

Seattle's Tree Canopy Cover Assessment

Results Summary

March 2023

Office of Sustainability & Environment



City of Seattle

VISION

A Seattle where everyone—starting with those most harmed by inequities—has access to trees and the benefits they provide and where we keep our trees and forest healthy and thriving in the face of a changing climate.

Part of this vision is achieving our goal of at least **30% canopy coverage that is equitably distributed across the city by 2037.**

KEY FINDINGS

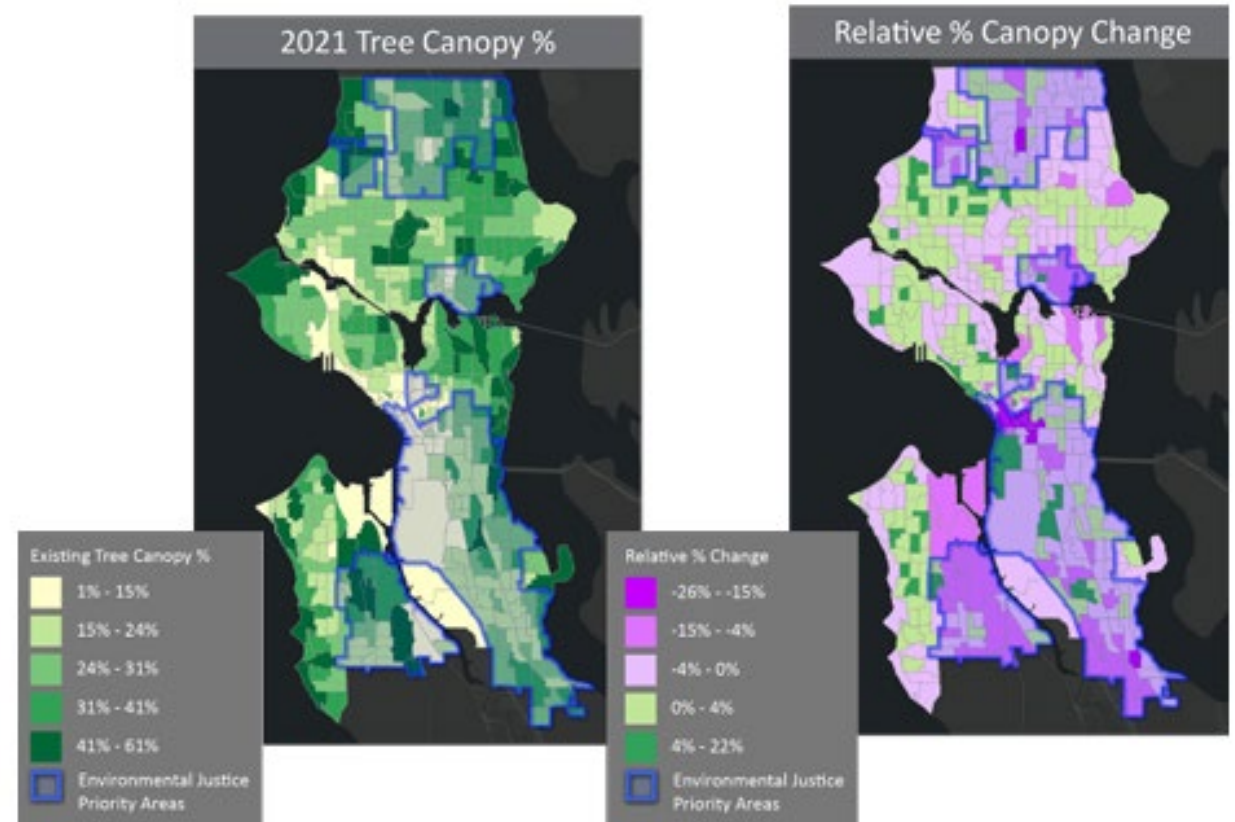
KEY FINDING: WE ARE SLOWLY LOSING GROUND

From 2016 – 2021, Seattle saw a relative decline in canopy cover of 1.7%, representing 255 acres – an area roughly the size of Green Lake.



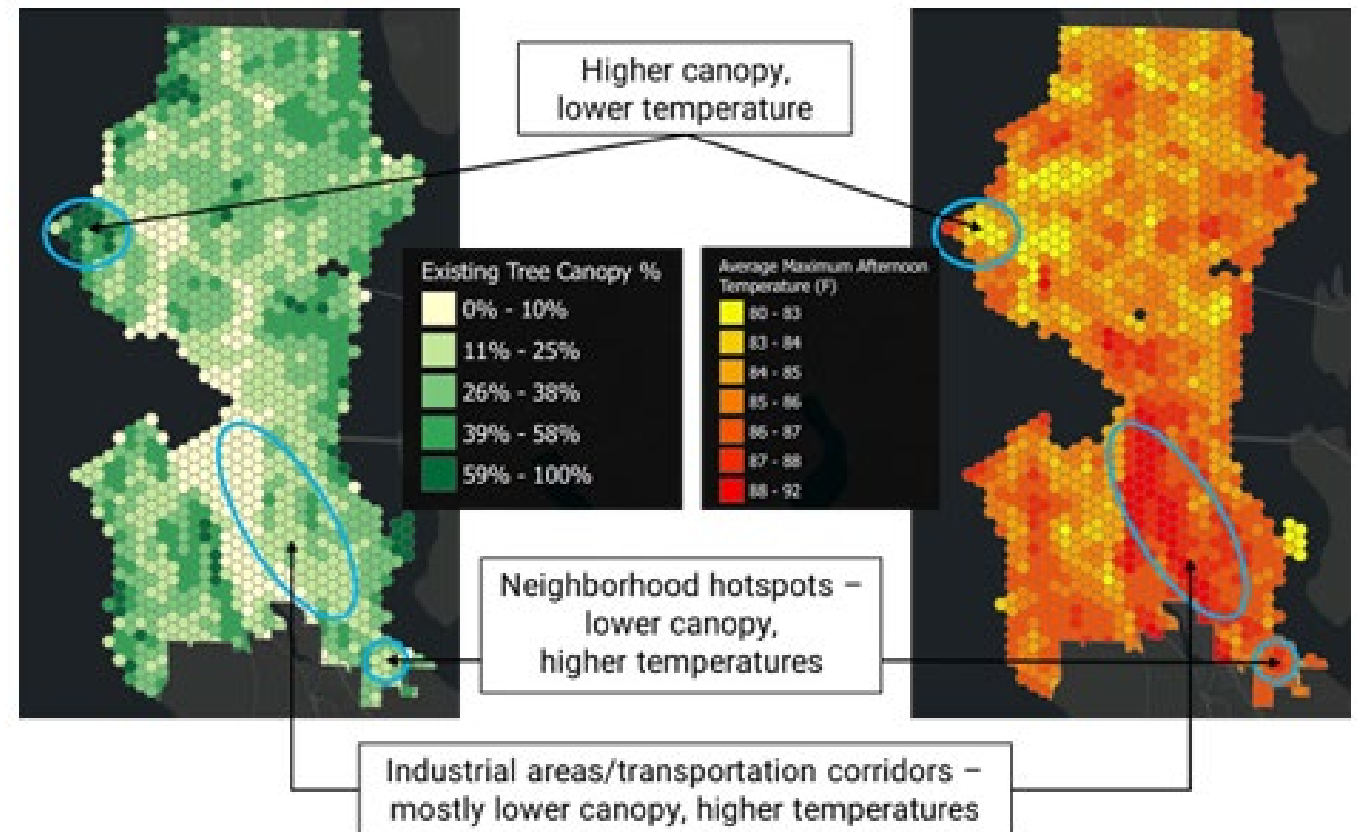
KEY FINDING: LOSS IS HAPPENING INEQUITABLY

Neighborhoods impacted by racial and economic injustice started with less canopy cover *and* lost more than the citywide average.



KEY FINDING: CANOPY IS ESSENTIAL FOR HEAT MITIGATION

Tree canopy lowers temperatures and reduces heat island effects. Neighborhoods with 25% canopy were 1° cooler than neighborhoods with no canopy.



KEY FINDING: PARKS NATURAL AREAS & NEIGHBORHOOD RESIDENTIAL SAW GREATEST NET LOSSES

Combined, losses in these two Management Units comprise 78% of the total canopy loss during the assessment period.

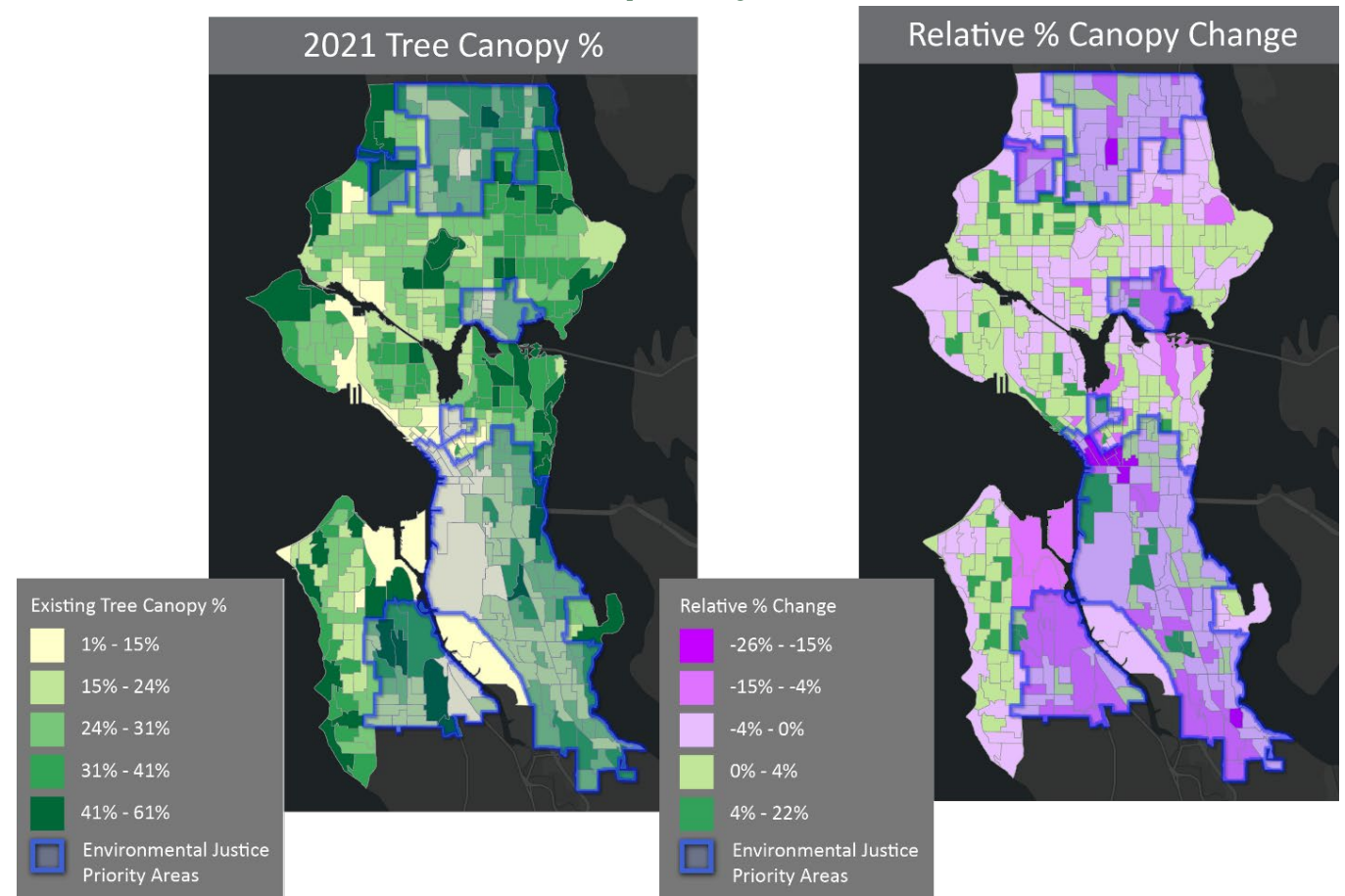


ENVIRONMENTAL EQUITY PRIORITY AREA ANALYSIS

THE MOST DISADVANTAGED AREAS STARTED WITH LESS TREE CANOPY

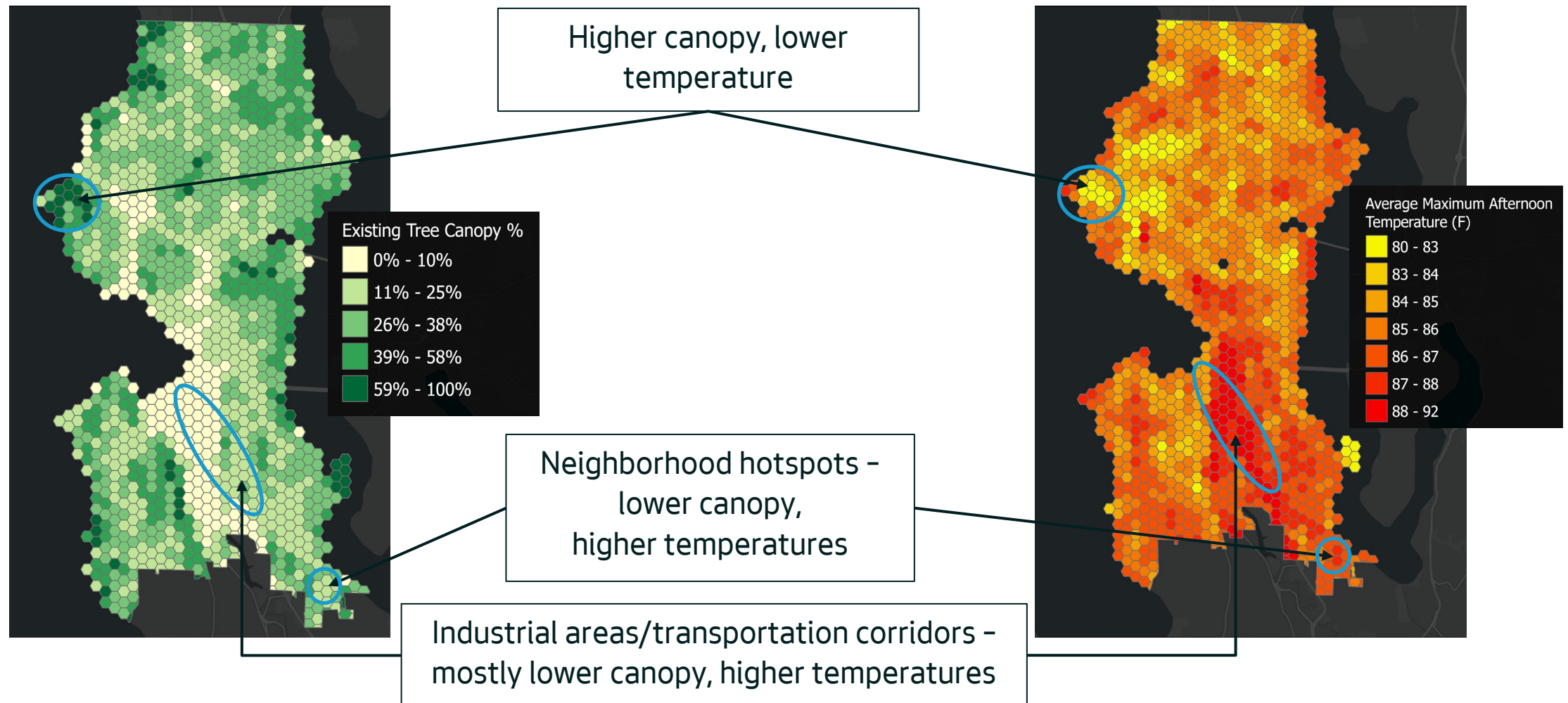
- In 2016, the EJ priority areas had 27% lower canopy than the areas in the two lowest categories of disadvantage.
- **These priority areas saw losses at a greater rate; almost 3 times the rate of loss seen citywide.**
- By 2021, canopy in these areas was 31% lower than the areas in the two lowest categories of disadvantage.

Tree canopy cover map and canopy cover change map overlaid with EJ priority areas



CLIMATE IMPACTS

TEMPERATURES ARE HIGHER IN LOWER CANOPY AREAS



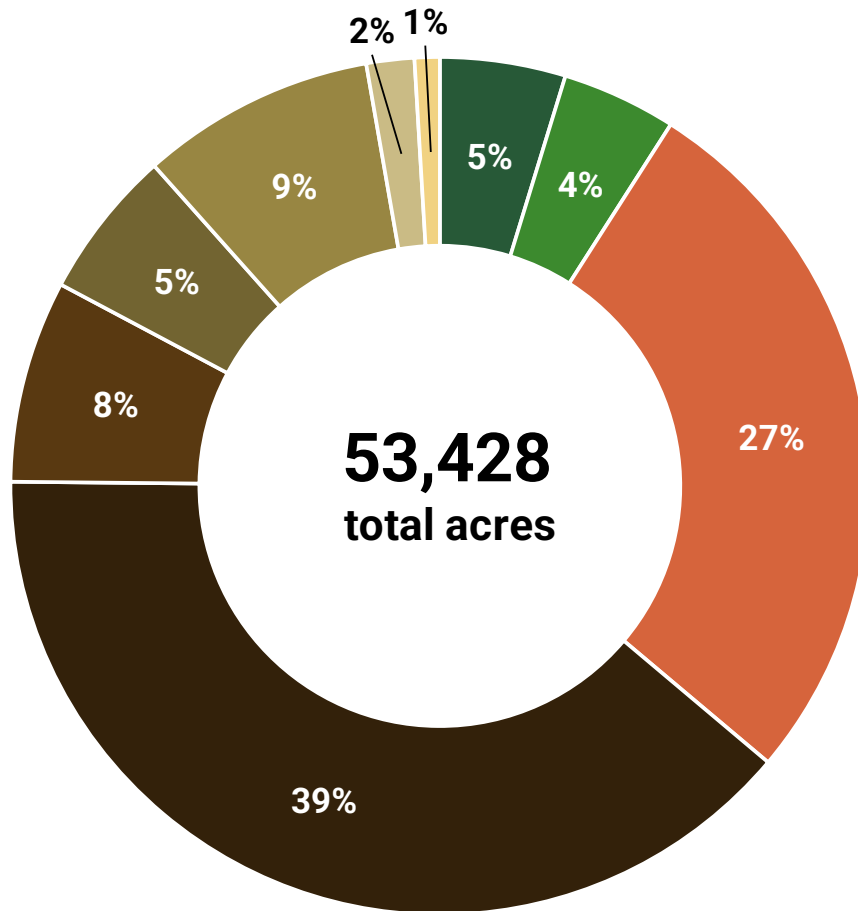
CLIMATE CHANGE IS HARMING OUR TREES

- Our summers are hotter and drier.
- Drought stress and age make our trees more susceptible to pests and diseases.
- This requires longer establishment periods to ensure trees stay alive in these hotter, drier summers.



CANOPY ANALYSIS BY MANAGEMENT UNIT (LAND USE)

CITY LAND AREA BY MANAGEMENT UNIT



Management Unit		Total Land Area (acres)
Public	Parks Natural Areas	2,526
	Developed Parks	2,305
	Right of Way	14,482
Private	Neighborhood Residential	20,841
	Multifamily	4,074
	Commercial / Mixed Use	3,010
	Manufacturing / Industrial	4,722
	Major Institutions	963
	Downtown	505

CANOPY LOSSES WERE GREATEST IN PARKS NATURAL AREAS AND NEIGHBORHOOD RESIDENTIAL



DEVELOPMENT IMPACTS ON CANOPY

- **Most canopy loss in residential areas was not associated with redevelopment.** 70% of canopy loss in residential areas was unrelated to a redeveloped site
- **Sites that were redeveloped represent a small percent of the city's land area.** For example, only 1.2% of land in Neighborhood Residential areas was redeveloped during this period—representing only 3% of the city's area overall.
- **Canopy loss was high on sites where redevelopment took place.** Citywide, sites that were redeveloped saw a relative canopy loss of 40%, compared to the 1.7% loss seen citywide.

DEVELOPMENT IMPACTS ON CANOPY

Methodology: To assess the impact of development (building) on tree canopy, the consultant analyzed canopy changes on parcels that were redeveloped between 2017 and 2021 and compared them to parcels where no development projects were completed during this time. "Redeveloped parcels" were defined as sites that began and completed construction of new buildings that added residential units or new commercial buildings within the identified timeframe. The analysis included canopy gains, losses, and net change, and the absolute and relative percent changes in canopy between 2016 and 2021 on this group of parcels citywide and grouped by management unit.

In this dataset, parcels that began and completed construction of new buildings that added residential units or new commercial buildings between 2017 and 2021 are included in the "Redeveloped Parcels" category. All other parcels are included in the "Parcels Not Redeveloped Category."



CANOPY CHANGE IN DEVELOPED PARCELS – CITYWIDE

Redeveloped parcels represent 1.0% of total area in the city.

The 35 acres of canopy lost in redeveloped parcels = 13.7% of total acres lost in the city.

Citywide (All Management Units)	New Development Parcels	Parcels Where No New Development Occurred	Total
Total land area in 2021 (acres)	511	52,915	53,427
Canopy present in these parcels - 2016 (acres)	88	15,190	15,279
Canopy present in these parcels - 2021 (acres)	53	14,970	15,024
Relative % change in canopy 2016-2021	-39.8%	-1.4%	-1.7%
Net change in canopy in these parcels 2016-2021 (acres)	-35	-220	-255

CANOPY CHANGE IN DEVELOPED PARCELS – RESIDENTIAL

Neighborhood Residential

- Redeveloped parcels represent 0.7% of total Neighborhood Residential area.
- The 17 acres lost here = 20% of the total acres lost in Neighborhood Residential areas.

Multifamily

- Redeveloped parcels represent 2.9% of total Multifamily area.
- The 14 acres of net loss here = 78% of the total acres lost in Multifamily

	Neighborhood Residential		Multifamily	
	Redeveloped Parcels	All Parcels	Redeveloped Parcels	All Parcels
Total land area in 2021 (acres)	142	20,841	149	4,074
Canopy present in these parcels - 2016 (acres)	50	7,121	28	951
Canopy present in these parcels - 2021 (acres)	33	7,035	14	933
Relative % change in canopy 2016-2021	-33.6%	-1.2%	-49.5%	-1.9%
Net change in canopy in these parcels 2016-2021 (acres)	-17	-87	-14	-18

RECOMMENDATIONS

REPORT RECOMMENDATION: EXPAND AND DEEPEN PARTNERSHIPS

Expand and deepen partnerships to plant new trees on both private and public property—focusing specifically on environmental justice priority areas—and plan for and fund their establishment and long-term care.



REPORT RECOMMENDATION: INCREASE PROTECTIONS FOR EXISTING TREES

Increase efforts to protect and care for existing trees as one of the most effective ways to ensure future tree canopy.



REPORT RECOMMENDATION: PREPARE FOR CLIMATE CHANGE IMPACTS

Incorporate current and expected future climate change impacts into our planting and maintenance practices to proactively respond to challenges like more heat, less water, and new and more prevalent pests and diseases.



REPORT RECOMMENDATION: IMPLEMENT STRONG REGULATORY FRAMEWORK

Implement a strong regulatory framework that aligns our goals for tree preservation with housing production and development needs for our growing City.

