

# Growing Shade

Tree planting, canopy enhancement, and preservation tool

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# Today's discussion



## Outline

- Trees advance planning initiatives
- Trees intersect with regional issues
- Tool demonstration
- Q & A

# Trees advance regional planning initiatives



Stewardship Prosperity Equity Livability Sustainability



## Sustainability

Protecting our regional vitality for generations to come

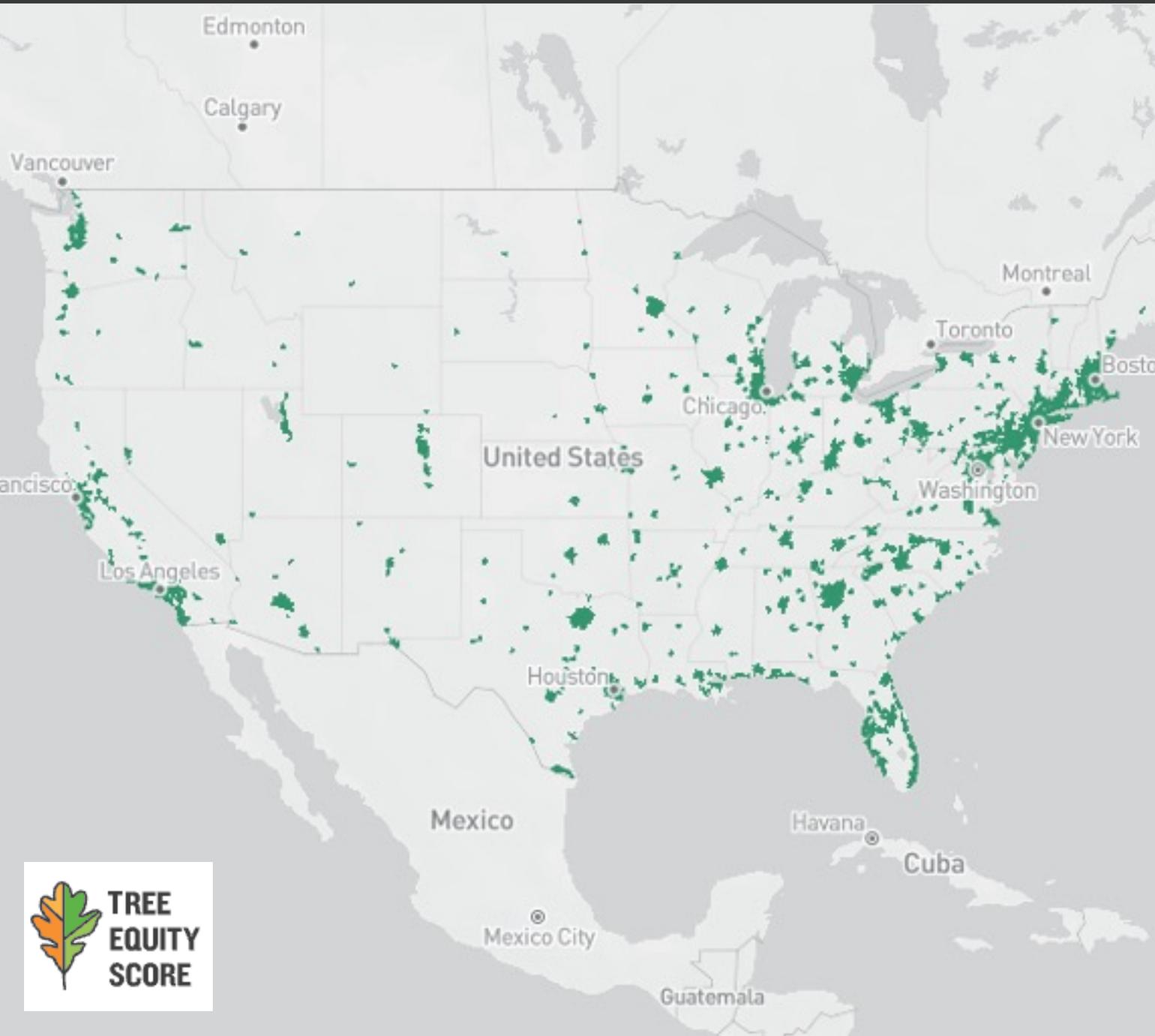
- Lead by example
- Partner with customers and stakeholders

## Equity

Recognizing institutional and systemic barriers and creating access and opportunities that benefit all

- Environmental justice

# Core principles apply nationwide



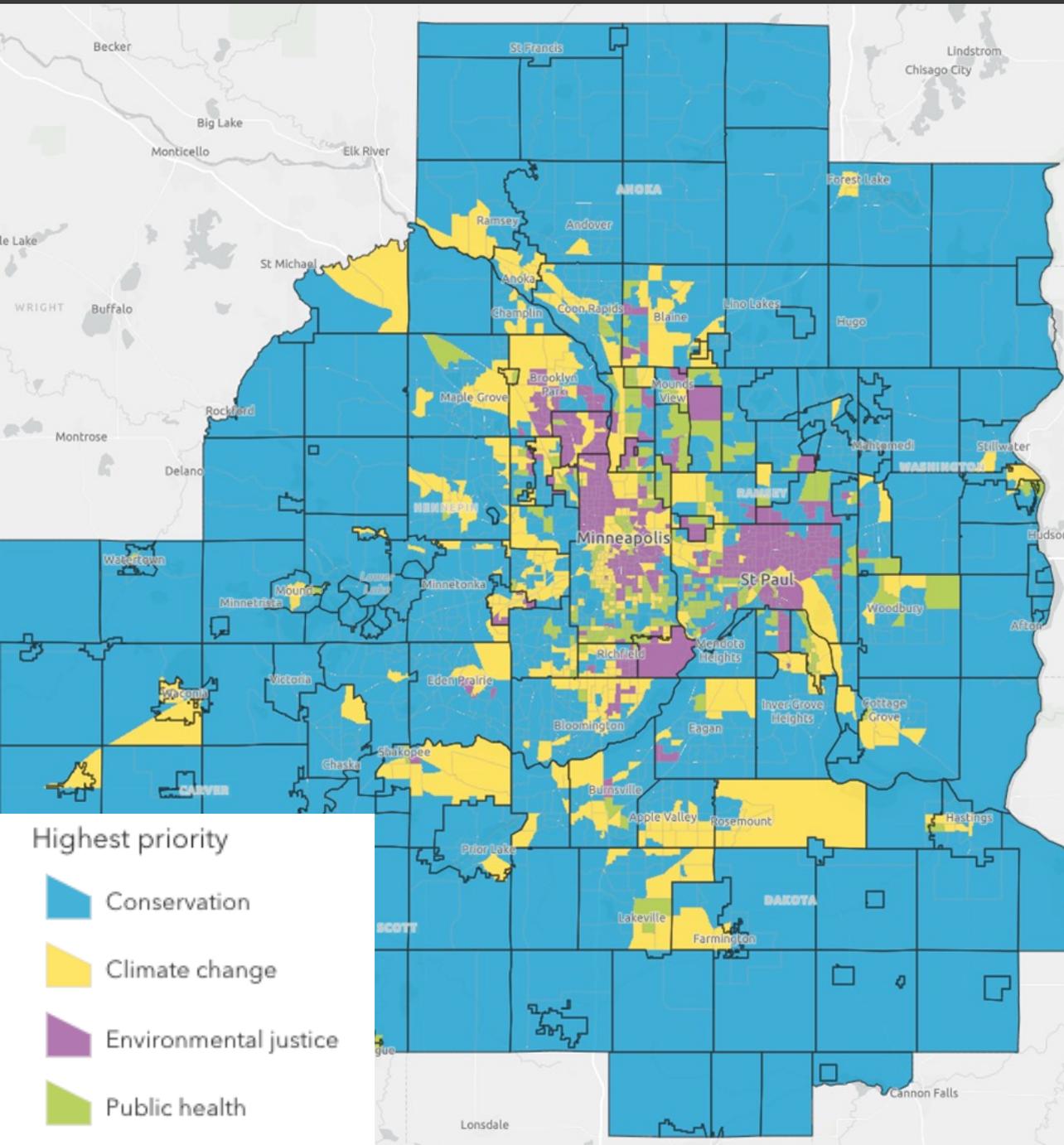
- Sustainability and equity outcomes are goals shared by many regions. Climate action plans are becoming more common.
- Growing Shade offers a nuanced approach informed by stakeholder engagement, but generalized products may fill gaps:
  - Tree Equity Score
  - iTree tools
- Growing Shade's qualitative stories are broadly educational and explore opportunities and challenges with the tree canopy.



<https://github.com/Metropolitan-Council/growing.shade>



# Trees intersect with regional issues



## Environmental justice

- The need for greening intersects with income, race, and ethnicity.

## Climate change

- Trees can mitigate some consequences of climate change by cooling land surface temperatures and reducing flooding.

## Conservation of natural resources

- Reducing tree canopy loss will be critical to offset carbon emissions and conserve biodiversity across the region.

## Public health

- Trees improve air quality and cool land temperatures leading to better health outcomes.

# Racist policies and history influence today's environmental conditions

## Systematic seizure of Indigenous land

- Dakota and Ojibwe people were coerced into signing land cession treaties beginning in 1805.

## Intentional exclusion of Black families

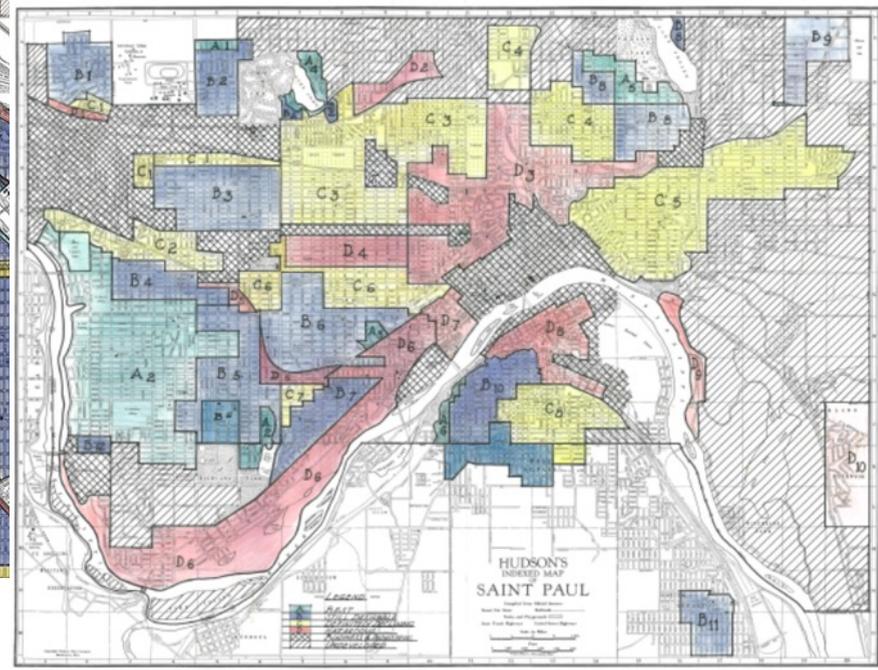
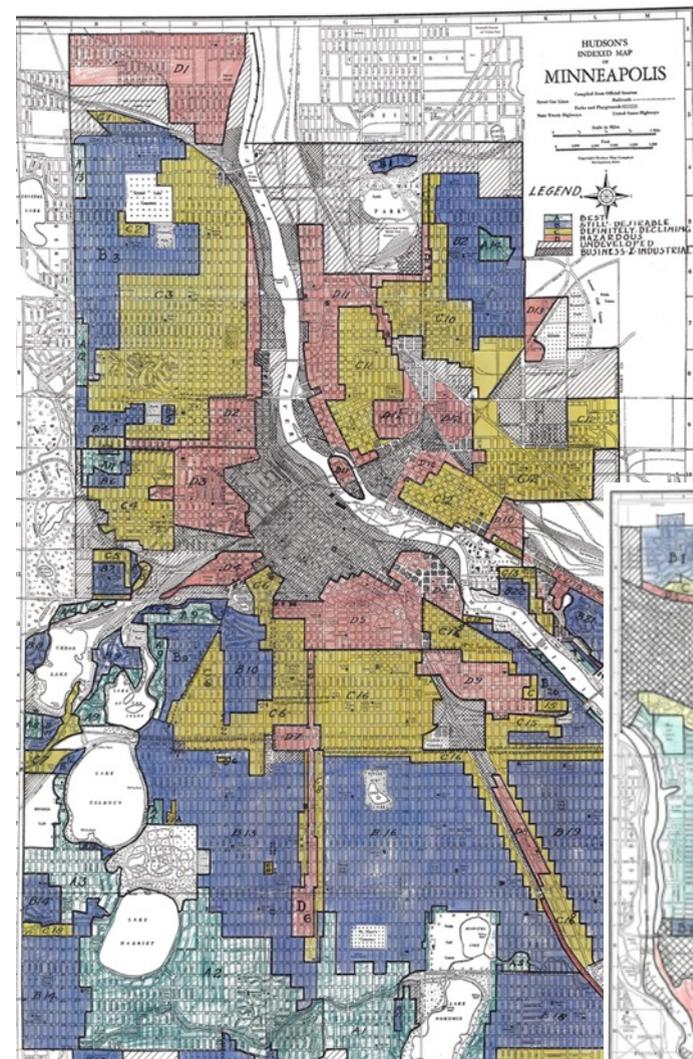
- Home Owners Loan Corporation “redlines” areas in 1934. Racial covenants continue in Hennepin County until 1955.

## Infrastructure prioritized over minority communities

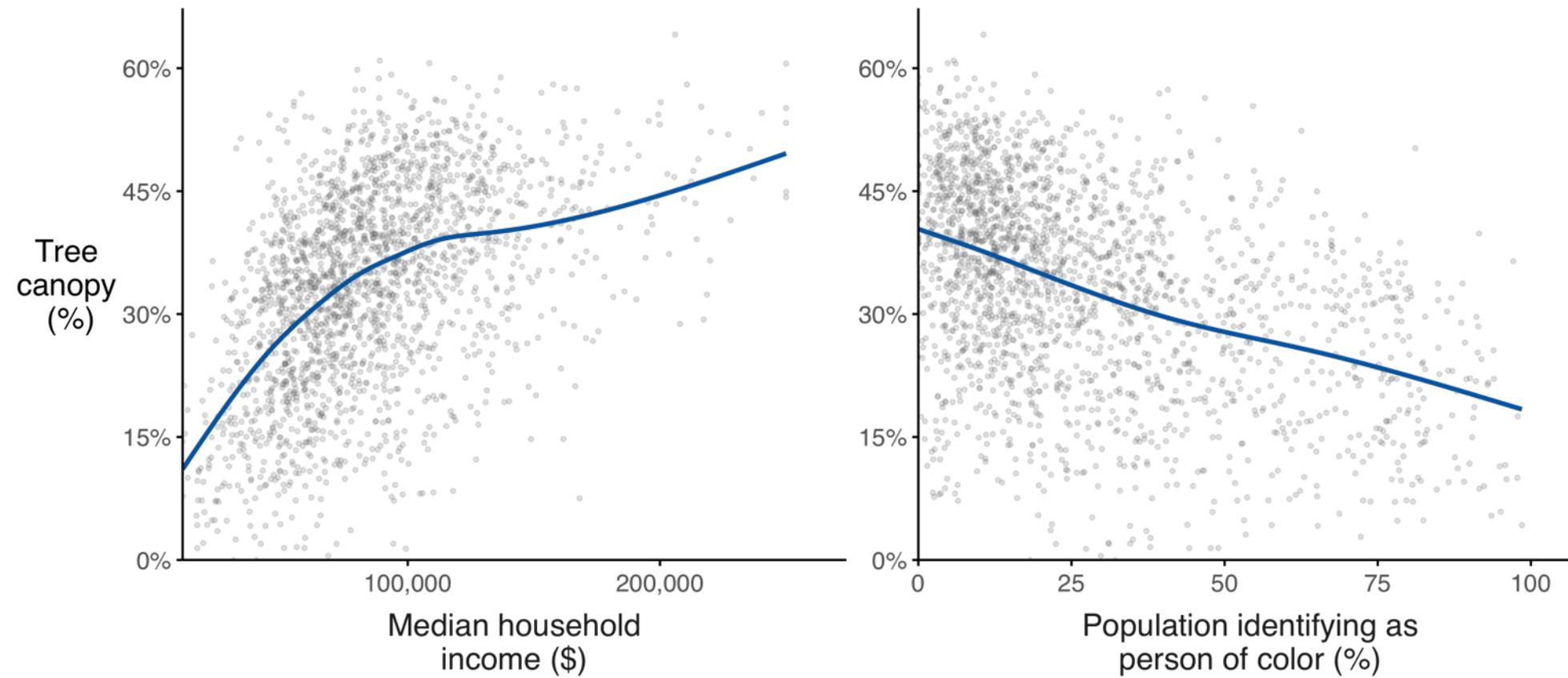
- Federal Aid Highway Act in 1956 followed by the completion of Interstate 35W (1967) and Interstate 94 (1968) displace Black residents and businesses.

## Consequences of racist policies persist

- Growing Shade’s environmental justice lens identifies areas and people facing disproportionately negative consequences of land use decisions.

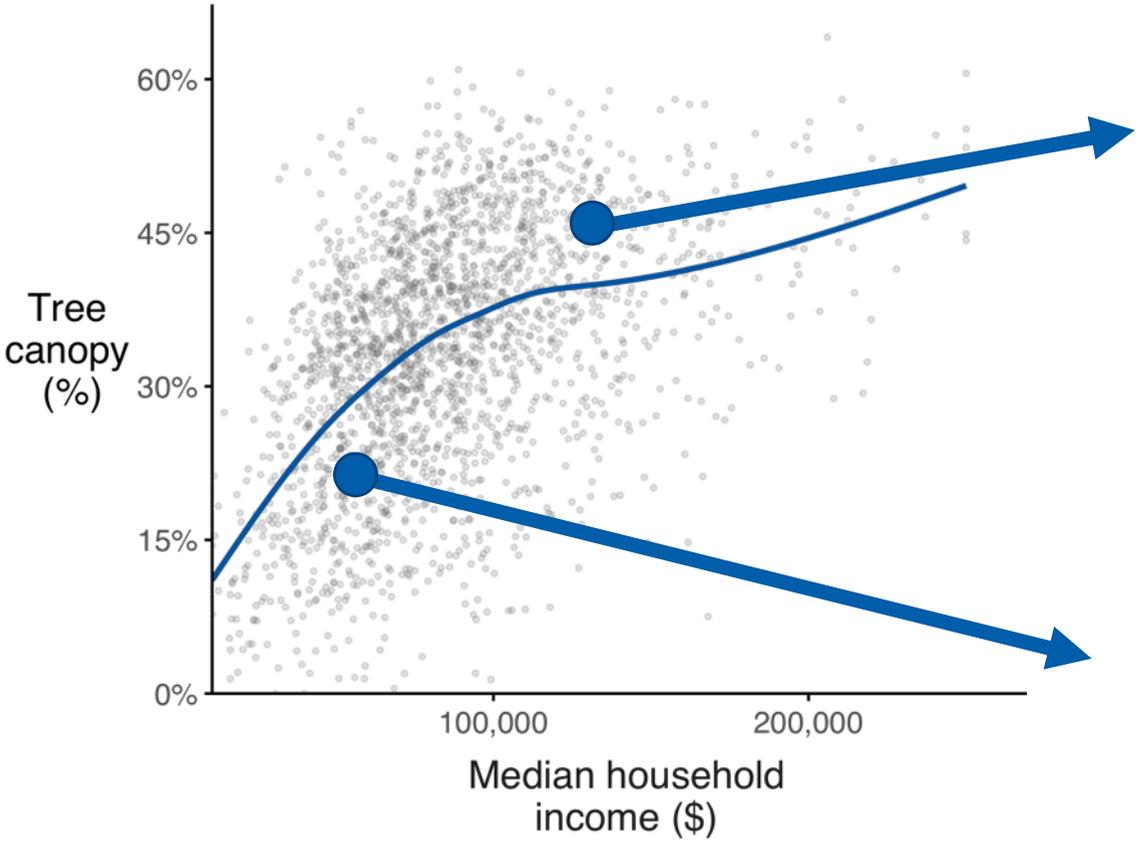


# Race and income disparities with tree canopy cover



Source: Analysis of Sentinel-2 satellite imagery (2021) and ACS 5-year estimates (2015-2019)

# Race and income disparities with tree canopy cover



## Saint Paul's Summit Hill

42% tree canopy  
\$118,625 median income  
9% residents of color  
13.2 people per acre



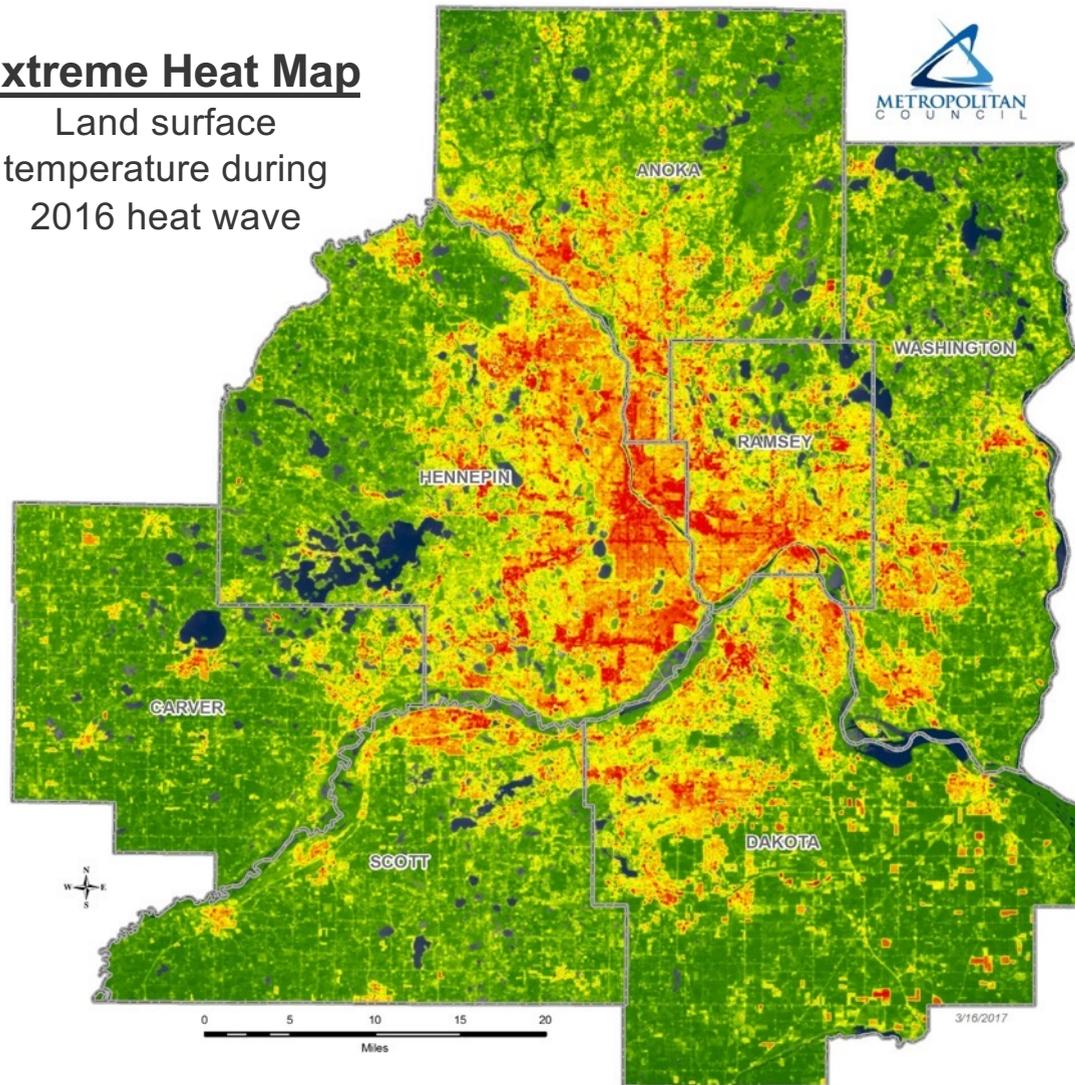
## Minneapolis' Camden

16% tree canopy  
\$46,528 median income  
59% residents of color  
13.3 people per acre

# Tree inequity creates hotter neighborhoods

## Extreme Heat Map

Land surface temperature during 2016 heat wave



Extreme Heat Tool shows differences of up to 40°F across the region

- Shading from trees and evaporative cooling from all vegetation reduce land temperatures.
- Urban heat islands intensify temperature differences.

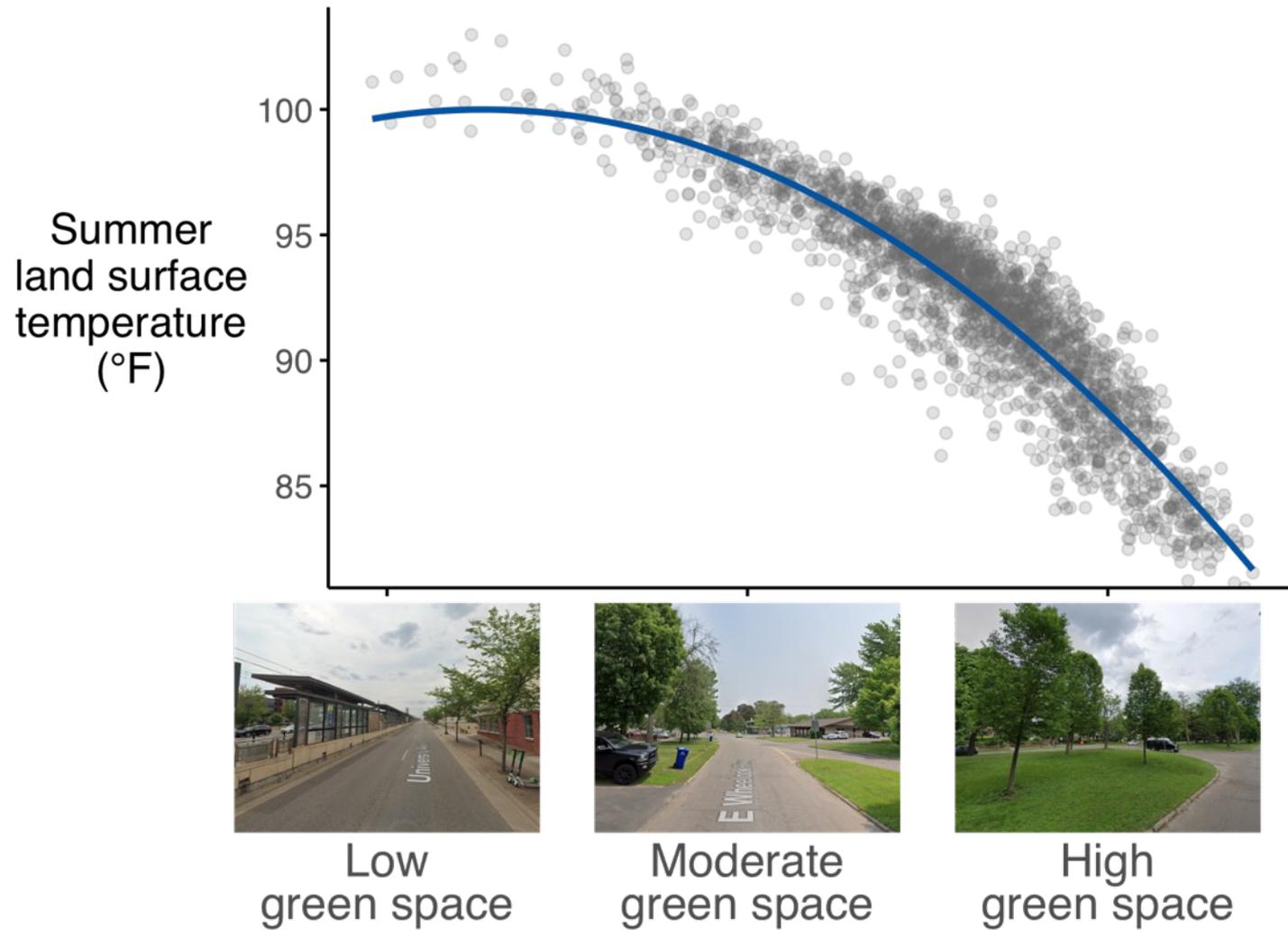
Extreme heat is deadly

- Adding trees can reduce heat related deaths.
- Growing Shade's public health lens identifies areas where trees could most improve health outcomes.

Climate change underscores urgency

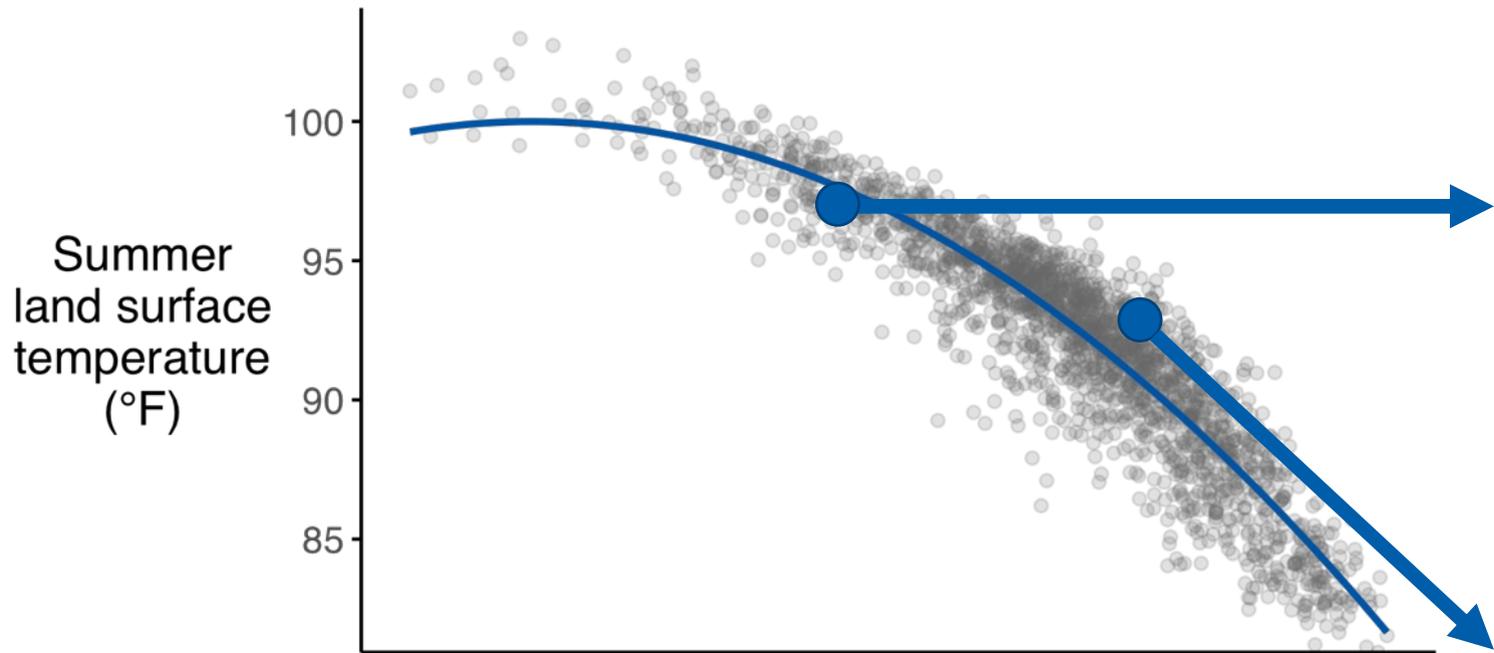
- An additional 40 days above 90°F are projected by 2050.
- Growing Shade's climate change lens identifies areas most at risk from climate change hazards.

# Tree inequity creates hotter neighborhoods



Source: Analysis of Sentinel-2 satellite imagery (2021) and Landsat 8 satellite imagery (2016)

# Tree inequity creates hotter neighborhoods



Low green space



Moderate green space



High green space

Source: Analysis of Sentinel-2 satellite imagery (2021) and Landsat 8 satellite imagery (2016)

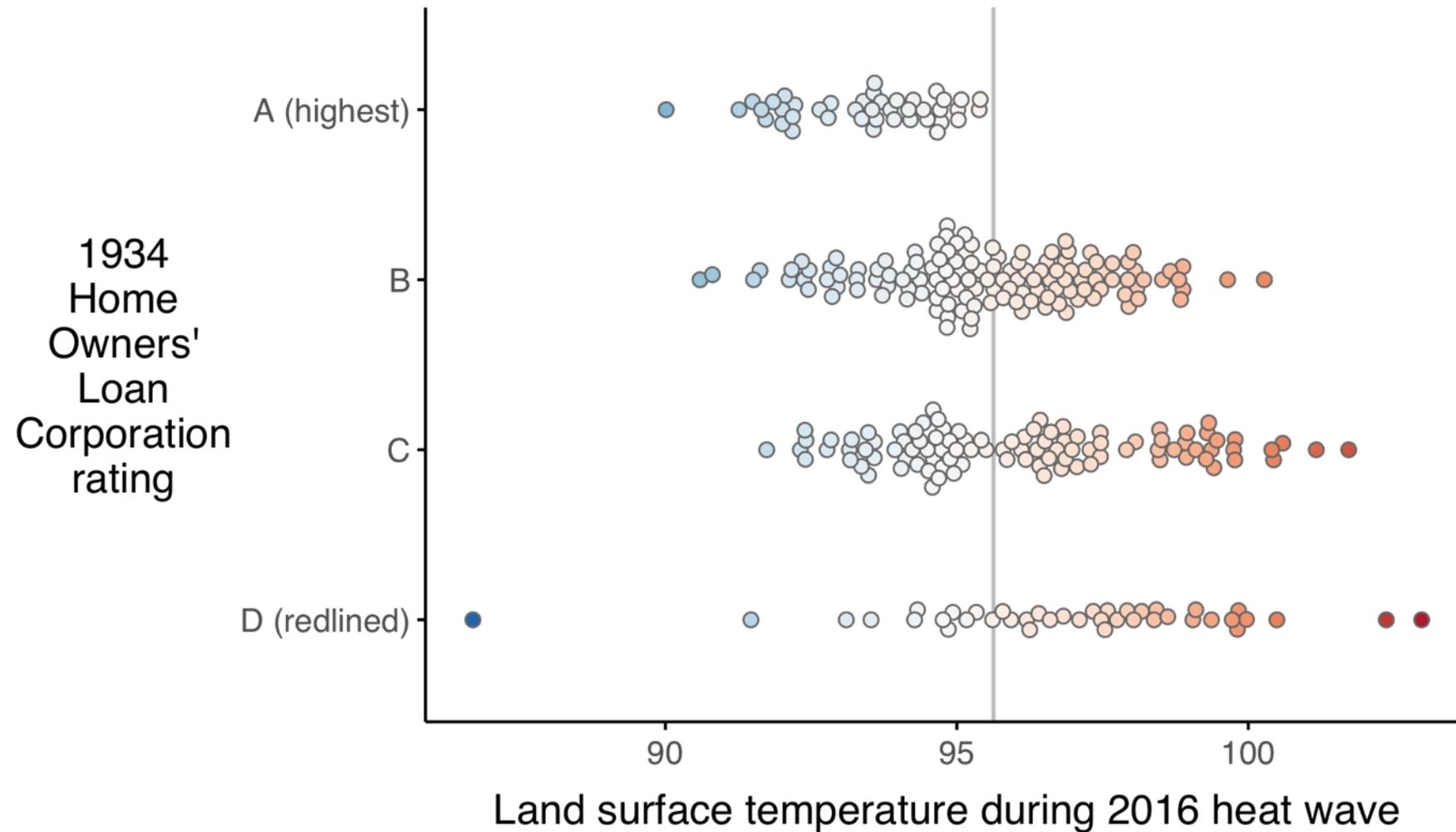


Minneapolis' Camden  
 16% tree canopy  
 \$46,528 median income  
 59% residents of color  
 13.3 people per acre  
 97 °F



Saint Paul's Summit Hill  
 42% tree canopy  
 \$118,625 median income  
 9% residents of color  
 13.2 people per acre  
 94 °F

# Tree inequity creates hotter neighborhoods



Source: Analysis of Landsat 8 satellite imagery (2016) and Equity Considerations dataset (2021)

# Growing shade means more than planting new trees



## Mature trees offer the largest benefits

- Larger canopies provide more shade.
- Mature forests store more carbon, are more biodiverse, and better improve water and air quality.
- Ongoing tree care and maintenance programs are needed.

## Importance of conservation and management of existing canopy

- Growing Shade's conservation lens identifies areas with the region's highest stock of existing trees and greenspace.

# Mapping tool with custom prioritization and reporting

- ACS and other data identifies areas where initiatives may have largest benefits
  - Demographics
  - Socioeconomics
  - Health
  - Environment & Climate
- Growing Shade has resulted in actionable outcomes
  - Cost-sharing planting programs
  - Grant applications
- <https://metro council.org/growingshade>
- [GrowingShade.com](https://growingshade.com)

The screenshot displays the 'Growing Shade mapping tool' interface. On the left, a 'Customizations' panel allows users to select a 'Priority layer' (Environmental justice is selected) and 'Geography' (Cities and townships is selected). Below this, a 'Report' section for 'Bloomington' shows a download icon and a brief report snippet: 'Bloomington has... compared to other cities and... is above average (31.4%). Within Bloomington, there are 75 Census block groups with tree canopy cover ranging from 7.9% to 60.9%.' On the right, a 'Map' shows a geographic area with a color-coded overlay representing priority scores, ranging from -2 (highest priority) to 9. The map includes labels for various cities and townships like Zimmerman, Saint Francis, Stacy, Lindstrom, Chisago City, Wyoming, Hugo, Dayton, Rogers, Albertville, Otsego, Greenfield, Corcoran, Osseo, Mounds View, Circle Pines, Dillwood, Grant, Vadnais Heights, Mahtomedi, Little Canada, North Saint Paul, Lake Elmo, Minneapolis, St. Paul, Newport, Saint Paul Park, Lake, Victoria, Carver, Mound, Deephaven, Long Lake, Orono, Wayzata, Independence, Maple Plain, Medina, Robbinston, Lauderdale, and Cannon Falls. A legend for 'Priority scores (10 = highest priority)' is visible at the bottom left of the map area. The source is cited as 'Source: Growing Shade Project. Last updated on 2022-01-20'.

# Five stories highlight considerations for Growing Shade



## Frogtown Green

Equity and environmental justice



## Lower Phalen Creek Project

Dakota (Indigenous) perspective



## Washington Conservation District

Conservation and climate change



## Brooklyn Center Community Schools

Education and temperature



## Tree Trust

Tree maintenance and green infrastructure

# Recap



- Trees should be considered in planning work
- Adding to or conserving the tree canopy can help tackle big issues:
  - Environmental justice
  - Climate change
  - Public health
  - Natural resource conservation
- Actionable data helps address the following questions:
  - Where can limited resources be directed to have a disproportionately positive impact?
  - What do on-the-ground conditions look like today, and how can that be used to set goals for the future?



<https://metro council.org/growingshade>  
[www.GrowingShade.com](http://www.GrowingShade.com)



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