Geothermal is the way FORWARD

Arya Sheth, Raveena Stephen, Aneesh Guda, and Dexter Noggle

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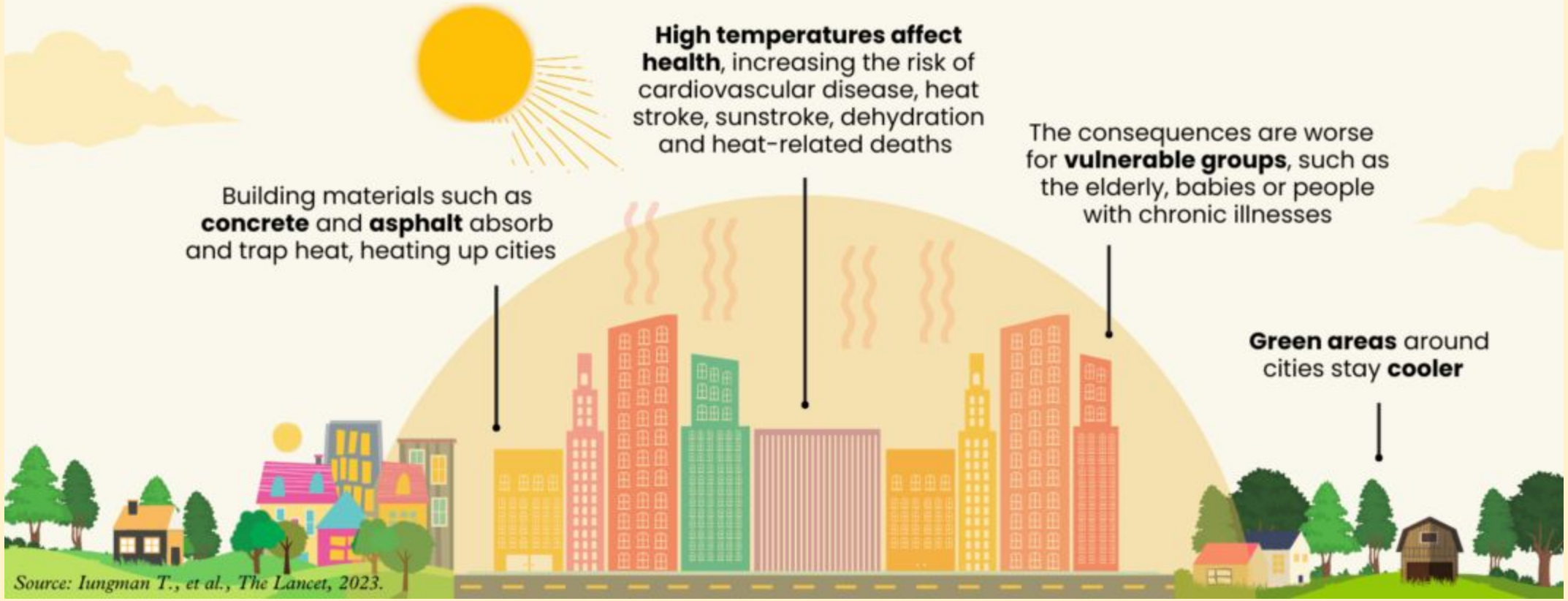
ISGlobal

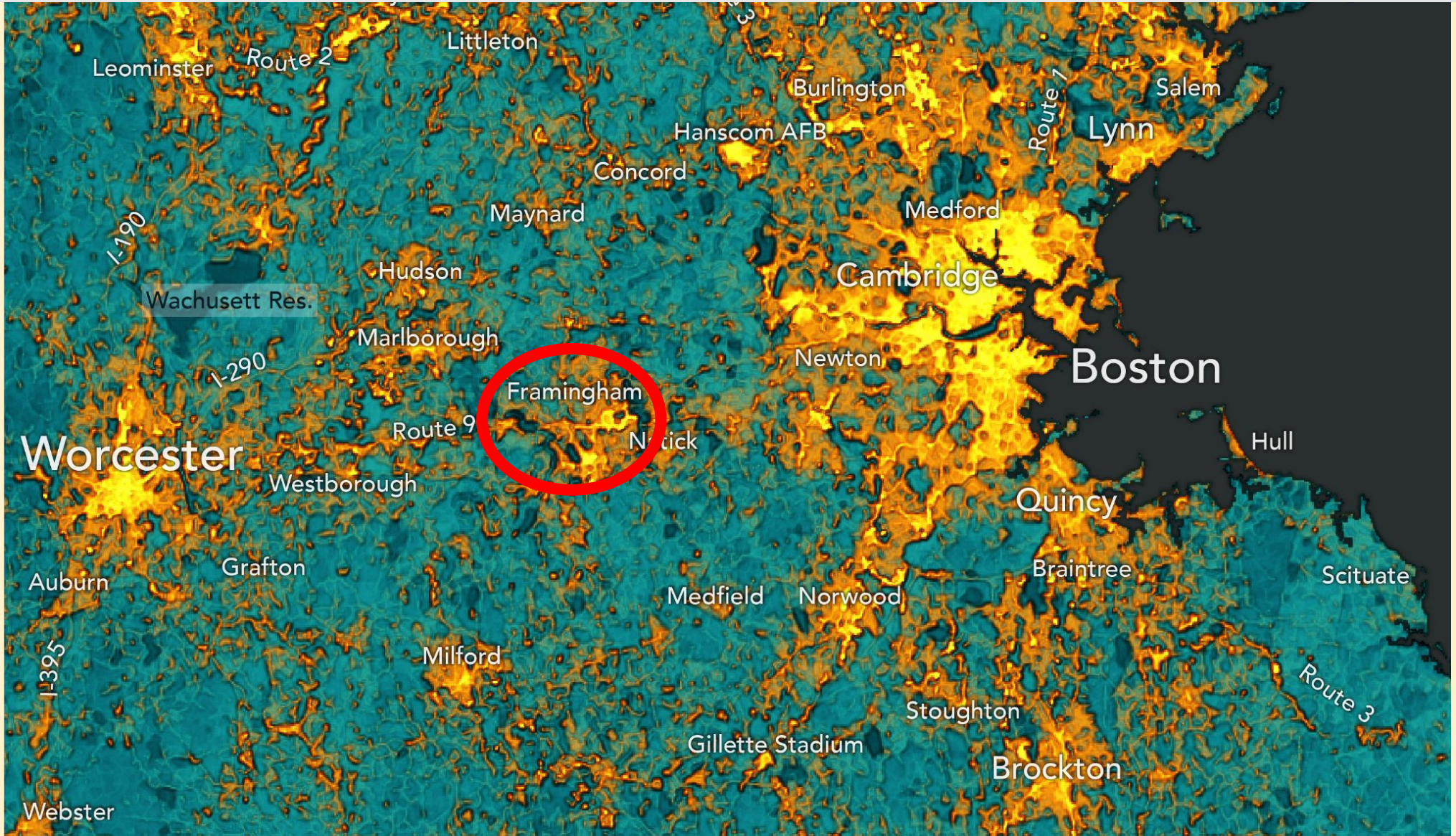
The urban heat island effect

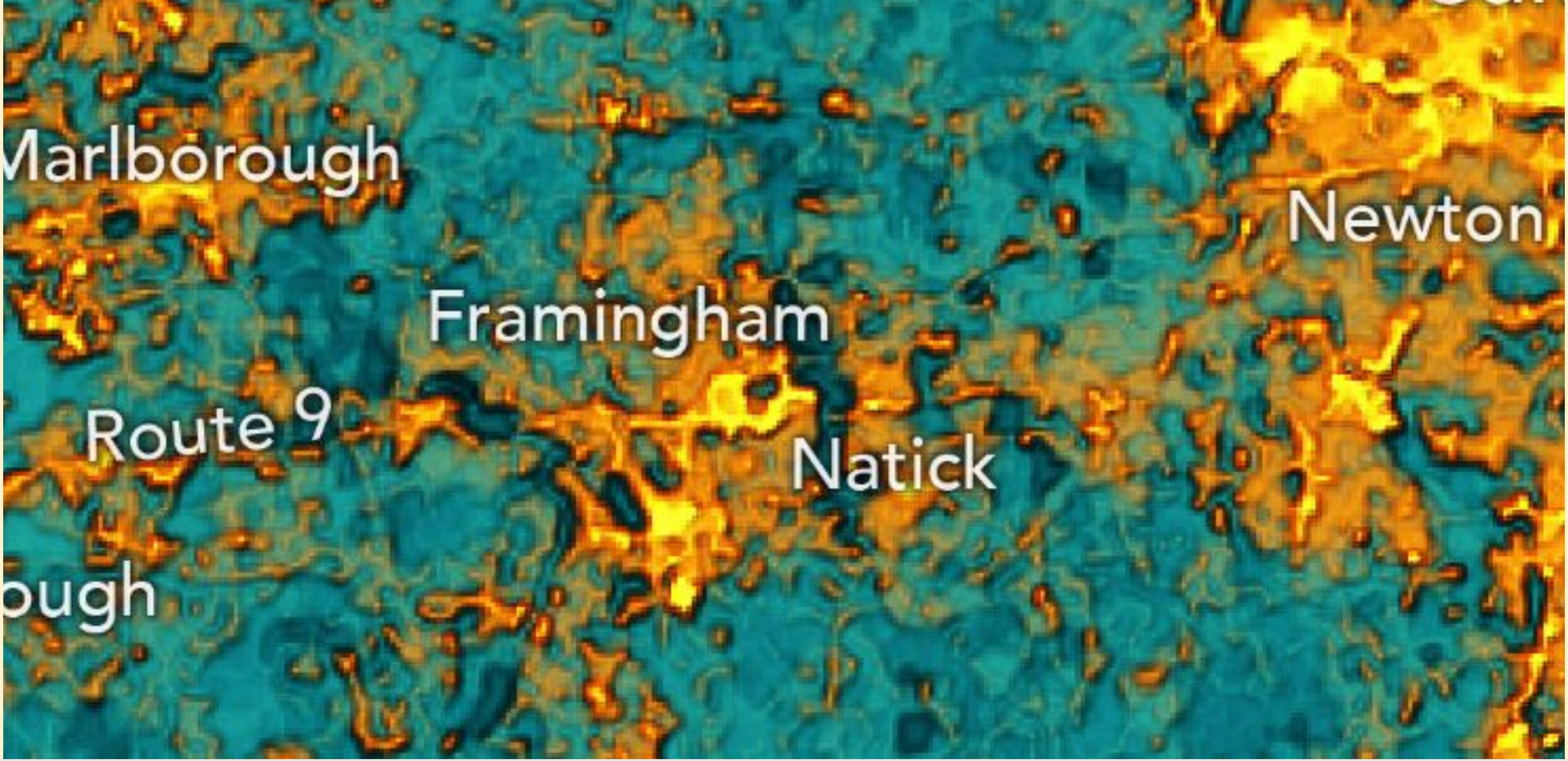
Refers to the **increase in temperature** in **urban environments** compared to surrounding areas.



Source: Iungman T., et al., The Lancet, 2023.

A map of urban heat islands in Eastern Massachusetts. Brighter colors represent relatively hotter summer conditions.

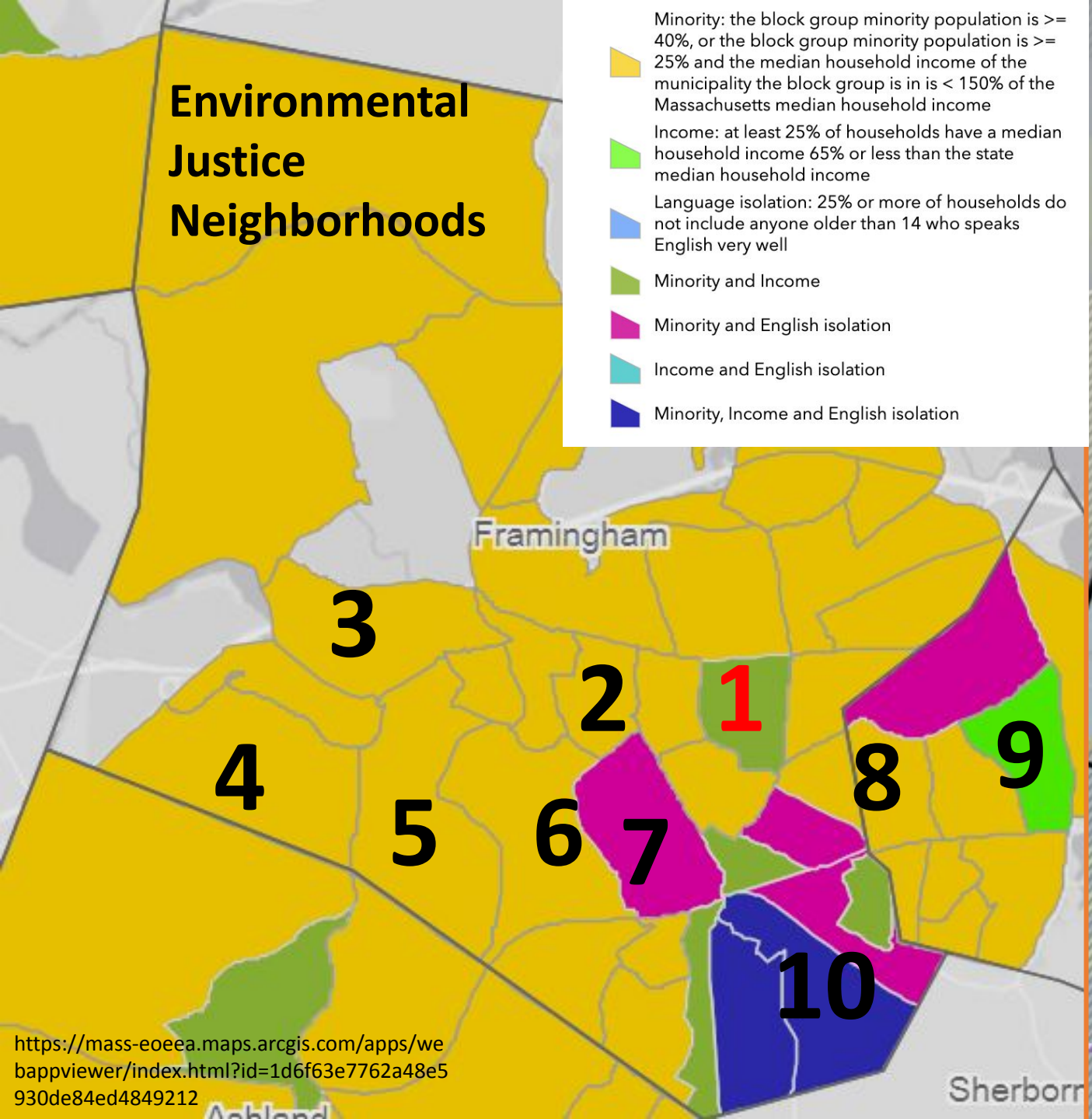




This map was created from a **Landsat 8 land surface temperature composite** of the **summers 2018-19**.

Environmental Justice Neighborhoods

- Minority: the block group minority population is >= 40%, or the block group minority population is >= 25% and the median household income of the municipality the block group is in is < 150% of the Massachusetts median household income
- Income: at least 25% of households have a median household income 65% or less than the state median household income
- Language isolation: 25% or more of households do not include anyone older than 14 who speaks English very well
- Minority and Income
- Minority and English isolation
- Income and English isolation
- Minority, Income and English isolation



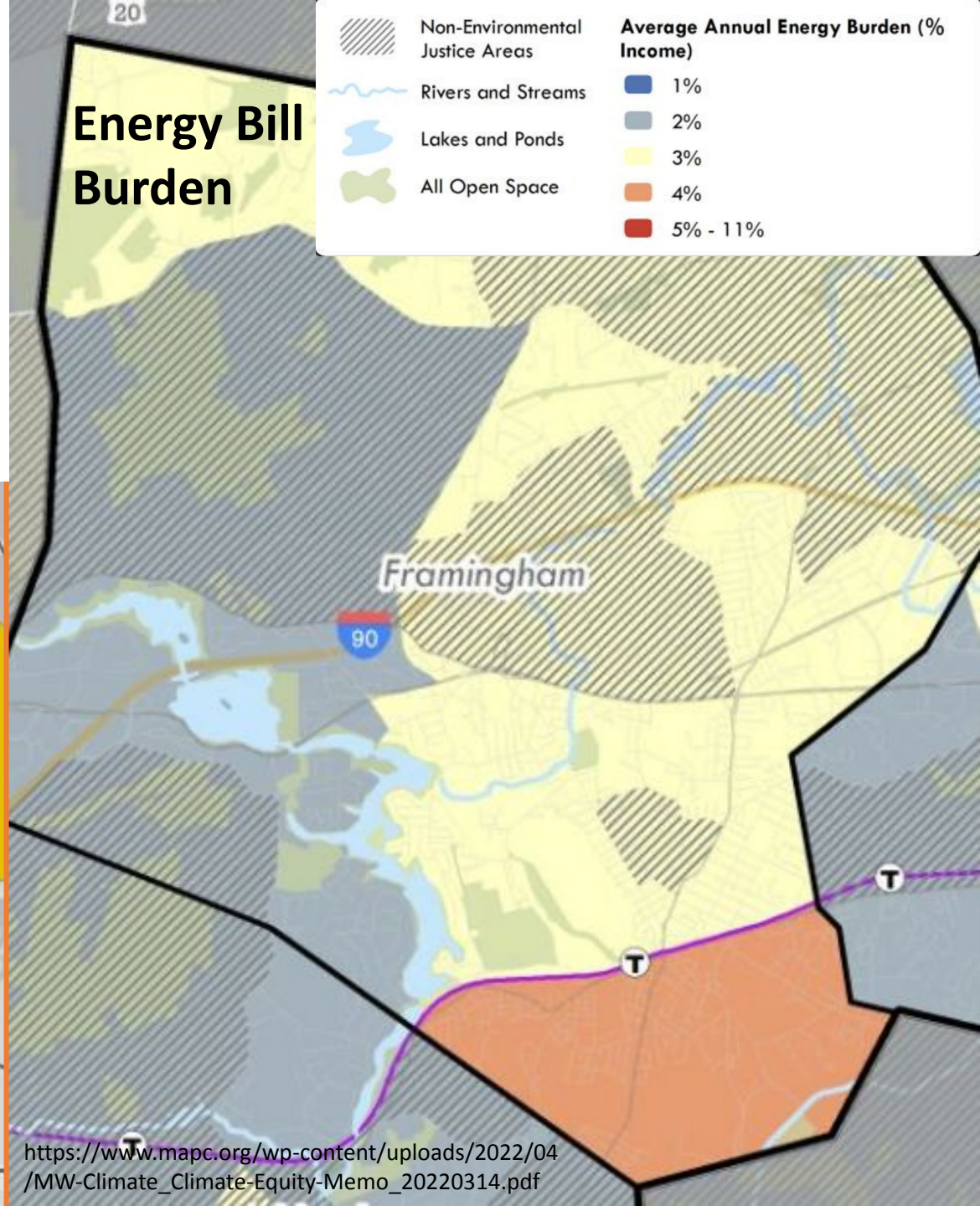
https://mass-eoeea.maps.arcgis.com/apps/webappviewer/index.html?id=1d6f63e7762a48e5930de84ed4849212

Energy Bill Burden

- Non-Environmental Justice Areas
- Rivers and Streams
- Lakes and Ponds
- All Open Space

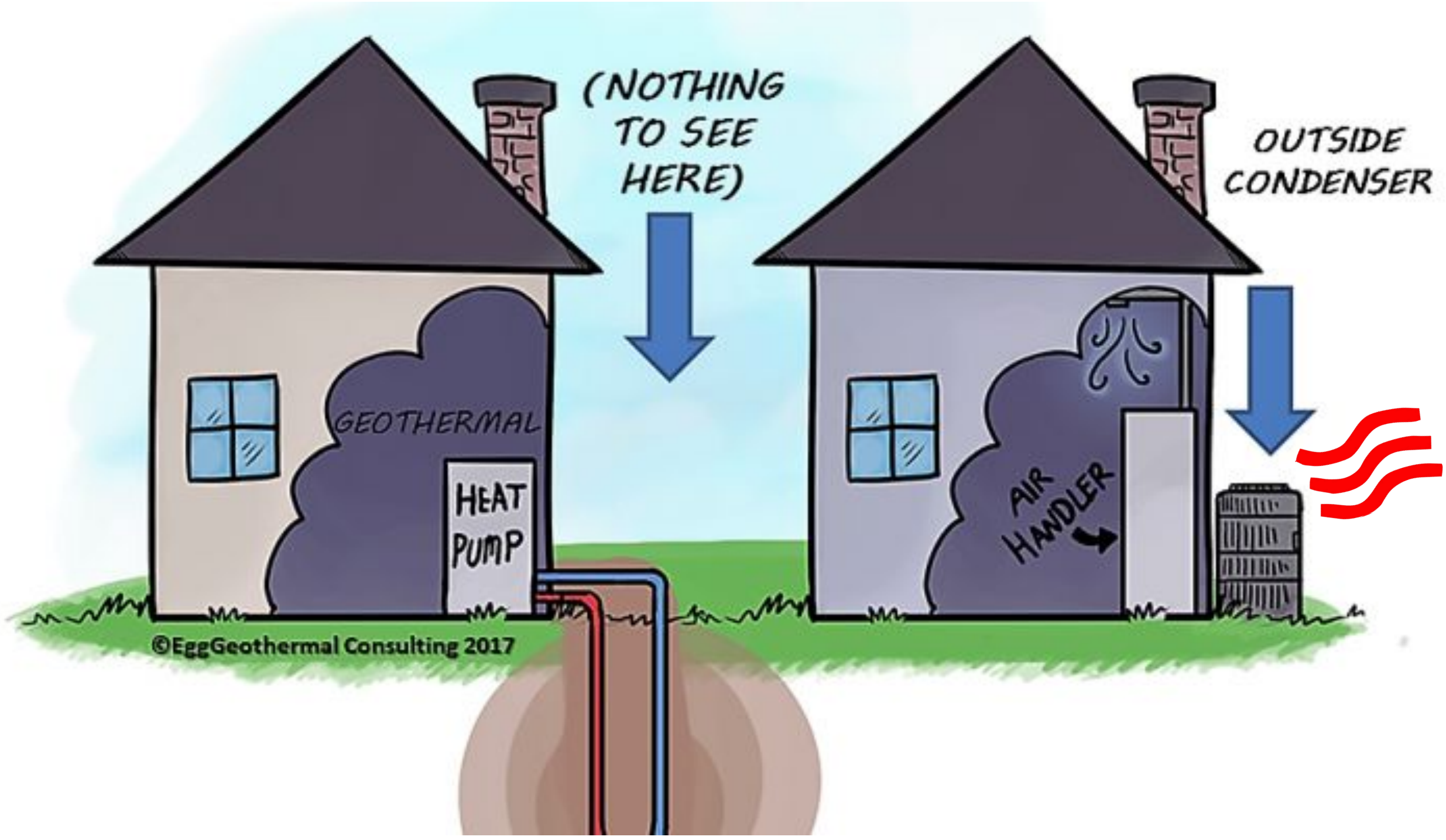
Average Annual Energy Burden (% Income)

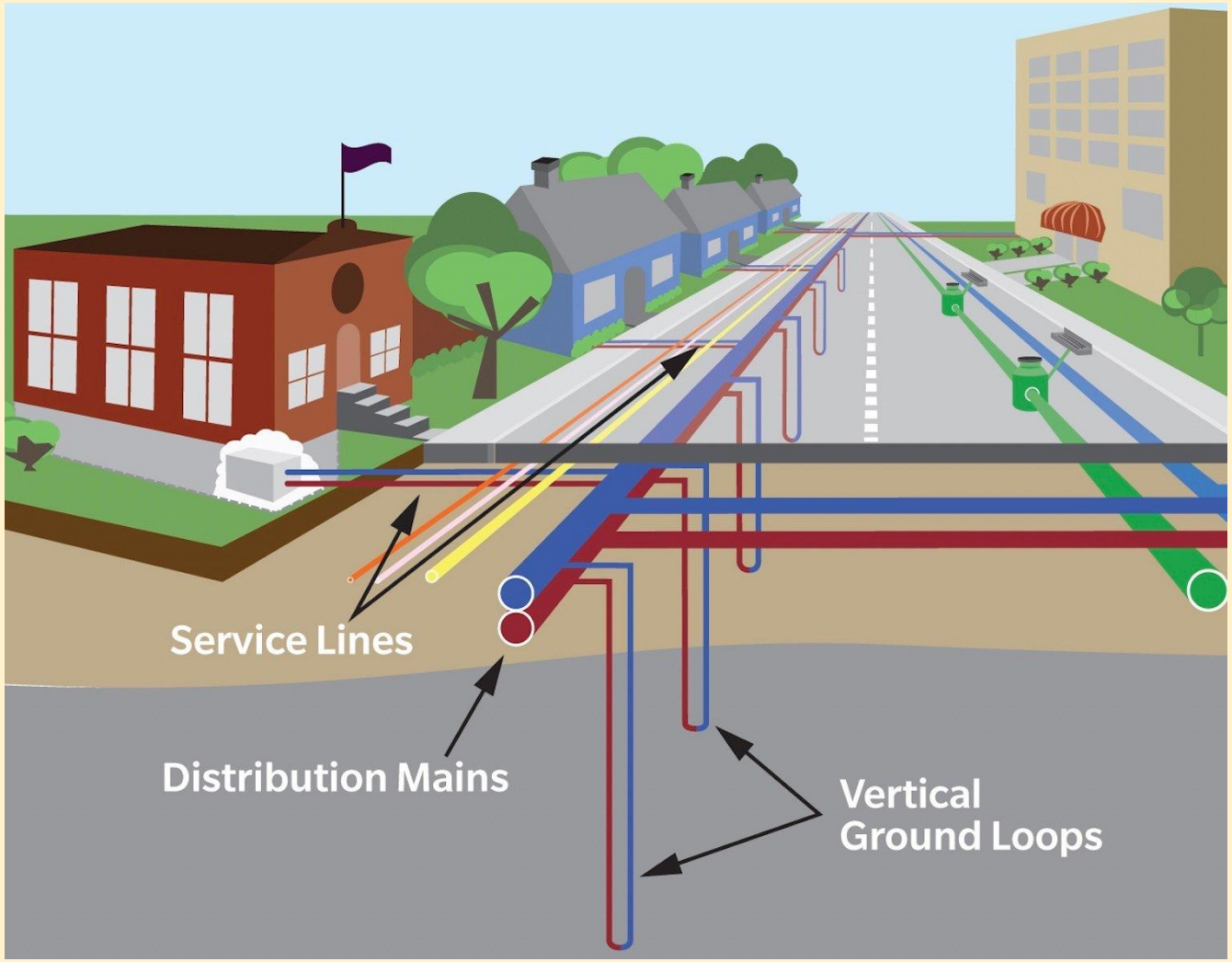
- 1%
- 2%
- 3%
- 4%
- 5% - 11%

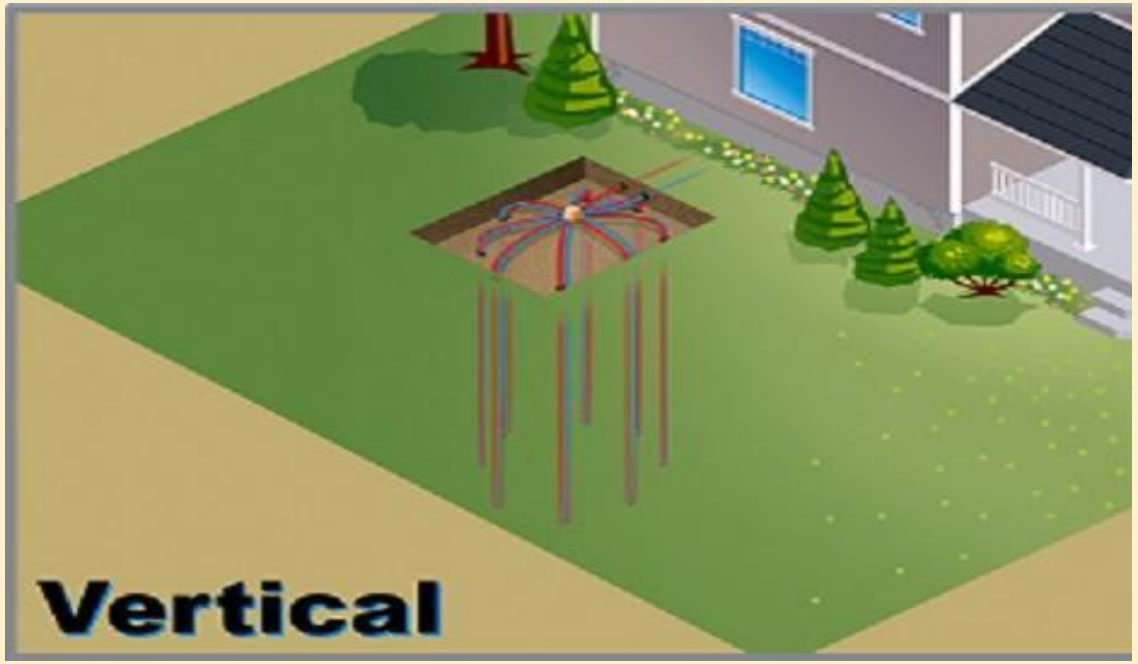


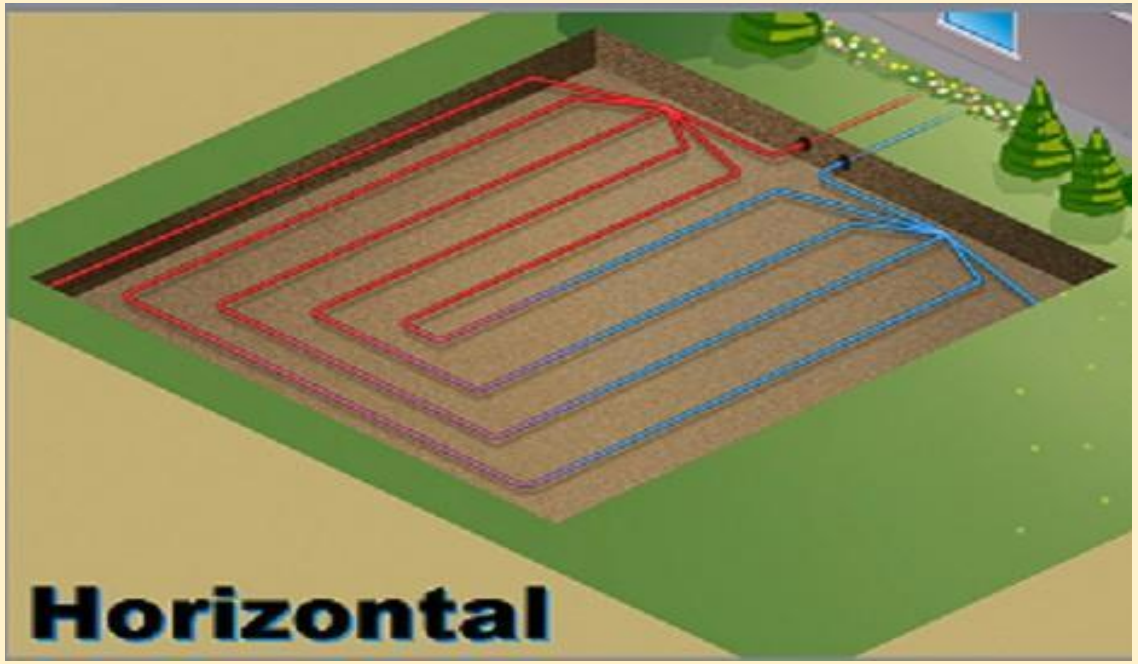
https://www.mapc.org/wp-content/uploads/2022/04/MW-Climate_Climate-Equity-Memo_20220314.pdf

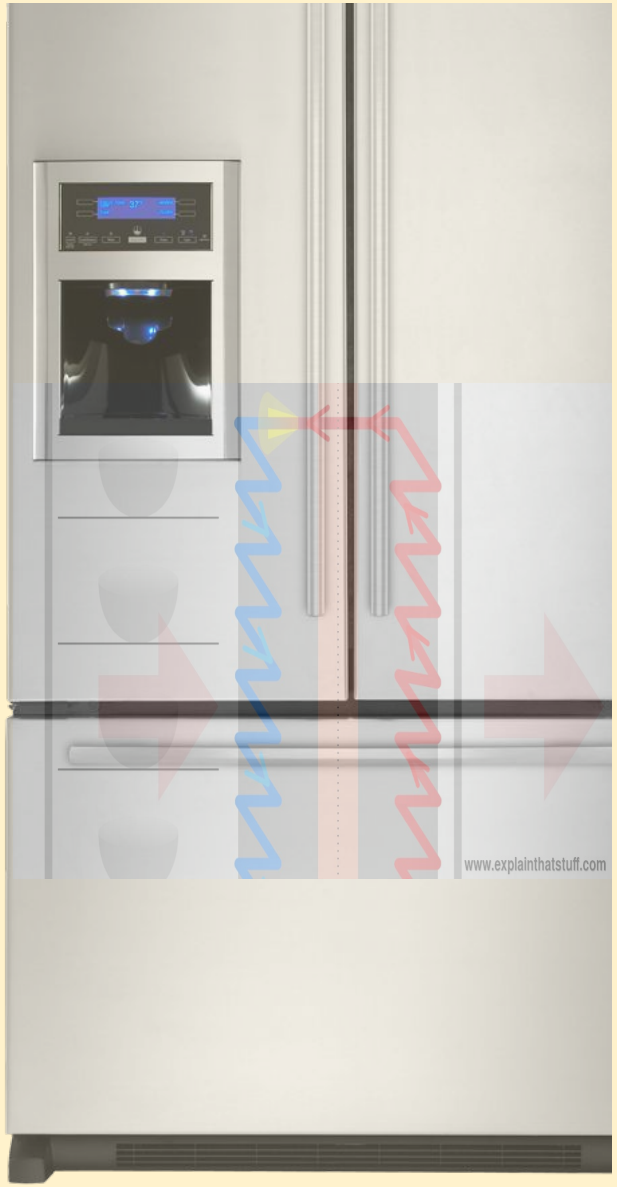
Ever stood next to one of these?


(NOTHING TO SEE HERE)
OUTSIDE CONDENSER
GEOTHERMAL
HEAT PUMP
AIR HANDLER
©EggGeothermal Consulting 2017


Service Lines
Distribution Mains
Vertical
Ground Loops


Vertical


Horizontal


www.explainthatstuff.com

https://www.eversource.com/content/residential/about/transmission-distribution/projects/massachusetts-projects/geothermal-pilot-project#:~:text=The%20route%20is%20a%20neighborhood,the%20outcome%20of%20the%20pilot.

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