

EVERGREEN
COMMON GROUNDS

Bringing Nature to our Cities



Urban Naturalization in Canada: A Policy and Program Guidebook

 *Part of the Tool Shed Series*



Published by Evergreen

Evergreen is a national non-profit environmental organization with a mandate to bring nature to our cities through naturalization projects.

Copyright © 2001 Evergreen. All rights reserved. Reproductions of small portions of this book (except photographs) for use in meetings or for workshop purposes is permitted and encouraged, provided appropriate acknowledgement is given. Photographs in this book have been provided to the publication for a one-time use only and cannot be reused for any other purposes.

Canadian Cataloguing in Publication Data

Urban naturalization in Canada: a policy and program guidebook

(Common Grounds Tool Shed series)

Includes bibliographical references.

ISBN 0-9681078-8-5

1. Natural landscaping — Canada — Planning. 2. Urban spaces — Canada — Planning. I. Title. II. Evergreen (Association) III. Series.

QH541.5.C6U72 2001

307.1'216'0971

C2001-900308-0

Credits

Writer/Researcher: John Ingram*
Researcher: Derek Breen*
Project Manager: Stewart Chisholm
Editors: Seana Irvine and Stewart Chisholm
Graphic Design: Grace Goddard
Graphic Illustrations: Ferruccio Sardella
Botanical Illustrations: Matthew Labutte
Cover Photos: Clockwise from bottom left: Stewart Chisholm; Robert Christie; City of North Vancouver

*Verdant Planning + Design, Vancouver, British Columbia verdantgroup@yahoo.com

Special thanks to: Kevin Conley, Regional Municipality of Halifax; Brian Farquhar, Greater Vancouver Regional District; Geoffrey Katz; Chris Manderson, City of Calgary; William Pol, Ontario Ministry of Municipal Affairs and Housing; David Stonehouse, City of Toronto; and Ross Waddell, British Columbia Native Plant Society

Table of Contents



Executive Summary	4
1.0 Introduction	5
2.0 Urban Naturalization: An Overview	6
2.1 The Benefits of Urban Naturalization	7
2.2 Common Barriers and Obstacles	9
3.0 Towards Naturalization: Policy and Program Development	11
3.1 Municipal Plans, Policies and Operating Procedures	11
3.2 Community Support and Participation	17
3.3 Public and Private Sector Partnerships	19
3.4 Building Internal Capacity	23
3.5 Project Management and Design	26
4.0 Case Studies	30
4.1 City of Toronto	30
4.2 City of North Vancouver	32
4.3 City of Edmonton	34
4.4 City of Regina	36
4.5 District of Saanich	38
4.6 City of Tucson, Arizona USA	40
5.0 Resources	43
5.1 Bibliography	43
5.2 Sample Policy Excerpts	44
6.0 Appendices	48
6.1 Municipal Contact Information	48
6.2 Municipal Survey	53

Executive Summary



Urban Naturalization in Canada: A Policy and Program Guidebook will assist Canadian municipalities incorporate naturalization into their official plans, policies, environmental programs and operating procedures. The guidebook is divided into three main sections:

1. **Urban Naturalization: An Overview**
2. **Toward Naturalization: The Elements of Policy and Program Development**
3. **Case Studies**

A comprehensive bibliography of helpful naturalization publications and a list of sample policies are also included. Additional resources are listed on Evergreen's website at www.evergreen.ca. This guidebook has been developed to assist land-use planners, park managers, landscape architects, ecologists and other professionals who work with the public at the municipal level. In comparison to conventional landscaping, natural landscapes are inherently low maintenance and can help foster a new relationship of urban environmental stewardship. Connected naturalized areas help restore landscape functions with the surrounding ecosystem. Naturalization also:

- reduces or eliminates the need for pesticides;
- creates habitat and helps preserve biodiversity;
- improves air and water quality;
- moderates temperatures and reduces the urban "heat island" effect; and
- increases passive recreational opportunities.

***Naturalization** is a process of ecological restoration that involves returning an altered or degraded site to a more natural condition through the use of trees, shrubs and flowers that are native to the area.*

*The Society for Ecological Restoration defines **ecological restoration** as the process of assisting the recovery and management of ecological integrity. Ecological integrity includes a critical range of variability in biodiversity, ecological processes and structures, regional and historical context and sustainable cultural practices.*



Common barriers to achieving sustainable naturalized landscapes include a lack of political will and vision, inappropriate or conflicting policy, public safety and liability concerns, limited interdepartmental coordination and a lack appropriate native plant materials.

The guidelines presented in this document are general in nature and are intended to be adapted to meet the local circumstances of each municipality. They are organized under the following categories.

1. **Municipal Plans, Policies and Operating Procedures** — developing an effective policy framework to help build internal support and create a foundation for positive change.
2. **Community Support and Participation** — encouraging on-going public participation and stewardship throughout all stages of a naturalization project.
3. **Public and Private Sector Partnerships** — developing broad-based, multi-level partnerships to expedite project implementation, encourage community participation and build political support.
4. **Building Internal Capacity** — enhancing a municipality's ability to support and deliver successful projects.
5. **Project Management and Design** — using pilot projects and other means to develop effective management approaches and evaluation criteria. Projects can also be designed to support broader environmental and recreational objectives.

Urban Naturalization in Canada: A Policy and Program Guidebook will assist municipalities incorporate naturalization in their official plans, policies, environmental programs and operating procedures. It is intended primarily for land-use planners, park managers, landscape architects, ecologists and other professionals working at the municipal level. It can also be used by private landowners as a tool for sustainable landscape management and by citizens to influence positive change in the way municipalities value the role of nature in the city.

The guidebook is divided into three main sections:

1. **Urban Naturalization: An Overview** — presents the historical and political context of urban naturalization, tracing its development from the pursuit of a few private landowners to its current place in the realm of public policy.
2. **Toward Naturalization: The Elements of Policy and Program Development** — provides an overview of different policy approaches, programs and tools utilized by Canadian municipalities.
3. **Case Studies** — examines the naturalization policies and programs developed by five Canadian municipalities and one American municipality, and explores lessons learned.

Research Methods

Research for this document was conducted over the winter of 2000/2001 and included a review of existing Canadian urban naturalization programs and policies. Forty-three medium- to large-sized urban and suburban municipalities from across Canada were surveyed as well as nine regional governments and Ontario conservation authorities.



2.0

Urban Naturalization: An Overview



As a departure from conventional turf-dominated green space design and maintenance, *urban naturalization* is an ecologically-based approach to landscape management that seeks to restore environmental integrity to the urban landscape. Urban naturalization, also known as natural landscaping or naturescaping, creates environmentally sound, sustainable landscapes through the use of plant species native to the region. In comparison to conventional landscaping, natural landscapes are inherently low maintenance, self-renewing and can help foster a new relationship of urban environmental stewardship. Connected naturalized areas can also help restore landscape functions with the surrounding ecosystem.

***Naturalization** is a process of ecological restoration that involves returning an altered or degraded site to a more natural condition through the use of trees, shrubs and flowers that are native to the area. In North America, native plant species are defined as those that existed in an ecological area prior to European settlement.*

*The Society for Ecological Restoration defines **ecological restoration** as the process of assisting the recovery and management of ecological integrity. Ecological integrity includes a critical range of variability in biodiversity, ecological processes and structures, regional and historical context, and sustainable cultural practices.*

Because of its wide range of applications, naturalization is relevant to a number of municipal departments including Planning, Parks and Recreation, Engineering, Public Works, Environment, Public Health and Economic Development. Although it is still most commonly used in parkland or open space restoration and rehabilitation initiatives, naturalization can also support:

Green Infrastructure — stormwater management, groundwater recharge and bio-filtration;

Water Conservation Programs and Initiatives — xeriscaping—the use of drought tolerant vegetation;

Passive Recreation — integrated urban greenway systems and pedestrian trails;

Habitat Creation and Enhancement — including buffering and creating linkages;

Temperature Modification — site shading, cooling and wind velocity reduction;

Crime Prevention — by attracting more people to the naturalized site;

Public Environmental Education and Stewardship — through community plantings, outreach and interpretation programs and on-going maintenance;

Street Design and Landscaping — naturalizing boulevards, medians and sidewalk planters;

Green Roofs — moderates building temperatures, reduces stormwater runoff and provides additional green space for gardening and creating habitat;

Greenhouse Gas Reduction — through reduced mowing and improved carbon sequestering;

Community Development — improved health and sense of community; and

Economic Development — using green space to improve quality of life and stimulate business development.

The concept of urban naturalization is not new. Although not considered “naturalization” at the time, one of the earliest efforts date back to the early 1960s when the City of Edmonton allowed portions of a park and a boulevard, deemed too costly to maintain, to revert to a more naturalized form through natural succession. By the mid-1980s, a number of municipalities in southern Ontario began to develop more formal naturalization programs and policies. For example, the former City of North York (now a part of the City of Toronto) was the first jurisdiction to actively naturalize portions of its parks system to reduce maintenance costs and improve passive recreation opportunities. One of the first municipalities to move naturalization beyond parklands was the City of Waterloo. In 1989 it adopted an Environment Strategy that recognized the importance of native vegetation in the city and encouraged its use in institutional, commercial and industrial developments through the site plan review process.

Also in the 1990s, the rights of property owners to naturalize their land was recognized in a precedent setting case in Toronto where a private landowner won Charter of Rights protection for her naturalized front yard. The defendant had been prosecuted under the City’s *Unightly Premises* By-law. As a result of this case, the City amended this By-law to explicitly permit naturalized yards and gardens on private property.

Today, a number of Canadian municipalities have initiated a wide range of naturalization projects and adopted a variety of supportive policies. In numerous jurisdictions, naturalization is supported through official plans, site plan and subdivision review processes, environmental strategies, By-laws and operational procedures. Other municipalities such as Edmonton and Guelph have developed specific naturalization plans.

Although the development of supportive policies and regulations are necessary, other elements are required to implement successful naturalization initiatives. For example, both the public and municipal staff must be fully involved and educated about the goals and objectives. The support of politicians is also important, as is the provision of sufficient resources including funding, staff and plant materials. These issues are discussed further in Sections 2.2 and 3.0.



2.1 The Benefits of Urban Naturalization

This section summarizes the key environmental, educational, recreational and economic benefits of naturalization.

A comprehensive review of the benefits of naturalization can be found in Evergreen’s research report, *Ground Work: Investigating the Need for Nature in the City*.

For more information, visit our website at www.evergreen.ca.

a) Ecological and Environmental Benefits

Reduced Pesticide Use — Native plants and trees are genetically adapted to local conditions and therefore are more resistant to local pest problems than introduced species. Naturalized landscapes also help re-establish endemic pest-controlling insect and bird species populations which can help control pestilence.



Habitat Creation and the Preservation of Biodiversity —

Naturalization can help protect and propagate threatened plant and animal species and preserve biodiversity at the:

- ecosystem level — to create and preserve threatened ecosystems such as wetlands;
- species level — to help preserve species associated with a particular ecosystem; and
- genetic level — to preserve the genetic material held by both other levels (Towle, 1996).

Improved Water Quality, Management and Conservation — Native plants can be used to help manage stormwater flows by enhancing infiltration, reducing downstream flooding and removing contaminants. Naturalized landscapes also help control erosion on steep slopes, stream banks and areas prone to overland flows.

Improved Air Quality — Native plants act as carbon sinks that can help purify air more effectively than conventional turf landscapes. They also require little or no mowing by gasoline or electric powered equipment.

Temperature Modification — Naturalized landscapes can reduce wind velocities and create shade, lowering building heating and cooling costs.

b) Economic Benefits

Over the long-term, conventionally maintained parks, gardens and formal open spaces are more expensive and time consuming to maintain than naturalized landscapes. Though not maintenance free, the bulk of the costs of naturalized landscapes are incurred in the first three to five years of establishment,

after which general maintenance consists of periodic mowing and weeding (Geomatics, 1999). Costs vary according to the type of landscape developed; for example, wetlands are generally more expensive to restore or create than prairie or meadow communities.

Comprehensive studies conducted by various sources including the U.S. Environmental Protection Agency have determined that an 80 to 90 per cent cost savings can be achieved over a ten-year period, compared to conventionally managed landscapes. Associated economic savings through reduced equipment maintenance and improved public health can also be expected (USEPA, 1995; Northeastern Illinois Planning Commission, 1997).

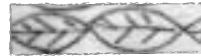
c) Educational and Societal Benefits

Naturalization can help foster urban environmental stewardship by educating people about the complex ecological processes that occur in natural landscapes. As dynamic and engaging places, natural landscapes provide both formal and informal opportunities to expand the range of children's activities and enrich their development by providing outdoor spaces for cognitive, social and emotional development. As native plants respond to the climate and seasons in specific ways, they create a stronger sense of place—an awareness that a community is distinct and special. Some municipalities, such as Tucson, Arizona, profiled in Section 4.6, have identified urban naturalization as a tool for maintaining and enhancing quality of life which in turn, can be used to market their community to new businesses.

d) Recreational Benefits

Naturalization can help municipalities improve, expand and diversify passive recreation opportunities such as walking, bird

watching and picnicking. For example, the former City of North York conducted several recreational needs surveys in the mid-1980s and concluded that passive recreational needs were not being adequately met through its conventional park network and that these activities could be better accommodated in a more naturalized setting. Active recreational opportunities can also be improved through naturalization, for example, by developing cycling paths along the edge of restored creeks.



2.2 Common Barriers and Obstacles

Traditional Landscape Values and Perceptions — A significant obstacle to naturalization is the public's general preference for manicured landscaping. When these values are considered in combination with a limited awareness of the true environmental costs of conventional landscaping, this obstacle becomes even more significant. On-going public education will help to address this challenge over the long-term.

Lack of Political Will and Vision — A successful urban naturalization program requires sustained political commitment and vision. To attain commitment from elected officials and senior management, urban naturalization must be incorporated into land-use and environmental plans and policies and supported by on-going internal education.

Using Naturalization for Economic Benefits Only — Although promoting naturalization on the merits of its reduced maintenance costs is common, its adoption for short-term fiscal motives undermines its equally important environmental and social goals. Naturalization should be understood and applied as a broad-based landscape management tool where the goal is to restore ecological systems into the urban environment.

Public Safety and Liability — Naturalized areas are sometimes perceived as unsafe places that could conceal undesirable activities. By incorporating the principles of Crime Prevention through Environmental Design, these concerns can be minimized, for example, by ensuring clear site lines, establishing minimum trail widths and limiting the number of dead ends.

Volunteer liability is also a major concern. Some municipalities address this issue by pre-screening volunteers and ensuring that they only participate in activities that are appropriate in terms of their skills and abilities. City staff and project leaders should also ensure that volunteers are properly trained and aware of potential hazards. Some municipalities have purchased third party liability insurance to cover volunteers and themselves in the event of an injury.

Limited Interdepartmental Coordination — Naturalization may become the sole responsibility of a single municipal department, typically Parks and Recreation, or be loosely pursued by different departments with minimal communication between them. Such an *ad hoc* approach will not result in the same level of success as a well-coordinated program driven by shared policy and program objectives.

Lack of Appropriate Sites to Naturalize — Traditionally, parks and remnant natural areas were the only sites considered for naturalization. Municipalities with advanced policy and programs have looked beyond these landscapes and naturalized areas such as traffic islands, alleyways, rooftops, stormwater management ponds and institutional grounds. For example, as a demonstration pilot project, the City of Toronto has created a rooftop garden atop of its City Hall.

Lack of Appropriate Native Plant Materials — Although native plants have become increasingly popular, native plant stock is still not widely available in large quantities. To overcome this challenge, municipalities such as Vancouver, Winnipeg and Toronto have either established their own nurseries or developed partnerships with local native plant nurseries.

Inappropriate or Conflicting Policy — Naturalization can be hindered by outdated municipal policies such as *Unightly Premise* and *Weed By-laws* which may actually prohibit the use of certain native plant species. This challenge can be overcome by developing policies that support naturalization and amending conflicting By-laws.

Lack of Expertise — Urban naturalization involves many technical design, maintenance and programming challenges that may be beyond the expertise of some municipalities. These municipalities require the specialized skills of consulting landscape architects, botanists, restoration ecologists and/or environmental planners.



3.0

Towards Naturalization: Policy and Program Development



The guidelines presented in this section will assist municipalities develop and implement successful naturalization policies and programs. To allow for broad application, the guidelines are general in nature, for example, considering different policy and partnership approaches. Specific design guidelines on species to plant or project siting are beyond the scope of this document. The guidelines have been developed based on an extensive review of municipal naturalization initiatives from across Canada. Examples of Canadian municipal policies and program are provided. To learn more about the examples referred to, please contact the municipalities directly. Contact information is provided in Section 6.1.



3.1 Municipal Plans, Policies and Operating Procedures

A policy framework that supports naturalization will create a foundation for positive change by helping build political and staff commitment. This commitment is critical to sustaining policy direction and maintaining program funding. A naturalized area can take an entire term of office or longer to fully establish itself and it may take even longer for staff and the public to fully appreciate its values. Identifying and developing supportive policies is an important first step in establishing effective naturalization programs and strategies. These policies can be divided into two groups: (i) broad environmental management policies that support naturalization and (ii) policies that regulate or guide the use of land or the practices that occur on it.

Environmental Management Policies

a) Review senior government policy and legislation for supportive policies

Municipalities play an important role in meeting the policies of senior government environmental accords and agreements. Among these are the:

- *Canadian Biodiversity Strategy* — Canada's contribution to the United Nations Convention on Biological Diversity which calls for the development of municipal incentives and legislation to promote conservation and sustainable use of biological resources;
- *Local Agenda 21 Process on Urban Sustainable Development* — a part of the internationally sanctioned UN Agenda 21; and
- *Kyoto Protocol on Greenhouse Gas Reduction* — an agreement which led the Federation of Canadian Municipalities to create the 20% Club, now known as the *Partners for Climate Protection* program.


Urban naturalization can help meet component objectives of these and other national and international environmental initiatives.

Strengthening the Provincial Policy Framework

To enhance their ability to protect green spaces, some municipalities directly lobby senior governments for stronger supportive legislation. For example, in Ontario the Regional Municipality of Durham's Official Plan states that Council shall manage forests and woodlots by:

"Petitioning the Provincial Government to strengthen the powers of and penalties under the *Trees Act*" (Policy 2.3.3e)



 **Example**

In response to Canada signing the UN’s Agenda 21 Agreement, the City of Hamilton (formerly the Regional Municipality of Hamilton-Wentworth) developed *Vision 2020*, a comprehensive sustainable development strategy that deals with a broad range of environmental, social, economic and landscape issues. The document acknowledged the inherent unsustainable characteristics of conventional landscaping and established a sustainable landscape objective to restore and convert portions of existing parks, open spaces and private properties to create a “protected and connected” natural areas system.

Under *Vision 2020*, the municipality is revising its By-laws to encourage and promote naturalization on public and private property. In addition, the City’s Parks Department is developing a naturalization strategy to complement the larger *Vision 2020* strategy.



b) Develop specific Naturalization Master Plans or other types of policy documents

Specific policy documents enable municipalities to address naturalization in a comprehensive, proactive manner and help to raise community awareness. The contents of these documents vary from municipality to municipality but typically they include:

- priority sites and criteria for selection;
- roles and responsibilities;
- community outreach strategies;
- lists of appropriate native plant species; and
- methods of implementation.

 **Example**

In 1991 Guelph, Ontario’s Recreation and Parks Department created *Naturalization in the City of Guelph Parks*. Updated in 1993, the plan recommends that naturalized areas be included in all future parks. The document also selected 13 parks to study the true costs of naturalization including:

- time to train and educate staff and the public;
- hosting open houses;
- preparing and distributing literature;
- preparing signage;
- altering conventional horticultural schedules; and
- responding to public concerns and enquiries.

The document identified three implementation methods:


- **Plantation** — the initial planting of a similar species where final woodland composition is characterized by the initial plantings;
- **Managed succession** — where fast growing pioneer species are first introduced with intermediate and climax species planted at later stages “to provide an environment for natural migrations of additional species over time;” and
- **Natural regeneration** — where “mowing of turf grass... [is]...reduced significantly or discontinued altogether in areas where a natural seed source is in close proximity.”

To date, the plan has guided the naturalization of 160-hectares of parkland, reduced overall parks maintenance budgets, and helped bring back wildlife such as beavers and muskrat. It has also helped identify emerging problem areas such as the degradation of naturalized areas through heavy public use.



c) Develop supportive staff operational procedures

Simple operational procedures such as designating difficult to access areas as “no mow” zones support the establishment of native plant communities on public lands.

 **Example**

St. John’s, Newfoundland has successfully developed a series of naturalized shelter belts along roadsides, steep slopes and other difficult to maintain areas. These belts have been augmented with additional native plantings to buffer unsightly infrastructure such as communication towers. They are also used to enhance wildlife habitat along creeks and ponds. The shelter belts have been well received by the public and the City is careful to involve the public in siting new projects to ensure their continued support.



Land-Use Policies and Guidelines

a) Address naturalization in official plans and local area/secondary plans

Including naturalization policies in municipal plans will help ensure that it is taken into account and supported by future land-use decisions. These policies also demonstrate that a municipality recognizes the importance of naturalization and is committed to the protection and enhancement of healthy natural landscapes.

 **Example 1**

The District of Saanich, British Columbia’s Official Community Plan contains a number of policies which are supportive of naturalization in new developments and on public lands. The policies in its Environment chapter include:

- *preserve and rehabilitate designated natural areas within the public domain;*
- *support educational initiatives promoting the preservation and rehabilitation of natural areas within the public domain; and*
- *promote and encourage reforestation with indigenous species on public and private lands.*

The chapter on Built Environment also contains a relevant policy:

ensure that the landscape design of all types of development respects the local land form and plant communities.

Additional information on Saanich’s naturalization policies and programs is provided in Section 4.

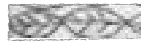


 **Example 2**


The Parks and Open Space Section of the City of Regina’s Development Plan (Section 6.3.2) states that:

- *ecological principles shall be an integral part of the design process for parks and open space; and*
- *to conserve water increased development and use of drought tolerant plant materials be considered in all new park development and redevelopment initiatives.*

These policies have been used by staff to support current and planned naturalization efforts and to justify the City’s move to create formal and more specific naturalization policies and regulations.



- b) Review existing policies, codes and By-laws for constraints**
Elected officials and senior management should be made aware of outdated policies that do not support urban naturalization or other environmental stewardship initiatives. *Weed* and *Unsanitary Premise* By-laws often need to be amended to specifically permit naturalization, particularly on private property.

 **Example**

As part of its urban naturalization program, the District of Saanich, British Columbia is reviewing and updating its *Boulevard* and *Noxious Weed* By-laws to ensure they do not conflict with the municipality’s planned naturalization policies and programs. For example, the *Boulevard* By-law will likely be amended to permit longer, uncut grasses and the planting of trees in groups, rather than in rows.



- c) Create site plan approvals and/or subdivision control policies which support or require naturalized landscaping**

One way to ensure that new development meets environmental objectives or performance standards is to specify them in planning policies and/or design guidelines. Providing this information up front gives the development community clear direction, enabling them to submit plans that conform to municipal requirements. This adds more certainty to the planning process and can significantly reduce approval times.

 **Example 1**

In Burnaby, British Columbia the Official Community Plan’s Subdivision Requirements and Comprehensive Development District zoning regulations require that developers landscape portions of the development site with native vegetation if it borders an identified environmentally sensitive area. Areas where native vegetation landscaping will be required are identified in Local Area Plans and include riparian areas. If the site borders a fish bearing creek as determined by the federal Department of Fisheries and Oceans, developers must also meet the Department’s setback requirements as well as those established by the provincial Ministry of Environment.



 Example 2

The City of Santa Monica, California has developed *Green Building Design & Construction Guidelines* which includes required and recommended practices to reduce the environmental impacts associated with new development. For example, one of the recommended practices is to “provide shelter and habitat for urban wildlife through landscape design.” The supporting design guidelines include:

- *select plants that produce native seeds, nuts and fruits for diverse food sources throughout the year;*
- *combine plants to provide horizontal and vertical density, with upper-story tree canopies, middle-story shrubs and low ground covers for refuge from predators and weather;* and
- *encourage integrated pest management (IPM) practices to reduce pesticide, herbicide and chemical fertilizer use.*

For more information about this document or to download a copy, visit the City’s website at <http://greenbuildings.santamonica.org>.



d) Create supportive By-laws for the naturalization of private property

 Example 1

The City of Waterloo has developed a permissive By-law for private property naturalization. Its *Lot Maintenance* By-law (no. 89-137) permits naturalized yards on private property provided a one-metre buffer of mown grass, which can be a native variety, is maintained around the property. The City of Toronto also maintains a permissive By-law (see section 5.2.).

 Example 2

The City of Regina’s Development Plan contains statements and objectives that indirectly support the use and retention of native vegetation on private and public lands. The Plan suggests the use of drought tolerant plant material and recommends the protection of wildlife habitat. One of the Wildlife Habitat Policies (Section 6.2.7) states that “wildlife habitats are important for the educational and aesthetic benefits to the residents of Regina, and to the ecological systems in and near the City.”



e) Develop supportive pest management policies and programs

To complement and support naturalization policies and programs and to further protect human and environmental health, municipalities should adopt ecological pest control methods to reduce or eliminate the application of chemical pesticides. The right of municipalities to regulate or outlaw pesticides was affirmed by the Canadian Supreme Court in June 2001 which upheld the Town of Hudson, Quebec's By-law that bans their use.

A number of Canadian cities including Halifax, Nova Scotia and Burnaby, British Columbia have adopted By-laws that ban the use of synthetic herbicides and pesticides, while others, including Corner Brook, Newfoundland maintain unofficial policy to not use these products. Municipalities such as Mississauga, Ontario have adopted an Integrated Pest Management Program which uses an ecological approach to vegetation and pest management on City properties.



 **Example**

Halifax Regional Municipality's (HRM) By-law applies to all municipal and residential properties in the Region but not to lands used for agricultural, forestry, commercial or institutional purposes. The By-law is being implemented over a four year period.

- *Year 1 (2000)* — a ban on the use of pesticides on all municipal property begins and a public education and awareness program initiated.
- *Years 2 and 3 (2001 and 2002)* — a ban on the use of pesticides on residential properties located within a 50 metre radius of:
 - a property registered as being occupied by a person at risk who provides medical documentation; or
 - any school, licensed day care centre, park, playground, licensed senior citizens' residence, university, church or hospital.
- *Year 4 (2003)* — a general ban on the use of pesticides will apply to all properties in HRM affected by the By-law.

A list of pesticide products excluded from the provisions of the By-law was created. For example, provisions are made for banned pesticides to be used in special cases to control plants or insects that constitute a danger to human beings or have infested a specific property. Such use requires a permit in advance from HRM and is subject to terms and conditions as provided for in the By-law. For more information see By-law (P-800) in Section 5.2, *Sample Policy Excerpts*.



3.2 Community Support and Participation

Successful naturalization efforts should involve the public through all phases, from planning and design, through to planting and on-going maintenance. In fact, many projects have been initiated by the community rather than the local municipality. Public participation not only builds community support and awareness, it also fosters a sense of environmental stewardship. Community-based efforts need to be recognized and supported by the municipality through project funding, technical assistance, labour, supplies and other measures. Municipalities that have made this investment have found that the payback can be significant, resulting in more land being naturalized than what they could accomplish on their own.

“Our programs have been most successful. Over 650,000 woody plants have been planted through the naturalization program since 1994. Well over 90% of this number has been planted by volunteers and community groups. An increasing number of schools are creating outdoor classroom areas. When we first stopped mowing roadway areas and started to plant, the public was in vocal opposition. Now there are few complaints and great appreciation for these efforts.”

— Survey Response, City of Edmonton, Community Services



a) Involve the community in all stages of the project

Example

As part of Burnaby, British Columbia’s State of the Environment Report, the position of Stewardship Coordinator in the Planning Department was created to help ensure active and sustained community participation in environmental decision-making and City-sponsored environmental events. The Stewardship Coordinator works with a number of community-based stewardship organizations such as the Burnaby Streamkeepers and students from a local college on a variety of on-going programs.




b) Support existing community-based naturalization efforts

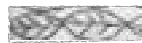
Example 1

The City of Vancouver provides a number of funding programs that support community-based naturalization initiatives. The Park Board’s *Neighbourhood Matching Fund* provides grants of up to a maximum of \$10,000. The City also supplies plant material through its native plant nursery. Individuals and groups can adopt traffic circles and medians, and landscape them in accordance with City guidelines that ensure appropriate sight lines are maintained. Many of these sites have been landscaped with native species.



 **Example 2**

To assist community and school groups carry out neighbourhood-based naturalization projects on school grounds, the City of Edmonton developed a brochure and project manual called *Naturescapes*. The resource was created in part because the City and School Board identified design and maintenance problems with earlier school ground naturalization efforts. The resource guide helps ensure that the parent-teacher groups leading the naturalization efforts communicate with and involve school ground keepers so that projects are not accidentally mowed or sited in areas with poor drainage.



c) Establish a citizen’s advisory Environmental or Land-Use Committee

 **Example**

The City of Winnipeg created a Landscape Management Task Force with members from the general public, the Department of Landscape Architecture at the University of Manitoba, and staff from the City’s Parks and Recreation Department. The Task Force created the policy document, *Nature in Parks, Parks in Nature*, which outlined a land and human resource strategy to create a more sustainable urban landscape. Their report identified naturalization as a key tool to “visually unify and soften the City’s built environment” and promoted the “creation of naturalized corridors connecting both existing natural areas and residential communities.”

Establishing an Environmental Advisory Committee (EAC)

The Federation of Ontario Naturalists has published a booklet called *Protecting Nature Close to Home: A Guide to Municipal Environmental Advisory Committees in Ontario*. It explains how an EAC can support Municipal Council, who to include and how to set one up. It also provides case studies of EAC’s that have made a difference.

To order, contact the Federation of Ontario Naturalists at info@ontarionature.org or 1-800-440-2366; www.ontarionature.org



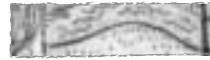
d) Organize community education and outreach programs

 **Example**

The City of Waterloo, Ontario operates a *Partners in Parks* program lead by a full-time staff person. The program coordinates community involvement and outreach programs in the City’s naturalized areas and develops partnership projects between the City and community groups. Projects have included native species plantings, cul-de-sac naturalization, school ground naturalization and wildlife habitat creation. The program has also developed three educational publications that provide information on:


- *Woodlands Stewardship*;
- *Riparian Stewardship*; and
- *Stormwater Management*.

These publications provide residents whose property borders a riparian or woodland area with general guidelines on how to minimize their impact on these features by avoiding the use of pesticides and planting appropriate native species as buffers. *Partners in Parks* also organizes public relations and media events as well as community park events for children.

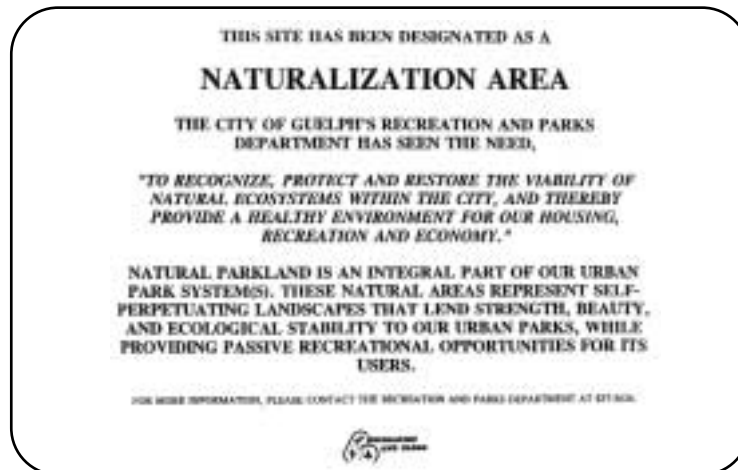


e) Provide interpretive signage and conduct project tours

Interpretive signage is a good way to inform the public about the benefits of naturalization and to let people know that the changes to the landscape are intentional and managed.

 **Example**

The City of North Vancouver has naturalized a number of high profile non-park areas including the boulevards along a retail street and the grounds of City Hall. These and other more traditional sites in existing parks and along watercourses are interpreted with signs explaining the project and the importance of urban naturalization. The City also conducts annual tours of naturalized private gardens in the municipality. The City of Guelph also uses signage to explain its projects.



3.3 Public and Private Sector Partnerships

Broad-based, multi-level partnerships expedite project implementation and build political support. In addition to community partnerships, three key partnership areas are:

Municipal Interdepartmental Partnerships: Naturalization has diverse design applications and relevance to departments such as Public Works, Engineering, Public Health, Economic Development, Planning and Parks. Recently, Engineering Departments have begun to recognize the benefits of a more naturalized approach to stormwater management, groundwater recharge and management and water conservation. Some Engineering and Public Works departments have forged partnerships with Planning and Parks departments to facilitate the use of green infrastructure in new developments.

Multi-Jurisdictional Partnerships: Municipal naturalization initiatives can be supported by policies, legislation and programming at the federal, provincial, regional and institutional levels. Because of shared air, water, energy and land management mandates, naturalization projects increasingly involve partnerships among different levels of government. Key provincial and federal departments include Environment, Natural Resources, Public Works, Transportation, Health and Education. Other partners may include regional governments, conservation authorities, crown corporations, public utilities and transportation agencies. Potential institutional partners include school boards, universities, colleges and hospitals.

Public-Private Partnerships: Potential private sector partners include: developers who can incorporate naturalized areas in new developments; businesses that can provide land, funding and volunteer labour; and business improvement associations that can help carry out and support naturalization projects to beautify streets and improve pedestrian linkages.

“A network of natural areas has been identified, protected, and in some areas enhanced. This has been achieved through the formation of partnerships including Federal and Provincial Ministries, the Region, the Area Municipalities, the Grand River Conservation Authority, other government agencies, the private sector and the community.”

— excerpt from the *Regional Municipality of Waterloo’s Official Plan, 1994.*



a) Develop demonstration projects or programs involving one or more internal departments

Some projects, such as naturalized stormwater ponds, will require the design services of the Parks and Engineering Departments, the approval of Planning, the construction services of Public Works and Parks, and the on-going maintenance of Parks. Such interdepartmental projects can help establish stronger partnerships, lead to staffing and resource sharing efficiencies, and help build capacity among the departments involved.

 **Example**

In Calgary, the Wastewater and Drainage Branch, the Urban Development Department, Building Development and Regulations, and Parks Development and Operations worked together to develop the *Stormwater Management and Design Manual*. This comprehensive document recognizes the need for innovative designs to “improve the aesthetic, recreational and environmental features of urban developments” and includes policy and design guidelines for a number of Best Management Practices including constructed wetlands and dry and wet ponds. The manual will assist with the development of naturalized stormwater management facilities in new developments and in retrofit projects where feasible. The use of native plants is referred to throughout the document. The manual also helped the City develop a demonstration constructed wetland that functions as a stormwater management area and treats waste water from an adjoining fish hatchery. Financing for the development involved a further partnership with the Provincial government which has jurisdiction over the river into which the wetland flows.

**Sample Policy from Calgary’s
*Stormwater Management and Design Manual***

6.3.2.15 Wet Pond Landscaping and Vegetation: A planting strategy is required to provide shading, aesthetics, safety, enhanced pollutant removal and waterfowl control. The purpose of the planting is to provide a sustainable community with a naturalized treatment. Plants native to Calgary should be used where possible. Planting density may not have to be high, as natural succession will ultimately make up the vegetation. As well, the overall planting should be designed to minimize maintenance. Manicured and mown areas should be kept to a minimum, as these areas can attract waterfowl and become a problem.



b) Identify departments with a potential interest in naturalization and seek out supporters or “champions”

 *Example*

The City of Richmond British Columbia has recently established a new inter-departmental committee to determine each department’s environmental responsibilities and to identify inter-departmental opportunities and conflicts. The Committee will also help identify areas of staff expertise and opportunities where departments can work together more effectively.



c) Assess potential naturalization projects for jurisdictional overlap

Potential naturalization sites may cross jurisdictional boundaries and mandates. Senior levels of government should be identified and assessed for their potential level of involvement and any cost-sharing possibilities. In many cases, their regulatory approval will also be necessary.


 *Example*

In the early 1970s, the City of Saskatoon, Saskatchewan faced challenges in effectively managing the South Saskatchewan River which bisects the City. Given the multiple jurisdictions represented in the valley corridor, the City, the University of Saskatchewan (a major riverbank landowner) and the Province came together to create the Meewasin Valley Authority (MVA). The MVA is a unique, multi-jurisdictional conservation organization that undertakes programs and projects in public education, river valley development and conservation. Since its creation, the MVA has carried out numerous naturalization projects under its *Natural Area Development Policy* which seeks to restore damaged areas of the valley, preserve remaining natural areas and enhance wildlife habitat. The MVA has developed naturalization expertise and now provides consulting services to other groups and municipalities.

d) Partner with local regional governments and/or conservation authorities

 *Example 1*

The Greater Vancouver Regional District (GVRD) is a partnership of 21 municipalities and one electoral area that make up the metropolitan area of Greater Vancouver. In 1996 the GVRD adopted a *Livable Regional Strategic Plan* with policies and targets in several key areas, including the protection of the GVRD’s “Green Zone”—a system of major parks, watersheds, ecologically important areas, farmland and other natural areas.

 **Example 2**

In response to the *Livable Region Strategic Plan*, the City of Burnaby is designating Green Zone lands and is preparing individual management plans for each identified area. These areas will be buffered and restored using native plants and, over the long-term, linkages to the City’s Urban Trail System will be improved. The municipality will continue to protect Green Zone watercourses through land purchases, conservation easements and other regulatory tools.

e) Develop projects with corporate partners

 **Example**

British Columbia Hydro/British Columbia Gas and four lower mainland municipalities have partnered with Douglas College’s Institute of Urban Ecology on its *Green Links Project*. The aim of the project is to increase the ecological value and biodiversity of urban wildlife habitat by enhancing linkages along utility corridors and an urban trail system. Enhancement involves re-establishing native plant communities in disturbed areas. British Columbia Hydro/British Columbia Gas have provided the corridor sites and the participating municipalities have provided plant materials salvaged from development sites.

Students from Douglas College carry out the bulk of the maintenance and monitoring activities and community members participate in both planting and maintenance events. Planted areas within the utility corridors are monitored to ensure that they do not grow beyond specified heights. Logs are also placed around the perimeter of the sites to mark their location and prevent accidental mowing.



f) Engage the development community

Municipal governments can encourage developers to integrate naturalized landscapes into their developments by:

- providing information on the financial benefits, such as increased lot values;
- establishing a progressive plan review process that provides incentives to protect and enhance green spaces; and
- creating alternative development standards which permit naturalized infrastructure such as naturalized stormwater management ponds and roadside swales.

 **Example 1**

The District of Saanich, British Columbia provides developers with resources from Naturescape British Columbia, including native plant and site design guides. Naturescape British Columbia is a program that empowers citizens to restore and enhance wildlife habitat in urban and rural landscapes across the province.

 **Example 2**

In its review of development applications, the Central Lake Ontario Conservation Authority in south-central Ontario requires that all developments that disturb natural areas must restore them to better than existing conditions using native plant materials only. Authority staff help developers meet this requirement by providing expertise and recommending appropriate plant species.



g) Promote naturalization on institutional properties

Most institutions such as school boards, universities, colleges and hospitals typically own large open spaces which may be suitable for naturalization. Institutional partners are often able to provide technical assistance, volunteer labour and funding. They can also help build positive public awareness of naturalization and its benefits.

Example

One of North America's first public naturalization projects was carried out on the grounds of the University of Wisconsin in Madison, Wisconsin. Today the site is used as an outdoor classroom and field study site by students in landscape architecture, resource management and environmental sciences. The area is also used as a park for staff, students and the public.



3.4 Building Internal Capacity

Implementing naturalization projects requires a diverse set of skills, which if lacking, will limit a municipality's ability to deliver successful projects. To overcome this barrier, external consultants such as planners, landscape architects and ecologists may be required, as will staff training. Also, increasing staff and Council's awareness of the benefits will help create a supportive internal environment that allows for the effective delivery of projects.

a) Assess current capacity

Example

Calgary's Natural Area Management Plan identified the need to create new staff positions and reorganize others to meet the plan's objectives. Extensive staff training was carried out and a design specialist position was created to coordinate the plan's implementation. The plan also led to the creation of a Natural Area Management Research Committee which reviews and monitors research projects and identifies study areas. Committee membership includes staff, local groups (such as the Calgary Field Naturalists) and University of Calgary faculty.



b) Organize training seminars and field trips

Example 1

As part of its water conservation program, the City of Vancouver's Water Works Branch arranged staff field trips to project sites to demonstrate how naturalized landscapes reduce water consumption. Staff from the Planning and Engineering Departments and the City's Parks Board have participated. These visits have also facilitated interdepartmental partnerships which encourage sharing expertise and resources.



 *Example 2*

The City of Waterloo has conducted professional development workshops for staff in the Environmental Services Division. The workshops introduced participants to the concept of naturalization and provided information on site management and maintenance practices. These workshops are supplemented by lunch-time presentations on a variety of naturalization topics.

c) Provide information to council and senior staff through existing environmental advisory committees

Environmental committees often wield significant influence and can be used to promote naturalization at the council and senior management levels. They can help facilitate the development of key enabling policy objectives and goals to support the development of specific naturalization programs and policies.

 *Example*

The City of North Vancouver’s Environmental Protection Advisory Committee (EPAC) has been active in developing supportive urban naturalization policy recommendations, advocating for naturalization in a number of locations and lobbying Council. The eight person committee serves a two-year term and is comprised of one Council member plus seven residents appointed by Council. In a relatively short period of time the committee has assisted with:

- daylighting and restoring a section of an urban creek;
- organizing an annual Natural Gardens Tour to promote the use of native vegetation; and
- developing two new parkland naturalization projects.

d) Identify qualified consultants and contractors

External consultants who specialize in areas such as landscape architecture, planning, native plant ecology and group facilitation can fill internal knowledge and skills gaps. Look for consultants who have a proven track record delivering similar types of projects and are experienced at working with and engaging community partners.

 *Example*


The City of Regina, Saskatchewan hired a consultant to assist with its first major naturalization initiative, the restoration of a wetland within an existing park. In addition to designing the site, the consultant worked with the City to produce development and maintenance guidelines which will guide subsequent naturalization initiatives.



e) Audit municipal landscape management practices and costs

To help build support among Council, senior management and the public, audit municipal landscape management practices to identify the costs and environmental impacts of conventional landscape management practices.



 Example

Several U.S. agencies including the US Environmental Protection Agency and the municipalities of Austin, Texas and Tucson, Arizona have conducted cost comparisons of naturalized versus conventional landscapes. These studies have shown that naturalized landscapes can offer:

- overall maintenance cost savings of 80 to 90 per cent over a ten-year period;
- cost reductions of between 10 and 50 per cent on a building's heating and cooling costs; and
- a two-to-one cost savings in storm sewer construction in new developments when using naturalized stormwater management systems.



f) Develop criteria to identify urban naturalization candidate sites

Not every potential site is suitable for naturalization given its use, location and historical significance. Naturalization site criteria can be used to determine which areas are suitable for naturalization and to prioritize sites.

 Example

With the assistance of landscape consultants, the City of Toronto created the planning guide, *Selection of Naturalization Sites for Metro Toronto Road Corridors*. This document provides a framework for selecting naturalization sites along road corridors in the former Metropolitan Toronto boundaries. Eight key site assessment criteria were considered:

- size;
- visual improvement potential;
- physical improvement potential;
- potential pedestrian and vehicular conflicts;
- access;
- environmental exposure;
- existing habitats; and
- former and current land-use.

Using these criteria, 90 sites were identified and ranked. A number of them have been successfully naturalized.



g) Undertake projects that offer multiple benefits

Municipal capacity can be enhanced when projects provide multiple benefits to different departments. Engineering, Public Works and Health departments are becoming increasingly aware of the environmental and financial benefits of using native plants for stormwater management, water conservation, air filtration, traffic calming and street redesign projects.

 Example

In Saskatoon, Saskatchewan the Parks, Planning and Municipal Engineering Departments have partnered to naturalize a park area and construct a stormwater retention pond in an existing park. By providing both recreational and infrastructure benefits, the project will help the City develop planning and design guidelines and evaluate the technical effectiveness of this naturalized stormwater management system.



h) Establish a native plant nursery

Although the availability of native plants has increased substantially in recent years, many jurisdictions do not have access to an adequate supply. This presents an obvious challenge to developing a successful naturalization program. To address it, some municipalities have established their own native plant nurseries.

 Example

The City of Vancouver Parks Board has owned and operated a nursery for over 40 years. In 1999, it developed a separate facility dedicated exclusively to the propagation of native plant material.

3.5 Project Management and Design


Project management and design are critical components of a successful naturalization initiative. Given the inherent challenges, many municipalities have adopted a “learn-by-doing” approach where pilot projects are used to develop effective operational guidelines, implementation models and evaluation criteria prior to embarking on larger, costlier projects. Projects can also be designed to support broader environmental and recreational objectives.

a) Manage projects within the context of an ecologically-based management program

To maximize the effectiveness of naturalized areas, sites should be managed as a system rather than individually. When considered as part of an integrated system, effective linkages and connections can be developed which support wildlife migration and help restore the integrity of natural systems.





 Example

Burnaby, British Columbia’s Official Plan supports “undertaking planning from a watershed and ecosystem perspective.” The Official Plan provides a comprehensive Environmental Policy Framework and an Environmental Regulatory Framework to ensure the creation of an “integrated green way system with linking green spaces that can enhance ecological health within the City.” The City’s vegetation protection and enhancement activities are supported through environmental policies, By-laws and programs such as its:

- State of the Environment Report;
- Environmental Sensitive Areas Strategy;
- Integrated Pest Management Policy and Program;
- Sediment Control Guidelines;
- Open Watercourse Policy;
- Watercourse and Tree Protection By-laws, and
- Federal and Provincial land development guidelines.



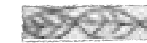
b) Inventory public green space within the municipality

An inventory of public open space will provide baseline information to identify candidate naturalization sites and create a basis for an ecologically-based planning system. Typically, the inventory should identify existing remnant natural areas and environmentally sensitive areas which could be enhanced through naturalization. It could also be used to identify other candidate naturalization sites such as roadsides, boulevards and difficult to mow slopes.

 Example

As part of its *Natural Area Management Plan*, the City of Calgary conducted an inventory of its natural environment land base. Conducted by staff from the Parks and Operations Division, it provided sufficient information to create:

- a system to classify natural environment parks;
- a subset of classification zones and management units; and
- implementation guidelines.



c) Carry out large, multi-year pilot or demonstration projects

 Example

High Park is a 151-hectare park in Toronto that receives over one million visitors a year. The park contains a 44-hectare, regionally rare, remnant black oak savanna. After studies confirmed that the site was in decline, a large-scale restoration and naturalization effort was initiated in 1995. The City’s Natural Environment and Horticulture Section has involved a number of community groups, hundreds of volunteers and several planning partners, including the local conservation authority, in its restoration and enhancement. Given the scale of the project, the importance of the black oak savanna habitat and the number of visitors who pass through the park, the project has been identified as one of the City’s flagship restoration sites. On-going public education has kept the community informed about the restoration methods being used, including prescribed burns, manual removal of non-native vegetation and the planting of prairie wildflowers and native grasses.



d) Visibly manage the site throughout the naturalization process

Projects must reflect human intention and direction, or “perceived care.” When a site appears to be neglected and the community is not involved in its care, the results can be negative as some people do not embrace the aesthetics of naturalization. For example, if a naturalization project is based on natural succession rather than new planting, litter may accumulate and invasive species may establish themselves. Maintaining a turf border (borders and edges are critical to perception) around a naturalized site will indicate care and intention to a public unfamiliar with the visual characteristics of a naturalized area.

Some municipalities have stopped mowing boulevards to permit restoration through natural succession. They have found that if neighbours are not adequately informed, they often mow these areas themselves believing that they are helping out or that the City has neglected its maintenance duties. Educational programs that inform the community about the City’s intentions and the principles of successional naturalization can prevent this situation by increasing public buy-in.



e) Monitor and evaluate sites

All projects should be monitored and evaluated and lessons learned applied to subsequent initiatives. Important questions include:

- what plant communities establish themselves best and where;
- what was the public reaction; and
- was the public adequately involved in and aware of the process?

Project monitoring is also important given the environmental stresses of the urban environment such as soil contamination, invasive non-native plants, road salt and auto exhaust. The reintroduction of native plant communities can be difficult and may require the careful choice and mixing of native and non-native species to be successful.

 **Example**

Toronto’s Parks and Recreation Division has developed a monitoring program to evaluate the cultural, ecological and fiscal components of its naturalization efforts. According to the *Toronto Parkland Naturalization Update*: “Monitoring data...has been collected using different methods, across a multitude of different sites, and using a variety of naturalization techniques. Past monitoring reports have included quantitative figures on plant survival and volunteer labour, as well as qualitative comments on plant mortality and how to improve naturalization techniques.”




f) Wildlife management

Natural area design and maintenance should support wildlife food and shelter requirements. As an example, the National Capital Commission in Ottawa mows its annual mow areas late in the season to permit monarch butterflies to feed on milkweed before their annual migration to Mexico.

g) Buffer and enhance remnant natural areas

Most municipalities recognize the importance of maintaining remnant natural areas including ravines, escarpments, wetlands and forests. These areas have often been neglected and thus are ideal for naturalization.

 **Example**

As part of its *Living Prairie Museum Project*, the City of Winnipeg successfully restored a small unique portion of prairie habitat within the City limits. Naturalizing the site helped to protect this threatened feature and was widely supported by the public. The site includes an interpretation centre which has helped build civic commitment to undertaking additional projects.

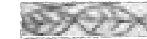


h) Integrate projects into existing urban trail systems

Urban trails can be good sites for naturalization initiatives. They often link parks and open space and their naturalization builds public interest and awareness usually with minimal opposition. Linkages also provide corridors for wildlife migration.

 **Example**

The City of Peterborough, Ontario's Official Plan has established the policy objective of providing "a linear system of green space linking natural core areas to support ecological functions and facilitate self-powered forms of transportation." To achieve this objective the City is identifying existing linkages and enhancing portions of its bike and pedestrian trail system through naturalization.



4.0

Case Studies



4.1 City of Toronto

Background: The City of Toronto has a long record of leading naturalization programs. Prior to amalgamation in 1998, the former Municipality of Metropolitan Toronto was responsible for managing the regional parkland system concentrated in the valleys of Toronto's six major watersheds. Much of this parkland was not manicured and



Stewart Chisholm

many areas remained in a natural state, managed for passive recreational use. Some of the former local municipalities also carried out naturalization in their own park systems, sub-watersheds and ravines that fell under their jurisdiction. The City's current program continues the work initiated by the former municipalities.

Current Activities and Programs: Today, there are a number of municipal departments involved in urban naturalization programming and policy development in Toronto. Foremost among them is the Natural Environment and Horticulture Section (NEHS) of Parks and Recreation which coordinates the City's *Parkland Naturalization Program*. The goal of this program is to "enhance, preserve, protect and restore areas and features of the natural environment within the City's park system." The objectives designed to achieve this goal are to:

- design and implement complex ecological restoration projects at prioritized sites throughout the city;
- adopt an ecosystem planning approach to restoration, that considers project sites within a local, city-wide, watershed and bioregional context;
- build partnerships with the private sector, other government departments and agencies, environmental groups and the community to aid in program delivery; and
- encourage community stewardship on public parklands and raise environmental awareness of associated issues.

NEHS has developed a comprehensive planning methodology for carrying out naturalization projects in the City's parklands and has expanded its scope to include roadsides, boulevards and appropriate portions of manicured parks. Other municipal departments and programs whose mandate includes naturalization are:

- Parks and Recreation's Urban Forestry Section which manages existing forested areas;
- the Water and Wastewater Division of the Works and Emergency Services Department which carries out sub-watershed planning and stormwater management programs;

- the *Toronto Atmospheric Fund*, a municipal grant program established by the City to promote the reduction of greenhouse gas emissions. Projects funded include those aimed at reducing the urban heat island effect through tree planting and cooler roof and pavement surfaces; and
- the Healthy Cities Office which actively supports and promotes community and civic natural landscaping as a part of its *Green Lungs* air quality improvement projects.



Evergreen

Policy Context: Toronto is currently developing a new Official Plan for the amalgamated City, scheduled for completion in fall 2001. It is expected to contain specific policies that support the protection and restoration of natural features including existing native plant communities. It is also expected that the By-laws developed by the former municipalities to protect natural areas will be maintained, improved and extended city-wide.

Public Involvement: Toronto actively encourages public stewardship through a variety of programs. Partnerships are considered to be the cornerstone of NEHS's parkland naturalization program and plantings are carried out almost entirely by volunteers. NEHS maintains over 300 partnerships with community groups and schools across the city. A strategic planning priority of NEHS is to support public education and interpretive programs in the near future.



Parks and Recreation also delivers the *Children's Garden Program* and *Exploring Toronto Programs* which teach children and youth about urban ecology in City parks and ravines. Through creative hands-on programming, participants learn about native plant restoration, natural history and contemporary perspectives on urban environmental issues.

The *Watershed Awareness Program* is also delivered by Parks and Recreation. It is based on the model project, the *Taddle Creek Watershed Initiative*. Taddle Creek is one of the City's better known buried streams. Planting events and other initiatives, carried out in parks through which the creek once flowed, have raised awareness of the interrelationship between remnant ravines, buried streams and other natural features.

Lessons Learned and Future Directions: The key lessons identified by the City are:

- the importance of participation and hard work of community volunteers for specific projects and at planting events;
- that projects are always more successful when community support and participation is solicited from the onset, and when the community is involved and supportive throughout all stages;
- the importance of advance planning for complex restoration sites;
- the importance of on-going monitoring and evaluation of restored and naturalized sites to continue to build siting, planting and maintenance expertise; and
- that partnerships with the community, other levels of government, agencies and departments, and corporations have been invaluable to the success of specific projects.



City of North Vancouver

4.2 City of North Vancouver

Background: The City of North Vancouver is a relatively small urban municipality of 45,000 located between the Burrard Inlet and Coast Mountains. Although the City is in close proximity to wilderness areas, it has actively encouraged urban naturalization. The City's significant environmental resources include remnant forest areas, creek systems and marine foreshore. Urban naturalization is supported by a number of policies and programs and the City works to ensure on-going public involvement.

Current Activities and Programs: Various municipal departments including Engineering, Parks and Environment and Community Development recognize the benefits of urban naturalization, or “naturescaping” as it is referred to by the City. To date, the City has used naturalization to:

- restore urban creeks;
- landscape City Hall;
- beautify and revitalize a section of a major street;
- create new habitat areas in City parks; and
- landscape the North Vancouver RCMP building.

To inform and guide its naturalization efforts and to identify priority areas for protection, the City mapped and inventoried its environmentally sensitive areas in 1997. The inventory indicated that over 20 per cent of the City has moderate to high designations as natural areas that support wildlife and aquatic habitat, and/or

represent unusual or scarce landscape features. Maintaining this relatively high percentage of natural areas was identified as a policy and program priority and naturalization was recognized as a tool to meet this objective.

With the assistance of its active public Environmental Advisory Committee, the City also developed a comprehensive Environmental Protection Program to address issues identified by the mapping exercise. The Environmental Protection Program was recently adopted in principal by Council and will be soon be implemented as a formal plan. The program objectives, which will likely involve naturalization, include:

- moderating stormwater flows from development into City creeks;
- stabilizing stream bank erosion;
- improving stream water quality and reducing non-point source pollution;
- restoring riparian areas both on public and private lands;
- supporting a “no net loss – net gain” policy of stream, marine foreshore and estuarine habitat areas during development and redevelopment;
- protecting and enhancing remaining public forested areas;
- increasing the wildlife habitat values of lower density neighbourhoods, in particular those which provide connectivity between larger habitat areas;
- providing transportation alternatives to private automobiles, including a network of walking and cycling paths;
- increasing the ratio of productive green space to paved surface areas through the redevelopment process; and
- increasing community pride, local knowledge and environmental stewardship.



City of North Vancouver

The City was awarded the 2000 Environmental Stewardship Award from the British Columbia Landscape and Nursery Association for its City Hall and 14th Avenue “naturescaping” and civic beautification project.

Policy Context: The City’s

naturalization activities and programs were previously carried out without the support of official policy. With the City’s adoption of the new Environmental Protection Program, its programs and initiatives will now gain policy support and be further promoted and expanded.

In addition, the City’s Official Community Plan (OCP) is under review and will be completed in 2002. Its new theme is “urban sustainability” and it is likely that the updated document will contain extensive policy to support the continued and expanded application of naturalization. The City’s Environmental Protection Program will be incorporated in the updated OCP.

Public Involvement: The City of North Vancouver’s projects have generally been well received by the public. It recognizes the importance of public involvement and to this end it:

- sponsors community planting events;
- cooperates with schools interested in naturalizing their grounds;
- partners with local stewardship groups such as the Streamkeepers Association;
- helps coordinate an annual private native garden tour; and
- provides information on naturescaping on its website (www.cnv.org).



The City was involved in the distribution of a questionnaire to gather public input on its Environmental Protection Program. Eighty-nine per cent of respondents indicated that they support the program as well as municipal efforts to:

- promote green space conservation and better environmental practices in parks and open spaces through an updated Parks and Open Space Plan and/or creation of a Greenway Plan; and
- encourage responsible public investment by increasing habitat for birds and urban wildlife using Naturescape approaches for public projects.

Lessons Learned and Future Directions: The City will continue to promote and facilitate both large- and small- scale naturalization initiatives. Also, implementation of the Environmental Protection Program may involve incorporating naturalization into municipal infrastructure such as stormwater management systems. An important lesson that the City has learned is to ensure that the public is well informed on civic naturalization initiatives. A recent naturalization project to create a meadow habitat on a previously manicured park was not well received due to the lack of initial public involvement and consequently, had to be abandoned.



City of North Vancouver

4.3 City of Edmonton

Background: The City of Edmonton has taken a proactive approach to urban naturalization and has developed official policy for its expanded use, particularly in its large parks. Edmonton defines naturalization as an “alternative landscape management technique to conventional high maintenance landscapes.”

Current Activities and Programs: From 1994 to 1998 the *Roadways and Parks Naturalization Masterplan* guided the City’s naturalization initiatives. The plan recognized the economic, environmental and quality of life benefits of naturalization, and coordinated a series of initiatives to help:

- buffer remnant natural areas;
- create new wildlife habitat;
- stabilize slopes;
- prevent erosion;
- reduce park maintenance costs; and
- diversify passive recreation opportunities.

The document identified and prioritized a large number of potential naturalization sites, the vast majority of which were successfully naturalized over the five year implementation phase of the *Roadways and Parks Naturalization Masterplan*.

During the implementation phase of the plan, naturalization programming and policy development was guided, in part, by a Naturalization Working Group which included City staff and members of the public. The group also produced a community-based brochure and naturalization project manual called *Naturescapes*, to guide school ground naturalization initiatives and community greening efforts.

Today, naturalization is guided by operating policy in both the Parks and Engineering Departments, where naturalization has been incorporated into some stormwater management projects. As the primary department responsible for the maintenance and development of lands under the Naturalization Masterplan, the Parks Department delivers on-going staff workshops on the principles and objectives of naturescaping and site maintenance. An interdepartmental group headed by Drainage Services of the Engineering Department has completed a draft guidelines document for constructed stormwater wetlands.

Policy Context: Naturalization was supported through the City’s Roadways and Parks Masterplan and is presently guided by the Neighbourhood Park Development Program. Further policies were created by the Naturalization Working Group, a city policy-making body which included both public and city staff members.

The Naturalization Working Group developed the *Community Action on Greening Report*, a policy document which supports “the integration of greening projects and natural learning environments on school and park land through community action.” The report also includes the guiding principle that only sustainable green projects that meet its criteria be approved for City funding.



City of Edmonton/Holy Family Catholic Elementary/Junior High School

Public Involvement: The City recognizes the importance of public involvement in the development of its naturalization projects and policies. For example, it has created a *Partners in Parks* program that involves the community in planting and maintenance activities. Of the 650,000 woody plants that have been planted through the City's naturalization program since 1994, over 90 per cent have been planted by volunteers.

Lessons Learned and Future Directions:

As the City moves forward with naturalization, it has recognized the importance of evaluating past programs and projects in order to determine their cost effectiveness, common obstacles and full range of benefits. This information will help build political support for their continuation and expansion.

Key obstacles identified include a lack of:

- experience in establishing native prairie and grassland areas;
- financial resources; and
- native plant material (often seedlings available to school and community groups are limited to spruce seedlings).



City of Edmonton/Holy Family Catholic Elementary/Junior High School



4.4 City of Regina

Background: With a relatively dry climate, Regina has recognized the importance of creating naturalized, self-sustaining municipal landscapes to help conserve water and reduce irrigation costs. Although the City has just begun developing formal naturalization programs and policies, its approach to building capacity and expertise through pilot projects makes a good case study.

Current Programs and Initiatives: Naturalization is widely supported by various policies and departments including Community Services, Engineering and Urban Planning. The City has also established a committee to develop a process that requires interdepartmental review, input and cooperation on municipal initiatives to protect and enhance environmental features. With a growing environmental imperative to conserve water, Regina is actively working to promote and enhance xeriscaping—the use of drought tolerant plant species. The City is planning to develop formal policies and programs to support this work. In the interim, it is relying on existing policies including its:

- *Development Plan;*
- *Development Regulations By-law; and*
- *Open Space Management Strategy.*

Currently, a native grassland habitat is being created in a City local park. It is being used as a pilot project to develop a seed mix particular to the region and to develop more expertise in the relatively fledgling area of dryland prairie habitat restoration. In addition, a naturalized stormwater detention area in another park was created as a pilot project to develop municipal expertise in wetland prairie naturalization. These two pilot projects are being

used to build public awareness and develop community support for further naturalization initiatives.

Most recently, the City entered into a partnership with the Saskatchewan Wetlands Conservation Corporation (SWCC) to develop a small-scale nursery of selected native grasses and forbs. The City donated land and access to water and equipment, while SWCC will provide the plant material, labour and expertise.

Policy Context: The City of Regina’s Development Plan contains statements and objectives that support the use of native vegetation in open space development. The Plan also indirectly supports the use of native vegetation on public and private lands by suggesting the use of drought tolerant plant material and protecting wildlife habitat. The relevant development regulation By-law states that “existing on site vegetation shall be preserved to the maximum extent.”

The City also maintains an Open Space Management Strategy which includes specific goals and objectives pertaining to “the protection of biological ecosystems” and the promotion and creation of “self-supporting landscapes.”

On an operational level, the City has developed and implemented policies that support a hierarchy of maintenance practices that reduce mowing and maintenance in certain areas. This has led to subsequent development of successional, naturalized landscapes in some areas.

Finally, Regina has a Dryland Vegetation Management Committee that meets annually to discuss opportunities for better design and management practices using drought tolerant plant material. One of



Saskatchewan Wetland Conservation Corporation — Nursery Rows

its successes was in helping create a seed mix that includes native grasses for use along storm channels, creeks, floodplains, roadway easements and utility corridors.

Public Involvement: Public participation is facilitated through a number of programs. The City has a Horticultural Extension Officer whose work involves liaising with community members and recruiting the public to sit on municipal working committees.

One of the City's main programs, the *Treemendous Program*, involves community volunteers and local groups in planting trees on municipal lands. An associated program, the *Tree Tour Service*, gives horticultural advice for "prairie hardy" trees and shrubs and specifies the type of food and shelter each provides for local wildlife. Although some non-native species are included, the program encourages the use of native species.



The City operates an *Adopt-A-Greenspace Program* that encourages community members to participate in the on-going care of green spaces. It also hosts workshops on xeriscaping and administers a *Self-Help Grant Program* to assist groups create or improve existing neighbourhood green spaces.

Lessons Learned and Future Directions: Despite some conflicting departmental ideas and opinions on naturalization, the City is moving ahead in developing naturalization programs and policies. In addition to the climatological and biological limitations (i.e. a very limited palette of hardy native tree and shrub species), other obstacles identified by staff include the need to:

- create an official, working definition of naturalization to ensure that City Departments are working toward the same goals and objectives;
- develop and refine expertise on the operational issues associated with naturalized sites such as the use of controlled burns on prairie grasslands;
- continually build and maintain public commitment to help ensure continued political commitment and support; and
- secure a reliable, large-scale supply of native seeds and plant material.

4.5 District of Saanich

Background: The District of Saanich, British Columbia is a half rural, half urban municipality with a population of 106,000 bordering Victoria. As one of the southernmost municipalities in Canada, its moderate climate supports some of the nation's most threatened plant communities, including the Garry Oak savanna. The District has long recognized its unique natural resources and in the face of on-going urban development, is working to protect and restore natural areas on both private and public lands. Although still under development, the District's policies and programs are some of the most progressive and ambitious in the country.

Current Programs and Initiatives: The benefits of naturalization are recognized by the municipality, especially the Parks and Planning Departments. The District uses naturalization to:

- manage stormwater, including the creation of wetland retention and treatment areas;
- enhance its natural areas parkland, which is 70% of its total park base;
- create natural areas in previously highly maintained parks;
- landscape traffic islands and boulevards; and
- restore habitat, particularly in the municipality's Garry Oak restoration project sites.

The District also works with landowners on various land stewardship programs and has protected several important natural areas on private property through the creation of special natural state covenants. Naturalization is also recognized as an important component of the Park Department's Integrated Pest Management Program.

Recently, Council adopted *Naturescape British Columbia* principles as a starting point for naturalization education, policy development and program review. These principles address land stewardship, habitat creation, the preservation of biodiversity and water conservation. Council also passed sections of a naturescaping implementation strategy, developed by the Parks and Planning Departments and two public advisory committees. For each action, a lead department was specified and potential private and public sector partners identified. Implementation is to be carried out in two phases based on each component's ease of implementation, cost and overall impact. The key components include:

Phase One

- review *Noxious Weed and Boulevard* By-laws for conflicts;
- carry out formal workshops for staff and union representatives;
- develop partnerships with identified groups;
- conduct a workshop on implementation for targeted interest groups; and
- conduct resident workshops.

Phase Two

- revise Landscape and Screening Guidelines (appended to the Development Permit Area guidelines of the Official Community Plan);
- identify landscape goals for municipal lands;
- issue British Columbia-wide challenge to see which municipality can sign up the greatest number of landowners willing to naturescape their property;
- send out an open call to builders and developers to promote naturescaping at show home sites;
- develop public naturalization demonstration sites; and
- develop guidelines for voluntary boulevard naturalization.



Policy Context: Naturalization is supported by a number of policy documents including the District's Official Community Plan which includes a policy that aims to ensure that the landscape design of all types of developments respect the local landform and plant communities.

Two of the District's Local Area Plans also include policies that aim to "protect indigenous vegetation, wildlife habitats, and landscapes when considering applications for

change in land-use," and "preserve indigenous trees, shrubs and plants (including mosses) and rock outcrops within parks, boulevards, road rights-of-way and other public lands." Developers must demonstrate through an Environmental Impact Statement that the proposed land-use change will not adversely affect existing native plant communities. One of the Local Area Plans includes policies that encourage the use of native species for landscaping boulevards and public lands.

The Planning Department also works with developers and landowners to place *Natural State Covenants* on lands that have important ecological features during the subdivision approval and rezoning processes. The covenants prevent the alteration of land, removal of native plants and the planting of non-native species within the protected area.



To help ensure that the District's new subdivisions respect the local environment, a new boulevard tree planting provision is being developed which permits more natural groupings of trees. It also includes appropriate native tree species on its list of recommended trees.

Public Involvement: The municipality has a part-time Environmental Education Officer responsible for a wide range of public education initiatives, including the District's naturalization programs. The District works with a number of volunteer groups to remove invasive species and has been working with the Local Natural History Society to conduct inventories of the District's natural parks and unopened rights-of-way. It also coordinates community planting events in its Garry Oak ecosystem restoration sites.

The District's Parks and Recreation Advisory Committee and the Environmental Advisory Committee both include community members and have supported programs for implementing Naturescape principles.

Lessons Learned and Future

Directions: One of the key obstacles identified by staff is the difficulty of changing public perception and attitudes that natural landscapes are not just "weeds" or "untidy scrub." Through public education, the municipality is confident that these obstacles will be overcome in time.

4.6 City of Tucson, Arizona USA

Background: Many of the first municipal urban naturalization programs and policies in North America originated in the drought



City of Tucson

prone regions of the American southwest where ground and surface water removals routinely exceed annual replenishment rates. Public authorities began to explore natural landscaping, in particular xeriscaping as a means of reducing municipal water demands as early as 1983.

For example, in Tucson, Arizona, a fast-growing desert city entirely dependent upon groundwater for its municipal and industrial needs, authorities avoided traditional, large-scale engineered water importation schemes. Instead, it reassessed its approach to urban landscape management since 25 per cent of its water demand was used to maintain traditional landscapes. The City recognizes urban naturalization as a broader quality of life issue and is linking it to municipal economic development.

Current Activities and Programs: Various City departments and offices are directly involved in naturalization including Planning, Engineering, the Water Conservation Department and Parks and Recreation. Programs and policies are coordinated amongst departments, and multi-departmental, multi-jurisdictional and public-private partnerships are common.

The Planning Department has implemented a new native plant preservation ordinance and is working to designate various municipal properties as natural open space. The Parks Department has also completed the development of two new natural desert parks and is actively working to retrofit others.

A current inter-departmental initiative is the development of indicators to evaluate the success of the City's naturalization policy and program initiatives. Staff are presently researching the best way to collect data on the following indicators:

- ratio of protected natural desert to total developed land;
- area of preserved or restored waterways and wildlife corridors;
- population and diversity of key native wildlife species; and
- length of trails and bikeways in desert preserves and their accessibility.



City of Tucson

Policy Context: There are a number of municipal policies that support and/or require urban naturalization. The City's Comprehensive Plan, General Plan, Development Standards, Street Development Standards and Land-Use Code all contain naturalization provisions including detailed native plant standards that apply to private developers and City departments. Non-native plants, particularly turf grasses are restricted throughout the City.

The City's *Native Plant Preservation Ordinance* aims to protect native plants in their current locations by integrating them into new developments. The Ordinance applies to all new residential, commercial and industrial projects and requires proponents to prepare a Native Plant Preservation Plan. The City's Street Development and Land-Use Code also includes landscaping provisions that recognize the multiple benefits of urban naturalization.



Naturalization is also supported by senior government legislation including the:

- federal *Clean Water Act* and the *Endangered Species Act* which protects special habitats and landscape features in new developments;

City of Tucson, Street Development Standard and Land-Use Code (Ordinance No.8845, Sec. 3.8.0, adopted March 24, 1997)

These regulations provide for the preservation, protection, transplanting and replacement of existing designated native plants including cacti, succulents, trees, and shrubs through the establishment of comprehensive procedures, requirements, and standards which protect the public health, safety, and general welfare by:

- Preserving a sense of place through the potential enhancement of the community's appearance from public streets and between incompatible uses.
- Maintaining property values, the quality of life, and lifestyles valued and enjoyed by the community through the preservation of unique Sonoran vegetation.
- Contributing to economic development through the maintenance of a regional identity that attracts tourism and new business.
- Improving air quality through the preservation of mature vegetation that removes carbon monoxide and filters dust and particulates from the air.
- Promoting water conservation through retention of existing drought-tolerant vegetation that requires no supplemental irrigation.
- Assisting in climate modification and reducing energy costs through the use of native vegetation to shade buildings, streets, sidewalks, and other outdoor areas.
- Retaining vegetative features of habitats that are important to native wildlife species.
- Stabilizing desert soils by minimizing soil erosion through preservation of or revegetation with native plants.

- State of Arizona *Native Plant Act* which protects naturalized landscapes; and
- State of Arizona *Growing Smarter Act* which strengthens local governments' ability to address urban growth issues and requires strategies for acquiring and preserving open spaces.

Public Involvement: The City is committed to on-going public input and involvement. Four departments, Planning, Engineering, Parks and Recreation and Water Conservation, provide the public with information on native plant gardening and the City's natural landscape programs. The Parks and Recreation Department maintains several demonstration gardens where the public can learn about native plant gardening and xeriscaping. To help support community naturalization initiatives the City also provides technical assistance on grant applications.

Lessons Learned and Future Directions: Tucson remains committed to further restoring and enhancing its natural landscapes. One of the key lessons is the need to educate the public about the value of natural landscapes. All City policies and programs are careful to link naturalization to Tucson's economic development and the enhancement of its quality of life. This approach has helped ensure greater public support and fostered a deeper understanding of the benefits of nature in the city.





EVERGREEN
COMMON GROUNDS

Bringing Nature to our Cities

Evergreen is a national non-profit environmental organization with a mandate to bring nature to our cities through naturalization projects. Evergreen motivates people to create and sustain healthy, natural outdoor spaces and gives them practical tools to be successful through its three core programs: **Learning Grounds** (transforming school grounds); **Common Grounds** (working on publicly accessible land) and **Home Grounds** (for the home landscape). We believe that local stewardship creates vibrant neighbourhoods, a healthy natural environment and a sustainable society for all.

Evergreen's Common Grounds Program

Common Grounds brings land-use planners, landscape architects and the community together to restore public land. By supporting community greening initiatives, Common Grounds enriches ecological diversity, fosters healthy, sustainable communities and, increases environmental awareness.

Evergreen Tool Shed

The Tool Shed is an integrated collection of resources designed to inspire, educate and guide students, teachers, planners, community groups and individuals through all stages of a school, community or home naturalization project. The Tool Shed series includes guide books, instructional and inspirational videos, fact sheets, case studies, newsletters, research reports and an on-line registry. For the latest information on Evergreen's Tool Shed resources, check out our website at www.evergreen.ca.

Evergreen is funded by the generous support of individual Canadians, foundations, businesses and various government agencies. Major funding partners include:



www.evergreen.ca

355 Adelaide St. West, 5th Floor,
Toronto, ON M5V 1S2
Tel: 416-596-1495 Fax: 416-596-1443

#404-134 Abbott St.,
Vancouver, BC V6B 2K4
Tel: 604-689-0766 Fax: 604-669-6222

1-888-426-3138 toll free in Canada — outside Toronto and Vancouver