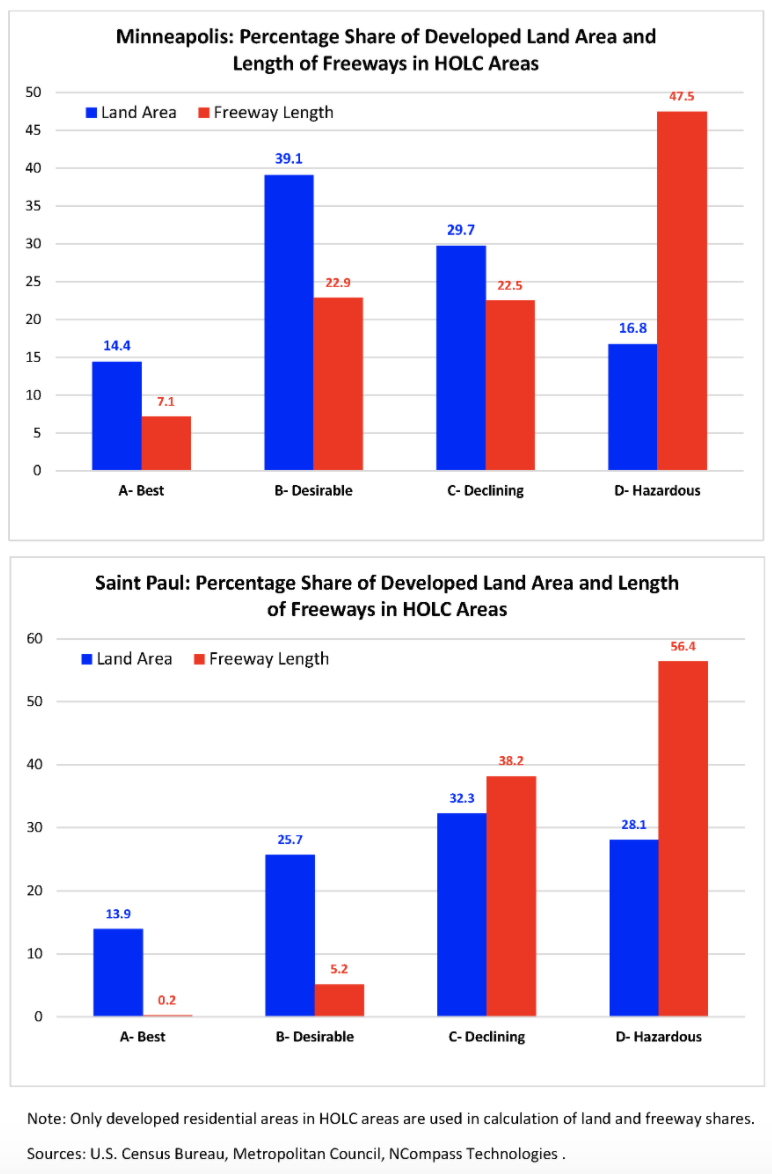
Complete the following prompts and questions individually or in small groups.

We will explore how the urban context is a place where many ecological lenses intersect: climate change, land use change, ecosystem services, and environmental justice. This intersection is clearly observed in a paper by [Hoffman et al in the journal Climate](https://drive.google.com/file/d/1AE7Gkv3xP6ysSrewH0LL1H_h_HPtjqU3/view?usp=sharing) that came out in January 2020. We will use this paper and other resources to understand disparities in the urban environment and how they have widespread ecological and public health impacts.

Prior to starting this small group activity / miniquiz, please watch the NPR video on Redlining: <https://www.youtube.com/watch?v=O5FBJyqfoLM>

1. **What is redlining? Was it legal and who commissioned/promoted its practice?**

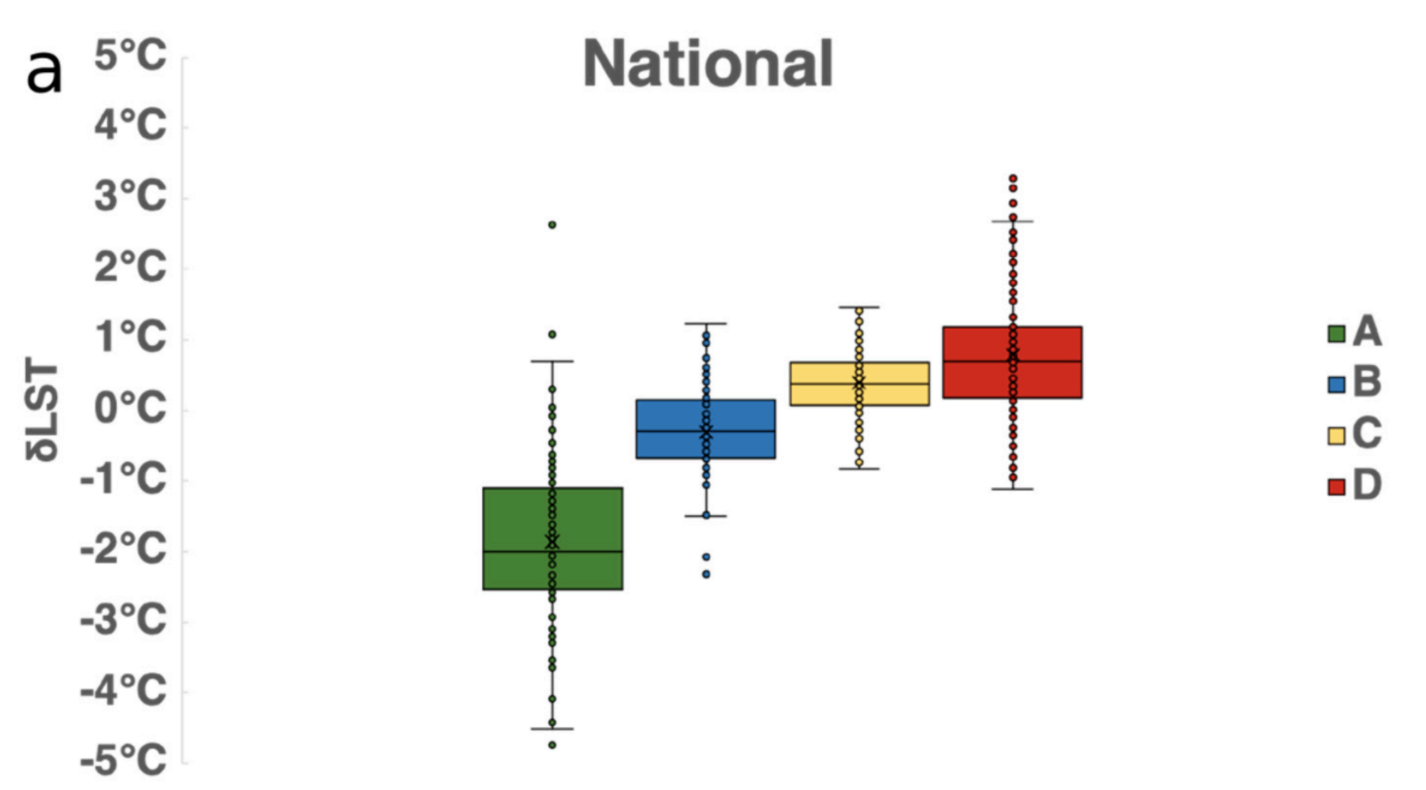
Using this interactive map from UMN Institute for Metropolitan Opportunity, observe how neighborhoods were classified in the Twin Cities over the last century. Spend 5-10 minutes exploring the different tabs. [Story Map Series](https://www.arcgis.com/apps/MapSeries/index.html?appid=8b6ba2620ac5407ea7ecfb4359132ee4)



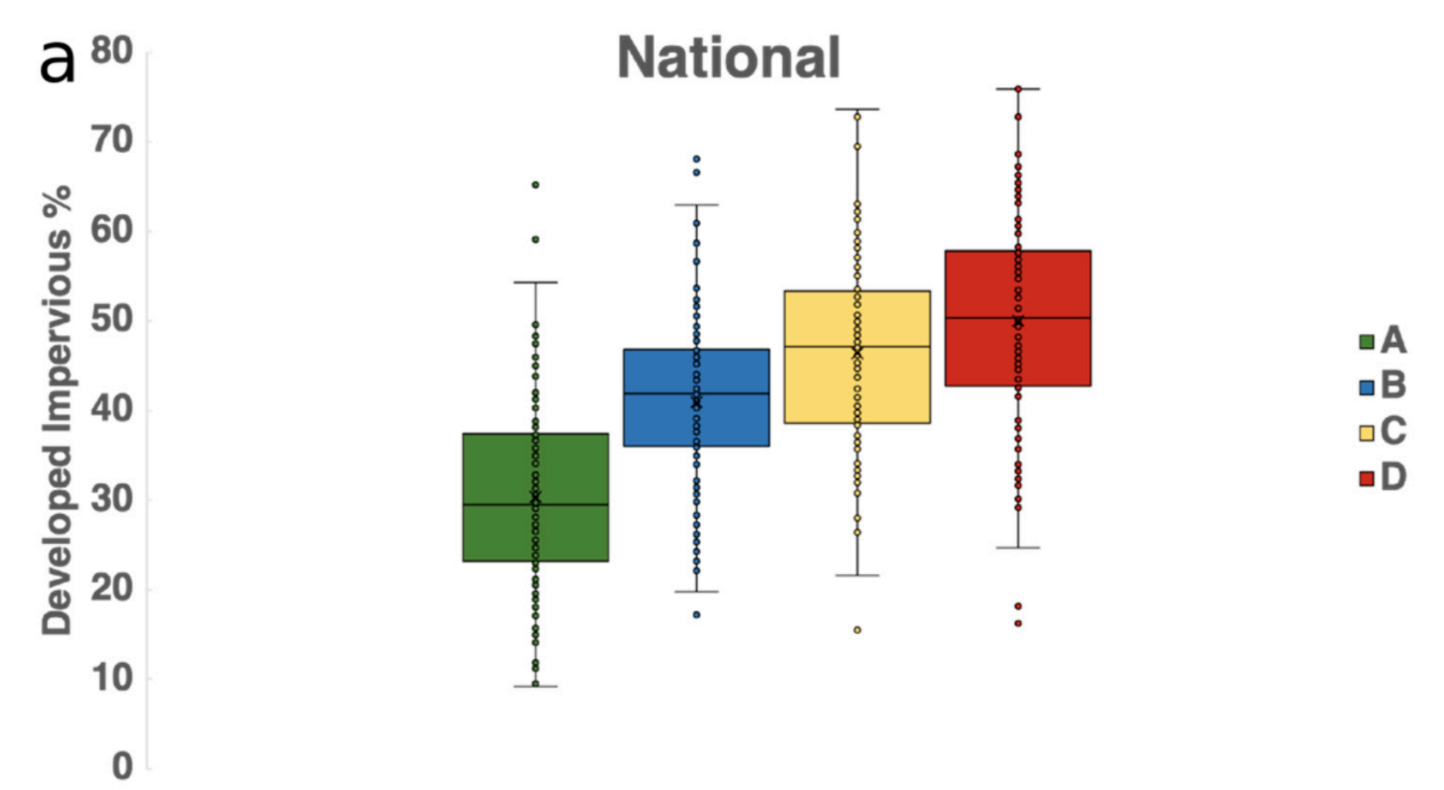
1. **What happened in the 1970s that further magnified segregation in the Twin Cities? Using the graph to the right to support your answer, was there equity amongst HOLC-rated neighborhoods in terms of where highways were constructed?**

Now let’s turn to the Hoffman et al. 2020 paper and examine some of the connections they found across redlined cities in the US.

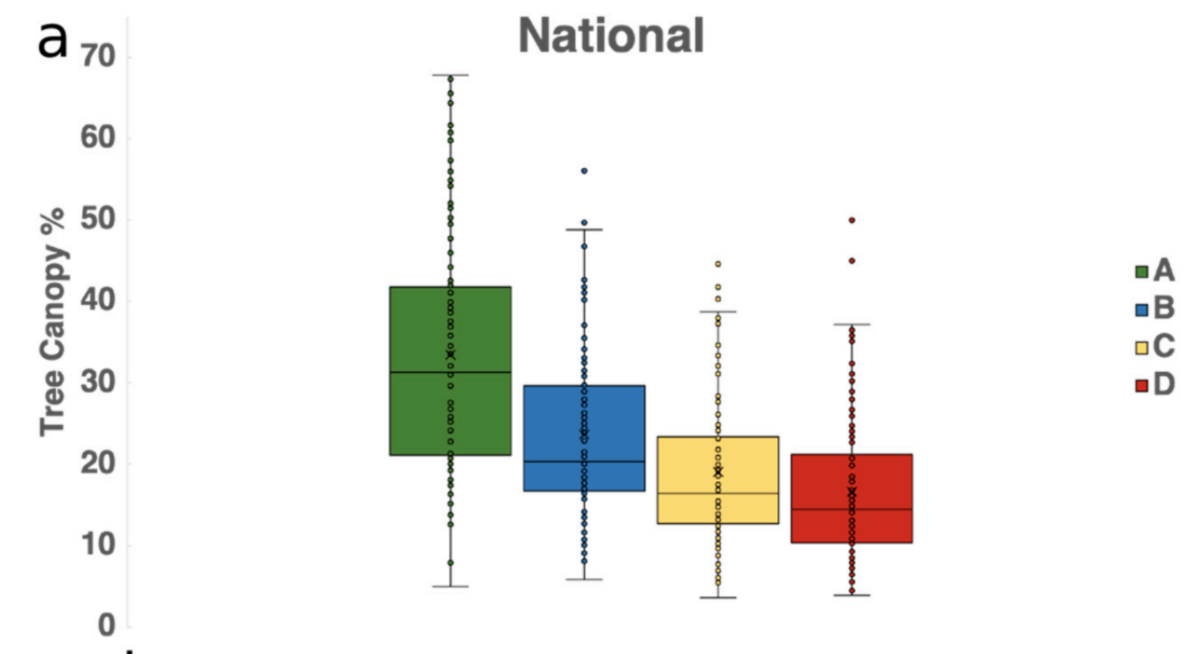
Look at Figure 3a from Hoffman et al. 2020 paper below. DeltaLST = the difference in land surface temperature compared to the whole-city average, with each point representing a redlined city, with letters representing red-lined regions within the city.



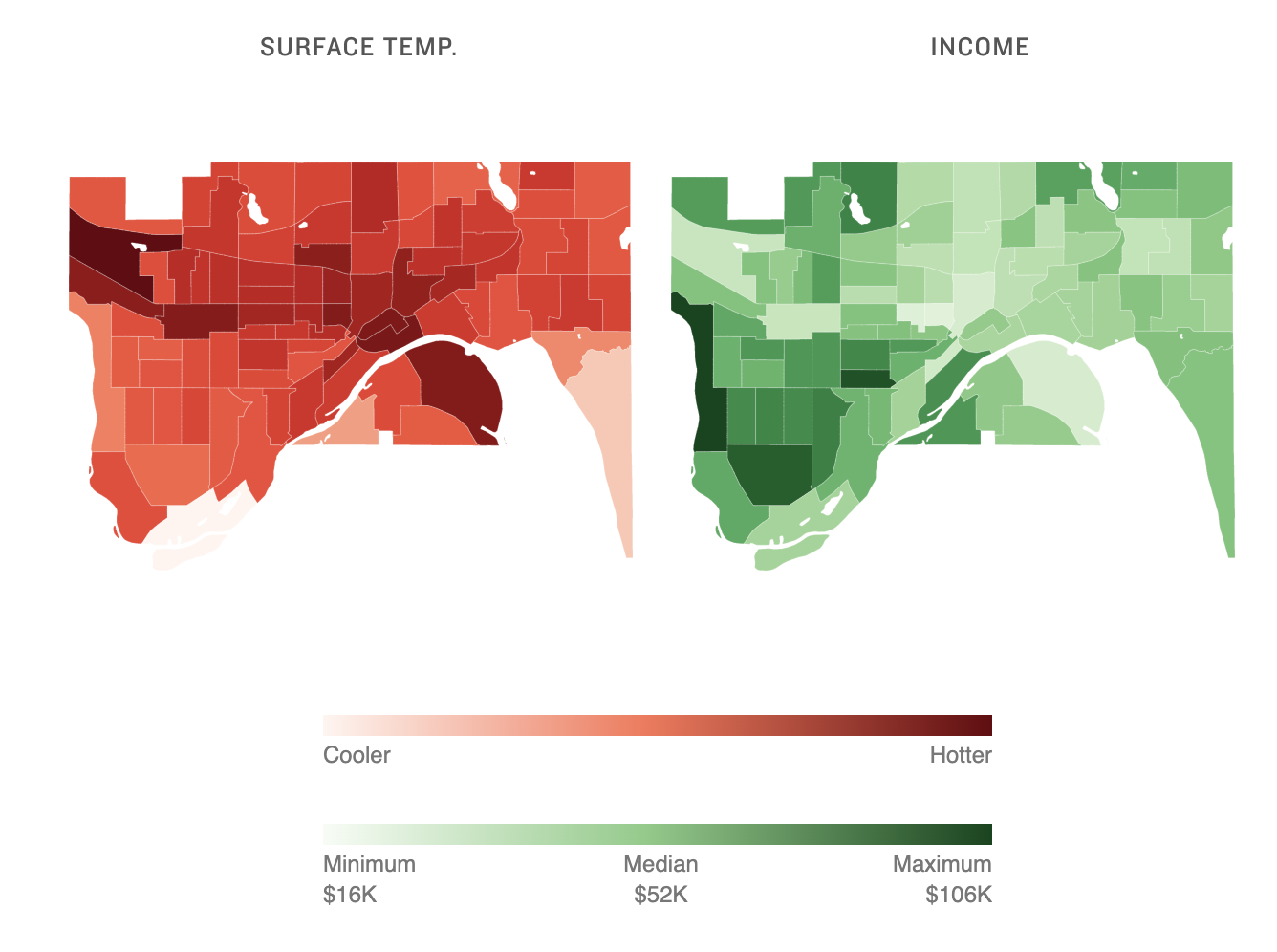
1. **What trend is apparent from the national Del LST values? What do you think might be driving these differences?**



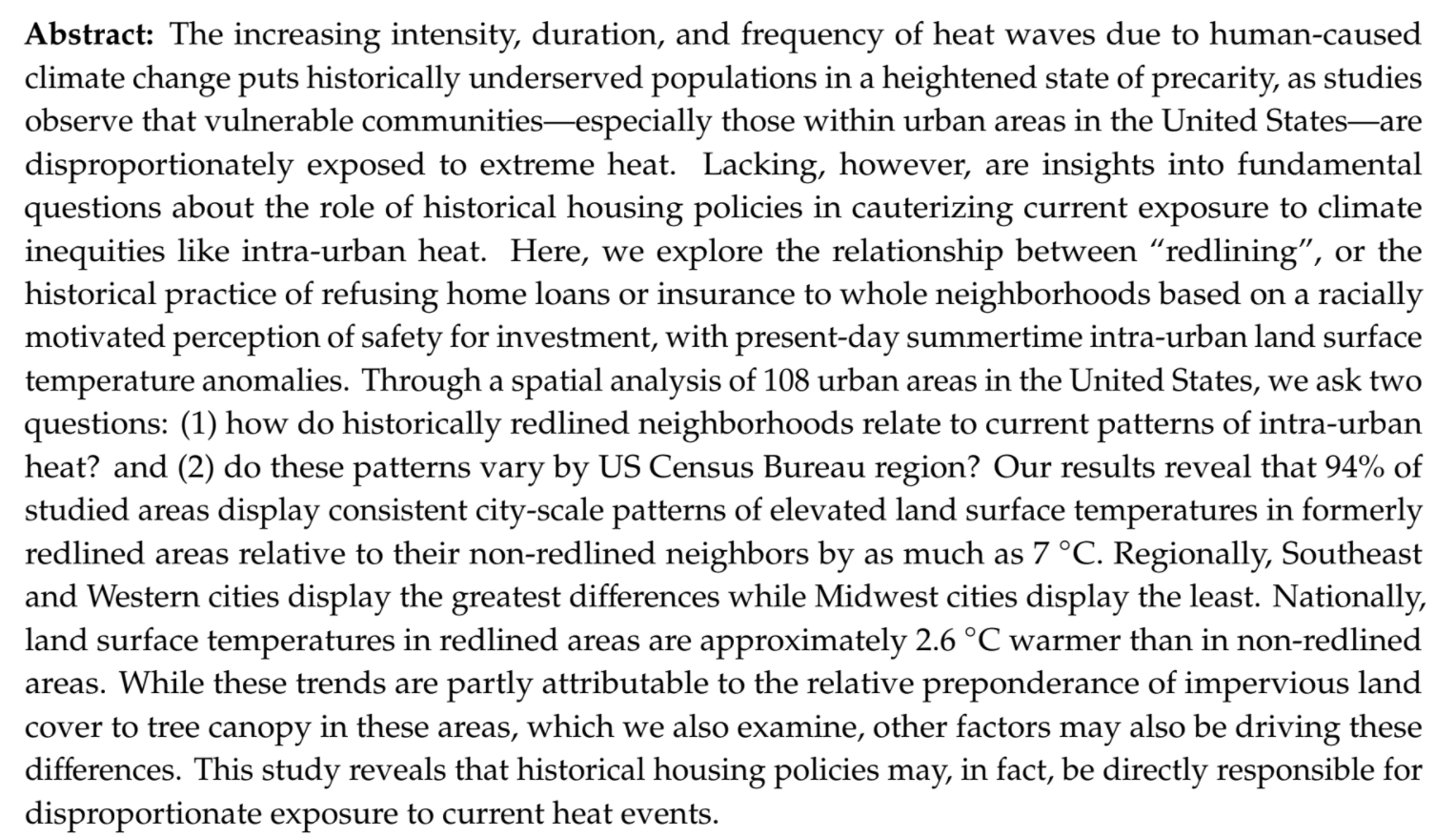
1. **In Fig.4a above, what is the trend in terms of impervious surface cover. How does this relate to the concept of the Urban Heat Island that we learned about and the LST findings?**



1. **How does tree canopy cover (%) vary amongst historic neighborhood boundaries? (See plot to the right)**
2. **The below maps are of St. Paul - surface temperature and income of residents from this article:** [**Planting Trees Can Combat Effects Of Urban Heat Island, Climate Change**](https://www.npr.org/2019/09/04/755349748/trees-are-key-to-fighting-urban-heat-but-cities-keep-losing-them)

**Based on your knowledge from the Hoffman et al. 2020 paper, where do you suspect the highest values of (a) impervious surface cover and (b) tree canopy cover?** 

1. **Now, let’s read the abstract below and write a 2-3 sentence plain-language summary that describes the study and its main findings for a general audience.**



1. **What are some potential current and future disparities that might be tied to the legacy impacts of redlining for residents in these neighborhoods? How might they be exacerbated under climate change? What actions can be taken by citizens and policy makers to right these environmental injustices?**