

Great Lakes City Vulnerability Assessment Pilot Projects

City Outcomes and Testimonials



Communities across the Great Lakes region are experiencing more frequent storms and rising temperatures. Cities are looking for ways to adapt to these changing conditions, but often lack the necessary information and resources. In 2017 with funding from the Urban Sustainability Directors Network ([USDN](#)), five Great Lakes cities collaborated with the Great Lakes Integrated Sciences and Assessments (GLISA), the Huron River Watershed Council, Headwaters Economics, and the City of Ann Arbor (MI) to develop a vulnerability assessment template to help cities incorporate climate and socioeconomic information into existing planning processes. Based on the success of this project, 12 Great Lakes cities joined a second pilot project with GLISA in 2018 with funding from the National Oceanic and Atmospheric Administration ([NOAA](#)) to adapt the template to stormwater management and explore different engagement methodologies to train and guide the cities through completing the vulnerability assessment.

The selected examples and quotes below demonstrate how these cities benefited from the project and used the vulnerability assessment in a variety of contexts, ranging from grant applications to capital improvement planning. Overall, the process of developing the stormwater vulnerability assessment helped many city practitioners build capacity and increase confidence in communicating flood risk to the public.

Toledo, OH

Outcomes

- Staff used climate data from the project to support an environmental justice grant the city received in 2020.
- Working on the assessment helped city staff realize that they were missing key data about their stormwater system and initiated conversations about updating their data management practices.
- City departments formed cross-departmental connections and learned about each other's work and priorities over the course of the project.

Quotes

“ Pulling in the vulnerability and socioeconomic information really kind of changed the way I've viewed it in the past. **We had an understanding of the increased rain events and the increased large rain events...but I didn't really stop and think about how that might impact certain areas and populations of our city more than others.** I think that was new information, a new way to look at it. ”

“ It might help us better understand some of those environmental justice areas and neighborhoods that we can focus some of our future work on. And have some of that information readily available, so when funding comes up and it says we want you to work with communities that are more vulnerable or are disadvantaged, **we have a tool to analyze where are these areas at, and what injustice or issues are they facing.** ”

“ **I liked having the climate data all in one place from a reputable source** that I don't have to go search for. I'm not a climate scientist so a lot of that I'm not sure about. ”

“ Our main way of incorporating this information will be to **integrate it into future grant projects** and using it as part of our justification for needing some of these grant dollars. ”

“ **It got a lot of our different divisions in the room together** and discussing these things and seeing how climate change might impact something that Engineering Services is doing, but also sewers and streets. It was just really interesting to have all of us in the same room talking about these things. ”

Dayton, OH

Outcomes

- City staff plan to incorporate information from the vulnerability assessment into their next sustainability plan update.
- The assessment will likely help with capital planning processes and prioritization of infrastructure projects in the water department as well as other departments across the city.
- The project increased collaboration and raised awareness about climate impacts across multiple city departments, including upper level management.

Quotes

“ We brought all the city departments and divisions together, and even some of our regional partners, and I thought that was **a really good opportunity for all of us to come on the same page and think about the same type of topics and issues** and how these issues relate to all of us. ”

“ We could say that our work was **a great springboard for establishing [the sustainability department]**. We're able to provide them with that document to start thinking about sustainability for the city as a whole. ”

“ We’ve recently just passed a climate emergency resolution and **pieces like this stormwater vulnerability assessment are critical in continuing to reinforce the climate emergency** and also bring awareness as staffing changes over time. ”

Buffalo, NY

Outcomes

- Staff plans to share the completed assessment with the City of Buffalo to incorporate into a citywide resiliency assessment and planning initiative.
- The assessment will provide additional rationale for developing green infrastructure projects and increasing combined sewer pipe sizing.
- The sewer authority will likely use information from the assessment to inform the sewer authority’s long term control plan to reduce combined sewer overflows.

Quotes

“ **It also points out blind spots**...that there are other things we need to be starting to think about as far as resiliency of the rest of our system. And how green infrastructure benefits the system. ”

“ **As we’re doing large projects, let’s make sure they’re being sized correctly for these future impacts** so that we’re not constructing a half a billion dollars worth of work and then having to go back and do another half a billion dollars worth of work because everything is too small because of the changing climate. ”

“ We’ve always designed things based on past history, and **past history might not be the best way to continue to design things when you’re dealing with a changing climate.** ”

Ferndale, MI

Outcomes

- The Ferndale City Council adopted the city’s assessment in July 2020.
- City staff used the vulnerability assessment in their capital improvement planning process and plan to use the assessment to inform their climate adaptation and master land use planning processes.
- Staff anticipate using assessment findings to support future grants for green infrastructure work in roadways and Complete Streets projects.

Quote

“ We don’t have a Climate Action Plan right now or anything, we were planning to conduct that in the next year and a half and start working on that. So I think that **this is another piece of the puzzle that will fit nicely into that.** ”

Indianapolis, IN

Outcomes

- City staff adapted the vulnerability assessment methodology and climate data for their 2019 Thrive Indianapolis sustainability and resilience plan.
- Staff used the climate and socioeconomic data from the project as justification to prioritize equity in resilience planning.

Quotes

“ In the first few years we used a lot of national level data and stuff from IPCC and other data sources, but it’s not of interest to decision makers. **We need local data,** at least Indiana scale, but preferably central Indiana, to even get further along in the conversation. ”

“ If our goal is to change our sizing process for stormwater pipes, **why do we need to do that and what’s the justification for it? Well, here’s this climate data**, and if we’re saying we want to invest more in mobility infrastructure in this neighborhood or that neighborhood - why did we pick those? It’s because the index shows those are super vulnerable populations that don’t have cars and we have not built infrastructure in them yet. ”

Evanston, IL

Outcomes

- City staff engaged several municipal departments and used their vulnerability assessment as the foundation for their 2018 Climate Action and Resilience Plan.
- Temperature and precipitation projections from the assessment were used to engage residents in the resilience planning process.
- Staff recommended specific green infrastructure projects based on the vulnerability assessment.

Quotes

“ **When we got invited to participate, it was sort of a no-brainer... it’s really going to increase our capacity.** The template is designed to provide individual communities, in this case around the Great Lakes region, essentially an overview in a written template of what the most likely climate impacts will be on their community. ”

“ Some of the primary benefits I’ve seen from it have been that it has essentially **eliminated the conversations and the amount of time we had to spend on data source and data collection methodology.** It provided the information in a way that a lot of people were able to digest it, which was really helpful. ”

Goshen, IN

Outcomes

- City staff used information about vulnerable areas to provide feedback on FEMA's flood mapping update process.
- Staff incorporated information from the assessment into a city flood resiliency plan and climate action plan.
- The assessment helped staff identify data gaps related to the stormwater conveyance system and prompted them to expand data collection efforts, which will support future project prioritization and decision making.

Quotes

“ It gave us access to information that we didn't have...**It gives us a foundation to build off of and say, 'this is research that has been done and data that's out there that points towards these issues that we really need to be paying attention to.'** ”

“ It's helped me to look at the city as a whole instead of just a little bit here and a little bit there, and that's **helped me to better understand how to assess vulnerabilities for stormwater**...We've started to realize the other vulnerabilities that are out there. ”

“ As plans come in for where we develop, it's hugely important to know what areas might be more vulnerable. If we think of [that 500-year flood] as one of our most extreme events, at least for the near future or what we can predict will happen more frequently, **that information just becomes more and more important as we prepare for the next one.** ”

Madison, WI

Outcomes

- Completing the assessment helped staff capture the institutional knowledge of the stormwater department, build connections with other city departments, and network with other communities in the region.
- City staff will incorporate their vulnerability assessment findings into a broader citywide resilience planning effort, and plan to use socioeconomic data from the project in equity analyses for future stormwater projects.

Quote

“ We didn’t really have a lot of resources to dedicate to work around resiliency planning. I looked at this project as being sort of like **a vehicle to move those conversations forward**, considering we didn’t have a lot of resources to hire a resiliency officer or hire a firm. ”