



SHAKERHEIGHTS

Building a Resilient City

**A Report of the City of Shaker Heights
Climate Change Task Force**

December 2015

Table of Contents

Page 3	Acknowledgements
Page 5	Introduction
Page 6	Background
Page 10	Recommendations for the City of Shaker Heights
Page 13	Recommendations for Residents
Page 15	Next Steps
Page 16	Works Cited

Acknowledgements

The Climate Change Task Force acknowledges and expresses deep appreciation for the service of the residents, council members, and staff whose work is represented in this report.

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“...Science, accumulated and reviewed over decades, tells us that our planet is changing in ways that will have profound impacts on all of humankind...those who are already feeling the effects of climate change don't have time to deny it—they're busy dealing with it.”

- President Obama, 2013

<https://www.whitehouse.gov/the-press-office/2014/05/06/fact-sheet-what-climate-change-means-regions-across-america-and-major-se>

Introduction

The Climate Change Task Force was formed by Mayor Earl M. Leiken in response to the extraordinary rainfall incident of July 2014. Recognizing the many green initiatives, energy efficiency work, and emergency planning the City had already accomplished over time, the Task Force agreed early in its process to focus its efforts on the concept of “resiliency,” which combines both sustainability efforts and readiness preparations. The Task Force met several times throughout 2015 to develop recommendations. On September 16, the Town Hall Forum “Building a Resilient City” was presented by the Task Force to collect additional public input. Members made a preliminary report to the City Safety & Public Works Committee on November 6.

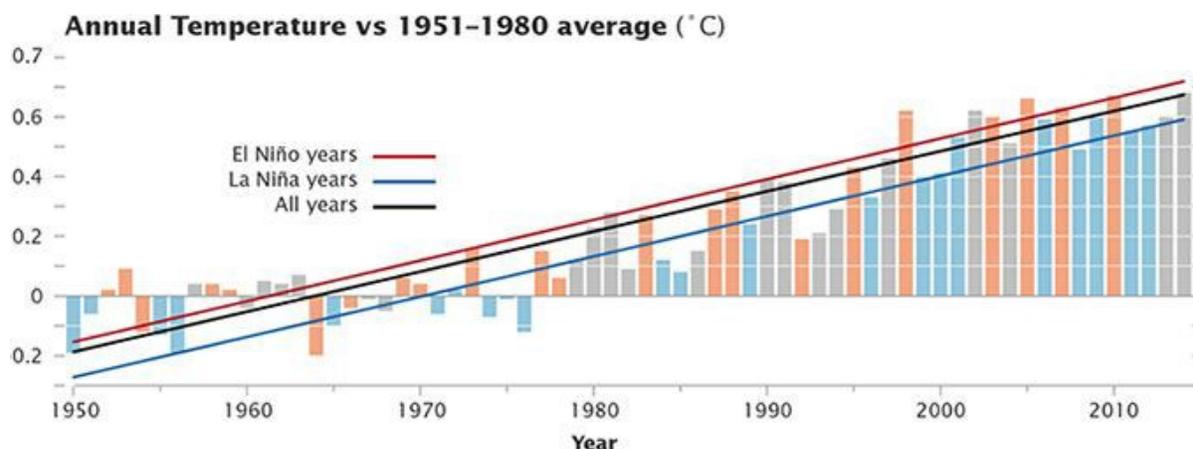
This report represents the discussions of the Task Force which were organized around the following questions:

- Why is the City of Shaker Heights studying climate change?
- What can the City do to address the effects of climate change?
- What can the City do to increase sustainability?
- What can individual residents do to address the effects of climate change?
- What can individual residents do to increase sustainability?

The Task Force identified a need for further study, research, education, and action around climate change and resiliency and therefore recommends continuing the Task Force in its existing format: resident-government partnership working to build a more resilient city for the future.

Background

The evidence is clear: climate change is real and is the cause of record-high land and ocean temperatures, melting ice caps, rising sea levels, and more frequent and intense floods, droughts, and wildfires. Earth's average surface temperature has increased by 1.4 degrees Fahrenheit in the past century, and is projected to jump another two to 11.5 degrees over the next 100 years, according to the [Environmental Protection Agency](#). The UN World Meteorological Organization [determined](#) that 2014 was the planet's warmest year since record-keeping began in 1850, and that 14 of the 15 hottest years on record have occurred since 2000.



(Chart of temperature anomalies, 1950-2014, calculated using a baseline period of 1951-1980. Source: [NASA](#))

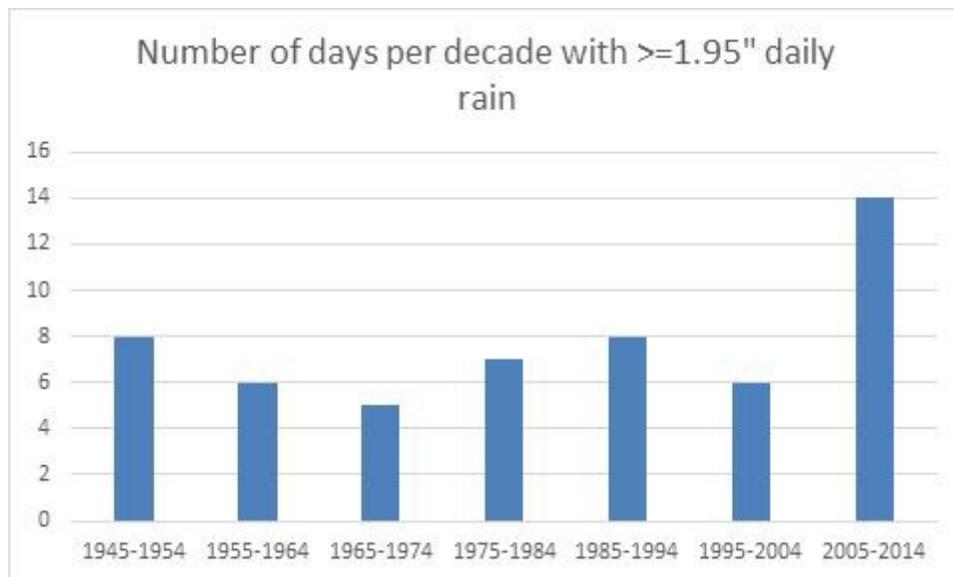
“Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic [man-made] greenhouse gas concentrations,” the UN Intergovernmental Panel on Climate Change (IPCC) wrote in a 2007 report. A 2010 [study](#) of 1,372 climate researchers’ published works found that 97-98 percent of them agree with the IPCC’s conclusion that humans are causing global warming by relying too heavily on fossil fuels (coal, oil, gas) as an energy source. Burning fossil fuels emits greenhouse gases, which act as a blanket in the Earth’s atmosphere, trapping heat. To make matters worse, Cuyahoga County emits the fourth most CO₂ (a greenhouse gas) of any county in the United States.

The Environmental Health Watch says climate change means Northeast Ohioans are likely to face:

- Harsher heat waves
- More frequent heavy snow and rain downpours
- Deteriorating air quality (resulting in more respiratory and cardiac disorders)
- More disease-carrying insect infestations
- Higher cost of living

In fact, the July 2014 rainstorm, in which 2.78” of rain fell on Shaker Heights, was classified by the Northeast Ohio Regional Sewer District as a once-in-50-year event. However, these extreme weather events are likely to occur more frequently in the future and are not limited to every 50 years, particularly as the effects of global climate change become more severe. The Northeast Midwestern region already has experienced a 37 percent increase in “heavy precipitation and the future holds even more of the same” (National Climate Assessment). The Union of Concerned Scientists concluded that “... the warming ahead will make Ohio substantially more vulnerable to the kind of weather disasters it suffered over the last several years” (Confronting Climate Change in the Midwest).

Indeed, in the last 10 years (2005-2014), there were 14 days with more than 1.95” of rain, which was twice the average of the previous six decades (see chart below) and five days with over 2.73” of rain, compared to the previous five decades in which there was on average only one day per decade with 2.73” or more.



Cleveland Hopkins airport daily rain data
(Analysis by N. Robbins, Climate Change Task Force member)

In response to the July 2014 rainstorm, and because of growing global concerns with climate change, Mayor Leiken formed the City’s Climate Change Task Force, comprising City Council members, City employees, and residents.

Cities, which are [responsible](#) for 70 percent of greenhouse gas emissions globally, have a major role to play in both preventing climate change and preparing for its consequences. With Ohio becoming the first state in the country to [roll back](#) its renewable energy

standards and rules promoting energy efficiency last year, municipal leadership on climate change is more important than ever.

Shaker's Commitment to the Environment

The City of Shaker Heights has made many serious efforts to reduce its environmental footprint in recent years, including:

- Using compact fluorescent light bulbs, which use 75 percent less energy than traditional incandescent bulbs
- Recycling paper, plastic, and cans at all City buildings
- Printing *Shaker Life* magazine on recycled paper
- Constructing and maintaining trails at Horseshoe Lake Park, the Shaker Median and along Fairhill and Coventry roads that encourage walking and biking as an alternative to driving
- Establishing a 300-square-foot rain garden in Horseshoe Lake Park, which lessens the burden on the sewer system by absorbing 12,000 gallons of water per year, the equivalent of 2.5 tanker trucks
- Repurposing six vacant lots (turned into an orchard, a playground, and green spaces)
- Encouraging residents to conduct home energy audits to learn how to make their houses more energy efficient
- Working with the Nature Center at Shaker Lakes to raise awareness about rain barrels, which collect rainwater to be used to water lawns and gardens during drier times
- Anti-idling policies for City vehicles, which prohibits employees from leaving cars running while unoccupied or not in use
- Replacing every hazardous tree that is removed with a new tree

The importance of environmental stewardship is ingrained in City employees, who act in green-friendly ways instinctively, even though the City hasn't had a formal climate change plan. While City employees should be commended for all that they've done for the environment, now is the time to create a concrete plan to address the challenges we face.

Resilience

In its early meetings, the Task Force settled on the term “resilience” as a shorthand description of efforts both to combat climate change and adapt to it. The federal government’s [Climate Resilience Toolkit](#) defines “resilience” as “the capacity of a community, business, or natural environment to prevent, withstand, respond to, and recover from a disruption.”

The Task Force initially considered recommending that the City pursue some form of external designation or rating that could grade the City’s commitment to resilience, as a way to achieve something measurable and to help market the City. Task Force members considered a number of rating systems and model recommendations, including [Sustainable Tools for Assessing and Rating Communities](#) (STAR); [Sustainable Cleveland 2019, The Oberlin Project](#), and work by [King County, Washington](#) and the American Public Works Association (APWA).

As it became clear that achieving a rating from one of these entities would likely entail substantial commitments of City resources, including potentially hiring new employees or re-designating existing ones, the Task Force decided to focus instead on developing its own series of concrete recommendations for the City and its residents. The Task Force continues to believe there is merit in pursuing an external resilience or sustainability rating at some point in the future, perhaps with the assistance of the ongoing resident/business engagement committee.

Recommendations for the City of Shaker Heights

The Task Force developed a number of recommendations for actions the City can take to increase its resilience. In light of the City's budgetary limitations, the Task Force recognizes that many of these recommendations are aspirational and cannot be implemented quickly. Still, some recommendations are simple and require little or no spending at all, and others are simply suggestions to highlight work already underway. The Task Force urges the City to do everything possible to publicize and promote its efforts at increasing resiliency as new practices and initiatives are implemented. The ongoing resident/business engagement committee should follow up on these issues, as well.

While the recommendations below are not listed in any particular order, a majority of the residents who attended the September 2015 Task Force public forum indicated their preference was for the City to prioritize infrastructure improvements, particularly sewer system improvements. Residents also wanted the City to prioritize work involving public buildings, transportation issues, and the recycling program.

What can the City of Shaker Heights do?

Transportation

- Promote transportation alternatives, such as biking, bus, and rail service, as recommended in the [2015 Housing and Neighborhood Plan](#), given the importance of these alternatives to Generation Y and Baby Boomer populations
- Advocate for Greater Cleveland Regional Transit Authority (GCRTA) funding to support the purchase of new rail cars, infrastructure upgrades, and improved bus service
- Explore conversion of certain City-owned vehicles to natural gas power
- Consider installing electric fueling stations for vehicles
- Push for easier connectivity between the City and University Circle
- Implement the 2014 Bicycle Improvements program, the Lake-to-Lakes Trails initiative, and the Avalon Bike Boulevard with the City of Cleveland
- Consider passing a "complete and green streets" ordinance requiring that space be set aside on each street project for improvements that better accommodate pedestrians and cyclists and manage storm water more effectively

Buildings

- Decrease use of carbon-based power sources for heating/cooling buildings
- Explore use of solar panels on City property and net metering to offset energy costs
- Promote simple energy saving actions in City facilities (recycle more, turn off lights and computers, etc.)
- Weatherize buildings
- Upgrade to smart faucets/toilets
- Pursue LEED certification where appropriate
- Continue implementing the 2013 Energy Conservation Master Plan
- Continue to pursue sharing of services with other municipalities to eliminate redundancies

Contracting/Procurement

- Consider a preference for vendors that have a demonstrable, publicized commitment to sustainable, green practices
- Consider negotiating a contract with NOPEC that calls for the use of more energy from renewable sources

Recycling

- Increase City, business, and residential recycling rates
- Publicize the financial benefits of recycling
- Publicize locations where containers for home-based sustainability practices can be purchased and promote their use
- Publicize and update as necessary the [ShakeRecycles](#) app for mobile phones
- Continue to provide collection for trees, brush, grass, leaves, etc., and transport to compost facility

Infrastructure

- Continue the repair and maintenance of sanitary and storm sewers
- Identify funding for maintenance of dams, lakes, and the Doan Brook

- Investigate the conversion of street lighting to smart LED
- Install solar charging and Wi-Fi stations for electronic devices on City land

Landscaping

- Evaluate the costs/benefits of using only organic, non-toxic lawn care products on City-owned property

Housing

- Encourage the Architectural Board of Review to continue to approve the use of solar panels on residential properties
- Support Affordable Energy Efficiency Financing as recommended in the 2015 Housing and Neighborhood Plan
- Partner with contractor networks and regional groups developing affordable financing mechanisms, such as on-bill financing, that make it more feasible for residents to undertake energy efficiency upgrades critical to preserving the City's aging housing stock
- Continue to support Sustainable Building and Community Design Practices, as expressed in City Council Resolution No. 03-70

Emergency Preparedness

- Update, improve, and promote public awareness of Shaker's Community Emergency Response Team (CERT) and other emergency preparations

Resident/Business Engagement

- Ongoing follow-up regarding Task Force recommendations with a citizen panel that includes landlords and business leaders.

Recommendations for Residents

While the larger challenges of climate change require collective and governmental responses, there are several things individual residents can do to increase their own sustainability and readiness for possible extreme weather events. Overall readiness efforts can be boosted with personal awareness and volunteer assistance:

- Join the [Ready Notify](#) system to be alerted to emergency situations.
- Consider joining the Community Emergency Response Team (CERT). CERT volunteers are trained in a standardized national curriculum and are then ready to serve their city. CERT can be used for emergency and non-emergency situations, such as Points of Distribution (PODs), power outages, emergency responses, fire detector education, or any other situation deemed necessary by the Health and Fire departments. For more information, contact Sandi Hurley, 216-491-1481, in the City's Health Department.
- Consider taking the Citizens Police Academy training, offered each fall. The Citizens Police Academy is a 12-week program sponsored by the Shaker Heights Police and Fire departments. It is open to Shaker residents and those who work in the City full-time. The course is intended to raise citizen awareness of police procedures and programs. Students are provided with all necessary materials and there is no fee for the course. For more information, contact Debra Messing, 216-491-1240, between 8:30 am-4:30 pm on weekdays.

Mitigation of flooding and Lake Erie pollution:

- Check sewer laterals going to street main sewers for any blockage; maintain gutter systems and window wells seasonally
- Reduce lawn square footage by replacement with ground cover or landscaping (including rain gardens) which absorb more water
- Install and maintain rain barrels
- Disconnect downspouts (provided they meet city inspection standards)
- Plant trees where possible

Mitigation of Heat Waves:

- Become aware of city cooling stations in case of electricity failure
- Plant trees where possible

Reduction of personal carbon emissions:

- Use the [CoolClimate Network](#) carbon calculator to estimate the major sources of individual carbon dioxide emissions and to consider costs and benefits of different strategies to reduce those emissions substantially.
- Immediately cut carbon emissions 13 percent by switching to NOPEC's fixed rate 100 percent renewable energy plan. Shaker residents participating in the NOPEC opt-out electricity program can switch to the fixed rate 100 percent renewable energy at 6.80 cents per kilowatt hour (kWh), whereas for 10 percent renewable energy, the fixed rate is 6.75 cents and the variable rate (as of Dec. 3) is 6.9 cents per kWh. This would reduce greenhouse gas emissions by seven tons annually (equivalent to taking 1.5 cars off the road for a year). Call First Energy, 1-800-292-9284, or visit [First Energy Solutions](#) to sign up.
- Become informed on what and how to recycle. Recycling is even more effective when combined with efforts to reduce waste and reuse items when possible.
- Do an energy audit and then consider insulation investment options throughout your home
- Bike and walk whenever possible
- Choose light colored roof colors
- Purchase Energy Star appliances
- Grow your own food
- Eat lower on the food chain
- Practice eco-driving
- Consider a hybrid or electric vehicle for your next car
- Reduce energy use through use of low energy bulbs (LED, Halogen, or CFL), install a smart thermostat, and purchase Energy Star appliances

Next Steps

Members of the Climate Change Task Force felt there were many issues that required ongoing discussion and education and therefore believe the Task Force should remain active to promote education and further City and resident action. Going forward into 2016, the Task Force will meet to discuss, among other topics:

- Leadership and membership changes, including the best way to reach out to interested residents to invite them to join the Task Force or to work on specific projects identified by the Task Force.
- Review of the sustainability efforts to be included in the annual action plans prepared by each City department beginning in 2016.
- Comprehensive education program to inform residents of steps they can take (and steps the City is taking) to increase their own sustainability including:
 - The steps detailed in this report
 - An energy-efficiency upgrade program offered by Empower Gas & Electric (currently under consideration by the City), which provides homeowners with a free energy assessment; a recommendation on the lowest-cost, highest-savings measures to make to their property; a roster of qualified and pre-screened contractors to carry out the work; low-cost, highly accessible financing that ensures most customers save from the very first month; and monthly energy reports to customers, so they know exactly how measures are performing and what other steps they could take to save energy and money.
 - Additional steps as identified by the Task Force.
- Consideration of a program enabling residents to make an annual voluntary contribution for Shaker energy sourcing/conservation projects (e.g., solar panels on school roofs, subsidies for low-income housing energy efficiency) to help offset the CO₂ generated by each household (e.g., from long-distance airplane flights), and simultaneously contribute to the community. A local fund could be established through an existing nonprofit organization.
- Best practices guidelines for the use of pesticides on City and residential property.

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