

Cuyahoga County Tree Canopy Assessment - 2019

On December 1, 2019, the Cuyahoga County Planning Department released a new Tree Canopy Assessment for all of Cuyahoga County. This latest assessment takes satellite data measured in 2017 to update the countywide canopy cover percentages from the first canopy assessment from satellite data gathered in 2011; for which that report was released in December of 2012.

What is tree canopy? Tree canopy is the layer of leaves, branches, and stems of trees that cover the ground when viewed from above. The countywide assessment shows an overall loss of tree canopy of 6% from 2011 to 2017 for all of Cuyahoga County.

The City of Lakewood saw its canopy cover decrease 27.96% to 22.77% canopy cover from 2011 to 2017, which equates to a loss of 182 acres of tree canopy cover citywide. To further explain the canopy loss, a change from 27.96% to 22.77% canopy cover represents a 18.55% loss of canopy calculated as follows: $27.96\% - 22.77\% = 5.19 / 27.96 = 18.55\%$. Although this is only 5.19 percent difference, the percent change for actual loss of the existing tree canopy itself is higher – 18.55%

It is worth noting as part of this assessment that Cleveland Metroparks had a loss of 5.8% of its canopy from 2011-2017, an indication that natural losses, and not development or urban sprawl, may play the largest role in the overall decline in tree canopy within our region.

Of the 18.55% tree canopy loss in Lakewood since the last assessment done seven years ago, 71% (129 acres) of that total canopy loss has taken place on private property, 24% (44 acres) from City of Lakewood - public property and 5% (9 acres) from Lakewood City Schools and private school property.

The highest percentage of tree canopy loss occurred in the Clifton Park neighborhood census tract (northwest portion of the city) of Lakewood with a loss of 28% canopy cover of which 99% occurred on private property. The only portion of Lakewood that saw a canopy increase was in Birdtown with an increase of 1%.

The loss of canopy cover from private property in the Clifton Park portion of Lakewood alone resulted in over 20% of the total canopy loss (37 acres) in Lakewood.

This data may seem a bit puzzling as the current City of Lakewood public tree inventory sits at an all-time high of 13,407 trees (an increase of 1,434 trees from the 2012 inventory of 11,973 trees) and that the city has been planting trees the past seven years at a prolific rate. Just this year alone, we planted 544 trees throughout the city at the conclusion of the fall planting season; the largest single year planting effort in our history, eclipsing the previous high of 480 trees planted in 2017.

The fact is, as the below snapshot of key reforestation data shows, that the City of Lakewood is well positioned to grow the next generation of urban tree canopy and will, over time, increase of overall tree canopy on public property.

Citywide net gain of trees from 2013 thru 2019 = 1,434 Trees. Total city tree inventory – 13,407 trees, our highest inventory number to date.

Net gain of trees planted versus trees removed:

2013 net gain 75 trees = 273 planted - 198 removed
2014 net gain 139 trees = 394 planted - 255 removed
2015 net gain 186 trees = 415 planted - 229 removed
2016 net gain 232 trees = 424 planted - 192 removed
2017 net gain 281 trees = 480 planted - 199 removed
2018 net gain 212 trees = 422 planted - 210 removed
2019 net gain 306 trees = 544 planted - 238 removed

Total planted 2013 thru 2019 = 2,952 Trees (422 per year)

Total removals 2013 thru 2019 = 1,521 Trees (217 per year = 1.6% of total city tree inventory removed annually)

Average net gain per year 2013 thru 2019 = 205 trees per year.

It is important to note that the satellite imagery utilized that measures the tree canopy cover does not measure or recognize trees that are under 15 feet tall. Small or younger trees are delineated as grass or shrub from the satellite view taken high above and not as tree canopy at this time.

Therefore, very few of the 2,952 trees we have planted throughout the city since 2013 will show up as providing any measurable tree canopy cover. Long term, these trees (and future plantings) will deliver to us significant canopy cover increases and more than replace recent losses due the decline of some of our remaining mature tree canopy on public property.

The primary concern for Lakewood regarding the data captured by this most recent canopy assessment is the loss of canopy cover on private property. This loss will present to all Lakewood residents the greatest challenge to increase our overall tree canopy cover over time and reach the long-term canopy cover goal of 33.5% by 2035; as set forth within the City of Lakewood Tree Action Plan.

Currently, there is not enough replacement planting taking place on private property to grow and replace the recent canopy losses over time due to the loss of many mature trees. Most of the mature tree loss on private property has been due to the significant state of decline and potential hazard conditions associated with the few primary large tree species that were planted throughout Lakewood 80-120 years ago.

Also, tree canopy loss as a result of Hurricane Sandy in 2012 was directly responsible for approximately 7% (12-13 acres) of the tree canopy loss total. During that single event, 64 trees on city property either came down in that storm or had to be removed due to significant structural defects from storm damage. It is estimated that over 200 trees had to be removed on private property due to that same storm event.

Countywide, it appears that most of the canopy loss was not from development and urban sprawl; it was from natural losses such as an increase mature tree mortality rates for certain species across the region and the impact of the Emerald Ash Borer (EAB) infestation resulting in the rapid decline and removal of most of mature ash trees across the region.

Lakewood's ash tree inventory was at 398 trees in 2012 and due to EAB infestation that total has been reduced to 160 trees in 2019. When the last ash tree was planted in Lakewood in 2007, the ash tree inventory at that time constituted 4.2% of the total tree inventory for the city. As of October 2019, the ash tree population in Lakewood is only 1.2% of our total tree inventory. The city is treating its remaining ash tree population once every three years with trunk insecticide injections to retain our remaining mature ash tree canopy longer and slow mortality rates as replacement trees continue to grow.

Much has been made of the recent hazard tree removals on Clifton Boulevard the past seven years. The fact is that at the conclusion of the fall planting season, there will have been a net gain of 77 trees on Clifton Boulevard from 2013 to 2019

- Clifton Blvd. 2013 to 2019 net gain 77 trees; 224 trees planted versus the removal of 147 hazard trees removed as many posed a great risk to public safety due to their very poor condition.
- The tree species diversity on Clifton has risen from just five tree species in 2012 to 18 different tree species today to make the long-term future canopy growth of Clifton Boulevard more resilient and avoiding the dynamic when all the trees age and decline at the same time.
- Nearly 39% of the canopy loss on public (city) property and 9% of the citywide total canopy loss (approximately 17 acres) has taken place on Clifton Boulevard since 2011, in which largely a single tree species (Pin Oak) was planted along the entire street 90-115 years ago and they are now declining at close to the same rate. The city is managing that decline by balancing the need for public safety with those trees that are in decline (some very serious that pose great potential risk) and that the need and strategy to removal is well thought out and measured. We do not remove healthy large trees. We identify larger trees with structural defects that can be pruned to make safe and retain ecological services citywide on a more consistent basis than removals.

In addition, much of Northeast Ohio has seen a significant increase in Norway Maple tree mortality the past six years. Approximately 8-10% of canopy loss on public property in Lakewood is due to the mortality rate of Norway maple trees.

Many of you may have noticed that nearly every Norway maple in Lakewood has what is called tar spotting (black dots) or Maple tar spot on leaves this year due in large part to the very wet and cool spring we had earlier this year. 95% of the time the tar spotting is only an unsightly cosmetic issue that can cause early onset defoliation, premature browning or leaf curl – but it does not harm or kill the tree. It occurs more frequently with wet spring conditions and often does not appear again (or is diminished) the following year if the spring/early summer weather is closer to normal.

However, some Norway maple trees in Lakewood have been impacted with a more serious fungal infection - Verticillium wilt. We have confirmed some infection present within several of the Norway maples we have had to remove that had been suffering significant canopy dieback the past few years. Verticillium wilt is very difficult to control because it persists in the soil indefinitely and treatments/sprays are not effective. Sometimes infected trees can “outgrow” the fungus – which we have seen take place. We frequently prune off dead branches first to help the overall tree vigor. If a tree has lost more than a 1/3 of its canopy – the decline cannot be stopped at that point and the tree should be removed.

In addition, trees already weakened by Verticillium can be more prone to tar spotting and these two fungi issues can overwhelm a tree to where it gets the tar spotting for several years in a row and the leaf canopy

production decreases to the point where there is not enough leaf canopy to feed the tree root systems and the Verticillium fungi in the soil spreads more readily into decaying roots versus healthy root systems.

Unfortunately, research by the United States Forest Service in relation to the possible impacts of climate change on various tree species identifies the Norway maple is one of the species to suffer a higher mortality rate due to the impacts of climate change. In short, Maple trees need a longer dormant period to thrive - repeated winters with more frequent freeze-thaw periods with very warm temperature spikes in January and February followed by freezing compounds the above and can increase the amount of fungi infestations in all maple trees; but primarily Norway maples.

This impact also underscores the need to plant for greater tree species diversity. Norway maples were over planted throughout Lakewood - it is our 2nd most common species (over 1,100 trees) - and many streets are a monoculture of mostly Norway maples with only one or two other species as not much tree species diversity was established within Lakewood until the past seven years.

One of the primary goals of the City of Lakewood Tree Action Plan is to continue to introduce more tree species to all city streets. The city's plan for tree species diversity = high reward. To accomplish the goal of increasing tree diversity and reducing the likelihood of large tree losses across the city, the city has an established a benchmark that the total tree inventory contains no more than 30% of a single family, 20% of a single genus, and 10% of a single tree species.

The City of Lakewood is well positioned with a regionally and statewide recognized tree action plan and strategy in place to grow, maintain and expand our urban tree canopy on public property into the future.

Trees, whether on public or private property, contribute to the livability of the entire city and deliver a benefit to us all in the ecological services and economic benefits that they provide.

What this most recent tree canopy assessment makes clear is that there is much work to be done to increase our community reforestation efforts on private property. The single most significant effort that we can make now to grow and increase our overall tree canopy comes at a very personal level – to plant a shade tree on your property; preferably a larger species (not under power lines) to maximize the environmental benefits that come from planting the largest suitable tree for the planting location within your yard.

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