Preliminary Results

Seattle's Canopy Cover Assessment

City of Seattle

What is the tree canopy assessment?

LiDAR - 2021 + Imagery - 2021 = Tree Canopy Change – 2021 LiDAR

No Change
Gain
Loss

- We combine LiDAR data with aerial imagery to determine the amount of canopy cover and the change in cover since 2016.

- This round of assessment is our first opportunity for trend analysis.

- Preliminary data includes canopy citywide and by land use type (management unit*); change in canopy since 2016
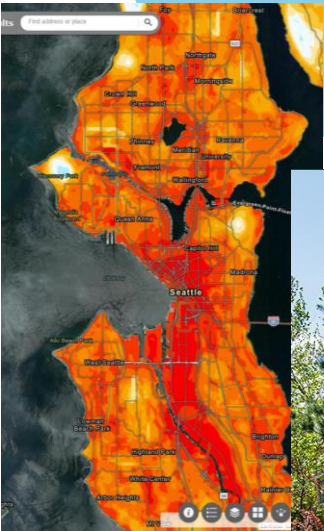
*The Urban Forest Management Plan defines nine management units that cover all the land in the city. The management units consider trees based on their geographic location within the city.

Seattle's urban forest can foster climate resilience, health, and equity

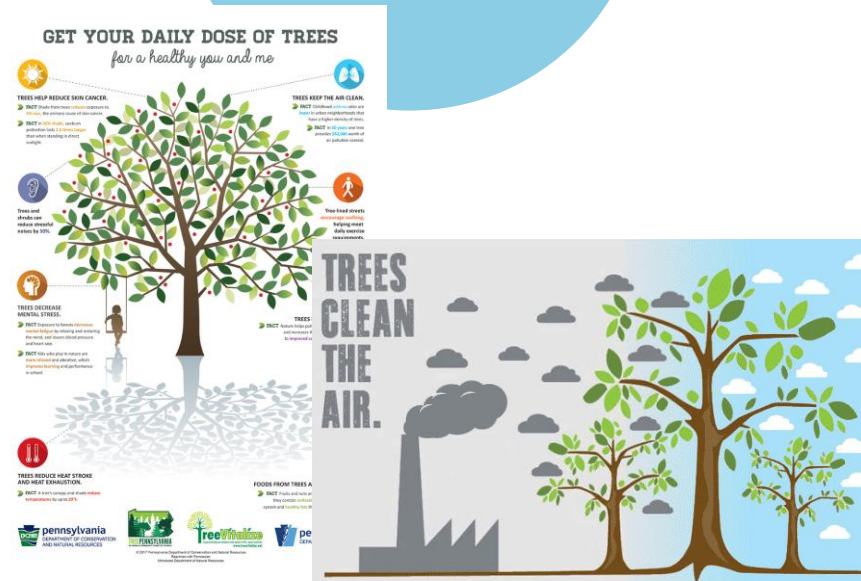## Climate resilience

Heat mitigation, cooling

Biodiversity, pest resistance
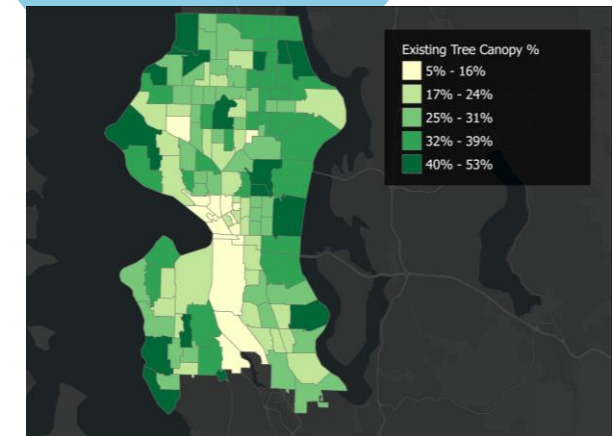
Health

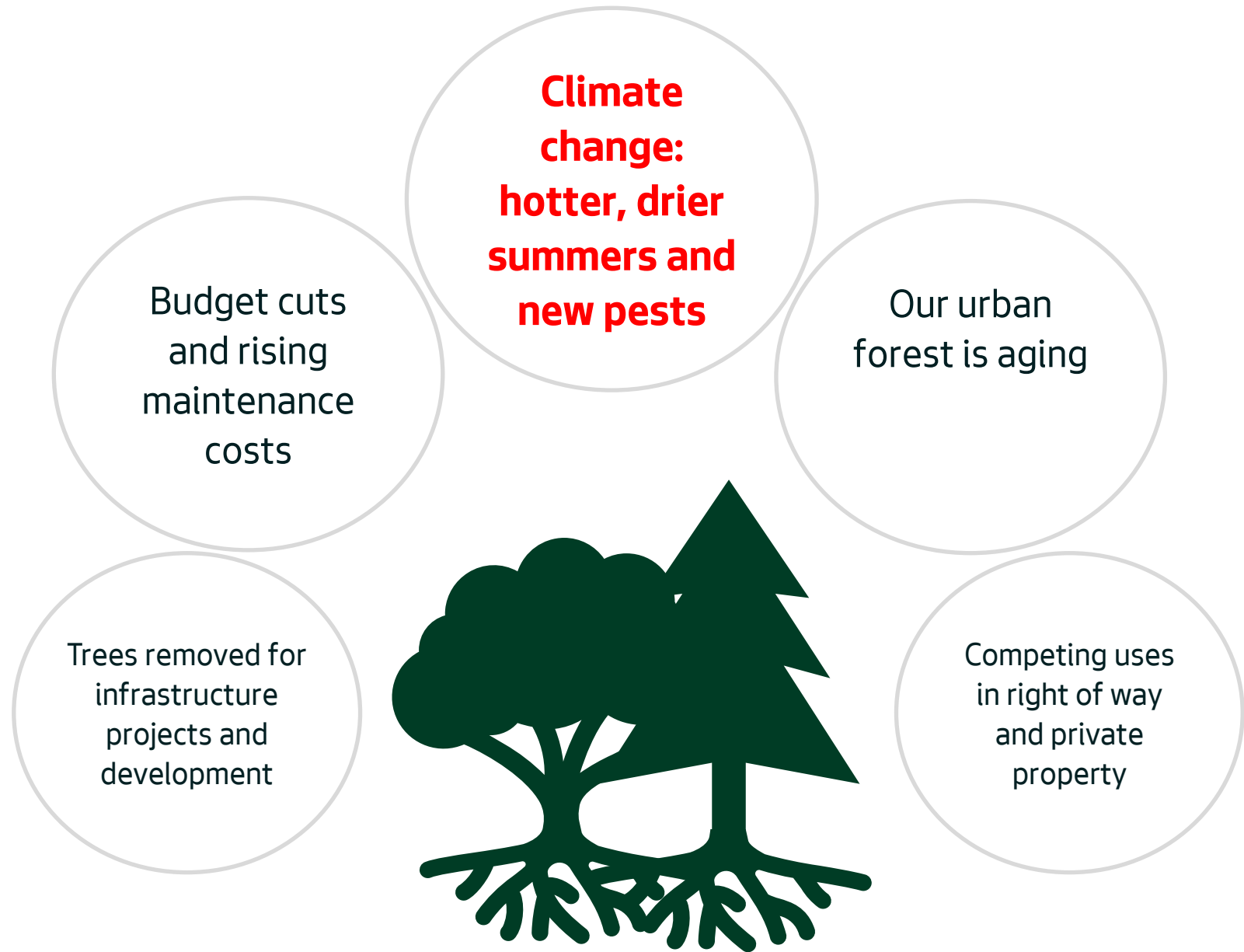Air quality improvement

Physical and mental health and well-being

Equity

Addressing canopy inequities
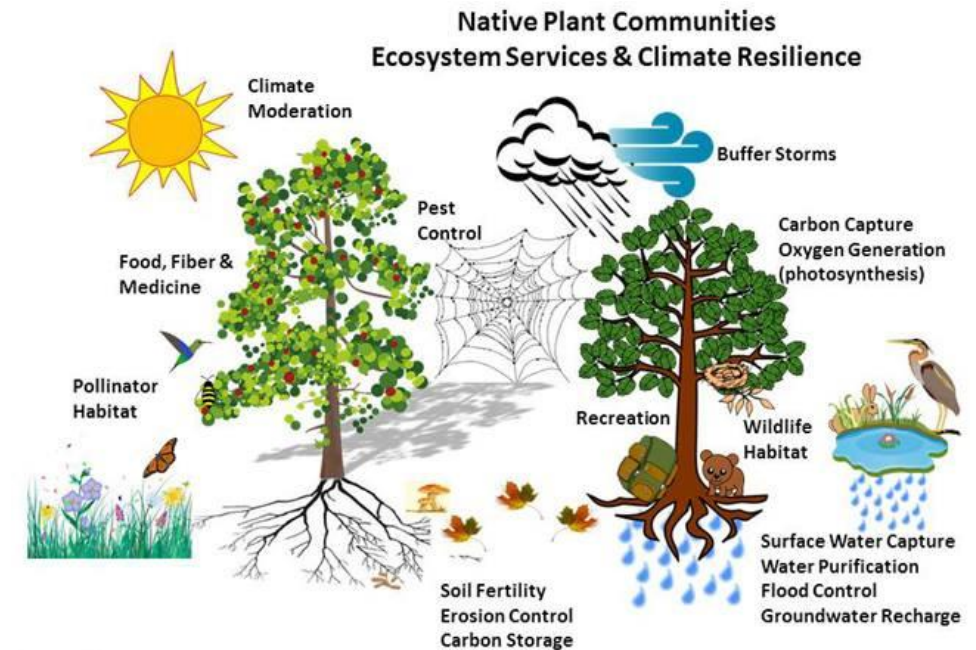
Reducing health disparities

Our tree canopy decreased by 255 acres (about the size of Green Lake) between 2016-2021

Functionality lost without those trees:

- **Carbon** – hundreds of thousands of lbs CO^2/year not sequestered

- **Stormwater** – millions of gallons of runoff not avoided

- **Heat/cooling** – hundreds of acres shade lost; millions of gallons water not transpired;

- **Air quality** – hundreds of thousands of lbs of pollutants not absorbed

Native Plant Communities
Ecosystem Services & Climate Resilience

Climate Moderation

Buffer Storms

Pest Control

Carbon Capture
Oxygen Generation
(photosynthesis)

Food, Fiber & Medicine

Pollinator Habitat

Recreation

Wildlife Habitat

Soil Fertility
Erosion Control
Carbon Storage

Surface Water Capture
Water Purification
Flood Control
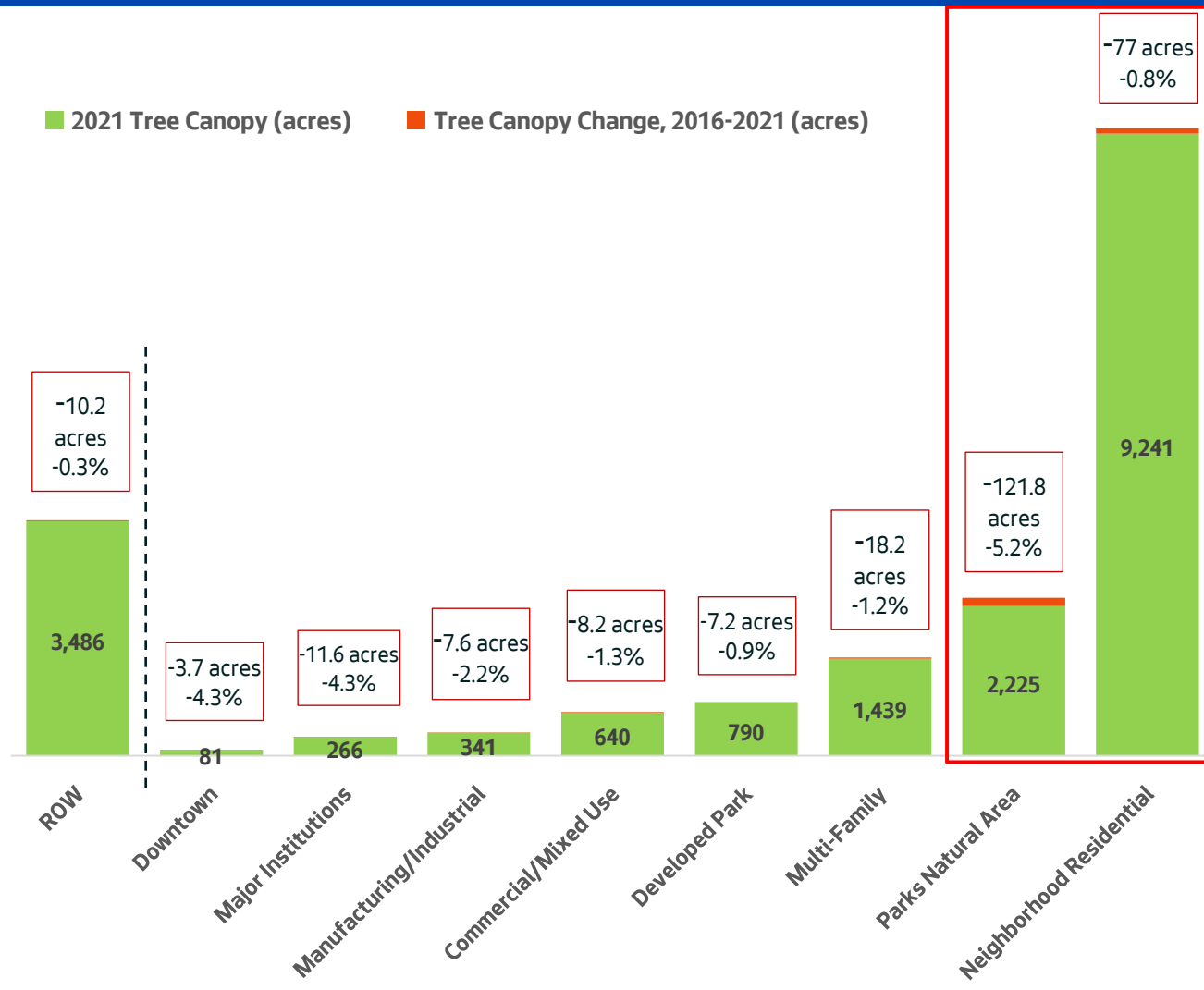Groundwater Recharge

2015 Native Plant Conservation Campaign

Canopy declined by 1.7% between 2016 and 2021, in a period where population grew by 8.5%

Seattle Canopy Cover, 2016 and 2021 (preliminary)

Canopy Cover Goal (30%)

Canopy Cover
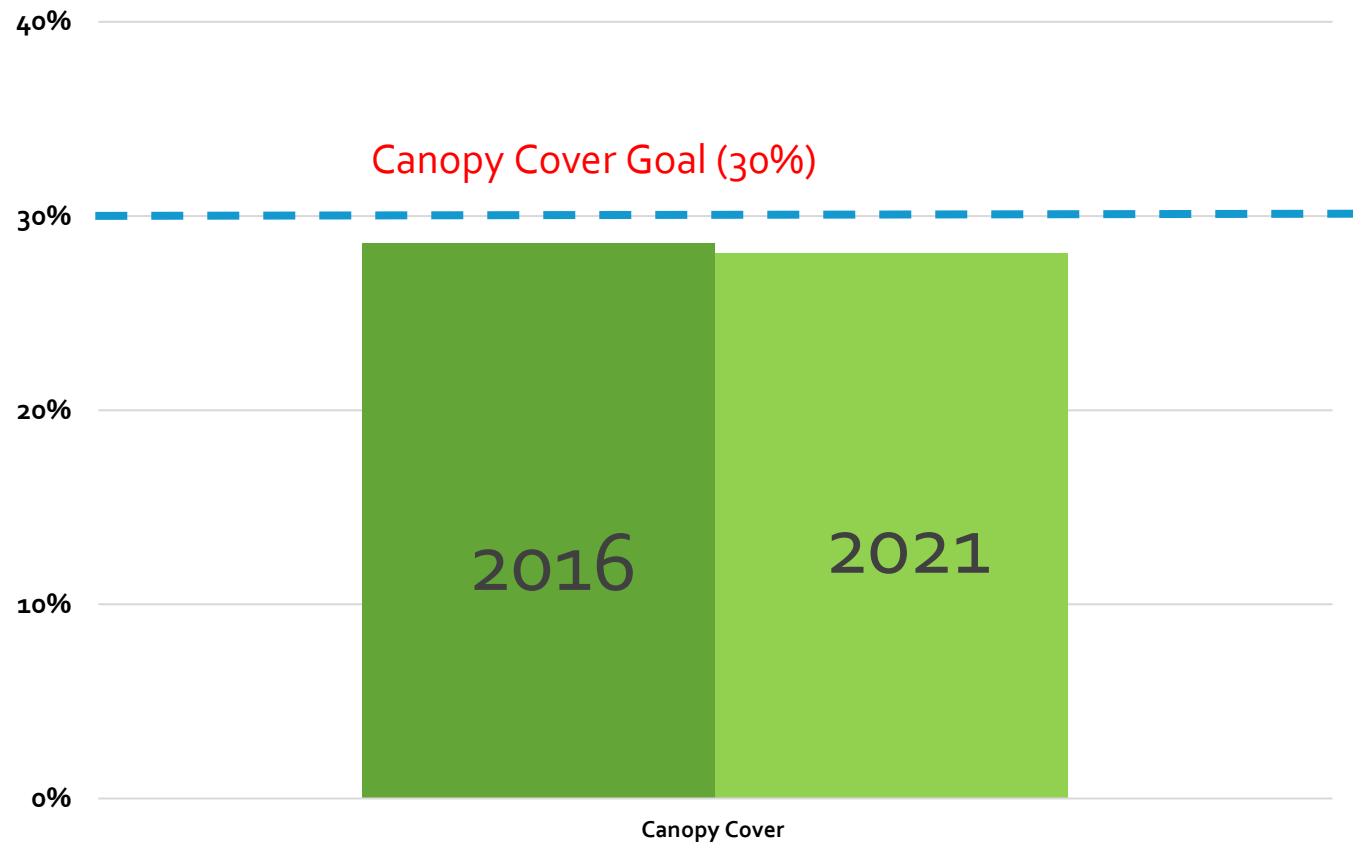
- Preliminary data indicate a net loss of 1.7% (255 acres) during the 5-year period between 2016-2021.

- During this time, population grew 8.5%, adding ~58,000 people and ~47,000 housing units.

- Losses are due to climate change exacerbated by lack of investment, aging trees, and competing uses.

Climate Change is exacerbating tree canopy loss across land use types.

Legend: 2021 Tree Canopy (acres) ■ Tree Canopy Change, 2016-2021 (acres)

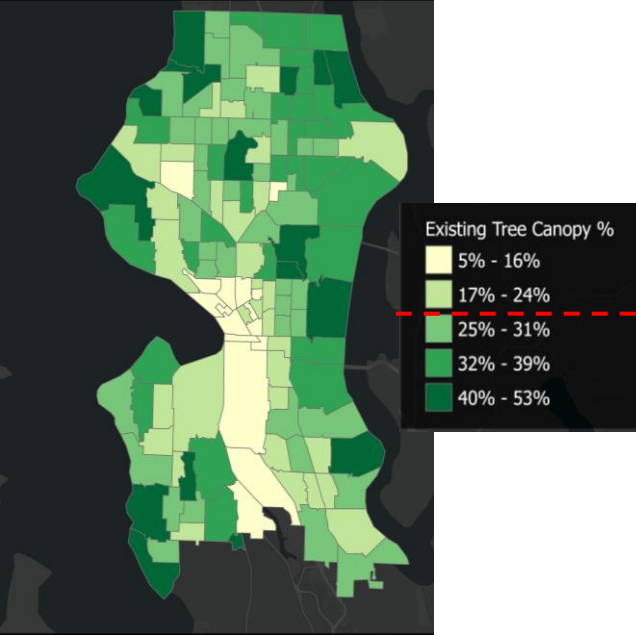| Land Use	2021 Tree Canopy (acres)	Change 2016-2021
ROW	3,486	-10.2 acres / -0.3%
Downtown	81	-3.7 acres / -4.3%
Major Institutions	266	-11.6 acres / -4.3%
Manufacturing/Industrial	341	-7.6 acres / -2.2%
Commercial/Mixed Use	640	-8.2 acres / -1.3%
Developed Park	790	-7.2 acres / -0.9%
Multi-Family	1,439	-18.2 acres / -1.2%
Parks Natural Area	2,225	-121.8 acres / -5.2%
Neighborhood Residential	9,241	-77 acres / -0.8%

The reasons for loss in each area are complex – some examples:

- Summers getting hotter and drier

- Aging trees more susceptible to drought conditions and pests are more likely to come down during weather events.

- Large construction projects for utilities, transportation and other infrastructure

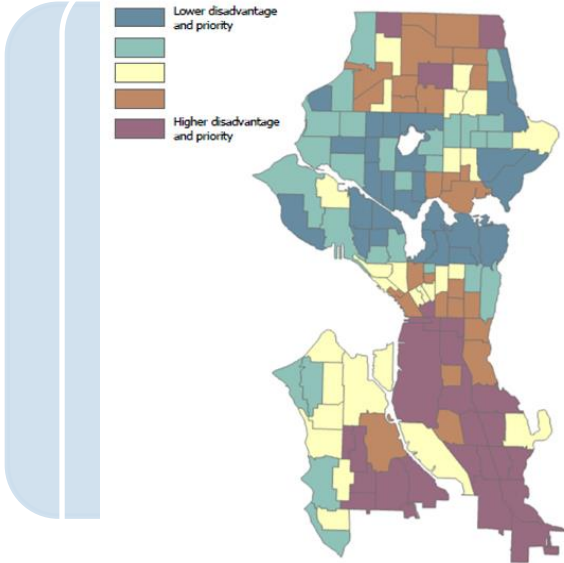- Housing grew substantially during this period

Areas to focus for the future:

- Developed parks and natural areas

- Neighborhood residential

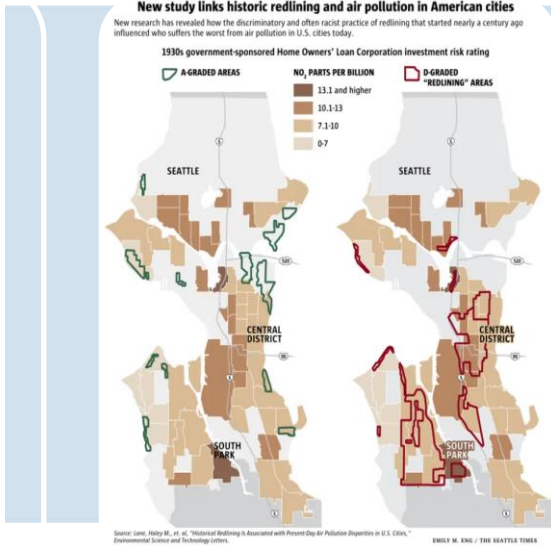- Protecting and maintaining existing trees

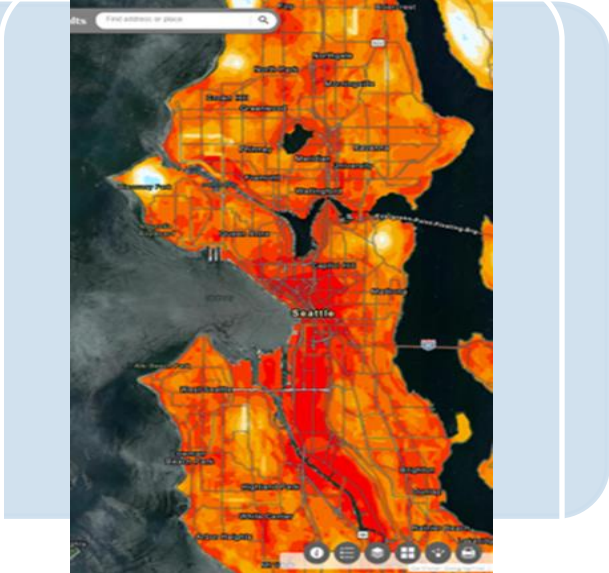# Inequities in our tree canopy follow other patterns of inequity

Existing Tree Canopy %

Existing Tree Canopy %
- 5% - 16%
- 17% - 24%
- 25% - 31%
- 32% - 39%
- 40% - 53%

Lower disadvantage and priority

Higher disadvantage and priority

Racial and Social Inequity

New study links historic redlining and air pollution in American cities

Air quality

Heat island effects

Additional analysis will inform short and long-term approaches

Inventory, protect and maintain existing trees to promote canopy growth.

Plant new trees in frontline communities with low canopy.

Pilot innovative approaches to managing multiple needs in limited spaces like ROW and private property.

Engage residents and business owners on tree planting and care to foster and sustain trees on private land.

Coordinate opportunities for planting and maintenance across departments and with community, school district and other partners.

Next Steps

1. Receive detailed assessment analysis that builds on high level snapshot

3. Work with consultant to develop full canopy assessment report

4. Develop tree strategy and investment plan

5. Pursue additional local, state and federal funding to scale up investment

Additional Resources

[Trees for Seattle 2021 Progress Report](#)

[Trees for Seattle website](#)

[2020 Urban Forest Management Plan](#)

[Seattle 2035 Comprehensive Plan](#)