No Place for Old Trees?

Preserving Seattle's Green Infrastructure During the Development Boom

By Cass Turnbull

Editor's note: Cass Turnbull has been an important voice for tree preservation in Seattle for many years. The opinions stated here may not necessarily reflect those of the Arboretum Foundation.

It's no secret that Seattle currently is one of the country's top boom towns. Strong job growth in the tech industry is attracting many new residents to the region and has created a development frenzy downtown and in surrounding neighborhoods. The real estate market is on fire, and in many residential areas, small, old, single-family homes are being replaced by low-rise, multi-family units or larger, more-modern homes to meet demand. When thoughtfully done, urban redevelopment can be a good thing. But one of the silent casualties of the new upsurge in construction is our urban forest. We don't have adequate protections or regulatory enforcement for our existing trees. Moreover, we haven't adopted policies and mechanisms to reach our future canopy coverage—or even open space—goals. As a result, our trees are suffering—and, by extension, so are we.

When I express my concern over how many trees are being cut down as a result of the boom, people often reassure me that replacement trees will be planted. "Trees grow back," they say—but it's not as simple as that. What they're missing is that it will take many years of growth before the new trees can accurately be called replacements. In the interim, the full environmental work once done by big trees won't be accomplished. According to the American Forestry Association, one young or small urban tree does 75 percent less environmental good than a large tree.

Nobody knows if the replacement trees will survive either, or what kind they'll be. These days people plant small-maturing trees where once they (or sometimes nature) planted large-growing ones. That's often because many folks are under the mistaken impression that small trees take up less room in their yards. (The lower

ABOVE: Queen Anne Hill in Seattle, a city famed for its "emerald" tree-covered neighborhoods. (Photo by M.O. Stevens/Wikimedia Commons)

branches and canopy of a small tree can actually take up more room at ground level compared to the trunk of a large tree, which can be limbed up.)

Some of the folks choosing to plant smaller-sized trees are landscape architects working on large projects that could obviously accommodate big trees, including our big conifers—the environmental heavyweights of the urban forest. Those conifers, along with our giant maples, are iconic to the Northwest. But Seattle seems to be slowly transitioning to a town of many small trees—purple leaf plums, Bradford pears, dogwoods, and cherries. The plant palette is widely shared among cities in the USA and, though pretty, it doesn't reflect the unique identity of our Evergreen State.

Tree Preservation *Is* Land Preservation

Most importantly, there may not be enough room left in the future to support all those replacement trees. The total amount of urban tree canopy that's possible for Seattle is not a function of *how many trees* we plant. Ultimately, it is dependent on *how many planting spaces* will exist after every property in Seattle that can be built on has been built on, and built to the maximum lot coverage allowed by our building codes. This is called a "total build out," and it is inevitable—given enough time and a big enough population.

According to the City[1], it takes a minimum of 300 to 900 square feet of permeable land to host one medium sized tree. (Permeable land is defined as land that absorbs rainwater rather than causing it to runoff.) Even in the unlikely scenario that you completely fill a 900-square-foot yard with many small trees, in the end, you will not derive the same amount of benefit—in terms of tree canopy, energy-use reduction, habitat enhancement and air pollution mitigation—as you would from a single, medium-sized tree. City departments are required to plant two trees for every one taken down during construction projects, but without an equivalent amount of permeable land to support them, these trees can never replace the one that's lost.

So, for me, tree preservation *is* land preservation. I consider "open space," "permeable land," "green space," "planting spaces" and even "urban forest" to be roughly synonymous. It's true there are exceptions. One can plant trees on impermeable land, such as on top of buildings and in hardscaped plazas, but these amount to little in the big land-use picture.

As building footprints grow larger, the urban tree's habitat is diminished. Our current habitat reduction is the result of several different forces—the building boom itself, new policies concerning environmentally critical areas, zoning and code changes, and new building technologies that enable construction on steep slopes, as well as people's and builders' preferences.

Open Space and Our Canopy Commitments

With the amount of tree canopy being dependent on how much open space is available, it behooves us to see where Seattle's open space currently is.

TOP LEFT: A typical single-family detached home with lots of green infrastructure in the Ballard neighborhood of Seattle. (Photo by Niall Dunne)

TOP RIGHT: One of the new low-rise, multi-family residences in Ballard, with little room for big trees. (Photo by Niall Dunne)

There are two kinds of open space: *private open space* and *public open space*. Private open space is owned by businesses, industry, single-family homeowners, etc. Private land has about 58 percent of Seattle's trees. In contrast, public open space is owned by any one of several government agencies and it hosts the remaining 42 percent of the city's trees. Roughly half the public open space trees are in our parks, while most of the other half are found in pubic rights of ways, such as parking strips and medians.

Private open space is mostly made up of back yards, the required landscaping areas of commercial and apartment properties, vacant lots, and privately owned greenbelts. These are the places in our city that are undergoing the most dramatic changes, and they happen to be where most trees are located.

Most of Seattle's tree cover (63 percent), as well as most of its land (56 percent), is in residential neighborhoods zoned for single-family, detached homes. That's more than the next three largest land-use zones combined. (Those three zones are multi-family, industrial and parks, which together account for only 32 percent of the land and 33 percent of the tree cover.)

To deal with Seattle's rapid population growth, the City has looked at relaxing the rules about building in single-family zones and is planning to change some single-family zones into low-rise residential zones around some of our "urban villages" (see below). At the same time, we have made short- and long-term commitments to increasing Seattle's canopy cover.

Seattle land is already 62 percent impermeable. That means that almost two thirds of the City is covered in roads, buildings and driveways—a scary figure in my book. Satellite data from 2007 showed Seattle's canopy cover at just 23 percent (down from 40 percent in 1972). We have a stated goal of expanding canopy cover to 30 percent by 2037[2], as well as a long-term, aspired goal of 40 percent canopy cover[3].

But how much open space will be left after a substantial or complete build out? How much permeable land are we losing now? Where are we losing it? And how fast? By answering these questions, we will know if there is even a possibility of meeting our canopy goals in the future.

Losing Private Open Space

It's estimated that our City will be adding 120,000 new residents and 70,000 housing units to Seattle by 2035. Even if we were to add those people to the City without reducing the amount of open space—say by building higher buildings on existing building footprints—problems would arise. Many of these new folks will, in fact, be living in tall buildings with little private green space. They will head to the Arboretum to get their hit of nature, to Greenlake to run, to Cheasty Greenspace to mountain bike, and so on. We'll see more crowded parks, with increased maintenance needs.

If we add 120,000 more people, but reduce the total amount of private open space, the problems will be more serious. People living in the new urban McMansions and townhouses will have less backyard land for their kids and dogs to play in, to plant vegetable gardens, to build and repair things, or to have friends and family over for a summer barbeque. They, too, will head for the parks, and they will drive long distances—burning fossil fuel—to enjoy more green space in the country.

Decreasing private open space, permeable land, and canopy cover in the City will result in other environmental problems as well, such as increased air pollution, increased polluted runoff in the Puget Sound, and higher ambient temperatures (from the "urban heat island effect").

The loss of private open space can come in many forms, not just small homes being replaced by ones with larger footprints. Proposals to relax the restrictions for building backyard cottages on single-family lots, for example, could lead to a further loss of tree canopy—even when the percentage of allowable lot coverage remains the same for two buildings as it does for one. We're also replacing required landscaping for commercial and apartment buildings with balconies, green roofs, and scores of unused communal patios that typically provide minimal ecological services. And now that the technology exists to

build on very steep, wooded slopes, we're seeing new private homes appearing in these "last frontiers" of urban greenspace. For all of this, trees are being cut down in great numbers, and the land that once hosted Doug firs, red cedars, bigleaf maples and madronas is being be covered up, never to grow another one.

A Need for New Parks

To make up for losses in private open space, we could launch an effort to help the Parks Department acquire as much public land as possible. New parks would be used to meet the increasing recreational needs of the public, and to ensure the City remains livable, economically sustainable, and environmentally responsible.

However, the Parks element of our new Comprehensive Plan[4] being voted on this fall will not do that. Early planning documents focused on using *qualitative* goals—such as increasing the uses of existing parks, more access to parks, and improved maintenance of parks—and sought to restrict *quantitative* goals.

We've already watered down the metrics we use to determine how much public open space should be allotted to each resident. Seattle's original Parks' metric was based on a widely used one published by the National Recreation and Parks Association, which recommended one acre of public open space per 100 residents. In the Parks Department's 2006 Development Plan[5], we changed the "acceptable" goal to one-third acre per 100 people. We further adjusted the metrics by varying them according to City land-use areas. For example, Seattle's "urban villages" (mixed-use business and residential hubs, such as downtown Ballard and North Beacon Hill) need to have only one acre of park space per 1000 people. One acre is about the size of a football field without the endzones. Good luck throwing your Frisbee or watching for birds in that kind of space on a busy day!

These urban villages are the places that should have MORE open space, not less. They desperately need the mitigating effects of trees because of all the impermeable, reflective concrete they're introducing and the attendant strain they're putting on the City's environment and infrastructure. And the people in these villages need the amenity values of parks because they have little private open space of their own. With no nearby communal areas to socialize, how will they meet their neighbors? If the snow falls, where will their kids build a snowman? Where will seniors go for their morning health walks, or the would-be urban gardeners plant their peas?

There are now in Seattle literally thousands of people who are not within recommended walking distance of a greenspace. Low-income folks are among the most adversely affected, not only because of their historical lack of access to open space, but because they can't afford to go play a round of golf, drive to the woods for a day hike, or send their kids to camp.

As a city, we seem to have resolved ourselves to adding minimal green land for new parks. We have opted to make many small, public squares constructed out of concrete, rather than green pocket parks because we think the latter are not cost effective to maintain. For the next four years, we have budgeted only $2 million for parks land acquisition to service the entire City. We're even selling off public lands that might be used for parks (for example, the Seattle City Light former substations, or "surplus properties") to developers.

Why is this happening? Lack of funding has always been a problem for green things. There was hope that once we proved the utilitarian—or dollar—value of trees and green space, this pattern would change. We now know that trees do not cost the City money, they save the City money (preventing health problems, for instance). But the change hasn't happened, perhaps because these dollar values are not represented in governmental accounting or budgeting systems. Like the cash register that has no place to put a one dollar coin or a two dollar bill, our governments have no place to put nature's values.

At least not yet. There is currently an effort to incorporate natural asset accounting into Seattle's financial system. If successful, it could be a game changer.

A Smarter "Smart Growth"

Another reason for the general lack of support for expanding green infrastructure is our adoption of the "smart growth" philosophy of urban planning, or at least the way we practice smart growth locally. The philosophy is elegant in its logic and inspirational in its goals. It has enjoyed broad support from environmentalists, affordable housing organizations, young urban professionals, city planners, and developers. The conviction is that it is worth it to save the environment "out there," in the woods, farms and fields even at the expense of green space environments in the City.

It may well be so. The theory goes that by increasing the density of city, we prevent the suburban sprawl that eats up the undeveloped countryside, destroying its ecosystems and wasting resources. With density, people will live where they work (rather than commute to Seattle from the suburbs), and by doing so will lower their carbon footprint—all quite plausible.

In Seattle, there's an assumption that density must be accomplished by building on all available private open space within the City. Some growth advocates even consider it selfish and environmentally irresponsible to possess backyards or to want land to be used as a park instead of for more housing. But this is a false dichotomy. We can achieve both density goals and green space goals by "building up, not out" within our City—and not just within Washington as a whole, as directed by our state's 1990 Growth Management Act.

Whether you cover the land with all low buildings or all high ones, if it is to the exclusion of greenscapes, it will eventually look like the surface of a Star Wars Death Star. No one wants that. Green space is essential to the success of the smart growth movement. Around the world many cities have managed to retain, and some even to add, large quantities of green space during periods of rapid densification.

There are concerns that because only a part of the smart growth strategy is being incorporated here it may not be working as predicted. Without the concurrent and promised "infrastructure"—such as green space, transit, improvements to schools, low-income housing, and social services—there is the possibility that a great many people will flee the dense city for places that do provide it. Back to the "burbs" and small towns, where there are still yards for kids to play in and homes that are affordable! Those people would commute to Seattle for the jobs, defeating the purposes of the plan.

These days, I am often reminded of a sign I once saw that said "In theory, theory and practice are the same. In practice, they are not." Only time will tell whether or not smart growth works as promised.

By then, who can say what Seattle will look and feel like? Will we have access to the beauty and solace of uncrowded green spaces? Or will they become the property of the few who can afford it, like the water views in Seattle that were once seen everywhere. When we look across the City to the next hillside, will it be blanketed by green trees with human-made structures visible here and there, or will it be the other way around? Will there be an Emerald City or something completely different? ~

Cass Turnbull is an author, teacher, ISA-certified arborist, certified landscaper and veteran Master Gardener, and the President/Founder of PlantAmnesty (www.plantamnesty.org). She is a long-serving member of the "Bulletin" Board. Her books include "Cass Turnbull's Guide to Pruning" (3rd edition, Sasquatch Books, 2012).

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