TACOMA METRO PARKS, WASHINGTON

68% Urban Tree Canopy
20% Possible Planting Area
12% Araeas Unsuitable for Tree Planting
-2% Decrease in UTC

AN ASSESSMENT OF EXISTING AND POTENTIAL

TREE CANOPY

The green spaces in Metro Parks Tacoma (MPT) are always in a state of flux. With the growth of existing trees and new plantings, the canopy of the urban forests is continually expanding. However, factors like natural disasters, pest infestations, disease, and development also reduce the urban tree canopy (UTC). While it's difficult to assess the net effect from the ground, high-resolution aerial imagery can provide a precise analysis of these canopy changes. This assessment examined the tree canopy, how it has changed over time, where new trees can be planted (Possible Planting Areas - PPA), and where planting trees isn't possible. The outcomes provide a comprehensive overview of the current state of the urban forest and its future possibilities that can be viewed in TreePlotter CANOPY (https://pg-cloud.com/metroparkstacoma/).

Using 2021 aerial imagery from the USDA's National Agriculture Imagery Program (NAIP), this study provides a near-current view of land cover throughout Tacoma's Metro Parks. The study used machine learning techniques to create a comprehensive land cover dataset. This makes it easier to track changes in tree coverage over time. The information from this study should be used to develop strategies to protect and expand the urban forest, ensuring accessible, well-maintained, and enjoyable outdoor spaces for all.

METRO PARKS TACOMA

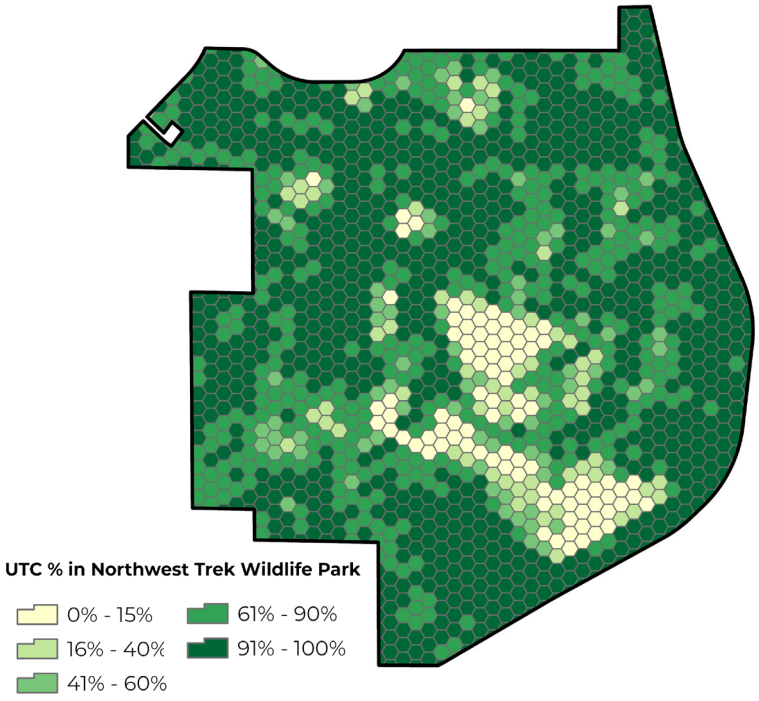


Figure 1. Urban tree canopy percent in Northwest Trek Wildlife Park.

CANOPY COVERAGE AND PLANTING POTENTIAL

Tacoma's Metro Park system encompasses a diverse range of natural and developed areas, including urban parks, community centers, sports complexes, trails, and natural preserves. Across all the parks, excluding water bodies, 68% of the land is covered with tree canopy, and 20% is available for planting. The remaining 12% of the land in the park system is deemed unsuitable for planting, primarily because of impervious surfaces and existing sports and recreation fields.

98% of Tacoma Metro Park's canopy overhangs pervious surfaces

2% Overhangs impervious surfaces (like roads and sidewalks)

2021 UTC POTENTIAL

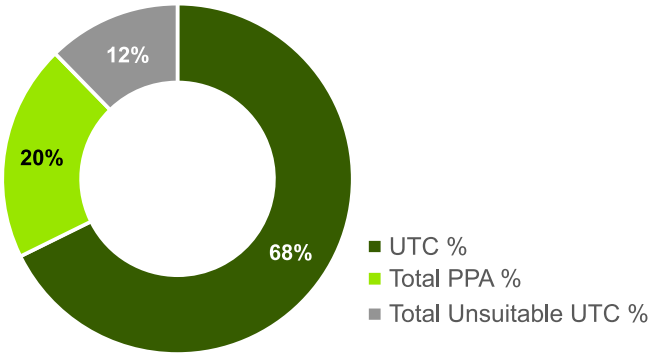


Figure 2. Percentage of tree canopy, potential planting spaces, and areas not suitable for tree canopy in 2021.

OVERALL CHANGE IN CANOPY

Over the course of eight years, Tacoma's Metro Park system witnessed a reduction in its tree canopy. Specifically, the park boundaries experienced a net loss of 45 acres of tree coverage, which amounts to a 2% decrease from 2013 to 2021. Although the amount of canopy coverage may have fluctuated within the study period, this assessment reflects the state of the tree canopy when the NAIP images were gathered.

Metro Parks Tacoma is utilizing **77%** of the available plantable space.

ASSESSING CANOPY LOSS AND GAINS

The loss of tree canopy can be primarily attributed to two of the largest parks in the system. Point Defiance Park and Northwest Trek Wildlife Park lost 4% of their trees, 27 and 30 acres, respectively. Other parks saw small changes, with some gaining or losing about a quarter-acre of trees. The most significant positive change occurred in the Tacoma Nature Center, with an increase of 3 acres, or 5%.

CANOPY CHANGE

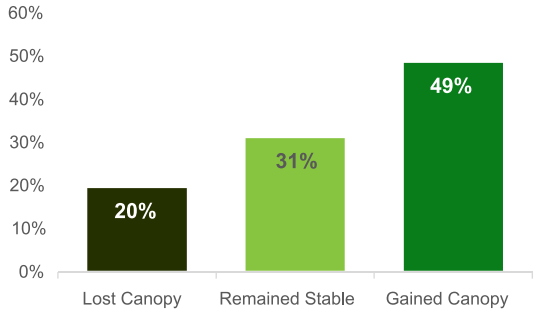
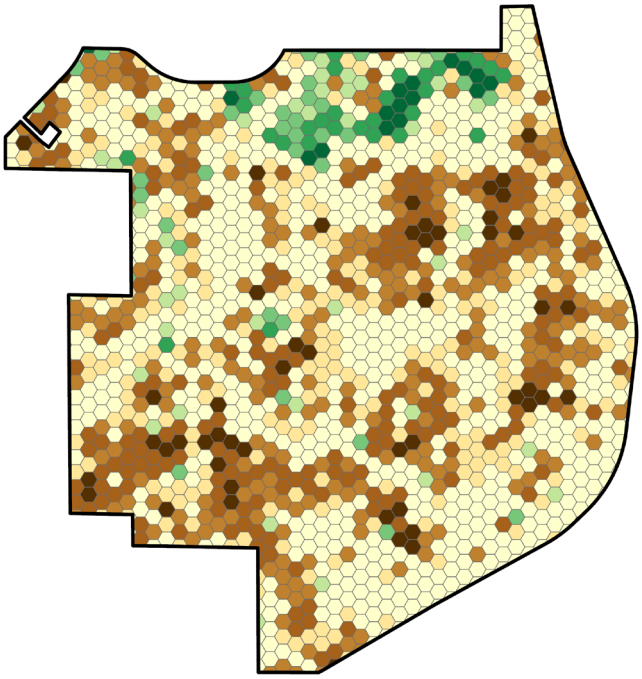


Figure 3. Metro Parks Tacoma's change in urban tree canopy from 2013 to 2021.



UTC Change % in Northwest Trek Wildlife Park

-98.15 - -25.0%
-24.9% - -10.0%
-9.9% - -5.0%
-4.9% - -2.0%
-1.9% - +2.0%
+2.1% - +5.0%
+5.1% - +10.0%
+10.1% - +25.0%
+25.1% - +93.0%

Figure 4. Urban tree canopy change in Northwest Trek Wildlife Park.

MAXIMIZE LIMITED PLANTING SPACE

The greatest hindrance to adding new trees to an area is often the presence of impervious surfaces. Out of all 86 parks examined, Stanley Elementary School has the largest percentage of this unsuitable planting area. However, even here there is still opportunity for improvement. Utilizing even the meager 6% of available planting space could have a tremendous impact on the students who learn and play in the area.

Largest Canopy Increase:
Tacoma Nature Center: +5%.

Largest Canopy Loss:
Northwest Trek Wildlife Park:
-30 acres

17
PARKS LOST CANOPY

42
PARKS GAINED CANOPY

27
PARKS EXPERIENCE NO CHANGE IN CANOPY