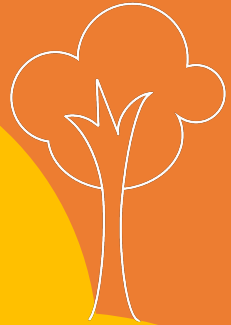
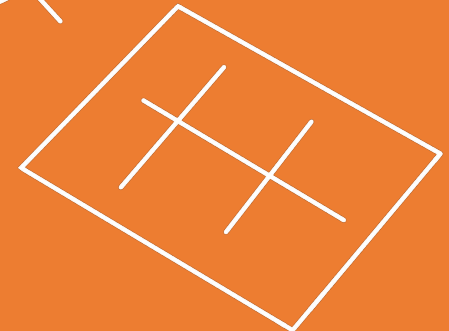
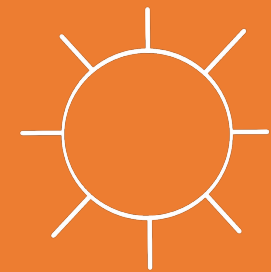


**By: Michael Flaven, Jotham Sserwadda,
Tobias Hansen, Sophia Tanoury, and Jaxan Gallant**

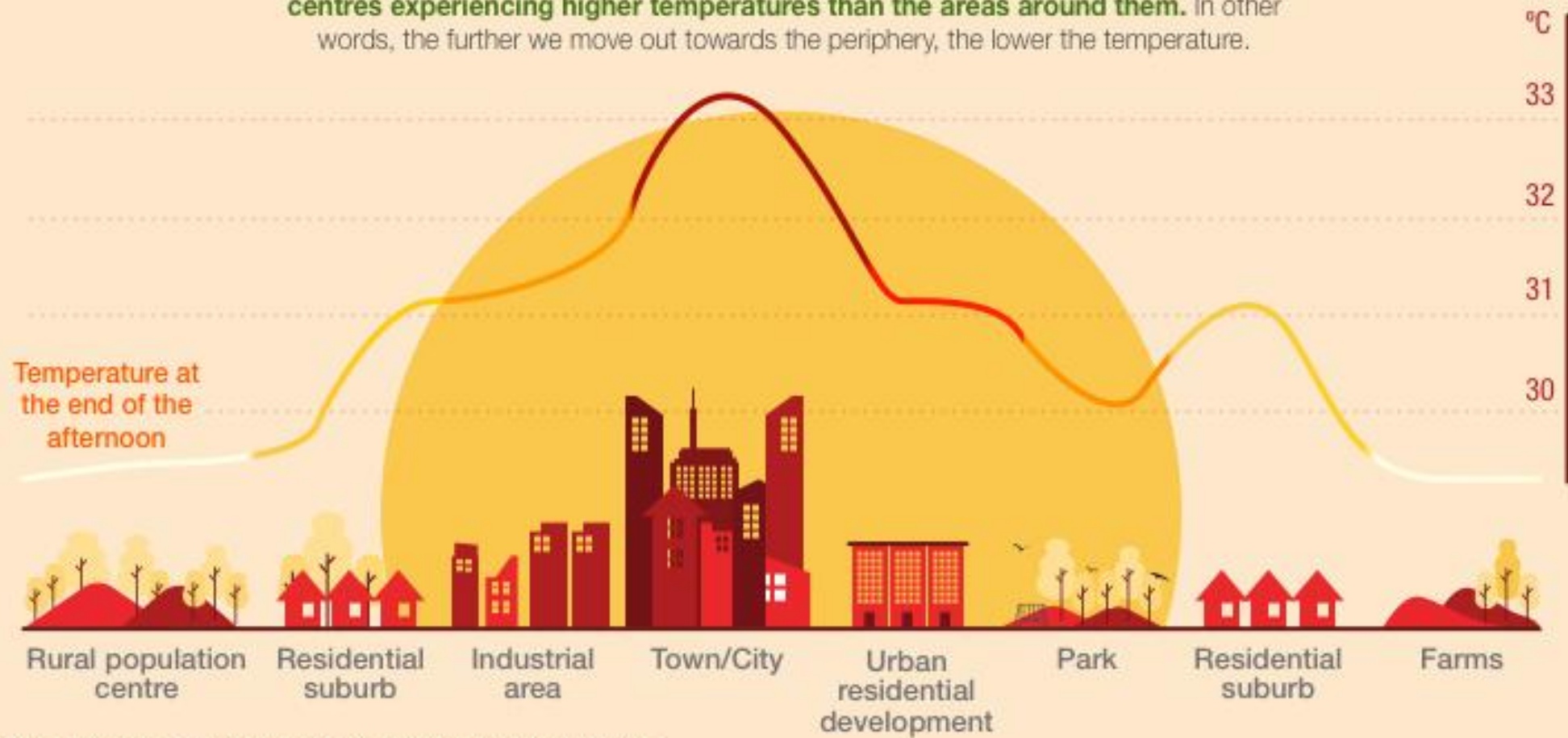


Solar Parking Garages



The urban heat island effect

The Urban Heat Island (UHI) effect affects large towns and cities and consists of **urban centres experiencing higher temperatures than the areas around them**. In other words, the further we move out towards the periphery, the lower the temperature.



Source: World Meteorological Organization (WMO) y Urban Land Institute.



Absorbs

Reflects



0

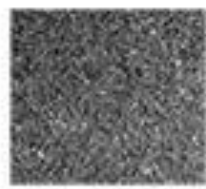
0.5

1

0% Reflected

50% Reflected

100% Reflected



asphalt (0.10)



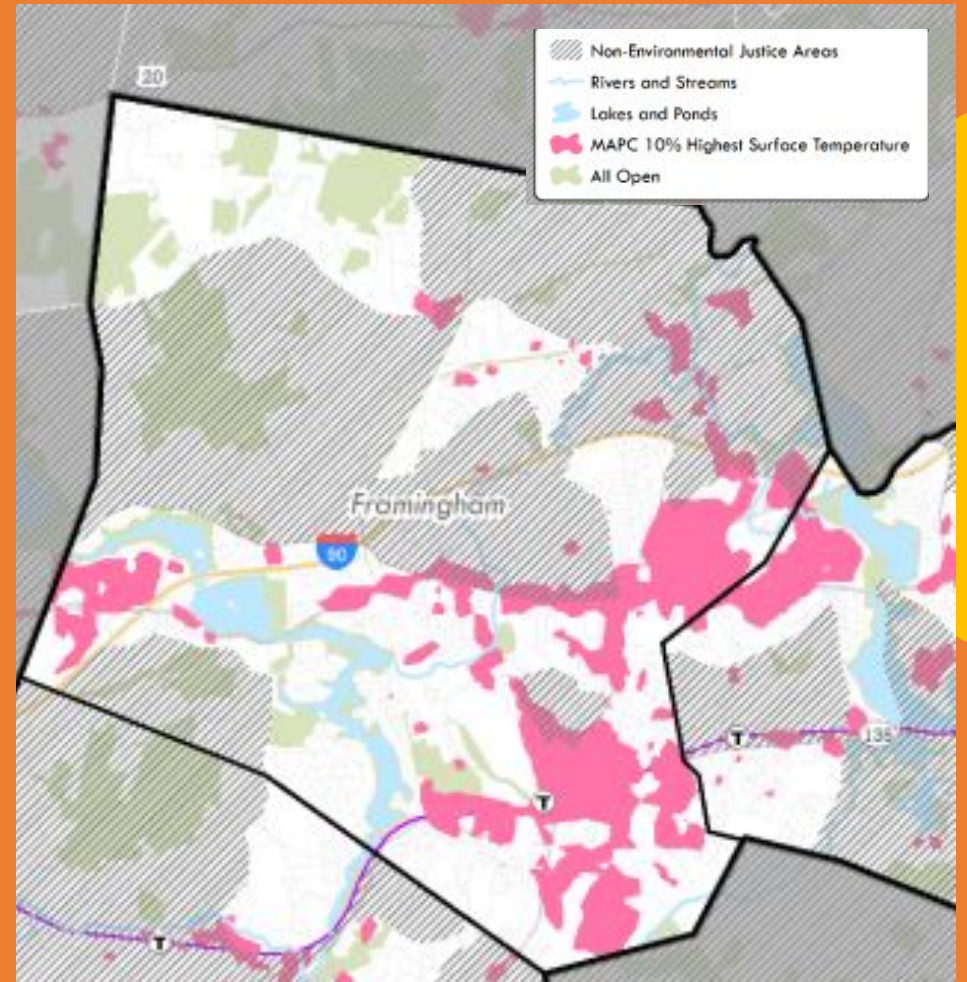
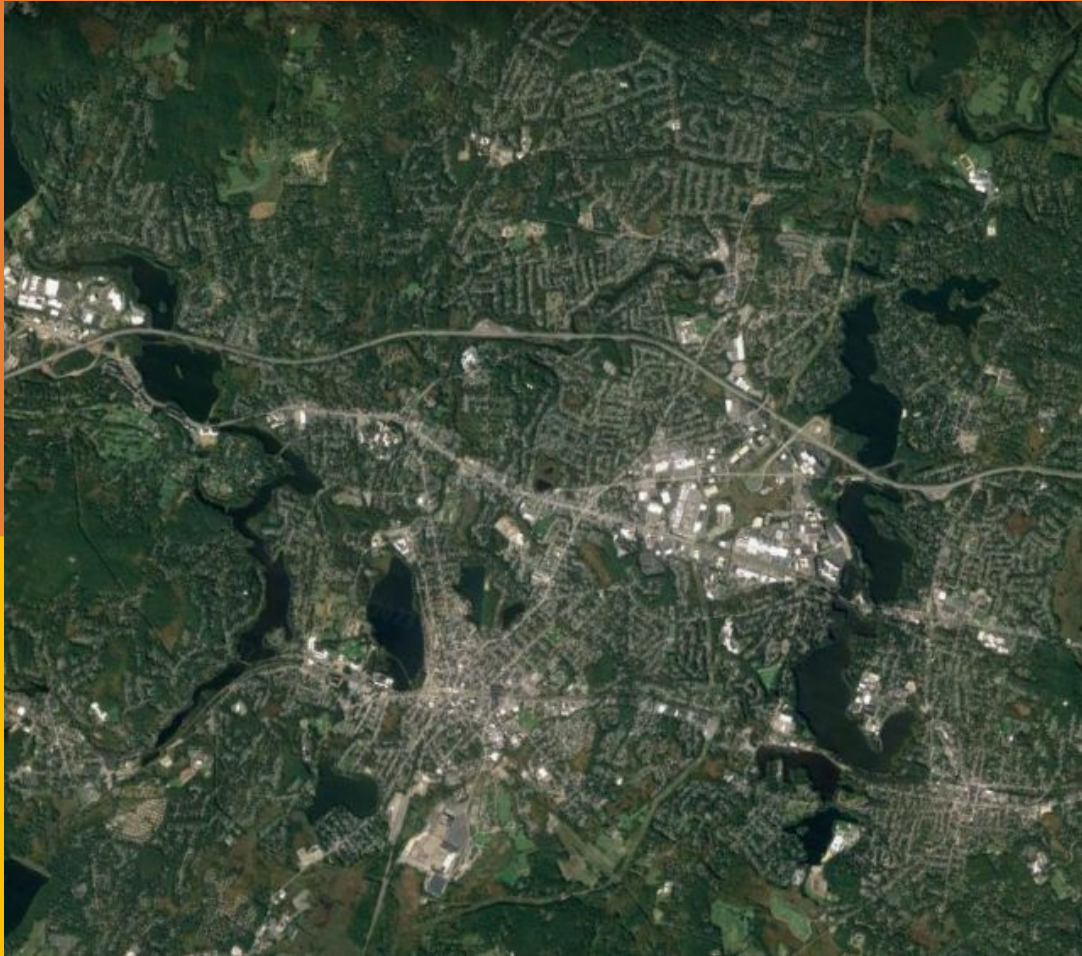
grass (0.25)



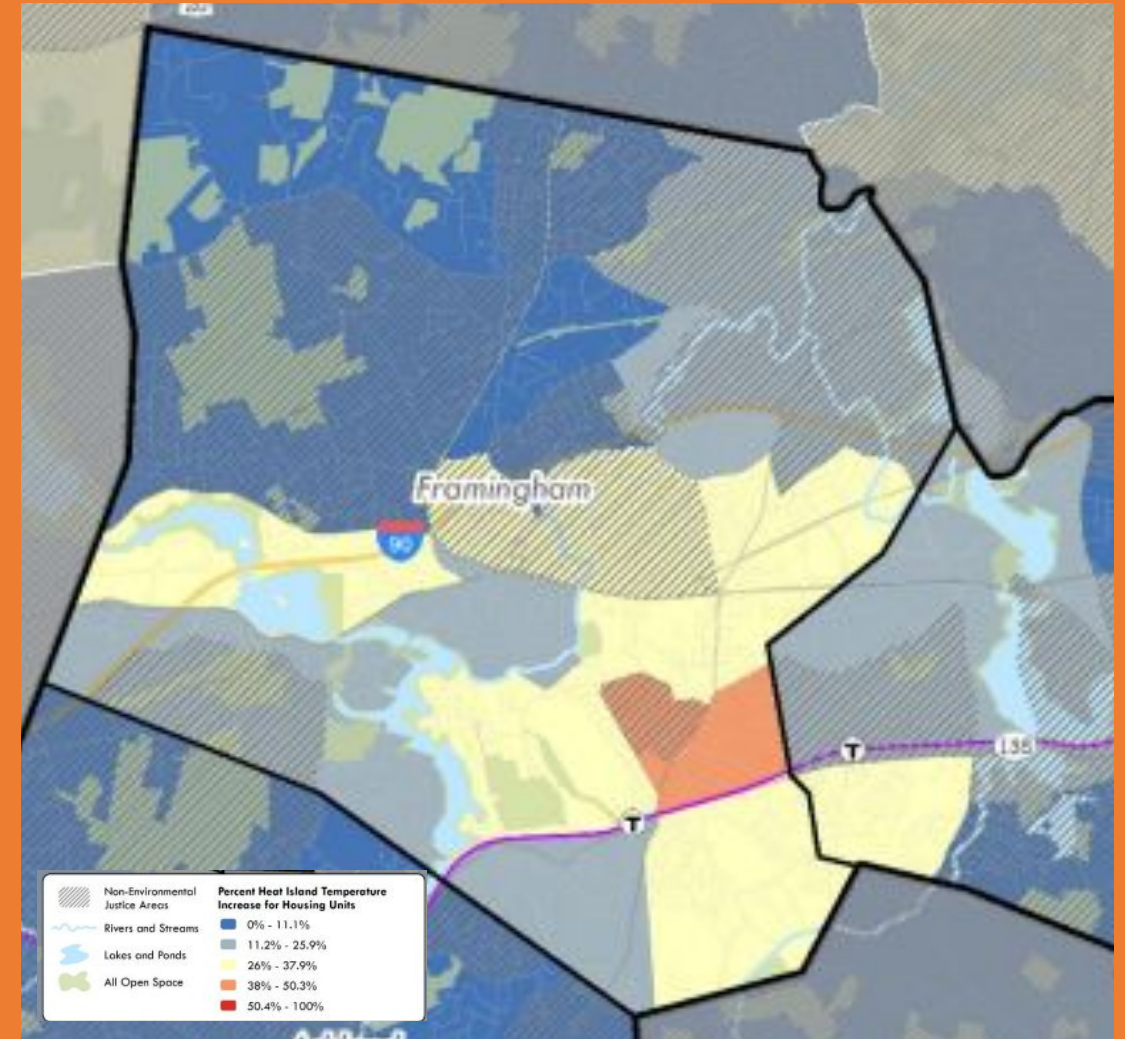
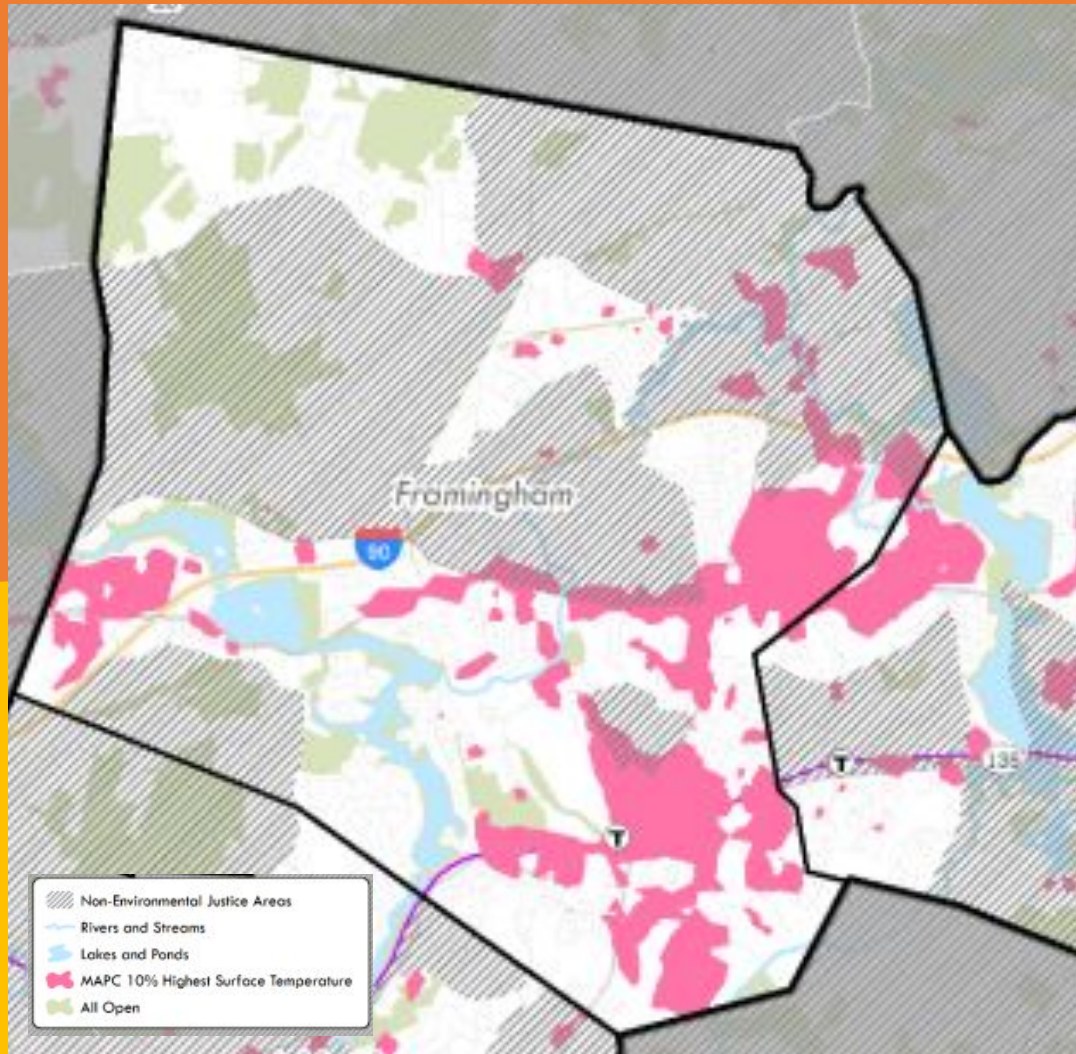
white paint (0.80)

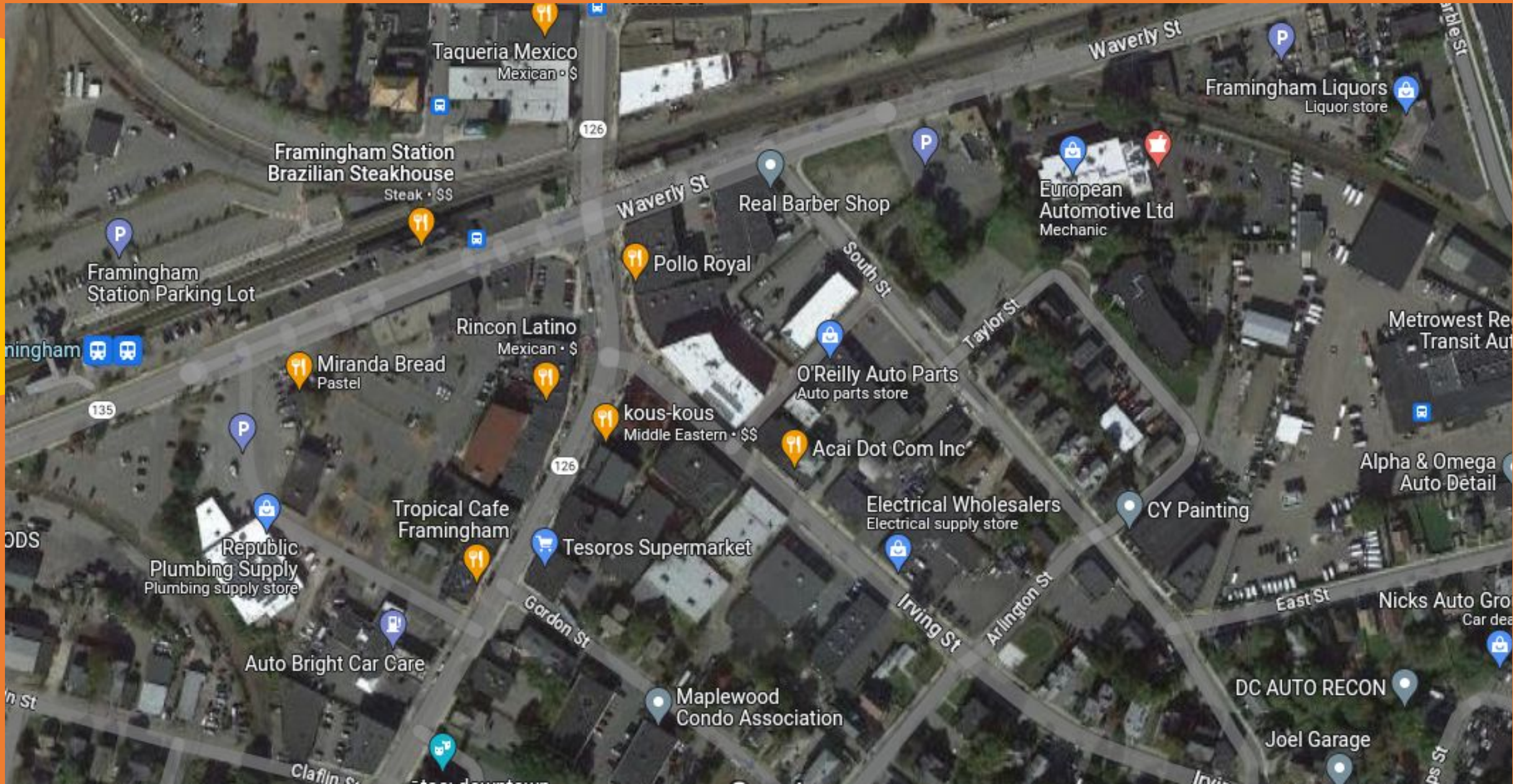
Albedo

How Urban Heat Islands Affect South Framingham



Surface Temperatures also affect Indoor Temperatures

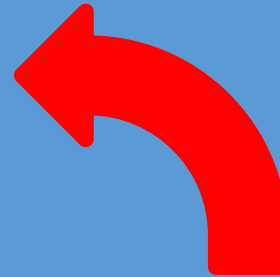


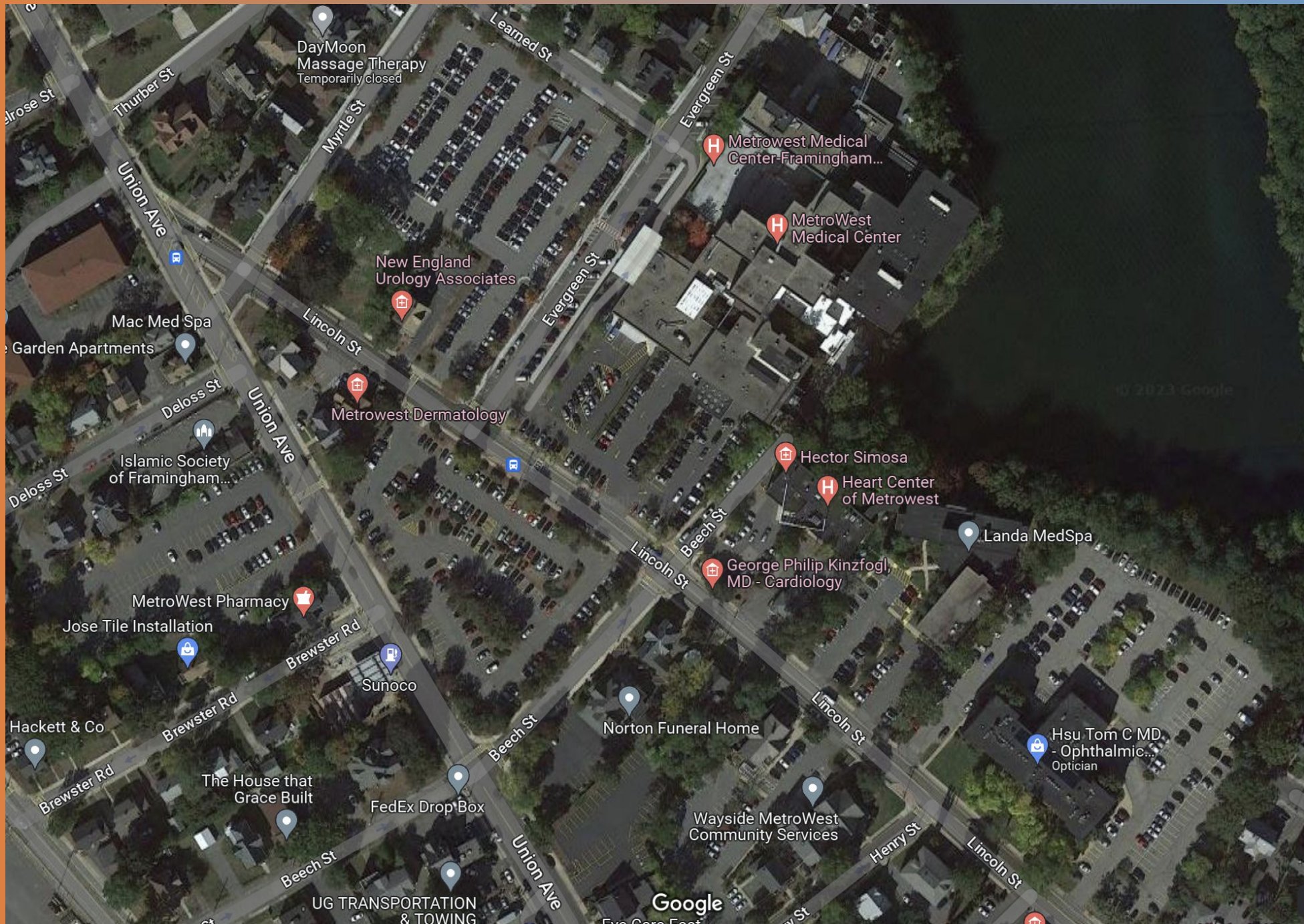


Vision

By 2050, the City of Framingham will replace large parking lots in South Framingham with solar parking garages. They will then convert the original parking lots into green areas.

What We Envision





Benefits of Solar

- Produces clean and renewable Energy
- Financial benefits
- Lower costs on electricity
- Conventional uses



Green Space Benefits

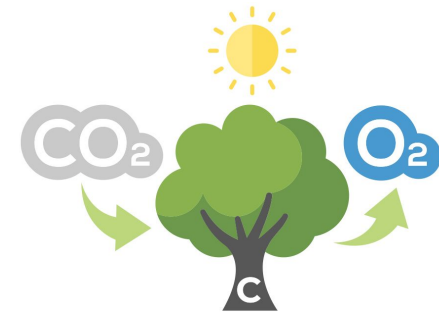
 Mitigate Urban Heat Islands



Reduce heat-related health risks



Mental and physical health benefits

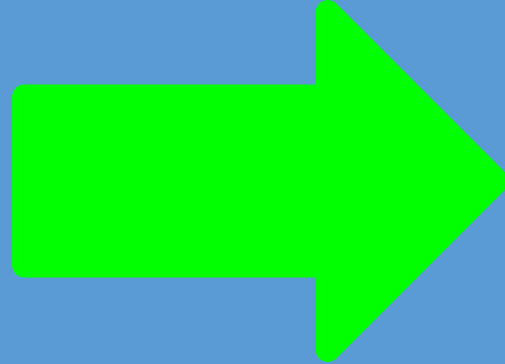


- Reduces Carbon Dioxide Emissions
- Improving Air Quality

Reducing CO2 Emissions

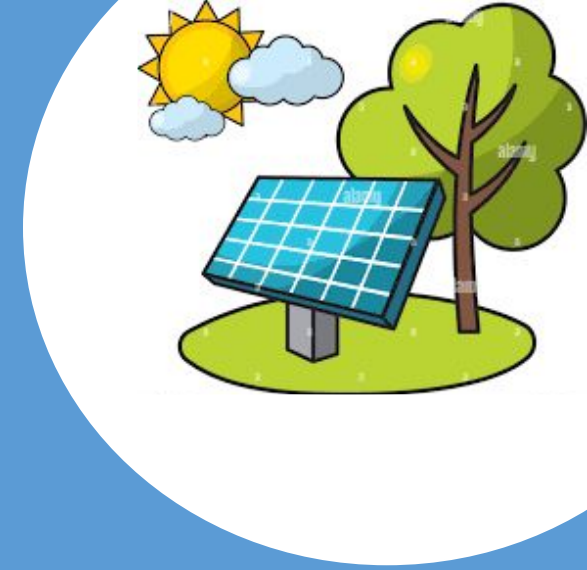


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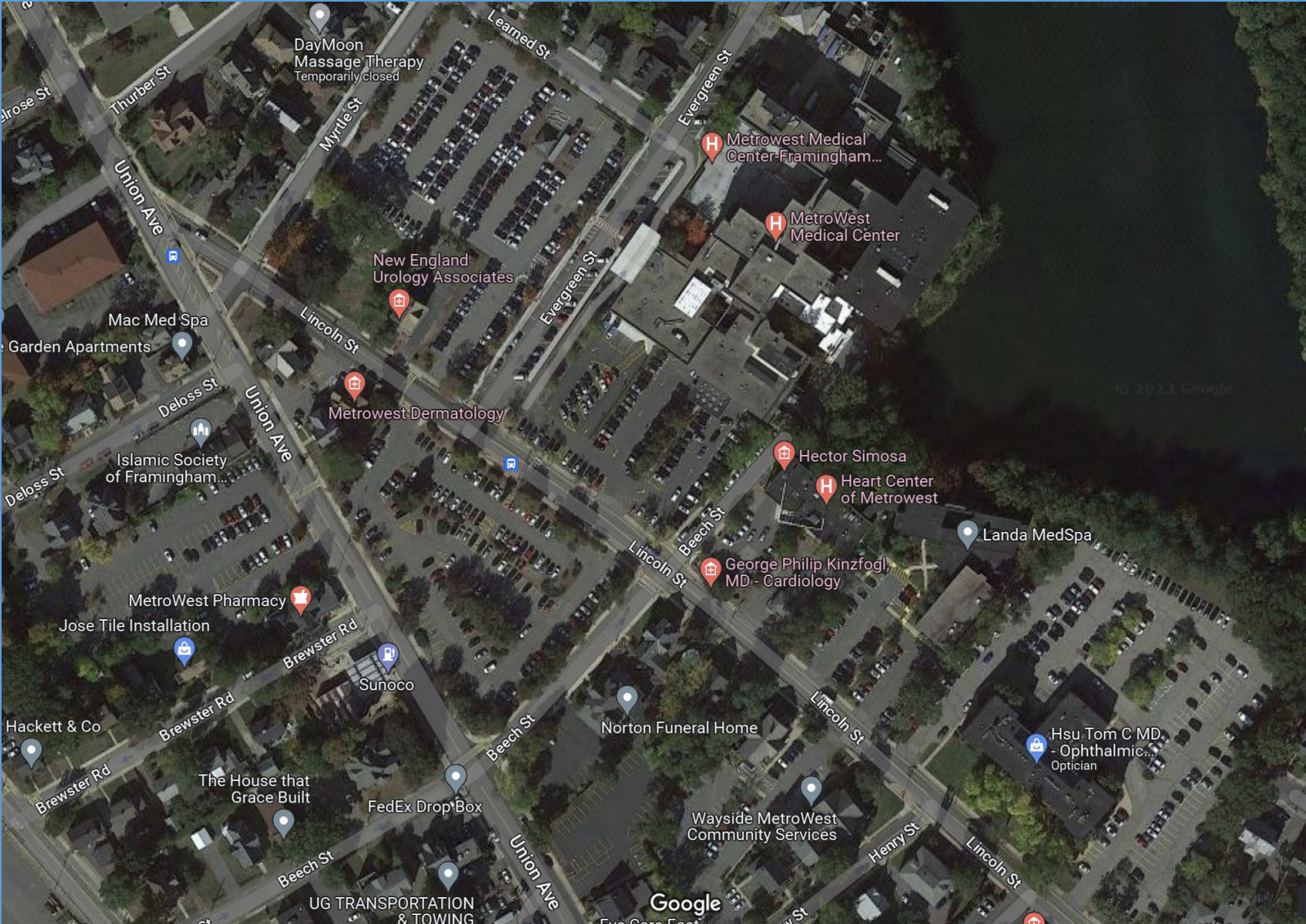


Our Recommendations

- **Build Parking Garages to Replace Parking Lots**
- **Convert the Parking Lots into Green Spaces**
- **Solar Canopies, to Produce Clean, Renewable Energy**



This is why we're focusing on solar parking garages



Sources:

Urban Heat Island Impacts -

<https://www.epa.gov/heatislands/heat-island-impacts#:~:text=Heat%20islands%20contribute%20to%20higher,and%20non%2Dfatal%20heat%20stroke>

What is an Urban Heat Island -

<https://education.nationalgeographic.org/resource/urban-heat-island/>

Parks and Green Spaces -

<https://cnr.ncsu.edu/news/2022/04/parks-green-spaces-improve-health/#:~:text=These%20spaces%20are%20especially%20important,cholesterol%20levels%2C%20hypertension%20and%20obesity>

Reducing Urban Heat Islands -

<https://www.epa.gov/sites/default/files/2015-05/documents/treesandvegcompendium.pdf>

Albedo - <https://mynasadata.larc.nasa.gov/mini-lessonactivity/what-albedo>

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