Planning New Approaches for Street Trees in our Urban Areas

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Trees do grow in the strangest places!

- Planned or Unplanned

Some trees do well in unplanned places!

- Flowering crab in a 12” x 12” pit

Nightmare Alley for planners and Arborists tough place to grow trees

Strip development creating urban blight, no trees

Where do trees fit into planning?

- Do planners know about trees?
- Do planners understand the value of trees and the role they play in our urban forest?
- Do planners like trees?

How can Urban Forestry Help our communities?

- The top 10 Urban Vegetation benefits

(From David Novak USDA Forestry Service CUFC9 presentation)

1. Air temperature reduction
2. Sociological & physiological/aesthetics
3. Air quality
4. Water quality
5. Building energy conservation

Novak's top ten Urban Forestry benefits (continued)

6. Greenhouse Gas Reduction
7. Ultra violet Reduction
8. Wildlife Habitat
9. Noise Reduction
10. Oxygen production

Can you think of any other reasons why planners need to be thinking trees?

A Planned difference!

- How is your business section entrance viewed?

From Knoxville, Tn. Master Street Tree Plan

Major Problems confronting the Municipal Forester or Arborist

- Usually not involved with the tree planning process
- Restricted space allocated for trees to grow
- Conflicts with overhead and underground utility lines
- Trees and pavement and problems with grates
- Trees in planters or tree pits with insufficient soil volume & other restrictions

Other Problems

- Maintenance, lack of adequate funding for care
- Lack of qualified personnel to monitor construction projects involving tree planting and removals
- Development agreements for new subdivisions or projects adding further strain to staff to oversee work done
- Trees planted by developers not getting care needed for establishment, lack of warranty by contractors

In years gone by we planted trees under the utility wires!

- We hid the wires nicely as far as the esthetics of the streetscape

Overhead Utility Line Conflicts, age old problem

Yoke treatment

Typical pruning by utilities to disfigure trees (“Apple bite”

Utility Lobby with Municipalities changed our tree planning polices

- We learned to live with utility pruning policies but utility companies are trying to reduce their costs of pruning and problems of interruption of services during major storms caused by falling trees.
- Many utilities have reduced arboricultural staff and are relying on contracting out for utility clearance.
- Consequently pressure was put on municipalities to change tree planting policies

New approach for Overhead Utilities

- Planting Smaller growing trees under Utility wires

Tree species that grow less than 30 ft.

"The Right Tree for the Right Place is the new mantra!

- Is this the answer(lollypop trees)?

The wireless approach

- no overhead utility conflicts ideal, becoming more popular but still fairly expensive

Today's practices

- Conventional engineered street tree planting for Industrial parks, narrow medians, poor soil to grow in

Major Common Problems

Restricted growing space

Trees and Pavement

- 4’ x 4’ & 5’ x 5’ sidewalk tree pockets with grills

Tree Grates causing damage to tree trunk

Trunk encroaching on grate edge

Trees in Planters with limited soil volumes

- Species specific
- Limited growth

Tree Selections

- Monoculture vs species diversity
- Natives vs Exotics
- Tree Planting sizes
- Tree spacing

Monoculture vs diversity Compelling arguments for both

Monoculture featuring row upon row of American Elms was the theme of late 1800s-1960's

Species Diversity the Preferred path now

Monoculture for formality

- BC Place Stadium Street Tree Plantings for Vancouver Winter Olympics

Olympic Games tree plantings for Georgia St. Vancouver, BC

Monoculture and Insect Problems

- Leaf Roller Problem on Honey Locusts

The trend for many municipalities, cities is towards diversity rather than Monoculture

- Most support diversity in tree plantings
- All types of diversity guidelines
- Many Urban foresters aim for the 10-20-30 rule, no more than 10% single species, 20% genus, 30% family (Tree Researcher, Frank Santamour's formula)
- ISA Diversification formula for plan□tings no more 10% family and 5% species

Streetscape Diversity

- Interesting range of street tree plantings

Mixed Species Plantings

- Can be equally effective

Tree Selection & Planting conditions

- Some trees Thrive in urban conditions in various locations

Norway maples in particular

Some Foresters and arborists don't like Norway Maple species despite their early popularity.

- Claim they're too invasive!
- Claim their tree structure is weak, subject to damage
- Claim there's too much damage to sidewalks and pavement from root upheaval
- Problem with Tar spot on some cultivars
- The tree has been banned for planting in a number of cities

Despite all the problems

- Still one of best trees performing in urban conditions
- Moves easy in full leaf
- Question outright banning by some cities
- Can they really become invasive in downtown areas?

Root problems in Restricted spaces

- What choice does the tree have in this restricted space

Most city or Municipal arborists have their preferences

- Lots of developed lists of Ideal street Tree Plantings
- Varies from city to city and region to region
- Hardiness and adaptation to site factors
- Hard to get agreement on what to plant
- Many cities have preferences

After care and maintenance problems

- Developers usually are required to plant trees along new streets
- lack of monitoring and supervision on the plantings and their care
- Guarantees not being honoured by contractors
- Municipalities and cities lack the manpower to look after new plantings and police the contractors

Outdated polices that allow street vendors more space then we do for tree plantings

- In his book”Up by the Roots”, James Urban, landscape architect and arborist compares the the space a typical tree planting is given such as the long-standing 4’ x 4’ tree pit with a grate whilst a hot dog & burger purveyor is given twice the space to operate and sell his wares

It seems our stomachs are more important than our environment!

Credit: Toronto presentation by James Urban "Healthy Trees for a Beautiful City"

Conflicts with pedestrian space and commercial signage

- Problem of design control rooted in perception that trees on a sidewalk sites restrict pedestrian travel & hinder business visibility

Budgetary Problems

- Most cities and municipalities lack the financial resources to do the work they need to maintain their trees adequately
- When budgets are tight, maintenance of green spaces and the urban forest management usually take a hit!
- Explosion of street tree plantings with new subdivisions and industrial sites strain resources

Lack of resources to look after the newly emerging Urban forest

- First 2-3 years after trees are planted is critical for establishment

Expansion of Industrial Parks

- Adding more strain to Urban Forest Department while waiting for development

Landscape contractors not honouring warranty work in new developments

Forgotten Trees in New developments

Poor installation & Maintenance

20 years later !

Poor soil conditions, trees planted in rock

Do we need a tree here?

Varied opinions about the need for another tree here

Trees for less conflict with Utility lines, is this the canopy we want?

- Are they really the answer to reduce CO2 cool the environment & generate oxygen?

Underground utilities

- Considered too expensive for most developers, mainly for high-end developments

Crux of the Problem facing management of the Urban forest

All the major players are not at the table during the design stage when roads and boulevards are on the planning board

The arborist or urban forester is generally not involved when the engineers and landscape architects design the roads. In most cases they are usually last to know or to see the plans and what's being proposed

Ok, we reviewed the age old problems, what are some possible solutions?

- Engineers, Landscape Architects and Planners need to understand the importance of trees in improving the environment of our communities
- They need to consider what's involved in maintaining healthy trees
- The politicians who control the purse strings need to know as well

Planning approaches to consider

- Most Important: Give trees more space to grow

Make Larger Planting spaces

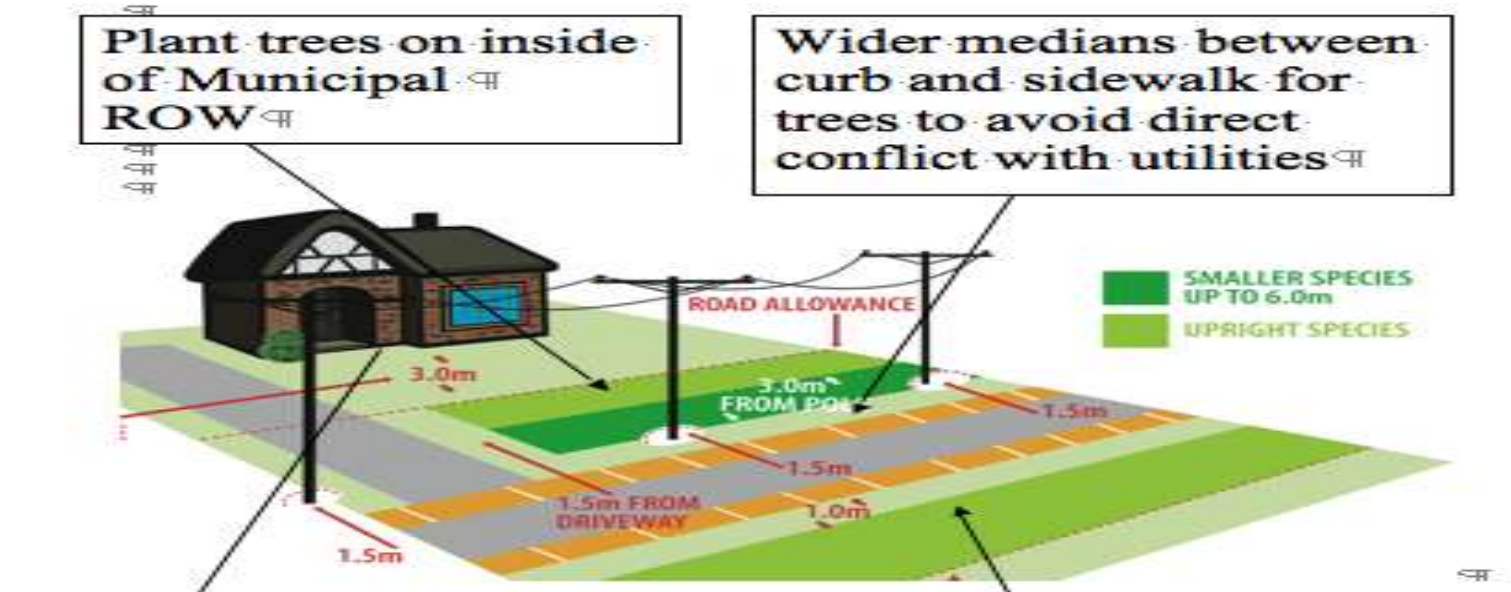
- In his book "Up by the Roots", James Urban urges the provision of larger planting spaces filled with good soil to produce healthier, longer-lived trees
- He suggests long linear planting spaces to allow the largest open soil space and advocates the use of curbing to reduce salt incursion rather than tree grates or paving over the planting soil

Give trees more soil volume to grow in

Allow more Space between Street trees

Trees are planted too close together, can't achieve mature growth

Planning considerations



Cost Reduction Strategies

- Use wider tree spacing to reduce cost without significantly reducing value
- Wider spacing improves visibility and produces better sun/shade relationships
- Try 35 ft. spacing rather than 25 ft.
- A 3-to3-1/2-inch caliper tree is the most economical size tree to plant in an urban area

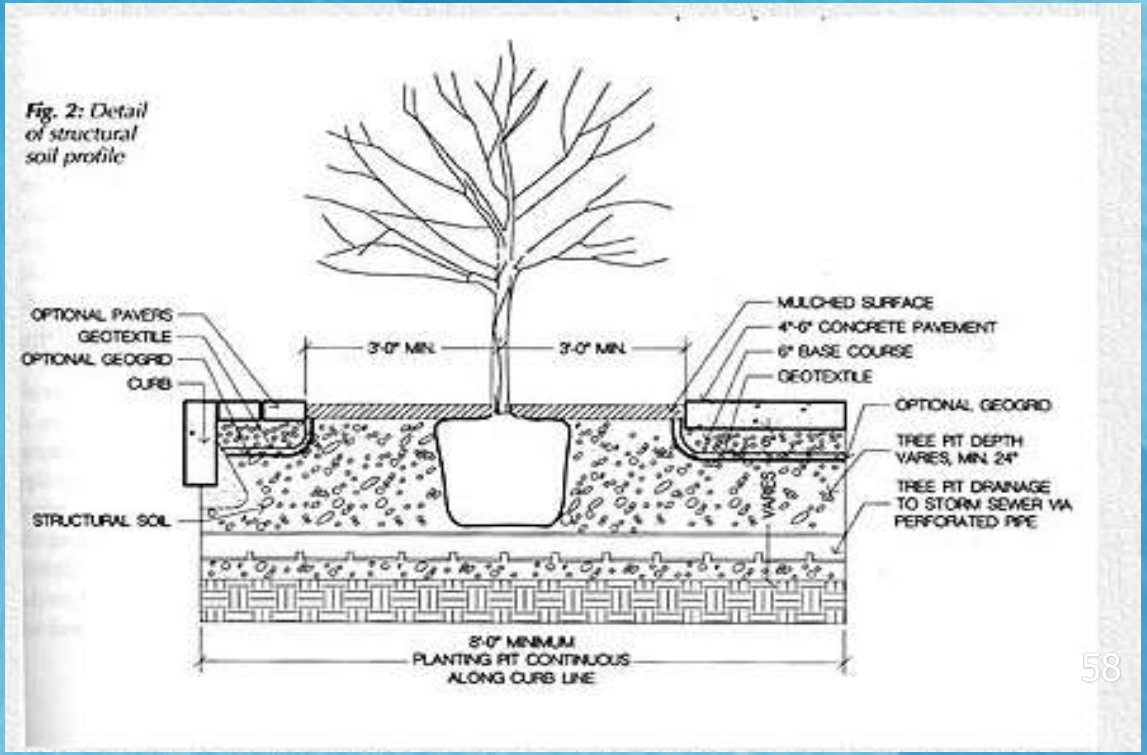
from James Urban and ISA's "Up by the Roots"

Consider minimum paving space vs. min planting space

- The minimum planting space size is 20 ft. or greater in diameter but unfortunately is an impractical standard for most urban areas
- In some cases improving the soil within the area of the planting hole is the cheapest and most sustainable way to improve growing conditions for a tree

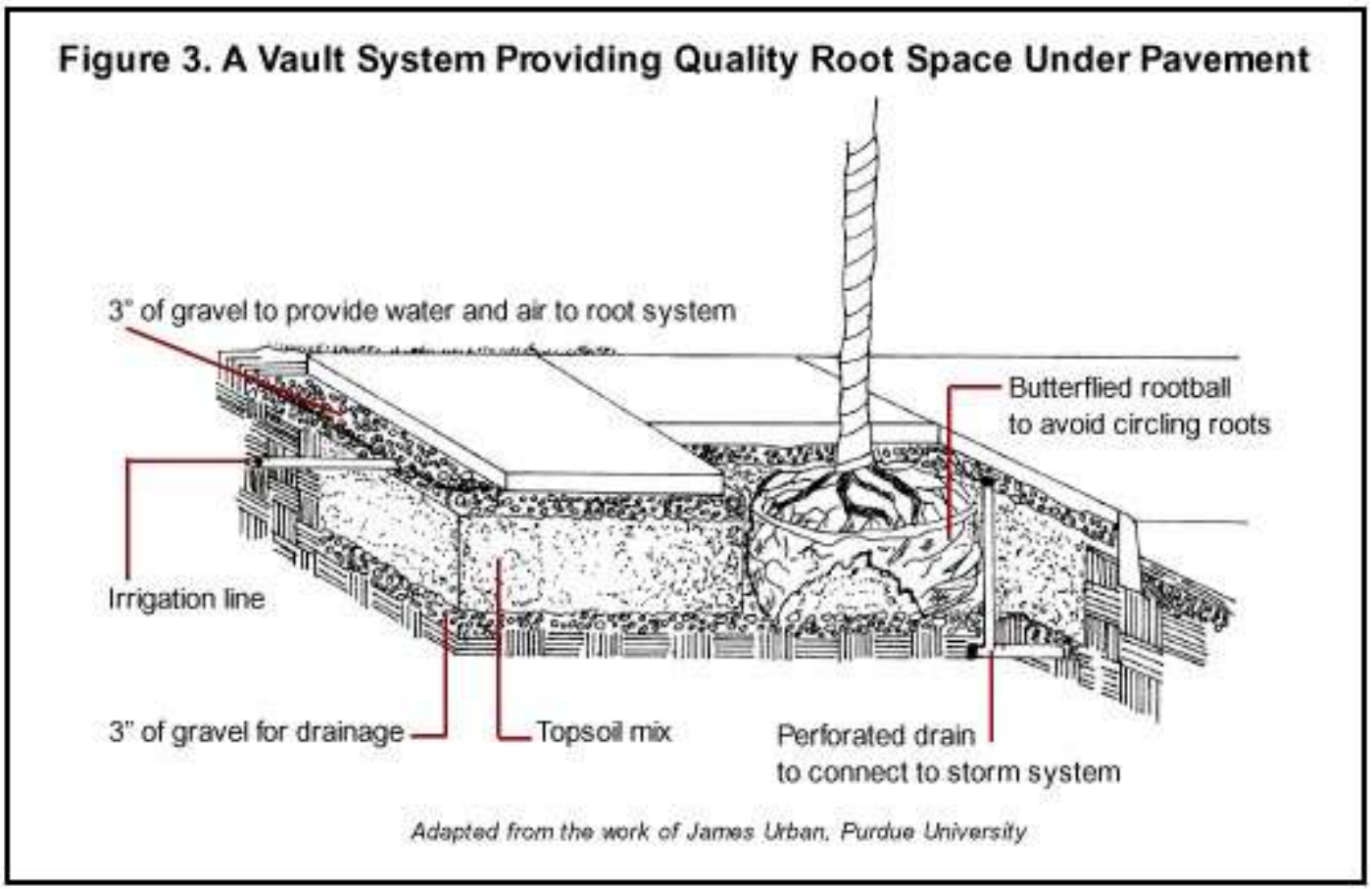
Planting pits with Structural soil

- Utilization of structural soils and large planting pits under paved areas based on the research work at the Urban Horticulture Institute and the folks at Cornell



Giving roots more soil to grow

- Planting Vault system



If we're going to plant trees in planters make them big enough!

Underground Transit Utilities Vancouver Sky Train

Continous trenching for paver areas

If the roads have to be wider give us more green space

- Create large medians to enhance streetscape

North Vancouver Medians with large conifers

More Boulevard Plantings

Also helps to reduce the scale of tall buildings

Halifax

Greater building Setbacks

- Negotiate wider setbacks with developers to allow large trees enough space

Building setbacks City of North Vancouver

Plant trees on inside of Utility line ROW's

Programs with home owners to plant trees and share care

New Utility Approaches

- Recent Nova Scotia Power Policies
- Managing vegetation below and the ROW's

Allowing Tree Canopy development along lines

NS Power's New Management system

Islands of soil for mass Plantings in the city

- Downtown Vancouver at Sky Train Station

Preserving Existing Trees

- Change the design of the site to preserve existing trees

Ginkgo tree at Irving Environmental Centre at Acadia University

Municipal Tree Preservation Policies Needed

- Wooded buffer not sufficient width for remaining standing trees

Failed attempt at tree Preservation Mount Royale development Halifax

Training Engineers, LA's & Planners to the Needs of Trees

- Arborists & Urban Foresters should be front and centre with engineers, landscape architects & Planners on the street and site planning issues
- Over the years arborists and foresters have inherited the design problems by others
- Time to influence the decision makers that arborists need to be a part of the planning team

Arborists need to be involved

The arborist or Urban forester needs to be at the table at the planning stage

Summary

- Problems have been with us for a long time
- Political Will needed to effect some new approaches & changes
- Municipal Planning staff need to be proactive and lead the way on development. We've been working in reverse too long with developer's calling the shots
- Time for arborists and foresters to take an active role in planning of our Urban Forests

Let's make the effort meaningful

- A lot of work and money goes into tree planting every year, let's make sure the money is well spent and the trees can grow and thrive in our Urban Forests

Wouldn't it be nice if downtown looked like this?

Chicago Streetscape

Trees and Tall buildings work fine

Green city harmony

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