

# Delegation Notes, March 2nd 2021

by Elliott Groen

I am a resident of Burlington and will be graduating in April of this year with a Forestry Technician Diploma from Sir Sandford Fleming College. Considering the Climate Emergency declared in April of 2019 by the City of Burlington, I would like to speak to several related topics regarding the application to develop part of the Millcroft Greens Golf Course. It is my opinion that housing development will have a negative impact on the climate resiliency of the City of Burlington and set a dangerous precedent for developing open spaces that provide our community climate regulating and other benefits.

## Urban Cooling

A recent study of 135 golf courses in the Twin Cities area revealed that golf courses offer the best urban cooling of five different land uses, including (sub)urban residential developments, industrial parks, city parks and natural areas (Horgan et al., 2020). This study calculated that evening temperature would be 0.1 °C warmer in a half kilometer radius if a golf course was developed into housing (Horgan et al., 2020). A study that took place in Mississauga further confirms the urban cooling effects of green spaces. This study projected the urban cooling effects of increased tree canopy in areas that had little to none (BeLab, 2020). They found that with an increase in tree canopy, temperatures in the area would be between 0.3 and 1.2 cooler and could be as much as 11°C cooler at certain locations within this area (BeLab, 2020).

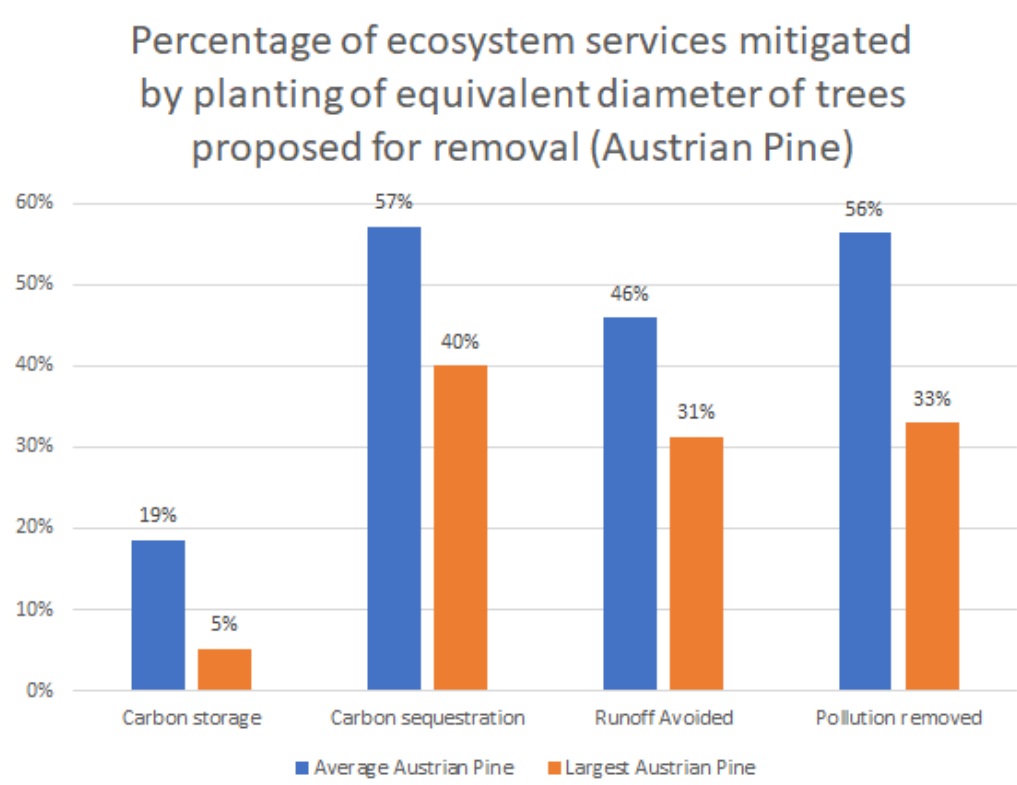
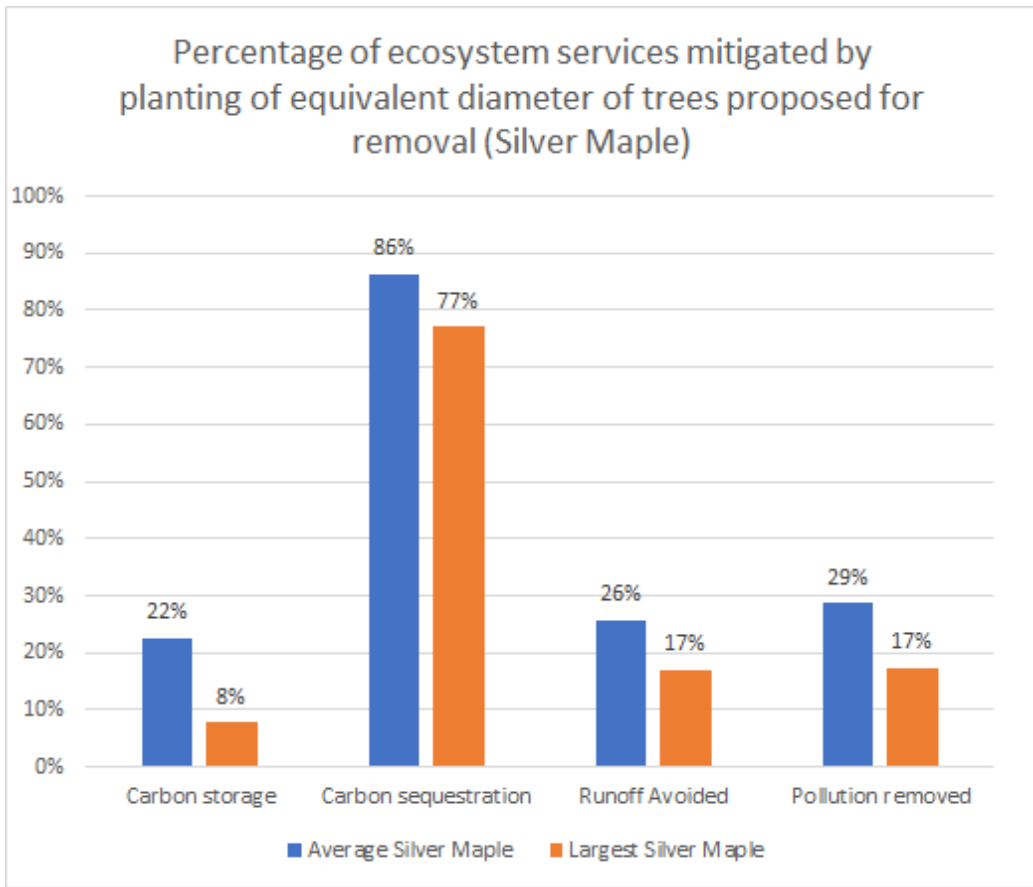
Housing development on the Millcroft Greens Golf Course could have the reverse effect on temperatures in the area due to the removal of trees of golf turfgrass.

## Proposed mitigations do not replace ecosystem services

The Arborist Report submitted as a part of the development proposal details the amount, condition and locations of trees to be removed (Beacon Environmental Limited, 2020.) In total 360 trees will need to be removed and over 90% of these trees are in good or fair condition and would not require removal otherwise (Beacon Environmental Limited, 2020). The City of Burlington's Public Tree By-law (68-2013) section 1.18 states

*where the removal of City-owned trees: Is not required due to age, health or other reasons in accordance with sound arboricultural practices, the applicant shall plant Tree(s) with the total combined diameter being equal to or greater than that of the Tree(s) to be removed.*

Thus the proposed housing development would require the planting of 2151 caliper 2 trees or 1434 caliper 3 trees to compensate for the loss of healthy trees. However, several smaller trees do not provide the same ecosystem services of a single larger tree. This is illustrated in the graphs below which compare the percentage of ecosystem services provided by trees planted as a mitigation for average and large diameter trees of the two most common species on the Millcroft Greens Golf Course. The net difference in carbon storage of a single large diameter Silver Maple if removed is equivalent to the emission produced by the electricity of two homes or burning over 1300 liters of gasoline (Natural Resources Canada, n.d.)



Results obtained from analysis using Itree Eco v6



Trees on golf course in 1990

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Trees on golf course in 2020

## Further ecosystem services provided by golf courses

Turfgrass maintained on golf courses sequester a great deal of carbon. Several studies estimate that turf grasses on golf courses sequester 1000 kg of carbon per hectare per year and can store between thirty- and forty-years worth of carbon (Baird, 2011). Since the Millcroft Greens Golf Course is over thirty years old, the proposed housing development would release over 300,000 kg of carbon by removing over 12 hectares of turfgrass. This would largely be replaced by impervious surfaces which would not sequester anywhere near the 12,000 kg estimate that the golf course currently sequesters.

Climate change resiliency and adaptation is about far more than reducing carbon footprint and must also focus on the preservation of habitat and species. Golf courses also perform better compared to residential development when it comes to providing pollinator habitat (Horgan et al., 2020). The same study referenced above also found that golf course contributed less nitrogen and phosphorus runoff into watersheds when compared to residential developments (Horgan et al., 2020). This means that golf course can also contribute to healthier watersheds.

## Final notes

Besides the reduced ecosystem services provided by trees planted as mitigation measures, there will also be more trees on city property. Newly planted trees need watering, mulching and structural pruning and require three visits for inspection and maintenance in their first ten years to become well established (City of Burlington, 2010). The aforementioned by-law only requires the planting of trees as mitigation, but does not cover the costs of maintaining these trees in their first ten years to prevent the tree from dying or growing into a hazard tree. These costs would be carried by the City of Burlington and in the most recent UFMP there is mention that tree inspection and maintenance is already difficult to implement due to time and resource constraints (City of Burlington, 2010). The City is still catching up on removing hazardous Ash trees affected by the EAB and I am not sure that replacing healthy mature trees with young trees needing maintenance is the best way to spend our resources. Furthermore, urban street trees have a far shorter life span and are subject to more stressors compared to trees grown in parks or on golf courses. The average lifespan for Austrian Pines is 80-500 years (Connors Plant Nurseries, n.d. and Wu et al., n.d) and the average lifespan for Silver Maples is over 130 years (OMNR, 2000). Urban street trees have an average lifespan of less than 30 years (Roman et al., 2016). Even higher estimates still place the average lifespan of urban street trees decades below trees in more natural areas (CBC News Online, 2005). Finally, where are all these trees in the proposed mitigation measures going to be planted? The development plans to build 98 single detached homes and 1 six storey apartment. Even if all houses receive 3 trees each, which would be a stretch on the small lot sizes, and the apartments are surrounded by 50 trees this would still leave over a thousand trees to be planted. Placing further stress on our climate by developing land zoned as open space is not necessary, considering the land zoned for housing and mixed development in the surrounding area. It would set a dangerous precedent that could further erode Burlington's green spaces and the life-giving attributes they bring to our community.

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