

2020 Climate Action Plan Draft

Lincoln, Nebraska



Executive Summary

Resilience: The capacity of social, economic, and environmental systems to cope with a hazardous event, trend, or disturbance, responding or reorganizing in ways that maintain systems' essential function, identity, and structure while also maintaining the capacity for adaptation, learning, and transformation.





Resilience is commonly thought of as the ability to bounce back from a shock or disturbance. While recovery is a necessary component of resilience, climate resilience also includes capacity-building that allows continued adaptation in the midst of an ever-changing environment. Climate resilience can thus be understood as the ability to recover from shocks and the capacity to thrive in the midst of a continually changing environment.

Resilience is a bridge between climate change adaptation and disaster risk reduction. While disaster risk reduction focuses on identifying specific hazards and assessing risk relative to those hazards, climate resilience focuses on ensuring the proper functioning of a whole system in the face of multiple hazards and ongoing disruptions.¹⁹

This plan attempts to take an intersectional approach to climate resilience, looking at the ways in which climate risks will intersect with Lincoln's socio-economic, health and systemic vulnerabilities, and also at the ways in which solutions can have co-benefits across sectors.



Lincoln's Future Climate

The ways in which Nebraska's climate is expected to change are significant.



2-5 degrees

warmer than now

By 2050, average temperatures in Nebraska are expected to be 2 to 5 degrees warmer than they are now.



10-20 days

annually with a high temperature greater than 95°F

Nebraska experiences, on average, 10-20 days annually with a high temperature greater than 95°F. By mid-century, this number will likely double, impacting plant growth and development. Conversely, the number of extreme cold days will be cut by 50%-66%, on average.



15-20%

winter and spring precipitation totals will be up

Winter and spring precipitation totals will be 15% to 25% higher than current conditions. Fall will be slightly wetter (5% increase in precipitation) and summer will be 5% to 15% drier than the present climate, impacting summer irrigation demand.



15% to 30%

increase in heavy precipitation days

Heavy precipitation days are projected to increase 15% to 35% by 2050. Furthermore, multi-day extreme precipitation events will increase in severity.²⁰

Projected Climate Impacts

The changes in climate will result in several impacts, each of which may have many implications for life in Lincoln.

Nebraska's Projected Climate Impacts

- Warmer, drier summers
- More extreme hot days
- Wetter springs
- Snowier winters
- More extreme rain events
- Higher cooling degree days
- Lower heating degree days
- More demand for water
- More frequent droughts
- More frequent and more intense floods
- Increased insect-borne diseases
- Crop, livestock stress
- Increased damage potential

- More frequent large hail
- Longer growing season
- Economic instability
- Climate-related health impacts

Seven Qualities of Resilient Cities

- Flexible
- Redundant
- Robust
- Resourceful
- Reflective
- Inclusive
- Integrated

Source: City Resilience Index

Climate Risks

The planning process identified eleven main areas where the city is exposed to risk in the ways that climate impacts may intersect with existing social and infrastructure vulnerabilities.

- 1. Flooding and Drought.** Lincoln's susceptibility to flooding, particularly along the leveed portion of Salt Creek, is one of the most significant climate risks for the city. Flood conditions are expected to alternate with drought conditions, which create another high risk for the city.
- 2. Single Water Source.** The fact that Lincoln is reliant on one source for all of its water needs—a source that, as seen in 2019, is vulnerable to extreme weather—is a critical climate risk that must be addressed.
- 3. Public Health Risks.** Extreme heat, extreme storms, wildfire, floods, fewer freezing temperatures and psychological stress are some of the impacts from climate change that can lead to serious health issues.
- 4. Disproportionate Impacts on Vulnerable Populations.** Those who are vulnerable economically, socially or physically will be more at risk from the cascading impacts of climate change. Lincoln has several populations who are at risk.
- 5. Financial and Workforce Resources Not Aligned with Climate Risks and Opportunities.** Currently, Lincoln's economic and workforce development efforts have not taken climate change into account, nor are current efforts aligned with the climate risks and opportunities of the future.
- 6. City Policies Not Aligned with Climate Risks and Opportunities.** Like all cities, Lincoln has conventionally based its policies and ordinances on the notion that the climate operates within historical and stable limits. As we are now living in the era of anthropogenic climate change, policymakers will need to consider updated models and data. There is therefore a great need to update the City's policies and planning efforts to reflect projected climate hazards.
- 7. Auto-Reliant Transportation System.** The auto-reliant infrastructure in Lincoln, combined with the fact that most cars are combustion engine vehicles, means that greenhouse gas emissions from the transportation sector will be a challenge to reduce.
- 8. Reliance on Fossil Fuels.** The lives of Lincoln residents are intertwined with fossil fuels-- through the gas in their cars, the way the electricity they use is generated, the natural gas they use to heat their homes, and more. To make significant progress in reaching the goal of reducing community-wide net emissions by 80%, the way that everyday life is powered in Lincoln will need to shift.
- 9. External Control Over Food Supplies.** Nearly all edible food for residents must be shipped in from far away and stocked in the city's grocery stores, which generally carry a three-day supply.
- 10. Vulnerable Natural Resources.** Climate change can have a range of negative effects on the natural resources on which we depend for clean air, water and soil.
- 11. Degree of Public Awareness.** In general, climate change is not being discussed enough in homes, workplaces and civic organizations in Lincoln, and most residents are likely unaware of the dangers that climate change poses to them and what they could do to reduce greenhouse gas emissions.



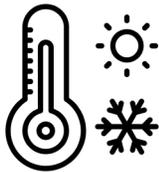
Strategic Visions

Three overarching directions form the vision for Lincoln’s Climate Action Plan.



Lincoln will reduce net greenhouse gas emissions 80% by 2050 (relative to 2011 levels).

This ambitious goal will serve as a guiding target for municipal operations, the Lincoln Electric System, local businesses and institutions, and our entire community in the years to come. Lincoln joins scores of cities across the country who have set a similar “80x50” goal to reduce emissions. A myriad of strategies in the plan speak to achieving this target, from increasing energy efficiency, generating more electricity from renewable energy, switching to electric vehicles and active commuting modes, and employing natural climate solutions. The goal is a *net* reduction in emissions because it will allow for an accounting of carbon sequestration activities—where plants or systems naturally absorb greenhouse gases—against the amount of greenhouse gases that are emitted into the atmosphere.



Lincoln will be resilient to the climate hazards it will face.

Increasing resilience to the impacts of climate change is a key outcome of this plan. While it is impossible to set a single, measurable goal that would encompass the wide range of resilience capacity the City should build across economic, demographic and infrastructure sectors, this strategic vision, like the first, will help to align actions across Lincoln to increase resilience.



Strategic climate directions and climate resilience will be integrated throughout City actions and ordinances.

Many of the strategies in this plan will be adapted into the next Comprehensive Plan. Beyond that important effort, climate resilience strategies will need to be adopted throughout municipal government in order to be truly effective.

Strategies to Build Resilience

The plan includes over 600 strategies to reduce emissions and increase resilience. Many strategies look to reduce emissions by reducing energy use, switching to renewable forms of energy, and reducing transportation emissions by employing active commuting and electric vehicles. Others seek to remove greenhouse gas emissions from the atmosphere through natural solutions such as planting trees, expanding greenways and composting. Also included are strategies that seek to protect Lincoln residents from the worst effects of climate change in Lincoln.

Many of the strategies use the term “climate-smart” to describe a way forward that is zero emissions, sustainable, equitable, risk-informed and forward-looking. In total, the strategies create a path for Lincoln to adapt to a changing reality and do so while not just surviving, but thriving.

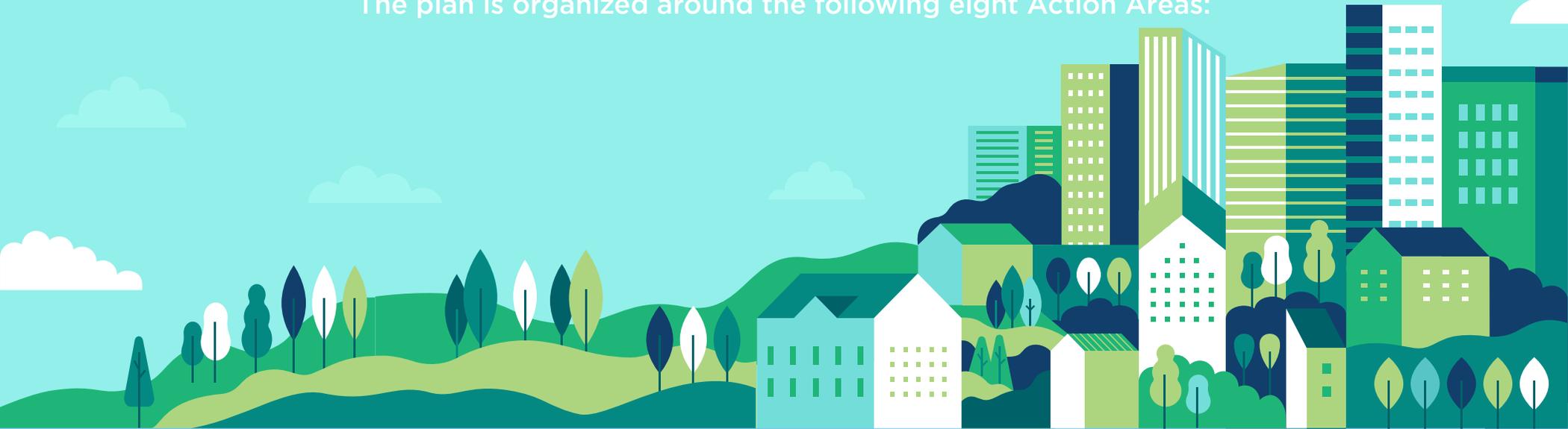
The strategies in this plan are to be read as recommendations, not existing policy. Much work lies ahead to determine the details of how these recommendations will be adopted, if and how they will be revised, who will be accountable for meeting the objectives, and how progress will be tracked and shared. This plan aims to provide a roadmap that can be used by the public and private sector for years to come to guide the city’s progress toward its climate-smart future.



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Action Areas

The plan is organized around the following eight Action Areas:



Transition to
Low-Carbon
Energy



Build a
Decarbonized
and Efficient
Transportation
System



Align Economic
Development
Goals with
Climate Realities
to Ensure
a Thriving
Economy



Improve
Protections
for and with
Lincoln
Residents



Build a
Resilient
Local Food
System



Maximize
Natural
Climate
Solutions



Reduce
Waste



Engage
Residents in
Co-Creating
A Climate
Smart Future