

Planning for healthy and resilient 'climate destinations'

The Duluth, MN Perspective



UNIVERSITY OF MINNESOTA DULUTH

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Background on the Research

“Duluth: The Most Climate-Proof City in America.”



Dr. Jesse Keenan of the Graduate School of Design at Harvard University, March 2019

Since Then...

IDEAS • CLIMATE CHANGE

Where We'll End Up Living as the Planet Burns

BIG STORY

Future cool: Minnesota city ponders new boom as a climate migrant destination

By Sebastien M

CLIMATE

Americans are fleeing climate change — here's where they can go

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Climate pioneers flee fire, heat for famously frigid Duluth

By Daniel Cusick | 11/24/2021 06:43 AM EST

Questions

- What does it mean to be a climate destination?
- In what ways is Duluth most/least resilient?
- Is climate migration already occurring?
- Are we prepared?

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ENVIRONMENT



Background on Literature

Types of cities:

- Vulnerable – Miami, FL; Houston, TX; New Orleans, LA
- Recipient – Chico, CA; Orlando, FL
- Climate destinations – Buffalo, NY; Cincinnati, OH

Sources: Marandi, Anna, and Main, Kelly Leilani. "Vulnerable City, recipient city, or climate destination? Towards a typology of domestic climate migration impacts in US cities" *Journal of Environmental Studies and Sciences* (August 2021). <https://doi.org/10.1007/s13412-021-00712-2>; Findlay, Allan M. "Migrant Destinations in an Era of Environmental Change." *Global Environmental Change* 21, no. 1 (2011): S50–S58. <https://doi.org/10.1016/j.gloenvcha.2011.09.004>; Davis, Kyle Frankel, et al.. "A universal model for predicting human migration under climate change: examining future sea level rise in Bangladesh" (2018). <https://iopscience.iop.org/article/10.1088/1748-9326/aac4d4>

Climate Destinations

- Fresh water
- Manageable climate impacts
- Infrastructural capacity
- Affordable housing
- Resiliency efforts
- Desire to grow



Sources: Marandi, Anna, and Main, Kelly Leilani. "Vulnerable City, recipient city, or climate destination? Towards a typology of domestic climate migration impacts in US cities" *Journal of Environmental Studies and Sciences* (August 2021). <https://doi.org/10.1007/s13412-021-00712-2>; Findlay, Allan M. "Migrant Destinations in an Era of Environmental Change." *Global Environmental Change* 21, no. 1 (2011): S50–S58. <https://doi.org/10.1016/j.gloenvcha.2011.09.004>; Davis, Kyle Frankel, et al.. "A universal model for predicting human migration under climate change: examining future sea level rise in Bangladesh" (2018). <https://iopscience.iop.org/article/10.1088/1748-9326/aac4d4>

Fresh Water/Manageable Climate Impacts

- 86 inches of snow
- Increased winter temperatures
- Fewer days of snow cover
- Warmer summer temperatures
- Over half inch of precipitation daily in spring



Infrastructural Capacity

- Population - 106K in 1960
- Currently - 86.8K
- Follows slow/negative growth trend in rust belt or “frostbelt”



Resiliency Efforts

- Climate vulnerability study (2017)
- Sustainability Officer (2020)
- Climate Action Work Plan (2022)



GREAT PLAINS
INSTITUTE

City of Duluth Climate Action Work Plan 2022 - 2027



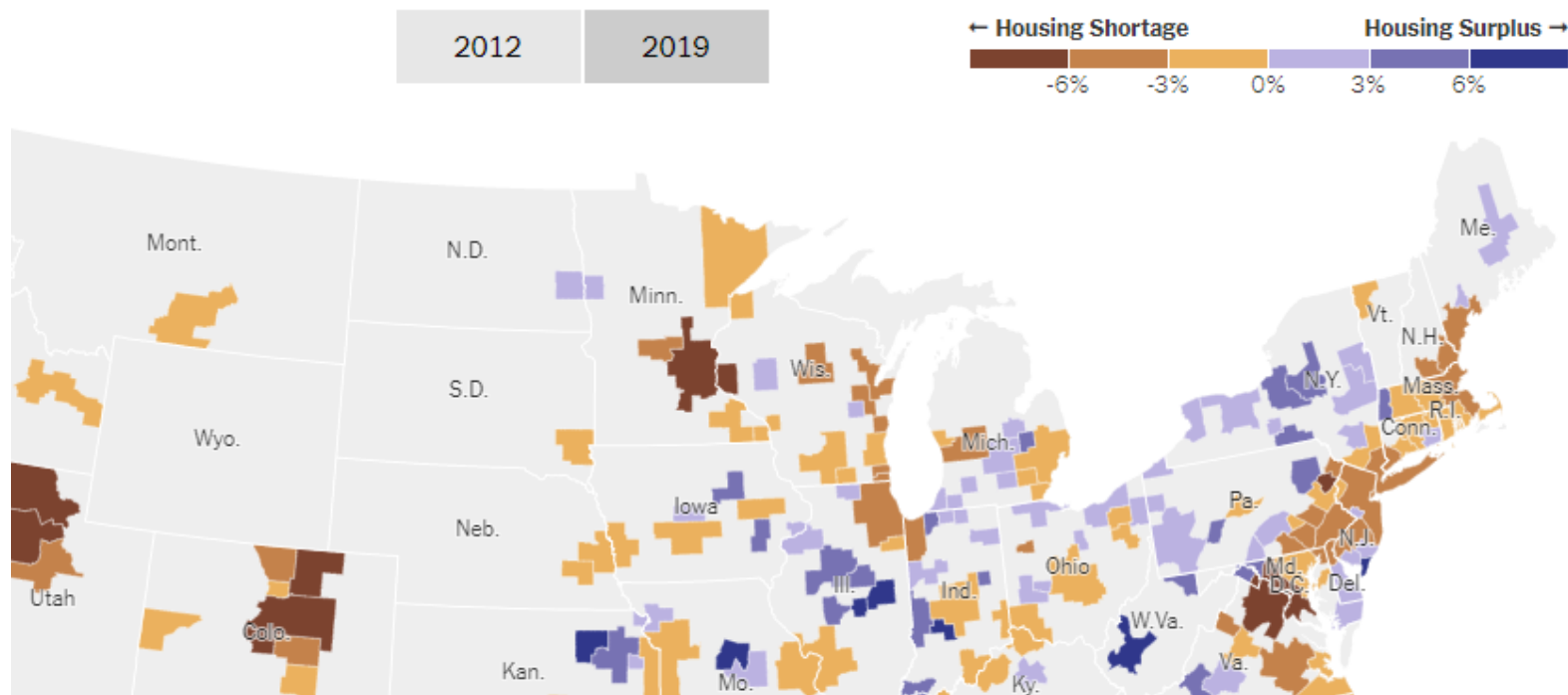
Housing

- 15 of 18 (83%) mentioned
- Types lacking
- Affordability
- Maintenance, adaptability, age
- Mismatch between needs and incoming people

“The city has a housing crisis. Aging housing stock. Rents are higher than they should be for a city in [the] Midwest. Migrants are likely to be affluent and are more able to pay higher housing costs. This will increase housing costs.”

Housing

The housing shortage has spread to more parts of the country



Source: New York Times

Desire to Grow

Interview themes included:

- Equity
- Community and Economic Development
- Social Capital

We already have educational, economic, environmental, health, and housing disparities. [We] have to figure those issues out for the people we have before we add climate migrants/refugees."

"Currently, we are an insular and white community. An influx of new residents could be a beautiful opportunity for our community to benefit from a wider swath of humanity."

Population Trends

Highest Net Migration

1. Minneapolis-St. Paul-Bloomington, MN-WI (1,287)
2. Outside Metro Area within U.S. or Puerto Rico (908)
3. Los Angeles-Long Beach-Anaheim, California (157)
4. Fort Wayne, Indiana (118)
5. Rochester, Minnesota (84)

Population Trends

Lowest Net Migration

1. St. Cloud, Minnesota (-293)
2. Phoenix-Mesa-Chandler, Ariz. (-225)
3. Carbondale-Marion, Illinois (-127)
4. Fayetteville, North Carolina (-104)
5. Bakersfield, California (-97)



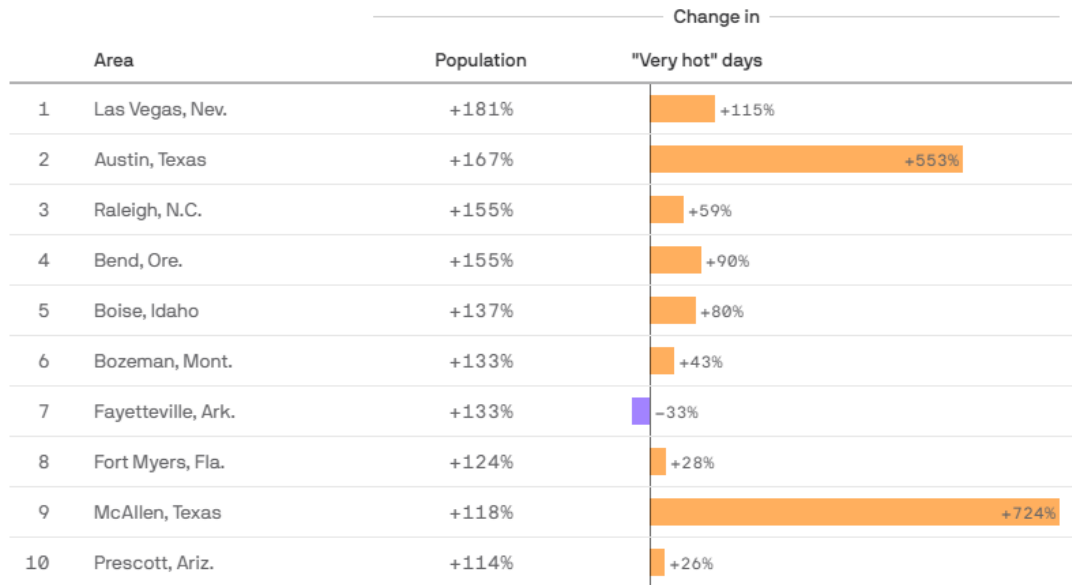
Future Migration Projections

- 1,000 to 10,000 new net migrants through 2100
 - less than 0.5% of the current population
- Caveats:
 - Sea-level rise
 - Historic migration patterns
 - Perceptions of destination cities
 - Policy, social, and economic factors

Population Trends

Areas with the greatest population growth

1991-2021



Note: "Areas" are defined as Core-Based Statistical Areas, which are one or more socioeconomically-tied counties anchored by an urban center.

"Very hot" days are those with a high at or above the 1991-2020 95th percentile temperature for each given area. Data: U.S. Census, NOAA; Chart:

Erin Davis/Axios Visuals

Fastest growing U.S. cities:

Las Vegas, Nevada 181%

Austin, Texas 167%

Raleigh, N. Carolina 155%

Bend, Oregon. 155%

Source: Axios, using data from U.S. Census and NOAA

Implications

- Natural amenities are necessary but not sufficient
- Resiliency is an approach
- Community resilience includes equity, social capital
- Historic migration patterns may not apply

Monica Haynes, Director
Bureau of Business and Economic Research
University of Minnesota Duluth
mrhaynes@d.umn.edu

Interviews with Stakeholders: The Potential Social, Environmental, and Economic Impacts on Duluth, Minnesota, as a Climate Refuge

Kim Nichols Dauner, MPH, PhD; Monica R. Haynes, MS; Daniel Ye, BS, BA; Ben Palmquist, BA.



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