

Community engagement in urban forest stewardship: *Neighbourwoods*® approach

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The Neighbourwoods Philosophy

The great majority of the urban forest in our towns and cities is located on private property and most of this is in residential zones. Neighborhoods usually form a relatively homogenous entity with respect to demographics and the structure of the urban forest. Neighbourhoods also usually have some level of formal or informal organization such as residents groups.

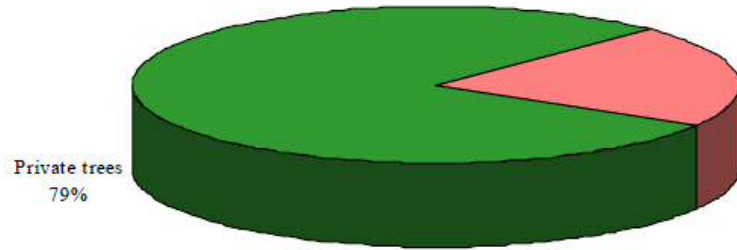
For these reasons, the *Neighbourwoods* philosophy is that the most practical level of management for the urban forest is the neighbourhood. In addition, we believe that the long-term sustainability of the urban forest must be based on engaged landowners with an understanding of the current status of their forest and a strategic approach to its stewardship.

Urban land uses

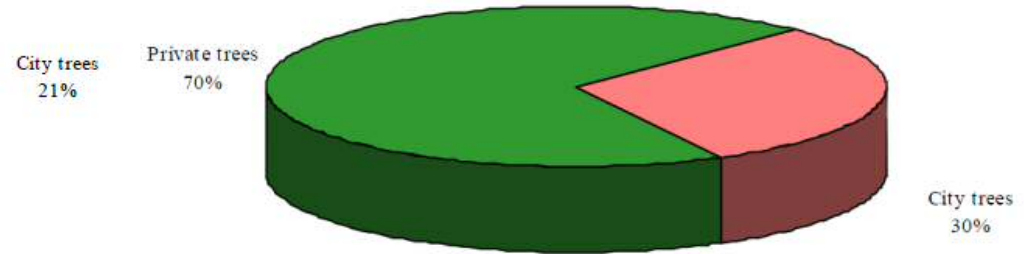
- Residential land use
 - occupies between 65 -75 % of the surface of a city
- Commercial (5-15%)
- Industrial (15%-25%)



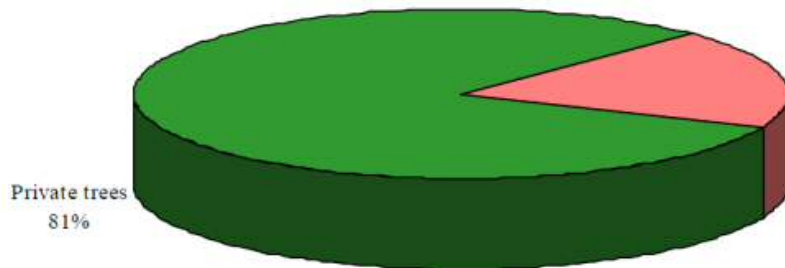
Urban Forest Tenure



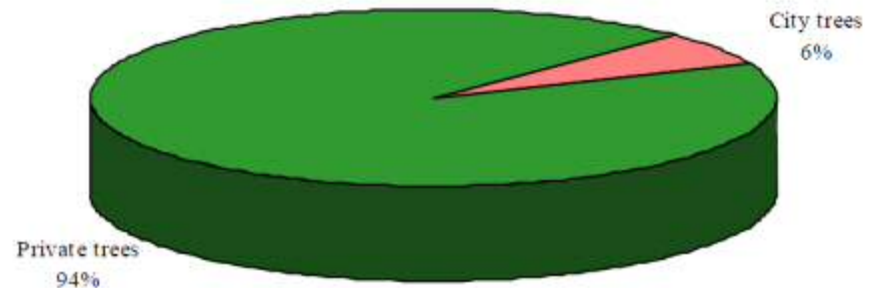
Town of Mitchell



Hamilton - Westdale

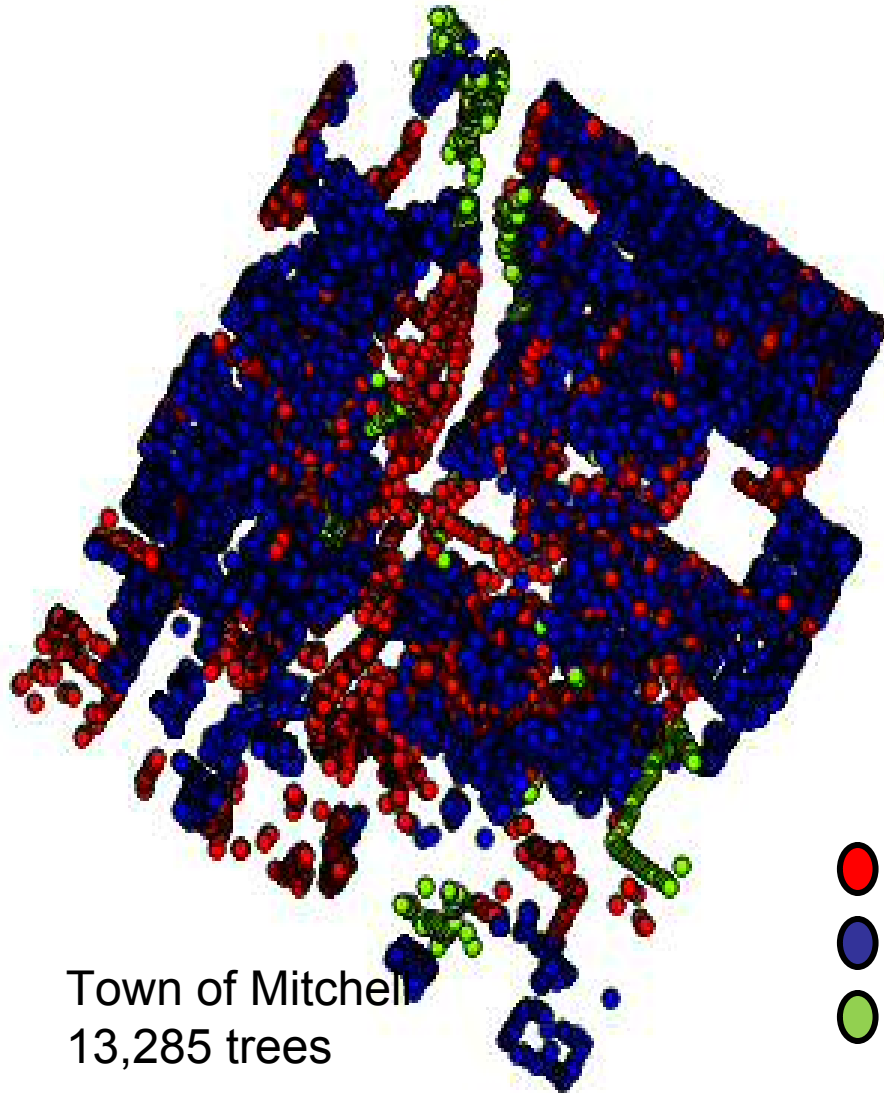


Peterborough - Downey neighbourhood

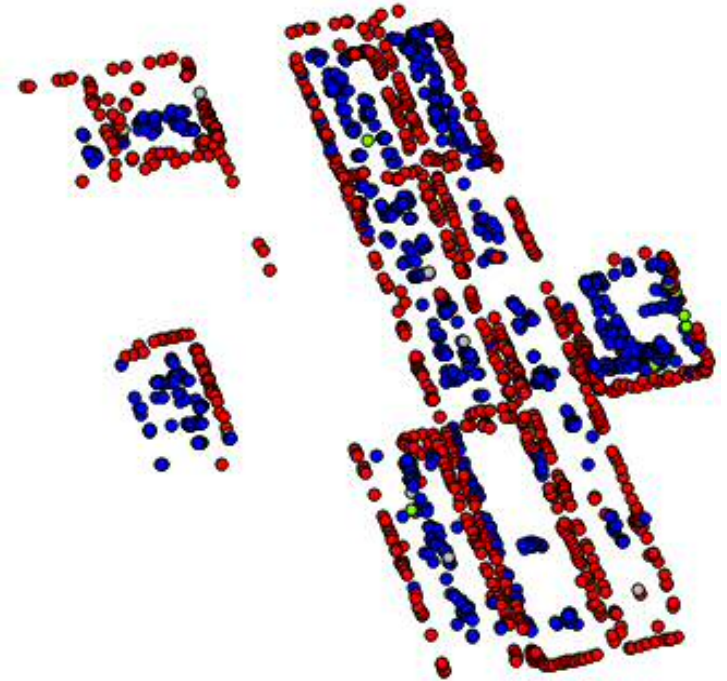


Sarnia - neighbourhood

Urban Forest Tenure



Town of Mitchell
13,285 trees



Harbord Village
1,857 trees

- Municipal Tree
- Private Tree
- Jointly-owned Tree



The Neighbourhood *Woods* Approach

<http://www.neighbourhoodwoods.org>

- Community-based urban forest inventory
- Developed for use by laypeople
- Consistent, technically correct data
- Comprehensive
- Educational
- **Suitable for stewardship, strategic planning and management**





Neighbourhoods

The first step in developing and implementing ANY stewardship plan is to understand the extent and condition of the resource – the urban forest in a community.



Components

Species

Size

Location

Condition





Components

Condition

Base assessment

Derived components

Size

Direct Measurements

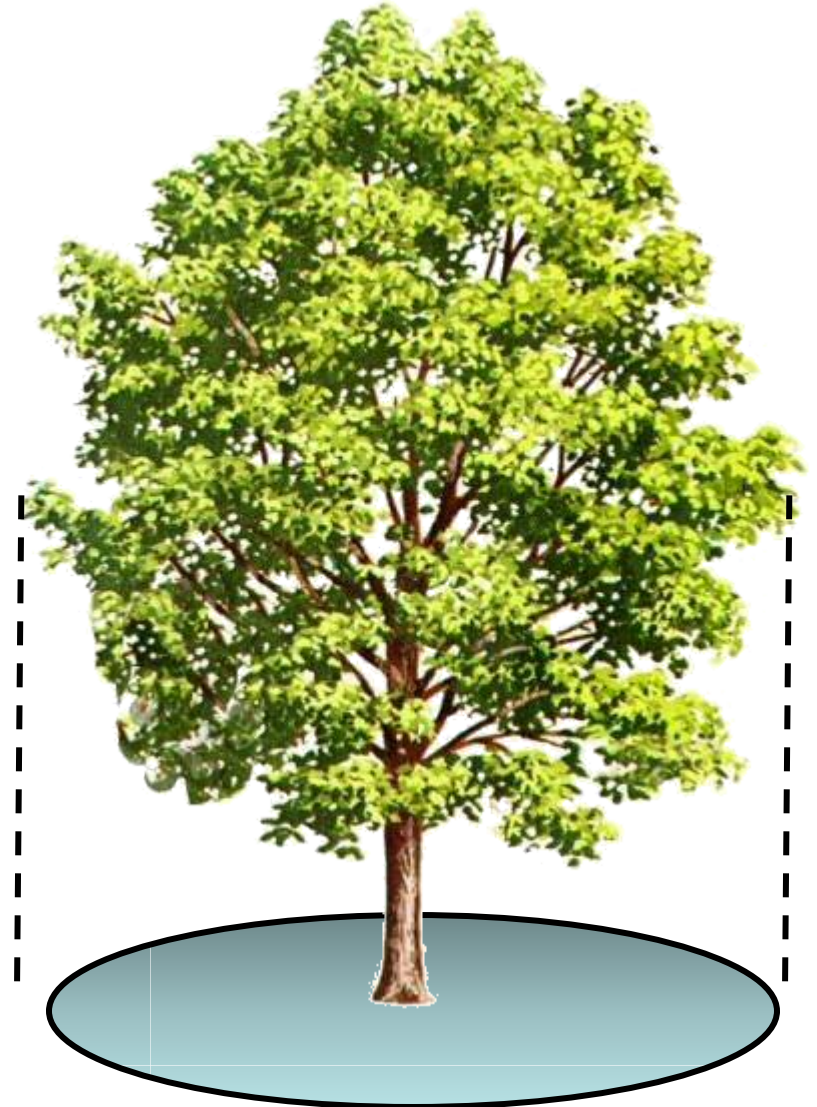
Derived Measurements

Basal area (stem)

Crown volume

Leaf area

Crown projection area





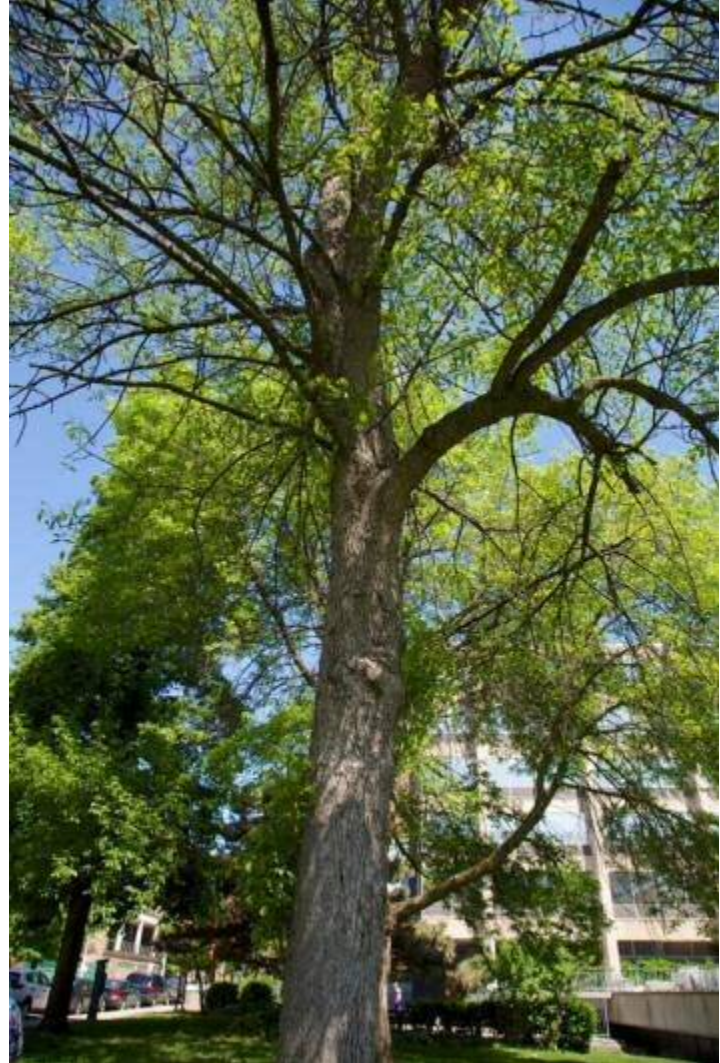
Components

Species

Size

Location

Condition 





Condition Attributes

- Defoliation
- Reduced height
- Unbalanced crown
- Weak or yellowing foliage
- Dead or broken branch
- Poor branch attachment
- Lean
- Branch scar
- Trunk scar
- Conk
- Rot or Cavity
- Cracks





Condition Codes

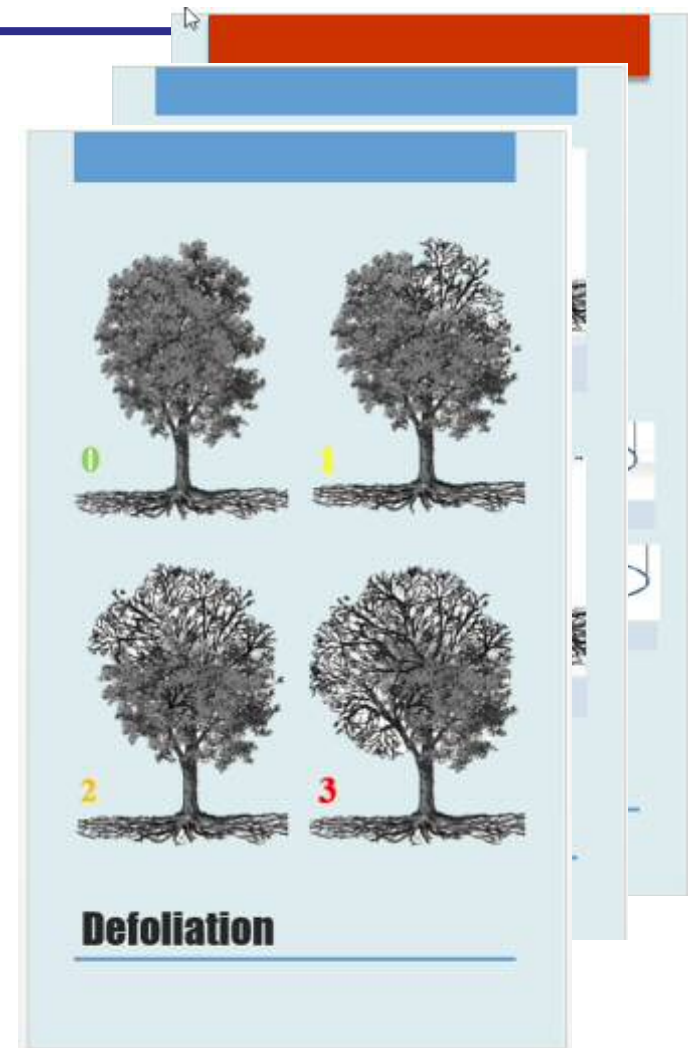
- All attributes scored as 0,1,2 or 3
- Clear descriptions of each code





Defoliation

- 0 Tree crown not defoliated (healthy). Allow for minor twig defoliation which is normal in a healthy tree.
- 1 Between trace amounts of defoliation and less than 1/4 of the crown having lost its leaves - crown slightly defoliated.
- 2 1/4 to 1/2 of the crown has lost its leaves - crown moderately defoliated.
- 3 More than 1/2 of the crown without leaves - crown severely defoliated.





Combining the factors

000000100003000



Overall Condition = $1 - \left(\frac{\sum_{i=1}^{12} \text{Factor Weight}_i}{\sum_{i=1}^{12} \text{Maximum Weight}_i} \right) \times 100$



Tree condition

- 1 - Very Poor
- 2 - Poor
- 3 - Good
- 4 - Very Good
- 5 - Excellent

Tree condition

- 1 - Very Poor
- 2 - Poor
- 3 - Good
- 4 - Very Good
- 5 - Excellent

but, ALL information is retained in the database



Mitchell Neighbourhoods

All Trees



Tree number BT75 is a Willow sp. at 144 George St. It has a DBH of 102cm and an ESTIMATED crown width of 20 metres. The tree is in very poor condition.



Mitchell Neighbourhoods

All Trees



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Tree number BT75 is a Willow sp. at 144 George St. It has a DBH of 102cm and an ESTIMATED crown width of 20 metres. None of the area under the crown is hard surface. The tree is in very poor condition. Its crown is severely asymmetrical to the point where it clearly places damaging stress on the main stem and/or the root system. More than 1/2 of the crown volume has been removed. The tree has one or more large dead or broken branches or stubs originating from the main stem or a scaffold branch. There is a V-shaped union between a major branch and the main stem with evidence of included bark and/or the union is showing signs of failure. The tree has a serious lean ($>15^\circ$ from vertical) with some evidence of root mounding or soil cracking on the side of the tree away from the lean. One or more major scars (with a combined width greater than 1/2 the circumference or a significant scar longer than 50 cm) are present on the stem. One or more major branches have scars with a combined width between 1/4 and 1/2 the circumference of the branch. An area of rot or an open cavity which is greater than 1/2 the diameter of the stem is present. An area of rot or an open cavity which is 1/8 to 1/4 the diameter of one or more major branches is present. One major crack (extending more than 1/2 the diameter of the stem) is present or one or more major cracks is in contact with another defect. An obstruction exists which would eliminate root development in an area more than 1/2 of the area within the dripline of the tree.

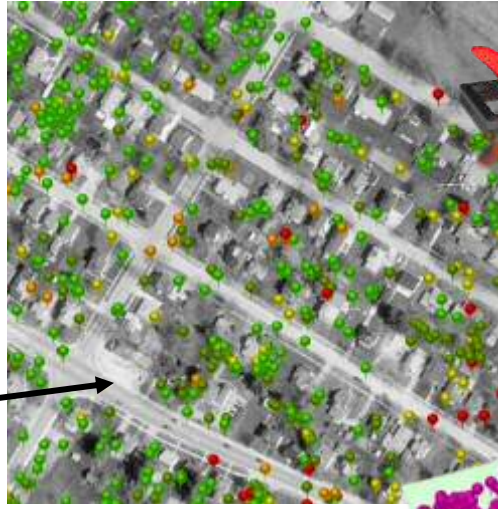


How can we use the Neighbourhood Woods inventory data?

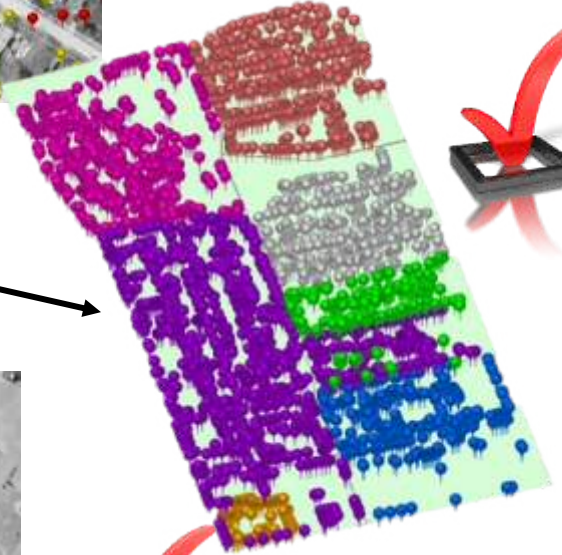




Individual tree



Land Parcel



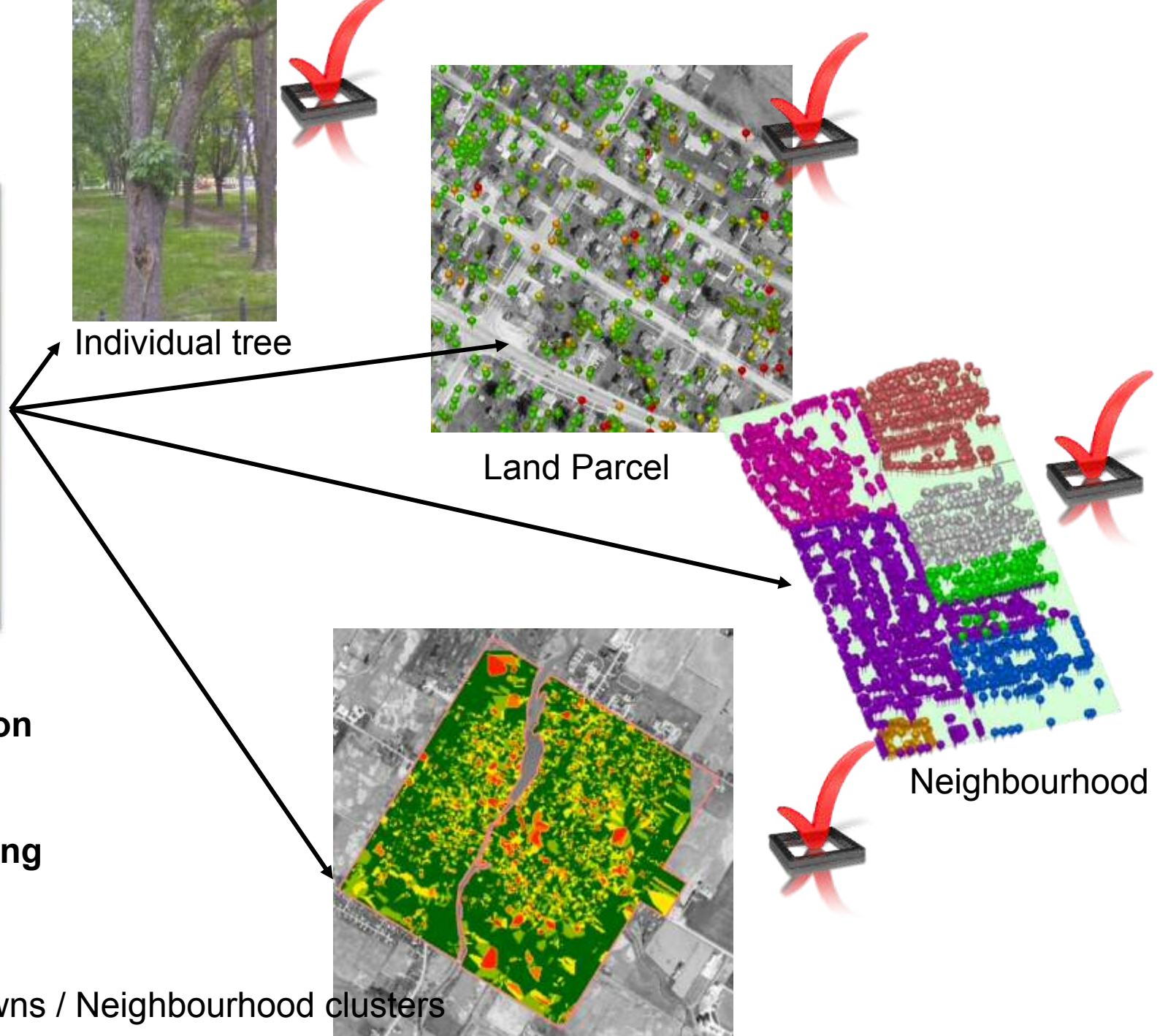
Neighbourhood



Towns / Neighbourhood clusters



Neighbourhoods inventory information supports diverse urban forest stewardship, planning and management needs.





Mitchell Neighbourwoods



Neighbourwoods inventory informs maintenance actions.

Dead Trees



Candidates for dead wooding



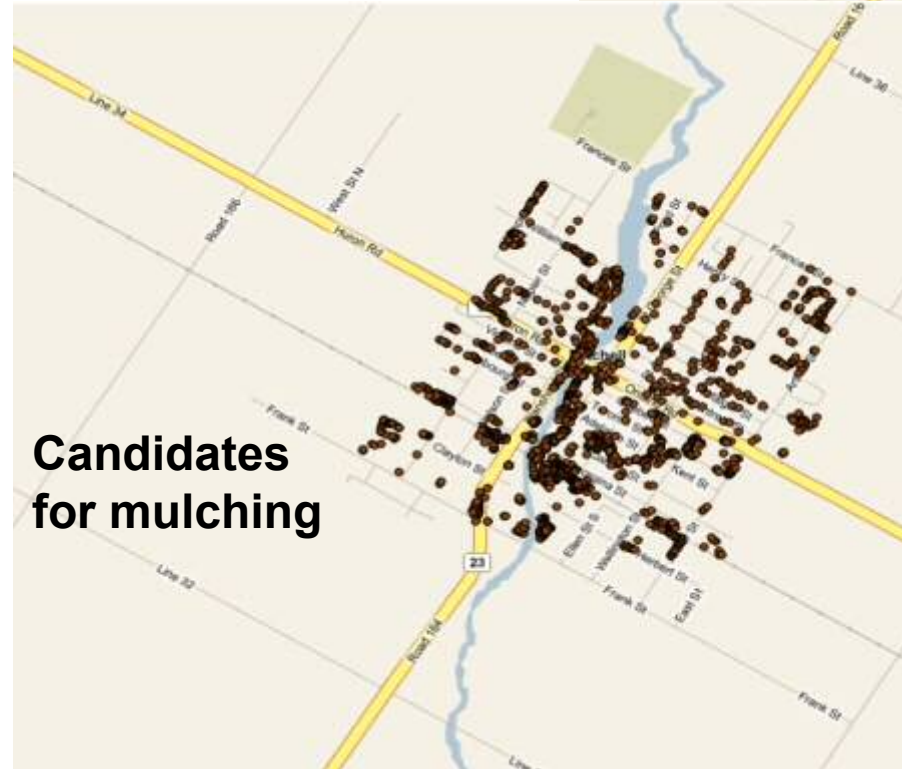
Declining Trees





Mitchell Neighbourhoods

Potential Risk Trees



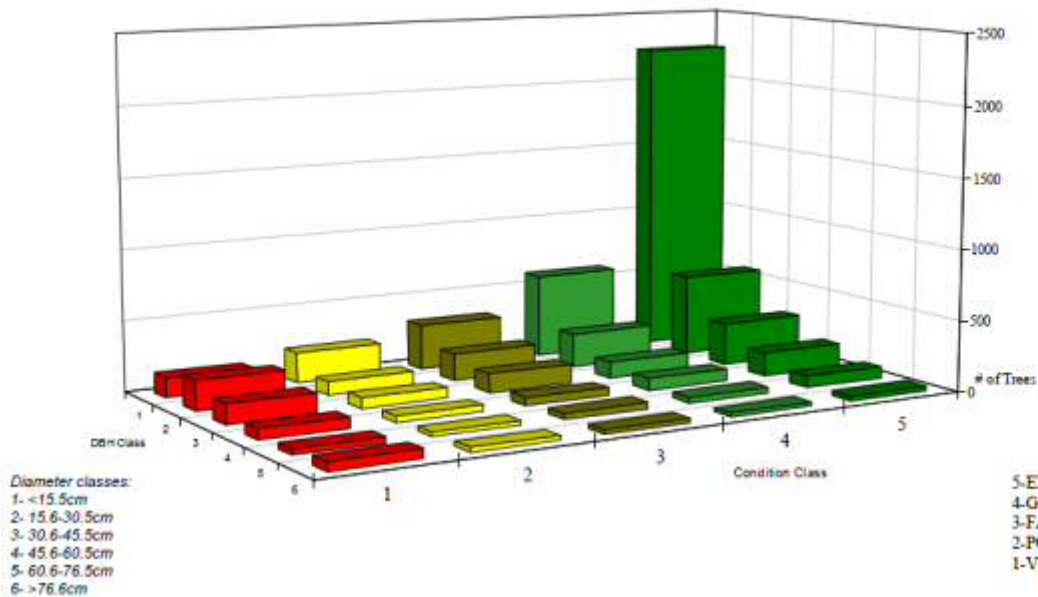
Tree Condition by Diameter Classes



Mitchell Neighbourhoods

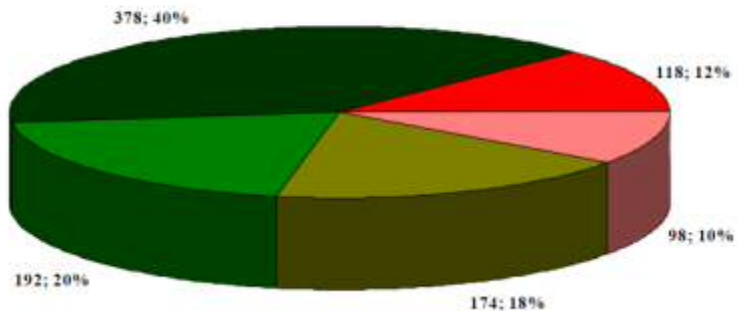


Distribution of five condition classes by diameter class

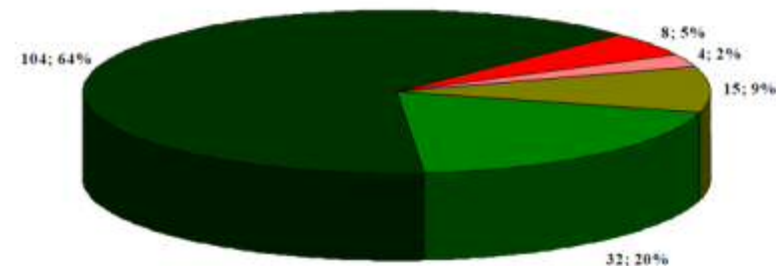


Neighbourhoods inventory information supports reporting and planning.

Tree Condition (Number of trees; and percent) for Norway Maple

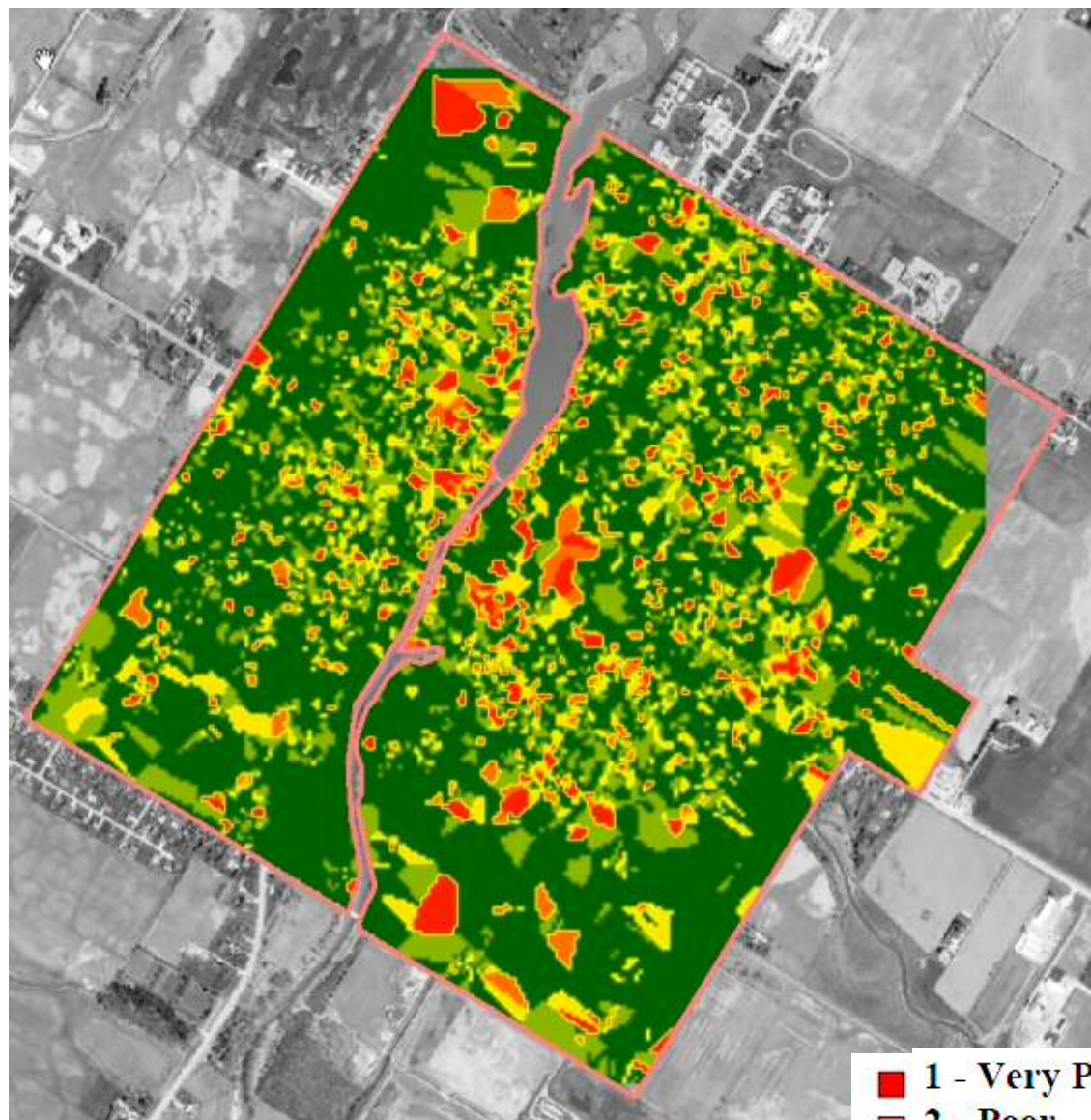


Tree Condition (Number of trees; and percent) for Black Walnut





Mitchell Neighbourwoods



Poor and very poor tree condition
“hot spots”.

- 1 - Very Poor
- 2 - Poor
- 3 - Good
- 4 - Very Good
- 5 - Excellent



Mitchell Neighbourhoods

Ash Trees

Neighbourhoods
Inventory - before
the EAB.



Neighbourhoods Communities

- Friends of the Don East (partial)
- Westdale, Hamilton
- Kirkendale, Hamilton
- Strathcona, Hamilton
- Peterborough (various neighbourhoods)
- Mitchell (the complete town)
- Sarnia (one neighbourhood)
- Dundas (two neighbourhoods)
- Harbord Village, Toronto
- Trinity-Bellwoods Park, Toronto
- St. George Campus, U of T
- City of Thunder Bay Street Trees
- Queen's Park, Toronto
- The Annex, Toronto
- Elora / Fergus
- GreenHere, Toronto
- City of Kingston Street Trees
- Toronto District School Board
- Univ. of California, Davis
- And others



Over 120 volunteers trained.



Thank you !



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<http://www.neighbourwoods.org>