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## Environmental Justice Analysis of Drinking Water Policies in Michigan Cities

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Environmental Justice Analysis of  
Drinking Water Policies in Michigan

Annika Paldan

Western Michigan University

Undergraduate Honors Thesis

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## I. ABSTRACT

This thesis examined environmental justice aspects of drinking water policies in four cities across Michigan: Flint, Birmingham, St. Joseph, and Benton Harbor. An overview of the history of the environmental justice movement, environmental racism, and drinking water policies provided the basis for a four-part evaluative criterion to assess environmental justice components at the municipal level. These criteria include (1) housing tenure, (2) age, size, and service line composition of the infrastructure, (3) public participation in the policy process, and (4) emergency management of the city. Findings indicate that environmental justice has come a long way, with cities now incorporating components into municipal policies regarding drinking water. However, race, income, and housing tenure remain important indicators for environmental justice concerns despite the geographical proximity of the cities analyzed.

## I. INTRODUCTION

Water is an essential resource. As poet W.H. Auden once wrote, “Thousands have lived without love, not one without water.”<sup>1</sup> It is necessary for all life to exist, yet modern human and industrial activity has caused drinking water supplies to be at risk of contamination. Some 80% of the world’s wastewater from industrial and agricultural sources is released back into the environment without adequate treatment, contaminating drinking water supplies.<sup>2</sup> In the United States, more than 60% of Americans receive their drinking water from surface water sources. Still, approximately 46% of all rivers and streams, and 31% of all lakes, are polluted and unfit for swimming, fishing, or drinking.<sup>3</sup> In 2014, drinking water quality emerged as a pressing issue when contamination in Flint, Michigan, sparked international concern about broader socioeconomic and racial disparities in exposure to contamination. This thesis examined urban drinking water policies in Michigan through the lens of environmental justice. The distributive and procedural injustice revelations in local drinking water policies discovered in Flint provided the basis for understanding the environmental justice implications of such policies in other Michigan cities. This thesis investigated how other distributive and procedural characteristics of city policies contribute to providing safe drinking water to residents in four towns across Michigan: Birmingham, Flint, Benton Harbor, and St. Joseph.

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<sup>1</sup> W.H. Auden, “First Things First,” *The New Yorker*, March 1, 1957, <https://www.newyorker.com/magazine/1957/03/09/first-things-first>.

<sup>2</sup> *The United Nations World Water Development Report 2017: Wastewater: The Untapped Resource; Facts and Figures*, UNESCO World Water Assessment Programme, SC-2017/WS/6 (2017): 2, <https://unesdoc.unesco.org/ark:/48223/pf0000247553>.

<sup>3</sup> Cheryl Dieter and Molly Maupin, *Public Supply and Domestic Water Use in the United States, 2015*, United States Geological Survey Open-File Report 2017-1131 (2017): 3, doi: <https://doi.org/10.3133/ofr20171131>; *The National Rivers and Streams Assessment 2008-2009*, U.S. Environmental Protection Agency (2009): 1, [https://www.epa.gov/sites/default/files/2016-03/documents/fact\\_sheet\\_draft\\_variation\\_march\\_2016\\_revision.pdf](https://www.epa.gov/sites/default/files/2016-03/documents/fact_sheet_draft_variation_march_2016_revision.pdf); *The National Lakes Assessment (NLA) 2012*, U.S. Environmental Protection Agency (2012): 1, [https://www.epa.gov/sites/default/files/2016-03/documents/fact\\_sheet\\_draft\\_variation\\_march\\_2016\\_revision.pdf](https://www.epa.gov/sites/default/files/2016-03/documents/fact_sheet_draft_variation_march_2016_revision.pdf).

## II. BACKGROUND & SIGNIFICANCE

### A. HISTORY OF THE ENVIRONMENTAL JUSTICE MOVEMENT

The environmental justice movement is, at its core, a grassroots movement. Small protests against unwanted land uses have been going on for decades within communities across the country. In the 1960s, the campaign reached national attention in the small community of Warren County, North Carolina, in 1982.<sup>4</sup> The North Carolina state government decided the county would be ideal for a hazardous waste facility that would accept soil contaminated by Polychlorinated biphenyls (P.C.B.s). This waste resulted from the illegal dumping of P.C.B. waste along roadways. P.C.B.s can cause cancer, genetic defects, neurological deficits, and endocrine disruption, among other potential health effects.<sup>5</sup> Officials arrested more than 500 Warren County residents and supporters during six weeks of protests. Despite this, the state ultimately won the battle, and the company built the facility. However, the events of Warren County were not a failure as they drew mass media attention and ignited the flame of what is now a federally recognized Environmental Justice (E.J.) Movement.

The E.J. Movement works to eliminate environmental racism, a concept well-articulated in the 1987 report, *Toxic Waste and Race in the United States*.<sup>6</sup> The overall summary of this report indicated a correlation that is “virtually impossible” to be a result of chance between the location of commercial waste facilities and predominantly minority communities.<sup>7</sup> Race is crucial in understanding the growing issue of uncontrolled waste sites and the ever-increasing number of environmental concerns and resulting health effects across the country. Warren County and other

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<sup>4</sup> “55 Arrested in Protest at a Toxic Dump in Carolina,” *The New York Times*, September 16, 1982, <https://timesmachine.nytimes.com/timesmachine/1982/09/16/issue.html>.

<sup>5</sup> “Learn about Polychlorinated Biphenyls,” U.S. Environmental Protection Agency, accessed January 25, 2021, <https://www.epa.gov/pCBS/learn-about-polychlorinated-biphenyls-pCBS#healtheffects>.

<sup>6</sup> Commission for Racial Justice, “Toxic Wastes and Race in the United States,” United Church of Christ (1987).

<sup>7</sup> Commission for Racial Justice, 23.

environmentally driven protests energized the existing civil rights movement by adopting environmental quality as another factor in pursuing justice. Emboldened by the findings of the *Toxic Waste and Race* report and emerging literature on environmental racism, the E.J. Movement continually gained traction and credibility, spreading to traditionally white environmental organizations.<sup>8</sup>

In 1990, the University of Michigan held the first official E.J. conference, titled “The Michigan Conference on Race and the Incidence of Environmental Hazards.” This event helped bring academic credibility to the E.J. movement and bring it into the vernacular of high-level institutions. The Environmental Protection Agency (E.P.A.) acknowledges this conference as the catalyst for the agency’s initial involvement in the movement. Four years later, President Clinton’s 1994 Executive Order “Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations” cemented the involvement of the E.P.A. into the E.J. movement.<sup>9</sup> This order directed federal agencies to develop environmental justice strategies that address their programs’ human health and environmental effects on minority and low-income groups. In addition, Clinton created a special E.P.A. task force solely devoted to matters of environmental justice.<sup>10</sup>

Clinton’s Executive Order created an official definition for E.J. The E.P.A. defines environmental justice as the “fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and

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<sup>8</sup> Paul Mohai, “Environmental Justice and the Flint Water Crisis,” *Michigan Sociological Review*, no. 32 (2018): 2-3, <https://www.jstor.org/stable/10.2307/26528595>.

<sup>9</sup> “Executive Order 12898 of February 11, 1994, Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations,” *Federal Register* 59, no. 32, title 3 (February 16, 1994), <https://www.archives.gov/files/federal-register/executive-orders/pdf/12898.pdf>.

<sup>10</sup> “The Origins of EPA,” U.S. Environmental Protection Agency, accessed January 26, 2021, <https://www.epa.gov/history/origins-epa>.

enforcement of environmental laws, regulations, and policies.”<sup>11</sup> The E.P.A.’s definition includes the two avenues of environmental justice: distributive justice and procedural justice.

As defined by Johannsson-Stenman and Konow, distributive justice “concerns moral preferences over the distribution of social and economic benefits and burdens among a group of individuals.”<sup>12</sup> When the E.P.A. creates an environmental regulation or local governments discuss the siting of hazards, “attention is rarely given to the social distribution of environmental outcomes in impact assessment processes.”<sup>13</sup> To address this concern, the E.P.A. further defines their use of fair treatment to indicate that “no group of people should bear the disproportionate share of negative environmental consequences resulting from industrial, governmental and commercial operations or policies.”<sup>14</sup> Distributive justice issues in the United States correlate to issues of race and systemic racism. Examples of this are historical discriminatory housing policies, the concentration of poverty in urban neighborhoods, and the disproportionate share of environmental harms by non-white communities. Despite the growing empirical evidence of environmental injustice along racial and socioeconomic lines, highlighting higher rates of cancer, asthma, and mortality among poor people and communities of color, especially children, these vulnerable populations continue to bear the disproportionate burden of environmental harms.<sup>15</sup>

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<sup>11</sup> “Learn About Environmental Justice,” U.S. Environmental Protection Agency, accessed January 26, 2021, <https://www.epa.gov/environmentaljustice/learn-about-environmental-justice>.

<sup>12</sup> Olof Johannsson-Stenman and James Konow, “Fairness Concerns in Environmental Economics – Do They Really Matter and If So How?,” *Working Papers in Economics*, no. 398 (2009): 7, [https://gupea.ub.gu.se/bitstream/2077/21425/3/gupea\\_2077\\_21425\\_3.pdf](https://gupea.ub.gu.se/bitstream/2077/21425/3/gupea_2077_21425_3.pdf).

<sup>13</sup> Gordon Walker, “Environmental justice, impact assessment and the politics of knowledge: The implications of assessing the social distribution of environmental outcomes,” *Environmental Impact Assessment Review* 30, no. 5 (2010): 317, doi: <https://doi.org/10.1016/j.eiar.2010.04.005>.

<sup>14</sup> ““Learn About Environmental Justice,” U.S. Environmental Protection Agency.

<sup>15</sup> “Environmental Health Disparities and Environmental Justice,” National Institute of Environmental Health Studies, updated July 16, 2021, <https://www.niehs.nih.gov/research/supported/translational/justice/index.cfm>.

Procedural justice is the “participation” aspect of the policy-making process. The E.P.A. refers to this concept as the “meaningful involvement” of persons, indicating that to effectively involve a community, those potentially affected must have an opportunity to participate in the decision-making process. To facilitate this, agencies, or other appropriate decision-makers, must seek out and facilitate the community’s involvement, consider the community’s concerns, and be sure that the public’s contribution can influence the final decision.<sup>16</sup> In a 1995 report for the International Institute for Environment and Development, Pretty presents a seven-leveled typology for local participation with this type of process.<sup>17</sup> For example, this thesis focuses upon his sixth level, titled “interactive participation”:

People participate in joint analysis, development of action plans, and the formation or strengthening of local institutions. Participation is seen as a right rather than just a means of achieving project goals. Formalized decision-making structures such as management councils involve local stakeholders and meet on a regular basis. Local people take control over local decisions and determine issues such as the use of local resources.<sup>18</sup>

There are many good examples of robust procedural justice. One example is frequent and well-publicized city commission meetings that discuss environmental matters, held during non-working hours. These meetings should provide ample time for public comment, and recordings of these meetings, or their minutes, should be posted on public websites or video-streaming services. In addition, informational pamphlets on environmental matters should be printed in languages other than English if there are non-English speaking residents. City-wide alerts and announcements for meetings should also be available in other languages if residents require them. Finally, procedural justice requires governmental units or decision-making structures to meaningfully seek out and

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<sup>16</sup> “Learn About Environmental Justice,” U.S. Environmental Protection Agency.

<sup>17</sup> Jules N. Pretty, “Participatory learning for sustainable agriculture,” *World Development* 23, no. 8 (1995): 1247-1263, doi: [https://doi.org/10.1016/0305-750X\(95\)00046-F](https://doi.org/10.1016/0305-750X(95)00046-F).

<sup>18</sup> Pretty, 1252.

include all stakeholders into the policy process, especially in matters pertaining to human health, such as drinking water quality.

## B. THEORIES OF ENVIRONMENTAL RACISM

In 1982, African American civil rights leader Benjamin Chavis coined the term “environmental racism.” Chavis was a key organizer during the Warren County protests. Under his leadership at the United Church of Christ, the organization published its *Toxic Waste and Race* report.<sup>19</sup> There are some overarching theories as to what causes environmental racism. The Harvard Environmental Law Review summarizes these theories into four categories: (1) the low political power of affected communities, (2) intentional discrimination in siting, (3) unintentional contribution of regulatory principles, and (4) unequal enforcement of environmental regulations.<sup>20</sup>

A community’s political capital plays a direct role in successfully opposing environmental harm or creating environmentally forward local policies. Political power is a community’s ability to participate in and directly influence the political process; thus, a community with low political power will have less of an impact on this process. Some characteristics make some communities less politically influential than others, such as a lower median income, a high percentage of residents who do not have a high school diploma or are not employed, and low voter turn-out.<sup>21</sup> In addition, low political power easily leads to procedural justice concerns. There is less community knowledge of the process and how to be involved with low political power, thus less interplay and engagement between residents and their local government.

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<sup>19</sup> “A Movement is Born: Environmental Justice and the UCC,” United Church of Christ, accessed February 10, 2021, [https://www.ucc.org/what-we-do/justice-local-church-ministries/justice/faithful-action-ministries/environmental-justice/a\\_movement\\_is\\_born\\_environmental\\_justice\\_and\\_the\\_ucc/](https://www.ucc.org/what-we-do/justice-local-church-ministries/justice/faithful-action-ministries/environmental-justice/a_movement_is_born_environmental_justice_and_the_ucc/).

<sup>20</sup> Shea Diaz, “[ELRS] Getting to the Root of Environmental Justice,” Harvard Environmental Law Review, February 1, 2016, [https://harvardelr.com/2016/02/01/elrs-getting-to-the-root-of-environmental-injustice/#\\_ftn13](https://harvardelr.com/2016/02/01/elrs-getting-to-the-root-of-environmental-injustice/#_ftn13).

<sup>21</sup> Diaz, “[ELRS] Getting to the Root of Environmental Justice.”

Building off this theory is the intentional discrimination theory, which suggests that corporations actively target these communities because of their lack of political power, money, and other resources to resist environmental hazards. The existence of the *Political Difficulties Facing Waste-to-Energy Conversion Plant Siting*, a document produced for the California Waste Management Board in 1984 by consulting firm, Cerrell Associates, now referred to as the “Cerrell Report,” supports this theory.<sup>22</sup> This report articulates that middle- and higher-income groups have more resources to resist environmental hazards, so waste managers should target lower-income communities that lack these resources as they will likely be more successful.<sup>23</sup> In addition, higher-income groups have more political power and political knowledge of the process. They thus are better able to fight the siting of environmental harms, a procedural justice component. With more environmental harms placed in vulnerable communities, exposing them at a disproportionate rate to their effects, this becomes a distributive justice issue as well.

The third theory that the Harvard Environmental Law Review puts forth is the unintentional contribution towards environmental harms and injustices caused by ‘neutral’ regulatory policies.

Bugden (2020) describes this concept as a facet of color-blind environmental racism:

Color-blind environmental racism is rooted in color-blind racial ideology, masking and legitimizing the racialized nature of environmental disadvantage through the belief that the United States is a post-racial society... color-blind racial ideology reinforces environmental racism by denying the legitimacy of environmental justice claims, reducing belief in the structural racism that produces them, and lowering support for the types of policy necessary to address environmental inequalities.<sup>24</sup>

These supposedly ‘neutral’ policies then contribute to both distributive and procedural injustices against marginalized communities. For example, suppose a hazard is more prevalent in vulnerable

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<sup>22</sup> J. Stephen Powell, “Political Difficulties Facing Waste-to-Energy Conversion Plant Siting,” Cerrell Associates (1984), available at <http://www.ejnet.org/cj/cerrell.pdf>.

<sup>23</sup> Powell, 26.

<sup>24</sup> Dylan Bugden, “Public Opinion and the Politics of Environmental Inequality: The Problem of Color-Blind Environmental Racism,” Washington State University (September 15, 2020): 3, doi: [10.31235/osf.io/hg69c](https://doi.org/10.31235/osf.io/hg69c).

communities, such as polluted air or poor water quality. In that case, the ‘neutral’ policies that regulate those harms unintentionally contribute to environmental racism. For example, a majority white congress passed the Safe Drinking Water Act of 1974 (S.D.W.A.) and did not include specific anti-racist language. As a result, Environmental Protection Agency (E.P.A.) data from 2016-2019 reveals that water systems that constantly violate the S.D.W.A. are 40% more likely to serve people of color and take longer to come back into compliance among communities of color.<sup>25</sup> Neutral policies created in a structurally racist system can create further barriers to engagement with the political process for marginalized communities and expose them to a greater distribution of the harms.

The final theory put forth states that environmental injustices stem from the unequal enforcement of environmental regulations. Though the E.P.A. issues regulations that are to be observed and enforced across the states equally, they are not disproportionately exposing vulnerable populations to the harms caused. In one 1992 study conducted on the quality of the E.P.A.’s enforcement of regulatory violations, it was noted that the agency discriminated against minority communities, “with lower average penalties in federal enforcement of the Clean Water Act, by 28 percent, the Clean Air Act, by 8 percent, and the Safe Drinking Water Act, by 15 percent.”<sup>26</sup> Another study highlights this trend through the notion of compliance bias or assuming that a polluter is compliant with an environmental standard when they are not. This study found that the likelihood of facility inspection increases with the percentage of employment in the surrounding population, as higher rates of employment make a facility more “visible,” with visibility measured as

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<sup>25</sup> Daphne Ewing-Chow, “A Recent Survey Casts New Light On America’s Racial Divide In Clean Tap Water Access,” *Forbes*, February 28, 2021, available at <https://www.forbes.com/sites/daphneewingchow/2021/02/28/a-recent-survey-casts-new-light-on-americas-racial-and-water-divide/?sh=79ce373421a6>.

<sup>26</sup> Marianne Lavell and Marcia Coyle, “Unequal Protection: The Racial Divide in Environmental Law; A Special Investigation,” *The New Law Journal* 15, no. 3 (September 21, 1992): 4, available at <https://www.ejnet.org/ej/nlj.pdf>.

a facility's importance to the local labor market.<sup>27</sup> As mentioned above, areas of low employment tend to have higher poverty rates and lower amounts of political power, supporting the claim that environmental injustices stem from unequal enforcement of environmental regulations in disadvantaged communities. As researcher Bullard notes, "the most polluted urban communities are those with crumbling infrastructure, ongoing economic disinvestment, a high poverty rate, and an overloaded health care system."<sup>28</sup>

### C. ENVIRONMENTAL RACISM & WATER

The E.P.A. regulates drinking water quality through the S.D.W.A. of 1974.<sup>29</sup> The S.D.W.A. operates through a cooperative federalism structure, which splits the responsibility of regulation between the federal and state governments. The federal government, through the E.P.A., sets the maximum contaminant levels (M.C.L.s) allowed in drinking water systems for over 90 potentially harmful microorganisms, organic and inorganic chemicals, metals, and radionuclides.<sup>30</sup> The E.P.A. regulates a substance if it might have adverse health effects, there is a substantial likelihood that the contaminant will occur in public water systems at a high enough level to be a concern to public health, and that its regulation will reduce this potential risk. There are three types of public water systems: community water systems (C.W.S.), non-transient non-community water systems (NTNCWS), and transient non-community water systems (T.N.C.W.S.). C.W.S. is the only category of public water systems that serve a community year-round consistently, and for that reason, it will

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<sup>27</sup> Catherine Dion, Paul Lanoie, and Benoit Laplante, "Monitoring of Pollution Regulation: Do Local Conditions Matter?" *Journal of Regulatory Economics* 13, no. 1 (February 1998): 6, doi: [10.1023/A:1007970031068](https://doi.org/10.1023/A:1007970031068).

<sup>28</sup> Robert D. Bullard, "Anatomy of Environmental Racism and the Environmental Justice Movement," in *Confronting Environmental Racism: Voices from the Grassroots* (Boston: South End Press, 1993): 17.

<sup>29</sup> U.S. Library of Congress, Congressional Research Service, *Safe Drinking Water Act (SDWA): A Summary of the Act and Its Major Requirements*, by Elena H. Humpreys and Mary Tienmann, RL31243 (July 1, 2021), <https://sgp.fas.org/crs/misc/RL31243.pdf>.

<sup>30</sup> "Safe Drinking Water Act (SDWA)," U.S. Environmental Protection Agency, last updated July 2, 2021, <https://www.epa.gov/sdwa>.

be the focus of this analysis.<sup>31</sup> The maximum contaminant levels set should fall well below the amount considered hazardous by the best available science. The responsibility is then placed upon state governments, municipal water systems, and private companies to uphold the standard after determining a limit.

Through the cooperative federalism structure, states may apply for “primacy,” which allows the state government to be responsible for implementing the S.D.W.A. within their territory so long as they can prove that they will meet the minimum standards set by the S.D.W.A., if not stricter ones.<sup>32</sup> Among other responsibilities, primacy status requires states to conduct sanitary surveys and on-site inspections of the community water systems in the state. States also ensure the systems are properly testing for contaminants, oversee system modifications, and act against systems that fail to meet the established water quality standards.<sup>33</sup> Currently, 49 states have the primacy power of their water supplies. The only exclusions are the District of Columbia and Wyoming.<sup>34</sup> County and city governments oversee community water systems, and they appropriate money for the cost of the system and necessary updates. Thus, municipalities are the most impacted by federal policies.

There are several critiques of the standardized regulatory approach of the S.D.W.A. Each system must test for all federally listed contaminants, even if they do not occur in their area and will not pose a risk to the public. This can cost-burden systems that are already working with tight budgets. On the converse, a standardized regulation may ignore potentially hazardous pollutants

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<sup>31</sup> “Information about Public Water Systems,” Drinking Water Requirements for States and Public Water Systems, U.S. Environmental Protection Agency, last updated March 18, 2021, <https://www.epa.gov/dwreginfo/information-about-public-water-systems>.

<sup>32</sup> Safe Drinking Water Act of 1974, 42 U.S.C. §300f et seq., 40 CFR §§142.10-142.19 (1976), <https://www.law.cornell.edu/cfr/text/40/part-142>.

<sup>33</sup> Safe Drinking Water Act, 40 CFR §§142.10-142.19.

<sup>34</sup> “Public Water System Supervision (PWSS) Grant Program,” Drinking Water Requirements for States and Public Water Systems, U.S. Environmental Protection Agency, last updated April 9, 2021, <https://www.epa.gov/dwreginfo/public-water-system-supervision-pwss-grant-program>.

found in a local water system but are not one of the 90 regulated contaminants. Concerned municipal systems must front the cost of monitoring these additional contaminants themselves. This is especially concerning for low-income areas with more constricted budgets.

Despite its implementation in 1974, recent estimates on the effectiveness of the S.D.W.A. reveal that between 1982 and 2015, 3 to 10% of the United States water systems have violated federal Safe Drinking Water Act health standards.<sup>35</sup> Though this may not seem a significant percentage, in 2015 alone, that constituted 21 million Americans who had exposure to unsafe drinking water.<sup>36</sup> Another study reported that this level could be as high as 63 million Americans per year.<sup>37</sup> Additionally, a 2017 study conducted in collaboration with Texas A&M University found that the probability of drinking water violations occurring is significantly greater in communities that are low-income and predominantly non-white.<sup>38</sup>

#### D. DRINKING WATER IN MICHIGAN

As the current poster child and epicenter for drinking water reform, Flint, Michigan presents an interesting case study for environmental justice. In 2014, approximately 60 miles northwest of Detroit, Flint made international headlines when residents discovered high levels of lead in their water after a recent water source switch. After decades of decline, disinvestment, and industry loss, Flint entered state-mandated control from 2002 until 2004.<sup>39</sup> The city fought this decision in court but lost three months later. As a result of the takeover, the state-appointed an emergency manager to

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<sup>35</sup> Maura Allaire, Haowei Wu, and Upmanu Lall, “National Trends in Drinking Water Quality Violations,” *Proceedings of the National Academy of Sciences of the United States of America* 115, no. 9 (February 12, 2018): 2078, doi: <https://doi.org/10.1073/pnas.1719805115>.

<sup>36</sup> Allaire, Wu, and Lall, 2079.

<sup>37</sup> Agnel Philip et al., “Millions consumed potentially unsafe water in the last 10 years,” in *Troubled Water*, News21, August 14, 2017, <https://troubledwater.news21.com/millions-consumed-potentially-unsafe-water-in-the-last-10-years/>.

<sup>38</sup> David Switzer and Manuel P. Teodoro, “Class, Race, Ethnicity, and Justice in Safe Drinking Water Compliance,” *Social Science Quarterly* 99, no. 2 (March 23, 2017): 524-535, doi: <https://doi.org/10.1111/ssqu.12397>.

<sup>39</sup> Beata Mostafavi, “What happened last time? A look back at Flint’s 2002 state takeover,” *MLive*, updated January 21, 2019, [https://www.mlive.com/news/flint/2011/11/what\\_happened\\_last\\_time\\_a\\_look.html](https://www.mlive.com/news/flint/2011/11/what_happened_last_time_a_look.html).

cut the city's spending bill and bring it out of financial emergency. As a result, employees of the cities and union members took pay cuts or lost their jobs, sewers and roads received \$1 million for infrastructure improvements, and household water bills rose 11%.<sup>40</sup>

The takeover concluded in 2004, but state oversight remained until 2006. In 2011, Michigan's State Financial Review Ream declared the city under financial emergency again and suggested that Flint goes under the control of another emergency manager. In 2013, under emergency management, the city of Flint switched from the Detroit Water and Sewage Department (D.W.S.D.), which they had been connected to since the 1960s, to the Karegnondi Water Authority, which began construction in the same year. The new project would save the city \$200 million over 25 years.<sup>41</sup> In the interim, the city used the Flint River for its water supply. The Flint River was once the city's main water source until the 1960s when they switched to the D.W.S.D. In 2014, when the switch officially happened, officials decided not to treat the water to inhibit corrosion immediately. Over the next year and a half, Flint residents experienced high lead levels from the corrosion of the old pipes caused by the untreated water and E. coli, total coliform bacteria, and total trihalomethanes (or T.T.H.M.). This disinfection byproduct can be carcinogenic. The levels of lead and T.T.H.M. in the water put the city in violation of the S.D.W.A. Despite growing concern and research on the levels of lead exposure in the residents of Flint, the city did not switch their water supply back to the D.W.S.D. until October of 2015.

Despite national attention and the state government's intervention the city has received over the last decade, Flint still has one of the highest poverty rates in the nation. According to 2016 U.S. Census Bureau data, Flint has the highest poverty rate among U.S. cities, with 65,000 residents with

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<sup>40</sup> Mostafavi, "What happened last time?"

<sup>41</sup> Merrit Kennedy, "Lead-Laced Water In Flint: A Step-By-Step Look At The Makings Of A Crisis," *National Public Radio*, April 20, 2016, <https://www.npr.org/sections/thetwo-way/2016/04/20/465545378/lead-laced-water-in-flint-a-step-by-step-look-at-the-makings-of-a-crisis>.

45% of residents living below the poverty line.<sup>42</sup> In addition, it also has one of the highest rates of childhood poverty at 58%. The national rate is only 18%.<sup>43</sup>

In response to the Flint water crisis, the Michigan Legislature passed Lead and Copper Rule revisions in 2018. These revisions enforced a stricter Action Level on lead from 15 ppb to 12 ppb by January 1, 2025, increased sampling requirements, more frequent testing for water systems that exceed the Action Level, or use corrosion control treatments. Water supplies are also required to replace all lead service lines incrementally each year, with an annual replacement rate of 5%.<sup>44</sup>

Unfortunately, Flint, Michigan is not an isolated incident. In a 2016 to 2019 collaborative study of nationwide violations of the S.D.W.A., race, ethnicity, and language were cited as the strongest indicators of inadequate or slow enforcement.<sup>45</sup> Flint was an example of the cumulative effects that housing segregation, community disinvestment, and discriminatory political processes and policies can have on the livelihood and public health of the communities living within its borders. Due to the widespread attention and spotlight that Flint has shown upon the need for drinking water and infrastructure reform at the city level, many reports, analyses, and further studies attempt to explain the core of environmental racism and change the discourse of environmental justice going forward.

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<sup>42</sup> Leonidas Murembya, PhD and Eric Guthrie, *Demographic and Labor Market Profile: City of Flint*, Department of Technology, Management and Budget (April 2016): 13, [https://milmi.org/docs/publications/Flint\\_City\\_Demographic\\_and\\_Labor\\_Mkt\\_Profile.pdf](https://milmi.org/docs/publications/Flint_City_Demographic_and_Labor_Mkt_Profile.pdf).

<sup>43</sup> “An Urgent and Preventable Crisis,” Children’s Defense Fund, accessed February 15, 2021, <https://www.childrensdefense.org/policy/resources/soac-2020-child-poverty/>.

<sup>44</sup> *What Changed With Michigan’s 2018 Lead and Copper Rule?*, University of Michigan and Charles Stewart Mott Foundation, April 19, 2019, <http://graham.umich.edu/media/files/Lead-and-Copper-Rule-Info-Brochure-LTR-042319.pdf>.

<sup>45</sup> Kristi Pullen Fedinick and Steve Taylor, *Watered Down Justice*, National Resource Defense Council, March 27, 2020, <https://www.nrdc.org/resources/watered-down-justice>.

### III. RESEARCH DESIGN

#### A. METHODS

The central tenant of this analysis was to understand how distributive and procedural characteristics of a city contributed to its ability to provide safe drinking water to its residents. Compliance with the federal Safe Drinking Water Act of 1974 and Michigan’s Lead and Copper Rule determined drinking water quality. Compliance with these regulations provided a baseline standard for E.J. at the municipal level. From there, four evaluative criteria worked to understand the status of E.J. in each city. These criteria were: (1) housing tenure, (2) infrastructure capability, (3) public participation, and (4) emergency management. Housing tenure and infrastructure capability examined the distributive justice components of E.J. They convey the geographic concentration of issues related to water quality and access to clean water. Public participation and emergency management explored the procedural justice components of E.J. and how government proceedings influenced the public’s meaningful involvement in the policy process.

Housing tenure addresses homeownership versus home renter rates and the demographics of owners and renters in each city. The American Community Survey from 2019 and the 2020 U.S. Census provided data on housing tenure. Infrastructure capability examines the age, size, and service line composition of each city’s distribution system. Consumer Confidence Reports (C.C.R.), municipal websites, phone calls with municipal water plant supervisors and the Distribution System Materials Inventory (D.S.M.I.), a self-reported inventory of service line composition in each city that is a part of Michigan’s Lead and Copper Rule new 2018 mandates, supplied data on the infrastructure of each city. Consumer Confidence Reports also referred to as water quality reports, are provided by community water suppliers and give customers information on the quality of their drinking water annually. Public participation considered three key factors of “interactive participation” from Pretty: the availability of drinking water quality information, public access to

decision-making structures, and government transparency. Data in this section came from municipal websites, C.C.R., and phone calls with water plant supervisors. Finally, the emergency management section sought to understand the influence of state control on E.J. during an economic emergency in a city. This was a key aspect of the literature following the Flint Water Crisis. Information from local news stories, municipal websites, and Michigan's Department of Treasury database for emergency management presented a detailed history of state financial intervention in the applicable cities. Data gathered from these sources was then compared with theories on environmental racism and analyzed to understand a city's ability to provide safe drinking water to its residents through its procedural and distributive structures.

Due to the restraints of COVID-19, this study used only online-available resources. Using only online resources was representative of what information was available to the public on their water quality during a global pandemic and the growing trend of Americans receiving their news and information from online resources. Approximately 77% of U.S. adults stated that the Internet was important to get their local news information.<sup>46</sup> Data was also restricted to cities as the geographical unit of analysis due to the cooperative federalism structure of the S.D.W.A. of 1974 and the cost-responsibility it places on municipalities to fund their drinking water systems.

## B. CITY SELECTION & BACKGROUND

This study utilized the P.E.W. Research Center median income categories for Michigan of lower (\$26,290), middle (\$79,042), and upper (\$183,375).<sup>47</sup> From this baseline, cities were then categorized based on their main drinking water source. Community water systems (C.W.S.) are the

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<sup>46</sup> A.W. Geiger, "Key findings about the online news landscape in America," Pew Research Center, September 11, 2019, <https://www.pewresearch.org/fact-tank/2019/09/11/key-findings-about-the-online-news-landscape-in-america/>.

<sup>47</sup> Jake Frankenfield, "Which Income Class Are You?" Investopedia, updated April 25, 2021, <https://www.investopedia.com/financial-edge/0912/which-income-class-are-you.aspx>.

infrastructure that supplies water to the same population year-round.<sup>48</sup> C.W.S. can extract their supplies through a few methods, but this analysis only included C.W.S. that rely on surface water extraction methods. Cities in each income bracket that relied on surface water extraction were then selected based upon their predominant racial demographics and water extraction source from one of the five Great Lakes, which resulted in analysis of four cities: Birmingham, Flint, Benton Harbor, and St. Joseph. Two of the cities, Birmingham and St. Joseph, have predominantly white populations. The other two cities, Flint and Benton Harbor, have predominantly Black or African American populations.

Birmingham is a suburb city located approximately 20 miles north of downtown Detroit in the southeastern portion of Oakland County, one of the wealthiest counties in the country. According to the city's website, Birmingham's downtown dates to the 1830s. However, the city was not incorporated until 1933 and experienced a surge in residents during the urban sprawl and white flight out of Detroit in the 1950s.<sup>49</sup> Birmingham is a pedestrian-friendly city with a large amount of retail space and over 230 acres of parks. Birmingham falls into the upper-income bracket and receives its drinking water supply through surface water extraction of Lake Huron and the Detroit River. Birmingham obtains this water through the Great Lakes Water Authority's Northeast Water Treatment Plant. In 2019, Birmingham had a population of 21,389, and its median household income was \$122,804. Birmingham's population is majority white, at 79.1%, 7.5% is Asian, 7.2% Black or African American, and 2.6% Hispanic or Latino.<sup>50</sup>

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<sup>48</sup> "Information about Public Water Systems," U.S. Environmental Protection Agency.

<sup>49</sup> "The History of Birmingham," City of Birmingham, accessed March 15, 2021, <https://www.bhamgov.org/history/history.php>.

<sup>50</sup> U.S. Census Bureau, "Population estimates for Birmingham city, Michigan; Flint city, Michigan; Benton Harbor city, Michigan; St. Joseph city, Michigan; United States," Quickfacts, July 1, 2019, accessed January 6, 2022, <https://www.census.gov/quickfacts/fact/table/stjosephcitymichigan.birminghamcitymichigan.flintcitymichigan.bentonharborcitymichigan,US/PST045219>.

Flint, 49 miles north of Birmingham, was incorporated in 1855. Flint's history is best characterized by the presence of General Motors in the city after its founding in 1908 and the auto company's integral role as the city's economic base until the 1980s when G.M. left Flint.<sup>51</sup> Economic disinvestment began in the city in the 1940s when G.M. began investing in suburbs and rural areas, building eight new industrial complexes in the Flint metropolitan area. This move served a blow to the city's tax base. Additionally, it caused an exodus of white workers with the mobility to move to the suburbs, leaving behind Black and lower-income populations that could not afford to move or did not have the social ability to do so due to discriminatory housing practices. Flint, as a result, has suffered a trend of continued economic disinvestment, infrastructure failure, and unemployment. The city falls into the lower-income bracket with a median household income of \$28,834 and in 2019, had a population of 95,538. Flint's population is 54.1% Black or African American, 36.9% white, 4.5% Hispanic or Latino, and only .5% Asian.<sup>52</sup> Like Birmingham, Flint receives its drinking water supply from the Great Lakes Water Authority but receives treated water through the Lake Huron Water Treatment Plant. As a result, Birmingham and Flint provided an analysis on water equity within the same water system for two areas that are economically and demographically very diverse.

On the southwestern side of the state, St. Joseph sits at the mouth of the St. Joseph River and Lake Michigan. Incorporated as a city in 1891, St. Joseph has a rich history of trade and shipping between the major cities of Detroit, Chicago, and Mackinac.<sup>53</sup> In 1911, a small business that in 35 years would become the Whirlpool Corporation opened in the city. Today, Whirlpool

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<sup>51</sup> "The Birthplace of General Motors," General Motors, accessed February 12, 2021, <https://www.gm.com/our-stories/community/general-motors-birthplace.html>.

<sup>52</sup> U.S. Census Bureau, "Population Estimates."

<sup>53</sup> "A Little About St. Joseph," WNIT Michigan, accessed March 15, 2021, <https://www.wnit.org/ourtown/e/stjoseph.html>.

Corporation is one of the largest manufacturers of home appliances, and its presence is still strong in the community. St. Joseph has a population of 8,317, a median income of \$62,374, and a poverty rate of 7%. St. Joseph has a population that is 82.5% white, 6.4% Asian, 4.9% Black or African American, and 2.3% Hispanic or Latino.<sup>54</sup> The city extracts its drinking water supply via surface extraction from Lake Michigan. It processes it in the St. Joseph Water Treatment Plant. This city-owned facility services St. Joseph and some surrounding charter townships, making up the Water Services Joint Operating Board (W.S.J.O.B.).

Just across the St. Joseph River is the city of Benton Harbor. Benton Harbor was once a hotspot for industry and shipping in Michigan's fruit belt with access to the St. Joseph River and proximity to Lake Michigan. The mouth of the St. Joseph River was a key water route between the Great Lakes and the Mississippi River, making the area an important point of travel and commerce in early American history. Today, Benton Harbor and the other surrounding areas in Berrien County are one of the most productive fruit-growing climate regions globally.<sup>55</sup> Despite the continued viability of the land, much of the industry and employment positions in Benton Harbor long left the area, leaving behind economic depression, high rates of unemployment, and the deterioration of infrastructure. One industry that has remained is the Whirlpool Corporation, whose world headquarters is located just outside of the Benton Harbor city limits. Benton Harbor has a population of 9,741 and falls into the lower-income bracket with a median household income of \$21,916 and a staggering 45.4% poverty rate.<sup>56</sup> Benton Harbor has a predominantly Black or African American population that makes up 84.7% of the total population, with whites making up 9.5% and

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<sup>54</sup> U.S. Census Bureau, "Population Estimates."

<sup>55</sup> "Fruit Belt," Michigan History Center and Michigan Department of Natural Resources, accessed March 15, 2021, [https://iwr.msu.edu/kht/TrailSites/20\\_Fruit\\_Belt.html](https://iwr.msu.edu/kht/TrailSites/20_Fruit_Belt.html).

<sup>56</sup> U.S. Census Bureau, "Population Estimates."

Hispanics or Latinos at 5.4%.<sup>57</sup> Benton Harbor also extracts its drinking water supply through surface water extraction of Lake Michigan through the Benton Harbor Charter Township Water Plant. As a result, Benton Harbor provided a spatially and geographically different comparison juxtaposed with Flint. Both cities extract from surface water from two Great Lakes and have comparable income and racial demographics. Including Benton Harbor and St. Joseph compared city-level drinking water quality in areas of differing racial composition and economic levels. Unlike the Birmingham and Flint comparison, these two cities analyzed systems that extracted from the same source but through independent, city-owned water plants.

TABLE 1 – Demographics by City

Demographics by City - U.S. Census Bureau				
Demographics	Birmingham	Flint	Benton Harbor	St. Joseph
Population	21,389	95,538	9,741	8,317
Median Household Income	\$122,804	\$28,834	\$21,916	\$62,374
Poverty Rate	5.30%	38.80%	45.40%	7.00%
Black or African American	3.40%	54.10%	84.70%	4.90%
White	87.80%	36.90%	9.50%	82.50%
Asian	3.80%	0.50%	0.00%	4.90%
Hispanic or Latinx	2.50%	4.50%	5.40%	2.30%

Source: Data from U.S. Census Bureau, “Population estimates for Birmingham city, Michigan; Flint city, Michigan; Benton Harbor city, Michigan; St. Joseph city, Michigan; United States,” Quickfacts, July 1, 2019, accessed January 6, 2021, <https://www.census.gov/quickfacts/fact/table>.

<sup>57</sup> See note 56.

## IV. FINDINGS

### A. STATUS OF COMPLIANCE

First, overall compliance with federal and state drinking water regulations provided an overview of how the themes of environmental racism played out in the selected cities. Flint and Benton Harbor were in violation, with Benton Harbor having lead levels that far exceeded federal and state standards. On the other hand, Birmingham and St. Joseph complied with water quality testing far below the maximum contaminant levels allowed.

Flint's violation was a failure to accurately gather the correct number of viable samples to report on lead and copper levels per Michigan's Lead and Copper Rule, a continuation of a 2019 sampling violation. Per the specifications of the rule, cities must collect samples from at least 60 sites. Though Flint collected samples from 123 sites in 2019 for the July 2019 to December 2019 monitoring period and 116 sites for January 2020 to June 2020 monitoring period, the E.P.A. validated only 49 samples from both periods. Despite this, both periods were still below the 90<sup>th</sup> percentile Action Level (A.L.) for lead at four parts per billion (ppb). Therefore, Flint must submit at least 60 validated samples for the next six-month monitoring period to return to compliance.

For the 2020 monitoring period, Benton Harbor received 6 S.D.W.A. violations. Since 2015, sites in Benton Harbor have tested above the Action Level (A.L.) for lead. In 2015, two sites tested above the A.L., and these levels were reported again in more sites in September 2018, 12 sites in June 2019, 10 sites in December 2019, 9 sites in June 2020 and 11 sites December 2020. Unfortunately, the specific number of sites above A.L. for lead in 2018 doesn't exist publicly because the C.C.R. is not posted publicly on the Benton Harbor municipal website.

In addition, Benton Harbor failed to provide the necessary Public Education materials mandated by the S.D.W.A. about the Action Level Exceedance to all consumers in the city following the two consecutive exceedances in December 2019 and June 2020. The city also failed to collect

proper samples for regulated substances Synthetic Organic Chemicals for two monitoring periods and P.F.A.S. for one monitoring period. The other two violations stem from treatment equipment failure of the chlorine monitoring system, not correctly reported to E.G.L.E., and a lack of aluminum sulfate. This essential treatment chemical eliminated microbial contamination in water supplies and triggered a precautionary boil water advisory. The city has since returned to compliance on these last 2twomonitoring discrepancies.

## B. DISTRIBUTIVE FACTORS

### i. HOUSING TENURE

Housing tenure exacerbates the distribution of environmental harms. Cities in this study with high homeownership rates (see Table 2) appear to have had fewer drinking water violations, both historically and in the 2020 water quality data. For example, 66.2% of the population owns their home in Birmingham, 93.3% are white. Despite making up 7.2% of the city's total population, African American or Black individuals only account for 1.1% of homeowners, but 11.2% of total home renters. A similar disparity occurs in the Hispanic or Latinx demographic, consisting of 2.6% of the total population in Birmingham, at only .95% of homeowners and 4.9% of all home renters. This trend is replicated again in St. Joseph, where the homeownership rate is approximately 52%, of which 92.6% are white and with a higher concentration of non-whites renting their homes rather than owning them.

Flint and Benton Harbor have lower rates of homeownership overall. In Flint, 43% of the population are homeowners and 32% are renters. Of those who own homes, the percentage of white to Black or African American homeowners is similar, 47.1% to 46.6% respectively, despite white people making up only 36.9% of the total population. Flint, whose population is 54.1% Black, has a higher ratio of Black renters at 62.9% than Black homeowners, at 46.6%.

Benton Harbor is the only city in this analysis with a higher rate of total renters, at 54%, than homeowners, at 31%. As another predominately Black populated city, with 84.7% of the total population, only 77.2% of all homeowners are Black while 86.7% of all home renters are Black.

TABLE 2 – Housing Tenure by Ownership

Housing Tenure - American Community Survey (2019)				
Housing Tenure	Birmingham	Flint	Benton Harbor	St. Joseph
Owner Occupied	6,768	22,965	1,515	2,471
Renter Occupied	2,363	17,397	2,628	1,588
Vacant	1,099	13,682	717	707
Total Housing Units	10,230	54,044	4,860	4,766

Source: American Community Survey, “Selected Housing Characteristics, 2019: A.C.S. 1-Year Estimates Tables,” U.S. Census Bureau, 2019, Accessed January 8, 2021, <https://data.census.gov/cedsci/table?q=vacant&tid=ACSDP1Y2019.DP04>.

TABLE 3 – Housing Tenure by Race

Housing Tenure by Race - American Community Survey (2019)								
Housing Tenure	Birmingham		Flint		Benton Harbor		St. Joseph	
	Owner	Renter	Owner	Renter	Owner	Renter	Owner	Renter
African American or Black	1.10%	11.20%	46.60%	62.90%	77.20%	86.70%	0.50%	8.10%
Asian	4.50%	1.90%	N	N	0.00%	0.00%	3.20%	9.00%
Hispanic or Latinx	0.95%	4.90%	2.90%	3.60%	3.00%	4.90%	1.00%	6.20%
White	93.30%	79.60%	47.10%	31.30%	15.20%	7.50%	92.60%	75.40%

Source: Data from American Community Survey, “Demographic Characteristics for Occupied Housing Units, 2019: ACS 1-Year Estimates Tables,” U.S. Census Bureau, 2019, Accessed January 8, 2021, <https://data.census.gov/cedsci/table?q=tenure%20&tid=ACSST1Y2019.S2502>.

people living in majority-white cities. Meaning that white people in black cities are more likely to

own a home than black people are in white cities. In all four cities, however, Hispanic or Latinx individuals consistently had a higher ration of renters than owners, regardless of the overall majority population.

ii. INFRASTRUCTURE CAPABILITY

There does not appear to be a correlation between the age, size and service line composition of the infrastructure and its ability to provide clean drinking water. Lead service lines are also not more prevalent in vulnerable communities. St. Joseph has the oldest water treatment facility and distribution system of the four cities, with the original plant built-in 1931. It has undergone major expansion in 1957, 1974 with new building additions added in 2011 and 2020. Benton Harbor gained municipal control of its water system in the 1950s and underwent a major renovation in 2013 to address the aging and failure of its system. Birmingham does not have its own city-owned water treatment plant and relies on the Great Lakes Water Authority to provide treated water through its Northeast Treatment Plant. The Northeast Plant was originally constructed in 1956 to address the needs of suburban communities outside of Detroit. Flint’s water treatment plant was originally constructed in 1952 and underwent major renovations in 2014. However, as a direct result of the Flint Water Crisis in 2015, the city no longer directly treats its water. Instead, it relies on the Great Lakes Water Authority to extract, pump and treat the water through the Lake Huron Water Treatment Plant, which began full-scale operation in 1974. The city’s plant then treats the water with additional corrosion control treatments, per the needs of the local supply system. Additionally, due to the crisis, the city is undergoing a massive infrastructure update on its distribution system through loans provided by the state and federal governments.<sup>58</sup> Some of the upgrades included are a \$97

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<sup>58</sup> “Flint Drinking Water Contracts as of February 28, 2019,” Department of Environment, Great Lakes, & Energy, February 28, 2019, [https://www.michigan.gov/documents/flintwater/Flint\\_Contracts\\_022819\\_648033\\_7.pdf](https://www.michigan.gov/documents/flintwater/Flint_Contracts_022819_648033_7.pdf).

million initiative to replace all the lead service lines, \$11 million to upgrade household water meters, and another \$5.1 million to construct a new chemical feed building.<sup>59</sup>

According to preliminary D.S.M.I. estimates in Table 2, the size of the system and the presence of lead service lines do not appear to be a direct factor to environmental justice concerns in clean drinking water accessibility. Based on these self-reported city estimates, the city-systems ranked from smallest to largest are St. Joseph, Benton Harbor, Birmingham, and Flint. Flint currently estimates that no lead service lines remain in the distribution system despite having the largest system due to recent infrastructure upgrades. Unfortunately, information on lead levels before the 2014 switch to the Flint River, and subsequent infrastructure upgrades following the ensuing crisis, are not available because the city's 2013 C.C.R. doesn't exist in an electronic format. Thus, a comparison of lead levels before the city's switch and after completing the upgrades is unavailable for reference.

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<sup>59</sup> "Infrastructure Improvement Projects," City of Flint, accessed March 15, 2021, <https://www.cityofflint.com/ongoing-projects-summaries/>.

TABLE 4 – Service Line Type by City

Service Line Type by City - DSMI December 2020 Estimations				
Service Line Type	Birmingham	Flint	Benton Harbor	St. Joseph
Known Lead	731	0	824	106
Known Galvanized Previously Connected to Lead (GPCL)	0	0	571	5
Unknown - Likely Lead	0	0	1,616	2,457
Unknown - No Information	0	4,665	2,733	825
Unknown - Likely Not Lead	0	0	0	0
No Lead or GPCL	7,248	24,594	133	482
Total Service Lines	7,979	29,259	5,877	3,875

Source: Data from Department of Environmental, Great Lakes, & Energy, *Michigan Service Line Materials Estimates Preliminary Distribution System Materials Inventories*, updated December, 2020, accessed June 6, 2021, [https://www.michigan.gov/documents/egle/egle-dwehd-PDSMISummaryData\\_682673\\_7.pdf](https://www.michigan.gov/documents/egle/egle-dwehd-PDSMISummaryData_682673_7.pdf).

St. Joseph has the smallest distribution system with the greatest ratio of lead service lines remaining. As of December 2020, when the Preliminary Distribution System Material Inventory was last updated, 66% of St. Joseph’s service lines were known lead, known galvanized previously connected to lead, or unknown but likely lead. Despite this, only one of the 60 samples that the city must submit to the E.P.A. tested above Action Level with 90% of samples testing at or below nine ppb., well below the 15ppb mandate. Benton Harbor, the second smallest system, has 51% of its service lines listed as known lead, known galvanized previously connected to lead, or unknown but likely lead. Despite this lower ratio, Benton Harbor has consistently had sites in Action Level Exceedance for the last five years, as mentioned prior, with 90% of samples reporting lead levels at or below 24ppb from July to December of 2020. Birmingham, the second-largest system, has only 9% of its service lines known to be lead and 91% known not to be lead or galvanized and previously

connected to lead. From 2015-2019, Birmingham did not report any sites testing above Action Level and only in 2020 found eight sites in Action Level Exceedance with 90% of samples testing at 8ppb. The cause for this recent spike is unknown based on data pulled from the 2020 C.C.R.

Although the age, size and composition of drinking water systems did not reveal environmental justice trends, and underinvestment in updating and maintaining this infrastructure may be a source of distributive injustice. Flint’s lack of funding for its distribution system caused the Flint Water Crisis, as discussed in subsequent sections. Flint’s current system is now the epitome of infrastructure investment for long-term drinking water quality and protecting vulnerable populations. St. Joseph, however, has managed to maintain compliance with drinking water regulations and provide safe drinking water to its residents, despite continuing to have a high ratio of lead, or possible lead, service lines in its system. A cause of this chronic underinvestment could be the lack of a wealthy tax base to pay into the city plant’s services and provide adequate funding. Other ideas suggest that such endeavors cannot keep up with a rapidly expanding population due to funding. It is the consequence of political disagreement on how to fund such projects.

A. PROCEDURAL FACTORS

i. PUBLIC PARTICIPATION

Birmingham has an outside portal service through Aquahawk that allows customers to monitor their monthly usage, control monthly water bills by estimated water consumption or cost and receive important alerts about system leaks to increase public access to water quality and usage information.<sup>60</sup> This free service provided by the city allows customers to better understand their monthly water expenses and control their usage to keep water bills from becoming too costly for them to pay. Birmingham also has a voluntary city-wide email notification system to enhance

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<sup>60</sup> See the City of Birmingham’s Aquahawk Alerting Customer Portal, 2021: <https://birmmi.aquahawk.us/login>.

communication between the city's government and its residents. According to Birmingham's website, this system recognizes "the value of communicating openly and often with its residents" and after residents indicated "that frequent communication is important to them."<sup>61</sup> The service provides transparency on what is happening in town, advance notice on issues that affect the community, such as water quality issues or other emergencies, and target messages to specific city areas. No other city involved in this analysis provides a similar direct communication service with its residents. The email alerts provide more accurate and timely information directly to Birmingham residents and improve their access to the decision-making process by sending notifications of upcoming city council meetings. In addition to these services, Birmingham also has a monthly e-newsletter, called *Around Town*, sent to residents via email and alerts them on the latest events, construction projects, and city programs.

Birmingham maintains an updated web page of all city commission meetings and agendas to create better public access to the decision-making process, dating back to 2013. This encourages residents to attend regular bi-monthly meetings, scheduled to occur every other Monday at 7:30 p.m. Meetings at this hour allow most individuals who work during normal business hours to attend. City commission meetings are uploaded to the city's Vimeo and YouTube channels if residents cannot join. Birmingham has decided to continue offering residents a virtual option to attend via Zoom despite returning to in-person meetings. One public access concern was the lack of return communication with the water plant when called. The Water, Sewer, and Street Foreman was called twice, on June 28 and July 12, and left messages both times. Despite this, the foreman never called back.

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<sup>61</sup> "Social Media: Citywide Email Signup," City of Birmingham, accessed March 16, 2021, [https://www.bhamgov.org/contact\\_us/citywide\\_email\\_signup.php](https://www.bhamgov.org/contact_us/citywide_email_signup.php).

St. Joseph, instead of an email alert system, has a Public Hub on its website.<sup>62</sup> This Public Hub includes important announcements, audit reports, local charters, ordinances and policies, job postings, public notices, press releases, and a performance dashboard, among other features. The performance dashboard was created to provide better government transparency to St. Joseph residents and includes financial and operating benchmarks relevant to the city's ongoing goal and objectives, such as water infrastructure updates, the average age of critical infrastructure, and the overall expense of utilities.<sup>63</sup>

To create better access to the decision-making process, specifically for water quality matters, the city has extended an invitation to residents to join the Water Services Joint Operating board meetings that occur once a month at 4:00 p.m. on each C.C.R. until 2020. It is unclear why the 2020 C.C.R. didn't include this information. The timing of this meeting also presents a concern, as residents who work normal business hours either would not be able to attend or would have to miss work to attend. If residents do miss the meeting, St. Joseph maintains a website specifically for the minutes and notices of all meeting groups, who is in each group, their contact information, and the meeting frequency.<sup>64</sup> Unlike Birmingham, St. Joseph does not upload a video or audio version of their meetings for residents to watch, restricting access to individuals who may not understand the webpage or cannot read well. Often these characteristics pertain to older individuals or people already marginalized by lack of education. The St. Joseph water treatment plant supervisor was the only individual to answer the first call to the plant and answer all questions asked of the system. When the supervisor could not provide this information, they could indicate other St. Joseph

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<sup>62</sup> "Public Hub," City of St. Joseph, accessed March 18, 2021, <https://www.sicity.com/public-hub#government-transparency>.

<sup>63</sup> "Municipal Performance Dashboard," City of St. Joseph, 2021, <https://bsaonline.com/MunicipalDashboard/Performance?uid=976>.

<sup>64</sup> "Water Services Operating Board," City of St. Joseph, accessed May 20, 2021, <http://stjosephcitymi.ig2.com/Citizens/Default.aspx>.

employees who would be best suited to answer specific questions on the system and provided contact information. In providing the public with water quality information, St. Joseph and their staff were the most timely, helpful, and comprehensive of the four cities.

Flint's public participation in the decision-making process, government transparency and information provided to the public on drinking water concerns all drastically improved following 2015. Today, Flint has two water advisory committees: (1) a Technical Committee with members from the E.P.A., E.G.L.E., health coalitions, departments and hospitals, and City of Flint employees and (2) a Citizens Advisory Committee with members of neighborhood associations, religious groups, local universities, businesses, landlord associations, representatives of state politicians, and county government officials. The 2018 L.C.R. revisions require city water councils for systems with greater than 50,000 consumers to form these advisory committees. These committees allow technical and public stakeholder interests input in all major water policy decisions for the city, increasing the direct access to the decision-making process on water issues. The city's website and annual C.C.R. announce city council meetings which occur on the first and third Wednesday of each month at 5 p.m. This later time may allow working individuals to attend if they can get out of work on time. If they are not, Flint also posts all meeting notices, agendas, and minutes in a timely fashion to their website and maintains a YouTube channel recording all meetings. The Flint website also contains a specific webpage devoted to the progress of Flint water quality. This includes an overview of infrastructure improvements and anticipated deadlines, information on the Flint Registry, a supportive service for those directly affected by the Flint Water Crisis. The webpage also has an interactive map of all the service lines in Flint and includes an invitation to the public to provide comments on water issues via email or mail.<sup>65</sup>

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<sup>65</sup> "Progress Report on Flint Water: Secondary Water Pipeline," City of Flint, accessed May 20, 2021, <https://www.cityofflint.com/progress-report-on-flint-water-secondary-water-pipeline/>.

Additionally, Flint has provided information on per- and polyfluoroalkyl substances (PFAS) on their C.C.R.s since 2017. P.F.A.S. are synthetically created chemicals, often called “forever chemicals” because they never fully degrade. Though the E.P.A. has not issued S.D.W.A. regulations for P.F.A.S., the next round of the federally mandated Unregulated Contaminant Monitoring Rule, U.C.M.R. 5, will include P.F.A.S. sampling. This testing will determine if their levels in C.W.S. suggest regulating the contaminant. According to the E.P.A., P.F.A.S. contaminants have been linked to reproductive and developmental problems, liver and kidney failure and immunological effects.<sup>66</sup> Flint has surpassed federal mandates by including information, warnings, and suggestions on minimizing P.F.A.S. exposure and provided their residents with more transparent and comprehensive contaminant information about their drinking water. This is an important step that Flint has taken to ensure environmental justice for all its residents, most of whom are marginalized. Though Flint’s water plant supervisor did not return an initial phone call made on June 28, which could access the process concern, they did respond to general questions about the water distribution system and plant over the phone on August 2.

Benton Harbor appears to have the least amount of publicly available information, government transparency, and access to decision-making compared to the other three cities. The city does announce on the front page of their C.C.R.s an invitation for public participation at their city commission meetings, held on the first and third Monday of each month at 7:00 p.m., an ideal time for many working individuals. If someone cannot attend, these meetings are recorded and posted on the city’s YouTube page. However, meeting agendas and notices are not available online, though they have a specified webpage. Despite this, the city does a thorough job of clearly posting all city committee meetings times, days, and locations, with all meetings occurring after 5:30 p.m. and

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<sup>66</sup> “Basic Information on PFAS,” U.S. Environmental Protection Agency, accessed May 21, 2021, <https://www.epa.gov/pfas/basic-information-pfas#health>.

contact information for city commissioners. Another glaring transparency concern is the lack of access to Benton Harbor's 2018 C.C.R. This report doesn't exist on the city's municipal website. This violates E.G.L.E.'s mandates for city water quality reporting per §325.1014 of Michigan's S.D.W.A. of 1976, requiring annual C.C.R.s to be available on the Internet.<sup>67</sup> The inaccessibility of this report presents a transparency issue for the residents of Benton Harbor, especially since the city reported Action Level Exceedance for lead during this period. However, in 2020, the director of Benton Harbor's Public Works division indicated the department's plan to use Every Door Direct Mailing, a U.S. Postal Service program that will allow it to canvas the entire city at a significantly lower postage cost.<sup>68</sup> The status of this initiative is unknown.

Additionally, the number listed on Benton Harbor's website for their Water Plant Director does not work and does not leave an option to leave a voicemail. An alternative number was found for the water plant and called on June 28, but the supervisor on duty chose to have the questions emailed rather than answer them over the phone. The supervisor did not follow-up, despite multiple attempts. These gaps in available online information pose a procedural environmental justice concern for the residents of Benton Harbor. The lack of online information diminishes government transparency through the website and a lack of return communication from city officials on general facts about the drinking water system.

All cities in this analysis must engage in 'good faith' efforts to reach their customers to provide C.C.R.s and disseminate violation notices, per S.D.W.A. standards for Michigan. Good faith efforts require cities to attempt to contact all customers, regardless of homeownership status. In addition,

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<sup>67</sup> *Michigan Safe Drinking Water Act of 1976*, Public Act 399 (1976), §325.1014.

<sup>68</sup> Ralph Heibutzki, "Benton Harbor Residents Boost City Water Testing," Benton Harbor Community Water Council, August 1, 2020, <http://bhwc.org/?p=250>.

administrative Rule 325.10415 lays out guidelines on how community water systems may engage in good faith efforts which may include a mix of any of the following methods:

- (a) Posting the report on the Internet
- (b) Mailing to postal patrons in metropolitan areas
- (c) Advertising the availability of the report in the news media
- (d) Publication in a local newspaper
- (e) Posting in public places such as cafeterias or lunchrooms of public buildings
- (f) Delivery of multiple copies for distribution by single biller customers such as apartment buildings or large private employers
- (g) Delivery to community organizations.<sup>69</sup>

Though this is an extensive list of possible communication efforts, a good faith requirement only mandates that city governments conduct themselves with “an honest belief, the absence of malice and the absence of design to defraud or to seek an unconscionable advantage.”<sup>70</sup> This can be a difficult standard to challenge legally, especially for home renters. In addition, good faith efforts have no bright-line test if renters feel that the local government units or their landlords have not provided adequate notice of drinking water quality or violations. This leaves ample room for varying interpretations on what ‘good faith’ actions should entail. This room for subjectivity creates hindrances to the public participation process and a pathway for environmental injustices to occur.

## ii. INTERVENTION OF EMERGENCY MANAGERS

Emergency financial managers have existed in Michigan cities since 1988 with the passing of Public Act 101 which provided certain triggers for an initial review of a city’s finances and the appointment of an emergency financial manager. Some triggers include a failure to pay debts or employee salaries, requests for review by residents or local officials, or an initiation by members of the State Senate, State House, or State Treasurer. The governor ultimately selects the E.M. with

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<sup>69</sup> “Administrative Rule 325.10415,” in *Michigan Safe Drinking Water Act 1976 PA 399, as Amended, and the Administrative Rules*, Michigan Department of Environmental Quality (updated February 28, 2006): 52, <https://frenchtowntownship.org/wp-content/uploads/Water/Safe-Water-Drinking-Act.pdf>.

<sup>70</sup> Matthew J. Boettcher, “Why Acting in ‘Good Faith’ can Make all the Difference,” Plunkett Cooney, December 26, 2017, <https://www.plunkettcooney.com/dontbetthebusinessblog/why-acting-in-good-faith-can-make>.

approval from the state treasurer. In 2011, emergency managers received strengthened powers and can now strip locally elected government officials of their power. According to a former E.M. from Benton Harbor, “the only authority that they [local governments] can have is the authority that’s provided to them or is given to them by the emergency manager.”<sup>71</sup>

Local governments retain some of their power through the most recent version of the law, PA 436. PA 436 allows local officials to select between four state interventions: a consent agreement, bankruptcy, mediation, or the appointment of an emergency manager. If an E.M. is appointed and creates a financial plan, the local government can propose an alternative plan to state officials who will ultimately decide. Most importantly, PA 436 allows a local government the power to remove an E.M. after one year through a 2/3 majority vote and requires that the state government pay the salary of the E.M., not the municipality. Despite this increased municipal power, E.M.s exercise a great deal of control over the lives of city residents with very small limits to their power. The cities currently in non-compliance for 2020, Benton Harbor and Flint have a history with state-mandated emergency management (see Table 5). Benton Harbor first was appointed an E.M. in April of 2010. After a preliminary review conducted by the state, the city couldn’t pay nearly \$4 million to its pension systems, failing to file timely annual financial audit reports with the state, engaging in inter-agency borrowing to compensate for cash shortages and inaccurately reporting financial records.<sup>72</sup> Within the first two years of management, much of the city government was either removed from office or stripped of all decision-making powers. These first two years also saw a significant spike in water rates; many city services were outsourced and inexpensive land in the city

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<sup>71</sup> Meg Cramer, “7 things to know about Michigan’s emergency manager law,” *National Public Radio*, Michigan Radio Newsroom, December 6, 2011, <https://www.michiganradio.org/post/7-things-know-about-michigans-emergency-manager-law#:~:text=%207%20things%20to%20know%20about%20Michigan%27s%20emergency,to%20bankruptcy%0AThe%20emergency...%204%20Beyond%20Michigan%20More%20>.

<sup>72</sup> See the full Preliminary Review of Benton Harbor, State of Michigan Department of Treasury, September, 24, 2009, [https://www.michigan.gov/documents/treasury/BentonHarbor-PreliminaryReview-9-24-09\\_417425\\_7.pdf](https://www.michigan.gov/documents/treasury/BentonHarbor-PreliminaryReview-9-24-09_417425_7.pdf).

was opened to private corporations for development. In 2014, after four years of financial emergency and two EMs, Benton Harbor’s financial deficit had been “eliminated,” and city control was officially reinstated in 2016, making it a 6-year process in all.<sup>73</sup>

TABLE 5 – History of Emergency Management by City

History of Emergency Management by City		
City	Emergency Manager Y?N	Notes
Birmingham	N	
Flint	Y	2002-2004, 2011-2015
Benton Harbor	Y	2010-2014
St. Joseph	N	

Source: Data from Michigan Department of Treasury, “Financial Emergency Information: Archive Municipalities and School Districts,” accessed May 15, 2021, [https://www.michigan.gov/treasury/0,4679,7-121-1751\\_51556\\_64472---00.html](https://www.michigan.gov/treasury/0,4679,7-121-1751_51556_64472---00.html).

Contrary to the intended results of emergency management, Benton Harbor’s debt to net asset ratio increased during the state takeover, from 0.88 in 2010 to 1.4 in 2014.<sup>74</sup> A value of 0.8 indicates that debt finances over 80% of a city’s assets and 1.36, or over 136%, are financed through debt. Financially stable cities have a value of 0.25 or lower. However, Benton Harbor’s revenue to expenditure ratio did improve. Before the intervention, the city’s revenue to expenditure ratio was consistently below .96, demonstrating that revenues could not cover 100% of the city expenditures, but this increased to 1.17 in 2014, indicating the city now had a surplus.<sup>75</sup> However, this indicator

<sup>73</sup> Rick Snyder, Governor, “Notice of Termination,” State of Michigan Executive Office, March 10, 2014, [https://www.michigan.gov/documents/treasury/Benton-Harbor-Saunders-EM-Termination-Letter\\_451536\\_7.pdf](https://www.michigan.gov/documents/treasury/Benton-Harbor-Saunders-EM-Termination-Letter_451536_7.pdf).  
<sup>74</sup> Shu Wang and Andrew Crosby, *Emergency Managers in Michigan: Just What the Doctor Ordered?*, Institute for Public Policy and Social Research (2017): 13, <https://ippssr.msu.edu/sites/default/files/MAPPR/EmergencyManagers.pdf>.  
<sup>75</sup> Wang and Crosby, 10.

only infers the city's short-term financial stability, and higher debt to net asset ratio indicates long-term financial instability. Once the surplus has run out, the city would again be unable to cover all its debts.

The citizens of Benton Harbor, through this process, were stripped of their local political power and voice. Two outsiders had almost full control of the local government and its dealings for cost-cutting. They dictated the lives of a community that they did not understand. This lack of political representation, especially regarding drinking water policy, is a substantial procedural environmental justice concern. The local policy process did not engage citizens, nor did it aim to include them. Instead, it specifically disclosed them from the process, barring their ability to contribute politically and diminished their political power. The recent inability of the water treatment plant to properly collect samples, maintain essential treatment equipment functioning and provide timely public education materials to the public could be a legacy of this emergency management period.

Flint's first state receivership began in 2002. The city faced nearly a \$30 million budgetary deficit. The governor suggested the appointment of a Flint native for the position. Flint residents fought the merits of the state receivership in court because they did not want state intervention into their local government.<sup>76</sup> Residents ultimately lost the case in September of 2002. During the first two years, the E.M. issued 120 directives that slashed the city's budget by promoting stricter enforcement codes for rental inspections, the emergency demolitions of blighted buildings, mass layoffs of city workers, and an 11% increase in water bills.<sup>77</sup> Though effective at temporarily lifting a city out of financial emergency, raising water rates disadvantages an already marginalized population,

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<sup>76</sup> *City Council of City of Flint v. State of Michigan*, 253 Mich. App. 378, Mich. Ct. App. (2002), <https://law.justia.com/cases/michigan/court-of-appeals-published/2002/20021004-c243029-52-224o-243029-opn-coa.html>.

<sup>77</sup> Oona Goodin-Smith, "Flint's history of emergency management and how it got to financial freedom," *MLive*, January 16, 2018, [https://www.mlive.com/news/flint/2018/01/city\\_of\\_the\\_state\\_flints\\_histo.html](https://www.mlive.com/news/flint/2018/01/city_of_the_state_flints_histo.html).

the Black residents of Flint. Already subject to the effects of generational economic disinvestment, rising unemployment rates, and low political power, increased water rates disproportionately disadvantaged Black residents unable to afford the increase. This is a distributive and procedural justice issue. Those most affected by the decisions did not influence the planning process and many Black residents living in poverty couldn't afford to pay the increased rate. This either left families without water entirely or having to cut costs and not pay for other essential items, such as food, electric bills, medical expenses, or home payments. In 2004, emergency management ended after the E.M. reduced the city's budget deficit by \$16 million.<sup>78</sup>

This period only created temporary financial stability and the city returned to financial emergency again in 2011 with a \$25 million budgetary deficit. In 2011, the state appointed a former temporary Mayor of Flint as the city's first E.M. 2011. Flint would eventually see three more E.M. pass through the position over the next three years. Quickly, the E.M. terminated the city government and eliminated the pay for the mayor and all members city council. On the eve of the referendum vote that would nullify the current E.M. law, the E.M. issued 12 executive orders. One of these executive orders announced the immediate adoption of a 2013-2014 budget plan, skipping the scheduled public hearings in the coming months.<sup>79</sup> Bypassing the budget through without public comment, an important procedural justice component in the policy-making process, the E.M. eliminated Flint residents' public access to their government and use of their tax money. In 2014, under the direction of the E.M. at the time, the city council voted 7-1 for the switch from the DWSD to the K.W.A.<sup>80</sup> Although, local council members did not agree to use the Flint River in the

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<sup>78</sup> See note 77.

<sup>79</sup> Kristin Longley, "Flint emergency manager changes union contracts, adopts budget on eve of Public Act 4 referendum hearing," *MLive*, updated January 20, 2019, [https://www.mlive.com/news/flint/2012/04/emergency\\_manager\\_orders\\_budge.html](https://www.mlive.com/news/flint/2012/04/emergency_manager_orders_budge.html).

<sup>80</sup> The Center for Michigan, "Michigan Truth Squad: Who approved switch to Flint River? State's answers draw fouls," *MLive*, updated April 3, 2019, [https://www.mlive.com/politics/2016/01/michigan\\_truth\\_squad\\_who\\_appro.html](https://www.mlive.com/politics/2016/01/michigan_truth_squad_who_appro.html).

interim, the E.M. chose to do so to cut costs. The E.M. and other state officials also saved costs by not immediately treating the river water with corrosion control after the switch, though it is an E.P.A. mandate.

Almost immediately, residents began to complain about the smell, taste, and appearance of the water.<sup>81</sup> In January 2015, Flint's received its fourth and final E.M. amongst intensifying local protests. Flint residents mobilized at city commission meetings, expressing outrage at the discolored and foul-smelling water running into their homes, the lack of E.M. or state recognition of the problem, and the rashes appearing on their children. Residents reclaimed their political power and their right to engage in the policy process through these actions. Despite this, state officials continued to insist that the water was fine.<sup>82</sup> They used their authority and perceived power to dismiss public concerns and discredit local voices. This helped maintain an imbalanced power dynamic in favor of white state officials and a white E.M. that dictated policy and Flint's low-income, majority Black residents.

Contrary to their claims, it was not fine. Resident-organized studies, another example of reclaimed procedural power by Flint residents, revealed that the 252 homes tested where lead had spiked, approximately 17% of them tested in Action Level Exceedance, or above 15ppb and 40% of samples tested around 5ppb.<sup>83</sup> A separate study would reveal that blood levels in Flint children had doubled in less than a year and were triple in some areas.<sup>84</sup> In March of 2015, city council members voted to switch back to the DWSD, a decision blocked by the E.M., who left their position not soon

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<sup>81</sup> The Center for Michigan, "Michigan Truth Squad."

<sup>82</sup> Robin Erb, "Who wants to drink Flint's water?" *Detroit Free Press*, updated January 23, 2015, <https://www.freep.com/story/news/local/michigan/2015/01/22/water-woes-latest-hit-flint/22193291/>.

<sup>83</sup> Dr. Jeffrey Parks, et. al, "Lead testing results for water sampled by residents," Flint Water Study, September 2015, <http://flintwaterstudy.org/information-for-flint-residents/results-for-citizen-testing-for-lead-300-kits/>.

<sup>84</sup> Terry Gross, "Pediatrician Who Exposed Flint Water Crisis Shares Her 'Story of Resistance,'" *National Public Radio*, June 25, 2018, <https://www.npr.org/sections/health-shots/2018/06/25/623126968/pediatrician-who-exposed-flint-water-crisis-shares-her-story-of-resistance>.

after. Before leaving, the last E.M. signed several orders into effect that the city could not revise until one year after receivership ended. The city eventually switched back to the DWSD system in October 2015, over a year and a half later.<sup>85</sup>

Feeling systematically oppressed and silenced by state officials, Flint residents took the state to court over the drinking water switch. Several civil lawsuits arose from this crisis, attempting to hold various state and individual parties responsible for their involvement.<sup>86</sup> As of January 2021, eight former state officials, including former Governor Snyder, and two of Flint's former E.M., received criminal charges for their roles in the crisis that has been since linked to 12 deaths and 80 cases of Legionnaires' disease.<sup>87</sup> Unfortunately, Flint's vast political and economic disenfranchisement, Flint residents had to learn how to advocate for themselves in a system that did not value their opinion.

This was an extremely traumatic event for the residents of Flint and the crisis represents a powerful story of injustice between those who have the power to make policy decisions and those affected by such decisions. The majority Black populated city was politically oppressed, stripped of power and voice, and disregarded by their E.M.s and other state officials. Though the E.M.s appointed to Flint would be considered more "insiders" than those appointed in Benton Harbor, since two were former temporary mayors of the city compared, these "insiders" did not provide additional representation for the citizens of Flint. Instead, they further imposed a system of environmental and racial injustices that had dramatic health, social and political consequences. The constant rotation of E.M.s also created chaos and additional instability for the city power structure

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<sup>85</sup> Goodin-Smith, "Flint's history of emergency management and how it got to financial freedom."

<sup>86</sup> See the Flint Water Crisis – Summary of Civil Litigation compiled by The Network for Public Health Law, July 2016: <https://www.networkforphl.org/wp-content/uploads/2020/03/Flint-Litigation-Summary-Table.pdf>.

<sup>87</sup> Brakkton Booker, "Ex-Michigan Gov. Rick Snyder And 8 Others Criminally Charged in Flint Water Crisis," *National Public Radio*, January 24, 2021, <https://www.npr.org/2021/01/14/956924155/ex-michigan-gov-rick-snyder-and-8-others-criminally-charged-in-flint-water-crisi>.

in a time of upheaval. The disparate state agency response to the crisis, while it was ongoing, resulted from the systemic environmental racism built into the structure of Flint through its history of economic and political disinvestment.

## V. CONCLUSION

The findings indicate that race, income, and housing tenure remain important indicators of a city's ability to provide procedural and distributive justice to its residents. Birmingham and St. Joseph are both majority-white cities with high median incomes and high homeownership rates. As such, they do not exhibit the traits associated with Harvard's theory of low political power leading to environmental racism or injustice. They can regularly invest in their water infrastructure and conduct proper water treatment techniques to fight lead corrosion. For example, St. Joseph had more lead pipes than any other city in the analysis, but no drinking water violations. Due to the higher political power of their residents, the public participation measures that the city government engages in, and their social demographics, both cities also do not appear to fit into any of the other theories on environmental racism.

Flint and Benton Harbor have different relationships with environmental racism. Though environmental justice has come a long way in Flint, seen in the transformation that the city's public participation process and infrastructure have undergone since 2015, there is still a great deal of public distrust in the water quality. For example, there was unequal enforcement of the S.D.W.A. and the Lead and Copper Rule for a year and a half, during which time officials from the E.P.A., the Michigan Department of Environmental Quality, now E.G.L.E., and the Governor's Office failed to address the drinking water violations. The E.P.A. has acknowledged their delayed response and

failure to provide effective communication and proactive oversight tools.<sup>88</sup> Similarly, E.G.L.E. has since acknowledged that it failed to require the necessary corrosion-control chemicals after the switch to the Flint River and failed to inventory the lead service lines needed for sampling, both required by the Lead and Copper Rule.<sup>89</sup> In addition, emails released by the Snyder administration revealed that he might have been aware of the dangers of Flint's water as early as the fall of 2014, yet remained silent on the matter.<sup>90</sup> These choices not only left Flint residents exposed to unsafe drinking water, but have destroyed residents' trust in the government's ability to provide equal enforcement going forward. As a result, Flint residents engaged in reactive measures to ensure that officials heard their voices, demanding procedural justice, rather than proactive actions taken by the government to protect its citizens from harm and include them in the process.

Following the crisis, Michigan's Civil Rights Commission held hearings to determine if the contamination of Flint's water system violated any civil rights and generated a report.<sup>91</sup> Among other things, this report details how institutional racism through a century of economic disinvestment, discriminatory housing practices, school segregation and urban sprawl contributed to the events of the Flint Water Crisis. Decision-makers did not consider the cumulative effects of these practices when lead was leaching into the water supply. Not only do heightened levels of lead already have their health risks, but children suffering from malnutrition, a factor associated with high rates of poverty, are less able to process lead and avoid absorbing it into their bodies.<sup>92</sup> These

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<sup>88</sup> U.S. Environmental Protection Agency, *Management Weaknesses Delayed Response to Flint Water Crisis*, Open-file report 18-P-0221 (Washington D.C., July 19, 2018), [https://www.epa.gov/sites/default/files/2018-07/documents/epaoig\\_20180719-18-p-0221.pdf](https://www.epa.gov/sites/default/files/2018-07/documents/epaoig_20180719-18-p-0221.pdf).

<sup>89</sup> John Flesher, "Water expert rejects explanation on Flint corrosion control," *AP News*, February 10, 2016, <https://apnews.com/article/7e5027859f7a4b6c9a197d7067e14c39>.

<sup>90</sup> Matthew Dolan and Paul Egan, "Top Snyder aide urged going back to Detroit water," *Detroit Free Press*, updated February 26, 2016, <https://www.freep.com/story/news/local/michigan/flint-water-crisis/2016/02/26/flint-water-crisis-snyder-detroit/80926138/>.

<sup>91</sup> Michigan Civil Rights Commission, *The Flint Water Crisis: Systemic Racism Through the Lens of Flint*, February 17, 2017, [https://www.michigan.gov/documents/mdcr/VFlintCrisisRep-F-Edited3-13-17\\_554317\\_7.pdf](https://www.michigan.gov/documents/mdcr/VFlintCrisisRep-F-Edited3-13-17_554317_7.pdf).

<sup>92</sup> Michigan Civil Rights Commission, 99.

cumulative effects disproportionately impacted the city’s majority Black population, a failure of distributive justice. This report also included testimony that called the emergency manager law “possibly the single most important violation of the principle of procedural justice in the case of the Flint Water Crisis.”<sup>93</sup> The law functionally stripped Flint residents of their political power and denied any semblance of meaningful involvement of procedural justice.

Benton Harbor is currently going through a situation not unfamiliar to Flint’s. The city has tested at high lead levels since 2018, yet city and state action has been slow. The community is less politically powerful due to its lower median income, lower rates of homeownership, and higher unemployment rates than its counterpart across the river, St. Joseph. This lack of political power is reinforced by poor public participation measures taken by the city to include public members and keep them informed on important environmental issues and the legacy that emergency management had on the importance of resident’s political voice.

The city also has a vastly understaffed and extremely cost-burdened system. Like Flint, Benton Harbor has undergone generations of economic disinvestment, loss of industry and jobs, and white flight. This has concentrated poverty in the now majority Black city. Despite not being in a financial emergency since 2016, the city remains unable to afford and perform water sampling and treatment tasks required by regulations, partially because it does not have the staff to carry out these procedures. In 2018, spurred by city and state inaction at the increased lead levels, the Benton Harbor Community Water Council (B.H.C.W.C.) formed. B.H.C.W.C. is a grassroots citizens advisory group that partners with the city’s water plant to help collect the right number of samples for lead testing. Through the work of this council, Benton Harbor was able to obtain the correct number of lead and copper samples that regulations require. This council is now a part of the

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<sup>93</sup> Michigan Civil Rights Commission, 100.

Benton Harbor Lead Outreach Partnership, a team of community, local and state partners from various sectors working to ensure that Benton Harbor residents have access to information and free resources to reduce lead in water.<sup>94</sup> This is another example of the work and impact that reactive citizen groups and residents can have in response to environmental injustices.

However, environmental justice cannot solely move forward in reactive citizen movements. It requires proactive governmental measures at all levels to include public participation in a meaningful manner and regulations that are not ‘neutral’ and thus create further instances of environmental racism. A good place to start would be the state’s emergency manager law. As the Civil Rights Commission’s report on Flint indicated, “if you live in Michigan, there is a 10% chance that you have lived under emergency management since 2009. But if you are a black Michigander, the odds are 50/50.”<sup>95</sup> This law should support cities in economic decline. Instead, it has disproportionately impacted the lives of Black Michiganders by imposing short-term solutions that usurp local democracy and are contrary to the long-term interests of the residents. The law also does not appear to aid in long-term financial stability.<sup>96</sup> In addition, regulations like the S.D.W.A. and the Lead and Copper Rule, also neutral regulations, continue to suffer from a lack of equal enforcement. Evenly enforced regulations and better funding for cities too cost-burdened to meet the imposed regulations on their own would ensure environmental justice moving forward.

Bullard was correct in his assessment that cities struggling most with pollution are also those with a “crumbling infrastructure, ongoing economic disinvestment, a high poverty rate, and an overloaded health care system.”<sup>97</sup> However, this practice does not have to continue. Cities and states

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<sup>94</sup> “Benton Harbor Lead Outreach Partnership,” Department of Environment, Great Lakes, & Energy, accessed July 20, 2021, [https://www.michigan.gov/cleanwater/0,9779,7-411-105853\\_105862---,00.html](https://www.michigan.gov/cleanwater/0,9779,7-411-105853_105862---,00.html).

<sup>95</sup> Michigan Civil Rights Commission, 109.

<sup>96</sup> Michigan Civil Rights Commission, 122-124.

<sup>97</sup> Bullard, 17.

need to invest more in city public participation efforts. If cities cannot do so, the state should allocate better funding to support these environmental justice measures. Increased citizen engagement not only gives them greater political power to influence the process but creates advocates that can report issues or violations to state or federal agencies, increasing the pressure for them to act.

To address the cost burden that regulations place on cities, state or federal governments should be primarily liable as regulated entities concerning drinking water.<sup>98</sup> In the current regulatory scheme, federal and state governments are tasked with regulation and enforcement while cities and local water authorities are legally responsible for testing, disclosing, and treating violations. If some of these responsibilities shifted off municipalities and larger governmental units, with more funding and resources, it would alleviate some of the cost issues associated with implementing the regulations and ensure correct enforcement. This shift would maintain the primacy structure of the S.D.W.A. but allow for shared responsibility between cities, states, and the federal government, so the burden of costs does not fall only on municipalities. The primacy regime of the S.D.W.A. should remain, with states being the primary implementors and enforcers of policies upon municipalities. There is too much distance between the federal government and the thousands of municipalities in the U.S. for effective oversight and implementation. The risk of procedural and distributive injustices would only increase with this separation.

Environmental justice has come a long way from the protests at Warren County at all levels of government. There is federal, state and city-level recognition of the movement. However, the structures of environmental racism are still deeply ingrained in national institutions. Going forward, environmental justice must continue to be a part of these discussions, drinking water policy or

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<sup>98</sup> David Dana, *Escaping the Abdication Trap When Cooperative Federalism Fails: Legal Reform After Flint*, Northwestern Institute for Policy Research, March 28, 2017. <https://www.ipr.northwestern.edu/documents/working-papers/2017/wp-17-23.pdf>.

otherwise, and the national understanding of environmental justice should continue to expand. Future research could benefit from incorporating a more comprehensive definition of environmental justice when viewing local, state, or federal policies, as Dr. Mohai outlines in “The 17 Principles of Environmental Justice.”<sup>99</sup>

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<sup>99</sup> Mohai, 18-20.

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