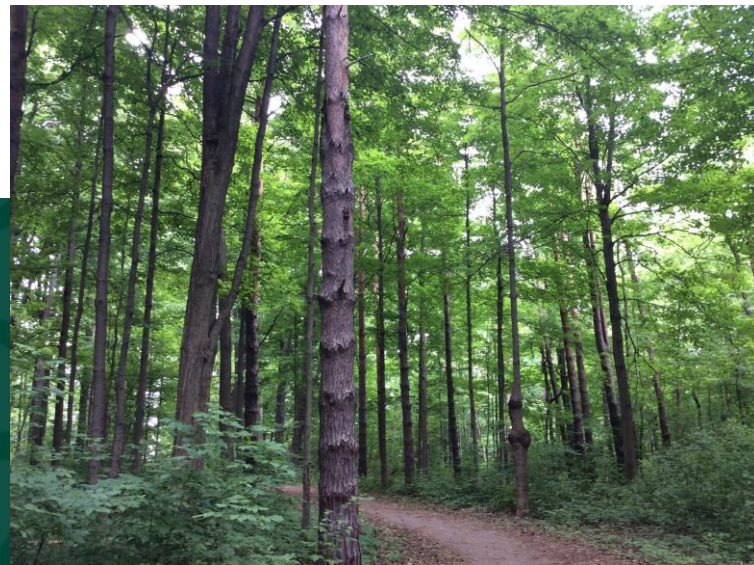# Levels of Service for Urban Woodlands

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Recognition of the Asset

A challenge in itself

Long history based on **liability**

Accounting principles "set in stone"

"**Value of asset is replacement value**" (= new tree in the ground)

What about assets that increase in value over time?

Tangible or intangible asset? (Is it physical? Yes!)

Tangible assets **depreciate** over prescribed lifetime!

Special case?

How To Evaluate an Urban Woodland?

- Timber?

- Appraised landscape value?

- Real Estate market value?

- Benefits to society?

- Something else?

Whatever value(s) you choose, it/they must be:

Easily repeated

Not requiring particular qualification,

skill, or knowledge

Very little harvesting in an urban setting

Homeowners pay a premium

$10,000/ha, conservation lands

CO_2 mitigation; water quality; energy saving; human health; etc

Our Model: Cost of Asset Replacement

~ CAD $67,300 per hectare

(USD$49,000)*

Note: This does not include underlying land value

* T Elmqvist et al. 2015: Benefits of restoring ecosystem services in urban areas. Current Opinion in Environmental Sustainability, Volume 14, June 2015, Pages 101-108

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What is our "Level of Service"?

Qualitative measure (with quantifiable indicators) - like rating a hotel!

5: Excellent
4: Good
3: Fair
2: Poor
1: Very poor

Choose your "Good Enough" Level of Service for community needs, expectations – typically 3 or 4

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Our choice: Public/Visitor Experience

Do they know it's there?

How far?

Can you park? Transit?

Is it accessible?

How is it used? How should it be used?

Is there enough of it to satisfy competing demands? Eg. bikes

Does it appeal to sensory perceptions
(sight; touch; smell; sound; taste)?

10 Service Attributes Measured

1. **Scarcity**   By walking route

2. **Recreational/Human Health Opps**   Walking, running, yoga, wildlife?

3. **Landscape, Topography**   Blink, and miss it?

4. **Aesthetics**   Is it pleasant? Scary? Dark?

5. **Access and interaction for humans**   Accessible? Obvious trail?

Categorise by

Service Attributes (continued)

6. Cultural/historic association   Pre-1950? Person, event?

7. Connectivity   Where do the trails go?

8. Structural Diversity   Optimal age, size classes

9. Biodiversity   No. of tree species? Invasives?

10. Operational Access   Walk in only? Aerial access?

Process for control of bias or influence

1. **Influence from Size of Asset**

   Categorize Assets by Size (Area)

   Q: Do you lump close-spaced woodlands together? Or split?

   Very small woodlands score poorly but are not usually our highest priority

   e.g.   Very small 0.25 – 0.5ha   Small >0.5 – 1.0ha   Medium >1.0 – 5.0ha

   Large >5.0 – 25.0ha   Extra large >25 ha

2. **Influence from Observer Subjectivity**

   Prescribe % weighting for each Attribute, in each Size category

   e.g. 30% for structural diversity, 30% for biodiversity, + other attributes to 100%

   Half-points are okay!

Calculate (score x weighting %) and sum products together to achieve total for each asset (each woodland)

Example: Structural Diversity

Score   **Indicator**

1   No structural diversity; all the same age/size class

2   Some diversity - two age or size classes

3   More than 2 size/age classes present

4   All size/age classes present but distribution not desirable for the eco-type

5   Appropriate distribution of size and age classes for the eco-type

x Weighting 30% (example)

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Example: Biodiversity

Score   **Indicator (do not have to match everything)**

1   Dominated by invasives (80% or greater); no natural regeneration

2   Strongly influenced by invasives; natural regeneration, but it may be damaged

3   Invasives < 40%; 5 or fewer tree species; some native/desirable regeneration

4   Few or no invasives; 6 to 14 tree species present; Species At Risk habitat may be
        present but no Species At Risk known

5   Sparse to nil invasives; 15 or more tree species present; Species At Risk
        habitat and presence

x Weighting 30% (example)

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Application of Level of Service tool

1. Select your "Good Enough" indicator for each Attribute in each Size Category

2. Calculate "Good Enough" score x prescribed weighting (which also varies with Size Category)

- **This is the target or threshold minimum goal for acceptable LoS**
  City of London: 3 to 4.55 out of 5; highest target in largest Size

Asset scores **lower?**

Improve management to achieve required Level of Service

Very low score may indicate woodland that is unsustainable, will not succeed

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Medium Size 1 - 5 ha: Target 3.07

Marr Drain: 2.17

North Mud Creek: 3.12

Forest View Park: 4.24

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Please zoom in…..!

This slide describes most of the indicators we measure for each Service Attribute.

One Excel worksheet prepared per Size Class.

Indicators are the same, across every Size Class.

The weighting (highlighted column) **differs** for each Size Class

Service Attribute Measured	1	2	3 Customer LOS Quality Rating Scale	4	5	Weighting	Customer LOS Target Medium
Scarcity	Greater than 2 km from another city owned woodlot OR any city owned woodlot within 2 km is only category 1 for social access	2 km from another city owned woodlot meeting at least a category 2 for social access	1500 m from another city owned woodlot meeting at least a category 2 for social access	1000m from another city owned woodlot meeting at least a category 2 for social access	500 m from another city owned woodlot meeting at least a category 2 for social access	2.4%	3
Recreational/Human Health Opportunities	Not inviting. Limited or no recreational opportunities. No managed trails or trails that are derelict to the point of becoming non-functional. No obvious management. Anti-social. Discouragement of popular enjoyment. e.g. "Party Pits", garbage, needles/sharps, encroachments, dumping, vandalism	Not very inviting. Basic walking trails created and managed by the City, without amenities or with poorly managed amenities e.g. overflowing garbage containers, broken benches, broken fences Frequent seasonal puddles or mud on trails	Inviting. Seasonally-managed trails with appropriate amenities managed for the site e.g. garbage containers, managed consistently during the season Dog poop bag dispenser with supplies in season Seasonal signage Benches are clean, in adequate repair Fences in reasonable repair Persons with disabilities may use the site - but it may not provide a high level of enjoyment Pond, stream, springs in season do not detract from the visitor experience; mud and puddles on managed trails are limited	Winter maintained trails with well-managed amenities appropriate to the site If there is a need for repair, this is isolated and not widespread *Specific elements to enhance enjoyment or safety of persons with disabilities e.g. visual/tactile contrast along trails and at transitions like steps; benches sited with a pleasing view; appropriate sounds, smells Pleasant pond, lake, river landscape, if present, adds to visitor experience No mud or puddles	Very inviting at all times of year. **Provides pleasant and safe year-round enjoyment by persons with disabilities, with consideration of sensory perception (sight, sound, smell, touch) Includes 3+ other recreational themes/elements: cycling, walking/hiking; nature appreciation; attractive woodland landscape; vista or viewpoint; non-turbulent water; cross-country skiing; snow-shoeing; opportunity for solitude (without being unsafe) High quality management: interpretive signage; trail markers; benches with pleasing views; self-guided trails;	7.2%	3
landscape (and topography)	Only visible by houses immediately next to it, not the passer-by Lanscape is not noticeable e.g. seedlings only or 'blink and you miss it'	Noticeable, but not dominant or dramatic. Partly visible Has attained free to grow stage	Landscape is noticeable to the passer-by Has contrast or drama by association with other landscapes Has achieved primary function	Dominant and dramatic landscape feature Readily seen from many vantage points Has achieved primary function	Highly visible to the public Remarkable and dramatic in association with other landscapes Depth of view penetration into	2.4%	3
Aesthetics	Ugly Dank, dark, scary place No surveillance or surveilled only by adjacent properties, from windows No visual penetration of woodland	May feel uneasy in some parts Limited visual penetration of woodland Surveillance by adjacent properties, from windows No personal space	Not scary to walk through - but not relaxing either May be surveilled but overall there is some sense of solitude and personal space	Promotes relaxation May be busy, but persons can find their own space Surveillance is largely promoted by visual penetration of woodland	Can find own space. Pleasant and peaceful, beautiful, relaxing. Spacious, uncrowded	4.8%	3
Access and interaction for humans	No managed trail. No parking within 100 m AND No public transit stop within 800 m	Accessible with challenging sections >3%grade Paid parking or parking only at some times of day within 100 m of access	Accessible by most persons; no wheelchair access Has one space where people may stop and chat e.g clearing, glade, viewpoint	Accessible with paved section; partly accessible by wheelchair but not fully A few clearings, glades, viewpoints, etc	Accessible including wheelchair access Woodland gathering place; several clearings, glades, viewpoints	7.2%	2
Cultural/historic association	Artificially created woodland/afforestation of the modern era (post-1950) with no known association to an event, place or person etc.	Artificially-created woodland (naturalisation, reforestation, plantation) from any era If created in modern era (post-1950), it is associated meaningfully with something/someone	Woodland that existed prior to 1950 No known associations; OR Association is suspected but unexplained No interpretive signage	Woodland existed prior to 1950 Local folklore connection or association, may be anecdotal or unproven Interpretive signage may be present	Woodland existed prior to 1950 We feel like we are the Forest City when we think about the woodland Documented, substantiated association to a place, thing, event or person	1.2%	2
Connectivity	No connectivity	One entrance to a dead end, there and back	Loop trail, steps do not have to be re-traced	Interconnecting paths or trails offering multiple entries/exits to the Park or neighbourhood	Multiple entrances/exits and choices **School, shopping or other	4.8%	2
Structural Diversity of Woodland	No structural diversity; all the same age/size class	Some diversity - two age or size classes	More than 2 size/age classes present	All size and age classes present but distribution is not desirable for the eco type	Appropriate distribution of size and age classes for the eco type	30.0%	3
Biodiversity of Woodland	Dominated by invasives (80% or greater by stem count or area)	Strongly influenced by invasives (40% or greater by stem count or area)	Invasives less than 40% by stem count or area	Few or no invasives present Adequate floral/faunal/fungal groups	Sparse to nil invasives Floral/faunal/fungal groups to sustain	30.0%	4
Operational Access	No terrestrial access	Walk in access, or horses or small, tracked equipment through woodland No defined staging area, or staging area location is inappropriate	Appropriate staging area can be created without excess cost/environmental/cultural/social impacts	Seasonal access for large equipment (includes using smaller equip to access larger equipment) Appropriate staging area already present	Year round access for large equipment Suitable staging area present	10.0%	2
						100.0%	3.07

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In Review – 2017 to date

- Requires little training of observer – need basic knowledge of plant ID

- Controls subjective scores by different observers

- Useful tool for prioritizing use, management

- May need refinement - but little has changed so far

- Quick, easy, cheap to repeat for measuring success

Your Comments, Suggestions, Questions?