Climate Change and Environmental Justice Work – with a Focus on Housing

Alison Waske Sutter, Sustainability and Performance Management Officer
Affordable Housing Fund Board Meeting
September 29, 2022
Items to Review

- Climate change: impacts and opportunities with housing
- City’s sustainability and climate change commitments and housing focused work
- Sustainability and climate change opportunities for the AHF Board
What is climate change?

- **Climate Change**: long-term continuous increase or decrease to average weather conditions or range of weather (weather is short-term; climate is long-term)
- **Climate Change Mitigation/Decarbonization**: reducing or preventing greenhouse gases/carbon emissions
- **Climate Change Adaptation**: taking actions that reduce or prevent the harm caused by climate change
- **Environmental Justice**: all people and communities have the right to equal environmental protection under the law, and the right to live, work and play in communities that are safe, healthy, accessible, and free of life-threatening conditions.
- **Climate Justice**: a concept and movement that addresses the ethical dimensions of climate change. A shift from a discourse on greenhouse gases and melting ice caps into a civil rights movement with the people and communities most vulnerable to climate impacts at its heart.
Existing and predicted climate changes

- **Number of extreme precipitation events** has increased 40%.
- **Total annual precipitation** has increased by 16%.
- The total volume of **rainfall in extreme events** (heaviest 1% of storms) has increased by 52%.
- **Total annual precipitation** will likely increase in the future, though types of precipitation will vary (rain in winter).
- Increased potential for **drought** in future because while there will be more precipitation overall, more is anticipated to fall in shorter, extreme events.
- **Average air temperature** is projected to rise 3F to 5F by mid-21st century.

Source: GLISA
Health impacts
- Respiratory Conditions
- Heat Illness
- Waterborne Diseases
- Vector-borne disease
- Mental health impacts

Billion Dollar Disasters
the construction and operation of buildings has a significant impact on:

- affordability
- community health
- climate change

Black, Indigenous and People Of Color (BIPOC) are disproportionately impacted by environmental pollutants and climate change and have been under-represented in the design, regulation, and operation of buildings.

nationally, there is a shortage of more than 7 million affordable homes for our nation’s 10.8 million plus extremely low-income families.
Climate Migration:
the movement of people due to climate or the effects of climate change.

Grand Rapids is primed to be a “climate haven” or safe place for people to move to with:
• A diverse job market
• Population growth
• Good schools
• Cultural offerings
• Comparatively moderate climate
• Access to water

Climate migration will exacerbate already existing inequities within our community (such as lack of affordable housing)—our focus is to address those inequities, and to increase quality of life and resilience of our current residents in the hopes that we will better be able to prepare for what’s to come and avoid displacement or gentrification.
Sources of Greenhouse Gas/Carbon Emissions in our Community

- Single Family Residential: 24.39%
- Commercial buildings including Multifamily Residential: 17.15%

*Preliminary results from communitywide emissions inventory (2019)*
baseline building assessment key findings

Current Building Stock

205,265,759 square feet
62,305 buildings

Commercial and Residential Buildings in Grand Rapids

Current Building Area by Type

- Commercial: 31.7% (65.0 M ft², 5,614 buildings)
- Single Family: 51.6% (105.9 M ft², 46,065 buildings)
- Multifamily: 16.7% (34.4 M ft², 10,626 buildings)

39% building sector GHGs

Data from Dec 2017
building energy projections

Building Energy Use Trends

Building Energy Use by Type

- Single Family
- Multi Family
- Commercial
ENERGY COST BURDEN

Zero Cities Data

Kent County Landscape

Kent County home energy burden (percent of annual income spent on home energy bills) among low income households

ENERGY COST BURDEN

Age of Housing Stock in Grand Rapids, Michigan

- 37.50% of housing units built before 1939
- 24.10% of housing units built between 1940 and 1959
- 16.00% of housing units built between 1960 and 1979
- 13.00% of housing units built between 1980 and 1999
- 9.40% of housing units built in 2000 or later

**Substandard Housing and Exposure to Health Risks**

Zero Cities Data

NOF Resident Survey FINDINGS - Demand

- Types of programs of interest (6 options)
  - 69 Financial Assistance
  - 60 Energy Efficiency
  - 56 Home Rehabilitation

- Most used in previous 10 yrs. (20 options)
  - 42 DTE Energy Assistance Program
  - 20 Get the Lead Out
  - 19 Home Repair Services

- Cost Savings - Biggest motivator to participate (Q - 12)
**NOF Resident Survey Findings - Investments**

Q25 - “Would you be willing to invest in any of these areas if program assistance existed? [Check all that apply]”

<table>
<thead>
<tr>
<th>Area</th>
<th>Percentage</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roof</td>
<td>15.19%</td>
<td>24</td>
</tr>
<tr>
<td>Windows</td>
<td>13.92%</td>
<td>22</td>
</tr>
<tr>
<td>Lead abatement</td>
<td>7.59%</td>
<td>12</td>
</tr>
<tr>
<td>Fire safety</td>
<td>9.49%</td>
<td>15</td>
</tr>
<tr>
<td>Appliances</td>
<td>14.56%</td>
<td>23</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>4.43%</td>
<td>7</td>
</tr>
<tr>
<td>Insulation</td>
<td>15.19%</td>
<td>24</td>
</tr>
<tr>
<td>Weatherization</td>
<td>15.82%</td>
<td>25</td>
</tr>
<tr>
<td>I am not interested in investing in any of these.</td>
<td>3.80%</td>
<td>6</td>
</tr>
</tbody>
</table>
Housing mitigation and adaptation opportunities

- Backup battery / onsite energy generation (solar)
- Temperature control / energy efficiency
  - Insulation and envelope repairs
  - Energy Star (all electric) appliances
  - Heat pumps (A/C)
  - Shade trees
  - LED bulbs (reduce energy by 90%)
- Water usage / energy efficiency
  - Low-flow showerheads and faucet aerators
  - Using cold water when possible (laundry)
- Stormwater management
  - Native plants to absorb water
  - Drainage away from foundation (gutters and downspouts)
  - On-site rainwater collection
Energy Star Home Upgrades

Image Credit: U.S. EPA
Anatomy of an All-Electric Home

Solar panels let homeowners produce their own power.

High levels of insulation minimize the effect of outside temperatures on indoor air.

Energy efficient windows insulate and reduce noise.

Home appliances use smart technology to increase energy efficiency and reduce costs.

Induction stoves are safer and healthier to use and keep kitchens cool.

Heat pump HVAC systems replace both gas furnaces and air conditioners.

Heat pump water heaters pull heat from the air to heat the water.

Heat pump dryers are 40-50% more efficient than gas dryers.

Batteries store energy for later use.

Electric vehicles can run off electricity generated at home.

Image Credit: MI Saves
City’s Commitment and Current Areas of Focus
Values

Our values are what we stand for. They are embedded throughout the entire plan and guide all City work.

Accountability
Always acting with integrity and transparency and being responsible for what we do and say.

Collaboration
Working together in partnership with others; teamwork.

Customer Service
Professionally serving those who live in, work in or visit the city. Providing respectful, excellent, high quality service and assistance before, during and after the person’s interactions with the City.

Equity
Leveraging City influence to intentionally remove and prevent barriers created by systemic and institutional injustices.

Innovation
Challenging how things have been done before, fulfilling community needs by offering new ways to serve our customers and enhance operations. Being nimble, self-aware and open to feedback.

Sustainability
The ability to be maintained; making decisions with an understanding of how those decisions will impact the environment, people and communities, and finances, both today and in the future.

Vision

Grand Rapids will be nationally recognized as an equitable, welcoming, innovative and collaborative city with a robust economy, safe and healthy community, and the opportunity for a high quality of life for all.

Mission

To elevate quality of life through excellent City services.

Priorities

**Governmental Excellence**
A fiscally resilient government powered by high performing and knowledgeable staff equipped with the appropriate tools and resources to offer excellent, equitable and innovative public service.

**Economic Prosperity and Affordability**
Residents, employers and businesses have pathways to financial growth and security.

**Engaged and Connected Community**
Residents and stakeholders have awareness of and voice in decisions that affect them, and receive culturally-responsive and proactive communication.

**Health and Environment**
The health of all people and the environment are advocated for, protected and enhanced.

**Mobility**
Innovative, efficient and equitable mobility solutions are safe, affordable and convenient to the community.

**Safe Community**
All people feel safe and are safe at all times throughout our community.
health and environment

**Objective 1:** Reduce carbon emissions and increase climate resiliency.

**Strategies**
1. Create carbon reduction goals and integrate goals into appropriate City plans, including the Comprehensive Master Plan
2. Reduce the carbon footprint of City operations (buildings, utilities and fleet)
3. Assess the feasibility and cost of offsetting 100% of City electricity with renewable sources by FY2025
4. Create and support programs and policies to reduce carbon emissions from the building and transportation sectors throughout the community
5. Create a Climate Action and Adaptation Plan in partnership with the community
6. Work with community partners and businesses to achieve a 40% tree canopy

**Draft Metrics**
- Carbon footprint of city buildings, utilities and fleet (metric tons of carbon dioxide equivalents)
  - 2018: 59,088* Goal: To be created
  - *Fleet not included
- % of City electricity supplied by renewable sources
  - 2018: 34% Goal for June 30, 2025: 100%
- % of tree canopy
  - 2018: 34% Goal: 40%
Environmental Justice Journey

- Environmental sustainability; environmental conservation; climate change (planet)
- Equity, diversity and inclusion; social responsibility (people)
it's all connected

human health

economic prosperity

environmental conservation

Tenant Health
Healthy Neighborhoods
Indoor Air Quality

Preserved Green Space
Stormwater Management
Greater Biodiversity
Decreased Resource Extraction
Address Climate Change

Higher Market Value
Lower Tenant Vacancies
Reduced Utility Bills
Higher Workforce Retainment

it's all connected
E.H.Zero
Policies and Programs for Equitable, Healthy, Zero Carbon Buildings

The E.H.Zero initiative is a partnership of...
Residential and commercial building policies and programs co-created and supported by community (residents and commercial building stakeholders) focused on equitably achieving increased affordability, beneficial health outcomes and resilience while reducing energy consumption and carbon emissions.
a holistic approach

- voluntary programs
- community master plan/ zoning ordinance
- local building policies
- economic development incentives
- federal/state legislation & regulations
- financing options

Local Utility Programs
Grand Rapids 2030 District

PACE
Michigan Saves
Traditional Lending
Affordable Housing Fund
key objectives

Lead with equity in the development of policies and programs that will reduce carbon emissions from buildings and homes

Educate all interested stakeholders on Zero Cities Project outcomes and possible policy options

Engage all interested stakeholders in co-creation of policies and programs

Enhance and expand building policy modeling dashboard to support data driven decisions

Complete a housing renovation pilot on at least 5 homes

Present to the City Commission in 2023 a package of policies that will achieve equitable decarbonization within buildings

Create a plan for and begin implementing programs and policies, including a “Whole Homes” navigator style program

Incorporate building sector specific goals and key strategies into the Climate Action and Adaptation Plan
stakeholders to engage

**project initiation**
- Investors
- City’s Economic Development, Community Development, and Planning Departments
- Project developers

**design & construction**
- Designers, Engineers, Contractors
- City’s Design Team, Dev. Center, and Building Inspections
- Construction Companies
- Building Owner/Operator
- City Residential Rental Cert. Program
- Real Estate Companies
- Building Management Companies

**people**
- Tenants & Residents
- Neighbors
- Employees
- Community-based organizations and Neighborhood Associations
residential housing partner will:

manage the housing renovation pilot program

- Oversee renovation of at least 5 diverse residential homes
- Equity-centered approach focused in Neighborhoods of Focus
- Assist with measuring health, financial, energy and carbon outcomes
- Leverage other existing programs
- Support design of “Whole Homes Navigator” program

will seek to understand:

- What works best for people
- Co-benefits when affordability, health, and sustainability are addressed simultaneously

apply learnings to improve services to the community

Residential Housing Partner – Green Star
- Green Home Institute
- SEEDs of Promise
- Building Bridges
- Elevate
Potential approaches based on building type

**Single Family Residential**
- Community Development's Housing Rehabilitation and Lead Hazard Control Programs
- Weatherization
- Whole Homes Navigator Program
- **Affordable Housing Fund**

**Multifamily Residential**
- Community Development's Housing Rehabilitation
- Weatherization
- Grand Rapids 2030 District
- Economic Development incentives
- **Affordable Housing Fund**

**Commercial**
- Grand Rapids 2030 District
- Economic Development incentives
- Building Performance Standard (BPS)

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On-site solar installation
State Building Codes (New construction / major renovation)
Utility voluntary greenhouse gas emissions goals / energy waste reduction
Federal and State Funding (BIL, IRA (green bank), etc.)
Community Master Plan
Climate Action and Adaptation Plan
what’s next?

Launched BIPOC Equity Consultation Team

October 2021:
Hired Healthy and Sustainable Buildings Policy Specialist at the City

Early 2022:
Offered educational webinar series

March 2022:
Selected housing partner

Summer 2022:
Launch housing renovation pilot

Fall 2022 – Fall 2023:
Authentically engage stakeholders in co-creation model for policies and programs

Fall 2022:
Complete a communitywide carbon emissions inventory

Fall or Winter 2023:
Present a package of building policies and programs that will improve affordability and health outcomes while reducing carbon emissions for City Commission consideration

Work in partnership to include learning and outcomes in Affordable Housing Fund development, Community Master Plan and Climate Action and Adaptation Plan

Fall or Winter 2023:
Training and Information Coming Soon
• Support rehabilitation, efficiency, health and resilience improvements in low-income existing housing
• Require fund recipients to incorporate a minimum amount of energy efficiency / decarbonization, climate resilience and healthy housing elements
• Leverage existing and recently funded programs (green bank, rehabilitation, lead hazard, healthy housing, etc.)
• Consider engaging with E.H.Zero and/or Community Collaboration on Climate Change (C4)
• Require/incentivize:
  • Enroll in the Grand Rapids 2030 District (multifamily only)
  • High efficiency electric readiness or implementation (electrification – appliances, heating/cooling, vehicle charging)
  • Generate or procure renewable energy
  • Incorporate climate resilience into design and operations
  • Incorporate environmental and climate justice
  • Achieve an environmental and/or health based 3rd party building design certification (LEED, WELL, Living Building, etc.)
  • Inclusion of utility costs with rent
Opportunity

- For every $1 invested in energy efficiency, $3 is saved
THANK YOU

Alison Waske Sutter, Sustainability and Performance Management Officer
616-456-3689
asutter@grcity.us