

Detailed Route Hearing Process – Trans Mountain Expansion - Segment 7.7

Hearing Order - MH-033-2017

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## **COMMUNITY GREENWAYS: PRICELESS VALUES WHEN UNDISTURBED**

### Introduction

As a Landscape Architect and Registered Professional Planner, I have been involved in the management, planning and design of public open spaces since 1978. For the last 40 years my professional services have been divided equally between 20 years in local government and 20 years in the private sector, leading projects with and for cities, regional districts, provincial and federal organizations.

I am a Fellow of the Canadian Society of Landscape Architects, a member of the BC, Atlantic Provinces and Nunavut professional associations of Landscape Architects. I am a registered Member of the Canadian Institute of Planners, via the Planning Institute of BC. I have been a sessional instructor and guest lecturer at UBC

My firm, E. LEES and Associates Consulting Ltd, is incorporated in BC. Our team of 16 professionals work from our head office in Vancouver, with regional offices in Whitehorse, YT and Toronto, ON.

Our practice focusses almost entirely on environments in the public realm across Canada. The public open spaces imperative has been an area of research and planning for us that goes back to my origins as a land manager. Ecological and experiential values form the pillars of this imperative. Their intersection constitutes the foundation that underpins our cities, our relationship to nature and to a great extent, our meaning to one another and the greater community.

### Purpose of Report

In 2006, Burnaby purchased a number of linear parcels of land on the former BNSF railway corridor for the purposes of greenway and ecological linkage. These parcels run from Stoney Creek along the south side of Eastlake Drive, towards Eagle Creek ("Subject Lands").

The purpose of this report is to describe the importance of the Subject Lands as ecological linkage and greenway to the residents of Burnaby and the broader public.

### Greenways defined

Greenways, within this context, are lands acquired for the purposes of protecting ecologically and visually important values and services. They are undisturbed lands covered in forest vegetation or capable of growing trees to maturity. In some cases, developed greenways accommodate recreational and/or active transportation amenities such as trails.

## reenways and natural spaces: ecological importance

Natural spaces set aside for public use and benefit are fundamental to the health of a City and the broader region, both in terms of human wellness and the health of the greater ecosystems. The parks, green spaces, forest canopy and designated greenways are an interconnected series of patches, nodes and corridors that – when planned and managed intact – are crucial to the health of all living things in the City.

Greenways and significant blocks of undisturbed lands are necessary for a multitude of species – such as resident and migratory birds – that require sufficient separation from disturbance and other deleterious effects found in the urban environment. Patches of natural forested areas are especially valuable in the urban setting as they generate a plethora of insect and microbial populations that higher order organisms, including salmonids and other aquatic species, depend upon. Some of these species are endangered or threatened in the Stoney Creek/Brunette basin. The Subject Lands are crucial linkages between Stoney Creek and Burnaby Mountain for many different resident species and those that move from riparian to upland habitats.

Greenways offer the most important places of breeding, rearing and refuge of any landscape within the urban environment. Many bird, aquatic species and mammals that exist within the City of Burnaby rely upon greenways as safe places to breed, raise their young and seek refuge from predators. When these areas are disturbed and often when adjacent land uses impact the integrity of these lands, populations decline if not disappear altogether. It is imperative that the maximum area of every patch of natural area be protected so as to allow for full cycles of a maximum number of species in the community.

Greenways are equally valuable for the passage and movement of species across the landscape. The movement of fish is the quintessential example, but so are the movement of amphibians from water to land, fledglings from the nest, and colonizing plants. Greenways are literally corridors of movement for many of the existing and anticipated species in Burnaby. As the climate changes, they will be crucial to the movement of species to more beneficial habitats. For larger species, greenways form essential stopping-off places for feeding and refuge. The Brunette/Stoney Creek natural areas are integral to the free and safe movement of species up to and through Still Creek as well as to adjacent larger patches at Burnaby Mountain and Central Park.

As the climate changes and as urbanization affects remaining natural lands and the species residing in them, greenways become increasingly important engines of mitigation. They trap particulates, sequester carbon and contribute oxygen to the atmosphere. They are the lungs of the city and along with urban forests, parks and some private lands, they are fundamental to the health and relatively benign environment that all species, including humans, have come to rely on.

Greenways provide ecological services that are not only crucial to the ecological integrity of the City, but also the health and safety of residents. The volume of rainwater stored and trapped in greenways is perhaps one of the most obvious and significant ecosystem services provided by greenways. In the absence of greenways (or the clearing of them), the volume and speed of storm water runoff dramatically increases, causing flooding and risks of damage to homes and businesses and destruction of in-stream habitat. It also creates further risk of flushing toxins into local waterways and creeks that are home to countless species. Greenways are a key aspect of the City's resiliency in that they accommodate the increasing patterns of significant rainfall events and, if they are left intact, will allow for the migration of species from different temperature and water regimes as well as places of refuge, rearing and breeding of those species over time.

"Forested Greenways offset climate change by sequestering carbon, uptake gaseous and particulate air pollutants, mitigate the urban heat island effect, provide habitat for native pollinators, reduce flooding and

landslide hazard, regulate hydrologic flows and maintain healthy soils that are also carbon sinks.”(Mooney, P. (2014). A systematic approach to incorporating multiple ecosystem services in landscape planning and design. Landscape Journal, 141-171.)

This is but a summary of the value of the Subject Lands to the City. They are a keystone in the open space system in the Lake City neighbourhood and the Plan that outlines the future of the area. Left in their undisturbed state they will continue to perform ecological functions and services. Disturbed to accommodate the current pipeline route and this greenway will be sanitized for any future ecological utility.

### Greenways and Parks: The Experiential Value

Greenways are also critically important to the heart, health and soul of the City. Whether it be via direct or vicarious experience - when young, growing or older, for reasons of pleasure or reasons of learning - they are central to the community open space fabric. They place us, they bound our spaces. They are our respite. They represent our spiritual veins, writ large, green and unadulterated on our land.

A review of the scientific basis of the well-being provided by urban parks and green spaces found that:

“Access to nature, whether it is in the form of bona fide natural areas or in bits or views of nature, impacts psychological, as well as social functioning. Greater access to green views and green environments yields better cognitive functioning; more proactive, more effective patterns of life functioning; more self-discipline and more impulse control; greater mental health overall; and greater resilience in response to stressful life events. Less access to nature is linked to exacerbated attention deficit/hyperactivity disorder symptoms, more sadness and higher rates of clinical depression. People with less access to nature are more prone to stress and anxiety, as reflected by not only individuals’ self-reporting but also measures of pulse rate, blood pressure, and stress-related patterns of nervous system and endocrine system anxiety, as well as physician-diagnosed anxiety disorders.

The impacts of parks and green environments on human health extend beyond social and psychological health outcomes to include physical health outcomes. Greener environments enhance recovery from surgery, enable and support higher levels of physical activity, improve immune system functioning, help diabetics achieve healthier blood glucose levels, and improve functional health status and independent living skills among older adults. By contrast, environments with less green are associated with greater rates of childhood obesity; higher rates of 15 out of 24 categories of physician-diagnosed diseases, including cardiovascular diseases; and higher rates of mortality in younger and older adults. Most important, all of these studies take into account the role that income might play in an apparent link between access to nature and physical health outcomes While it is true that richer people tend to have both greater access to nature and better physical health outcomes, the comparisons here show that people of the same socio- economic status who have greater access to nature have better physical health outcomes.” (Kuo., Frances E.M. 2010. Parks and Other Green Environments: Essential Components of a Healthy Human Habitat. National Recreation and Park Association [http://www.nrpa.org/uploadedFiles/nrpa.org/Publications\\_and\\_Research/Research/Papers/MingKuo-Research-Paper.pdf](http://www.nrpa.org/uploadedFiles/nrpa.org/Publications_and_Research/Research/Papers/MingKuo-Research-Paper.pdf) [April 10, 2014].)

For years the evidence has grown stronger: access to, experience in and understanding of nature as children results in stronger, healthier, more balanced communities. The loss of greenways and similar landscapes has led to what Richard Louv has termed “nature deficit disorder” amongst our youngest and growing populations.

Fundamental skills like risk-taking, empathy and collaboration are instilled and developed from early ages as we experience nature. Greenways, by their very definition, are natural places, without structure and hence are crucibles of learning and exploration for all of us - but most importantly for children. Given the documented value of children's exposure to nature and the burgeoning need for all people to be in or close to forested and other natural settings, greenways are central to short and long-term community and individual health.

There is mounting evidence that the simple act of viewing greenspace enhances healing for those in hospital, enhances productivity of inside workers able to see greenspace and improves learning for children that can see green space from their classrooms. Greenways, parks and other natural areas fulfill this function. Their value in this respect is measurable in terms of fewer days of hospitalization, improved productivity. The vicarious utility of greenspace and greenways in particular is yet another aspect of the fundamental importance of an undisturbed open space system.

Our open spaces, greenways and parks are vital to our sense of place and our experience of beauty. They are the counterpoint to the built environment, which in the case of the proposed alignment is a stark, relentless series of industrial buildings. The greenway helps heal the place that is otherwise visually uninhabitable. It is at once visual relief and beauty in itself; seasons are reflected in the changing colours and textures; birdsong buffers the onslaught of urban noise, and over time the growth of trees measures the passage of time with eloquence. Occasional greening across the landscape is but a token compared to masses of undisturbed, forested lands. Parks provide a crucial aesthetic contribution as well, but not to the same effect as greenways.

Burnaby is a city fundamentally shaped by the inherent bio-physical context in which it is set. The Brunette basin/Burnaby Lake/Still Creek complex, the topographic relief of Burnaby Mountain and the rise to Metrotown, and the creeks and rivers that are laced across these lands and are conveyed toward the Fraser River, are the macro features that have determined the built forms, movement routes and settlement patterns across the City. This is where the designated and informal open spaces are also located. They are central to the City's fabric and its texture. The legibility of Burnaby – ability to place oneself in an understandable, familiar context - hinges on the weave of undisturbed greenways, greenspaces and parks. Every square metre of the natural environment contributes to our sense of place in the City, with the additional effect of our sense of clan and community.

Bare land, without significant vegetation does not come close to replicating the value of undisturbed greenways to our sense of our neighbourhoods, the larger City and the greater region. Indeed, these spaces go to the heart of who we are, where we live, work, play and ultimately die. We are transient, both on a diurnal basis and as our lives and patterns of workplace and home locations change, and for this reason greenways and parks add to our primal sense of ourselves and by extension our community. They mark our passage of movements, they synchronize us with the passing of the seasons, they are a source of beauty and wonder in otherwise harsh human habitats – they are at the heart, if not are the heart of our spiritual sense of ourselves and one another. How we live in and amongst these spaces expresses much about our wonder, ability to learn, move and play.

#### Public Space is not Free Space

Greenways and parks – and specifically those that would be destroyed by the proposed alignment – are not replaceable. They cannot be picked up and moved. They cannot be purchased elsewhere. They cannot be replicated. They are priceless. The view that these are “just” public lands implies that public space is free space. It is not. The City acquired these lands for the use and benefit of the public. Each member of the public has the right to use and enjoy these greenway lands, and harm to them is harm to the public interest.