation plans to gauge the cumulative impact of hazardous chemical exposures on fenceline communities.** Federal and state agencies should assess the potential impact of unplanned chemical releases and the cumulative impacts of daily air-pollution exposures on the health of fenceline communities. Agencies and elected officials should provide affected communities with the tools and resources they need to fully engage in the assessment process, and the EPA should review hazard assessments of these communities. Permits for ongoing emissions should be strengthened where necessary to account for the cumulative impact of air pollution emissions from multiple sources on fenceline communities, and emissions limits should fully protect public health, including especially vulnerable populations such as the elderly, children, people with disabilities, and people with existing health conditions.

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## FEDERAL AND STATE AGENCIES

should assess the potential impact of unplanned chemical releases and the cumulative impacts of daily air-pollution exposures on the health of fenceline communities. Agencies and elected officials should provide affected communities with the tools and resources they need to fully engage in the assessment process, and the EPA should review hazard assessments of these communities.

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Communities like Houston (pictured above) face multiple health and environmental hazards and need solutions.

**6. Strengthen the enforcement of existing environmental and workplace health and safety regulations.**

Congress should increase funding to the EPA, the Occupational Health and Safety Administration (OSHA), and the states for expanding inspections and improving the enforcement of environmental and workplace health and safety laws, so that problems in chemical facilities can be identified before they lead to disasters. Better oversight and enforcement will also help agencies and the public hold companies accountable if they fail to address identified hazards and emissions of toxic pollution. Communities that face some of the greatest threats from chemical facility incidents, toxic air pollution and contaminated sites need strong governmental policies to protect them, including strict permitting requirements and reliable inspection and enforcement of these requirements. If state and municipal governments are not providing adequate protection, it is essential that the EPA engage to defend these communities' right to a safe environment.

**7. Dollar store chains should develop and implement broad policies to identify and remove hazardous chemicals from the products they sell, stock fresh**

**and healthy foods, and source safer products and foods locally and regionally.** Given their presence in many communities of color and low-income fence-line communities, the largest dollar store chains are in a unique position to benefit the health and welfare of these communities where they operate, while growing and benefiting their own businesses, by providing safer products and healthier foods. Dollar Tree should fully disclose, and publicly report progress on, its positive action already underway to phase out seventeen toxic chemicals by 2020.<sup>65</sup> All the dollar store chains should adopt broad and transparent chemical management policies (including public reporting and continuous improvement) to identify and remove hazardous chemicals from all products in their stores, beginning with their house brands, and stock healthier foods including more fresh produce. They should source safer products and healthier foods locally and regionally whenever possible, to reduce climate change impacts from long-distance transportation, and to support the communities in which their stores operate. Agencies at all levels of government should ensure that discount retailers comply with all relevant laws and regulations, and provide technical assistance to support these transitions.

## APPENDIX A METHODOLOGY

### DATA COLLECTION & MAPPING

The demographic data were obtained from the US Census Bureau's American Community Survey (ACS). The Census Bureau's advanced American FactFinder interface (Census Bureau 2011-2015, <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>) was used to create tables of the data at the census tract level. This database is updated annually and summarized into one, three and five year spans. Per the recommendation of the Census Bureau (<https://www.census.gov/programs-surveys/acs/guidance/estimates.html>), the most recent 5-year span, 2011–2015, was selected.

Publicly available data from the Environmental Protection Agency's (EPA) Risk Management Program (RMP) as provided by the Right-to-Know Network (<http://rtk.net>) were used to determine the location of RMP facilities. Facilities were located based on their self-reported latitude/longitude codes. All other information about the facilities (e.g. number of accidents, number of injuries) was also obtained from the Right-to-Know Network's database and is self-reported by the facilities to EPA.

2011 National Air Toxics Assessment (NATA) cancer risk and respiratory hazard index data, as well as specific pollutant data, were obtained from the EPA's NATA website using the census tract identification (<https://www.epa.gov/national-air-toxics-assessment/2011-nata-assessment-results>). See below for a more detailed explanation of this data.

The location of discount retail stores (which are primarily operated by Dollar General and Dollar Tree (which also owns Family Dollar), referred to as “dollar stores” in the report, was purchased from AggData ([www.aggdata.com](http://www.aggdata.com)).

Low Income and Low Access (LILA) to healthy food data were obtained from the US Department of Agriculture's Economic Research Database (<https://www.ers.usda.gov/data-products/food-access-research-atlas/download-the-data>). 2011 data, the most recent version available at the time the data was accessed, was selected.

Medical facilities data were obtained from the Medicare.gov website ([www.medicare.gov](http://www.medicare.gov)).

Public and private school data were downloaded from the US Department of Education National Center for Education Statistics (NCES) (<https://nces.ed.gov/ccd/pubsc-huniv.asp> public school data-national and <https://nces.ed.gov/ccd/elsi/tableGenerator.aspx> private school data-national). The most recent data (2014-2015 school year for the public school data, 2011-2012 school year for the private school data) was selected for both datasets.

All boundaries were mapped using publicly available TIGER line files (2016) from the Census Bureau (<https://www.census.gov/geol/maps-data/data/tiger-cart-boundary.html>).

### DEMOGRAPHIC CALCULATIONS AND DATA ON HEALTH RISKS AND HAZARDS

Demographics from the ACS for the census tracts were used as presented by Census. All NATA data were used as provided by EPA without further calculations.

We obtained cancer risk and respiratory hazard index data, as well as data on specific pollutants, from the 2011 National Air Toxics Assessment (NATA) using the census tract identification (EPA 2015). The 2011 NATA data, released in 2015, are the most recent available.

The NATA was developed primarily as a tool to inform both national and more localized efforts to collect air toxics information and characterize emissions (e.g., to prioritize pollutants or geographical areas of interest for more-refined data collection such as monitoring). The 2011 NATA dataset is based on data for 140 toxic air pollutants from a broad spectrum of sources including large industrial facilities, such as refineries and power plants, and smaller sources, such as gas stations, oil and gas wells, and chrome-plating operations. Other pollution sources include cars, trucks, and off-road sources such as construction equipment and trains, as well as pollution formed by chemical reactions of these emissions in the atmosphere. The numbers calculated by the EPA are intended to reflect toxic air pollution-related health hazards that are, in principle, controllable through better management practices by emitters.

#### ***What the Numbers Mean: How Cancer Risk and Respiratory Health Hazards Were Calculated***

The EPA calculates the amount of toxic air pollution faced by people at the census-tract level and uses health benchmarks to estimate cancer risks and the potential for respiratory health hazards from the combined effect of those exposures. Health risks and health hazards are distinct measures (see below), but both reflect the negative impacts on communities from exposure to toxic industrial facilities located near schools and homes.

The EPA generates data on the health risks from toxic air pollution using emission reports from industry and pollution dispersion models, combined with data from a limited number of pollution-monitoring stations. **Cancer risks** are expressed as the projected number of air pollution-related cancers per million people based on a 70-year lifetime of exposure. The EPA estimates that the national average risk of cancer from a lifetime of exposure to toxic air pollution at 2011 levels is 40 cancers per million people (EPA, n.d.). For comparison, when the EPA sets national toxic air pollution standards for industrial sources, its cancer risk target for the general population is one in one million (EPA 1999).

The **respiratory hazard index**, in contrast, does not speak to a direct effect on human health but rather is a measure of the amount of the hazardous substance in the environment (which, of course, has important effects on human health) compared to a health metric. The respiratory hazard index is the ratio of existing pollutant levels to levels established by the EPA as not likely to cause non-cancer respiratory illnesses based on a lifetime of exposure. If an existing pollutant level is the same as the non-concerning benchmark, the ratio is 1. An index value greater than 1 indicates the potential for adverse respiratory health impacts, with increasing concern as the value increases above 1.

Both health measures are based on a combination of monitored and modeled data and thus are estimates of average risks and hazards affecting a community rather than exact risks or hazards for a particular person. The lower the cancer risk and respiratory hazard index values, the lower the overall cancer risk and potential for respiratory illness. However, many other factors determine any given person's health; therefore, even relatively low values must be considered with caution.

#### ***Additional Risks Not Captured in This Analysis***

NATA's estimates include only chronic cancer risks for air toxics that the EPA is currently able to identify and quantify. Therefore, these risk estimates represent only a subset of the total potential cancer risk associated with air toxics exposures. Importantly, these risk estimates do not consider additional exposure pathways such as ingestion of toxic chemicals from foods or water, or breathing toxic air pollution from indoor sources, nor do they take into account the potential for combined or synergistic impacts from exposure to multiple chemicals. In addition, while the NATA risk data are based on exposure to outdoor air pollution, urban outdoor air pollution can also be an important contributor to indoor air quality, especially in highly ventilated homes or in homes near pollution sources (World Health Organization, [http://www.who.int/phe/health\\_topics/outdoorair/databases/background\\_information/en](http://www.who.int/phe/health_topics/outdoorair/databases/background_information/en)).

## APPENDIX B SUMMARY DATA TABLES

	Albuquerque Totals/ 3 miles/3 miles LILA	Charleston Totals/ 3 miles/3 miles LILA	Dallas Totals/ 3 miles/3 miles LILA	Houston Totals/ 3 miles/3 miles LILA
<b>Weighted RHI</b>	1.74/1.86/2.17	2.39/2.26/2.40	2.37/2.40/2.48	2.09/2.13/2.29
<b>Weighted Cancer</b>	38.25/39.45/41.91	50.83/52.04/54.01	46.25/46.58/47.67	44.74/45.57/47.26
<b>% Poverty</b>	18.4/18.4/28.0	15.7/15.6/22.5	16.3/17.7/27.2	17.2/18.4/28.5
<b>% White</b>	41.5/40.1/26.3	86.5/86.8/80.1	42.4/40.8/22.5	32.9/30.6/12.1
<b>% Black</b>	2.6/2.5/2.9	6.0/6.3/10.0	17.3/16.5/21.7	18.6/19.5/25.5
<b>% Hispanic</b>	48.4/50.1/64.0	1.1/0.9/0.9	31.5/34.7/51.0	39.0/40.2/56.1
<b>% Children</b>	23.3/23.0/24.3	19.7/20.5/19.9	26.9/26.9/29.4	27.1/26.7/28.8
<b>Avg Home Value</b>	209,745/219,400/ 150,054	145,940/132,790/ 97,039	204,060/189,682/ 114,414	197,888/201,040/ 105,512
<b>Avg Household Income</b>	65,170/65,970/47,908	65,555/61,227/47,166	80,130/74,771/49,036	82,920/80,522/48,832
<b>% HS or Less</b>	36.2/37.4/50.2	41.7/43.6/52.8	39.5/42.6/60.7	42.1/43.2/61.6
<b>% 4 Year or More Degree</b>	29.4/29.6/18.9	26.7/25.3/16.2	30.6/28.1/14.4	28.8/28.1/13.9

	Fresno Totals/ 3 miles/ 3 miles LILA	Kern Totals/ 3 miles/ 3 miles LILA	Madera Totals/ 3 miles/ 3 miles LILA	Los Angeles Totals/3 miles/ 3 miles LILA	Louisville Totals/ 3 miles/3 miles LILA
<b>Weighted RHI</b>	2.06/2.19/2.37	1.91/2.07/2.24	1.56/2.07/2.11	2.59/2.63/2.83	2.26/2.37/2.46
<b>Weighted Cancer</b>	48.62/50.57/52.02	45.69/48.20/49.60	46.37/56.32/57.27	50.17/50.22/52.06	47.35/48.85/50.86
<b>% Poverty</b>	27.6/29.4/37.8	23.4/24.7/34.1	22.3/28.6/35.2	17.6/18.6/24.8	16.0/19.6/31.1
<b>% White</b>	31.3/27.8/17.9	37.1/34.1/23.5	38.3/22.5/17.0	27.9/23.4/11.0	72.8/67.5/49.1
<b>% Black</b>	4.8/4.9/6.2	5.3/6.0/5.8	3.3/2.8/2.5	6.6/6.8/9.5	17.8/22.5/39.3
<b>% Hispanic</b>	51.7/54.2/63.4	50.6/52.6/65.3	52.8/70.0/75.8	47.3/52.4/67.4	4.5/4.8/6.1
<b>% Children</b>	29.0/29.8/31.6	29.3/29.9/32.6	27.4/32.1/34.5	23.1/24.0/26.9	22.6/22.3/23.9
<b>Avg Home Value</b>	221,576/206,867/ 155,918	188,274/183,073/ 136,360	242,651/186,986/ 154,031	550,046/475,194/ 314,249	181,660/170,253/ 103,050
<b>Avg Household Income</b>	62,411/59,806/ 44,332	65,432/63,516/ 46,082	63,832/52,779/ 42,043	83,392/76,452/ 53,876	66,720/60,889/ 39,452
<b>% HS or Less</b>	49.9/51.9/62.8	53.5/54.0/65.8	51.7/63.0/71.2	43.1/47.4/61.2	40.8/43.1/54.4
<b>% 4 Year or More Degree</b>	17.6/16.6/9.0	14.1/13.8/7.3	14.4/9.3/6.0	28.0/24.1/13.7	26.8/24.8/13.9

**City/County Totals:** Result for the entire city or county.

**3 miles:** The Fenceline Zones within 3 miles of an RMP facility.

**3 miles LILA:** Low Income and Low Access to food areas within Fenceline Zones.

See Appendix A for explanations of RHI (Respiratory Hazard Index) and Cancer Risk.

## APPENDIX C

# LOCAL ORGANIZATIONS IN STUDY AREAS

**T**hese member organizations of the Environmental Justice Health Alliance for Chemical Policy Reform work to address the problems documented in this report in their communities, and implement safe, just, and sustainable solutions. You can also learn more about these and other members of EJHA at [www.EJ4All.org](http://www.EJ4All.org).

In Albuquerque, NM, **Los Jardines Institute** (The Gardens Institute) works to build and support healthy and sustainable communities and spaces by providing opportunities that promote multi-generational, community-based models of learning, sharing, and building community. <https://www.losjardines.org>

In Charleston, WV, **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 to ensure existing chemical safety laws are upheld by facilities in our communities. <http://peopleconcernedaboutmic.com>

In Fresno County, Kern County, and Madera County, CA, **Lideres Campesinas** works to develop leadership among campesinas so that they serve as agents of political, social and economic change in the farmworker community. [www.liderescampesinas.org](http://www.liderescampesinas.org)

In Houston, TX, **Texas Environmental Justice Advocacy Services** (t.e.j.a.s.) works to promote environmental protection through education, policy development, community awareness, and legal action. Its guiding principle is that everyone, regardless of race or income, is entitled to live in a clean environment. [www.tejasbarrios.org](http://www.tejasbarrios.org)

In Los Angeles, CA, **Physicians for Social Responsibility** (PSR-LA), a physician and health advocate membership organization, works to protect public health from environmental toxins and nuclear threats. It brings the voices of health experts to the forefront of critical policy discussions, and works alongside health professionals, advocates, and policymakers to create solutions that improve the health and environment for all Californians. <http://www.psr-la.org>

In Louisville, KY, **Rubbertown Emergency Action** (REACT) works for strong laws to stop toxic air pollution from chemical plants; the protection of residents in the event of a leak, fire or explosion in a chemical plant or railcar, and full disclosure and easy access to information concerning the impact of hazardous facilities on residents living nearby. On Facebook as *REACT Rubbertown Emergency ACTION* at <https://www.facebook.com/groups/317041690234>.

## APPENDIX D

# GLOSSARY OF TERMS AND ABBREVIATIONS

### Fenceline Zone

In this report, fenceline zones are a 3-mile radius around RMP facilities (see more on RMP below), in which those affected are at most risk from a chemical release or explosion and least likely to be able to escape from a toxic or flammable chemical emergency, but not representing the outer bounds of potential harm. For example, while the fenceline zone around a facility is 3 miles in radius, the full vulnerability zone for a worst-case chemical release may be as large as 25 miles in radius. See Figure 3 on page 11 for a graphic representation of a sample vulnerability zone and fenceline zone.

### Hazardous Facility or High-Risk Facility

In this report, hazardous facility or high-risk facility refers to Risk Management Plan (RMP) facilities, which are defined below. Only facilities that use or store significant quantities of specific highly toxic or flammable chemicals are part of the US Environmental Protection Agency's RMP program. Many different types of industrial and commercial facilities—ranging from chemical manufacturing plants, oil refineries, and paper mills, to water treatment plants, food manufacturing and storage facilities, fertilizer distributors, and more—are included in the RMP program, which currently covers approximately 12,500 facilities. A worst-case chemical release at many of these facilities could endanger several million people over a radius as great as twenty-five miles.

### LILA Area

LILA stands for Low Income and Low Access to healthy foods. As the term is used by the US Department of Agriculture, and as we have used it in the research and findings for this report, low-income areas have poverty rates of 20% or greater (or meet other criteria), and low access to healthy food means being far from a supermarket, supercenter, or large grocery store. More background on LILA areas can be found at <https://www.ers.usda.gov/data-products/food-access-research-atlas/documentation>.

### RMP

RMP refers to Risk Management Plan, a plan prepared under the chemical incident prevention provisions of the Clean Air Act, section 112(r), and submitted to the US Environmental Protection Agency by a facility that produces, handles, processes, distributes, or stores more than a threshold amount of certain extremely hazardous substances (77 toxic or 63 flammable chemicals).

### Vulnerability Zone

An estimate made by a facility under EPA's Risk Management Plan program of the maximum possible area where people could be harmed by a worst-case release of certain toxic or flammable chemicals. The vulnerability zone is a radius (or circle) distance around the facility, of—for example—one mile, five miles, or 20 miles in all directions.

### Worst-Case Scenario

An estimate made by a facility under EPA's Risk Management Plan program of the largest potential chemical release from a single vessel or process under conditions that result in the maximum possible affected area.

## APPENDIX E

### ONLINE RESOURCES

*Many additional resources—including additional maps, community fact sheets, and data—are available on the Life at the Fenceline project home page at [www.ej4all.org/life-at-the-fenceline](http://www.ej4all.org/life-at-the-fenceline).*

The project pages online include:

- This full report
- Fact sheets about the study areas with more maps and information
- An interactive map of the US and all nine study areas
- Additional resources and data

#### *Other resources on chemical facility hazards and disproportionate impacts*

*Who's in Danger: Race, Poverty, and Chemical Disasters* (Environmental Justice Health Alliance for Chemical Policy Reform, May 2014) <https://comingcleaninc.org/whats-new/whos-in-danger-report>

*Living in the Shadow of Danger: Poverty, Race, and Unequal Chemical Facility Hazards* (Center for Effective Government, January 2016)

- Full report: <https://www.foreffectivegov.org/shadow-of-danger>
- State scorecards: <https://www.foreffectivegov.org/shadow-of-danger-factsheets>

*Blowing Smoke: Chemical Companies Say “Trust Us,” But Environmental and Workplace Safety Violations Belie Their Rhetoric* (Center for Effective Government, October 2015) <https://www.foreffectivegov.org/blowing-smoke>

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# LIFE AT THE FENCELINE

## Understanding Cumulative Health Hazards in Environmental Justice Communities



Across the United States, the health and safety of people who live, work, play, and learn near thousands of industrial and commercial facilities that use or store extremely dangerous chemicals is at risk of a major chemical release or explosion at any time. New research presented in this report studied who lives in the “fenceline” zones nearest high-risk facilities in nine Environmental Justice communities, what are the cancer risks and respiratory hazard from toxic air pollution in these areas, whether these communities have access to healthy foods, and where critical institutions (schools, hospitals, and dollar stores) are located.

The results find that the health and safety of communities closest to some of the nation’s most dangerous industrial and commercial facilities are at risk from multiple threats, including potential chemical releases or explosions, daily exposure to toxic air pollution, and poor nutrition from a lack of access to healthy foods (along with other hazards and impacts not specifically studied here). The population of these fenceline areas is disproportionately Black, Latino, and living in poverty. Many of these communities also rely heavily, or solely, on dollar stores for household necessities and in some cases food, making these retailers potential sources of either additional toxic exposures or safer products and healthier foods (depending on the corporate policies they implement or fail to adopt).

[WWW.EJ4ALL.ORG/LIFE-AT-THE-FENCELINE](http://WWW.EJ4ALL.ORG/LIFE-AT-THE-FENCELINE)

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