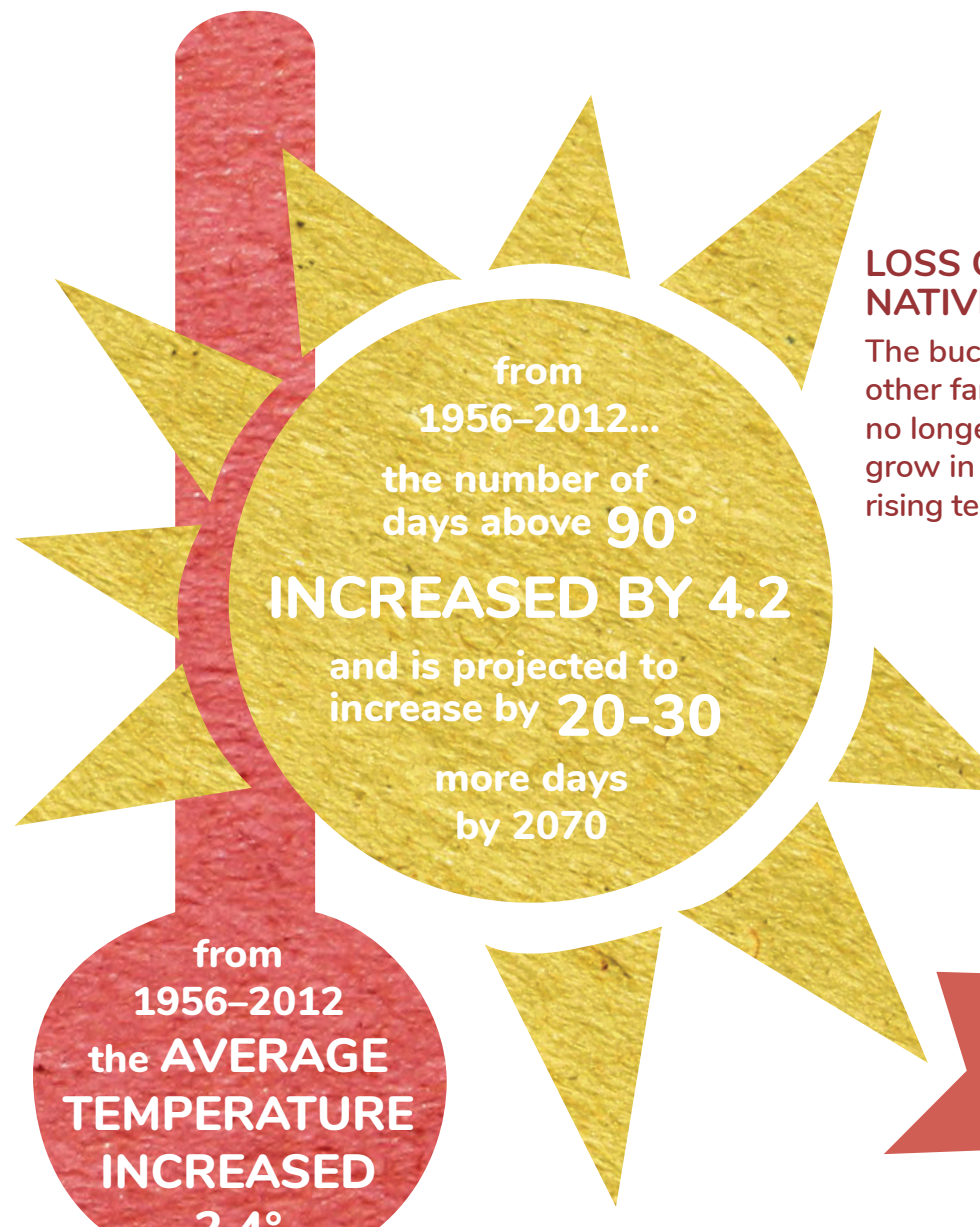# IMPACTS OF CLIMATE CHANGE IN CLEVELAND

Climate change in Cleveland could damage the environment and put human health at risk. Hotter summer temperatures, more rain, snow, intense storms, and floods may be heading our way. Some of these changes are already happening.

Low-income and elderly residents are especially at risk from the effects of climate change. Large areas of pavement, a lack of trees in some neighborhoods, and the city's aging sewer system contribute to the challenges of climate change. But there are things we can do to protect our families, homes, and neighborhoods.
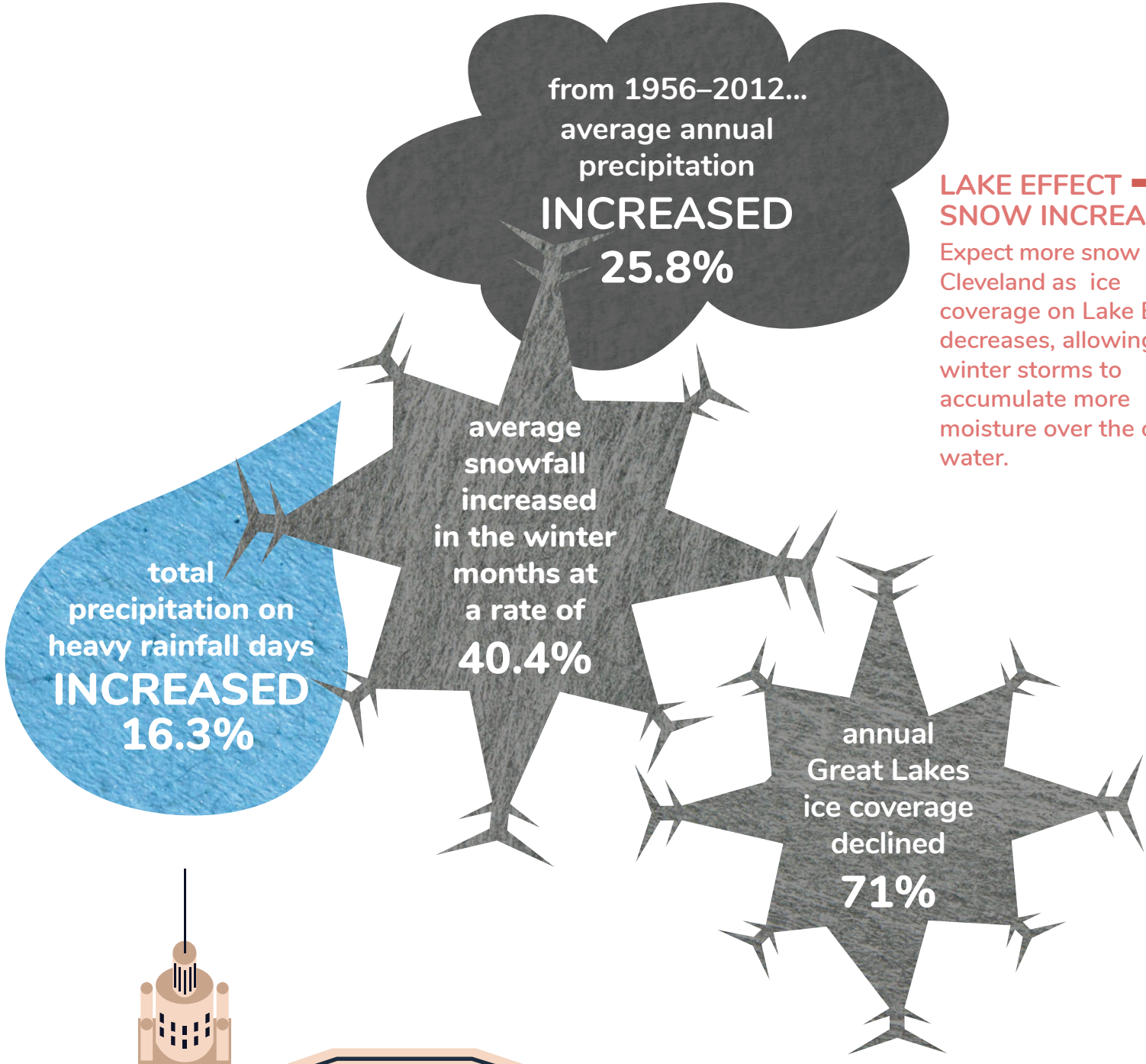
Cleveland Neighborhood Progress, the Cleveland Office of Sustainability, four community development corporations, and 16 climate ambassadors are working to address the impacts of climate change in Cleveland and help prepare residents for the challenges that lie ahead through three main strategies:

1. Save energy through home weatherization. Expand use of renewable energy sources like wind and solar power.

2. Anticipate problems and prepare for surprises caused by climate change.

3. Bring neighbors together to build stronger relationships and take collective action.

CLIMATE RESILIENCY STRATEGIES FOR CLEVELANDERS

HEAT-RELATED HEALTH ISSUES
Hot weather and air pollution increase the risk of heart attacks, stroke, asthma, and other illnesses.

from 1956–2012... the number of days above 90° **INCREASED BY 4.2** and is projected to increase by **20–30** more days by 2070

from 1956–2012 the **AVERAGE TEMPERATURE INCREASED 2.4°**

LOSS OF NATIVE PLANTS
The buckeye tree and other familiar plants may no longer be able to grow in Ohio due to rising temperatures.
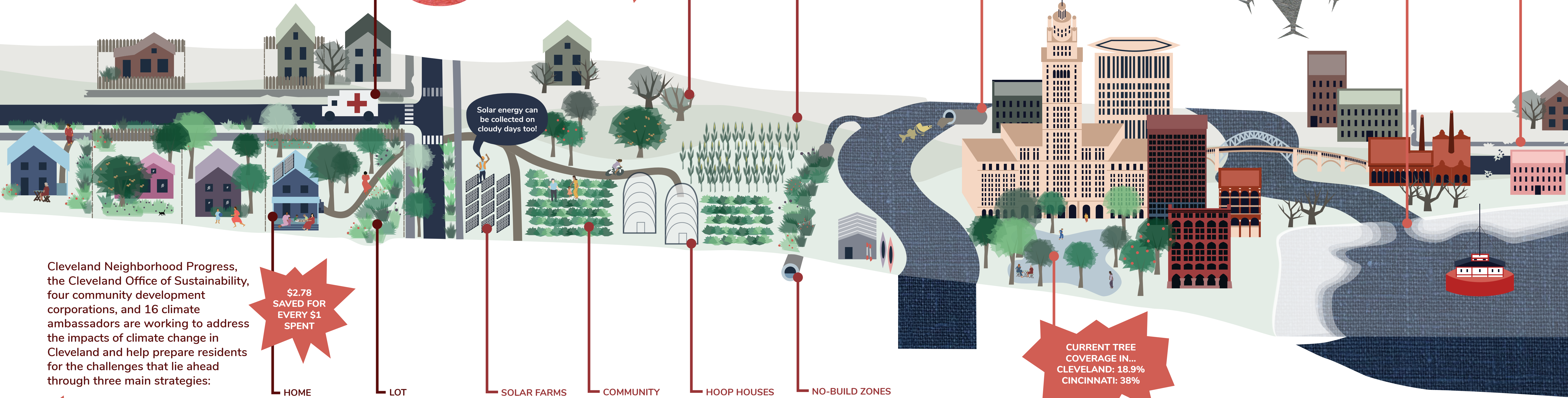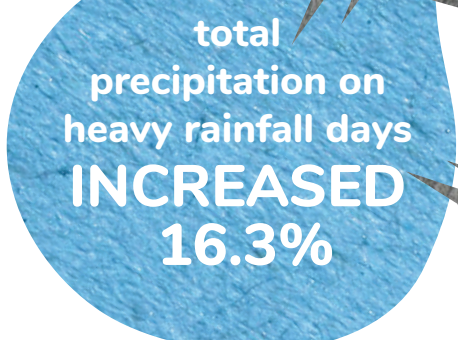
BUCKEYE TREE HABITAT IS SHRINKING

EXTREME WEATHER EVENTS
Climate change may cause more frequent and unpredictable storms, heavy rain and snowfall, and flooding in Cleveland.

THE GROWING SEASON INCREASED BY 20 DAYS FROM 1956 TO 2012

DECLINE IN WATER QUALITY
When it rains a lot, storm sewers overflow into sanitary sewers, releasing untreated sewage into Lake Erie. Climate change may make this problem worse, although the Northeast Ohio Sewer District is investing in improved sewers and green infrastructure.

from 1956–2012... average annual precipitation **INCREASED 25.8%**

total precipitation on heavy rainfall days **INCREASED 16.3%**

average snowfall increased in the winter months at a rate of **40.4%**

annual Great Lakes ice coverage declined **71%**

LAKE EFFECT SNOW INCREASE
Expect more snow in Cleveland as ice coverage on Lake Erie decreases, allowing winter storms to accumulate more moisture over the open water.

MAINTENANCE COSTS
It may cost more to maintain roads and sewers since freeze/thaw cycles damage pipes and pavement.

Solar energy can be collected on cloudy days too!

$2.78 SAVED FOR EVERY $1 SPENT

CURRENT TREE COVERAGE IN... CLEVELAND: 18.9% CINCINNATI: 38%

HOME WEATHERIZATION
Weatherization makes your home more comfortable in winter and summer and reduces energy bills.

For every dollar spent on home weatherization in Ohio, there is a $2.78 return on that investment to the homeowner and the state's economy.

source: USAID / NARUC

LOT CONSOLIDATION
Combining vacant lots with neighboring homes enables homeowners to expand their yards, plant more trees, and reduce flooding.

SOLAR FARMS
Solar panels on roof tops and vacant lots generate clean energy.

Did you know that 43% of employees in Ohio's solar industry are women and 19% are minorities? Solar power creates jobs in the community.

source: Solar Foundation

COMMUNITY GREEN SPACES
Community gardens, urban farms and other green spaces provide food and a place for neighbors to come together.

HOOP HOUSES
These low-cost, easy to assemble structures protect crops from bad weather and extend the growing season.

NO-BUILD ZONES
Many creeks and streams run under Cleveland neighborhoods. It's best not to build houses or other structures over buried waterways, because this can cause problems with flooding and sink holes. The paths of buried streams are great places for bike trails, tree planting, and gardens.

CLEVELAND'S TREE PLAN
Trees keep neighborhoods cooler and more comfortable in the summer. Also, tree roots absorb water and can help reduce flooding problems. The tree plan aims to increase the tree canopy in the city and better maintain the trees we have.

source: Cleveland Tree Plan

WANT TO KNOW MORE?
For more information on the Cleveland Climate Resilience and Urban Opportunity Initiative, contact **Cleveland Neighborhood Progress** at 216-830-2770 or visit www.resilientcleveland.org

Unless otherwise notated, all data is sourced from the University of Michigan Climate Center's Great Lakes Integrated Sciences and Assessments Program (GLISA).

AT THE SCALE OF THE BUILDING & SITE

AT THE SCALE OF THE NEIGHBORHOOD

AT THE SCALE OF THE CITY

THE KRESGE FOUNDATION | Cleveland Neighborhood Progress | CITY OF CLEVELAND OHIO | CUDC Cleveland Urban Design Collaborative | University at Buffalo School of Architecture and Planning