NEIGHBORHOOD ENVIRONMENTAL ACTION REPORT

Health, Environment and Race in Grand Rapids

LINC UP™

DETROITERS WORKING FOR ENVIRONMENTAL JUSTICE

TABLE OF CONTENTS

April 2019

LINC UP has been focused on neighborhood revitalization by enhancing the built environment since completing its first affordable apartments in 2002, but it wasn't until seeing the yellow caution tape and fenced-off lot behind a sign that read "EPA Superfund Project" across the street from our offices that it really occurred to me that this made us an environmental organization. The signage and fencing came about due to an evacuation by the Kent County Health Department of two properties because a Michigan Department of Environmental Quality investigation had shown the indoor air in the buildings was 10 times above the U.S. Environmental Protection Agency (EPA) safety limits of a known carcinogen. EPA found traces of the pollutants that entered the building as a result of off-gassing from chemicals. The chemicals were left behind from a dry cleaning facility that had closed more than two decades earlier. It seems so obvious now, but it was this experience that reminded me that, beyond the streets and buildings, the neighborhoods of the city are still made up of soil, water, and air—no different from any other environment. And the people of neighborhoods, no different from people or animals of any other environment, need to have safe and clean air, water, and soil if they are going to live healthy and full lives.

Over the past years, as my understanding of neighborhoods and environments has grown, I have also begun to understand that the same racialized history that shaped the neighborhoods of Grand Rapids has shaped the environment of the neighborhoods. That the same structures that result in the 49507 zip code having the highest concentrations of poverty in the county also cause it to have the highest rates of asthma, the highest rates of lead poisoning, the worst birth outcomes…and the list goes on. And it is these same communities that have the highest concentration of African American and Hispanic people. Thus, environmental racism exists and persists in Grand Rapids.

As LINC UP was beginning its journey into understanding how racism is perpetuated through the environment of Grand Rapids, Mark Van Putten, Chief Executive Officer of The Wege Foundation, was able to connect us with Guy Williams and Detroiters Working for Environmental Justice (DWEJ), an organization that is more than 20 years into this work. DWEJ has become a partner who has assisted in speeding up our learning process and has been a lead partner in helping to shape this report.

This report is meant not to be an all-encompassing explanation of the overlap between environment, racism, and neighborhoods but a starting summary of what is known, what is happening, and issues Grand Rapids may still need to better understand. I am very grateful for the work of all the partners who were willing to share their time, energy, expertise, and vast experience with me. We are partnering to generate this with full knowledge that organizations have been actively engaged in this work for far longer than we have, but are hopeful that by highlighting the links that exist between the work on lead poisoning, climate change, vapor intrusion, food justice, air quality, and green space, it will help expand the circle of concern for each of these areas that will strengthen them all and will allow all of this important work to advance more effectively for the betterment of residents in our neighborhoods. As you read it, I also hope you see both the hope and urgency that exist to address these issues and ensure that we do not burden another generation with an urban environment that limits their future.

Sincerely,

Jeremy DeRoo
Executive Director, LINC UP

INTRODUCTION

A wave of shock, apprehension, and anger went through the southeast Grand Rapids community in May 2016 after an air sample taken by the Michigan Department of Environmental Quality (MDEQ) from the duplex mixed-use property at 401 Hall Street SE and 1168 Madison Avenue SE tested positive for the presence of toxic chemicals, including tetrachloroethylene (PCE) and trichloroethylene (TCE).

Hazardous levels of the chemicals had already been found at the site four months earlier by the MDEQ, but the Department had failed to notify the building's occupants or local health authorities of the hazard. This was the second test of the year, and the result required the evacuation of the building, which displaced residents living above the two nonprofit organizations at street level, Seeds of Promise and The Red Project. Further testing, in this primarily residential neighborhood, revealed that a large underground plume of these industrial solvents extended for several blocks, into the nearby neighborhood, with vapors entering some of the homes through cracks or other spaces in their basements and foundations. This scenario revealed some vulnerabilities in the system of required notices, etc., in instances such as this. It seems the MDEQ worked with the landlord after the first instance and the tenants were unaware of any potential problems.

As the crisis unfolded and the community came to grips with it, one of the first things people noticed was that the MDEQ, U.S. Environmental Protection Agency (EPA), and the local Health Department did not have structures in place to communicate effectively with concerned residents around the wide range of questions that emerged from the situation. It became clear that problems, solutions, communications, and responses were being driven by the individual issues of each agency rather then the collective issues of the community. This crisis triggered questions

Photo by Grguy2011, creativecommons.org

around how greater citizen engagement, education, and coordination to address these problems prior to the crisis may have led to better outcomes.

Detroiters Working for Environmental Justice (DWEJ) was consulted to help bring a broader perspective to the work of the state and federal agencies, and to help LINC UP connect to the collective experience from other areas—especially as this appeared to be a situation with implications around racial disparities. The conversations with DWEJ, in part, inspired LINC UP to form a neighborhood environmental action initiative. The intent of the new initiative was to create a structure to support neighbors coming together and increasing their knowledge and understanding around the issues specifically at hand, as well as to foster easier transfer of information around issues of equity and environmental justice (EJ).

The crisis demonstrated the latest example in a pattern that exists in Grand Rapids and other places, with African American, Hispanic, and other communities of color bearing the majority of the burden caused by environmental contamination. The pattern of communities of color carrying the costs of unaddressed environmental risks amounts to environmental racism; efforts are underway to combat this structural discrimination through environmental justice.

Environmental Justice

The environmental justice movement emerged in the late 20th century from a growing recognition that certain communities—those inhabited by people of color—are more likely than others to be impacted by pollution in their local environments. Whether it's sooty particulates in the air from diesel motors, toxic substances from industry or agriculture, hazardous waste disposal, or lax enforcement of environmental laws, economic benefits tend to flow away from minority communities while environmental burdens persist within them. The cascade of negative impacts occurring within neighborhoods like southeast Grand Rapids ultimately affects everyone.

The U.S. Environmental Protection Agency defines environmental justice as "the fair treatment and meaningful participation of all people regardless of race, color, national origin, or income, with respect to the development, implementation, enforcement of environmental laws, regulations, and policies."

In 1991, several hundred delegates to the First National People of Color Environmental Leadership Summit adopted 17 principles of Environmental Justice. These are included in this report in the Appendix.

This report is an attempt to identify some of the EJ issues that exist in Grand Rapids as well as indicate ways these issues are being addressed, with the intention to bring about resolutions to challenges faced by Grand Rapids neighborhoods. Specifically, the report will look at the areas of vapor intrusion, lead poisoning, air quality, green space, food justice, and climate change in Grand Rapids.

Sustainability

The problems resulting from environmental racism show up as public costs, both monetary and social. Though not often understood as such, a properly functioning legal system is an attempt to codify values that allow a society to endure. A common crime may have but a single victim, but ultimately everyone pays for it. With common crime, we can easily see how these costs spread and multiply across wider areas, and how, if left unchecked, they can undermine the sustainability of a given society. The same is true where the principles of environmental justice have been violated. Whether or not the law as currently written defines the actions, or inactions, as criminal, the perpetual suffering of the same subsection of society is ultimately an unsustainable situation.

Broadly speaking, sustainability refers to the ability of a system of any kind to endure. The term is often used in relation to environmental sustainability, where for decades thought leaders have been pointing out that an economy based on exponentially growing rates of resource extraction is fundamentally unsustainable. Grand Rapids's numerous LEED-certified, resource-conserving buildings are a testament to the level of commitment in the city to addressing sustainability on this level.

The pattern of communities of color carrying the costs of unaddressed environmental risks amounts to environmental racism; efforts are underway to combat this structural discrimination through environmental justice.

The framework of sustainability must also ultimately encompass all units of organization within the system. One of these levels is that of the individual. On a personal level, for example, we understand that working 16-hour days, seven days a week, is likely, in the long run, to be unsustainable. The eventual breakdown may show up in terms of health

problems, family issues, accidents, business failure, or in other areas. Social sustainability refers to the way this same dynamic applies at larger levels of organization. Here's the core of it: Disparities and injustices fueled by racism show up as social liabilities. When injustices are too numerous, too severe, or too long unaddressed, they eventually corrode social structures and render society less sustainable. This is where the conceptual frameworks of justice and sustainability intersect.

Throughout this document, we will be examining how sustainability and environmental justice connect from a variety of angles while exploring specific issues. Side by side, the lenses of environmental justice and sustainability provide a deeper perspective than either can alone.

In the end, it boils down to this: The right thing to do is also the best thing to do.

The goal in creating this document is to inform and motivate those who seek to address these issues by building connection, communication, and pathways for positive action in the greater Grand Rapids community. ■

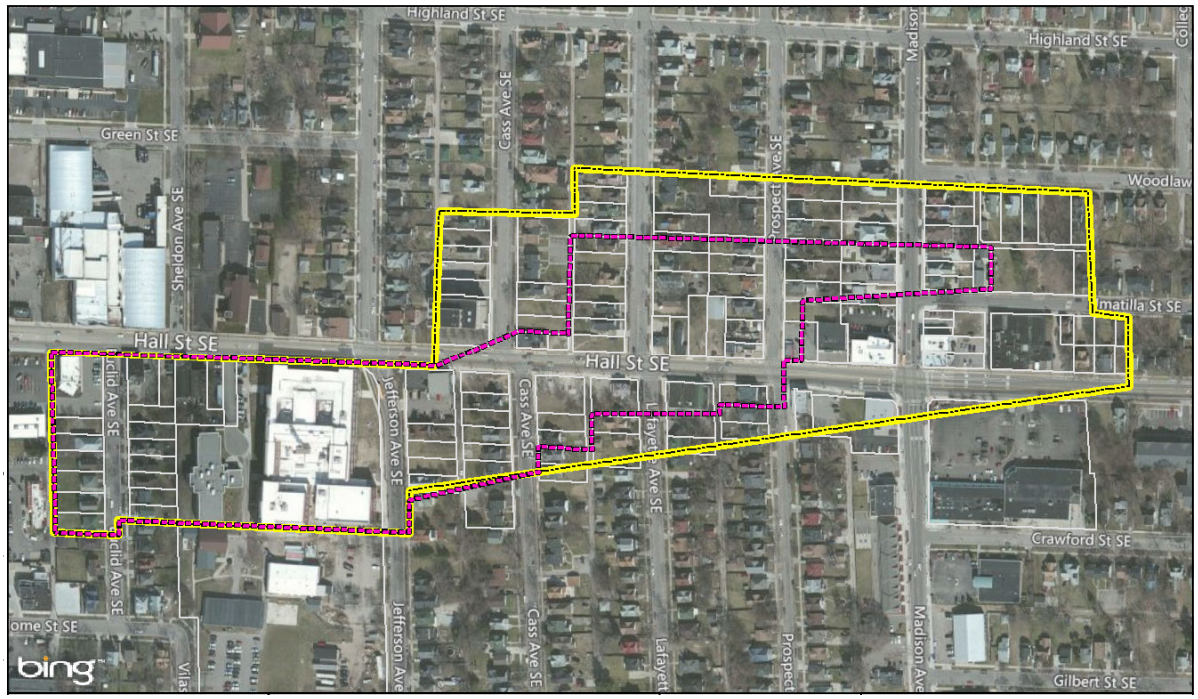
VAPOR INTRUSION

The vapor intrusion crisis in the Madison Square neighborhood of southeast Grand Rapids directly impacted people living and working in the neighborhood, gathered statewide attention, triggered the involvement of the U.S. Environmental Protection Agency (EPA), and ignited a burst of community conversation and activism.

Vapor intrusion occurs when underground chemical pollution or radon penetrates building foundations and contaminates indoor air. The southeast Grand Rapids site involved a slowly moving underground plume of tetrachloroethylene (PCE) and trichloroethylene (TCE). These toxic industrial solvents can cause liver and kidney damage, immune system problems, headaches, and dizziness. The chemicals are also suspected carcinogens.

The source of the contamination was a dry cleaning business that operated at 401 Hall Street SE from 1921 through 1995. That business had been closed, but the hazardous chemicals the business left behind remained and spread via groundwater into the surrounding neighborhood. Chemical vapors then entered buildings in the neighborhood through cracks in basements and foundations after migrating from the original property via groundwater.

Testing by the Michigan Department of Environmental Quality (MDEQ) in January 2016 found dangerously high contamination levels at two attached buildings nearby that housed the nonprofit businesses Seeds of Promise and Red Project, as well as an occupied upstairs apartment. Subsequent testing



Area of EPA testing.

in May 2016 yielded similarly high readings. At that point, the MDEQ notified the Kent County Health Department, which immediately issued evacuation orders for the affected buildings.

This situation illustrates a major weakness in our governmental system of accountability. The fact that the MDEQ had fans and filters installed as a remedial action in January 2016 and did not clearly communicate the potential for harm with the people who were being exposed is not at all an acceptable process. Months of preventable exposure followed for building occupants up until the time of the evacuation order. Subsequent blood testing of the evacuees by the Kent County Health Department found dangerously elevated levels of the toxic chemicals.

The existence of the plume had been known for some time. The MDEQ had been monitoring nearby buildings at intervals, as well as a multistory mixed-use building completed a few years prior. According to the EPA's Community Involvement Plan published in October 2016, at the time, six redeveloped properties in the area already had vapor abatement systems in place to prevent intrusion. More systems were installed on existing structures as testing proceeded under EPA direction. In all, the area of potentially impacted properties established by the EPA extended to include multiple city blocks and 130 parcels.

Vapor Intrusion and Environmental Justice

Once introduced into the soil and groundwater, vapor-causing chemicals expand in their impacts without regard for property values, neighborhood demographics, or anything else besides the dynamics of the water that carries them. However, the way events unfolded raised questions about the environmental justice (EJ) aspects of the plume and the response to it. Concerned community leaders looked at the lag time between the MDEQ's initial testing and the notification of residents and local authorities, the site's location in a part of the city with a high percentage of people of color, and the lack of truly proactive investigation of a known contamination site with multiple mitigation systems already established on a piecemeal basis. From an EJ perspective, these were troubling signs.

On its face, this situation reads like a textbook case of environmental racism, and, in such scenarios, the framework of environmental justice helps to formulate effective responses.

On its face, this situation reads like a textbook case of environmental racism, and, in such scenarios, the framework of environmental justice helps to formulate effective responses. It is revealing that the EPA, which did more in practical terms to address the problem than

any other governmental entity, applied an EJ strategy pursuant to Executive Order 12898 signed by President Clinton in 1994.

Granted, the EPA also had the expertise and the resources to begin to address a problem of this magnitude. However, the EPA's EJ strategy and its community engagement and involvement mandate sought to protect the community from the cleanup process in addition to the chemicals themselves. Outreach, sharing information, and listening to community concerns are not merely friendly gestures; they are important steps to help ensure better immediate and long-term outcomes.

To facilitate this process, LINC UP hosted community meetings and EPA office hours in its headquarters across the street from the evacuated structures. The EPA also began building relationships in the community in other ways, including outreach to churches, and staffing a booth at LINC UP's annual "Rock the Block" party.

Vapor Intrusion and Sustainability

The desire for short-term solutions to long-term problems seems to be part of human nature. However, from its very origins in careless but convenient disposal until the full magnitude of the results came to light in 2016, this crisis clearly shows the dangers of that approach. Long-term problems call for long-term solutions. The toxic plume isn't gone. Efforts are ongoing to address the problem. Ensuring that continued attention and the needed resources are brought to bear is the only way to avert further impacts as the situation develops in the coming years.

Enter sustainability. Sustainability is a concept of many levels and facets, and the vapor intrusion problem provides an example of one that is particularly relevant to environmental justice: sustained effort. Such effort in turn requires a cohesive community capable of advocating for itself and its own needs. This means ongoing leadership, knowledge sharing, and advocacy to make sure that the broader community and units of government remain likewise engaged. Ultimately, the only thing that can ensure sustained awareness, education, and advocacy is a well-functioning and sustainable community. Concerned residents, local nonprofits and places of worship, neighborhood associations and other community partners all have a role to play in achieving this.

Current Efforts at the SE Grand Rapids Vapor Intrusion Site

The longer-term remediation of the vapor plume includes the installation of a "sparging

system," a method used to remove harmful vapor-causing chemicals from the soil. The system pushes pressurized air into the ground to extract the vapors, which are then trapped using carbon filters. Removing the chemicals in this way addresses the primary cause of vapor intrusion in the ground, while vapor abatement systems only help prevent air contamination inside individual buildings. Since vapor plumes are mobile, and since abatement systems can fail over time and monitoring is an ongoing cost, this is considered a better long-term solution. The system is expected to be operational by the spring of 2019. This work will continue, possibly for the next 10 years, to reach completion.

Next Steps

With EPA efforts to address the vapor plume ongoing, observers familiar with the history of the situation have pointed out the danger of lapsing into complacency on this issue. Some of the homes in the EPA's risk area have reportedly not yet been tested. Vapor abatement systems already in place need to be checked periodically. The plume itself is still

U.S. EPA testing for the boundaries of underground pollution

present and mobile. If only for these reasons, community conversations and information sharing about current and planned work related to the vapor plume need to continue.

However, given the toll the crisis at this and other sites in Kent County has taken on the community, and especially those directly impacted, it is also important for community members to be informed of any positives that emerge in terms of bringing the community together, bringing leaders and previously unheard voices to the forefront, and opening lines of communication about issues that really matter. Given the human cost at which these kinds of progress were obtained, it makes sense to maintain and direct them if

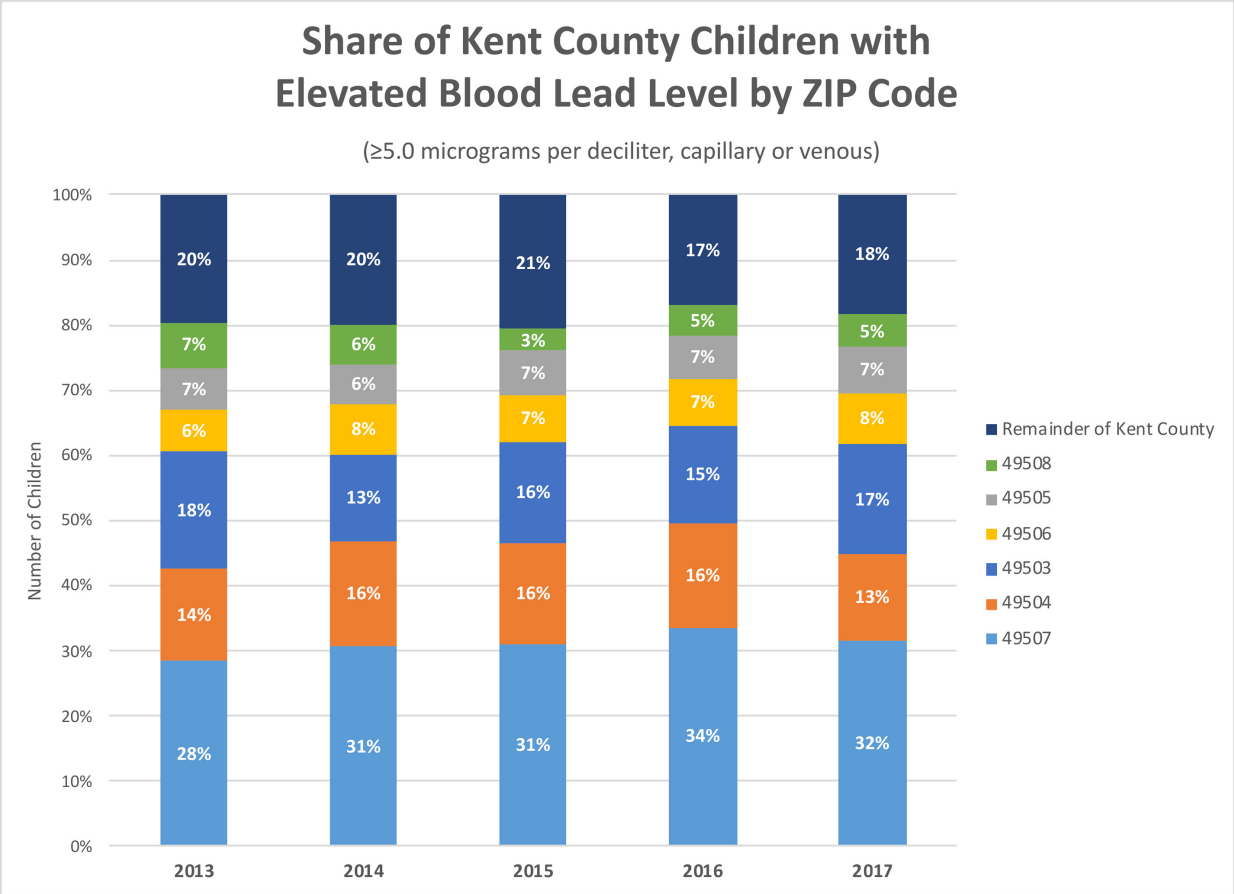
possible toward further community benefits.

What makes the situation at 401 Hall Street SE (adjoining 1168 Madison Avenue SE) unique is not that residents were exposed to dangerous chemicals coming from known nearby contamination, but that MDEQ did studies to clearly identify it. There are likely hundreds of other sites in Kent County where known contamination could be impacting nearby residents, where former dry cleaners, gas stations, or industrial facilities closed leaving dirty sites that have not been cleaned. Because communities of color are more likely to be living near such sites, the consequences of not further identifying such risks are being borne by these families. It is clear that more work is needed to study sites with known contamination to determine how they may be impacting nearby communities, and then address those problems once identified. ■

LEAD POISONING

Grand Rapids's long-standing pattern of high rates of child lead poisoning makes this a priority area of environmental concern with a strong environmental justice (EJ) element. For years, the city's 49507 zip code has topped the list for the number of lead-poisoned children in Michigan.

The Centers for Disease Control and Prevention's (CDC) reference level for elevated blood lead levels is ≥5.0 µg/dL (micrograms per deciliter). However, the CDC also states that no blood lead level has been identified as safe. As the effects of lead poisoning have become better understood, the reference threshold defining blood lead levels has been revised downward over time. Several years ago, ≥15µg/dL, and then ≥10µg/dL, was considered safe. 2005 is the earliest year for which data was readily available at the revised standard of ≥5.0µg/dL. In that year, 504 children in the 49507 zip code had blood lead levels ≥5.0. In 2013, that number had dropped to 157. While no number of lead-poisoned children



is acceptable, this nearly 70% decrease represented progress.

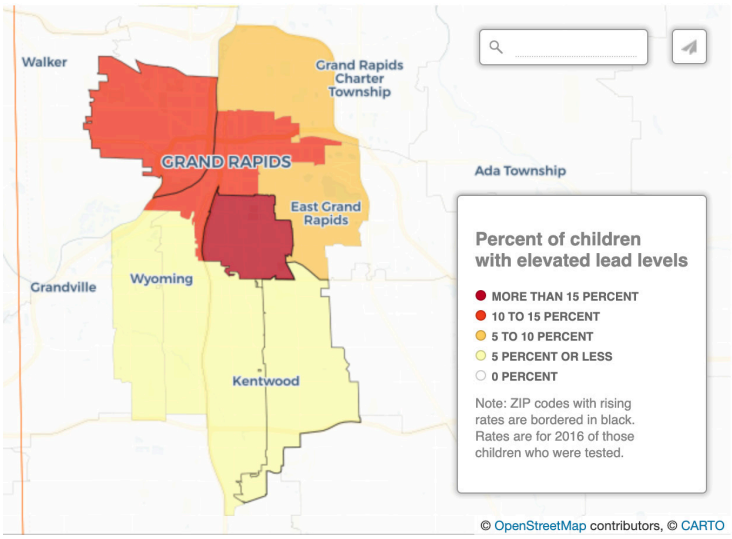
However, since 2014, measured blood lead levels in children have been rising again, as documented in the January 2018 report of the Kent County Lead Task Force, Ending Child Lead Exposure in Kent County. In particular, the 49507 zip code continued to top the state in the number of lead-poisoned children, representing one-third of the problem in the county. Two-thirds of the county's problem is represented by three of the city's zip codes, 49507, 49503, and 49504, all of which saw increases in the last four years.

But zip codes only tell part of the story. At a block-by-block level, these disparities are even more pronounced. For example, the majority of the children affected by lead in the 49507 zip code reside in the northwest portion of the neighborhood (Burton and Division), which is notably less white and lower-income. The same could be said for the 49504 zip code.

Although lead-based paint was banned from household use in 1978, homes built before that time often have lead-contaminated paint, which can result in toxic dust, paint chips, and soils in and around the home. Exposure is most serious for young children, who more frequently ingest it and who are developmentally more susceptible to lead's toxic effects.

According to the CDC, "even low levels of lead in blood have been shown to affect IQ, the ability to pay attention, and academic achievement. And effects of lead exposure cannot be corrected."

Zip Code	Percent of Children Exceeding 5 ug/dL
49503	10.4
49224	10.6
48208	10.9
49203	11.1
48211	12.0
48203	12.2
49504	12.6
48215	13.5
48238	13.5
48213	13.6
49277	14.3
49007	14.9
48204	15.1
49507	15.3
48202	16.3
48214	16.5
48206	22.3



2016 Data from Michigan Department of Health and Human Services

Lead Poisoning and Environmental Justice

Looking at a Grand Rapids map showing cases of confirmed elevated blood lead levels reveals a striking pattern: Although no neighborhood is immune, on a block-by-block basis, child lead poisoning is clearly concentrated in specific neighborhoods. Given that known harms are happening daily in these neighborhoods, the need to address this problem is urgent.

The Kent County Lead Task Force report published in January 2018 states: "Young children are most vulnerable to lead exposure. And the risk factors are cumulative and synergistic. Unfortunately, this means that lead poisoning is likely to have more impact on young children who also deal with poverty, racism, and other stressors."

The fact that the burden of lead poisoning in Grand Rapids continues to fall most heavily on these largely segregated neighborhoods makes this an EJ issue.

Lead Poisoning and Sustainability

A November 2016 Ecology Center report cited in former Governor Rick Snyder's Child Lead Poisoning Elimination Board's Roadmap to Eliminating Child Lead Exposure said that, in 2014 alone, the cost of lead poisoning in Michigan in terms of lost income to the state economy and direct costs to taxpayers was around $271 million for the children with elevated blood lead levels in 2014. Children exposed before and after only add to that cost. Clearly, with an annual dollar figure that size, money deployed in preventing lead poisoning in the first place can have enormous leverage.

While the measurable impacts of lead poisoning on IQ or academic performance are often

"Young children are most vulnerable to lead exposure. And the risk factors are cumulative and synergistic. Unfortunately, this means that lead poisoning is likely to have more impact on young children who also deal with poverty, racism, and other stressors."

- 2018 Kent County Lead Task Force report

emphasized, lead is also associated with depression and mood disorders that profoundly shape a child's subjective experience of life in all its dimensions. In other words, it's important to remember that underneath the documentation showing low IQ, school or juvenile justice issues, or a clinical diagnosis of a mood disorder, there's a child having an experience.

What does subjective experience have to do with sustainability? Simply put, one person's subjective experience translates into other people's experience in turn. If the number of people undergoing negative life experiences multiplies, this generates a social reality in which everyone is impacted. Social stress translates into biological stress, and vice

versa. And at certain thresholds, systems start to break down. Families can fall apart from stress. Schools function poorly as caseloads rise, and courts and jails get jammed. Society pays for the effects of lead poisoning in dollars, yes, but in many other ways as well.

Lead Poisoning—Current Efforts

The Healthy Homes Coalition of West Michigan partners with community members, other organizations, and units of government to provide a suite of services and initiatives that proactively address lead as well as other household health threats. When elevated blood lead levels in a child are found, direct services provide immediate support and in-home visits to help reduce further exposure. To prevent poisoning in the first place—always the best option—Healthy Homes works through the Get the Lead Out! program to help low- to moderate-income Grand Rapids homeowners seeking home retrofits through a HUD-funded program administered by the City. Healthy Homes also connects homeowners outside of Grand Rapids to programs available through the state and other local units of government.

Common among lead hazard control strategies is the replacement of lead-painted doors and windows, since, in normal operation, these often release toxic lead dust. In addition, any bare soil outdoors must be covered. Exposed soil is the third of the top three sources by which children are exposed to toxic lead, with contaminated dust and paint chips being the first two.

Among Healthy Homes's education and outreach efforts, Parents for Healthy Homes stands out as a model for outreach, relationship-building, and community leadership development. Developed in partnership with Community Organizing and Family Issues (COFI), this evidence-based model effectively mobilizes parents and other community members who are passionate about helping children. Referred initially by health care providers, the Health Department, caseworkers, Head Start, or word of mouth, after initial engagement, parents are then introduced to the program where they can direct further outreach in their communities.

Finally, Healthy Homes is also learning from ongoing lead hazard control efforts in other cities and seeking to build the momentum needed for change at the policy level.

Healthy Homes's program partners include the City of Grand Rapids, Kent County Health Department, COFI, LINC UP, Garfield Park Neighborhood Association, and many others.

Next Steps

In addition to continuing to educate residents and expand the number of lead-safe homes in the area, Healthy Homes's next strategic focus area is to raise housing standards for everybody through changes in city codes, local ordinances, and enforcement. Citizen engagement will be critical in achieving this, as the voices of those directly impacted by the problem are the ones that most need to be heard by decision makers. ■

FOOD JUSTICE

The book *Food Justice*, by Anupama Joshi and Robert Gottlieb, defines food justice as when "benefits and risks of where, what, and how food is grown, produced, transported, distributed, accessed, and eaten are shared fairly." This definition has become the guiding definition for the food justice movement, a global movement started by women of color in the 1990s. Food justice looks at the industrial food system's exploitation of workers and animals, impacts on the environment, and how racism plays a part in who has access to nutrient-dense foods.

A 2017 countywide survey published in the 2017 Kent County Health Assessment confirms that "accessing healthy food is a challenge for many families, particularly those living in low-income neighborhoods, communities of color, and rural areas."

Not only must food workers rely on tips, but according to A Report on the Conditions of Migrant and Seasonal Farmworkers in Michigan, published by the Michigan Civil Rights Commission in 2010, migrant workers live and work in dangerous positions for little pay. Food justice dares to declare that food workers should have safe working conditions and earn a living wage.

Food as a Justice Issue

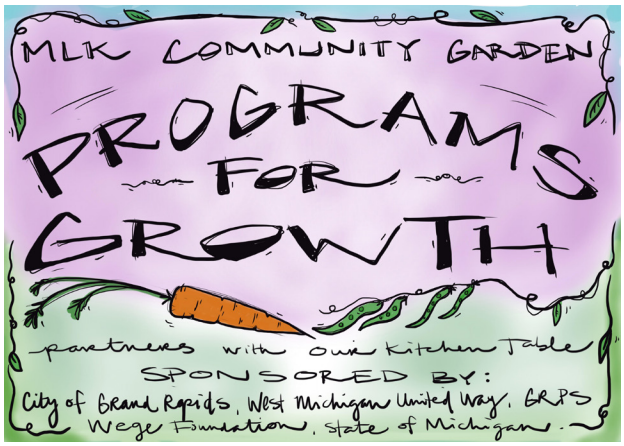
As defined by the United States Department of Agriculture, "Food security means access by all people at all times to enough food for an active, healthy life." Those experiencing food insecurity and lack of access to clean and healthy foods tend to live in the same neighborhoods that have elevated environmental toxins, e.g., lead contamination and air pollution. Healthy food can help the human body

minimize the effects of environmental toxins. The Grand Rapids neighborhoods that experience the worst air quality, highest amounts of environmental toxins, and least access to healthy foods are also neighborhoods with the highest proportion of people of color. So, these impacts are felt strongly along racial lines.

Some medical conditions are experienced in significantly higher percentages by African Americans, e.g., obesity, diabetes and related amputations, hypertension, heart disease, and maternal-infant mortality. These issues are often attributed to the daily stresses of living in a racist culture as well as an inability to access nutrient-rich foods. Because lack of access to these foods impacts children's brain development and behavior, it also contributes to learning and behavioral difficulties in school. When adults, or their children, experience illness, retaining employment can become difficult. Loss of employment can mean loss of housing. The downward spiral continues.

Healthy food can help the human body minimize the effects of environmental toxins.

Why do income-challenged neighborhoods have the least access to healthy foods? Because those distributing food—and seeking the most profit from food assistance dollars—can make the most profit from fast-, junk-, and convenience-foods with long shelf lives and high profit margins. The problem is not unintentional food deserts, but, rather, intentional strategies of businesses in the food supply chain.



Food and Sustainability

Food sustainability is nested within several other layers of sustainability. Standard agricultural practices are based on chemicals made from fossil fuel. The industrial food system impacts the environment via transportation emissions. Factory livestock farms, i.e., concentrated animal feed operations, pollute watersheds and use huge volumes of water. In addition, industrial food production is a main cause of deforestation, especially in underdeveloped countries. Pesticides impact insects and wildlife necessary for a healthy environment as well as water and soil. Genetically modified crops threaten not only our health, the diversity of species, and, very long-term, the world's food supply, but also destroy the livelihood of small farmers around the globe—and in Kent County. Agriculture is one of the biggest contributors to climate change. A return to organic farming methods that resurrect living soils is one of our best options for turning climate change around.

Current Efforts in Food Justice

In recent years, west Michigan has seen increasing interest in locally grown food with the emergence of community-supported

agriculture, as well as markets and restaurants that emphasize the value of local, healthy foods. However, while these entrepreneurial developments are encouraging in their local market innovations, they largely remain out-of-reach for people experiencing income challenges and living in neighborhoods with little access to healthy foods.

Fortunately, many Grand Rapids nonprofit organizations are working to make access to healthy food more equitable. Since 2010, Our Kitchen Table (OKT)'s Food Diversity Project has worked with residents of Grand Rapids's income-challenged southeast neighborhoods to grow chemical-free produce, address health issues through healthier eating, and become advocates for equitable food policies. Components of the project include garden education, home gardens, community gardens, school gardens, educational events and resources, the Southeast Area Farmers' Market, and raising policy awareness.

For the past two years, OKT's Program for Growth at Grand Rapids Public Schools's Martin Luther King Leadership Academy has included a school garden that functions as a point of contact to build relationships among community members. Food grown on-site is used in the school cafeteria and shared among school families and neighbors. Participating students bring home window-box gardens to enrich family meals. A registered dietician leads healthy-eating workshops and conducts personal consults. An emphasis is made on growing and eating fruits, vegetables, and herbs high in iron, calcium, and other minerals that can help prevent absorption of excessive amounts of lead. Whether one is figuring out the best way to cook an eggplant or sharing a favorite way to eat fresh greens, the results can transform families as their diets move away from low-quality, prepackaged, convenience foods and cheap fast food toward clean and healthy foods that foster health.

Access of West Michigan, a Grand Rapids-based food justice and equity nonprofit, has been working with west Michigan emergency food pantries for many years. Over the past six years, they have shifted the model of their work to one that addresses food equity at the systems level. Much of their work is based on the Michigan Good Food Charter, established in 2010. Those pantries that have adopted the Charter have transformed their functions from sharing excess food of questionable nutritious value, to purposely focusing on being sources of healthier, local, and fresh foods. Some local pantries even work in tandem with food gardens. For example, Baxter Community Center not only grows fresh produce in its greenhouse, but it also provides plants, soil, raised beds, and educational resources to neighbors who want to grow their own food.

The YMCA Veggie Van, Urban Roots's garden and market, and Southeast Area Farmers' Market bring more fresh, local produce into neighborhoods lacking access to fresh foods. The latter two also offer bulk whole foods via SNAP/EBT dollars.

In addition, the Michigan Good Food Fund has invested in the Diamond Place Gordon Food Services Market, Ken's Fruit Market, and Placita Olvera to increase food security in areas it has identified as food deserts. Well House and Catherine's Care Center involve their constituents in food gardens that not only provide fresh produce for themselves but also excess that can be sold to enhance their incomes. Mercy Health's Browning Claytor Health Center has been involved in a Prescriptions for Health program that provides patients coupons for fresh produce from local farmers' markets. Programs like Double Up Food Bucks also increase the buying power of SNAP/EBT benefits when used for fresh produce at some local grocers and farmers' markets, including Fulton Street Farmers' Market.

Next Steps

While programs like those highlighted above have been key to addressing the discriminatory impact of our industrial food system, raising awareness about the community health aspects of making healthy food available for all, much work remains to be done.

The City of Grand Rapids has taken steps in the right direction through revising composting and urban livestock ordinances, funding garden projects through its Neighborhood Match Fund, and creating an urban agriculture committee.

There are many other additional things that the city can do, such as supporting efforts to bring in pop-up farmers' markets and fresh and healthy foods to supplement the inventory of "corner store" retail locations, making it easier and safer to grow gardens on vacant lots.

Last, but definitely not least, the City of Grand Rapids must continue to dismantle the institutional racism that makes it acceptable for neighborhoods of color to live with less access to good food, higher rates of disease, lower life expectancies, more exposure to chemical toxins, and more roadblocks to achieving success at school and at work. This can be accomplished, in part, by encouraging school cafeterias to return to serving cook-from-scratch foods and fresh produce, creating media literacy programs that help children and adults resist the intense onslaught of commercial food messaging, and addressing lead and other toxins present in soil, specifically in southeast neighborhoods (lead poisoning hotspots). ■

GREEN SPACE

Studies show that urban green spaces promote physical activity, the health of urban residents, and psychological well-being. In fact, the 2017 Kent County Community Health Needs Assessment (CHNA) identified "access to exercise opportunities and parks" as a key topic in the Quality of Life section of the report. In addition to citing research indicating the importance of access to parks and green spaces to public health, the report also notes that this access is often inequitably distributed in urban areas.

The CHNA uses a half-mile distance threshold to define an accessible park. Although this measure may be appropriate for the CHNA's purposes as a countywide assessment, the quarter-mile distance for all residents cited in the Grand Rapids Climate Resiliency Report is a more appropriate measure in an urban context. This is the current target established by the City of Grand Rapids.

Thanks to the passage of a millage in 2013, existing parks in Grand Rapids are getting some long-overdue upgrades. However, to bring the total park acreage per 1,000 residents into line with comparable cities elsewhere in the Midwest, new parks will need to be established. Ideally, this can be done in a way that leverages all of the potential benefits these spaces offer to the city and its residents while also addressing disparities among neighborhoods.

Green Space and Environmental Justice

Green spaces, such as parks and nature areas, as well as urban tree canopy, work together

to provide critical environmental services. Because green space and tree canopy represent solutions to environmental concerns, not problems, environmental justice issues emerge from the enduring effects of their inequitable distribution.

Past practices in which relatively few tree species were planted left the city vulnerable to widespread tree loss due to species-specific pests and diseases. In low-income neighborhoods, where rental properties predominate, some have observed a reluctance to plant trees on properties or to ask the city to replace dead trees on street easements. Fall leaf cleanup, the occasional need for tree maintenance, and the possibility of sidewalk damage from developing tree roots all represent costs that can deter property owners from planting trees.

Past practices in which relatively few tree species were planted left the city vulnerable to widespread tree loss due to species-specific pests and diseases.

When these motivations and perceptions keep people from planting trees, the result is a persistently less healthy environment for people living in those communities.

Green Space and Sustainability

It should go without saying, but, in basic terms, trees and green spaces sustain life on this planet. In immediate human terms, parks and other green spaces promote public health by increasing activity levels among residents and providing healthy play spaces for children to develop. Given that the rapid rise in healthcare costs in recent years is in the long term unsustainable, these spaces may play a

vital role in a cultural reset toward more outdoor time and more active lifestyles.

However, parks and green spaces can provide significant health benefits even if residents never visit their nearest park. These include mitigating the "urban heat island effect" with a corresponding reduction in physiological heat stress and/or cooling costs. Green spaces also play a role in reducing noise pollution, improving air quality, and in lead abatement. Both green spaces and increased tree canopy were identified by Detroit's Community Health Action Plan under the nine overarching strategies for improving air quality in that city. Strategic siting of these spaces relative to air pollution sources such as industries and major roadways can help protect residents in local neighborhoods from these pollution sources. Again, unless mitigated for, these health-impacting environmental issues show up as lower-quality lives and ultimately express as public costs.

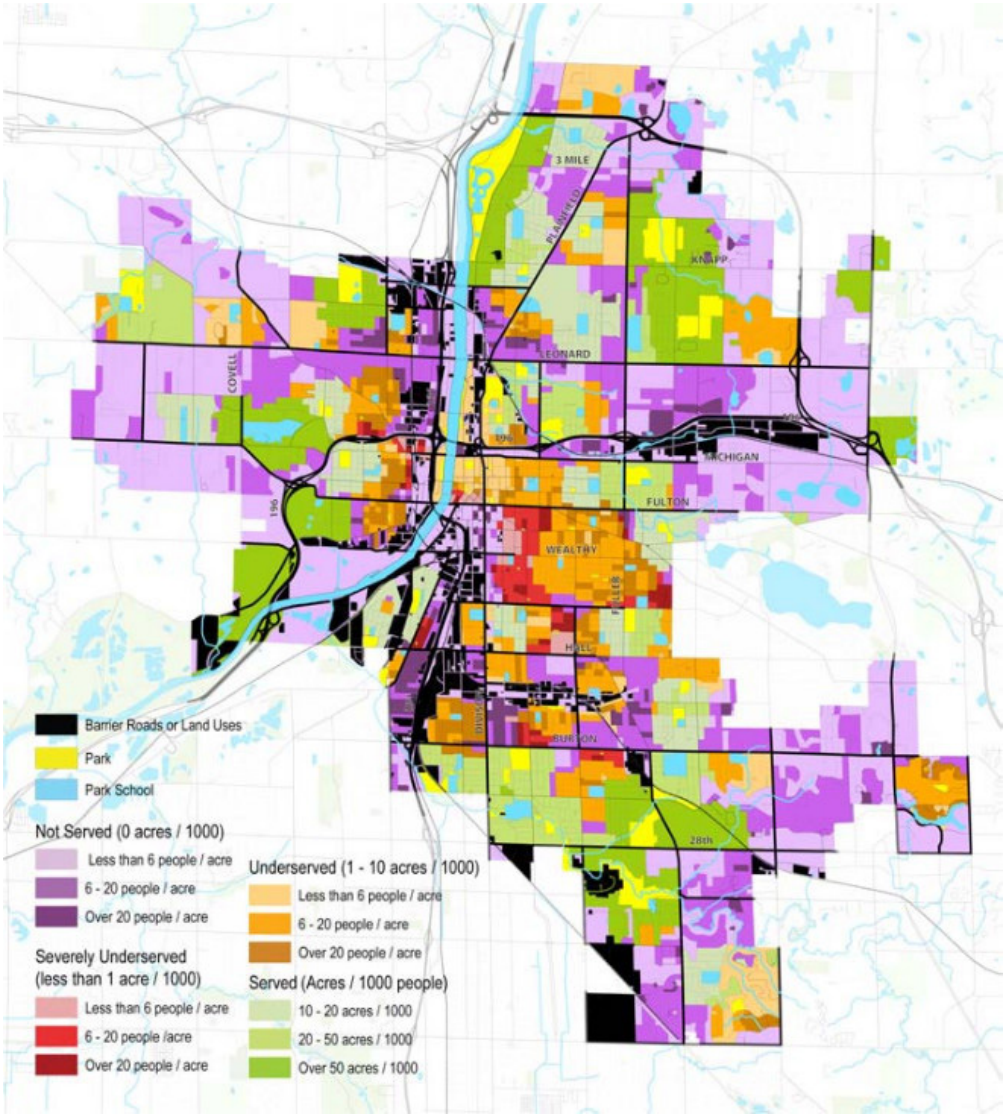
This is really just the start of the list of tree and green space benefits—one could go on

adding things like erosion control, storm-runoff mitigation, carbon sequestration, and much more, all of which add up to millions of dollars in services rendered to the city. Remarkably, the benevolence of trees even extends in ways many would not expect: The Detroit Environmental Agenda report, published in 2013, cites studies in two different U.S. cities correlating increased tree canopy with reduced neighborhood crime.

Green Space—Current Activity

Friends of Grand Rapids Parks and its partner organizations have been working to strengthen relationships between Grand Rapids residents and the city's 76 parks. These people are the residents and leaders of organizations who have expressed interest in, and desire for, more trees in their neighborhoods or beautification efforts in their local parks.

Helping this along requires relationship-building and, often, education. For example, when perceived costs of trees translate into a psychological barrier to tree planting, the organization's work is to introduce property owners to the benefits of trees and the options available. Overall, the organization attracts a mix of constituents that includes



individuals, neighborhood organizations, and business and other volunteer groups looking for places to direct their energy.

All of these efforts align with the city's plans to raise canopy cover from 34.6% to 40%, the figure recommended by the American Forest Institute, also cited in the Detroit Environmental Agenda report.

In contrast to the monoculture approaches, in which only a handful of tree species were planted on city streets in the past, modern urban forestry seeks to build a diverse tree community that will be more resistant to emerging and imported pests and diseases, and resilient in the face of a changing climate.

Beyond the many benefits shared by the trees themselves, those involved in planting and caring for them have seen how the process can bring the human community together in beautiful ways while generating lasting value and a more livable environment for future generations.

Next Steps

In addition to the Urban Forest Project's ongoing tree-planting efforts, Friends of Grand Rapids Parks is focused on smaller neighborhood parks because the larger and downtown parks have plenty of advocates. This focus is likely to continue in the future. In terms of adding new parks, the parks millage passed in 2013 generated only enough to fund capital improvements on about a third of the city's existing parks. Because of this, adding new parks has to be approached cautiously from a financial and maintenance perspective.

However, it can be done. Friends of Grand Rapids Parks worked with national program Kaboom!, a nonprofit that coordinates grants and funding sources as well as volunteers with a mission to build outdoor play spaces for children. Kaboom!'s process typically involves an entire neighborhood in their playground building, and this aligns with community engagement standards and the stewardship focus of the Friends group.

Given the expense of both acquiring and maintaining green space, the process of adding new parks to the system is likely to be slow and methodical, to ensure new parks are added with an adequate budget for hardscape features and long-term maintenance. Meanwhile, the city's existing park system still provides opportunities for community members to enjoy and build relationships with their parks and to play a more active role in park stewardship. ■

AIR QUALITY

Air quality is a primary factor in the quality of life. Since we all breathe, air pollution can affect anyone. However, in many areas of the country, air pollution remains an ongoing example of environmental injustice because of its disproportionate impact on people of color. Every breath of polluted air brings with it an unwanted burden that may include toxic dust, ground-level ozone, nitrogen oxides, sulfur dioxide, and other toxins. The West Michigan Environmental Action Council (WMEAC)'s Grand Rapids Climate Resiliency Report, published in December 2013, cites Centers for Disease Control and Prevention data that Kent County has the highest average particulate air pollution in the state of Michigan outside of greater Detroit. Like the Detroit Community Action to Promote Healthy Environments (CAPHE)'s Public Health Action Plan, the WMEAC report also notes the disproportionate impact of poor air quality on low-income residents.

A recent set of research studies of the health impacts of air pollution was conducted in southeast Michigan, the only part of the state with lower air quality than Kent County. The results were included in CAPHE's Public Health Action Plan, published in 2017—the findings determined that air pollution is responsible for two to three deaths per year due to air pollution-related illnesses and places a $6-billion-plus drag on the local economy due to lost work and school time. There has not yet been comparable research done in Grand Rapids or Kent County. We mention this information to illustrate where there is a need to do more to find out the local impact on health in our neighborhoods.

Emissions from transportation, manufacturing, and power generation to maintain comfortable conditions in buildings are the main sources of outdoor air pollution in urban areas. The good news on air quality efforts in the context of Grand Rapids is the city's proactive stand on climate change. If pursued aggressively, this intention could help improve air quality for residents in the future.

The problems of disproportionate air pollution exposure are found all across the country. However, a 2014 National Science Foundation-funded study identified Michigan as one of only three states in the top quintile in both high injustice and high inequality, measured as residential air pollution impacting nonwhites in terms of nitrogen dioxide (NO_2) exposure. Nitrogen dioxide is a common pollutant that comes from burning gasoline and diesel fuel, used in cars, trucks, and buses. NO_2 often irritates our respiratory system and is a major trigger of asthma attacks.

Although facilities like power plants, incinerators, and factories are required to have

More sensors, and better connected sensors like these, can help improve Grand Rapids's air quality.

As the GRAQ system comes online, there is the hope that eventually the system will allow the public access to real-time information that will inform day-to-day decisions such as deciding whether or not to open the windows or engage in outdoor activities.

permits issued by the state to regulate the amount of pollution they release, these permits do not consider the distance from other facilities that are also releasing pollution. This is important to understand because in many areas, concentrations of multiple sources create very unhealthy conditions. This situation is referred to as cumulative exposures or cumulative impact from several sources.

Often, analysis of communities where this type of situation exists reveals they are neighborhoods that are mostly inhabited by people of color. As a result, they are examples of environmental injustice. Indoor air quality is also important to understand because when mold, dust, and other typical allergens are present, this can amplify the effects initially triggered by poor outdoor air quality and vice versa.

Grand Rapids is a city that has many companies that have been leaders among their peers in Michigan as champions of sustainability. Examples of this are companies that are attentive to the amount of energy they use and strive for maximum efficiency. The implications on air quality are direct, as much of our power in Michigan is generated by processes that pollute the air. Sustainability is rooted in systems thinking and, as such, is a multidimensional concept in which no single metric can adequately account for all impacts on health. Nonetheless, efforts made to quantify the impacts of air pollution generated by any set of activities can provide useful indicators and can help motivate people for additional positive changes. Ideally, our area would be a place that has healthy air for all. More work is needed to assure that this is true.

Current Efforts in Air Quality

Grand Rapids Air Quality (GRAQ) Initiative is a collaborative effort among the City of Grand Rapids, Seamless, Start Garden, and Breezometer. The purpose of the initiative is to generate high-resolution air quality data in Grand Rapids. The design of the system includes an array of 30 sensors (wirelessly connected) in locations throughout the city. The new system would improve the understanding of air quality greatly because at present there is only one air quality monitoring facility in Grand Rapids. This is operated by the U.S. Environmental Protection Agency. Currently, the weekly forecast can be accessed on the West Michigan Clean Air Coalition website.

The GRAQ sensors will measure four pollutants: ground level ozone (O_3), airborne particulate matter ($PM_{2.5}$ and smaller), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). These pollutants have different effects on human health and, in combination, give a useful snapshot of air pollution levels at a given time and location. Especially exciting about this system's design is the ability to take samples every 15 minutes. The City should be able to develop a much more sophisticated understanding of air quality with this level of data with which to work.

Next Steps

As the GRAQ system comes online, there is the hope that eventually the system will allow the public access to real-time information that will inform day-to-day decisions such as deciding whether or not to open the windows or engage in outdoor activities. In addition, those who work or exercise outdoors can check the air quality in their neighborhoods, and curtail their exercise during periods of unhealthy air conditions or make sure to do their workouts when the air tests good. The system also has predictive power, allowing users to get a better handle on, generally, the best times to air out the house, conduct errands, take children outside, or exercise.

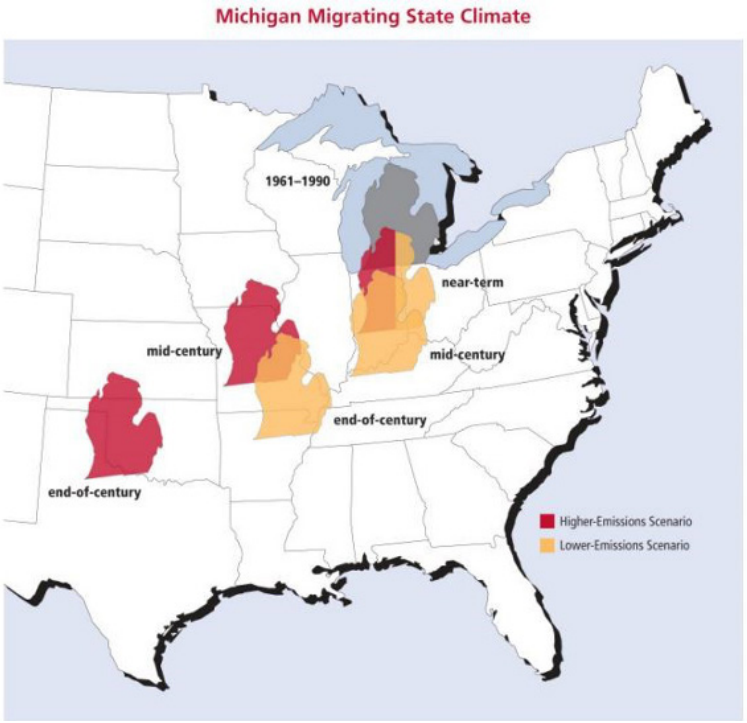
Over a longer time scale, this data will also be helpful for city planners and others seeking to create a healthier living environment. For example, the high resolution of the data could help in locating green spaces, tree canopy enhancement, green roofs, and other strategies to get maximum air quality benefits. Additionally, those making land use decisions will have information needed to support their decisions and protect sensitive populations (schools, hospitals) from undue exposure. Later, with air quality improvement strategies in place, the system will also help planners to evaluate the effectiveness of these measures and prioritize future resource allocations. Possibly the most valuable outcome of having improved and timely data is the role it can play in building awareness that nurtures community-driven efforts to address any problems that are illuminated. ■

CLIMATE CHANGE

Grand Rapids has a few significant bodies of work completed by important local organizations regarding climate change, including the 2013 Grand Rapids Climate Resiliency Report by West Michigan Environmental Action Council (WMEAC) and the Climate Resiliency Framework Initiative of West Michigan Sustainable Business Forum (WMSBF). WMSBF is a research collaboration between national university partners and local institutions, including the Great Lakes Integrated Sciences + Assessments, which created a toolkit and analysis of 26 potential risks to local businesses and institutions, prioritizing direct impacts from global warming and weather events.

Most noteworthy regarding the report from WMEAC is how the authors of the report identify the largest and most likely impacts on city functions and services due to climate change. In addition, the report and its findings are organized to feature the three widely regarded elements of sustainability: the economic, environmental, and societal dimensions of life in the city.

Grand Valley Metro Council is developing a Watershed Resiliency Plan for the Lower Grand River Watershed that will incorporate disaster risk assessment and mapping on a watershed basis into community planning efforts. This watershed management approach



Projection of Michigan Climate. Source: Union of Concerned Scientists

will preserve ecosystem functions that help reduce risks to areas prone to flooding.

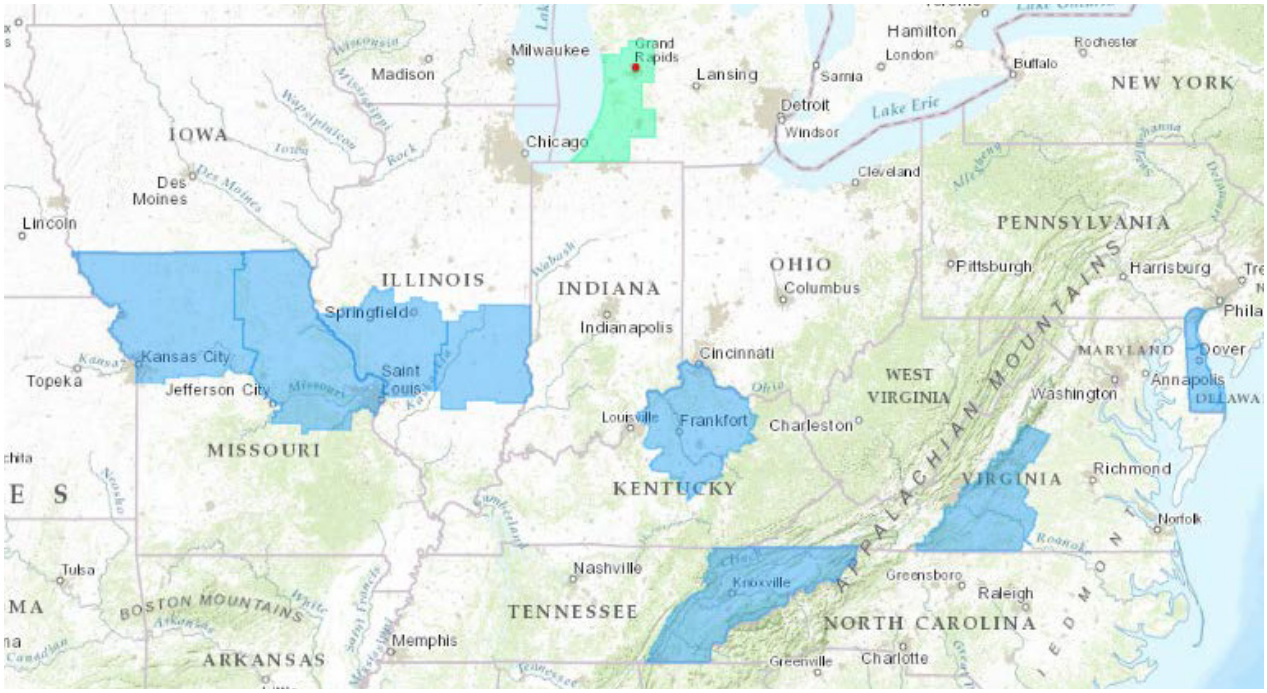
Climate change is expected to drive shifts in temperature and precipitation over the coming decades. Warmer temperatures, drier summers, wetter springs and winters, and less frequent but more intense precipitation events are predicted, as well as a general increase in weather volatility. The report cited that these predicted shifts are likely to carry economic, social, and environmental impacts.

It is crucial to note that, in recent years, the city has experienced two "100-year storms." One in April 2013 and the other in February 2018. The Grand River overflowed seriously in both instances.

West Michigan Sustainable Business Forum worked with local institutions to identify the point at which projected climate impacts would have a material impact on their operations, testing these thresholds against current conditions and expected changes.

WMSBF used a tool from the University of Michigan Climate Center to create the simplified forecast below, showing that current projections suggest that climate conditions in the Southwest Michigan Climate Division (in green) in 30 years will resemble that of the regions shown in blue. In addition, climate change will lead to greater unpredictability and more extreme weather events.

In summary, the most tangible impacts from climate change in Grand Rapids will be due to increased hot and very hot days and the increased impact of extreme weather events. Residents and institutions can expect higher costs to maintain comfortable temperatures during the summertime. Those unable to bear these costs will suffer harder seasons at best, adverse health impacts at worst, including extreme responses such as heat stroke.



Current projections suggest that climate conditions in the Southwest Michigan Climate Division (in green) in 30 years will resemble that of the regions shown in blue.

In its research, WMSBF was surprised to find that the physical assets and operational resiliency of regionally located businesses and institutions were less susceptible to the likely impacts of climate change than it had anticipated. Rather, with some exceptions, it is people and community-scale infrastructure that are most sensitive to local impacts, with particular vulnerabilities involving human health, child care, worker productivity and comfort, transportation, and emergency needs, as well as the maintenance of storm-water and utility infrastructure.

Direct impacts to health could include injury from flooding, exposure to contaminants or waterborne diseases when streams and streets flood, surface water quality issues from runoff, and carbon monoxide poisoning from using things like generators during power outages. Indirect health impacts could include stress and anxiety from lost work due to school or business closures, financial strain from recurring flooding or damage to homes or businesses, exposure to mold or other contaminants where proper cleanup is physically or financially difficult, and disrupted local food systems.

Addressing climate change in both its causes and effects presents a multifaceted problem requiring comprehensive and coordinated responses. The City of Grand Rapids has taken a leadership role in working with community partners such as WMEAC, WMSBF and many others in the effort to position the city for the timely and successful evolution of its programs and systems.

It is crucial to note that, in recent years, the city has experienced two "100-year storms." One in April 2013 and the other in February 2018. The Grand River overflowed seriously in both instances.

There is good news in that during the past year the City has hired a new leader for the Office of Sustainability, who is involved in helping the city implement its sustainability plan and energize the long-standing Community Sustainability Partnership. Ideas for implementation described in the Grand

In 2013 the river crested a few feet below the road surface at the Pearl Street bridge.

Rapids Climate Resiliency Report include increased deployment of renewable energy technology, water and energy conservation measures, strategic use of green space, better stormwater management, improvements in urban land use and planning, and measures taken to protect air and water quality.

Climate and Environmental Justice

Local implementation of climate change adaptation and mitigation strategies can also serve as a platform for addressing local environmental justice (EJ) issues.

For example, on the adaptation/response side, given the predicted increase in the number of summer days with temperatures above 90°F and/or 90% humidity, investments in new green spaces and parks in historically underserved communities need to be prioritized. Best practices dictate working closely with residents of the neighborhoods to be effected to establish informed and, possibly, trusting relationships.

Hotter summer temperatures can lead to more ground-level ozone and other air pollutants collecting in and around the city. This pollution, in turn, affects everyone, but especially persons suffering from asthma and other respiratory conditions. It is important to make information regarding the effects of outdoor and indoor air quality easily accessible to those who are most at risk and throughout the neighborhoods that are disproportionately impacted.

Likewise, climate change is expected to increase significant weather events such as the very cold days and snowstorms that have occured in 2019. These events are likely to increase the amount of school closures and power outages. These outcomes disproportionately impact low-income residents as they are more likely to realize economic losses from missed days of work, and the costs of relocation caused by loss of power are more difficult to shoulder.

West Michigan has gained notoriety in recent years as a divided community that is among the nation's fastest-growing and most prosperous for its white citizens, but among the nation's worst for African Americans and other vulnerable populations. Likewise, it is a community that is reasonably prepared for climate change among certain populations, thanks to progressive investments and planning. Many projections suggest that its suburban and rural communities will actually benefit from it. Climate impacts will be conspicuously disproportionate in Grand Rapids.

This has been evident in the past year as extreme weather in both summer and winter created inconveniences for the affluent and life-threatening scenarios for the disadvantaged, including a documented hunger crisis due to the failure of emergency needs providers to plan for extreme storms and an increase in emergency room visits during a prolonged summer heat wave. School closures for winter cold and unseasonably late summer heat forced childcare issues that resulted in lost income.

Climate and Sustainability

Climate change sets the stage for paying closer attention to the tenets of sustainability as a means of organizing language and actions. Some say sustainability is about planning for the future with the intention of leaving things no worse, and maybe better, for those generations who follow us. With these thoughts in mind, anything that can be done to reduce the creation and release of gases that contribute to climate change needs to be considered. The name for the collective assortment of

these gases is commonly known as greenhouse gases (GHG). The four most common GHGs are carbon dioxide, methane, nitrous oxide, and fluorinated gases.

Sometimes the most powerful solutions are those that are the most simple. For example, designing the city to make getting around without using a motor can reduce the release of GHGs and create a higher quality of life for people who may not own vehicles.

Fundamentally, in a landscape dominated by cars and auto-related infrastructure, the pedestrian gets left out. Such social divisions cause social problems—problems that eventually show up as a torn social fabric with other costs. Therefore, any discussion of sustainability related to climate must ultimately include a holistic understanding of the way these issues connect with how communities are choosing to live together.

Climate—Current Actions

Higher-intensity rain events—defined as more than one inch of rain in any 24-hour period—are a predicted effect of climate change already impacting many communities. While the City of Grand Rapids has almost eliminated unwanted sewage discharges by investing in infrastructure and on-site storm-runoff-management initiatives, these sudden rains can still put local waterways at risk through toxic runoff and litter, concentrating pollution in the Grand River and its tributaries, including Plaster Creek. Staying alert to possible manifestations of environmental racism, it is important to note the demographics of the 49507 zip code through which much of Plaster Creek travels within the city limits. 49507 has a population that is 67% nonwhite as compared with Grand Rapids overall, which is 67% white.

In their natural state, rivers and streams are a community asset, and efforts to protect them can be an opportunity for education, water conservation, and community-building. The Rainy Day Project aims to achieve all of these outcomes through the joint effort of the West Michigan Environmental Action Council, the GreenHome Institute, the City of Grand Rapids, and critical neighborhood partners, including Baxter Neighborhood Association, Garfield Park Neighborhoods Association, Roosevelt Park Neighborhood Association, and Seeds of Promise. Reducing water bills and water heating costs for eligible low- to moderate-income homeowners and renters is only one of the program's focus areas, though every bit saved is important to these families and helps the environment. Likewise, rain barrels, rain gardens, swales, and native plant landscaping that keeps stormwater on-site will have a cumulative impact as these efforts expand.

An additional element in all of this from an EJ perspective are the pathways of community engagement created by local residents and neighborhood leaders working within these partnerships. For example, neighborhood residents know which basements, areas, and roads tend to flood after heavy rains, and this intelligence can then direct the placement of rain catchment strategies where they will do the most good. In the long term, improved conditions and a sense of community can lead to improved engagement in a virtuous cycle.

Of course, many businesses, organizations, and units of government are working on the issue of climate. Although this is but one example of the kind of community-driven approach to climate adaptation ongoing in the Grand Rapids area, it demonstrates the ongoing, dialogue-driven process needed for an inclusive and effective community response.

West Michigan Sustainable Business Forum now facilitates the West Michigan Climate

Adaptation Council, an evolution of its early efforts in partnership with Michigan Department of Health and Human Services Climate and Health Adaptation Program. The working group is helping the region better manage the potential impacts of climate change, by convening dialogue and collaboration among key stakeholders and leaders, such as Consumers Energy, Kent County Health Department, Spectrum Health, Grand Valley Metro Council, Grand Valley State University, and the City of Grand Rapids. Through this effort, the partnership will provide a resource for climate information available to local institutions, media, municipalities, and other stakeholders.

From an environmental justice perspective, strategies that have as their cornerstone genuine opportunities for impacted communities to participate in decision making at all levels of government is crucial. The goal is to ensure that the same neighborhoods that have endured other injustices don't get left out of the process of adapting to climate change and mitigating the negative consequences as much as possible.

Next Steps

On the climate front, in addition to completing its pilot projects in neighborhood outreach through the Rainy Day Project, WMEAC also plans to ramp up efforts to mobilize and educate citizens to become more effective advocates for renewable energy with state and local policymakers. The pace of change in human institutions is not keeping up with the emerging science on current and foreseeable climate impacts. Because of this, mobilizing citizen action and crafting policies that enable scaling up renewable energy solutions will likely remain a priority for some time.

In addition, WMEAC plans to revisit the environmental education programs the

organization brings to area schools to include environmental justice as a key strand of instruction. This will require age-appropriate content development, and will be one of the priorities of WMEAC's incoming environmental education director.

We want also to mention the award to the City of Grand Rapids for its Zero Cities Project. In November 2018, the U.S. Green Building Council's West Michigan Chapter Chapter (USGBC-WM) gave the City the 2030 Leadership Award, which recognizes a dedicated leader that exemplifies 2030 carbon reduction targets through its measured actions and vision, according to USGBC-WM. An important note about the Zero Cities Project is that program guidelines require an equity policy analysis be conducted before inclusion of energy and carbon reduction suggestions.

While there is a need to better understand the impact climate change will have on EJ communities of Grand Rapids, efforts should be made to ensure that problems of climate adaptation are defined by the residents of EJ communities and the solutions are found to minimize the impacts such changes will produce. ■

APPENDIX

PRINCIPLES OF ENVIRONMENTAL JUSTICE

Delegates to the First National People of Color Environmental Leadership Summit held on October 24-27, 1991, in Washington DC, drafted and adopted 17 principles of Environmental Justice. Since then, The Principles have served as a defining document for the growing grassroots movement for environmental justice.

PREAMBLE

WE, THE PEOPLE OF COLOR, gathered together at this multinational People of Color Environmental Leadership Summit, to begin to build a national and international movement of all peoples of color to fight the destruction and taking of our lands and communities, do hereby re-establish our spiritual interdependence to the sacredness of our Mother Earth; to respect and celebrate each of our cultures, languages and beliefs about the natural world and our roles in healing ourselves; to ensure environmental justice; to promote economic alternatives which would contribute to the development of environmentally safe livelihoods; and, to secure our political, economic and cultural liberation that has been denied for over 500 years of colonization and oppression, resulting in the poisoning of our communities and land and the genocide of our peoples, do affirm and adopt these Principles of Environmental Justice:

1. Environmental Justice affirms the sacredness of Mother Earth, ecological unity and the interdependence of all species, and the right to be free from ecological destruction.

2. Environmental Justice demands that public policy be based on mutual respect and justice for all peoples, free from any form of discrimination or bias.

3. Environmental Justice mandates the right to ethical, balanced and responsible uses of land and renewable resources in the interest of a sustainable planet for humans and other living things.

4. Environmental Justice calls for universal protection from nuclear testing, extraction, production and disposal of toxic/hazardous wastes and poisons and nuclear testing that threaten the fundamental right to clean air, land, water, and food.

5. Environmental Justice affirms the fundamental right to political, economic, cultural and environmental self-determination of all peoples.

6. Environmental Justice demands the cessation of the production of all toxins, hazardous wastes, and radioactive materials, and that all past and current producers be held strictly accountable to the people for detoxification and the containment at the point of production.

7. Environmental Justice demands the right to participate as equal partners at every level of decision-making, including needs assessment, planning, implementation, enforcement and evaluation.

8. Environmental Justice affirms the right of all workers to a safe and healthy work environment without being forced to

choose between an unsafe livelihood and unemployment. It also affirms the right of those who work at home to be free from environmental hazards.

9. Environmental Justice protects the right of victims of environmental injustice to receive full compensation and reparations for damages as well as quality health care.

10. Environmental Justice considers governmental acts of environmental injustice a violation of international law, the Universal Declaration on Human Rights, and the United Nations Convention on Genocide.

11. Environmental Justice must recognize a special legal and natural relationship of Native Peoples to the U.S. government through treaties, agreements, compacts, and covenants affirming sovereignty and self-determination.

12. Environmental Justice affirms the need for urban and rural ecological policies to clean up and rebuild our cities and rural areas in balance with nature, honoring the cultural integrity of all our communities, and provided fair access for all to the full range of resources.

13. Environmental Justice calls for the strict enforcement of principles of informed consent, and a halt to the testing of experimental reproductive and medical procedures and vaccinations on people of color.

14. Environmental Justice opposes the destructive operations of multi-national corporations.

15. Environmental Justice opposes military occupation, repression and exploitation of lands, peoples and cultures, and other life forms.

16. Environmental Justice calls for the education of present and future generations which emphasizes social and environmental issues, based on our experience and an appreciation of our diverse cultural perspectives.

17. Environmental Justice requires that we, as individuals, make personal and consumer choices to consume as little of Mother Earth's resources and to produce as little waste as possible; and make the conscious decision to challenge and reprioritize our lifestyles to ensure the health of the natural world for present and future generations.

COLLABORATIVE PARTNERS

PARTICIPATING ORGANIZATIONS IN A SERIES OF CONVENINGS SINCE MAY 2016

American Red Cross

DETROITERS WORKING FOR ENVIRONMENTAL JUSTICE

friends of grand rapids parks

GRAND VALLEY STATE UNIVERSITY

the YMCA of Greater Grand Rapids

Groundswell

Healthy Homes Coalition of West Michigan

LINC UP

MICHIGAN LEAGUE OF CONSERVATION VOTERS | Ed. Fund

OUR KITCHEN TABLE

PLASTER CREEK STEWARDS

river NETWORK connecting people saving rivers

SEEDS of PROMISE

START GARDEN

SPECTRUM HEALTH

URBAN ROOTS

WEST MICHIGAN SUSTAINABLE BUSINESS FORUM

WMEAC

ACKNOWLEDGEMENTS

LINC UP thanks everyone who has played a role in making these ongoing conversations about health, environment, and race possible. We also want to make special mention of those who have been the primary participants in creating this report.

Our Primary Financial Supporter
The Wege Foundation

Additional Financial Supporters
Fred A. and Barbara M. Erb Family Foundation
The Kresge Foundation

Project Leadership
Lyonel Lagrone – LINC UP
Jeremy DeRoo – LINC UP
Wibke Heymach – Detroiters Working for Environmental Justice
Guy O. Williams – Detroiters Working for Environmental Justice

Writing and Design Team
Stephanie Adams – Friends of Grand Rapids Parks
Paul Haan – Healthy Homes Coalition of West Michigan
Anne Marie Hertl – Michigan League of Conservation Voters
Wibke Heymach – Detroiters Working for Environmental Justice
Annaliese Jakimides – G.O. Williams & Associates
LaKiya Jenkins – LINC UP
Ron Jimmerson – Seeds of Promise
Lisa Oliver King – Our Kitchen Table
Linette Lao – Invisible Engines
Talor Musil– Healthy Homes Coalition of West Michigan
Carissa Patron – West Michigan Sustainable Business Forum
Darel Ross – Start Garden
Dan Schoonmaker – West Michigan Sustainable Business Forum
Estelle Slootmaker – Our Kitchen Table
Clifford D. Scholz – 2 Green Hands
Guy O. Williams – Detroiters Working for Environmental Justice
Bill Wood – West Michigan Environmental Action Council

Unless otherwise noted, images are courtesy of the project partners.

LINC UP™

1167 MADISON AVE. SE
GRAND RAPIDS, MI 49507
PH: 616.451.9140 | FAX: 616.451.0615
LINCUP.ORG

DETROITERS WORKING FOR
ENVIRONMENTAL JUSTICE

4750 WOODWARD AVE.
DETROIT, MI 48201
PH: 313.833.3935 | FAX: 313.833.3955
DETROITENVIRONMENTALJUSTICE.ORG