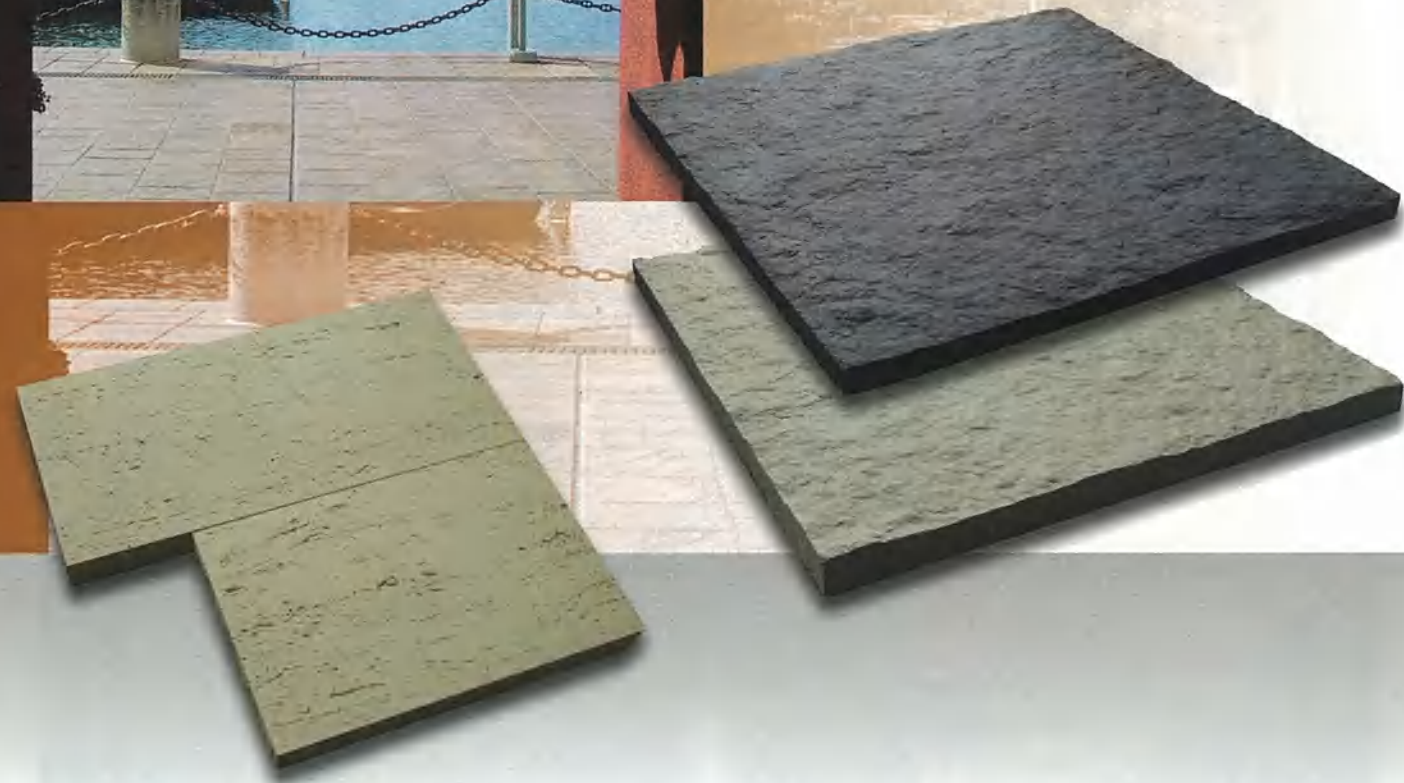




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L'ARCHITECTURE DE PAYSAGE AU CANADA
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Cover Image/Photographie de la couverture :
Clifton Associates Ltd. Looking east along Wascana Creek towards the Cameron Street footbridge, prior to the dyke rehabilitation. See story page 22./Vue sur l'est du ruisseau Wascana et de la passerelle de la rue Cameron avant la réfection de la digue. Voir l'article à la page 22.

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Ideas online: www.iflajournal.org

Thank you for supplying the IFLA online digital journal with articles from *Landscapes/Paysages*. The IFLA journal, we hope, will expand awareness of the contributions landscape architects are making globally. The CSLA contribution is already a good step toward closer international cooperation.

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Editor's note: CSLA members who attended the IFLA Congress in Edinburgh in June 2005 will have been well aware of the launch of this Web site. Its archives are a particularly valuable source of information for landscape architects.

We did not work alone...

All the members of our office were delighted at the kind words your magazine used to describe our work on the rehabilitation of Avenue Honoré Mercier in Quebec City, which received a National Honour Award in this year's CSLA Awards of Excellence (Summer 2005).

We would like to point out that we were not the sole designers of this project, but that we worked throughout the project in close association with Quebec City's very capable team of professionals, led by Landscape Architect and Project Coordinator André Plante, AAPQ. Several outstanding specialized consultants were also involved, as is always the case in such large and complex projects.

Thanks again for your excellent coverage of the CSLA Awards programme and of landscape architecture throughout Canada.

Ron Williams, Landscape Architect
WAA (Williams, Asselin, Ackaoui et associés inc.)

Express yourself! *Landscapes/Paysages* is pleased to introduce a new Letters page with this issue. We invite you to let it be a forum for your views. Drop a note to the CSLA offices: C.P. 13594, Ottawa, Ont. K2K 1S6. Or e-mail the editor directly at judylord@sympatico.ca.

La parole est à vous! *Landscapes/Paysages* est heureux de vous annoncer le lancement du Coin des lecteurs. Nous vous convions donc, chers lecteurs et chères lectrices, à profiter de cette tribune pour nous faire part de vos commentaires, soit en les envoyant au bureau de l'AAPC, au C.P. 13594, Ottawa (Ontario) K2K 1S6, ou en les acheminant directement à la rédactrice, à judylord@sympatico.ca.

An invitation...

The CSLA Editorial Board welcomes submissions for upcoming issues of *Landscapes/Paysages*.

Our themes and submission deadlines:
CSLA Awards — April 1, 2006
Congress 2006/Compendium — June 1, 2006
Northern Landscapes — September 1, 2006

Fran Pauzé, CSLA/AAPC, Executive Director/directrice générale
613-622-5520 franpauze@csla.ca

Une invitation...

Le Comité de rédaction de l'AAPC souhaite recevoir des articles pour les prochains numéros de *Landscapes/Paysages*.

Les thèmes et les dates de tombée sont :
Les Prix de l'AAPC — le 1^{er} avril 2006
Le Congrès 2006/Omnibus — le 1^{er} juin 2006
La nordicité — le 1^{er} septembre 2006

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GREENWAYS & TRAILS:
IT'S ALL ABOUT THE JOURNEY

LES COULOIRS DE VERDURE ET LES SENTIERS :
TOUT EST DANS L'EXPERIENCE

by/par Dominique Clincke + Chris Sale, Guest Editors/Rédacteurs invités

How does our profession view and plan greenways and trails? Not long ago, the term greenway primarily described ecological corridors. Today, greenways are park linkages, trails — and sometimes just pedestrian-friendly sidewalks.

The City of North Vancouver's century-old Green Necklace vision demonstrates that the notion of a greenway is not a new one. But from our vantage point as practitioners working for a mid-sized municipality, we see greenways coming to the forefront, both in new urban developments and as interventions in established neighbourhoods. Developers are embracing the form in new subdivisions, as are urban planners, who see opportunities for recreation and transportation.

In this issue, *Landscapes/Paysages* presents a cross-section of projects and viewpoints. In many of the articles, we see how greenways are expanding partnerships among professions to create new inroads. It seems that we are entering an age where the green linkages are as important as the destinations they connect.

Will greenways become our legacy to the next generation just as major urban park developments were the legacy that past generations left to us? Today, more than ever before, it is all about the journey.

Quelle importance notre profession accorde-t-elle aux sentiers et couloirs de verdure et à leur planification? Il n'y pas si longtemps de cela, le terme couloir de verdure était surtout d'usage lorsqu'on désirait décrire des corridors écologiques. Aujourd'hui, les couloirs de verdure font fonction de liens aux parcs et aux sentiers — et parfois, tout simplement de trottoirs conviviaux.

La vision vieille de cent ans du Collier vert de la ville de North Vancouver nous démontre clairement que la notion de couloir de verdure ne date pas d'aujourd'hui. Comme le constatent les architectes paysagistes qui œuvrent au sein de municipalités de taille moyenne, les couloirs de verdure foisonnent, et ce tant dans les nouveaux développements urbains que dans les quartiers établis. Les promoteurs adoptent pour leur part les couloirs de verdure dans les lotissements au même titre que les urbanistes qui les considèrent comme lieux de loisirs et modes de transport.

Dans le présent numéro de *Landscapes/Paysages*, nous vous proposons un échantillon représentatif de projets et de points de vue. Dans ces articles, vous noterez que les professions misent de plus en plus sur des partenariats pour créer des couloirs de verdure, d'où de nouvelles incursions. Il semble donc que nous sommes à l'aube d'une ère où les liens verts sont aussi importants que les destinations qu'ils relient.

Est-ce que les couloirs de verdure deviendront l'héritage de la prochaine génération tout comme les imposants parcs urbains que les dernières générations nous ont légués? Plus que jamais, tout est dans l'expérience.



Guest Editors Dominique Clincke and Chris Sale, who both work in Regina, walk the Wascana Dyke trail regularly — sometimes in frigid weather. See story page 22.

Dominique Clincke, SALA, CSLA, is a landscape architect with the City of Regina who is involved with bicycle route planning, evaluation and community input. Dominique Clincke (SALA, AAPC) est architecte paysagiste à la ville de Regina. Il travaille notamment à l'aménagement et à l'évaluation de pistes cyclables en tenant compte des commentaires formulés par la population.
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Chris Sale, SALA, CSLA, is also a landscape architect with the City of Regina, overseeing the expansion of the city's multi-use pathway system. Chris Sale (SALA, AAPC) occupe également le poste d'architecte paysagiste à la ville de Regina, où il est appelé à superviser le développement de sentiers polyvalents.
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Photo : Clifton Associates

NORTH VANCOUVER'S GREEN NECKLACE: REVIVING A 100-YEAR-OLD VISION

by Dave Hutch



In 1907 a small logging community across Burrard Inlet from the new city of Vancouver was incorporated, becoming the City of North Vancouver. North Vancouver's founders envisioned a city centre surrounded by a "necklace" of wide, green boulevards and attractive parks. This vision was partially lost as the city developed. Now, a century later, that Green Necklace has come back into focus.



Photos : City of North Vancouver

A seven kilometre necklace

The Green Necklace envisions a seven kilometre-long greenway that will form a continuous loop around the Central Lonsdale area of the City of North Vancouver. When complete, the Green Necklace will link important city parks, public spaces and natural habitats. For the growing population of North Vancouver, the benefits are many: safe, alternative transportation options and a myriad of recreation

opportunities for pedestrians, people with mobility aids, inline skaters and cyclists alike.

In September 2005 — nearly one hundred years after the plan was originally conceived — Phase One of the Green Necklace was completed: a total of 2.2 km of pathways, landscape and ecological enhancements. Phase One included over 200 new street trees, plantings, park lighting, public art, and a great deal more. (See sidebar, Weaving a Green Necklace.)



Early visionaries linked parks and profits

Today's successes owe a considerable debt to the North Vancouver Land and Improvement Company (NVLIC), established in 1891. The company recognized that park space was a critical ingredient of a successful city subdivision. Parks would enable them to sell adjacent properties at a premium. Since the company owned nearly two-thirds of the land that would become the City of North Vancouver, it could exert significant influence during the city's formative years.

When the City of North Vancouver was incorporated in 1907, it had a population of 1,500. Very soon, it was dubbed "the Ambitious City" due to its tremendous growth and prosperity. An NVLIC promotional brochure from that time described the open space for the new city as "an approximate quadrangle of boulevards. . . surrounding the central square

mile of the city, and supported by numerous parks and grounds," creating a "great artificial lung" for the future residents of North Vancouver. The 1906 Town Plan formalized this open space concept.

An idea whose time has come

Fast-forward 100 years and the City of North Vancouver is once again rapidly growing. The growth is fueled in part by the anticipation of the 2010 Olympics, and North Vancouver's proximity to downtown Vancouver via rapid transit. As well, the region's liveability and attractiveness are widely recognized. North Vancouver's vibrant, pedestrian-focused central business district, its rapidly re-developing waterfront, and the convenient location of the Lions Gate Hospital are attracting new residents, including retirees, empty-nesters and new Canadians.

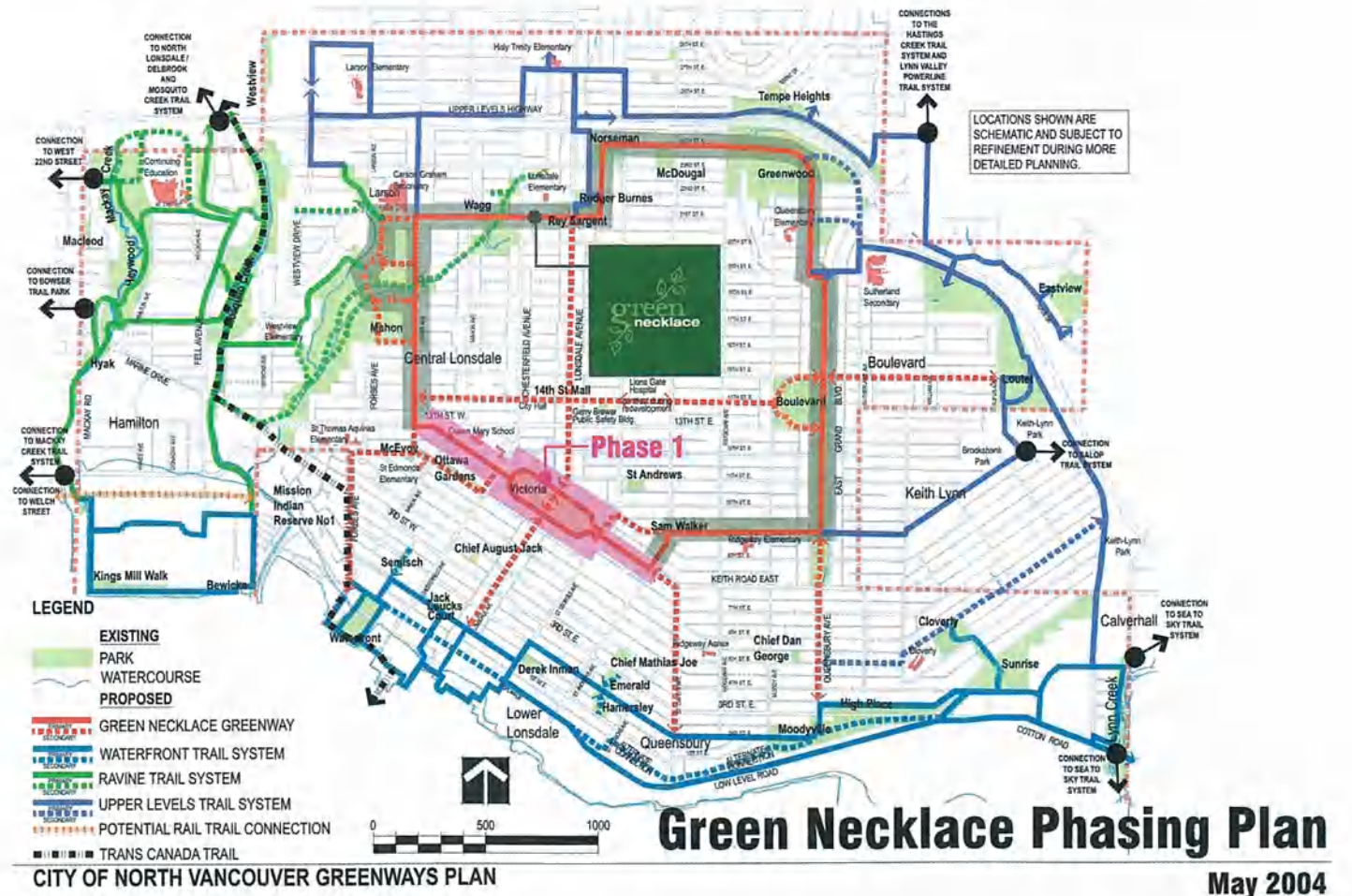
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Weaving a Green Necklace

Construction of Phase One of the Green Necklace required over 7 kg of wildflower seed and over 10,000 plants:

- 3,488 perennials
- 3,322 shrubs
- 1,848 grasses
- 680 ferns
- 460 annuals
- 211 street trees



LE COLLIER VERT DE NORTH VANCOUVER : UNE VISION VIEILLE DE 100 ANS

par Dave Hutch

En 1907, une petite ville forestière située en face du bras de mer Burrard, qui faisait alors partie de la nouvelle ville de Vancouver, est devenue la Ville de North Vancouver. Les fondateurs de North Vancouver s'étaient à l'époque imaginé un centre-ville ceinturé d'un « collier » de larges boulevards verts et de parcs attrayants. Même si cette vision fut reléguée aux oubliettes à mesure que la ville grandissait, elle permit de jeter les assises d'un réseau d'espaces verts en voie de devenir réalité qu'on a baptisé le « Collier vert ».

Un collier de sept kilomètres

Ce collier vert, qui se composera d'un couloir de verdure de sept kilomètres de long, formera une boucle continue autour du secteur Central Lonsdale de la Ville de North Vancouver. Une fois terminé, ce collier vert reliera les grands parcs urbains, espaces publics et habitats naturels. Pour la population grandissante de North Vancouver, les bienfaits seront multiples : sécurité, options de transport écologique et une myriade d'occasions de loisirs pour piétons, personnes à mobilité réduite, patineurs à roues alignées et cyclistes.

En septembre 2005, soit presque cent ans après que ce plan fut couché sur papier, la Phase un du Collier vert, un projet qui regroupe au total 2,2 kilomètres de sentiers, de paysages et d'améliorations écologiques, a finalement vu le jour. Pour faire briller ce collier de tous ses éclats, on l'a serti de plus de 200 arbres de rue fraîchement plantés, de plates-bandes, d'éclairage de parcs, d'œuvres d'art dans les lieux publics, et de bien plus encore. (Voir l'encadré, Weaving a Green Necklace.)

Des visionnaires précoces ont fait le lien entre les parcs et les bénéfiques

Le succès aujourd'hui a été en grande partie rendu possible grâce à la North Vancouver Land

and Improvement Company (NVLIC), créée en 1891. Cette compagnie reconnut à l'époque que les parcs étaient un ingrédient essentiel au succès d'un lotissement. Elle savait qu'elle pourrait vendre les propriétés contiguës à un parc à prix fort. Et, comme la NVLIC était propriétaire de près de deux tiers des terrains qui allaient former la ville de North Vancouver, elle pouvait exercer une incidence importante durant les années d'essor de la ville.

Lorsque la Ville de North Vancouver fut créée en 1907, elle ne comptait que 1 500 âmes. Il ne fallut toutefois pas grand temps pour qu'on lui accolé le surnom de « ville ambitieuse » de par sa remarquable croissance et prospérité. Une brochure promotionnelle de la NVLIC qualifiait à cette époque les espaces verts de cette nouvelle ville d'un « quadrilatère de boulevards... ceinturant le centre-ville qui fait un mille carré et qui est embelli par de nombreux parcs et terrains », créant ainsi « un imposant poumon artificiel » pour les futurs résidents de North Vancouver. Ce concept d'espaces verts fut même prévu dans le plan de la ville de 1906.

Une idée mûre

Cent ans plus tard, la Ville de North Vancouver croît à nouveau à un taux débridé, alimentée en partie par la tenue des Jeux olympiques de 2010



et par la proximité du centre-ville de Vancouver grâce au réseau de transport express. L'habitabilité et le pouvoir de séduction de la région sont aussi bien connus. Le vibrant quartier des affaires au cœur de North Vancouver conçu pour les piétons, son secteur riverain faisant l'objet d'un réaménagement en accéléré et l'emplacement idyllique de l'hôpital Lions Gate exercent une force d'attraction sur les nouveaux résidents, y compris les retraités, les parents esseulés et les néo-Canadiens.

Des changements démographiques s'opèrent à mesure que la population croît et vieillit. Ce phénomène est aussi accompagné d'un engouement grandissant pour les aménagements à plus forte densité (offrant moins d'espaces verts intimes) et d'une tendance vers des activités récréatives et de loisirs moins structurées, d'où une demande plus musclée en parcs à usage passif.

À mesure que la population et la densité de la population de North Vancouver augmentent, le coût d'acquisition et d'aménagement de parcs s'engage aussi sur une pente ascendante. Cela est notamment vrai dans les régions à plus forte densité de population se trouvant dans cette ville de 11 kilomètres carrés. Les parcs existants ne sont par ailleurs pas sans sentir les pressions grandissantes. À la limite de leur capacité portante, certains parcs ont dû subir des travaux de réaménagement intensifs en vue de répondre à cet usage sans cesse grandissant.

Une vision revisitée

En 2001, la Ville a préparé, avec le concours de Lanarc Consultants Ltd., un plan stratégique

pour ses parcs et couloirs de verdure qui a finalement été incorporé au Plan directeur officiel de 2002 de la ville. Ce plan directeur se démarquait drôlement des anciennes visions de la ville, notamment en raison de la vision beaucoup plus élargie de tous les éléments qui concourent à l'habitabilité et à la durabilité. On stipule dans ce plan que la vision qu'on entretient à propos des parcs et ceintures de verdure de la ville va au-delà des frontières des parcs, afin de tenir compte « du rôle que toutes les terres publiques jouent dans le réseau d'espaces verts de la ville. Étant donné que le réseau de rues constitue une partie importante des terres publiques, il faudrait peut-être intégrer certaines parties du réseau de rues au réseau de parcs pour les transformer en couloirs en verdure linéaires. »

Au diapason du 21^e siècle

Comme c'est le cas dans les autres villes, les artères de circulation de North Vancouver ont évolué au fil du temps. En raison des élargissements de rues et des autres initiatives en matière de transport pour doter cette ville d'une géométrie homogène visant à favoriser le déplacement rapide et efficace des véhicules, certains éléments du collier original de parcs à North Vancouver ont été morcelés ou à tout jamais perdus. Un nouvel accent sur la circulation piétonnière et sur la sécurité routière ont toutefois permis à la Ville de recouvrer certains de ces espaces en procédant au rétrécissement des rues et à l'apaisement de la circulation. Mis de côté il y

Suite à la page 13



La composition du Collier vert

La construction de la Phase un du Collier vert a nécessité plus de 7 kg de semis de fleurs sauvages et plus 10 000 plantes :

- 3 488 plantes vivaces
- 3 322 arbustes
- 1 848 graminées
- 680 fougères;
- 460 plantes annuelles
- 211 arbres de rue





Continued from page 9

The demographics of the city are changing as the population grows and becomes proportionately older. This is accompanied by a shift to higher-density housing forms (which provide less private open space), and a trend to less-structured recreation and leisure activities. Hence, the demand for more passive-use parkland is increasing.

As the population and density of North Vancouver has increased, so has the cost of acquiring and developing parkland. This is especially true in higher density areas of the 11-square-kilometre city. Existing parks are feeling the increased pressure. Some have been pushed beyond carrying capacity and have required intensive redevelopment to sustain this increasing use.

The vision re-visited

In 2001, with the assistance of Lanarc Consultants Ltd., the City prepared the Parks and Greenways Strategic Plan, which was eventually incorporated into the city's 2002 Official Community Plan (OCP). This OCP was a significant departure from previous visions for the city as it focused on a much broader vision of all the components that contribute to liveability and sustainability. The OCP states that the vision for the city's parks and greenways extends beyond the park boundary, to consider "the role that all public lands play in the city's open-space system. A major part of this public land is the street system; therefore parts of the street system may need to be integrated and adapted with the parks system to become linear 'greenways'."

Adapting to the 21st Century

North Vancouver's arterial roadways, like those in most other cities, have evolved over time. Due to road widening and other transportation initiatives, which were required to provide smooth geometries for the fast, efficient movement of vehicles, parts of the city's original necklace of parks have been fragmented or lost forever. However, a new emphasis on pedestrian environments and traffic safety has allowed the city to reclaim some of these spaces through road narrowing and traffic calming. The wide boulevards set aside a hundred years ago have a renewed purpose as corridors for recreation and ecological connectivity, similar to the intent of the city founders a century ago.

A financial boost

Senior government agencies have recognized the contribution that the Green Necklace is making to sustainability. Grants account for approximately 25 per cent of the Phase One construction budget.

- Greater Vancouver Regional District's Sustainability Enterprise Fund provided a grant for innovative stormwater management components (infiltration swales, rain gardens and pervious paving) that improve and protect water quality in local salmon streams.
- Tree Canada Foundation's Green Streets program funded a collaborative community design process, facilitated by Evergreen in partnership with Queen Mary Elementary School, for a "Green Infrastructure" Demonstration Site along the Green Necklace route (street trees, naturalized areas, rain gardens and interpretive signage.)
- The Cycling Infrastructure Partnerships Program of the British Columbia Ministry of Transportation contributed significantly, since the municipality is providing facilities for alternate forms of transportation (which reduce traffic congestion and greenhouse gas emissions.)

Completion of Phase One of the project has brought back into focus the necklace of green envisioned by the city's pioneers. Strengthened and renewed, this vision will make a key contribution to the sustainable future of the City of North Vancouver.

Dave Hutch has spent the last 12 years exploring Vancouver's North Shore Mountains and working as a parks planner and designer for several North Shore municipalities. He is currently the Landscape Architect for the Engineering, Parks + Environment department of the City of North Vancouver. dhutch@cnv.org

Suite de la page 11

a cent ans de cela, les larges boulevards font maintenant fonction de corridors de loisirs et de liens avec la nature, tel que le voulaient les fondateurs de la ville il y a maintenant un siècle.

Un incitatif financier

Les organismes gouvernementaux de haut niveau reconnaissent maintenant le rôle important que joue le Collier vert dans la durabilité. À preuve, les subventions représentent environ 25 p. cent du budget de construction de la Phase un.

- Grâce au Sustainability Enterprise Fund du district régional de Vancouver, la Ville s'est vu octroyer une subvention pour les éléments de gestion novatrice des eaux pluviales (baissières d'infiltration, jardins pluviaux et revêtement perméable) qui améliorent et protègent la qualité de l'eau des ruisseaux pour saumons.
- Le programme Ma rue, mes arbres de la Fondation canadienne de l'arbre a permis de financer un processus d'aménagement communautaire collaboratif, aidé d'Evergreen de concert avec l'école primaire Queen Mary, pour un site de démonstration « d'infrastructure verte » le long du trajet du Collier vert (arbres de rue, endroits naturalisés, jardins pluviaux et panneaux d'interprétation).
- Le programme provincial Cycling Infrastructure Partnership du ministère des Transports de la Colombie-Britannique a été d'un grand apport, comme en témoignent les installations que la municipalité a prévues pour le transport écologique (ce qui a pour effet de réduire la congestion et les émissions de gaz à effet de serre).

Avec l'achèvement de la Phase un, le projet Collier vert que les pionniers de la ville s'étaient imaginé a bel et bien été en mesure de renaître de ses cendres. Cette vision renforcée et renouvelée constituera un élément clé du développement durable de la ville de North Vancouver.

Détenteur d'une maîtrise en architecture de paysage, Dave Hutch (BCSLA) a consacré ses 12 dernières années à étudier les montagnes du North Shore et à assumer les fonctions de planificateur de parcs et de concepteur pour des municipalités de la rive nord. Il assume actuellement les fonctions d'architecte paysagiste pour le service du génie, des parcs et de l'environnement à la ville de North Vancouver.



Editor's note: In 2005, the City of North Vancouver and Tom Barratt Ltd. Landscape Architects jointly received a CSLA Regional Merit Award for communications materials developed for the Green Necklace project, including newsletters, video and digital modeling, and a Web site: greennecklace.org.

Note de la rédactrice : En 2005, la Ville de North Vancouver et Tom Barratt Ltd. Landscape Architects ont remporté le prix mérite régional de l'AAPC pour leur matériel de communications préparés pour le Collier vert. Ils ont aussi réalisé des bulletins, des vidéocassettes, des modèles numérisés, de même que le site Web greennecklace.org.

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WHAT MAKES A BETTER TRAIL? AN EXPERIENTIAL APPROACH

LA COMPOSITION D'UN SENTIER ENCHANTEUR — UNE APPROCHE EXPERIENTIELLE

by/par Glen Manning + Rob Nedotiafko

Some trails follow the path of least resistance. Perhaps the designer lacked imagination or skill, or was limited by budget or available land. Whatever the cause, trails that are planned like roadways become connectors, rather than rich experiences.

Trail users routinely shun direct, easy routes in favour of those that offer a more compelling ride or walk. Better trails will result if we concentrate on the experience -- the multitude of stimuli, sensations and impressions that come into play when we use trails. Simply put, great trails offer great experiences.

La recette d'un sentier enchanteur? Pour plusieurs d'entre nous, parcourir rapidement un sentier sans incident ne suffit pas. Bien que cela puisse sembler évident, il arrive souvent que les limites aux plans budgétaires, de l'utilisation des terres, de l'imagination ou des compétences donnent naissance à des sentiers qui offrent le moins de défis. Or, les sentiers conçus de la même façon que les routes deviennent des points de correspondance et ne procurent pas d'expériences enivrantes.

Si on garde l'expérience à l'esprit, on sera en mesure d'aménager de meilleurs sentiers qui permettront aux randonneurs pédestres de vivre une large gamme de stimulus, de sensations et d'impressions. En deux mots, les grands sentiers devraient être un terrain fertile pour des expériences des plus enlevantes.



• Diversity

A good trail will provide travellers with access to a broad variety of experiences: this is the most fundamental characteristic of a good trail. Great trails have a richness of detail and incorporate a variety of landscape qualities. The trail designers have considered elevation, viewpoint, spatial characteristics, light, colour, wind direction, slope, materials, and so on. As well, great trails change over time. It is not just the contrast that maintains interest, but the promise of future contrasts to come.

If the landscape lacks diversity, designers can use planting design to create a varied spatial experience.

• Diversité

Un bon sentier devrait offrir aux randonneurs une vaste gamme d'expériences. Il s'agit là d'un des éléments les plus essentiels d'un bon sentier. Un bon sentier devrait regorger de détails, mettre à contribution une large palette d'éléments paysagers et faire sentir les changements qui s'opèrent au fil du temps. Un grand sentier devrait aussi être aménagé de manière à prendre en compte l'élévation, les belvédères, les éléments spatiaux, la lumière, les couleurs, la direction des vents, les pentes, les matériaux et ainsi de suite. Pour maintenir l'intérêt, il devrait non seulement miser sur les contrastes actuels, mais également sur ceux de demain.

Si un paysage manque de diversité, les concepteurs peuvent faire appel à une palette d'éléments végétaux afin de créer une gamme d'expériences spatiales.

• Involvement

Trail experiences should be absorbing and stimulating. Travellers on the trail unfailingly remain interested in trails that invite them to actively engage with their surroundings, both physically and mentally. Along the route, all the senses should be activated, not just the eyes. For example, we need to ask ourselves how to design a trail that allows people to enjoy the sound, feel and smell of an autumn walk in the leaves.

People on the trail are stimulated by choices, but those choices need to be meaningful. Branching or looping trail networks can be of benefit — but only if they give people access to noticeably different qualities or levels of difficulty.

The shape or flow of the trail has a profound effect on the trail experience. Trails with good flow are configured to suit the principle mode of travel, whether it be walking, cross-country skiing or any other means. They offer a constantly shifting sequence of views and sensations, avoiding short, nervous wiggles and abrupt changes in "wavelength". Both the horizontal and vertical trail alignment are important.

Trail flow can also add mystery: that compelling and invigorating type of uncertainty that motivates people to explore. Mystery is created by foreshadowing — providing clues as to what lies ahead, like fleeting glimpses of a cabin or bridge, or the sound of an unseen waterfall.

The most extreme form of involvement is *thrill*: the higher the perceived risk, the greater the intensity of the sensation. This principle may underlie the current explosion in

extreme sports. Designers of thrillscapes are experts at amplifying the perception of risk, and allow for a safe progression through increasingly challenging situations.¹ Tightly-spaced trees located near the edge of the path, for example, will amplify the sensation of speed, with no significant increase in risk.

• La participation

Les expériences que procure le sentier devraient être captivantes et stimulantes. Lorsque les randonneurs se sentent inmanquablement interpellés par un sentier, ils investissent activement leur environnement, tant au plan physique qu'au plan mental. Un sentier devrait non seulement stimuler le sens de la vue, mais également tous les autres. On devrait, par exemple, se demander comment concevoir un sentier qui permet aux randonneurs de goûter à tous les plaisirs des sons, des sensations et des parfums que procure une promenade à travers les feuilles à l'automne.

Même si les choix stimulent les randonneurs, ces choix devraient être bénéfiques. On devrait donc prévoir des bifurcations ou une boucle de réseaux de sentiers qui donnent accès à des éléments et qui comportent des niveaux de difficulté nettement différents.

La forme ou le « débit » d'un sentier n'est pas sans avoir une incidence profonde sur l'expérience que peut procurer un sentier. Pour se doter d'un sentier ayant un bon débit de circulation, il faut l'aménager pour qu'il puisse accueillir les principaux types d'utilisateurs, soit les fondeurs, les randonneurs et autres. Il devrait constamment offrir une suite changeante de vues et de



sensations et éviter les courbes prononcées et sinueuses et les changements abrupts dans la « longueur d'onde ». L'orientation à la verticale et à l'horizontale est également importante.

Le débit du sentier peut également ajouter au mystère, le rendant attrayant et raffermissant l'incertitude qui amène les gens à explorer le sentier. Le présage contribue aussi à créer un effet mystère. Au nombre de ces signes, on n'a qu'à penser à un chalet ou à un pont qui se profile au loin ou à une chute qu'on peut voir mais pas entendre.

Le plaisir palpitant est sans contredit la forme de participation la plus extrême; plus le risque perçu est élevé, plus la sensation est enivrante. Ce principe vient probablement sous-tendre l'engouement sans égal pour les sports « extrêmes ». Les concepteurs de paysages à sensations fortes sont des experts en multiplication de la perception des risques et capables de favoriser une suite sécuritaire de défis de plus en plus palpitants.¹ La bordure d'un sentier densément peuplé d'arbres accroît par ailleurs la sensation de vitesse, sans aucune hausse importante du risque.



• Coherence

Landscape architects want to create trails that are varied, yet the route must remain clear, reasonable, easy to navigate and meaningful. This means the pathway needs to follow a sensible and desired line of travel (a surprisingly uncommon trait). Users also need opportunities to orient themselves and track their progress through recognizable nodes, destinations, starting and stopping points.

Travellers on the trail need places where they can orient themselves in space. In a heavily forested trail setting, for example, a clearing with a view of the sky can help people get their bearings.

Maps, distance markers and directional signs are essential; they allow users to monitor their progress and plan ahead. Signs and markers also make a trail more meaningful by enhancing its connection to the cultural and natural context of the corridor. Similarly, the connection can be enforced when designers use materials or alignments that have some resonance with the history of the place. Consistency in the use of the trail name and logo and in the character of trail amenities adds to coherence and helps “brand” the trail, turning a piece of ground into a place.

• La cohérence

Les architectes paysagistes devraient s'employer à créer des sentiers qui sont à la fois hétéroclites et clairs, raisonnables, faciles à suivre et qui parlent à l'esprit. Un sentier devrait suivre un trajet sensé et recherché (un trait étonnement

rare). Les usagers devraient aussi être en mesure de pouvoir s'orienter et de suivre leurs progrès grâce à des points d'intérêts reconnaissables, à des destinations et à des points de départ et d'arrêt.

Les randonneurs ont par ailleurs besoin d'endroits où ils peuvent s'orienter dans l'espace. À titre d'exemple, pour aménager un sentier dans une aire densément boisée, une clairière permet d'admirer le ciel et peut aider les gens à s'orienter.

Les cartes, les bornes de distance et les panneaux de direction sont essentiels pour aider les usagers à suivre leurs progrès et à planifier leur randonnée. Les panneaux et les bornes de distance rendent un sentier plus enrichissant, parce qu'ils améliorent le lien avec le contexte culturel et naturel du corridor. De la même façon, on peut raffermir ce lien en utilisant des matériaux ou tracés qui font un clin d'œil à l'histoire de l'endroit. Être cohérent lorsqu'on utilise le logo et le nom du sentier et les attraits du sentier ajoutent aussi à la cohérence et aident à « fidéliser » les usagers et à transformer un coin de terre en destination.

• Care

The benefits of thoughtful trail construction and maintenance go beyond safety and comfort. A sense that others care about a trail can contribute to a more satisfying trail experience.

Well-conceived, well-built and well-maintained trail facilities are also important, and show ingenuity. They exhibit that those who designed the trail, and those who use it and manage it, pay attention to detail and have a personal investment in the trail and respect for the landscape. The corollary: poorly designed and cared-for trails will diminish the effectiveness of all other trail qualities.

• Aux petits soins

Lorsqu'on a le souci du détail à cœur, qu'on investit personnellement dans un sentier et qu'on respecte le paysage, on ne peut faire autrement que de se retrouver avec des installations de sentiers conçues, bâties et entretenues avec le plus grand des soins. Des installations de qualité font montre d'ingéniosité et rehaussent l'expérience que



procure un sentier. Le corollaire : les sentiers mal aménagés et mal entretenus annulent les effets de tous les autres atouts du sentier.

Les avantages des sentiers bien pensés et bien entretenus ne se limitent pas seulement à la sécurité et au confort. Le fait que d'autres ont le sentier à cœur peut contribuer à une expérience plus satisfaisante.

• Ephemeral Qualities

Some of the best trail experiences are the result of ephemeral qualities. Light breaking through the clouds as you reach a clearing, a close encounter with wildlife, a chance meeting of a friend — these things create powerful and lasting associations that will forever influence the user's impression of the trail as a good place to visit.

These are events, situations and coincidences over which the designer has no direct control. Nonetheless, landscape architects can increase the chances of



memorable events. Designers should provide vistas, such as views to wildlife-rich waterways and migration corridors and clear views of the night sky without light pollution. Outlooks are often highlights of a trail experience, helping trail users orient themselves and revealing, all at once, the rich diversity of a landscape.

Trails with lots and lots of variety — and year-round access — set the stage for unexpected things. As Seneca wrote almost 2,000 years ago, “Luck is what happens when preparation meets opportunity.”

• Des atouts éphémères

Certains atouts éphémères sont à l'origine des meilleurs sentiers qui soient. On n'a qu'à penser à la lumière pénétrant les nuages lorsqu'on arrive à une clairière, à la croisée d'un animal sauvage, à une rencontre fortuite d'un ami. Il s'agit de situations qui contribuent à créer des liens puissants et mémorables qui laisseront une impression indélébile chez l'utilisateur et qui sont évocatrices d'un endroit de rêve à visiter.

Il s'agit aussi d'événements, de situations et de coïncidences sur lesquels le concepteur n'exerce aucun contrôle direct. Les architectes paysagistes peuvent néanmoins accroître les chances de vivre des sorties inoubliables. Les concepteurs devraient ainsi intégrer à leurs sentiers des échappées, telles que des vues donnant sur des bassins hydrographiques regorgeant d'espèces sauvages et des corridors de migration, ainsi que des vues

imprenables sur le firmament sans pollution lumineuse. Les belvédères sont souvent les curiosités marquantes d'un sentier qui aident les randonneurs à s'orienter et qui leur font connaître la riche diversité d'un paysage.

Les sentiers qui regorgent de variété — et qui sont accessibles toute l'année — préparent le terrain aux découvertes inattendues. Comme Seneca l'a écrit il y a près de 2 000 ans de cela, « La chance nous sourit lorsqu'on mise sur la préparation ».

Glen Manning, M.L.Arch., CSLA, and Rob Nedotiafko, M.L.Arch., are principals with Hilderman Thomas Frank Cram in Winnipeg. Glen is a cycle commuter and board member with the Manitoba Recreational Trails Association, with both local and international experience in trail design and development. Rob has over eight years of experience in recreation and tourism planning and design, including the assessment of trail opportunities and route planning at both local and regional levels.

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Glen Manning, MAP, AAPC, et Rob Nedotiafko, MAP, sont associés chez Hilderman Thomas Frank Cram à Winnipeg. Glen est un cycliste navetteur et membre du conseil de la Manitoba Recreational Trails Association. Il possède de l'expérience à l'échelle locale et internationale dans l'aménagement et le développement de sentiers. Rob compte à son actif plus de huit années d'expérience en récréativité en planification et en conception d'aménagements touristiques, y compris en évaluation de sentiers et tracés de route à l'échelle locale et régionale.

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¹ “Adrenalscapes: Designing Thrill,” by Jack Vanstone. A paper presented at the IFLA World Congress, Calgary, 2003. See *Landscapes/Paysages*, Summer 2003.

¹ « Des paysages adrénalinesques : un modèle d'aménagement conceptuel pour sports extrêmes, » par Jack Vanstone. Une communication présentée à l'occasion du Congrès mondial de la FIAP, Calgary, 2003. Voir *Landscapes/Paysages*, Été 2003.



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SHIFTING GROUND

Landscape Architecture in the Age of the New Normal
L'architecture de paysage à l'ère de la Nouvelle Normale

So what exactly is the 'New Normal'? And what does it have to do with Landscape Architecture?

The term has been showing up in a variety of places over the last five years. Notable among these is a book entitled *The New Normal: Great Opportunities in a Time of Great Risk* by American venture capitalist Roger McNamee, who argues that the era began on March 10, 2000, when the NASDAQ fell from its historic peak. He sees it as Normal in the sense that the rate of growth of the world economy has returned to what it was in the '70s and '80s, and New, in that society now has a profoundly different relationship with information technology. Others claim that the 'New Normal' began on September 11, 2001, and that it is defined by new levels of economic and political strife, environmental crises, and social instability. Although the degree of change and uncertainty is challenging, it is also a time of opportunity, a time when technology is making new approaches to collaboration not only possible, but necessary. As we adjust to uncertainty, fear gives way to a new understanding of areas to investigate, and of solutions that differ dramatically from conventional wisdom.

All of this is affecting landscape architecture. The 'New Normal' is changing how we see problems, how we solve them, how we design spaces, and even what kind of places are needed. Over the last decade, there have been dramatic changes in how we practice, which leads us to look at the role of landscape architecture in urban development, and how it acknowledges, and responds to the demands and requirements of increasingly complex societies.

The 2006 CSLA/CELA conference **Shifting Ground — Landscape Architecture in the Age of the New Normal** will represent the first time the Canadian Society of Landscape Architects and the Council of Educators in Landscape Architecture have co-hosted such an event. We see this as an important opportunity to share research, experience, and mutual goals relating to urban design and landscape architecture on an international scale. Accordingly, we have



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chosen a set of sub-themes that highlight current interpretations of the concept of sustainability, and how designers are addressing the many specific physical and institutional challenges. There will also be discussions on how changes in technology and cultural diversity are affecting the philosophical and psychological aspects of design. There will also be discussion of the ways in which public spaces are re-scripted, and transformed over time. Finally, there is the matter of how the avant-garde continues to play a provocative role in urban development.

OUR SPEAKERS WILL INCLUDE:



Julie Bargmann, the principal designer and founder of D.I.R.T. studio (Design Investigations Reclaiming Terrain) in Charlottesville, Virginia. As Associate Professor at the University of Virginia,

Bargmann's graduate design studios challenge the restrictive policies and conventional remediation practices that plague Superfund sites and Brownfields. Professor Bargmann is committed to creating beauty in a landscape littered with mine refuse and polluted by acidic run-off, and the potential of the "regenerative park."



Tom Leader, from Berkeley, California, whose recent work includes Shanghai Carpet, the Shanghai Yang Pu University City Hub, the Santa Fe Railyard redevelopment, and the Arroyo Parkway

in Pasadena, California. He was a design partner with Peter Walker and Associates when the firm received two National Honour Awards from the ASLA for projects under his direction.

Leonie Sandercock, of the School of Community and Regional Planning at UBC, where she leads up both teaching and research in planning theory and history. Professor Sandercock has recently published her tenth book: *Cosmopolis 2: Mangled Cities of the 21st Century*. She loves the irrepressible chaos and contradictions of cities, but worries about their 'sustainability,' in the broadest sense.



Larry Beasley, who as Co-Director of Planning and Director of Current Planning for the City of Vancouver, has initiated the land use and transportation plans that are dramatically reshaping

Vancouver's inner city. The United Nations has honoured his work as one of the "World's 100 best planning practices" and the Royal Architectural Institute of Canada conferred on him its 2003 Medal of Excellence as "Advocate for Architecture."



Marc Imhoff, who is a Principal Investigator in NASA's Carbon Cycle Science and Land Cover Land Use Change Programs at NASA's Goddard Space Flight Centre. As a specialist

in the application of remote sensing and computer modelling to study changes in the biosphere and climate, his research is directed towards studying the effects of urbanization on biodiversity, food security, and climate.

Vancouver will also be hosting *Habitat Reloaded*, the Royal Architectural Institute of Canada 2006 Festival of Architecture, and the *World Planners Congress*, and following the CSLA/CELA conference, we will give delegates from all three professions the opportunity to participate in a day of shared activities on *Super Saturday*, on June 17. This will include a regional design charrette led by Patrick Condon, who holds the James Taylor Chair in Landscape and Livable Environments at UBC. Following *Super Saturday*, the Government of Canada will host the United Nations World Urban Forum, *Habitat +30* at the Vancouver Convention & Exhibition Centre.

Come and join us in June 2006, and take part in the truly unique convergence of talent and energy gathering in Vancouver to address the theme of the United Nations World Urban Forum: *Our Future: Sustainable Cities—Taking Ideas into Action*.

For program information and registration visit www.sitelines.org/shiftingground

— Adrienne Brown, BCSLA

Qu'est-ce donc au juste que la «Nouvelle Normale»?
Qu'a-t-elle à voir avec l'architecture du paysage?

Le terme a fait surface à divers endroits au cours des cinq dernières années. Parmi ceux-ci, il convient de remarquer un livre intitulé *The New Normal: Great Opportunities in a Time of Great Risk*, de l'investisseur en capital de risque américain Roger McNamee, qui avance que l'ère a commencé le 19 mars 2000, lorsque le NASDAQ a chuté de son sommet historique. L'auteur considère que l'époque est normale, en ce sens que le taux de croissance de l'économie mondiale est redevenu ce qu'il était au cours des années 1970 et 1980, et que cette normale est nouvelle, en ce sens que la relation entre la société et la technologie de l'information est maintenant profondément différente. D'autres prétendent que la « Nouvelle Normale » a commencé le 11 septembre 2001 et qu'elle est définie par les nouveaux niveaux de conflits économiques ou politiques, les crises environnementales et l'instabilité sociale. Bien que le degré de changement et d'incertitude présente un défi, cette époque en est une de possibilités. Il s'agit d'une époque où la technologie rend de nouvelles façons d'aborder la collaboration non seulement possibles, mais nécessaires. Au fur et à mesure que nous nous ajustons à l'incertitude, la peur cède la place à une nouvelle compréhension des domaines à étudier et de solutions qui diffèrent, de façon spectaculaire, des idées reçues.

Tout cela a une incidence sur l'architecture du paysage. La « Nouvelle Normale » modifie la façon dont nous percevons les problèmes et celle dont nous les réglons, et la façon dont nous concevons des espaces; elle modifie même le genre de places dont nous avons besoin. Au cours de la dernière décennie, la façon dont nous exerçons la profession

a fait l'objet de modifications spectaculaires, ce qui nous amène à examiner la nature du rôle de l'architecture du paysage de nos jours ainsi que la façon dont nous pourrions concevoir les villes de manière à reconnaître les exigences et les besoins de sociétés de plus en plus complexes, et à y réagir.



TERRAIN MOUVANT

L'architecture de paysage à l'ère de la Nouvelle-Normale
Landscape Architecture in the Age of the New Normal

La conférence 2006 de l'AAPC et du CELA, dont le thème est « **Terrain mouvant**—L'architecture du paysage à l'ère de la Nouvelle Normale », est le premier événement dont l'Association des architectes paysagistes du Canada et le Council of Educators in Landscape Architecture seront les hôtes conjoints. Nous voyons cela comme une importante occasion de partager des résultats de recherche, des expériences et des objectifs mutuels dans le domaine de l'esthétique urbaine et de l'architecture du paysage à l'échelle internationale. En conséquence, nous avons choisi un ensemble de sous-thèmes qui mettent en évidence certaines interprétations actuelles du concept de durabilité et la façon dont les concepteurs abordent les nombreux défis d'ordre physique ou institutionnel propres au concept. Il y aura également des discussions sur la façon dont les modifications de la technologie et de la diversité culturelle influent sur les aspects philosophiques et psychologiques de la conception. Il y aura ensuite des rapports sur les façons dont les espaces publics sont rescénarisés et transformés avec le temps. Finalement, il y a la question de la façon dont l'avant-garde continue de jouer un rôle provocateur dans le développement urbain.

LES CONFÉRENCIERS SERONT :



Julie Bargmann, conceptrice principale et fondatrice du studio D.I.R.T. (Design Investigations Reclaiming Terrain), de Charlottesville, en Virginie. En tant que professeure agrégée à l'université de Virginie, Madame Bargmann conteste au moyen de ses studios de conception, les politiques restrictives et les pratiques de restauration traditionnelles qui sont le fléau des lieux couverts par le Superfund et des friches industrielles.



Tom Leader, de Berkeley, en Californie, dont les travaux récents incluent le Shanghai Carpet, le Shanghai Yang Pu University City Hub, le réaménagement du Santa Fe Railyard et le Arroyo Parkway, à Pasadena, en Californie. Il était partenaire de conception de Peter Walker and Associates lorsque la firme a reçu deux Prix d'Honneur nationaux de l'ASLA pour des projets exécutés sous sa direction.

Leonie Sandercock, de la School of Community and Regional Planning de l'UB-C, où elle dirige à la fois l'enseignement et la recherche en théorie et en histoire de la planification. La professeure Sandercock a récemment publié

son dixième livre, *Cosmopolis 2: Mongrel Cities of the 21st Century*. Elle aime le chaos exhubérant et les contradictions des villes, mais elle s'inquiète de leur « durabilité », au sens le plus large du terme.



Larry Beasley, qui, en tant que codirecteur de la planification et directeur de la planification courante de la ville de Vancouver, a eu l'initiative des plans d'occupation du sol et de transport qui sont en train de remodeler le centre-ville de Vancouver de façon spectaculaire. Les Nations Unies ont salué son travail comme l'une des 100 meilleures pratiques d'urbanisme dans le monde et l'Institut royal d'architecture du Canada lui a décerné sa médaille d'excellence 2003 en tant que « défenseur de l'architecture ».



Marc Imhoff, qui est enquêteur principal des programmes Carbon Cycle Science et Land Cover Land Use Change de la NASA, au Goddard Space Flight Center. En tant que spécialiste de l'application de la télédétection et de la modélisation mathématique à l'étude des changements de la biosphère et du climat, M. Imhoff a orienté sa recherche vers l'étude des incidences de l'urbanisation sur la biodiversité, la sécurité alimentaire et le climat.

Vancouver sera aussi l'hôte de *Habitat Reloaded*, le festival d'architecture 2006 de l'Institut royal d'architecture du Canada, et du congrès mondial des urbanistes. Après la conférence de l'AAPC et du CELA, nous donnerons aux délégués des trois professions la possibilité de participer à une journée d'activités en commun lors du « supersamedi », le 17 juin. Il y aura à cette occasion une charrette de conception régionale dirigée par Patrick Condon, titulaire de la James Taylor Chair in Landscape and Livable Environments de l'UB-C. Après le « supersamedi », le gouvernement du Canada sera l'hôte du Forum urbain mondial des Nations Unies (Habitat +30), au Convention & Exhibition Centre de Vancouver.

Venez vous joindre à nous en juin 2006 et participer à la convergence vraiment exceptionnelle de talents et d'énergies qui se réuniront à Vancouver pour traiter du thème du Forum mondial urbain des Nations Unies, soit « Notre avenir à tous : les villes durables—mettre les idées à exécution ».

Pour plus de renseignements et pour vous enregistrer, veuillez visiter le site web

www.sitelines.org/shiftingground.

— Adrienne Brown, BCSLA

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WASCANA CREEK DYKE REHABILITATION PROJECT

DYKE REHABILITATION ENHANCES A REGINA GREENWAY

LA RÉFECTION DE LA DIGUE DU RUISSEAU WASCANA, UN ÉLÉMENT CONTRIBUTIF AU REHAUSSEMENT D'UN COULOIR DE VERDURE

by/par Roger Green +
Laureen Snook

La réfection de la digue du ruisseau Wascana à Regina aura permis d'améliorer un couloir de verdure piétonnier de 1,2 kilomètre de long qui traverse deux quartiers établis.

Quoique la patience des gens fut mise à rude épreuve lors du long processus de planification et d'aménagement suivi d'une période de construction étalée sur plusieurs années qui a pris fin à l'automne 2005, ce couloir de verdure a su se créer une identité unique et cohérente. Dans le but de mieux protéger les quartiers Cathedral et Crescent à Regina contre les inondations, on a procédé à d'imposantes consolidations de talus et fait appel à la bio-ingénierie.

Ce site regorge maintenant de plus d'habitats fauniques et de milieux plus sains. Les peuplements de végétaux, qui étaient au stade de la croissance durant les première et deuxième phases du projet, sont maintenant bien enracinés. Les randonneurs et leurs animaux de compagnie peuvent aussi bénéficier de ces sentiers mieux raccordés.

Le succès qu'a connu cette réfection dès le début et le plaisir que procure le nouveau paysage aux visiteurs sont attribuables aux talents d'une équipe de conception pluridisciplinaire et à un propriétaire qui a été d'un grand soutien, de même qu'à des bénévoles dévoués et enthousiastes.



Photos : Crosby Hanna Associates

Wascana Creek is known for its lazy meander through Regina's open spaces and neighbourhoods. During peak spring runoff, however, the attractive waterway can — and sometimes has — caused serious flooding.

In the 1950s, the city protected properties in Regina's Cathedral and Crescent neighbourhoods with a dyke built along the creek's north bank. Then, following a flood in 1971, the dyke was raised and realigned.

Over the years, the dyke's open space became an important city asset. Its developed pathway and footbridge attracted walkers and its informal trails pleased bird watchers and nature lovers.

Buttressing the dyke

In the last decade researchers determined that sections of the dyke were failing. As well, the dyke crest was below the one-in-500-years flood criteria. Therefore, the City of Regina initiated a public process to engage local professionals and citizens in the dyke's rehabilitation.

It took years of effort, but by the fall of 2005, the restored dyke and an enhanced 1.2 kilometres of pedestrian greenway were complete. Today, the dyke provides better flood protection. Wildlife habitats are more numerous and environments healthier. Pedestrians are enjoying better connected pathways, with additional recreational opportunities. The success involved a great many people and organizations.

Much-loved open space

Wascana Creek flows through a fabric of mature open space, municipal parks and residential areas. It drains Wascana Lake, flowing northwest from Regina's Albert Street weir to the city's western limits, eventually draining into the Qu'Appelle River.

The inland toe of the Wascana dyke merges with two parks. The open space, coupled with a pedestrian underpass at Albert Street, gives north shore residents off-street walking access to Wascana Centre. Since the '70s, Regina residents have made good use of the area's developed pathway west of Cameron Street, a footbridge and several informal trails.

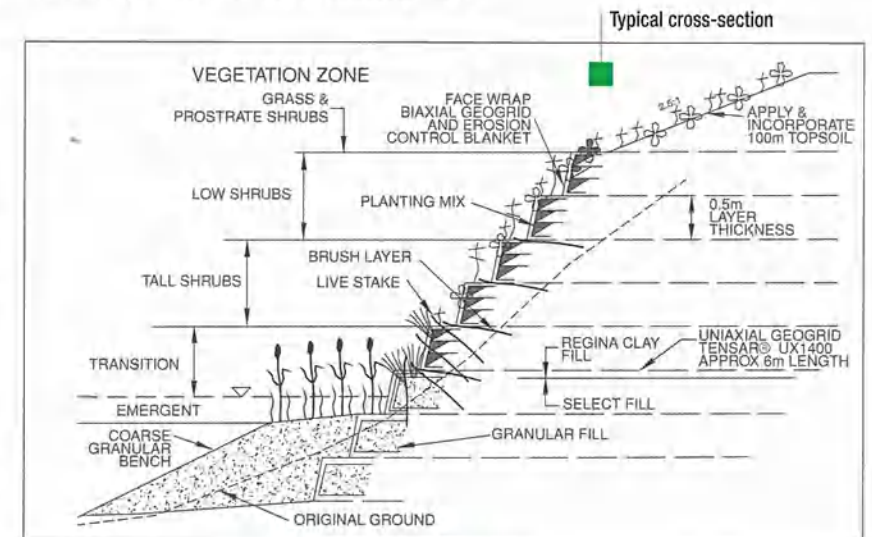
The city maintained the dyke landscape in a naturalized state, in contrast to the more intense maintenance of adjacent parks. The elevated dyke provided excellent vantage points for viewing the creek's riparian vegetation, abundant water birds and other wildlife.

Designing a master plan

When it became clear that the dyke required rehabilitation, the city put together an interdisciplinary team, comprising

geotechnical, civil and hydrological engineers, bioengineering specialists, landscape architects and structural engineers. The city retained Clifton Associates Ltd. to lead the team. Volunteers participated in several ways: as representatives of affected neighbourhoods and through organizations such as the Wascana Preservation Association (WPA), Nature Regina and Heritage Regina.

First, members of the planning team reviewed previous work and conducted field



Informal access paths worn in dyke slopes



MSE slope construction



Brush layering on MSE slopes



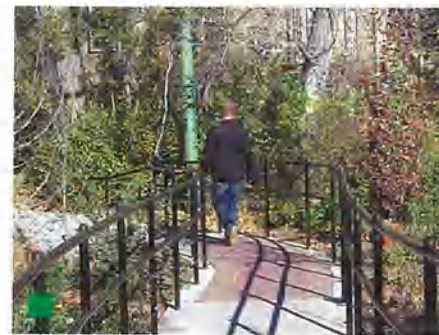
Live-staking



1971 flooding



Dyke top crusher dust pathway



Angus Boulevard access ramp



Cameron Street



Concrete stairs integrated into the backslopes



Long view up Wascana Creek

reconnaissance, including an analysis of the physical environment and functional requirements. They sought input from clients and residents adjacent to the dyke, consulted with WPA and held public open houses.

The objectives of the master plan were to:

- improve accessibility at key entries along the dyke;
- provide a development context for establishing a plant community requiring minimal maintenance;
- diversify visual interest along the trail;
- improve the quality of trail users' experiences; and
- provide enhanced amenities for those living in adjacent and nearby areas.

The master plan ultimately established the development framework for each key component, including path development, primary and secondary access points, site furnishings and a planting strategy.

Design and construction solutions

Project leaders scheduled design and construction in three phases beginning in 2002. The construction schedule was adapted to stretch from late summers to winters, in response to fisheries requirements, public access concerns and spring flooding risks.

Stabilizing slopes

To achieve the desired stability in varying dyke conditions, the planners required three engineering solutions. For Phase 1 work where the channel was narrow, engineers selected a Mechanically Stabilized Earth (MSE) slope.

In Phase 2, the creek was sufficiently wide to flatten the slope without reducing the channel capacity. Builders removed existing dyke material and replaced it with new, higher-strength material.

In the Phase 3 area where slopes were flatter, planners opted to rehabilitate the slope through toe replacement. A submerged toe section composed of coarse granular soil, selected to resist erosion and burrowing of beaver and muskrat, was common to all phases.

Soil Bioengineering

Designers chose natural vegetation to increase slope stability and provide protection from erosion, but the plantings also improved environmental and aesthetic values. Along the toe, crews planted cattails and bulrushes to act as wave protection. They both brush-layered and live-staked the MSE sections, and live-staked the flatter slopes of Phase 2 and 3 areas as well. On the upper elevations, designers specified shrubs, native



grasses and legumes, wildflowers, and ground covers in five vertical zones. Improved aesthetic and environmental values were important benefits.

Planners also developed a Vegetation Management Strategy to ensure that channel flows would not be restricted by maturing vegetation and that the slope-stabilizing characteristics would be managed and maintained for the long term.

Creating a welcoming landscape

The pathway, which is the primary element of the dyke landscape, is finished with crusher dust — a surface that is excellent for pedestrians and meets accessibility, environmental and aesthetic objectives. West of Cameron Street, where the pathway is busiest and the surrounding landscape is open, the path is 2.4 metres wide. At selected locations, designers adjusted backslope grades to accommodate future pathway connections to adjacent parks. The eastern portion of the path is narrower. It is more lightly used, more enclosed and closer to adjacent residences.

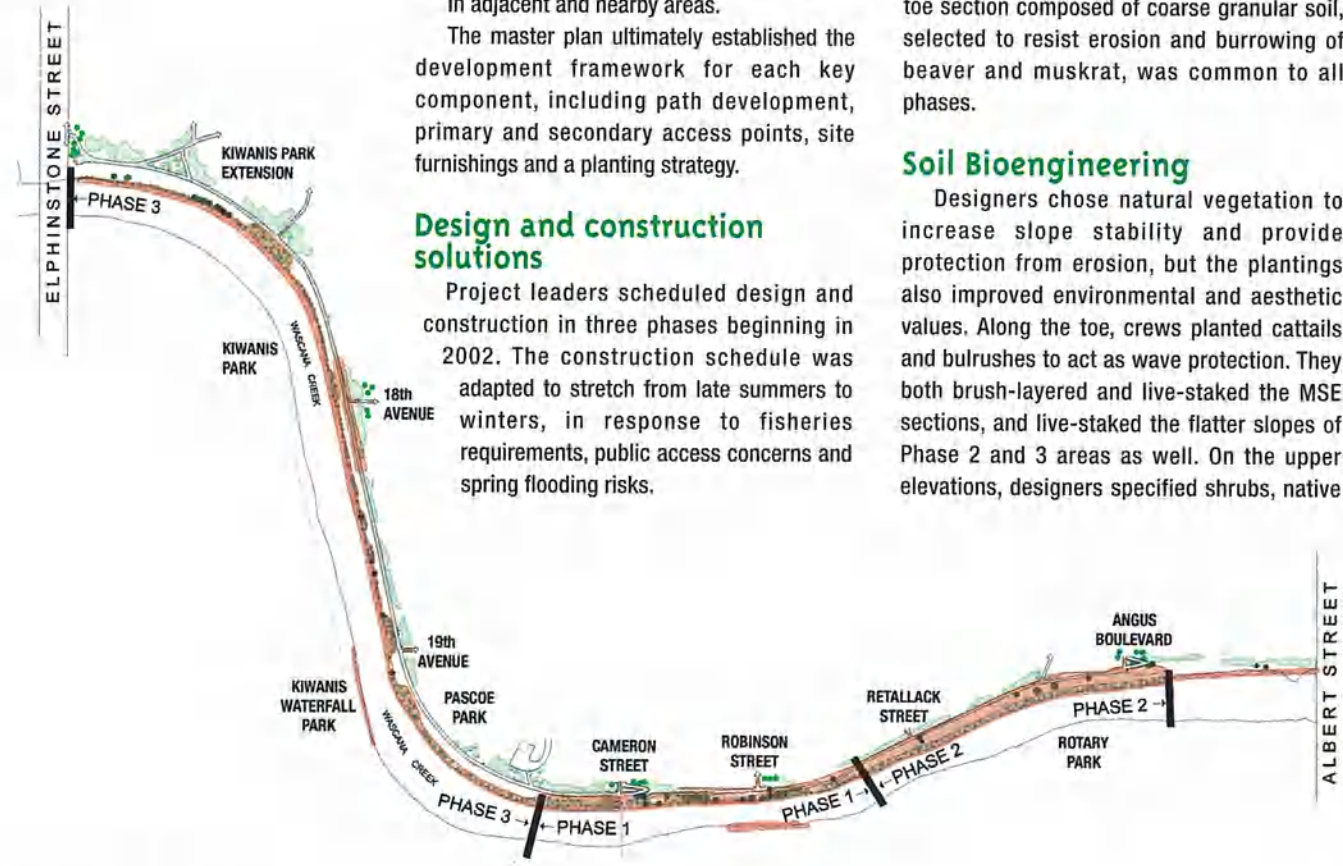
Planners provided primary entry nodes at three key streets (Angus Boulevard, Cameron Street and Elphinstone Street), and designed each in response to specific site conditions.

At Angus Boulevard, for example, a curving ramp is integrated into the backslope. And at Cameron Street, which receives the heaviest traffic, a plaza serves as a meeting spot and central focus of the linear space, emphasizing the importance of the intersection. This entry provides access to the south bank via the refinished footbridge. Pedestrians crossing the bridge are greeted by a small feature wall, which will accommodate an art installation in the future. Secondary access points feature simple concrete stairs integrated into the backslopes.

At primary entrances and at key spots along the dyke top, designers placed a limited selection of site furniture — surface-mounted — to ease removal during a major flood. They selected seating locations strategically to take advantage of long water views where possible.

A palette of predominantly native species provides accents and links dyke pathways, both spatially and visually. Trembling aspen, prickly rose and snowberry unify the area. West of Cameron Street, the palette expands somewhat to include heritage species such as Russian olive, lilac and false spirea. In the future when area parks are upgraded, additional backslope planting is planned. The disturbed areas were seeded with a drought

WASCANA continued on page 36



The Project Team:

City of Regina

client/owner

Wascana Preservation Association

community volunteers

Clifton Associates Ltd.

prime consultant, civil & geotechnical engineering

Crosby Hanna & Associates

landscape architecture

Water Resource Consultants

hydrology

Polster Environmental Services Ltd.

bioengineering

Brownlee Beaton Kreke

Consulting Engineers

structural

LIL'REG: HOW ELEMENTARY STUDENTS IN WINDSOR HELPED CREATE REGIONAL PLANNING POLICY

LIL'REG : DES ÉLÈVES D'UNE ÉCOLE PRIMAIRE DE WINDSOR PRÉSENTENT LEUR CONÇOURS À LA CRÉATION D'UNE POLITIQUE RÉGIONALE D'AMÉNAGEMENT DU TERRITOIRE

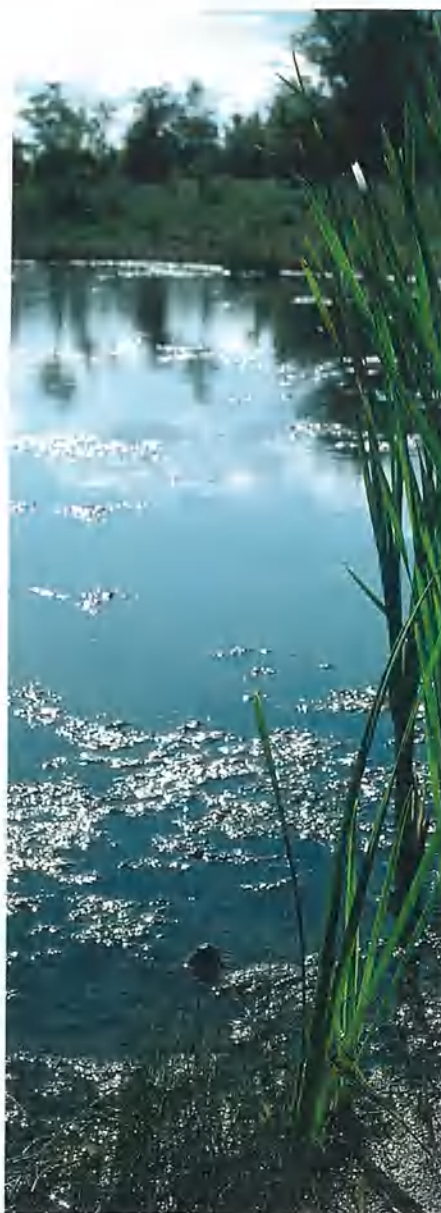
by/par Faye Langmaid

En 1989, un groupe d'élèves du primaire et leur professeur de sciences à une école située dans l'est de Windsor, ont lancé une campagne annuelle de nettoyage d'un ruisseau vulnérable. L'année suivante, le club Habitat 2000 de l'école réussit à faire adopter par le Conseil de ville de Windsor une proclamation faisant du vieux chenal de Little River un « couloir de verdure ».

À cette époque-là, le mot « couloir de verdure » était peu connu. Mais il ne fallut pas longtemps avant que ce projet étudiant, alimenté par un dynamisme grandissant, donne naissance au Little River Enhancement Group (Lil'Reg). Grâce à ce groupe de coordination à but non lucratif, la ville, le gouvernement, des organismes de conservation et des bénévoles ont pu unir leurs efforts pour coordonner des activités environnementales qui seraient bénéfiques au bassin hydrographique.

En 1994, grâce aux retombées de la proclamation de 1990, Lil'Reg a pu faire adopter par la Ville de Windsor un système de couloirs de verdure sur lequel repose sa politique environnementale.

Avec le dynamisme tangible de Lil'Reg, la population, de même que les hommes et femmes politiques, n'ont pu faire autrement qu'adopter le concept de couloirs de verdure. Dans d'autres régions de l'Ontario qui ne profitent pas de ce dynamisme populaire, les couloirs de verdure suscitent des levées de boucliers. L'histoire de Lil'Reg est un exemple concret de relation entre les couloirs de verdure, l'activisme populaire et l'élaboration de politiques.



In 1989, a group of elementary school students and their science teacher in east Windsor, Ontario, launched an annual cleanup of an abused and mostly-forgotten stream. The stream was littered with hundreds of auto tires, rusted auto parts, stoves and washing machines. Despite the litter, the stream's wetland habitat supported turtles and over 60 varieties of birds.

Initially the students focussed on a small, separated fragment of Little River, but teacher Ian Naisbitt soon set a much larger goal. In November 1990, the school's Habitat 2000 Club obtained a proclamation from Windsor City Council declaring the old channel area of Little River as a "greenway".

Greenways gather public support

The term *greenway* has — in a relatively short time — become part of the public's everyday lexicon. Today, greenway projects are exceedingly important to landscape architects. It is in planning these major projects that many of us interact with community-based organizations as facilitators, educators and designers.



However, the term was all but unknown until 1990, when Charles Little's groundbreaking book, *Greenways of America*, popularized the concept. Since the book's timing coincided with the Rails to Trails initiative, the term gathered a groundswell of support from the public. (See *Active Transportation in Halifax*, page 30, for mention of the Rails to Trails initiative in Halifax.)

A student catalyst to action

Early in 1991, Naisbitt joined with other educators, representatives of the City of Windsor, the provincial Ministry of Environment, the Essex Region Conservation Authority, students and parents to form the Little River Enhancement Group (Lil'Reg). This non-profit umbrella group "adopted" the Little River watershed to coordinate environmental activities that would benefit the watershed, an area of approximately 60 square kilometres in three municipalities.

Lil'Reg focussed both on educating people about the Little River watershed and involving them. The group had a vision: an interconnected greenway along the various tributaries and drains of Little River. Their strategy: to implement projects through partnerships.

From cleanups to naturalized parks

At first, the teams undertook cleanups and other projects primarily on public lands. After a number of successes, however, they expanded to private lands. In cooperation with landowners, they built trails, rehabilitated drainage ditches, monitored water quality and wildlife habitat and carried out planting for public benefit.



Ian Naisbitt



Ian Naisbitt



Ian Naisbitt



Faye Langmaid



Ian Naisbitt

POSTSCRIPT: WHEN THEORY FAILS TO IGNITE THE PUBLIC

While the language and terminology continues to evolve, greenways are part of the underlying theory behind the Province of Ontario's introduction of the Oak Ridges Moraine Conservation Plan and Act (2000) and more recently the Greenbelt Plan and Act (2005). Earlier examples are the Niagara Escarpment Act and Royal Commission on the Future of the Toronto Waterfront (1992).⁴ Some of these broad-brush regional planning initiatives have been grassroots driven, such as the Oak Ridges Moraine Act.

However, the more recent Greenbelt legislation is being met with great resistance and backlash. The agricultural community believes their personal property rights have been usurped for the pleasure of urbanites visiting the countryside. Developers believe they are being severely and unjustly restricted. Prospective homebuyers believe they are being denied the right to own a single-family home.

It is interesting that this politically driven land-use planning initiative, with 40 to 50 years of history in the Canadian context,⁵ has yet to receive endorsement from the public and the profession. Could the importance of the *process* — from grassroots to policy — be more persuasive than the underlying theory?



Ian Naisbitt



Ian Naisbitt



Ian Naisbitt



Faye Langmaid



Faye Langmaid

The annual cleanups created momentum, leading to the development of trails and naturalized parks centred in the old channel area. Then, in 1992 in honour of its 100th anniversary, the City of Windsor partnered with Lil'Reg to plant a Carolinian arboretum as part of the greenway. His Excellency the Right Honourable Ramon Hnatyshyn, then governor general, assisted with the planting. As part of the centennial celebrations he also presented the city with a Coat of Arms, which contains features expressing the importance of the city's unique natural and historical heritage. The city's motto, for example, is clear: *The River and the Land Sustain Us*. While the "River" of the motto, in most people's minds, is the Detroit River, it could equally well serve as a reminder of Little River, and all other components of the environment on which the city's well being depends.

The importance of a name

In 1994, the environmental policies of the Windsor Official Plan came under review. Then, the far-reaching implications of the 1990 decision to officially declare the old channel of Little River a *greenway* became very evident. Lil'Reg had planted a seed: the City adopted a *greenway system* as the basis for its environmental policies.

In Windsor, the greenway system is defined as "...a continuous network of land uses and resource elements that provides a means of maintaining ecosystem functions and processes within the city. The desired elements within the *greenway system* include Parkland, Waterway Corridors, Linkages, and Natural Areas..."²

Influencing policy

As landscape architects, we are often caught up in construction details,



Faye Langmaid

aesthetics and budgets. The development of planning policy is mostly a back-burner thought process. Yet it is often up to landscape architects to help implement the theory. We often work at the grassroots level, involving students in planting programs, working with not-for-profits and facilitating trail development. This work is fundamental to achieving the greenway vision, as articulated by Julius Fabos in the introduction to *Greenways: The Beginning of an International Movement* (1995).³

Changing the local world

The work of Lil'Reg was very instrumental in the development of the ongoing long-term vision of a greenway system for the City of Windsor. The ideas, in turn, have spread to adjoining municipalities, to be included in their official plans.

The greenway idea was embraced by the public and politicians based on their knowledge of the work of Lil'Reg. A great many people had enjoyed the walking trails and participated in plantings. And no doubt,

LIL'REG continued on page 36



Ian Naisbitt



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KEEPING ACTIVE IN HALIFAX: DESIGNING ACTIVE TRANSPORTATION TRAILS

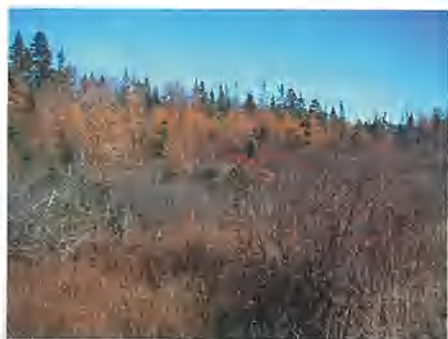
RESTER ACTIF À HALIFAX : L'AMÉNAGEMENT DE SENTIERS POUR MODES DE TRANSPORT ACTIFS

by/par Clinton Pinks + Mark Evans

Le sentier pour modes de transport actifs et récréatifs de Bayers Lake à Halifax sera le premier sentier aménagé dans le cadre du nouveau Plan pour moyens de transport actifs de cette municipalité. Il a pour but d'intégrer des sentiers pédestres, des pistes cyclables et d'autres moyens de transport public et d'offrir des solutions de rechange réalistes au navetage en voiture.

Le sentier de Bayers Lake se verra un prolongement du sentier actuel pour qu'il traverse le parc d'affaires Bayers Lake. Ce prolongement devait à l'origine suivre le tracé de la voie ferroviaire comme le voulait le projet de transformation des voies ferroviaires en sentiers récréatifs remontant aux années 90. Comme les voies ferroviaires encore en service posaient des problèmes de sécurité, une équipe de conception pluridisciplinaire a tracé un sentier plus sécuritaire sur un terrain laissé à l'abandon et jadis considéré comme incongru et inaccessible.

La Ville d'Halifax a donc fixé des critères qui seraient bénéfiques aux utilisateurs (vélo-navetteurs), qui répondraient aux besoins des autres usagers et qui seraient respectueux de l'environnement. Pour répondre aux contraintes du site, les concepteurs ont dû adopter des méthodologies de construction plus coûteuses. Même si à environ 400 \$ le mètre, l'aménagement des 2,2 kilomètres de sentier revient assez cher, le sentier créera un lien vert entre les collectivités. Fait surprenant, on a pu recycler des terres jugées inutilisables.



Photos : Clinton Pinks

The Bayers Lake Active Transportation and Recreational Trail is the first planned trail to be designed as a result of the Halifax Regional Municipality's (HRM) new Active Mode of Transportation Plan.

What is the Active Transportation Plan?

The Active Transportation Plan aims to integrate pedestrian trails, bikeways and other public transportation routes, to provide realistic alternatives to commuting by car.

In Halifax, the municipality's active transportation professionals must maximize opportunities for alternative transportation routes within an otherwise vehicular-driven urban framework. Their job is particularly tricky

because of the city's unique geographical configuration: its urban core is on a peninsula. The municipality, however, has identified active transportation as a priority because well-connected transportation routes for pedestrians and cyclists have the potential to influence quality of life year-round.

The Atlantic BLT

The Bayers Lake Trail will extend an existing pathway: the BLT Trail. The BLT was originally a Rails to Trails project built and maintained by the Beechville — Lakeside — Timberlea Rails to Trails Association under the Halifax Regional Development Agency's mentoring program for community-based trails. Now, under the Active Transportation Program, the BLT will be

extended through Halifax's Bayers Lake Business Park, providing people an alternative means of commuting to work.

Originally, since the concept built on a Rails to Trails project, the proposed extension of the route followed train tracks through the business park, with the alignment on an existing CN rail line still in operation. The tracks certainly provided an excellent opportunity to make a linear connection between the outlying suburban community and the urban centre.

Considering the trail experience

However, sharing the active tracks posed safety problems. To ensure safety, designers would have to provide fencing and adhere to strict setbacks from the CN tracks. This would inevitably diminish the trail users' enjoyment of their surroundings.

The HRM decided to revisit the proposed alignment, working with an interdisciplinary design team of landscape architects and engineers from CBCL Limited Consulting Engineers. The team mapped out a safer route away from the active railway. As well, the trail passes through a more attractive environment, which promises trail users a more interesting experience.

The Halifax criteria

Since commuting cyclists are the primary intended user group, the new Active Mode of

Transportation Plan requires a three-metre-wide travel surface suitable for cycling. Planners set the maximum vertical design slope at eight per cent over 50 metres, and specified a minimum horizontal radius of 30 metres. They also considered factors such as minimum stopping distances, fall protection and all-weather commuter access.

The requirements of other users were key as well. The trail design needed to respect maximum slopes for wheelchair access, for example, and provide access for maintenance vehicles, including those of Nova Scotia Power Corporation whose easement the trail would traverse. And of course, planners aimed for an extended design life for the trail, including its gravels and culverts.

Respecting the environment...

HRM also required that the design be respectful of the environment through which the trail would travel. The issues were numerous in such varied terrain, which included exposed bedrock outcrops, boulder fields, bluffs, wetlands, steep embankments, undulating topography, thick vegetation — even culverts and undermined stormwater flows from the adjacent business park. As well, no blasting of bedrock would be allowed within close proximity of the CN tracks. The design had to minimize disturbance to bedrock and more importantly perhaps, to existing vegetation, which all too often is overlooked in the greater scheme of things.



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tolerant mixture selected to respond well to infrequent mowing.

The project's landscape architects selected plant material for its long-term drought tolerance and general hardiness in the sometimes difficult Regina climate. Nonetheless, planners incorporated watering systems for temporary irrigation, to ensure germination and sufficient water for young plants during the first two-to-three-year establishment period. For the south-facing bioengineered sections, they specified a carefully programmed automated pop-up system. On the generally north-facing backslope, accent planting and dryland grasses will be watered as required using a quick coupler system.

Return of the wild

Today, the greenway has been redefined. Although public patience was tested by the extended planning and design process followed by a multi-phase construction period lasting several years, the greenway gained a unique and coherent identity.

Last summer, fish, birds and all manner of wild things were back in the creek and colonizing the new slopes. The plant communities were flourishing along the first two phases and established in the third. People and their pets were once again enjoying the dyke.

The early success and public enjoyment of the new landscape are the direct result of the combined talents of a multidisciplinary design team, an engaged and supportive owner and extensive public involvement, including the dedicated enthusiasm of community volunteers.

Roger Green, CSLA, is an associate at Crosby Hanna & Associates and the firm's Regina manager. Roger has over 25 years of professional experience in both the private and public sectors. He represents SALA on the CSLA Board of Governors.

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eco-system health had made a contribution to the personal health of many.

What might have occurred if the City of Windsor had tried to *impose* a greenway system, without the living example of Lil'Reg? Would the public have responded to talk of building the "lungs of the city" or endorsed planning theories based on ecosystem health?

Without the tangible example of Little River, it is doubtful that the environmental policy section of the Official Plan would have been adopted. That it was is truly a reflection of the Lil'Reg motto, which they borrowed from Margaret Mead: "Never doubt that a small group of concerned citizens can change the world. Indeed it is the only thing that ever has."

¹ Little, Charles E. (1990), *Greenways for America*, Baltimore, Maryland: The John Hopkins University Press; p.3

² City of Windsor, Department of Planning (1994), *The River and the Land Sustain Us: Environmental Policy*

³ Fabos, Julius Gy & Ahern, Jack (1996), *Greenways: The Beginning of an International Movement*, New York: Elsevier; p.4

⁴ Royal Commission on the Future of the Toronto Waterfront (1992), *Regeneration: Toronto's Waterfront and the Sustainable City*, Minister of Supply and Services Canada and Queen's Printer of Ontario

⁵ Taylor, James; Paine, Cecelia; & FitzGibbon, John, "From Greenbelt to Greenways: Four Canadian Case Studies," in Fabos, Julius Gy & Ahern, Jack (1996), *Greenways: The Beginning of an International Movement*, New York: Elsevier; p.47-64

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Editor's note: The Little River Enhancement Group received a CSLA National Honour Award, 1994, in the communications category for their publication, *Community Stewardship of Little River Watershed*.

Where the flood damage was mild, the city needed to clean up sediment deposits and remove rocks, deadwood and other debris. In moderately damaged areas, the trails had lost surface material or sub grade. Asphalt pathways had cracked, slumped or completely crumbled. Gravel trails had been completely washed away, in some cases leaving the cored-out sub grade clearly visible. Play structures, benches and fences were damaged. Most of the moderate damage was located within the 1:100 year flood plain.

Damage to bridges was frequent. Many of the city's pedestrian bridges were damaged. And at Fish Creek Provincial Park, seven bridges were destroyed and all others were severely damaged. As well, some 40 per cent of the park's pathway system had been destroyed, and a further 25 per cent severely damaged.

Where to rebuild

Even before the damage was tallied, the city had anticipated most of the damage to structures and facilities along the rivers and within the flood plain. However, what managers had not anticipated was the loss of land on which to rebuild.

In numerous locations, the river had eroded the banks to such a degree that all the public land required for pathways had completely vanished. The paths could be rebuilt only with significant bank reconstruction or the construction of a bridge. Otherwise, the paths would have to be relocated. To date, no decisions have been made.

Four months later, however, most of the paths were back in use. According to Don Binns, parks inspector for the City of Calgary, the city moved quickly to restore the trails to pre-flood condition.

The city found that designs that incorporated boulder gabions and riprap along the river banks fared better than those that did not. The considerable size and weight of the larger riprap boulders withstood the scouring effects of the river. As well, the crushed gravel trails that were washed away were relatively easy to repair at low cost. The asphalt paths needed more extensive work including base repair and resurfacing.

Questions for the future

Is there a way to prevent such damage in the future? Or should Calgarians expect a certain amount of damage to occur periodically, given the pathways are built within a floodplain?

Opinions vary. Should pathways be constructed well away from the river? Should they be engineered to withstand a greater than 1:500 or 1:1,000 year flood occurrence? A heavily armoured river bank may prevent the loss of land but is it cost effective? When does the cost of engineering outweigh the cost of rebuilding?

The City of Calgary has determined that rebuilding to pre-flood conditions is the most appropriate solution at this time given the frequency of such a flood. Should more frequent or consistent flooding occur, a re-evaluation of the urban path design and location would be appropriate.

Nothing is immune

As floods and natural disasters teach us again and again, nature does not discriminate. All pathway materials are susceptible to the effects of flooding. Landscape architects routinely consider factors such as environmental conditions, and choose both surface and below-surface materials carefully, assessing the materials' initial monetary and environmental costs and their maintenance and durability.

However, the Calgary floods remind us to be extra vigilant, and look beyond standard specifications for path design when we are locating a path along a waterway.

Grâce à ses 550 kilomètres de sentiers, la ville de Calgary peut se targuer d'avoir l'un des plus imposants réseaux de sentiers piétonniers et de pistes cyclables en Amérique du Nord. Au printemps 2005, ce réseau fut la proie de la pire inondation depuis 1932, inondation qui a eu pour effet d'endommager 95 sites à la grandeur de la ville. Les dommages s'élevaient à plus de 13,8 millions de dollars et près de 30 p. cent des sites nécessitaient une attention de la plus haute importance.

La ville ne fut pas étonnée de l'ampleur et de la nature des dommages. Les aménagements qui comportaient des murs de gabions et des enrochements de protection furent en mesure de mieux résister aux forces dévastatrices de la rivière. Quant aux sentiers en gravier concassé, ils furent assez faciles à réparer à de faibles coûts, alors que les sentiers asphaltés nécessitèrent plus de travail.



On ne s'attendait toutefois pas à avoir à reconstruire les parcelles de terrain emportées par l'érosion. À plusieurs endroits, certains sentiers aménagés le long des rives gravement érodées, ont été complètement emportés. Jusqu'à présent, aucune décision de reconstruction n'a été prise.

Quatre mois plus tard, la plupart des autres sentiers ont été reconstruits. (Comme les inondations se font plutôt rares, Calgary a évalué les coûts et a décidé de reconstruire les sentiers comme c'était avant les inondations.) Ces inondations rappellent aux architectes paysagistes qu'ils doivent redoubler de vigilance et ne pas se limiter aux caractéristiques standard lorsqu'ils dessinent des sentiers le long d'un cours d'eau.

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Greg Little is a landscape designer at Harris and Harris and a thesis student at the University of Manitoba.

Author's note: Thanks to Don Binns and the City of Calgary for the statistics, information and some photos, and to Dillon Consulting for several flood images.

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THE 2005 FLOOD AND CALGARY'S PATHWAY SYSTEM: DEALING WITH AN ACT OF GOD

L'INONDATION DE 2005 ET LE RÉSEAU DE SENTIERS DE CALGARY : COMMENT COMPOSER AVEC UNE CATASTROPHE NATURELLE

Voir le résumé de cet article en page 37.

by/par George Harris + Greg Little

In North American culture, our increasing focus on health, conservation and the environment has drastically increased our need for urban paths and trail systems. The City of Calgary is no exception.

In the early 1970s, Calgary had just a small section of red shale path in Confederation Park. Today, the city has one of the most extensive pedestrian pathway and bikeway systems in North America. Over 550 kilometres of paths snake through the city, its parks and environmental reserves. The paths are a source of civic pride and provide Calgarians with an environmentally friendly alternative to automobile travel.

Floods wreak havoc

On June 18th 2005, the Mayor of Calgary declared a local state of emergency as three separate storms within 22 days dumped rain in and around the city and much of the southern half of the province. Fully 248 mm of rain fell — three times Calgary's normal June rainfall of about 80 mm. It funneled into the Bow River Watershed, resulting in the city's worst flooding since 1932.

The excessive precipitation increased the flow rate on the Bow River, Calgary's largest river, from normal levels of 150-190 cu.m/s to over 600 cu.m/s. Flows on the Elbow River rose from an average of 14-22 cu.m/s to 330 cu.m/s. And in Fish Creek Provincial Park in the

city's south end, flows in Fish Creek rose from an average of 1-5 cu.m/s to 290 cu.m/s.

The city's first priority was protecting lives and where possible, reducing property damage. More than 200 homes were evacuated, more than 3,000 people displaced.

When the city's Parks Department investigated the trails, they found that impacts were severe. Like many cities, much of Calgary's pathway system tracks along the rivers. People had watched benches, trees and even whole bridges float by. Many paths were inundated, bridges were inaccessible, and whole parks had to be closed. In the heart of the city, for example, Prince's Island Park was closed, its programs relocated.

The city's pathway system was crippled. Until the waters subsided, the city could do very little to save these flooded areas or even to assess the damage.

95 damaged sites

Once the flood waters receded, the city calculated approximately \$13.8 million in infrastructure damage affecting 95 sites around the city. Managers judged almost 30 per cent of these locations to be high priority, either because they were in high use areas, or because the damage posed a risk to public safety.

continued on page 37



The Sue Higgins Bridge in the city's south end disconnected from the bank/
Le Pont Sue Higgins situé dans le sud de la ville et coupé de la rive



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