

Summary

This project examined walkable access to parklands over ten acres in size in three large cities and demographic characteristics of populations within or outside of a walking distance of fifteen minutes. Increased distance from parks (greater than a fifteen minute walk) generally correlated with lower household income and a less white population, but counter-examples to both of these trends exist in the data set, pointing to a potentially more complicated narrative

Discussion of Results

Of the three cities studied, all had over 75 percent of their populations within a fifteen minute walk of at least one park (average 82.9%). Median age was lower for all three cities in areas more than fifteen minutes from a park, but not significantly. More interesting were the variations in percent white residents and median household income. In Denver and Seattle, both were lower for locations outside the fifteen minute distance. Chicago, however, displayed the reverse characteristics.

This variation may be due to other characteristics in the spatial distribution of parks within each city, land use history, and historical growth patterns of each city. Creating new, large parks is unlikely to be possible once the land has been allocated to industry or residential use as collecting enough small parcels to combine into a single large park would be extremely difficult outside of converting former industrial sites such as disused factories.

Data Tables for Selected Characteristics

Chicago

	Population	Median Age	Percent White	Median Household Income	Percent of Population
Overall	2,712,115	35.6	47.9%	\$60,031	100.00%
Less than 15 minute walk	2,103,243	36.1	46.6%	\$58,333	77.55%
Greater than 15 minute walk	608,872	34.2	52.3%	\$65,706	22.45%

Denver

	Population	Median Age	Percent White	Median Household Income	Percent of Population
Overall	715,878	35	72.2%	\$76,389	100.00%
Less than 15 minute walk	627,742	35.4	72.2%	\$77,226	87.69%
Greater than 15 minute walk	88,136	33.7	72.4%	\$68,340	12.31%

Seattle

	Population	Median Age	Percent White	Median Household Income	Percent of Population
Overall	743,716	36.1	65.8%	\$103,370	100.00%
Less than 15 minute walk	620,418	36.3	67.3%	\$106,923	83.42%
Greater than 15 minute walk	123,298	35.5	58.1%	\$85,517	16.58%

Methodology

Boundaries of city, county, state, and federal parks, forests, or other land available for recreation were sourced from city, county, state or federal GIS sources. Land closed to the public, golf courses, museums and other unsuitable locations were removed from the resulting data set, which was then dissolved to combine adjacent parcels. The dissolved park polygons were split to no longer be multipart and all parcels below 10 acres were removed.

From this set of park land, center points were calculated. Parcels over 100 acres were then individually evaluated and points moved/added to facilitate capturing all locations within a given walking distance in the upcoming network analysis step.

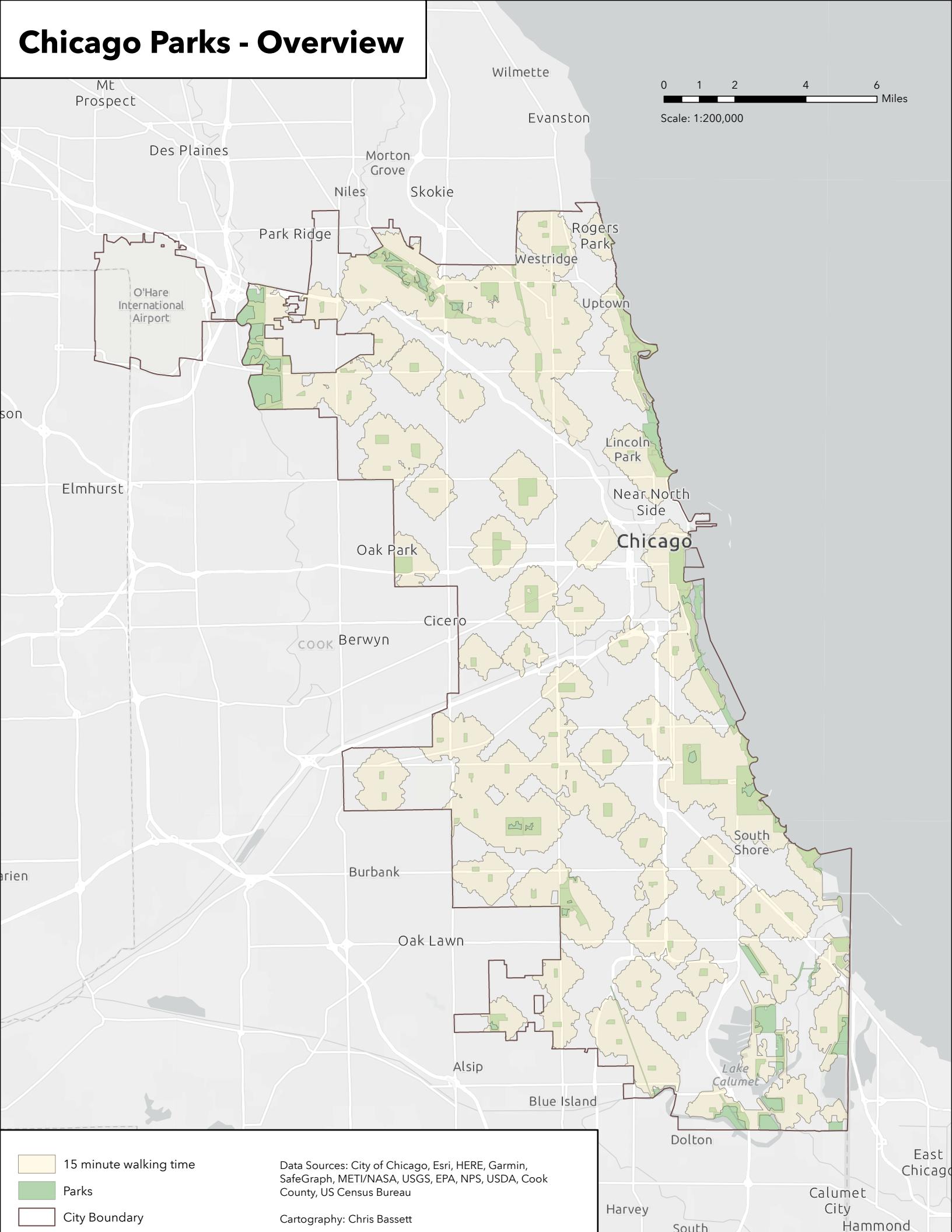
The point layers generated in the previous step were used as inputs to ArcGIS Pro's network analysis layers to calculate travel time towards each point, with "walking time" and a 15 minute breakpoint used for parameters. The resulting polygons were dissolved to give an overlay of all locations within fifteen minutes of one or more parks. 15 minutes was chosen as a reasonable walking distance for a general population.

US Census Bureau blockgroup data, place outlines, and American Community Survey five-year estimates from 2020 were used to generate overall statistics for each city, and by selecting blockgroups that intersected or did not intersect the travel time polygons, statistics for inside and outside of the fifteen minute travel area were calculated.

Limitations and Issues

Some park locations could have benefited from additional points being added to ensure all walkable areas were captured. Only parcels over 10 acres in size were included in this analysis in order to ensure all parks were large enough to offer separation from adjacent urban space, and parks which approached but did not quite make the cutoff may offer significant additional park access. Due to the credit-based nature of ArcGIS Pro network analysis, analysis of smaller spaces was not conducted but should be a part of any further work on this topic.

Chicago Parks - Overview



15 minute walking time

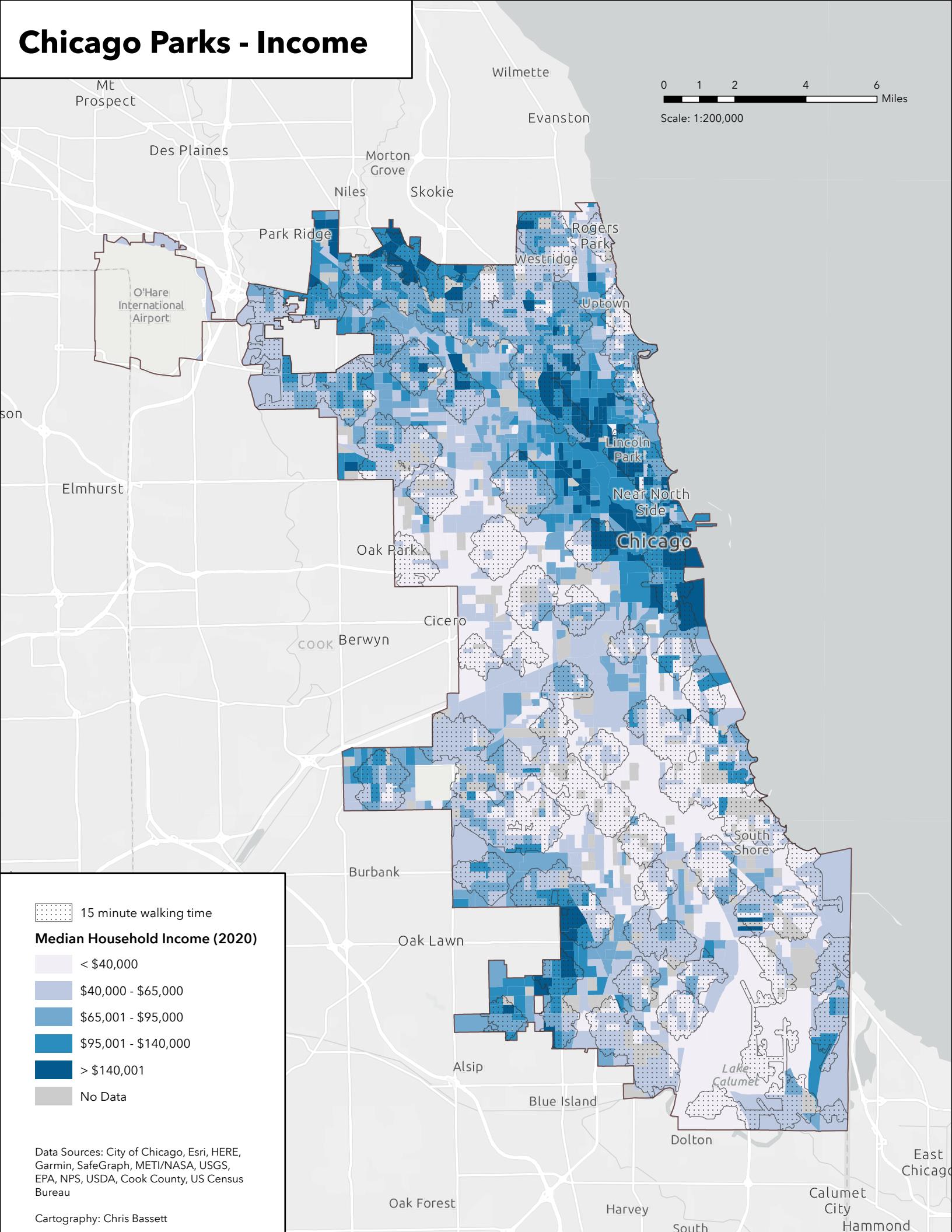
Parks

City Boundary

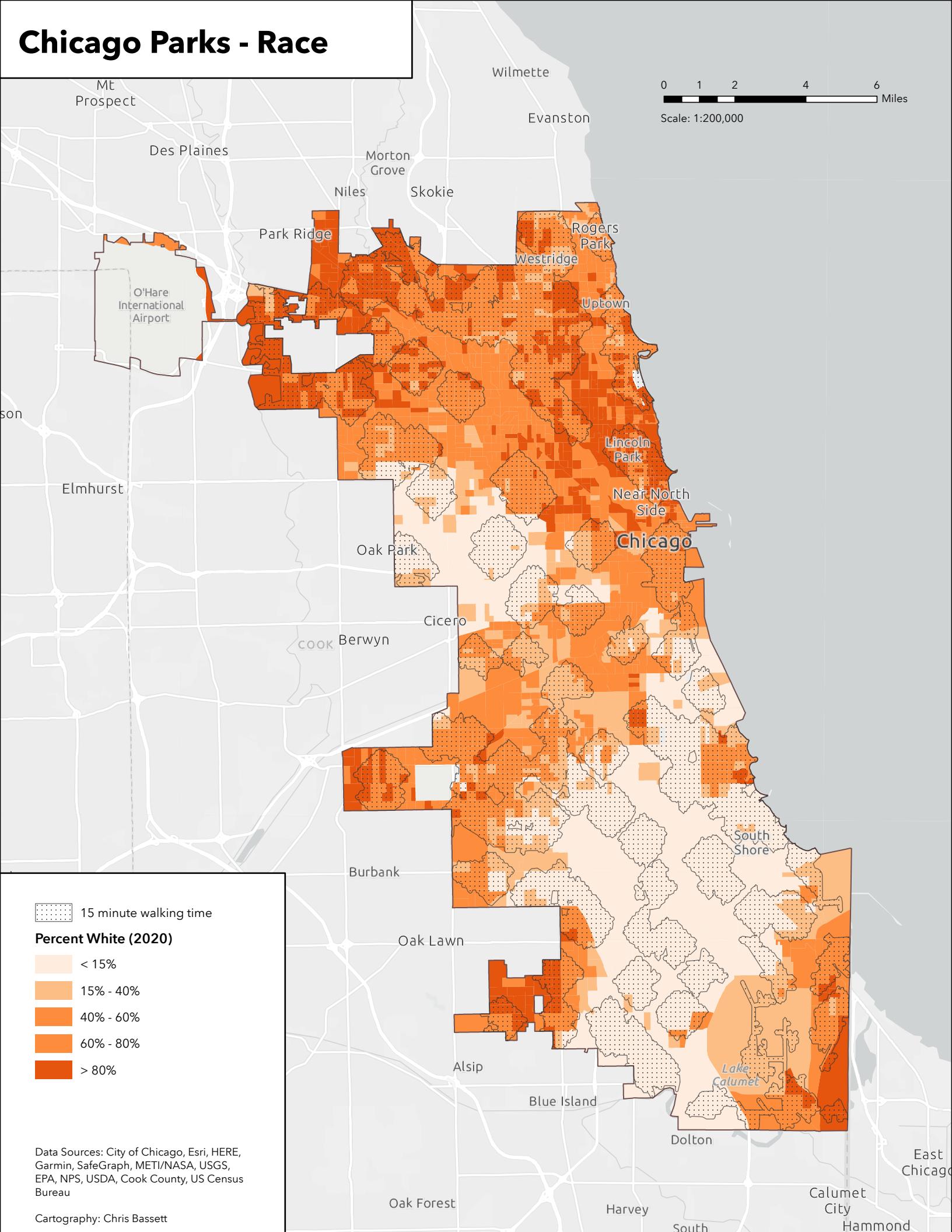
Data Sources: City of Chicago, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Cook County, US Census Bureau

Cartography: Chris Bassett

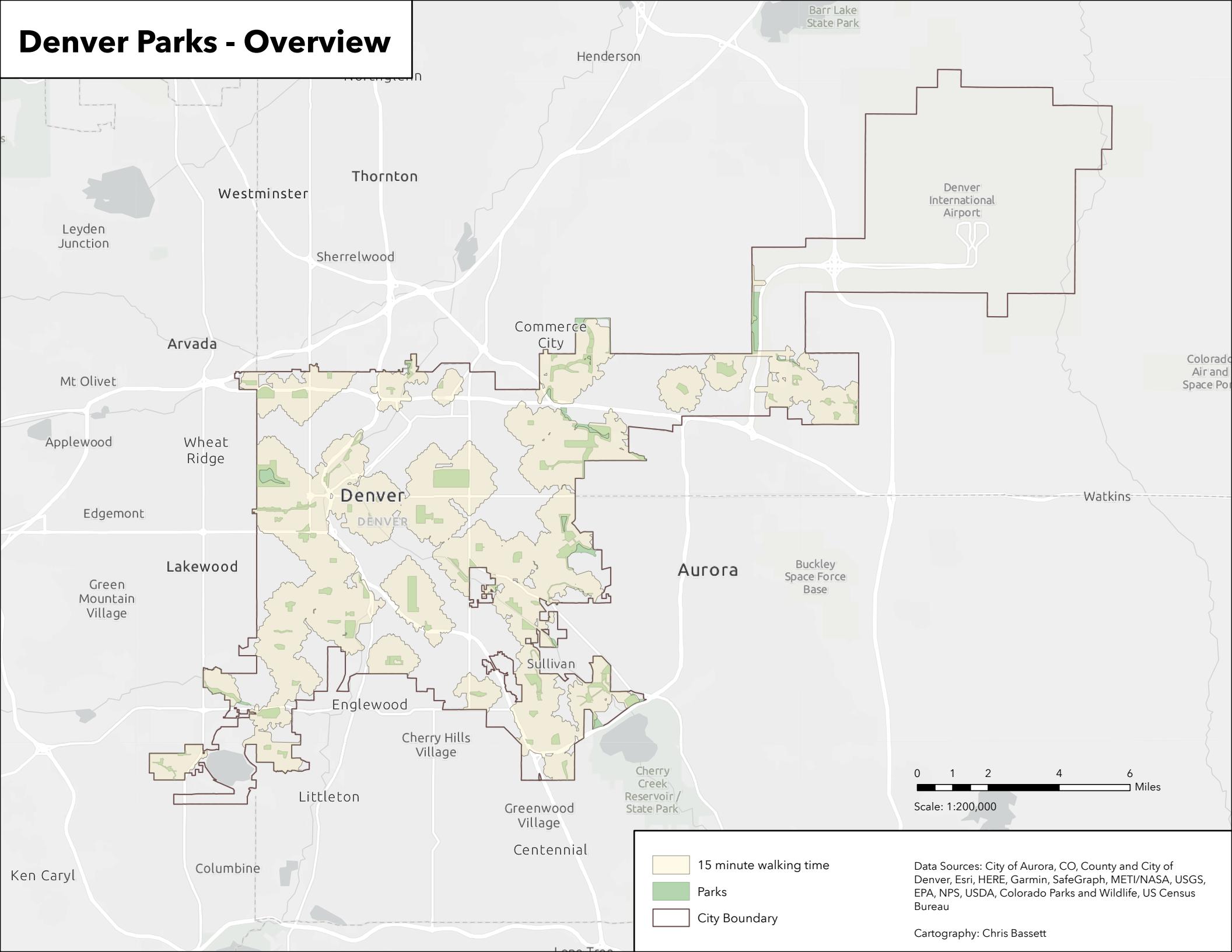
Chicago Parks - Income



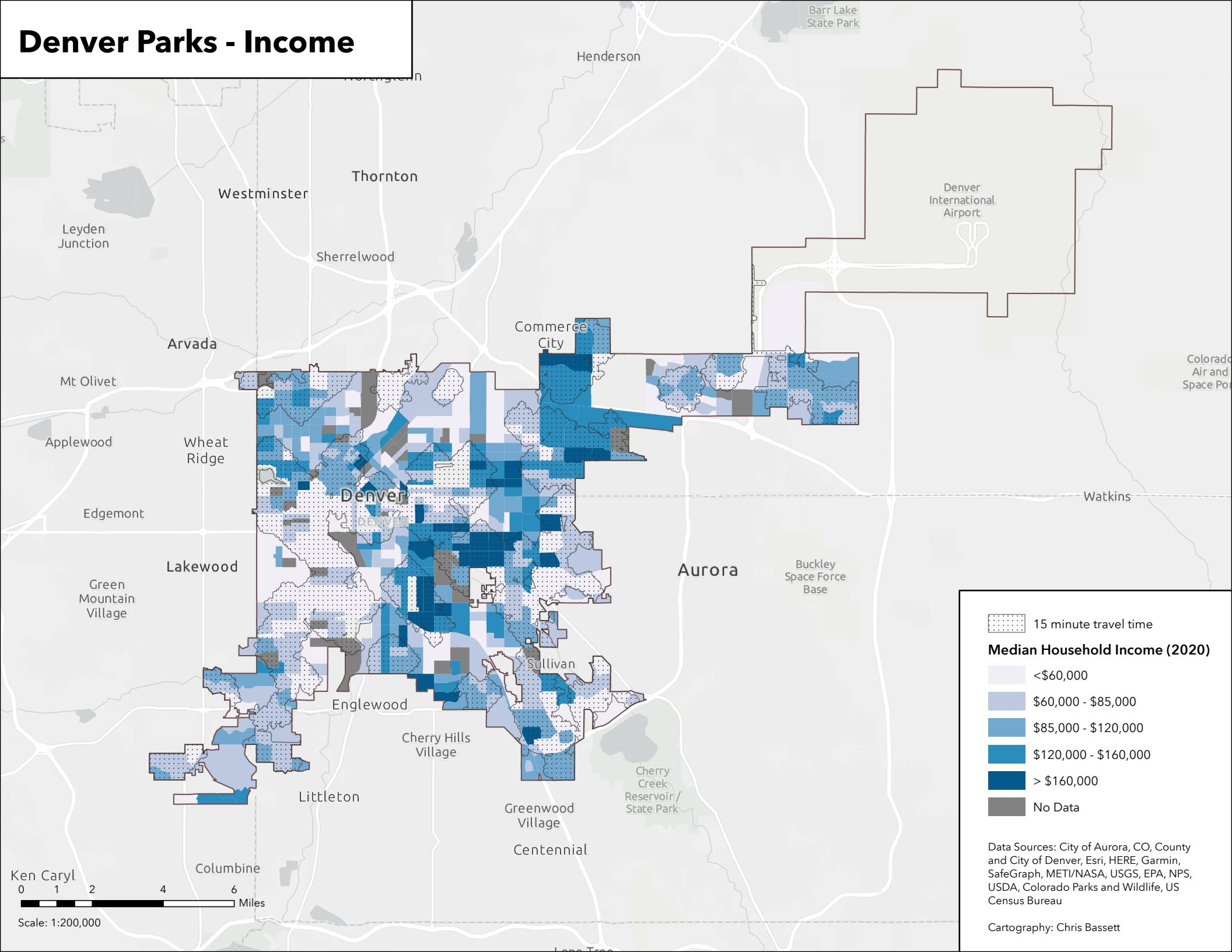
Chicago Parks - Race



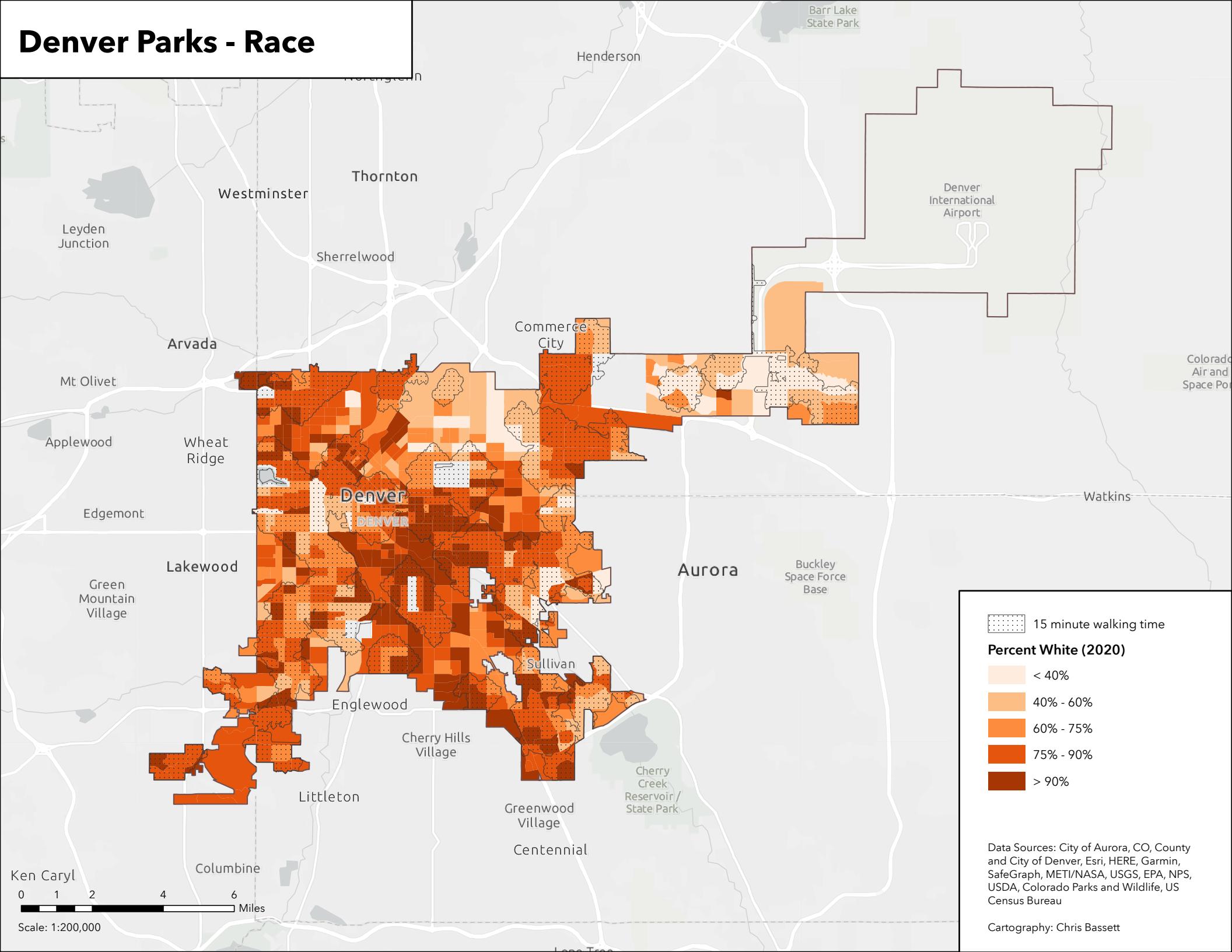
Denver Parks - Overview



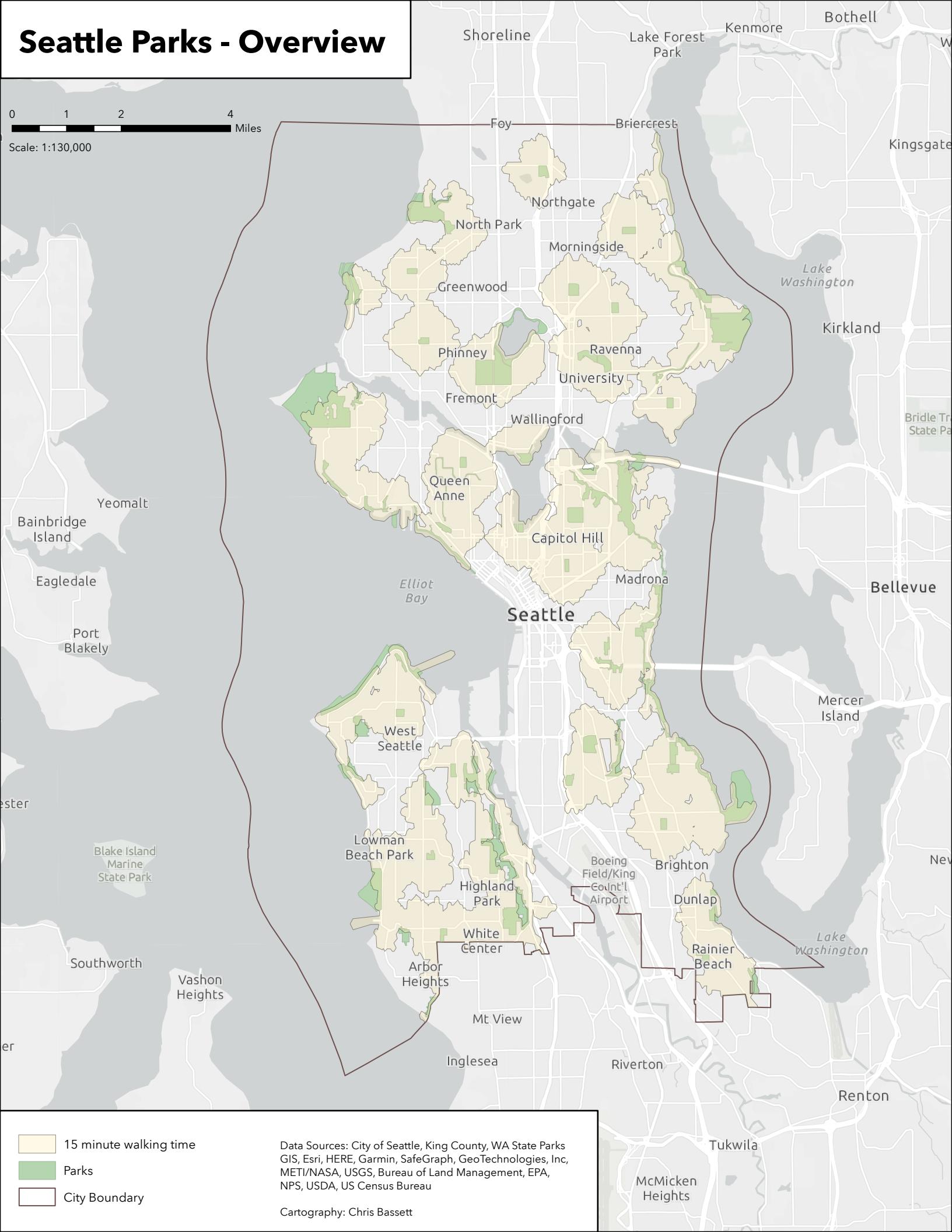
Denver Parks - Income



Denver Parks - Race



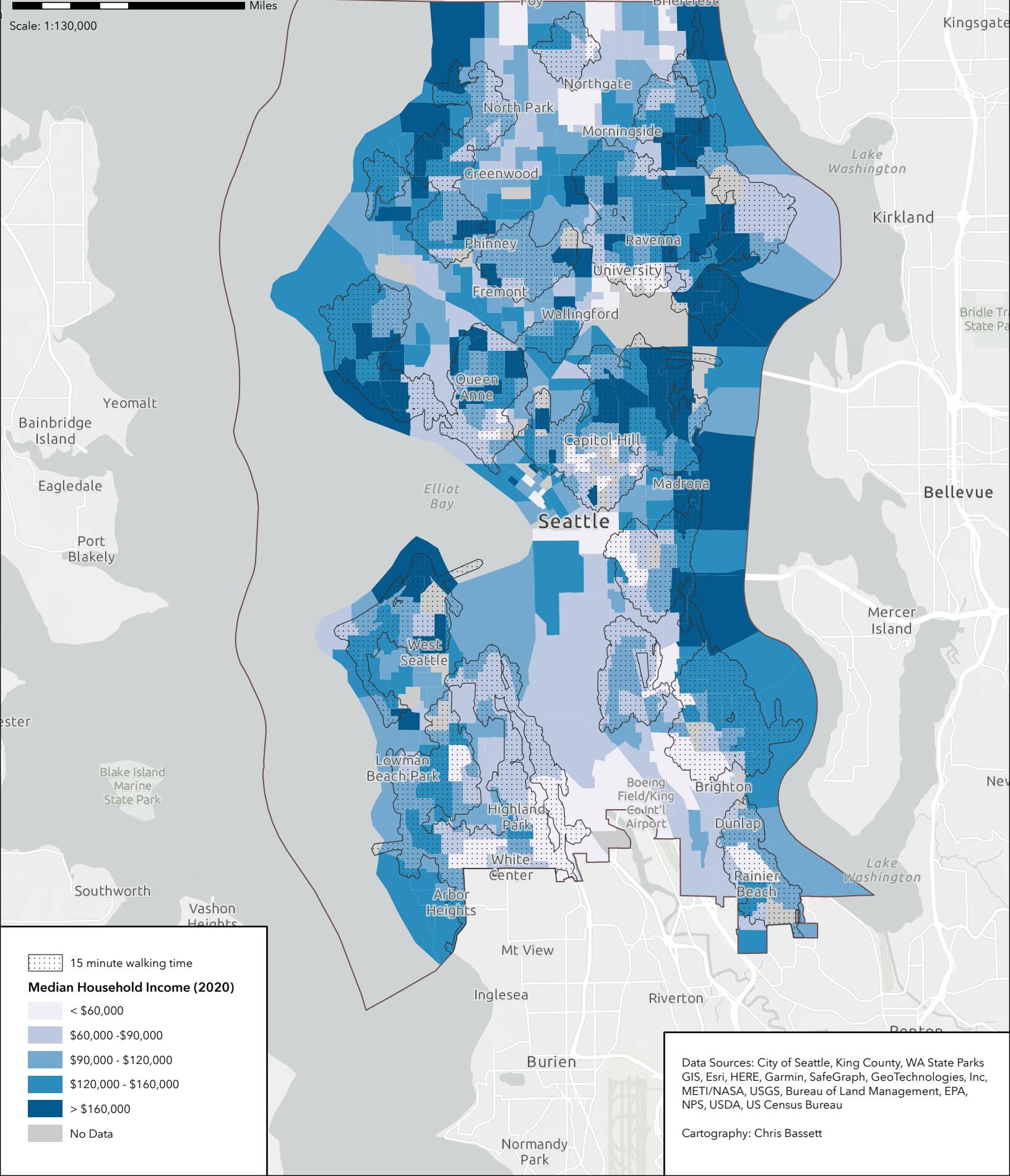
Seattle Parks - Overview



Seattle Parks - Income



Scale: 1:130,000



Seattle Parks - Race



Scale: 1:130,000

