

# Water Infrastructure

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Threats loom large over the future of water infrastructure in Michigan. However, with the right policies, we can create a better, cleaner state. Right now, climate change threatens our stormwater infrastructure with increased rainfall events. The public funds required to preserve water quality under a business-as-usual scenario will be onerous, making it difficult for governments and households to adapt. Flooding will increase, and be damaging to homes. A FEMA report reveals that just an inch of flooding can cost the average homeowner \$27,000.<sup>1</sup> When multiplied across the broader economy, this can have a significant effect. Over the last half century, average annual precipitation in most of the Midwest has already increased by 5 to 10 percent. But rainfall during the four wettest days of the year has increased by about 35 percent.<sup>2</sup> Our infrastructure was not designed to handle these drastic shifts in precipitation patterns.

## Economy

- ◆ According to the Michigan Blue Economy Report, a project of researchers at Grand Valley State and the Michigan Economic Center at Prima Civitas: “Collectively (and conservatively) our Michigan “Blue Economy” already provides roughly 1 in 5, or nearly one million Michigan jobs, and \$60 billion in annual economic impact.”<sup>3</sup>
- ◆ Floods from increased precipitation can do economic damage to the state’s economic output. The floods of 2014 in Detroit are an example of the threat of increased precipitation, accounting for 60% of the year’s water damage in the United States at \$1.8 Billion in direct flood damages.<sup>4</sup>

## Public Health

- ◆ There is no safe level of lead. Service lines do not have to be disrupted to deliver an elevated level of lead into a home’s water supply. **All lead lines must be replaced over the next two decades.** The 90th percentile of the sample results must be below the lead action level of 15 ppb, or 12 ppb starting in 2025, for corrosion control to be considered effective.<sup>5</sup>
- ◆ An estimated 500,000 lead service lines still exist in Michigan’s homes, each presenting a public health threat.<sup>6</sup>

## Natural Resources

- ◆ From National Climate Assessment: “Flooding can affect the integrity and diversity of aquatic ecosystems. Flooding also causes major human and economic consequences by inundating urban and agricultural land and by disrupting navigation in the region’s roads, rivers, and reservoirs. For example, the 2008 flooding in the Midwest caused 24 deaths, \$15 billion in losses via reduced agricultural yields, and closure of key transportation route.”<sup>5</sup>

According to the Earth Institute at Columbia University: “Heavier rain storms will also increase surface runoff — the water that flows over the ground after a storm. This moving water may strip nutrients from the soil and pick up pollutants, dirt, and other undesirables, flushing them into nearby bodies of water.”<sup>7</sup>

Meanwhile, lead remains an important public health crisis. Lead is a neurotoxin; there is no safe level of lead to consume.

Service lines in older homes are made from this metal which can enter the bloodstream, causing health ailments and disabilities from learning problems in children to anemia, weakness, and kidney damage.<sup>8</sup> Children are particularly vulnerable to lead and its effects. It’s critical we support communities in identifying and removing these lead service lines.

## Lead and Copper Rule

Thankfully, Michigan passed a protective Lead and Copper Rule in 2018. Cities must locate service lines, notify homeowners of the presence of a line, and replace them within two decades. This will require funding and public education. Water utilities must develop asset management plans to begin this transition. However, when it is complete, drinking a glass of water without a filter will not be a health gamble.

While lead service lines could exist in all homes built before 1988<sup>9</sup>, older urban communities can experience a disproportionate impact. In cities like Detroit and Flint, this can also mean a higher cost burden to low-income residents to purchase and maintain filters. Therefore, replacement will help benefit these communities in both economic and public health terms.

Source: Sierra Club Legislative Program

### Case Studies: Proposals From Michigan's 100th Legislative Session

Require a ratio of water filtration stations to students/staff at schools and childcare facilities. This is called the filter first approach, used to reduce contaminants such as lead, arsenic, and PFAS. Schools would be required to develop a 'drinking water safety plan.

HB 5104-5105 and SB 589-590: Filter First Legislation

Michigan can establish a Childhood Lead Poisoning Prevention Control Commission which can recommend improvements for programs and testing infrastructure, reducing childhood exposure. Michigan can also require a new source of drinking water to be tested for lead before it is utilized and require lead service line disclosures in all rental contracts. The state can require water systems to provide annual notice to customers whose residences are known to have a lead service line.

HB 4747-4750 and SB 398-401: Flint Water Package

Establish a 'Lead Task Force' under the purview of EGLE, making recommendations and providing resources to reduce lead.

SB 300: Creation of the Lead Task Force

Establish a program to assist schools and child care centers in testing and remediating lead contamination in drinking water.

HB 4064: Water Quality and Lead Removal

Require testing of water for lead at veterans' facilities and testing and removing lead in drinking water used by vulnerable population centers.

HB 4742-4744 and SB 395-397: Lead testing at Veteran centers and in vulnerable populations

## Stormwater Infrastructure

Green infrastructure is one of the most cost-effective methods of adaptation. What is this infrastructure? These projects capture runoff water, reducing the amount that enters the system. This can be done in multiple ways, most dealing with changing the properties of surfaces to absorb or retain water. When designed with native plants, these projects can also have positive impacts of biodiversity.

During intense rainfall events, infrastructure can become overwhelmed, putting waste from the combined sewer system into lakes and rivers. This is a health risk, lowering the quality of the water and making it dangerous to humans.<sup>10</sup>

While adaptation is important, stopping climate change is also an important step. Accommodating precipitation changes can be expensive. The greenhouse gases from climate polluters who dump carbon pollution into the atmosphere must be regulated. Responsible elected officials (even in small cities and townships) must demand an end to these practices. Otherwise, today's governments are sticking future constituents with an expensive bill. Let's keep water and sewer infrastructure affordable with a prioritization of green infrastructure and renewables. Furthermore, we can create economic opportunities in the process

Local governments might find the establishment of stormwater utilities to be helpful in managing this process. Stormwater utilities help manage negative externalities related to what's called *impervious surface*, places such as parking lots or rooftops that don't capture water. From *Water World Magazine*: "Stormwater utility fees are typically based on the property's impervious area, which includes rooftops, parking lots and other hard surfaces that prohibit water from soaking into the ground."<sup>11</sup> Through the implementation of these utilities, building owners have incentives to minimize their contributions to the stormwater system. Also, users with permeable surfaces no longer have to fund or subsidize others with a high stormwater impact. There are several solutions that most buildings and properties can install to reduce their stormwater impact to the environment:<sup>12</sup>

- Rain Gardens
- Bioswales
- Permeable Concrete and Surfaces
- Rain Barrels and Water Collection
- Downspout Disconnection
- Green Parking, Roofs, Alleys, and Streets
- Tree Canopy
- Land Conservation

In addition to these, greywater systems can maximize the benefits of reusing water in the building, amplifying this effect. According to the Green Building Alliance: "In residential buildings, the majority of water (between 50% and 80%) falls into the greywater category and can be collected for reuse."<sup>13</sup>

#### Case Studies: Proposals From Michigan's 100th Legislative Session

As mentioned above, this would allow local units of government to create stormwater management utilities to create and manage stormwater systems.

HB 4691: Allow local governments to create stormwater management utilities

This establishes that Michiganders have a right to safe, clean, affordable, and accessible water. It would require state departments to create plans for water affordability criteria.

SB 49: Water is a Human Right

These bills clarify that the waters of the state, including groundwater, are held in the public trust. This means they belong to the people of the state collectively and must be protected from pollution, impairment and destruction. It would expand the DNR's authority to manage water in areas under its control. It would remove the small-container exemption that allows corporations to take water from non-municipal sources and sell it in bottles outside the Great Lakes Basin.

HB 5290-5292: Water Protection Legislation

Source: Sierra Club Legislative Program

### *About The Author:*

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