

Urban Forest Management

URBAN FORESTRY MANAGEMENT UPDATE



Emerald Ash Borer

2014



Emerald Ash Borer

2015



Emerald Ash Borer

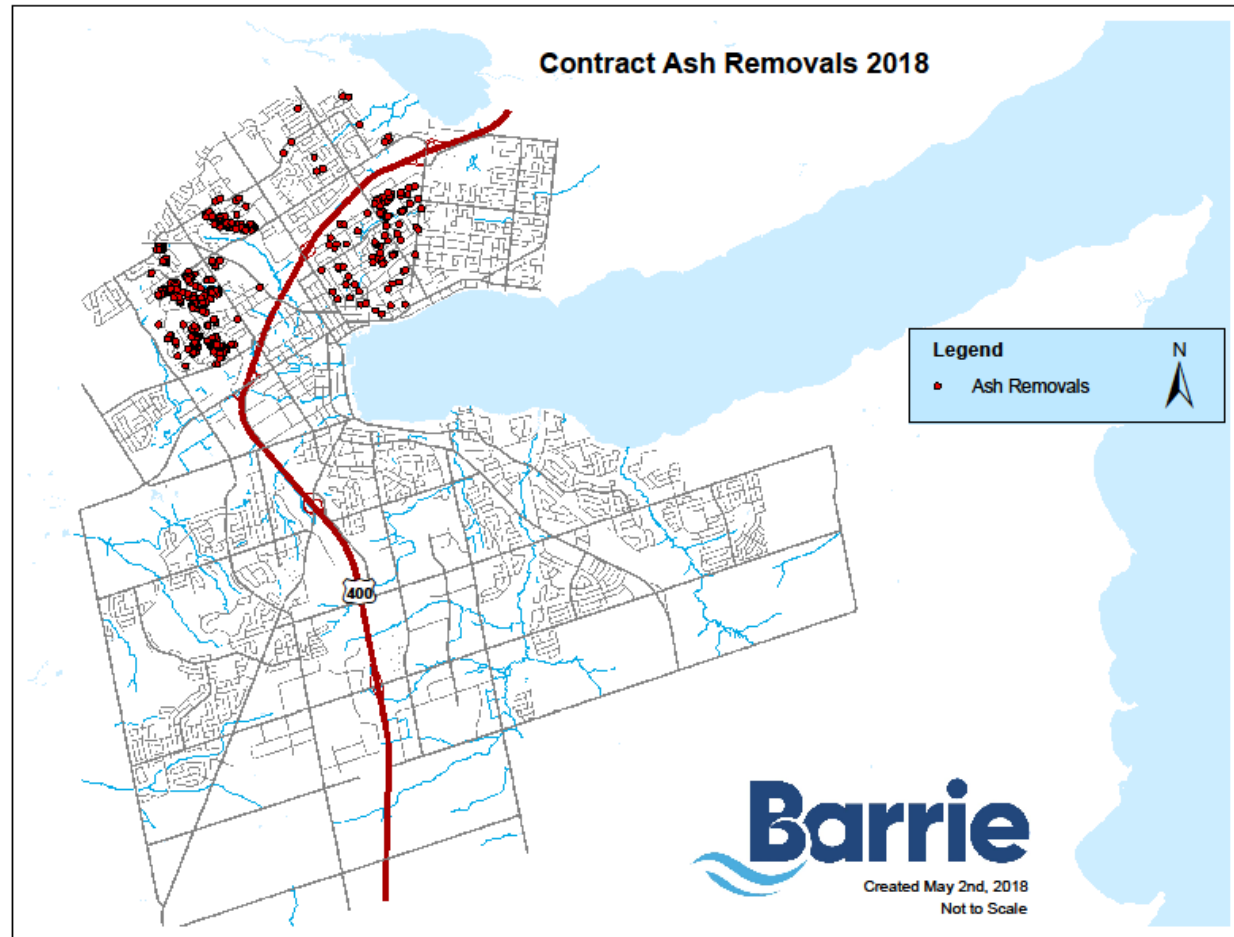
2016



Emerald Ash Borer

2018

- 400 Ash Removals
- 80 Trees treated
- No “negative” traps (CFS)
- ~ 1,700 street ash remaining



2017 Forest Health Surveys

Tall Trees Park



Forest Health Rating Legend

1 Healthy; no obvious forest health issues

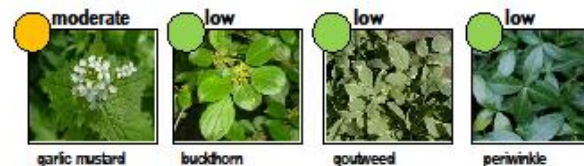
2 Moderately healthy; some minor forest health issues but less than 30% tree mortality

3 Health is affected by obvious forest health issues; greater than 30% tree mortality

Key findings

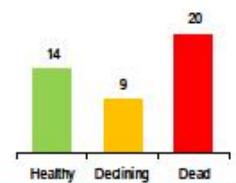
- Severe trampling throughout this park has resulted in significantly reduced native regeneration and understory
- Scattered pockets of yard waste dumping were observed
- Trace amounts of beech scale were recorded, but no disease
- Minor defoliation on basswood due to leaf miner
- The dominant species in this park are sugar maple and red oak

Invasive plant presence



Ash mortality update

Emerald Ash Borer (EAB) continues to significantly affect the health of ash trees in Barrie. A total of 43 ash trees were surveyed in this park to assess the impact of EAB to date. The graph represents each tree's individual health status.



2017 Forest Health Surveys

Sunnidale Park North



Forest Health Rating Legend

1 Healthy; no obvious forest health issues

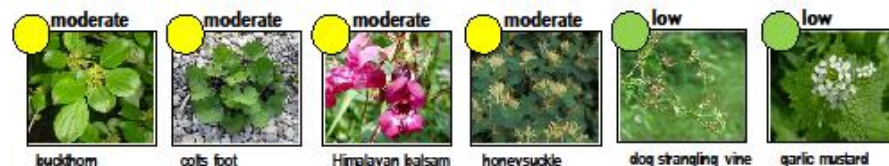
2 Moderately healthy; some minor forest health issues but less than 30% tree mortality

3 Health is affected by obvious forest health issues; greater than 30% tree mortality

Key findings

- Minor to moderate off-trail trampling observed throughout park
- Trace amounts of beech scale and old cankers observed, but no active disease present
- Gypsy moth caterpillars recorded; light defoliation observed on red oak due to gypsy moth and oak leaf miner
- Minor defoliation observed on few birch trees due to birch leaf miner
- Isolated pockets of yard waste dumping recorded throughout park
- Bark cracks and woodpecker damage observed on declining ash

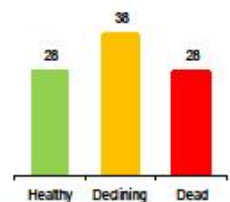
Invasive plant presence



Other invasive plant species present - wild grape (low)

Ash mortality update

Emerald Ash Borer (EAB) continues to significantly affect the health of ash trees in Barrie. A total of 94 ash trees were surveyed in this park to assess the impact of EAB to date. The graph represents each tree's individual health status.



2017 Forest Health Surveys

Sunnidale Park South



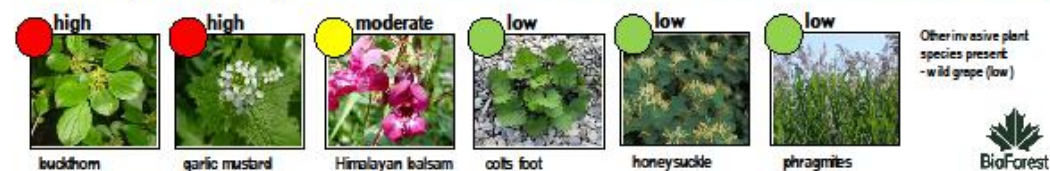
Forest Health Rating Legend

- 1** Healthy; no obvious forest health issues
- 2** Moderately healthy; some minor forest health issues but less than 30% tree mortality
- 3** Health is affected by obvious forest health issues; greater than 30% tree mortality

Key findings

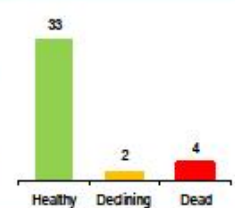
- Gypsy moth caterpillars observed; minor defoliation on red oaks
- Scattered pockets of yard waste dumping in isolated areas in park
- Suspected Japanese beetle defoliation evident on wild grape vines
- Numerous balsam poplars and trembling aspen suffering from hypoxylon canker, resulting in decline and some mortality
- Black knot present on understory cherry species
- A severe level of off-trail trampling in the Dog Park has significantly reduced native regeneration and understory growth

Invasive plant presence



Ash mortality update

Emerald Ash Borer (EAB) continues to significantly affect the health of ash trees in Barrie. A total of 39 ash trees were surveyed in this park to assess the impact of EAB to date. The graph represents each tree's individual health status.



2017 Forest Health Surveys

Sandy Hollow Disc Golf Park

1

Woodland is healthy with no obvious forest health issues



Forest Health Rating Legend

1 Healthy; no obvious forest health issues

2 Moderately healthy; some minor forest health issues but less than 30% tree mortality

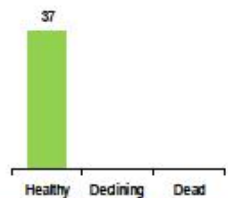
3 Health is affected by obvious forest health issues; greater than 30% tree mortality

Key findings

- Minor gypsy moth defoliation and caterpillars were observed
- Many trembling aspen were suffering from hypoxylon canker – especially around park entrance
- Off-trail trampling around disc golf holes is reducing native regeneration and understory growth
- Frisbee damage is evident on trees throughout course
- Trace amounts of beech scale were recorded, but no disease

Ash mortality update

Emerald Ash Borer (EAB) continues to significantly affect the health of ash trees in Barrie. A total of 37 ash trees were surveyed in this park to assess the impact of EAB to date. The graph represents each tree's individual health status.



Invasive plant presence



2017 Forest Health Surveys

The Gables Park

1

Woodland is healthy with no obvious forest health issues



Forest Health Rating Legend

1 Healthy; no obvious forest health issues

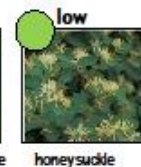
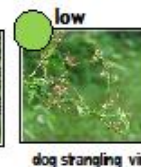
2 Moderately healthy; some minor forest health issues but less than 30% tree mortality

3 Health is affected by obvious forest health issues; greater than 30% tree mortality

Key findings

- Minor to moderate damage due to elm leaf miner evident on elms
- Gypsy moth caterpillars and moths observed throughout park; some minor defoliation observed on red oaks
- Light beech scale causing some feeding damage, but no disease present
- Scattered pockets of yard waste dumping recorded throughout the park
- Isolated instances of trampling in some sections of park

Invasive plant presence



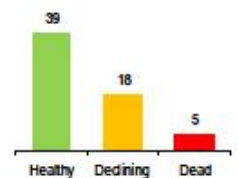
Other invasive plant species present

- wild grape (low)
- winged euonymus (low)

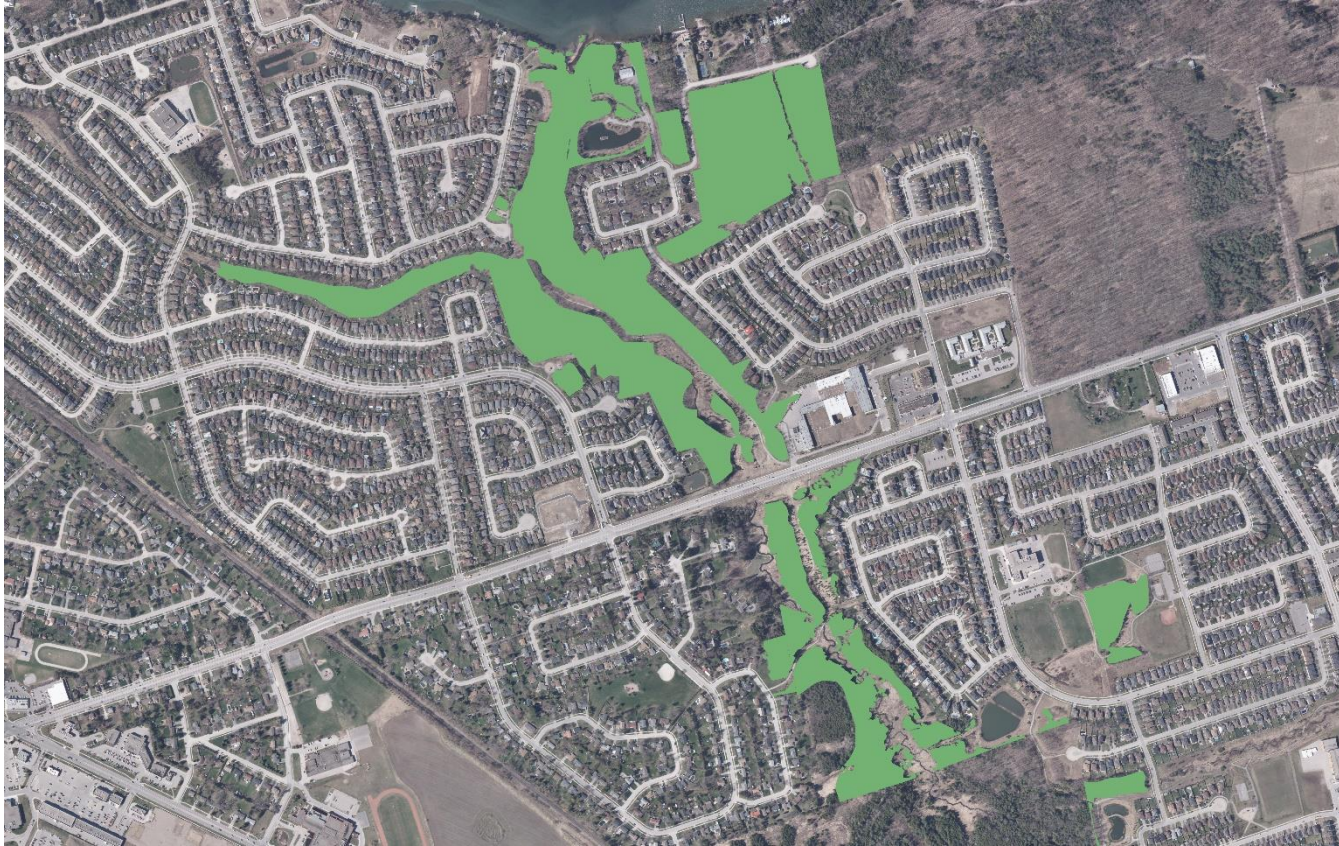


Ash mortality update

Emerald Ash Borer (EAB) continues to significantly affect the health of ash trees in Barrie. A total of 62 ash trees were surveyed in this park to assess the impact of EAB to date. The graph represents each tree's individual health status.

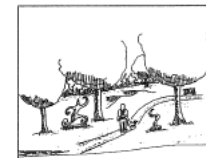
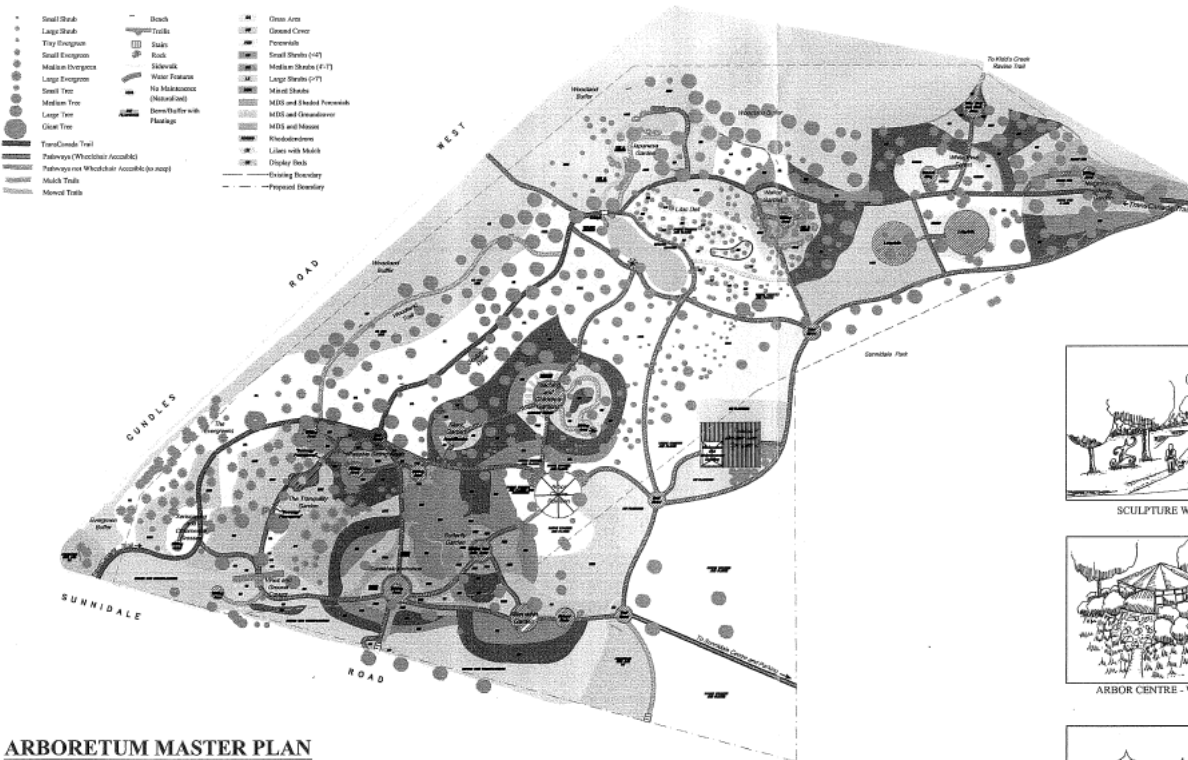


2018 Forest Health Surveys



Arboretum MP Update

- Consultant Award anticipated next week
- Public Information Centre December or January
- Completion and Staff Report Q1 2019



ARBORETUM MASTER PLAN BARRIE HORTICULTURAL SOCIETY

CITY OF BARRIE PARKS & RECREATION
CITY OF BARRIE MUNICIPAL WORKS

SCALE: 1:500
DATE: APRIL 2011



Climate Change Strategy

Operational Impact to Parks & Forestry

- 2018 – 580 hours
- 2019 – 5,500 hours
- 2020 onward – 2,000 hours annually

Future Resource Request to Council combined with operational efficiencies and overlapping business to reduce implementation costs: e.g

- Increase natural/forested areas within sub-watersheds with high surcharge and flooding - UFMP development and implementation
- Increase preventative maintenance and inspection of trees on public property (e.g. tree pruning, removal of diseased/hazardous trees, proactive planting in strategic areas) in order to reduce damage to the urban forest caused by extreme weather events.

Climate Change Strategy

Proactive / Preventative Tree Maintenance Programs

Tasks	Suggested Start Date	Estimated Initial Cost	Estimated Ongoing/Operating Cost	Responsible Department
Prioritize areas of high risk through current tree inspection program.	Jun-18	\$140K (3,500 hours first year to inspect or contract)	\$28K/yr (700 staff hours)	Roads, Parks, Fleet - Parks and Forestry
· Increased inspection program (refers to 28K number)				
Increase number of trees planted annually in low-risk areas	Jun-18	\$25,000 (plus 60 hours staff time)	\$25,000/year (plus 60 hours staff time)	Roads, Parks, Fleet - Parks and Forestry
Develop Citizen Science program for residents to know how to identify and report trees/limbs of concern (e.g. dead trees, branches hanging over roads, etc.)	2019	\$5,000 (plus 120 hours staff time)	\$5,000/year (plus 80 hours annual staff time)	Roads, Parks, Fleet - Parks and Forestry
Increase proactive pruning	2019	N/A	\$200K/yr (plus 350 hours annual staff time)	Roads, Parks, Fleet - Parks and Forestry

Salt Reduction – Waterfront Trails

Task	Suggested Start Date	Estimated Initial Cost	Estimated Ongoing/ Operating Cost	Responsible Department
Continue to implement winter control measures in public recreation areas, trails, pathways, and parking lots	Ongoing	N/A	Varies (included in existing service levels for RPF)	Roads, Parks & Fleet
Investigate opportunities for salt reductions in current practices and winter control routes	Ongoing	Staff time (Est. 40 hours)	N/A	Roads, Parks, & Fleet

Climate Change Strategy

Geese Management Program

Task	Suggested Start Date	Estimated Initial Cost	Estimated Ongoing/Operating Cost	Responsible Department
Continue City funding of project	Ongoing	N/A	\$50,000 (plus 70 hours annually of staff time)	Roads, Parks & Fleet – Park Operations
Monitor success of various strategies	Annually	N/A	20 hours staff time	Roads, Parks & Fleet – Park Operations
Explore opportunities to improve the “Don’t Feed the Wildlife” campaign.	Jun-18	TBD	TBD	Roads, Parks & Fleet – Park Operations

Urban Forest Management

Task	Suggested Start Date	Estimated Initial Cost	Estimated Ongoing Cost	Responsible Department
Collect data on urban tree canopy	2018	\$15,000 (direct) + 120 hours staff time	\$10,000 every 5 years	Roads Parks and Fleet – Parks & Forestry & Innovate Barrie – Information Technology/GIS
Identify areas of low canopy cover and problematic areas	2018	\$5,000 (plus 40 hours of staff time)	\$5,000/year	Roads Parks and Fleet – Parks & Forestry
Develop Citizen Science program to help measure and monitor urban forestry	2019	\$5,000 (plus 120 hours staff time)	\$5,000/year (plus 80 hours annual staff time)	Roads Parks and Fleet – Parks & Forestry
Use public education and citizen science to help in identifying strategies for the Management Plan	2019	\$25,000 (plus 160 hours staff time)	\$10,000/ year (plus 40 hours annual staff time)	Roads Parks and Fleet – Parks & Forestry
Increase tree planting within low canopy areas	Ongoing	\$25,000 (plus 60 hours staff time)	\$25,000/year (plus 60 hours staff time)	Roads Parks and Fleet – Parks & Forestry

Climate Change Strategy

Natural Areas Management

Task	Suggested Start Date	Estimated Initial Cost	Estimated Ongoing/Operating Cost	Responsible Department
Conduct background review of other regional/municipal natural environment trail and natural areas initiatives, existing legislative policies and contexts, biophysical opportunities/constraints, etc.	2018	Approx. 40 hours	-	Roads, Parks & Fleet – Parks and Forestry
		Staff time		
Submit budget request to Council	2018	Approx. 60 hours staff time (across all depts. involved)	-	Roads, Parks & Fleet – Parks and Forestry
If approved, begin development of Natural Areas and Trails Master Plan	2019	\$100-150K – plus est. 400 hours combined staff time	TBD through cost estimates of implementation in MP.	Parks and Forestry & Infrastructure Planning

Invasive Species Management

Task	Suggested Start Date	Estimated Initial Cost	Estimated Ongoing Cost	Responsible Department
Define roles and responsibilities for different departments for addressing invasive species	Jun-18	Staff time Est. 100 hours combined	N/A	Roads, Parks and Fleet
Public outreach (Submit budget requests to Council)	Jun-18	Approx. 60 hours staff time (across all depts. involved)	\$10,000/year	Roads, Parks and Fleet
Education and outreach to internal departments concerning invasive species	Ongoing	Staff time Est. 400 hours combined	Staff time	Collaboration with all departments
Create policy framework for invasive species	2019	Staff time – Est. 1000 hours combined (all depts.)	TBD by policy framework	Collaboration with all departments
Increase naturalization of existing parklands where feasible (i.e. allowing native vegetation to regrow on previously disturbed lands)	May-19	\$10,000 plus 60 hours staff time	\$10,000 plus 60 hours staff time	Parks Planning and Parks & Forestry

Climate Change Strategy

Food Security

Tasks	Suggested Start Date	Estimated Initial Cost	Estimated Ongoing/ Operating Cost	Responsible Department
Research other urban agriculture policies for best practices.	06/2016	Staff time (est. 40 hrs)	N/A	Roads, Parks, and Fleet - Parks and Forestry & Engineering – Parks Planning
Support funding applications through local partnerships (FruitShare Barrie)	Ongoing	Staff time (est. 20 hrs)	Staff time (est. 20 hrs)	Roads, Parks, and Fleet - Parks and Forestry
Revise current Parks and Forestry horticultural practices to increase the number of edible plants within City of Barrie plots.	May-18	TBD based on level of increase	TBD based on level of increase	Engineering - Parks Planning & Development
Recommended change:				
Increase the number and area of volunteer community garden plots on City parkland.				
Coordinate with food markets for harvesting opportunities	May-18	Volunteer /community group time	Volunteer /community group time	Engineering - Parks Planning & Development

Partnerships

- FruitShare Barrie (Coulter St, Sunnidale Park, Leacock Park, Shear Park)
- Bioforest (Urban Tree Survivability Research)
- Canadian Forest Service (EAB trapping and monitoring research)
- Simcoe County District School Board – Forestry Education / outdoor classrooms
- University of Toronto – Forest Health Monitoring (PSP)
- County of Simcoe (collaboration on EAB monitoring and knowledge sharing)
- Ash Treatment / Cost Sharing Agreement – residents
- LSRCA – Conservation Fund – community planting

Urban Forest Canopy Assessment

Location: Rio, Brazil, WV-3, 50cms (collected Jan, 2016)



Pan Sharpened RGB Image (50 cms)



Pan Sharpened CIR (False Colour)



NDVI – derived from Red and NIR bands



Derived Tree Canopy Vectors

Look Forward to 2019

Urban Forest MP:

Commencement of Public Information Sessions Q3, 2019

- Align work with previously completed building blocks
- Public support for UFM enhancements
- Prioritize UFM activities
- Long term plan for UF enhancement