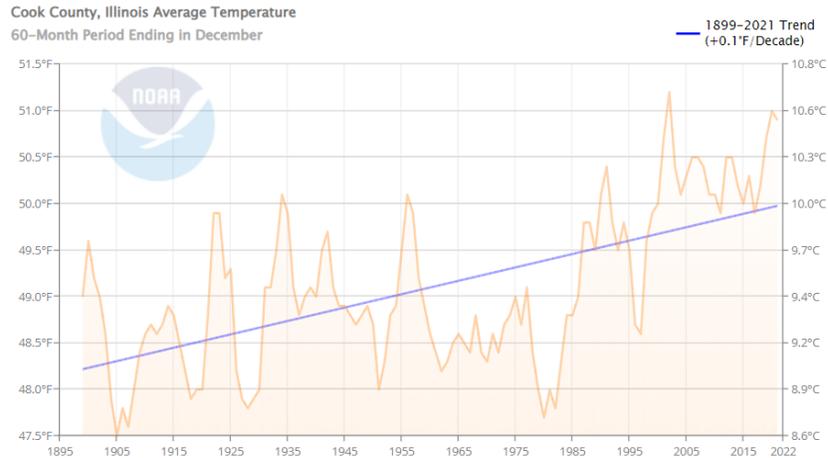


Eric Wang

Core Pathways Rough Draft

PAST: Cook County and Chicago’s Fight Against Increased Heating and Inland Flooding



Average (60-month) temperatures in Cook County, Illinois from 1899 to 2021. Blue line depicts a trend and line of best fit of the temperatures per decade. Source: NOAA Climate at a Glance.¹

As one of the most rapidly warming regions of the United States, local environments in the Midwest—and specifically Cook County of Illinois—have suffered tremendous ramifications of the increases in temperatures and climate change. As shown in the graph above, at the end of the 1890s, the year-round temperature of Cook County was around 48.2⁰ F; however, within a little more than a century, the average temperature shot up to 50⁰ F.^{2 3} Although such a difference may not seem that large at first glance, this consistent and clear escalation of even a couple of degrees has changed the county. As the most populous county in Illinois and second most populous county in the country (Cook County is home to Chicago), it is important to analyze

¹ “Climate at a Glance.” National Climatic Data Center, National Oceanic and Atmospheric Administration, 2022, www.ncdc.noaa.gov/cag/county/time-series/IL-031/tavg/60/12/1895-2022?trend=true&trend_base=10&trendyear=1895&endtrendyear=2022.

² A key point to note is that these temperatures are year-round (60 months, to be exact), and thus, these averages include the colder winters that make the temperatures seem somewhat on the lower side. If the calculations only consisted of the hotter summers, the calculations would be exceedingly higher.

³ Ibid.

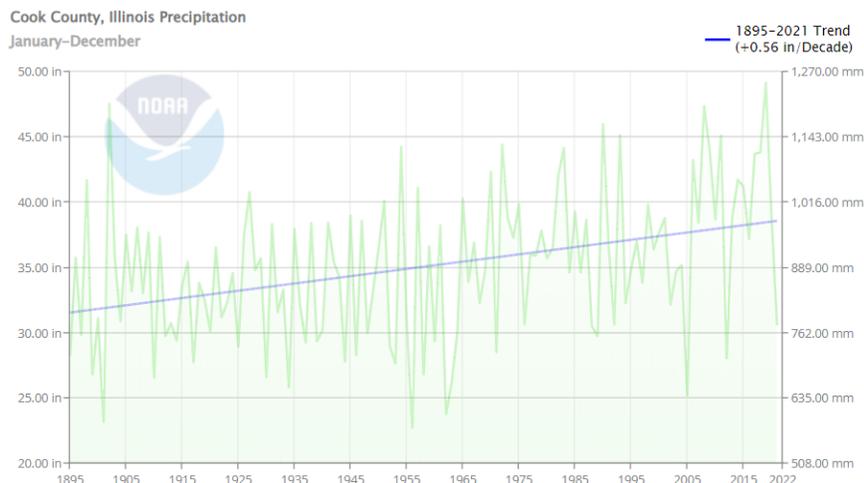
how the county has dealt with recent warming. Rising temperatures not only heated the county's landscape, but also influenced inland flooding and precipitation increases, impairing both Chicago as well as Cook County as a whole.

Rising temperatures directly lead to hotter and drier areas across the region, resulting in many heating calamities. While heat-related disasters and accidents have persisted throughout all of history, recent decades' scorching summers have grown not only in numbers, but also in intensity. One famous example is the historic heat wave between July 12th and July 15th of 1995. Due to the "unseasonably hot and humid air mass that was slow to move out of the Midwest," many cities in Cook County like Chicago faced ravaging temperatures and dew points, reaching up to heat indexes of 125⁰ F throughout the day.⁴ Moreover, because of the highly urbanized areas of the county, the Urban Heat Island Effect⁵ resulted in the heat indices only marginally lowering into the night, often remaining at triple digit temperatures. Chicago alone lost over 500 lives in this catastrophe, and many others died or suffered extreme burns in the rest of Cook County. Unfortunately, the 1995 heat wave was not a singular anomaly; succeeding years have been even more consistently hotter, and similar events such as the 1999 and 2012 heat waves have likewise produced alarming disasters.⁶

⁴ US Department of Commerce, NOAA. "Historic July 12-15, 1995 Heat Wave." National Weather Service, NOAA's National Weather Service, 5 Aug. 2021, www.weather.gov/lot/1995_heatwave_anniversary.

⁵ Which effectively causes buildings and structures to attract and preserve heat in greater magnitudes in comparison to surrounding greenery—like an 'island' in the ocean—EPA, Environmental Protection Agency, www.epa.gov/heatislands.

⁶ US Department of Commerce, NOAA. "Historic July 12-15, 1995 Heat Wave." National Weather Service, NOAA's National Weather Service, 5 Aug. 2021, www.weather.gov/lot/1995_heatwave_anniversary.



Average (annual) precipitation in Cook County, Illinois from 1895 to 2021. Blue line depicts a trend and line of best fit of the precipitation per decade. Source: NOAA Climate at a Glance.⁷

In addition to increasing heat waves, warmer air can hold more water, which can mean more precipitation. Even if landlocked areas may not be directly affected by rising sea levels along the coasts, cloud formations can spread drastically without raining, and thus, the incessant downpours can be problematic for many regions. Such an issue is exacerbated even further in Chicago and Cook County, as they border Lake Michigan (and its neighboring Great Lakes), which drives the local water cycle and inland flooding. Just as temperatures in Cook County have steadily increased in the past century, the graph above depicts an almost parallel in precipitation. These greater intensities of rainfall and therefore flooding cause immense structural and social damages to urban communities, for as Harold Platt analyzed in a Chicago case study on floods: “Contaminated with raw sewage, the storm runoff surges also back-flowed into people’s basements and the city’s streets, blocking underpasses and sinking low-lying neighborhoods.” The natural flat topography of Chicago and Cook County, which was built on

⁷ “Climate at a Glance.” National Climatic Data Center, National Oceanic and Atmospheric Administration, www.ncdc.noaa.gov/cag/national/time-series/110/pcp/ann/12/1895-2022?trend=true&trend_base=10&trendyear=1895&endtrendyear=2022.

top of a swamp, have made it especially vulnerable to contaminated and disease-stricken floods, especially prior to modernized sewer systems and pollution restrictions.⁸

The information from this article is primarily retrieved from National Oceanic and Atmospheric Administration (NOAA) and more specifically the “Climate at a Glance” tool that permits online users to measure temperature and precipitation changes throughout periods of time. Its detailed data analysis permits the general public to maintain deep understandings of not only state and nation-wide climates, but also local county climates in grasping more regional concerns. Additionally, other reputable sources about specific events and particular case studies give even deeper and more local insights into the global consequences of climate change. Meteorological data, weather reconstructions/analyses, and first-hand accounts all contribute to a unified understanding of how global warming has impacted places like Cook County.

Cook County and Chicago stand as fundamental areas of the country, and due to their direct experiences with climate change’s massive consequences, many have taken responsibility from these influences in enacting stronger changes to combat these setbacks. For example, in the 1960s, Chicago designed the Tunnel and Reservoir Plan (TARP) to “redirect sewer overflows from storm runoff surges into an underflow system of very large storage tunnels running below the rivers,” robustly decreasing the pollution levels in the city’s sewer systems. By realizing the constant contamination and unlivable standards of filthy floodwaters in civilians’ homes, Mayor Daley enacted a change in fixing the infrastructural integrity of the water systems, with the help of many in the community.⁹

In more recent years, Cook County Board President Toni Preckwinkle took a more direct approach to combating these climate change consequences by attacking the major root of the

⁸ “Too Much Water.” *Sinking Chicago: Climate Change and the Remaking of a Flood-Prone Environment*, by Harold L. Platt, Temple University Press, 2018, p. 78.

⁹ *Ibid.*, p. 90.

problem: carbon emissions. Many causes of the increasing natural disasters stem from higher temperatures year-round, and greenhouse gasses like carbon dioxide exponentially amplify the transformations. Therefore, Preckwinkle published the 2020 Cook County Sustainability Report to “support healthy and resilient communities that thrive economically, socially and environmentally.” More specifically, carbon emissions have been reduced by 35% in County-owned buildings since 2010 and County-owned facilities will be carbon neutral by 2050. Ultimately, just as the impacts of climate change and its consequences have dramatically increased over time, that very damage has been the motivation for more prominent action to be taken. Chicago and Cook County give an excellent example of how although their past has resulted in great calamities and frustrations, their future shines bright as a beacon of leading others into a more green world, not only in nearby counties or states, but the entire country and even the world.¹⁰

¹⁰ Cook County Releases 2020 Annual Sustainability Report, 7 May 2021, www.cookcountyil.gov/news/cook-county-releases-2020-annual-sustainability-report#:~:text=The%20County's%20goals%20to%20fight,them%20carbon%20neutral%20by%202050.

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