

Decision 2020: Electing Indiana's Future

Addressing 21st Century Environmental Challenges

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INTRODUCTION

During the second half of the 20th century, when the U.S. environmental movement began and state and federal environmental protection systems were first being established and implemented, the pollution in Indiana was visible and unavoidable. Thick plumes of black smoke from power plants and factories; visible sewage and industrial waste in our rivers, streams and lakes; rusting barrels of hazardous waste abandoned for the public to find; and trash and litter—these were common sights. Indeed, the public outcry and moves by presidents and Congresses of both parties to enact and strengthen the nation's environmental laws were spurred by the visually dramatic evidence of the heavy cost of modern industrial society to Americans. The waste created was being disposed of into the air, water, and land. Unlike the bills we are all accustomed to paying for collection and safe disposal of our household trash and sanitary waste, industry paid no bill for smokestack emissions or for discharging manufacturing waste into a stream.

But there are costs to society from these discharges. Polluted water is unfit for drinking (for humans and animals), recreating, and industrial and agricultural uses. Polluted air can reduce crop yields, damage building materials and, most importantly, costs Americans millions of dollars in health care, lost work and schooldays, and shortened lifespans. Chemicals discharged into the ground seep into our basements and groundwater and pose hazards to anyone who comes into contact with them. These impacts are called negative externalities—when certain costs of producing a product are borne not by the manufacturer but by third parties who may be harmed from the production of the product.

Those dramatic scenes of pollution are not completely gone in Indiana, but environmental protection laws and modern pollution control equipment often spurred by those laws have significantly reduced the visible pollution in Indiana. The challenges that remain may be more localized and harder to see, but they are still affecting Hoosiers—our health, our economy, and our future well-being.

What do Indiana's environmental threats look like in the 2020s?

- Low-income urban neighborhoods where lead-contaminated paint, soil, and drinking water cause lifelong mental impairment to hundreds of Indiana children every year.
- Neighborhoods near highways, bus and rail yards, and truck routes where concentrations of gasoline and diesel emissions shorten both breath and lives.
- Rural communities where well water and groundwater are contaminated by agricultural chemicals, coal ash pond leakage, or sewage from industrial livestock operations and failing septic systems, brownfield seepage, aging landfills, or leaking storage tanks.
- Increasing floods, heat waves, longer allergy seasons, more disease-bearing ticks and mosquitoes, and other effects of the changes in our climate.
- Lakes and rivers that are often not swimmable or fishable due to agricultural and urban stormwater runoff and invasive species.



- Wetlands that are highly fragmented, reducing their natural ability to control floods, absorb pollution, and provide habitat for migratory bird populations.
- Residences threatened by vapor intrusion from nearby brownfields and neighborhoods blighted by contaminated sites.

These are some of the key environmental challenges in Indiana today.

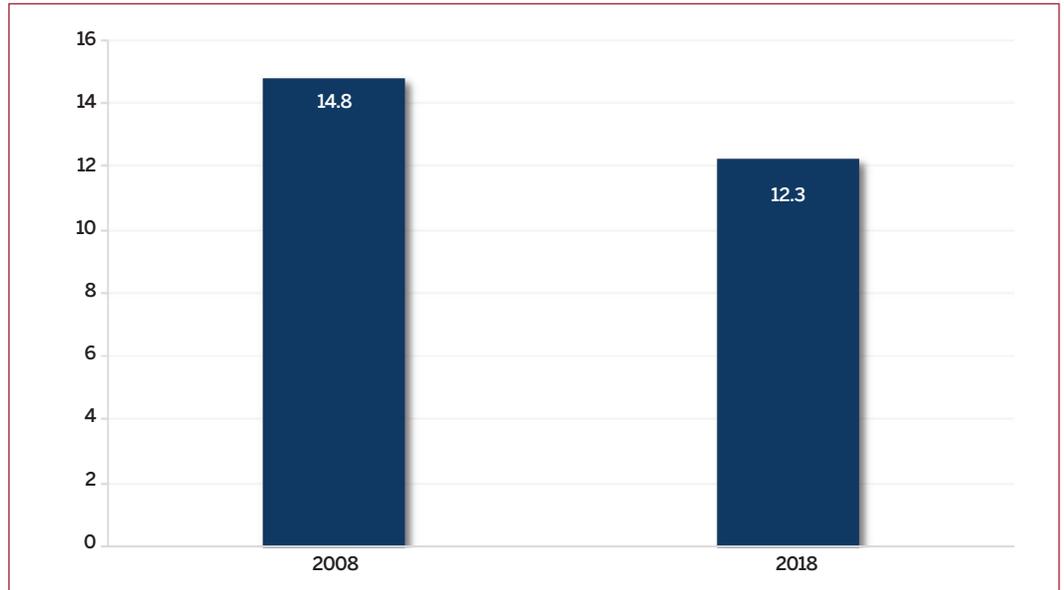
There are concrete steps elected officials in Indiana could take to correct or mitigate these threats to our state, a number of which we identify in this brief. In terms of resources, however, it is clear that Indiana is investing less in the workforce than is needed to implement the programs that exist to protect our air, land, water, and public health. Perhaps most telling is that state government has reduced Indiana Department of Environmental Management (IDEM) staff by nearly one-fifth, on a Hoosier population per-capita basis, between 2008 and 2018.

Overarching policy recommendation

- Approve a budget for IDEM with increased resources for inspectors, permit writers, and program managers to implement state and federal statutes and regulations protecting air, land, and water.

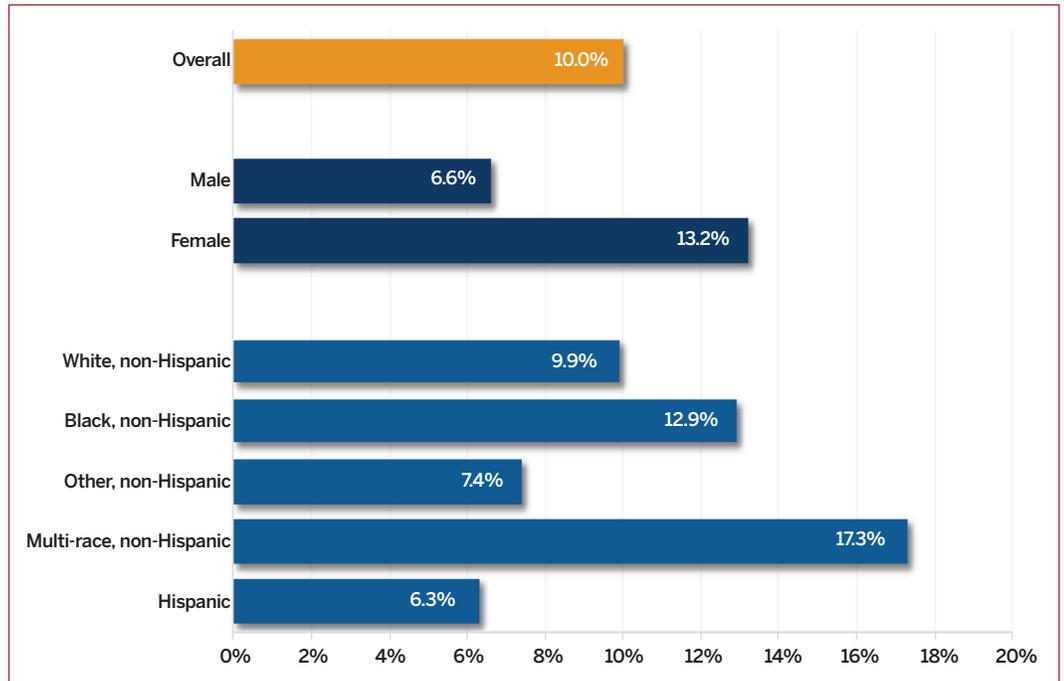
simplify environmental permitting. When workers must stay home to take care of children affected by air pollution, or for their own health, productivity suffers and costs increase. In Indiana, communities of color are more likely to be exposed to air pollution and suffer the adverse impacts than white communities. Air pollution in Indiana comes from our industry, power generation, motor vehicles, agriculture, and building energy use.

▼ **Figure 1. IDEM staffing per 100K state population, 2008 and 2018**



Sources: IDEM; U.S. Census Bureau

▼ **Figure 2. Current asthma prevalence among Indiana adults, by gender and race/ethnicity**



Source: 2018 Behavior Risk Factor Surveillance System, Centers for Disease Control and Prevention

SAFEGUARDING OUR AIR

Why it is important

Healthy air is essential for a healthy Indiana. Air pollution affects every aspect of Hoosier life. It can cause or exacerbate numerous health conditions—including both chronic and acute respiratory illnesses such as COVID-19, cancer, stroke, and heart disease—leading to higher health costs, missed school and work days, poorer quality of life and shortened life span.¹ Air pollution disproportionately affects the elderly, the very young, the poor, communities of color, and those with pre-existing disease. It affects the lung capacity of growing children and has been associated with increased infant illness and mortality. Air pollution is bad for the state’s economy as well. Companies consider air quality in decisions about where to locate or expand, so as to attract a high-quality workforce and

Recent progress

Cleaner motor vehicles and cleaner power generation—from increasing use of renewables and natural gas—have helped reduce emissions and improve air quality in Indiana. From 2005 to 2018, annual emissions of sulfur dioxide from Indiana power plants decreased from 870,812 tons to 68,509 and nitrogen oxide emissions decreased from 133,475 to 24,465.²

Current challenge

Air quality in much of Indiana meets current federal health standards for major air pollutants. Parts of four counties are classified as “nonattainment” for sulfur dioxide. Lake, Porter, Clark, and Floyd counties are nonattainment for ozone.³ Nonattainment status is not a complete reflection of the air pollution challenges for the state, however. There are many air pollutants for which federal health standards do not exist, such as mercury, and air quality monitoring covers relatively few air pollutants in relatively few communities. Meeting federal health standards also does not assure that all vulnerable Hoosiers are protected. Moreover, federal air quality requirements, including the clean car standards and many others, have been weakened in the past few years.

Key air quality concerns in Indiana today include exposure to fine particles (dust and soot), especially in neighborhoods near industrial activities or high levels of diesel traffic; ozone, which can impact broad geographic areas of the state in hot, sunny summer weather; and toxic air pollutants generally associated with different types of industry.

Policy recommendations

- Request that IDEM—in partnership with Indiana-based universities—review the air quality protections that may need to be strengthened to reduce the respiratory risks to vulnerable populations from air pollution and future pandemics. Such a study is particularly relevant in the backdrop of increasing awareness that air pollution inequitably affects communities of color and the additional burden that COVID-19 has placed on the elderly and people of color.
- Direct IDEM and the Indiana State Department of Health, using a public participation process, to identify areas in Indiana where air quality poses the greatest risk to public health and develop a plan with other agencies to reduce emissions in those areas, through incentives, compliance and enforcement activities, and other programs.
- Encourage IDEM to update its procedures to allow for residents’ complaints—through photo evidence, for example—to start the compliance process. Currently, an inspector must witness the infraction and, even then, enforcement actions are not undertaken in all cases where it is warranted.
- Direct the Indiana Finance Authority, in consultation with the Indiana Department of Education, Indiana Office of Energy Development, and Indiana Department of Transportation, to develop a strategy on financing options and policy options to accelerate the electrification of, and expansion of, Indiana’s school and passenger bus fleets and private vehicles, which would reduce particulate and volatile organic compound emissions in Indiana.

- Ask IDEM and other relevant agencies to work with local officials to find ways to steer industrial-related truck traffic away from residential areas and to ensure that such trucks are covered to prevent fugitive dust, which can exacerbate air quality problems.
- Support public policy that will strengthen the independence of the Indiana Utility Regulatory Commission to make research-driven decisions, as the power sector transitions to an electricity mix with a lower footprint on our air quality.

SAFEGUARDING OUR WATER

Why it is important

Water is the quintessential lifeblood of our communities, our economy, and our individual health. Without ample, healthy water supplies, we cannot produce agricultural products, grow our cities and towns, or attract and retain critical industries that require water as part of their processes. Self-supplied industrial water use in Indiana is higher than in other states, making water an essential part of our economy.⁴ Water also plays an important role in enhancing our quality of life, whether through on-water or near-water recreational opportunities widely sought out by the younger workforce or the appreciation of quality places and a clean environment valued by all residents.

Recent progress

Many communities with combined storm and sanitary sewer systems are well on their way to completing their mandated long-term control plans (LTCP), with many multimillion-dollar investments being made at wastewater plants or spent on pipe separation projects and deep-rock tunnels. The Indiana Finance Authority, at the request of the legislature, is completing new water supply and demand studies and an inventory of water infrastructure needs across the state. In 2018, the first Indiana Water Summit was held and is now an annual event. It brings together professionals and producers from across all water sectors as well as public officials from all levels of government. The interconnected nature of our water resources is moving to the forefront of many conversations.

Current challenge

Indiana has roughly 46,262 miles of streams.^{5,6} Approximately 65 percent of those streams (30,284 miles), do not meet state water quality standards. Many of these are impaired because of the bacteria *E. coli*, an indicator of fecal waste in the water.⁷ This is a very serious public health concern and results in lost recreational and economic opportunities. Other water quality challenges include excessive nutrient runoff from agriculture and suburban lawns, and non-compliant industrial discharges, all of which threaten wildlife, public health, and the usability of our water resources.

At the heart of many of these water quality challenges is the way we manage the quantity of stormwater. Currently, we manage both urban and rural stormwater with a series of ditches and ponds allowing both pollution and large volumes to accumulate and be funneled to our waterways.⁸ Forty-four of Indiana’s 92 counties have experienced more than 50 flood events since 1996, with several counties topping 100 events in those 24 years. When water moves in large volumes across a landscape it endangers public safety, carries pollutants, causes erosion, and damages property. The significant

historic and ongoing loss of wetlands and floodplains has reduced our capacity for the decentralized storage of floodwaters and diminished the pollution-removal services these landscape features provide.

Policy recommendations

- Incentivize implementation of practices such as urban green infrastructure and agricultural soil health through state cost-share programs, reduced-interest loans, and agency technical assistance.
- Require all counties to adopt universal floodplain protection and mitigation standards.
- Strengthen wetland protections and actively work to restore wetlands to an appropriate percentage of the regional landscape. Align this work with the Indiana Stream and Wetland Mitigation Program, an in-lieu fee program that allows developers to purchase mitigation credits.⁹
- Fund the Water Infrastructure Assistance Fund (IC 5-1.2-14-3) with a specific focus on using this new fund to support local stormwater planning and management.
- Advance regional water planning and use regional water plans to develop a state water plan. Comprehensive water planning helps to protect all stakeholders and uses and provides important assurances to those seeking to invest in Indiana.

PROTECTING OUR OUTDOORS

Why it is important

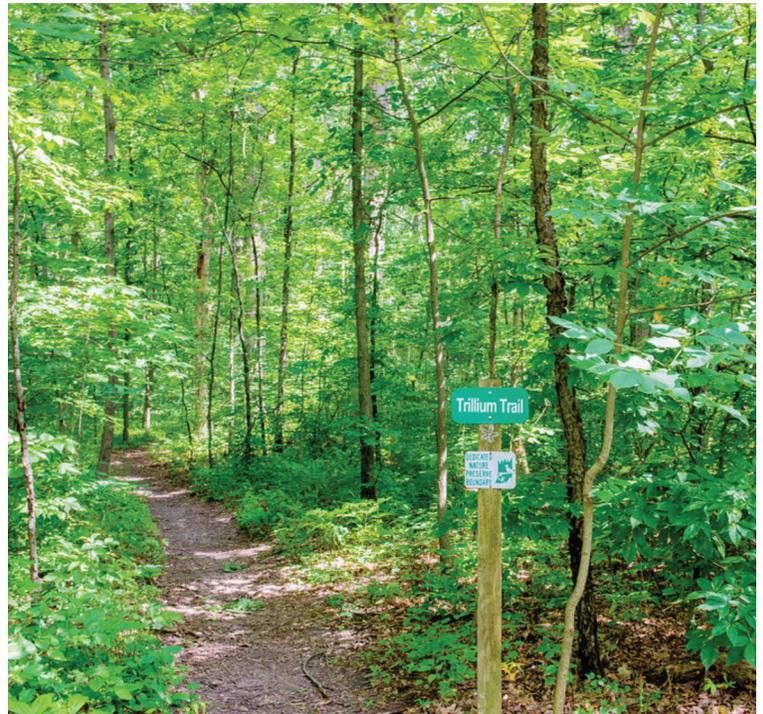
Indiana's natural areas absorb stormwater, sequester carbon dioxide, improve air quality, and are home to our wildlife, including 144 fish and wildlife species of greatest conservation need. Among these, there are nine species of federally endangered mammals, birds, and reptiles.¹⁰ Spending time in nature improves physical and emotional well-being,¹¹ this is especially important in a state that ranks 15th in obesity and 26th in mental health.^{12,13} Time in nature also strengthens families and fosters a love for science and for being a Hoosier. Outdoor recreation employs more than 140,000 Hoosiers and generates about \$1.1 billion in annual state and local tax revenue.¹⁴

Recent progress

The Bicentennial Nature Trust protected 9,500 acres of parks, nature preserves and other outdoor lands, committing its public/private funding of \$66 million in just three years. As of 2016, \$81 million in state funds invested in the President Harrison Conservation Trust and the Bicentennial Nature Trust had leveraged \$120 million in matching non-state dollars.¹⁵ The Healthy Rivers Initiative, founded in 2010, has led to the formation of three state recreational areas (Austin Bottoms, Sugar Creek, and Wabash River). The Next Level Trails Program, launched in 2019, has awarded approximately \$25 million toward expanding Indiana's multi-use trail network.¹⁶ Indiana's four largest private land trusts have permanently protected more than 20,000 acres in the past 20 years.¹⁷

Current challenge

Rare woodlands, prairies, and wetlands are being permanently lost due to lack of public/private dollars; this has been borne out by surveying five of Indiana's major land trusts. General appropriation dollars have decreased



Source: Steven Higgs

by 90 percent from their peak in the mid-1990s.¹⁸ Dedicated dollars from the Indiana environmental license plate also have decreased by 50 percent from their peak.¹⁹ COVID-19 has led to the suspension of Next Level Trails funding and required the Indiana Department of Natural Resources (DNR) to cut its spending by 15 percent.^{19,20}

Policy recommendations

- Establish a dedicated new funding mechanism for protecting endangered outdoor spaces, such as a conservation sales tax, expanding the environmental license plate program, or issuing bonds to be used expressly to buy endangered wildlife habitats, new parks, and greenways.
- Study how other state DNRs are participating in the carbon credit market as a means to generate new revenue for land acquisition.
- Study how other state DNRs are generating revenue from voluntary programs, such as habitat conservation stamps or fee-for-service programs.
- Provide sufficient funding to recruit and retain qualified professional staff for the Indiana DNR.

LOOKING AFTER OUR CHILDREN'S HEALTH

Why it is important

Our children are Indiana's future, and they depend on us to keep them safe and healthy. Children are more vulnerable to environmental exposures

because their development involves precisely choreographed cellular and anatomic changes that can be disrupted by pollutants. Children also have higher exposures to pollutants because they breathe more air and drink more water per pound of body weight and tend to put things in their mouths. Environmental exposures contribute to asthma, autism, attention deficit disorder, childhood cancers, infant mortality, and many other conditions which can impact children throughout their lives.^{21,22}

There are stark disparities in children’s health conditions. Black Hoosiers make up 10 percent of Indiana’s population²³ but 25 percent of infant mortality and 24 percent of lead poisonings.^{24,25} Asthma affects 11 percent of Indiana’s white children, but 23 percent of Indiana’s Black children.²⁶ Infant mortality and childhood asthma are both affected, in part, by exposure to air contaminants, such as particulate matter.^{27,28} The medical literature indicates that there are racial disparities in outdoor air pollution exposure.²⁹

Children’s environmental health issues have economic consequences: missed work for parents or guardians, increased medical expenses, remedial education costs, chronic stress, and reduced workforce readiness. Lead poisoning reduces intellectual capacity. Asthma causes missed school days, which lowers educational attainment, leading to a cycle of lower income as adults, substandard housing and environmentally burdened neighborhoods, and to increased risks for the next generation.^{30,31}

Recent progress

Because of bans on lead paint and leaded gasoline in the 1970s and 1980s, the lead poisoning rate has been dropping.³² The Indiana legislature passed HEA 1265 in 2020 reducing the risk of children’s lead exposure in schools. There is increasing awareness among health professionals of the heavy impact of poverty on children’s health. Emissions of air pollutants from power generation and transportation have been dropping due to implementation of the Clean Air Act, increases in car fuel efficiency, the market-driven transition to cleaner fuels in the power sector, and innovative state energy policies.

Current challenge

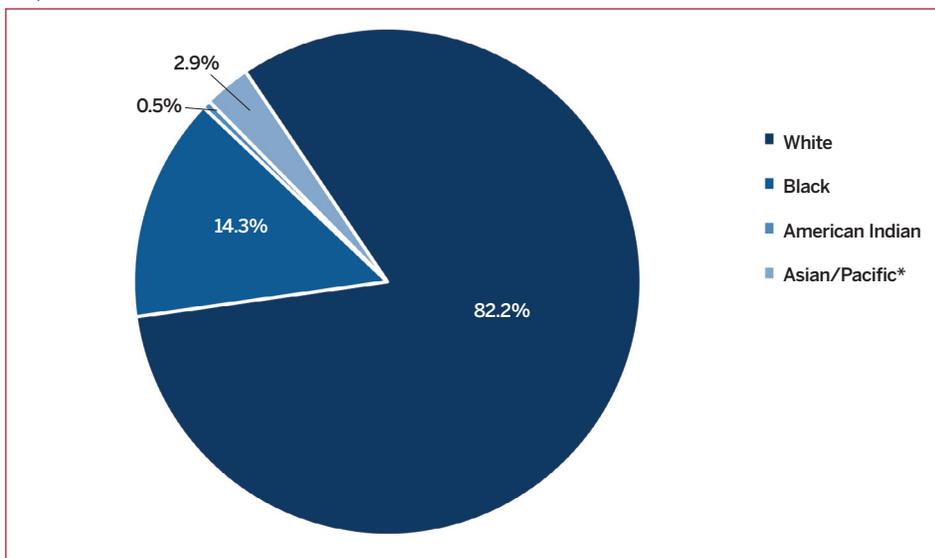
Air quality, tobacco use, substandard housing, and poverty continue to exacerbate the burden of childhood asthma in Indiana. Compounding this, Indiana ranks 47th among states for public health funding,³³ and Indiana Medicaid does not cover all accepted best medical practices for asthmatic children.³⁴

Lead poisoning continues to undermine Hoosier children’s potential. In 2018, 220 Indiana children were diagnosed with elevated blood lead levels, which is an undercount since many children were not tested.³⁵

Lead-poisoned Hoosier children are not cared for according to standards. The U.S. Centers for Disease Control and Prevention (CDC) recommends lead poisoning be addressed with a blood level of 5 micrograms per deciliter (ug/dl) or more,³⁶ but Indiana doesn’t have requirements until the blood level is 10 ug/dl.³⁷

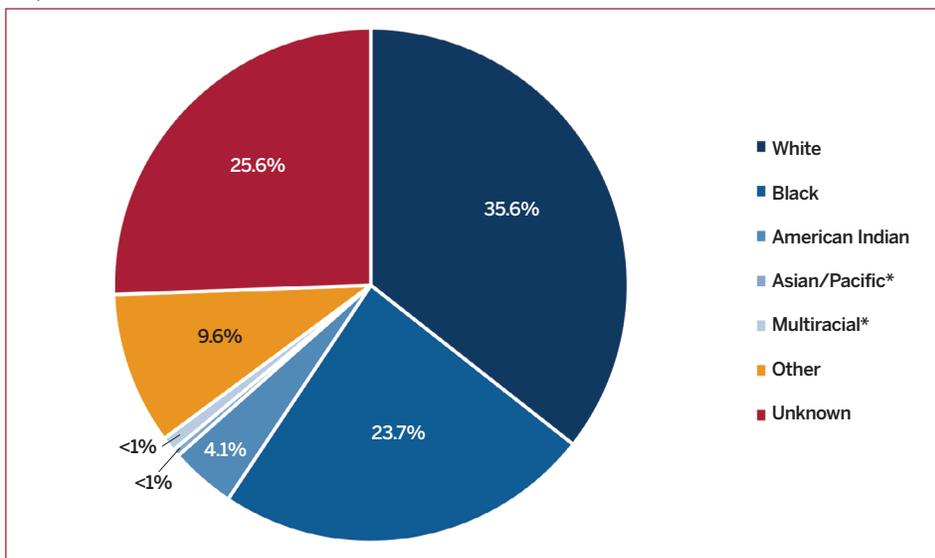
Lead poisoning is preventable if older housing is made lead-safe before a family moves in. Other states have implemented successful lead-safe housing programs that serve as useful models.^{38,39}

Figure 3. Indiana children ages 0–7, by race, 2018



Source: Easy Access to Juvenile Populations: 1990–2018. <https://www.ojjdp.gov/ojstatbb/ezapop/>

Figure 4. Indiana children ages 0–7 with elevated blood lead levels, by race, 2018



Source: 2018 Childhood Lead Surveillance Report, Lead & Healthy Homes Division, ISDH <https://www.in.gov/isdh/files/2018%20Lead%20Report.pdf>

In 2018, 18 percent of Hoosier children lived in poverty and Black children were three times as likely to live in poverty.⁴⁰

Policy recommendations

- Update Indiana's standards related to lead poisoning to match or exceed those of the CDC.
- Ensure housing is lead-safe before families move in with lead-safe certification of pre-1978 housing.
- Ensure that all children under the age of 7 enrolled in Medicaid are tested for lead and that all medical professionals who care for Hoosier children are aware of the need to test for lead.
- Improve housing code enforcement to increase the number of children living in safe, clean, and habitable housing.
- Improve Medicaid coverage of best practices for asthma care.⁴¹
- Improve public transportation and walking and biking alternatives to reduce vehicle emissions.
- Increase state funding for public health.
- Raise the minimum wage to reduce the number of Hoosier children living with the chronic stress of poverty.

DELIVERING ENVIRONMENTAL JUSTICE

Why it is important

As a state and a country, we pride ourselves on being a place where all people are treated fairly. Yet low-income communities and communities of color often bear disproportionate burdens of pollution. They are more likely to be exposed to particulate matter (PM) from highway and roadway traffic. In a recent regional study, communities of color breathe 66 percent more airborne particles smaller than 2.5 micrometers in diameter than predominantly white communities.⁴² Furthermore, communities of color are more likely to be exposed to lead with "Black children nearly three times more likely than white children to have elevated blood-lead levels."⁴³

Recent progress

Indiana cities are beginning to integrate environmental justice into their planning processes. For example, environmental justice is a key principle of Indianapolis's 2018 Land Use Plan,⁴⁴ 2019 Climate Action Plan,⁴⁵ and 2020 resolution to create a Commission on Environmental Sustainability, and is expected to be included in a set of policies by the Indianapolis City-County Council that will address racial inequities in local government.⁴⁶

Current challenge

Pollution often is clustered in low-income areas and in communities of color, and spending on services and infrastructure often prioritizes wealthier and whiter areas. Consider Gary, Hammond, and East Chicago, three cities with high poverty rates that are predominantly communities of color. They are home to three of the nation's largest integrated steel mills, one of the world's

largest oil refineries, smelters, toxics recyclers, 50+ CERCLA/Superfund sites, 400+ hazardous waste sites, more than 400 underground storage tanks (USTs), three wastewater treatment plants, and 15 combined sewer overflows (CSOs).⁴⁷ Indiana lags behind other states, like California, Illinois, New Jersey, New York, and Washington, in terms of adopting environmental justice ordinances at the state or city-level.⁴⁸

Policy recommendations

- Pass a law that requires city planning and zoning officials to consider the cumulative environmental and health impact of development plans and zoning changes on existing residents.
- Ensure that all persons affected by a land use decision have a voice in that decision.
- Ensure that spending on services and infrastructure prioritizes the neighborhoods that need them most.
- Plan truck routes to avoid passing through residential areas.
- Increase budgets for preserving and planting trees that are essential to absorbing pollution, reducing heat exposure, and lessening stormwater runoff in low-income areas and communities of color.
- Create an inter-agency work group that focuses on prioritizing state resources to expedite the remediation and repurposing of now-closed energy production, mining, and waste sites.



Source: Jesse Kharbanda, Hoosier Environmental Council

RESPONDING TO CLIMATE CHANGE

Why it is important

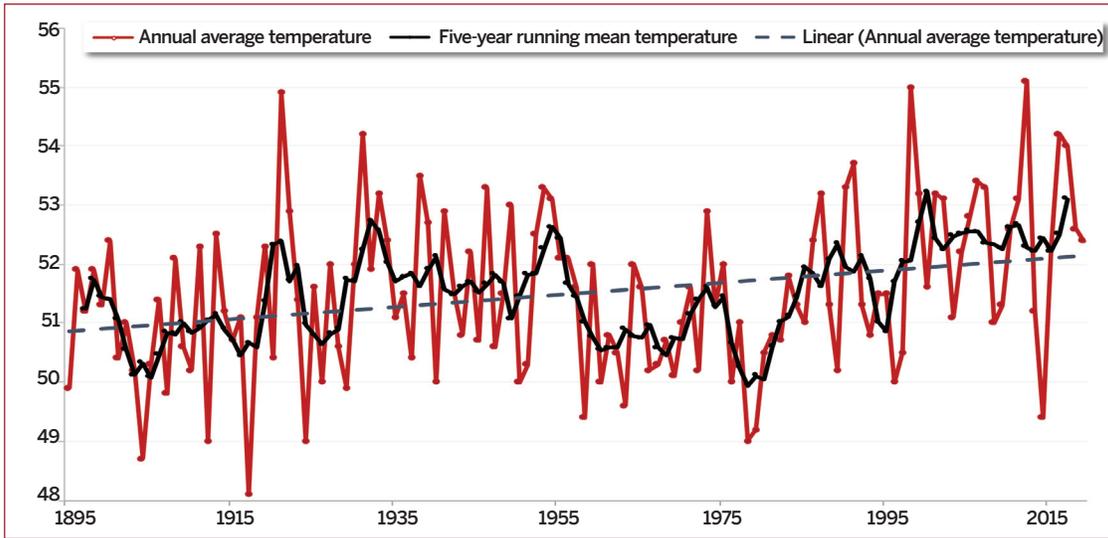
The Indiana Climate Change Impacts Assessment shows that Indiana's climate has been changing and is projected to change further.⁴⁹ The most significant impacts are increases in the number and intensity of hot days and increases in precipitation, with more and more extreme storms occurring in the winter and spring. These climate changes will affect every aspect of our lives and economy, including public health and safety, jobs, infrastructure,

agriculture, energy, and emergency management. Global reductions in emissions of greenhouse gases, especially carbon dioxide and methane, will help reduce the extent of these changes. Efforts now to anticipate impacts and adapt to them will reduce future adverse impacts on Hoosiers.

Recent progress

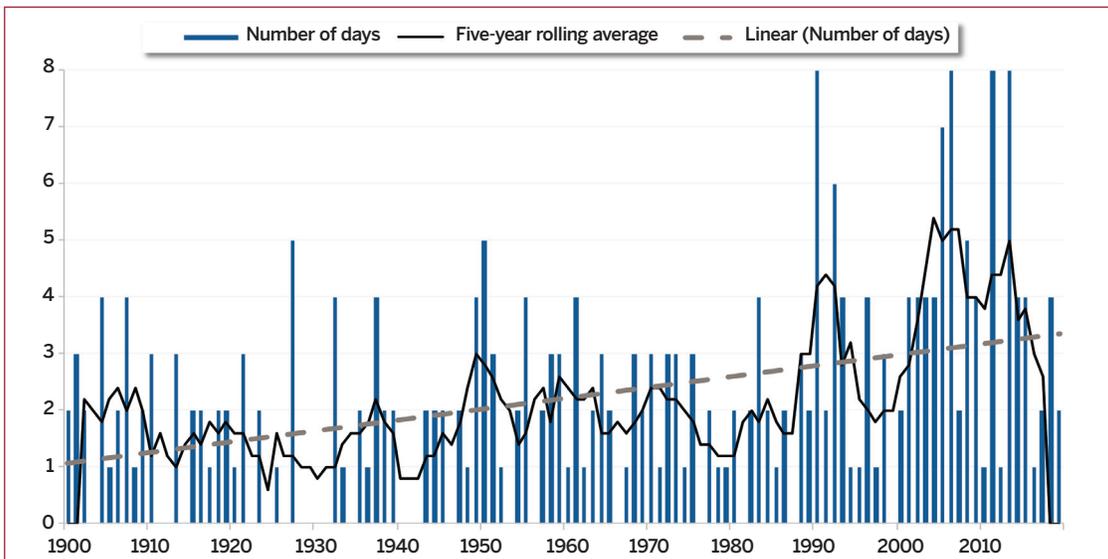
Leading Indiana institutions are producing Indiana-focused research.⁵⁰ Emissions of greenhouse gases in Indiana are decreasing due to increased use of renewable energy sources, increased fuel efficiency of motor vehicles, and greater private investment in energy conservation and efficiency. Numerous local governments in Indiana are preparing

Figure 5. Indiana annual average temperature (1895–2019)



Sources: National Centers for Environmental Information (NCEI); Purdue Climate Change Research Center

Figure 6. Extreme precipitation events (1900–2019)



Sources: Midwestern Regional Climate Center; Purdue Climate Change Research Center

greenhouse gas inventories and reduction plans. Also, a majority of Hoosiers understand that climate change will have adverse impacts and support policy solutions.⁵¹

Current challenge

Unavoidable increasingly extreme, unstable weather will harm farm income, forestry income, roads and bridges, and public health and safety. The poorest and most vulnerable Hoosiers will be more severely affected. Local governments need data, resources, tools, and support to help them understand risks, make informed decisions, and identify concrete steps they can take to make their communities more resilient.

Policy recommendations

- Create a state commission to develop a statewide climate change action plan, including annual briefings for agency and legislative leaders on climate change.

- Establish an inter-agency task force to develop a comprehensive inventory of sources of methane emissions in Indiana and, with input from a public process, a plan for reducing methane emissions over time—with specific reduction goals, timeframes, and action steps.
- Support the continued dissemination, update, and expansion of the Indiana Climate Change Impacts Assessment and other climate change research efforts.
- Direct the Indiana Finance Authority to identify new financing models (including public-private models) to enable cities and counties to scale up their recycling and composting programs, since waste diversion leads to lower greenhouse gas emissions.^{52,53}
- Preserve the authority of local governments to develop and implement their climate resilience plans and programs focused on sustainability and resilience.

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Indiana University Center for Civic Literacy

The Center for Civic Literacy is a multi-disciplinary center. It was first established with support from an IUPUI Signature Center grant. It was created in response to recognition of Americans' troublingly low levels of civic knowledge, and to investigate both the causes and consequences of widespread civic illiteracy—the lack of basic knowledge needed to make informed public judgments. Our mission is to increase public understanding of our civic deficit and its effect on democratic decision-making, and to identify and promote the use of effective tools to help educators and others correct the problem. The Center for Civic Literacy fulfills its mission through scholarly research and publication, public teaching, and community-based partnerships.

Indiana University Public Policy Institute

The Indiana University Public Policy Institute produces unbiased, high-quality research, analyses and policy guidance to promote positive change and improve the quality of life in communities across Indiana and the nation. Our clients use our research to enhance their programs and services, to develop strategies and policies, to evaluate the impact of their decisions—and ultimately to help the people they serve. Established in 1992, PPI is part of the IU O'Neill School of Public and Environmental Affairs.



INDIANA UNIVERSITY
PUBLIC POLICY INSTITUTE
Center for Civic Literacy

Decision 2020: Electing Indiana's Future

Every four years, in conjunction with Indiana's gubernatorial election, the IU Public Policy Institute (PPI) sponsors a Gubernatorial Candidates Forum. This year's event will be broadcast by WFYI and other Indiana Public Broadcasting Stations, as well as available for viewing at go.iu.edu/Decision2020. The event is intended to further the mission of PPI and its Center for Civic Literacy (CCL) to produce unbiased, high-quality research, analyses, and policy guidance to promote positive change and improve the quality of life in communities across Indiana and the nation.

Cities and states today face significant issues and their elected officials have considerable latitude in addressing those issues.

In Indiana, the 2020 gubernatorial and legislative elections will determine how the state pursues policies in education, infrastructure, taxation, health care, environmental policy, and much more. These policies affect us in meaningful and sustained ways on a daily basis. In order to cast an informed vote, citizens must understand what the issues are, the candidates' approaches to those issues, and the legal and political systems within which they must make their preferred policies work.

CCL faculty and staff identified key policy areas facing Indiana in 2020, and enlisted experts in each of those areas. The resulting issue briefs provide policymakers and citizens with important context, background, and identify critical policy issues. Each brief is based upon research and analysis of available data about the state of Indiana, and includes comparisons with other states as well as national trends. Each guide also points readers to local and state level resources offering additional information on the topic.

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