Appendix 2

PDS 4-2024

Additional Analysis

Additional Analysis

Geographic Areas

TFC distribution within urban areas was analyzed using Census based dissemination areas (DA's) as the geographical unit for analysis. Results indicate several DA's where "newer" built out residential areas had been recently established, exhibited lower overall TFC rates. This was not an unexpected result as most street and backyard trees were established post construction and have not matured enough to provide a large canopy. Older established neighbourhoods, especially those characterized by larger lots were generally found to have the highest ratios of TFC coverages (e.g., Figure 1 – the first map is a newly built neighbourhood and the second location is north St. Catharines).

Figure 1: Newly developed neighbourhood area with limited canopy coverage contrasted with an older developed neighbourhood with mature canopy coverage

DAs with a mix of commercial and residential development typically had low TFC, as the impervious surface class was very high due to parking areas (Figure 2). Rates of TFC across DAs in urban areas varied greatly (i.e., between 3.5% and 69.2% TFC), however this level of geography is valuable for providing an analysis scale appropriate for specific TFC analysis, targeting and goal setting.
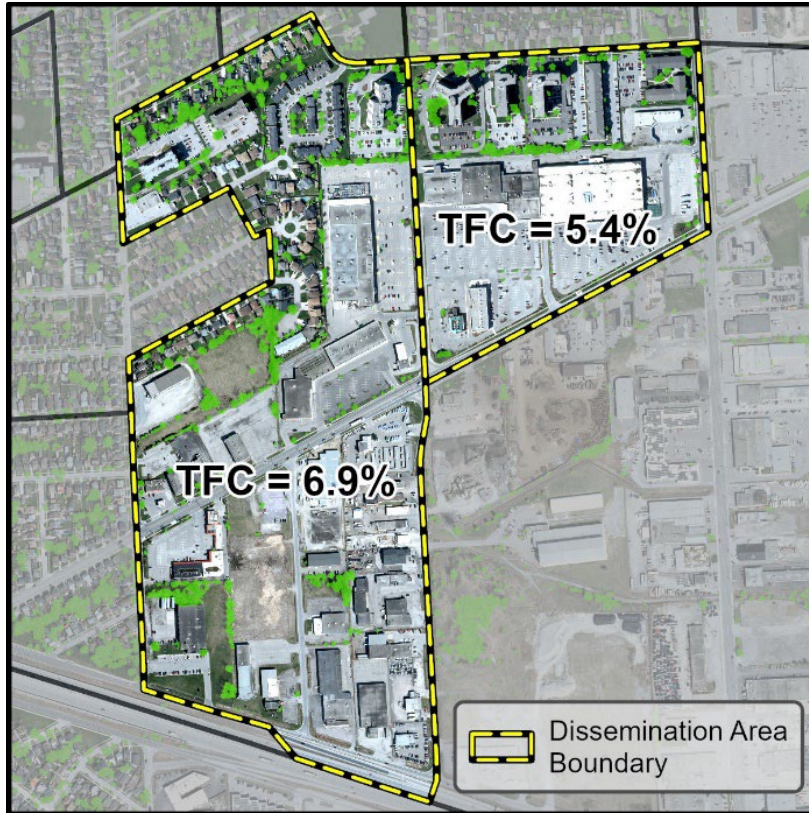
Figure 2: DAs characterized by high instances of commercial uses and impervious surfaces, resulting in low TFC rates

To characterize the relationship between population density and areas of high TFC within urban areas, the top 20 most densely populated DA's (persons/hectare – 2021 Census data) were selected. The DA's had an average 17.8% TFC cover, well below the overall regional canopy average. However, there were a few individual examples throughout the data, of areas with high population densities and strong canopy coverages, demonstrating that in some cases high canopy rates can co-exist in areas of high population densities (Figure 3).
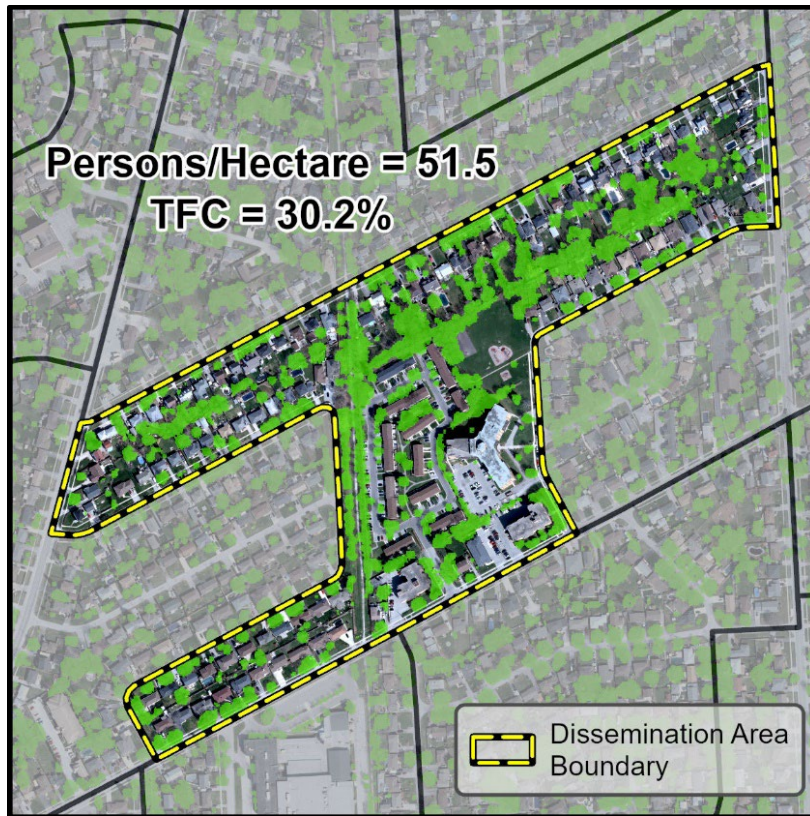
Figure 3: High population density and strong TFC coverage

Dissemination blocks (i.e., the smallest geographic area for which population and dwelling counts are shared by Statistics Canada) were also populated with TFC coverage statistics, and qualitatively mapped with a graduated colour scheme to show an increased level of information on TFC rates across urbanized areas (Figure 4). This type of information is valuable for very specific area targeting or analysis and provides greater detail on the level of cohesive coverage across an area.
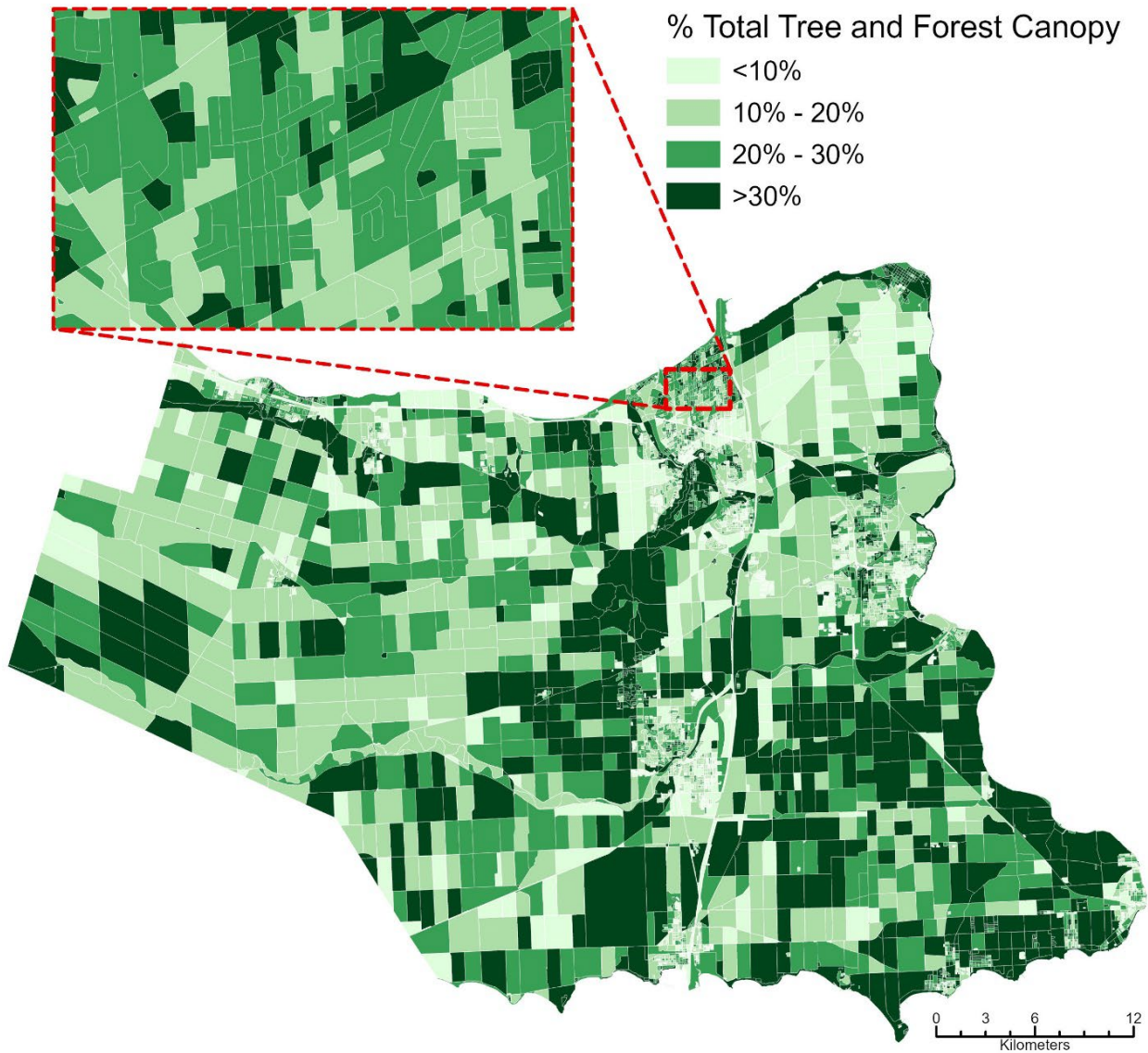
Figure 4: TFC by dissemination block

Potential Planting Area

A general approach to determining potential planting area (PPA) estimates is to examine the TFC of an area in relationship with the total grass and non-treed vegetation classification layer. Grass and non-treed vegetation areas represent land where theoretical tree planting opportunities may exist. The soil and bareland layer is typically comprised of agricultural fields, disturbed areas and gravel lots, thus it is not used in this analysis.

To accurately determine possible planting areas, grass and non-treed area data is selected and then certain lands excluded from the classification, including soccer fields, baseball diamonds and other recreational areas, railway and hydro right-of-ways, community gardens and golf courses, etc. The residual coverage is an estimated hectarage of land area that could possibly be converted to TFC. This data can be further assessed by land ownership (i.e., private land or public land) to determine where opportunities should be targeted. An example of this analysis was completed for the urban areas of Fenwick and Beamsville.

Potential planting area analysis for Fenwick and Beamsville

Urban Area	Fenwick	Beamsville
TFC	36.2%	15.6%
Total Area of UA	250.4ha	674.1 ha
PPA	95.1 ha	229.6 ha
% UA area that is PPA	38.0 %	34.1%
PPA on Private Lands	85.4 ha (89.9%)	167.1 ha (72.8%)
PPA on Public Lands (Including road ROWs)	9.7 ha (10.1%)	62.5 ha (27.2%)

Regional Property Analysis

Individual properties owned by the Niagara Region were assessed for overall TFC. This analysis is beneficial to inform the ongoing planting strategies in support of the Regional Greening initiative. The resulting overall average TFC across all Region-owned parcels was 30.5%. PPA was also determined for each property. Properties were grouped by general type with results shown below. Staff anticipate assessing this data in more detail to determine future areas of opportunity for targeted TFC increases.

Regionally Owned Properties – TFC and PPA

Niagara Region Property Type	TFC	Grass and non-Treed Vegetation (PPA)
Niagara Region Housing	26.7 %	30.1 %
Pumping stations/Water treatment plants	23.4%	41.5 %
Offices, Police Station, Ambulance Bays, Daycares	13.2 %	38.5 %

Niagara Region Property Type	TFC	Grass and non-Treed Vegetation (PPA)
Vacant lands	42.0 %	38.5 %
Other	19.2 %	43.4 %
Overall Average	30.5 %	39.2 %