

Climate Adaptation in the Great Lakes Region

A Case Study of Evanston, Illinois



Image Source: Evanston Edge

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Project description

We are a team of six University of Michigan graduate students, based out of UM's School of Natural Resources and Environment. Our Master's Project focuses on climate adaptation and resiliency planning for Great Lakes municipalities. We work for NOAA's Great Lakes Regional Collaboration Team, in partnership with the Great Lakes and St. Lawrence Cities Initiative (GLSLCI). Our goal is to develop a useful online toolbox of climate adaptation resources, including online webinars, case studies and infographics.

Our city case studies stem from municipal interviews conducted during the summer and fall of 2014. They aim to both capture Great Lakes regional best practices in climate resilience, and also to assess common barriers that Great Lakes communities face in enhancing their climate change adaptation efforts.

On November 17, 2014 we spoke with Catherine Hurley, Sustainability Manager, City of Evanston, and representatives from the Parks, Recreation and Community Services, Health, Library, Economic Development, Public Works, Water Utilities, Community Development, Police and Fire Departments in Evanston, as well as more than 15 community groups focused on Sustainability in the city of Evanston. We are very grateful to them for sharing their time and insights with us!

Fast Facts

Population: 75,570 (2013)¹

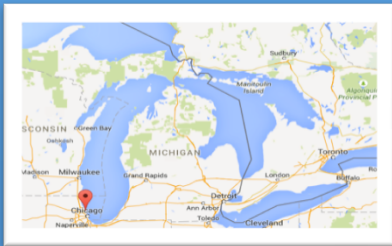
Evanston is in Cook County and is part of the Chicago metropolitan area.

Primary industries

Northwestern University is located in Evanston and is the largest employer in the city. The large student population supports several commercial districts with many local and national businesses.

Health, Education, and Civil Sectors are the next largest employers in the city. The city itself employs roughly 800 people.²

According to its 2012-2014 economic development plan, Evanston strives to attract growing industries such as the tech-sector to Evanston.



Major resilience milestones

- [Evanston Livability Plan, 2014](#)
- [4-STAR Community Rating, 2014](#)
- Evanston Climate Action Plan Updates, [2011](#) and [2012](#)
- [Evanston Climate Action Plan, 2008](#)
- [Greenhouse Gas Emissions Inventory, 2008](#)
- [US Mayor's Climate Protection Agreement, 2006](#)

Introduction

Evanston, IL is located on Lake Michigan in the North Shore area of the Chicago Metropolitan Region. The city is home to the prestigious Northwestern University, which draws a student population of 21,000. The University also employs 10,858 faculty and staff (2013).³ While many Evanston residents commute to Chicago, Evanston has retained an independent and vibrant identity.

Evanston prides itself on being an early American leader in Sustainability, particularly on action on climate change mitigation. Evanston was an early adopter of the U.S. Mayors Climate Projection Agreement, which calls on signatories to meet or exceed Kyoto emissions targets within their municipality.

Notable climate mitigation efforts in Evanston include their greenhouse gas (GHG) inventory begun in 2007,⁴ and first Evanston Climate Action Plan (ECAP) released in 2008.⁵ The 2008 ECAP called for a 13% decrease in emissions by 2012 through 220 strategies in 9 different sectors.⁵ Significantly, Evanston has also made steps in evaluating its ECAP and action, with updates in 2011 and 2012. As of the 2012 update, the city's total emissions had decreased by 12% as a result of the actions outlines in the ECAP.⁶

Based on Evanston's strong environmental ethos and existing political and collaborative frameworks for work on mitigation, Evanston is poised to be a Midwest leader on Climate adaptation.

Climate Change Projections

Critical city operations as well as public health might be impacted by climate change. Extreme heat and cold events are of particular concern, and stormwater surge events and flooding could jeopardize city infrastructure. Projections for 2070 from the Graham Institute's CIAT tool and the 2014 National Climate Assessment include the following^{7,8}:

- Annual temperature 2.6° - 7.4° warmer
- A predicted 5-10 more 95°+ days per year
- Increased intensity of precipitation events ("when it rains, it pours")
- Decreased water quality in Lake Michigan, and possible increased toxic algae events

More info: Climate Impacts & Adaptation Tool (CIAT) and National Climate Assessment Midwest & Regional Reports
<http://qlisa.umich.edu/resources/nca>

Key Framework: The ECAP and Network for Evanston's Future

The Evanston Climate Action Plan (ECAP),⁵ created to guide the city in achieving a 13% reduction in emissions by 2012, was the result of a collaborative partnership with a local sustainability coalition, the **Network for Evanston's Future**. The process involved 150 community members involved in one of nine task forces; each task was chaired by one city representative and 2 community members. This collaborative process outlined more than 200 recommended strategies in each of nine key areas.

One key aspect of this framework is that it both **encouraged community buy-in** and helped the city overcome a common planning barrier, **access to resources**. The participatory process both raises awareness and involves the community at large, but also provides a method of drafting a plan that draws on community expertise and knowledge and retains city involvement without diverting employee resources and time.

Executive Summary

Evanston has yet to engage in an explicit adaptation planning process, but this does not mean that adaptation actions are missing in the city. Evanston provides a good example of how existing common-sense efforts and actions contribute to increasing a city's resilience in absence of a formal plan. Evanston's current sustainability work, especially its work on climate change mitigation, provides a robust framework to integrate adaptation actions and considerations – indeed, due to existing frameworks within the city to address mitigation, the road to adaptation for Evanston may be considerably shorter than other cities, even those who have engaged in a formal adaptation planning process. As it is already happening organically, this case study focuses on how Evanston organically adopts adaptation into existing sustainability efforts.

Key Lessons Learned

Draw on existing sustainability frameworks

Evanston established a unique collaborative partnership in the creation of their Climate Action Plan (ECAP, see box at left). While this effort was focused on mitigation through emissions reductions, the process and framework employed to create the ECAP laid the groundwork for Evanston's current adaptation actions. The bulk of Evanston's current action on adaptation is not the result of a centralized planning effort, but rather smaller, decentralized efforts within individual departments and entities within the city. Due to city staff being already engaged in climate action, the city has been able to take initial steps towards adaptation in the absence of a formal planning effort. The "climate-ready mindset" that was established during the collaborative partnership likely has helped individuals within the city continue to think about climate change in every-day operations.

Takeaways for other cities:

For cities that have already established a climate action plan or mitigation strategy, the cross-sector partnerships and networks that were built during this planning process can be leveraged to encourage adaptation action. For cities that have not yet established this framework, raising awareness about climate change and resilience through webinars, talks, and easily-digestible information may help create this "climate mindset."⁹ The collaborative framework may also provide a model for cities that wish to engage in adaptation planning but lack the financial and/or staff capacity to create a plan.

Consider climate change in day-to-day operations and existing plans

*"For me, it's looking at things that are relevant to who I work with."
-Christina Ferraro, Assistant Director, Evanston Community Services*

In Evanston, resiliency has started to work its way into key city operations, even when not labeled as such, and often in response to

Key Terms

Mainstreaming when adaptation is incorporated as an additional consideration or goal in existing planning efforts.

Co-benefits – when an adaptation action has benefits outside of increasing resiliency. For example, it may also reduce emissions, or provide an economic benefit.

Promoting Community Buy-In

Evanston has made a concerted effort to encourage community buy-in to sustainability efforts, including promoting behavior change. This includes partnerships with community groups such as:

- [Clean Air Counts](#)¹⁰
- [Citizens' Greener Evanston](#)¹¹
- [Evanston Environmental Association](#)¹²

Evanston has also embraced national programs to mark sustainability efforts, such as:

- [WWF's Earth Hour](#): Evanston named 2015 US Earth Hour City Capital¹³
- [STAR Communities](#): Evanston achieved a 4-STAR rating¹⁴

These national accolades can encourage community action by celebrating demonstrated successes in sustainability.

existing problems or efforts. For example, the public health department has started to expand beyond residential code enforcement in private residences to incorporate responses to certain environmental conditions.¹⁵ Plans that are already in place to respond to extreme heat and extreme cold events, including warming centers, are starting to acknowledge that these extremes may grow more prevalent under climate change. Additionally, the city has worked to develop mutual aid agreements with large users of water and electricity in the city so that these users maintain their operation in the case of unplanned, short-term power outages. All of these actions are vital in the short-term, but also provide a framework for how to respond to more frequent extreme events in the long-term.

While these plans are not created with the resiliency label in mind, they respond to many of the same concerns that an adaptation plan would. They can be updated to incorporate a new range of extremes under climate change and expanded to accommodate increasing frequency of extreme events.

Takeaways for other cities

A base-level of awareness about *how* climate change might impact key-operations can lead cities or city departments to apply an adaptation lens to every-day work. Rather than a stand-alone adaptation effort, individuals and departments can consider how projected impacts may affect their ability to carry-out key functions, and determine whether existing responses or plans can respond to these potential impacts.

Look for common-sense actions now that have benefits in the future

Many of Evanston's steps toward resiliency were taken because they were solutions to near-term or current problems that also happened to increase resilience. For example, in response to a frazil ice event that brought the city within one hour of running out of water, the city installed heated intakes on one of its water treatment plants.¹⁶ In response to blackouts and frequent requests from city utilities to reduce power, the water treatment plant also has the ability to go completely off the grid. While both of these actions are solutions to current problems, they also increase the water utilities overall ability to weather extreme events.

Takeaways for other cities:

Adaptation action does not need to wait for a formalized planning process. Many adaptation actions will, in fact, be good actions to take in the near-term, because they provide solutions to current problems or current threats to infrastructure. Cities may be able to directly incorporate this concept to aid decision making – for example, an adaptation co-benefit could provide the impetus to choose one system or solution over another.

Peer Networks

Forestry:

- [Morton Arboretum](#)¹⁷
- [Chicago Botanic Garden](#)
- [Suburban Tree Consortium](#)

Public Health:

- [Illinois Department of Public Health](#)
- [North Shore Mosquito Abatement District](#)
- [Illinois Environmental Health Association](#)

Water Utilities:

- [West Shore Water Producers Association](#)
- [Alliance for the Great Lakes](#)
- [Army Corps of Engineers](#)

Barriers

1. **Funding.** When asked what the largest barrier to adaptation was in our interviews, respondents unanimously responded funding.

2. **Staff time and resources.** As one interviewee said, “you can have all the funding in the world but if you don’t have staff time, it won’t happen.”

3. **Coping.** Most of the resiliency conversations in the city were in direct response to recent events, rather than anticipated events. Restricting actions to responses to only known threats could leave a city more vulnerable.

4. **Messaging.** Evanston noted that it is difficult to balance raising awareness about adaptation and increasing fear in the community. “We don’t want to sell a doomsday message.”

Know Your Network

“Right now, it’s departments working together in areas where they have overlap or interest. It’s very organic.”

-Catherine Hurley, Sustainability Manager, City of Evanston

Throughout our interviews, city employees in Evanston mentioned peer networks that they turn to for information and support (see box at left). Sometimes these were informal networks, such as an emergency roundtable within the city to plan across departments for a potential crisis scenario.¹⁸ Often, they were formal networks of peers or state- or national-level agencies that could provide support in the form of tools, information, or best practices.

Takeaways for other cities

Keeping the lines of communication open in a city is key. In our interviews with Evanston, the value of problem solving collaboratively and sharing expertise was apparent. Turning to regional peer networks also helps planners draw on existing knowledge and best practices.

Suggested Focal Points

Evanston may not need a discrete adaptation plan; instead, adaptation actions may be best incorporated into ongoing climate mitigation efforts or mainstreamed into a sustainability plan.

Low-hanging fruit for Evanston will be adaptation actions that have clear co-benefits. For example, the Parks department re-evaluating tree species in zoning codes to keep and increase tree cover will have the dual benefits of *preserving trees in the city* so that they serve as a carbon sink, as well as decreasing the urban heat island effect.

Evanston already has adaptation successes that it can point to, and many programs already in place that provide adaptation co-benefits. Many of the initial adaptation actions that Evanston undertakes will likely be the expansion of past successful efforts and programs.

Lastly, Evanston has already recognized that the wider community will need to contribute and become engaged. Incentive and outreach programs that target behavior change and household-level infrastructure to reduce carbon emissions can also be updated to include actions that will increase household level resilience.

Conclusion

Evanston already has its pins lined up for adaptation – it has the staff and expert resources to conduct adaptation, and can leverage the precedent it set in its early and robust mitigation efforts. While like most municipalities, significant financial barriers may hinder adaptation, Evanston appears to have enough momentum to shore up resilience across the city and prepare for climate changes to come.

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9. There are currently a few attempts at "adaptation clearinghouses," but a few established sources for webinars and information are the Georgetown Adaptation Clearinghouse (<http://www.georgetownclimate.org/adaptation/clearinghouse>) and ICLEI Resilient Cities Webinar Series (<http://resilient-cities.iclei.org/resilient-cities-hub-site/webinar-series/webinar-series-2014/>). The Climate Ready Great Lakes Cities Team also developed a set of webinars and informational Powerpoint trainings on adaptation that are currently available on the Great Lakes and St. Lawrence Cities Initiative YouTube channel: https://www.youtube.com/channel/UCl_6viUesmos6hZ7RkVahQ.
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