# Green Municipal **Fund**

## Sustainable Neighbourhood Development:

Practical Solutions to Common Challenges

# Acknowledgements

Cover images:
*Left:   A streetscape of the Dockside Green development in Victoria, BC*
*Right: A streetscape of the Village de la Gare development in Mont-Saint-Hilaire, QC (Credit: CMHC, 2007)*

Canada

Sustainable Neighbourhood Development:
Practical Solutions to Common Challenges

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# Contents

# Introduction

Sustainable neighbourhoods are the neighbourhoods of the future. As the world becomes more and more urbanized, there is a growing need to create great places that contribute to a healthy environment and support a strong community. If municipalities are to build neighbourhoods that meet those needs, their development must be viable, and if those neighbourhoods are to last, they must support healthy municipal and household finances.

In order to create sustainable neighbourhoods, municipalities need to support a viable development model focused on creating lasting environmental, social and economic value. This guide will help local governments create the conditions to enable sustainable neighbourhood development, and it will help developers deliver on that promise.

This guide provides top-line, how-to information about the planning and development of sustainable neighbourhoods, offering practical solutions to common challenges. It answers important questions about sustainable neighbourhood development:

1. What is a sustainable neighbourhood, and how can I make the case for pursuing this kind of development?
2. What are the major challenges, and how can they be overcome?
3. Where else in Canada has this been done successfully, and what factors led to that success?
4. Where can I go for more in-depth information?

FCM's Green Municipal Fund™ (GMF) encourages municipalities to develop sustainable community plans and local neighbourhood action plans that set goals and targets and identify actions to advance sustainability at the local level. GMF is a good source for further information and support.
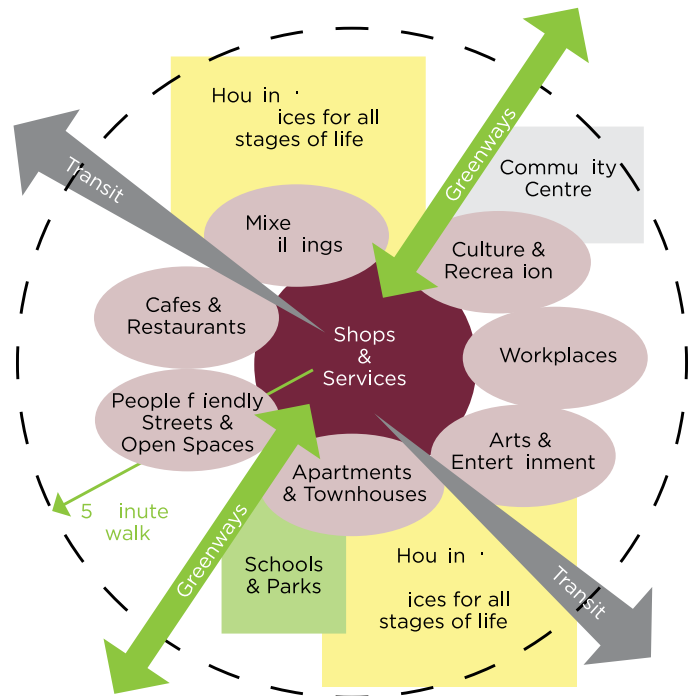


*Streetscape of Southeast False Creek in Vancouver, BC*
*(Source: HB Lanarc Golder)*

# What is Sustainable Neighbourhood Development?

Because of the many different contexts in which development takes place, it is difficult to clearly define a sustainable neighbourhood. Sustainable neighbourhoods come in many different forms, but they share some common characteristics: they are relatively compact, mixed-use communities with good access to transit and incorporating a range of housing options, workplaces, parks, amenities, shops and services. They are also highly resource-efficient and support a high quality of life for all residents. From another perspective, a truly sustainable neighbourhood can be identified by the ambitious goals it would achieve, such as zero waste and net zero carbon, a high degree of housing affordability and diversity, and neutral or positive fiscal impact on the municipal budget.

Sustainable neighbourhood development is not a big departure from what some local governments are already doing in their planning and approval of subdivisions and neighbourhood plans. For many Canadian municipalities, however, it requires a fundamental re-thinking of development, municipal planning and regulation. The table on the next page links critical strategies to the features of a sustainable neighbourhood that they support. For many municipalities, implementing these strategies means changing current practices.

The rest of this document provides a guide to how to encourage the take-up of these strategies as well as a reference to some key resources to support further learning.



*Design Principles of Sustainable Neighbourhoods (Source: Modus Planning, Design & Engagement Inc.)*

# The 10 One Planet Principles

Zero carbon

Zero waste

Sustainable transport

Sustainable materials

Local and sustainable food

Sustainable water

Land use and wildlife

Culture and heritage

Equity and local economy

Health and happiness

*UNESCO's 10 One Planet principles*
*For more information:*
*www.unesco.org/education/*

# Strategies for Sustainable Neighbourhood Development

| Features of a Sustainable Neighbourhood | Critical Strategies |
|---|---|
| Accessible, efficiently serviced location | • Support high quality infill<br>• Redevelop greyfields and brownfields<br>• Develop transit-oriented neighbourhoods |
| Mixed use, offering easy access to amenities, jobs, and services | • Mix land uses |
| Diverse residents living in diverse housing | • Mix housing types |
| Walking, cycling, transit, and road networks linked to the city and region | • Integrate circulation networks<br>• Introduce transit-oriented development (TOD) |
| Multi-functional streets that support social and environmental functions as well as multi-modal transportation | • Design complete streets<br>• Reduce parking |
| An accessible network of greenspace that functions well ecologically and supports recreation and food production | • Create integrated green space networks<br>• Cluster development<br>• Encourage urban agriculture |
| A safe, social, and attractive environment | • Strengthen social and cultural networks<br>• Incorporate great public meeting spaces |
| A unique identity, referenced within the regional identity | • Use placemaking approaches |
| Energy efficient buildings and renewable energy systems | • Develop district and renewable energy systems<br>• Optimize solar orientation and access<br>• Use eco-industrial approaches |
| Water-efficient buildings and landscapes | • Use water-efficient technology<br>• Use low-impact stormwater management techniques |

# Sustainable Neighbourhood Development is a Valuable Investment

*Streetscape of Garrison Woods neighbourhood in Calgary, AB (Source: Canada Lands Company)*

Many Canadian municipalities face a number of major challenges, such as an aging population, aging infrastructure, climate change and volatile energy prices, and demands for more affordable, adaptable housing and for local economic development that is environmentally responsible. Fortunately, local governments and developers are well positioned to tackle some of these serious issues through the neighbourhood development process.

As agents of change, local governments and developers can take the original concept of "sustainable development" and rethink development as a valuable long-term investment that protects and enhances the environment and helps to meet the needs of all community members. At a neighbourhood scale, sustainable development is well within the grasp of Canadian municipalities: they have the design, technology and policy tools needed, as has been demonstrated by numerous success stories across the country.

Sustainable neighbourhood development has the potential not only to improve social outcomes but also to reduce risks for both developers and local governments, because the features that make neighbourhoods more resource-efficient and supportive of strong communities are often also more viable and fiscally sound. Furthermore, sustainable development tends to reflect a broad spectrum of interests, so planning and designing for sustainability has good potential to secure broad community, stakeholder and council support for proposed development, increasing the likelihood that plans will be approved.

The table of benefits on the next page provides some examples of the value created through sustainable development practices. Case study vignettes throughout the rest of the guide highlight the "triple bottom line" benefits realized on the ground.

# Benefits of Sustainable Neighbourhoods

Many studies have documented the benefits of sustainable neighbourhoods, comparing them to other forms of development. The following table highlights some of the measurable positive impacts of sustainable neighbourhoods measured across a variety of contexts. The "Key Resources" section at the end of this guide includes these and other useful sources for demonstrating the benefits of sustainable neighbourhoods.
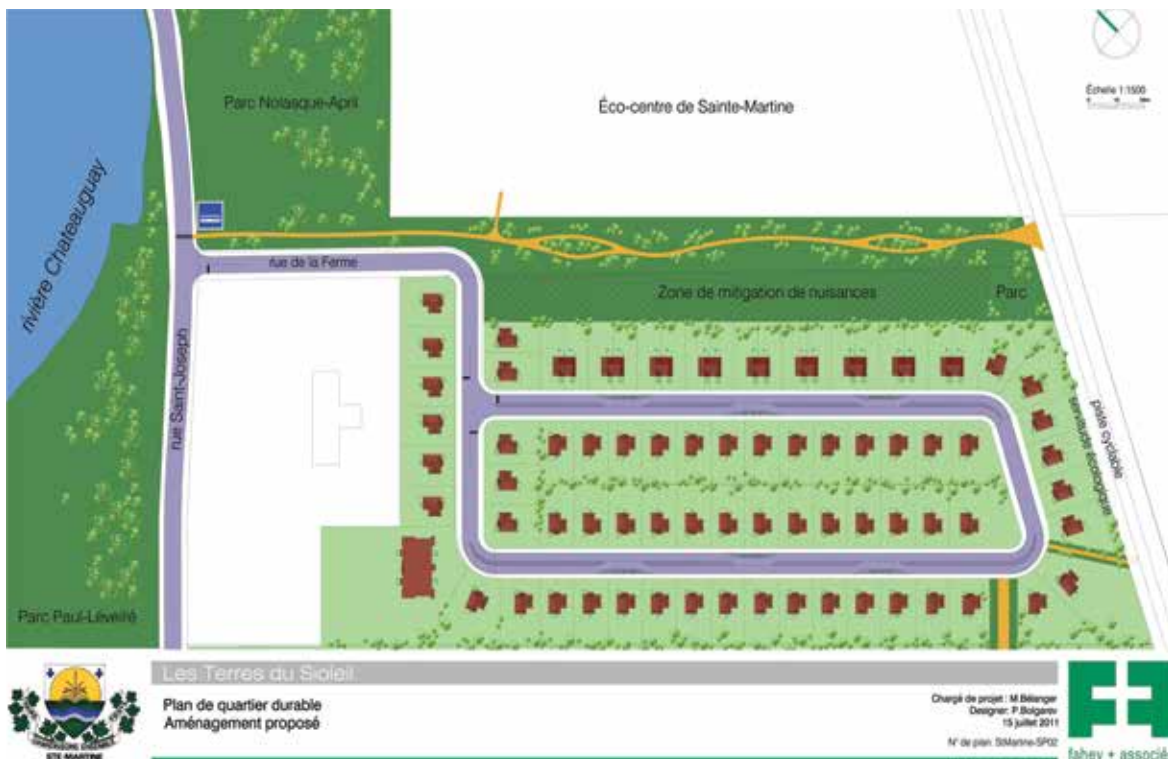
| Benefit | Impact | Source |
|---|---|---|
| Greater infrastructure efficiency in denser communities | Life-cycle costs of hard infrastructure are reduced by up to 25% in denser communities. | CMHC 2008 |
| Reduced infrastructure costs through conservation design | Per-lot capital costs are 33% lower with conservation design than with conventional design. | Delaware Department of Natural Resources and Environmental Control 1997 |
| Increased marketability of walkable neighbourhoods | Home values in communities with above-average walkability command a premium of $4,000 to $34,000. | Cortright 2009 |
| Faster property value appreciation in communities with open space preservation | Lots in "conservation" subdivisions carry a premium, are less expensive to build, and sell more quickly than lots in "conventional" subdivisions (or standard suburban developments). | Mohamed 2006 |
| Reduced energy use and greenhouse gas (GHG) emissions in dense, mixed-use communities | GHG emissions are reduced by up to 50% in denser communities. | Natural Resources Canada (NRCan) 2010 |
| Greater affordability through reduced household costs | Installation of a solar hot water system in Halifax saves about $425/year and $20,000 over the system's lifetime, representing a 7-9% return on investment. | Halifax Solar City Program 2015 |
| Support for local businesses | In mixed (or "traditional") neighbourhoods, 56% of residents walked to nearby commercial areas, versus 33% in "suburban" neighbourhoods. | McCann 2005 |
| Reduced use of resources (e.g. land, energy, water) | Prairie Crossing, a conservation subdivision, estimated a 40% reduction in stormwater runoff and 50% reduction in building energy consumption compared to standard suburban developments. | Gorgolewski, Komisar and Nasr 2011 |
| Reduced greenhouse gas emissions with district energy | The Regent Park district energy system produces 30% fewer GHGs than a typical heating/cooling system. | FCM 2010 |
| Reduced obesity and related health problems | Living in dense, highly connected, mixed-use neighbourhoods reduces the likelihood of obesity significantly. | Frank, Engelke and Shmid 2003 |
| Increased safety | Grid-based street networks with small block lengths and narrower road widths have fewer pedestrian injuries than wider streets with longer block lengths. | Swift, Painter and Goldstein 2006 |

# Three Partners for Transformation

Both developers and local governments have a role to play in shifting to sustainable neighbourhood development. Developers initiate projects and respond to the regulatory, market and financial context in which they operate. They take on risks and realize a financial return in exchange. Local governments, meanwhile, support the public good by shaping the regulatory environment and influencing market and financial factors. In some cases, they champion changes in development practice through regulations, incentives and other initiatives. Developers and local governments have complementary roles in the transformation to sustainable neighbourhoods: developers adjust their practices, and local governments encourage and facilitate this adjustment. This relationship offers opportunities for the two to collaborate, working together to remove barriers and adopt new practices.

The community itself is a third partner: as the source of political support for the local government, community voices are heard in rezoning hearings, Town Halls and public consultations across the country. Most importantly, when involved in planning and design, community members bring valuable ideas and knowledge about what will work for them. Strategies that address the needs and roles of developers, local governments and citizens in overcoming key challenges will be most effective at moving the market and local communities toward sustainable outcomes.



*Conceptual plan view of the Terres du Soleil neighbourhood in Sainte-Martine, QC*

# Challenges and Opportunities

Creating sustainable neighbourhoods requires a wide range of changes to conventional development practice — some modest, others profound. These new approaches come with their own challenges and risks, but they also bring significant benefits and opportunities.

CMHC research on just one of these new approaches, residential intensification , highlighted three major challenges: higher development costs (compared to greenfield development), neighbourhood opposition and regulatory issues (CMHC 2004). CMHC found that these types of projects are associated with "more financial risks, delays and complexities...." Despite the risks, the completed projects met the needs of the communities in which they were built, including lower infrastructure costs, more diverse housing options, and improved health and safety. Furthermore, most developers were satisfied with their return on investment (in other words, the profit compensated for the risk).

While sustainable neighbourhood development may have greater risks than conventional development, the payback can be consider-able for all involved. Investing in sustainable neighbourhoods now can mean lower costs in the future. The local government benefits from lower costs for infrastructure, energy, water use and maintenance. These lower costs mean more cost-efficient delivery of government services, with potential for lower taxation, attracting businesses and residents. Residents are also attracted by the potential for healthier lifestyles, more choice in travel modes and better access to green space.

Investing in sustainable design can also be an important strategy to help developers reduce future risks, because those who learn how to develop sustainably before it is required in core markets do not have to fear new regulations. Furthermore, incorporating sustainable design features into a project can provide access to the growing niche "green" market. In the US, 13–19% of the public is interested in green buildings, alternative energy and alternative transportation (Lifestyle of Health and Sustainability (LOHAS) 2012). In Canada, a 2010 study in Quebec City found that 40% of respondents were interested in living in a sustainable community, and were willing to pay a 6% premium (Quebec 2010).



*Public space in the Bois-Franc neighbourhood in Montreal, QC (Source: CMHC)*

# Proven Solutions

To help local governments and developers access the benefits of sustainable neighbourhoods, this guide highlights well-established solutions to common challenges. While some solutions have been applied more in some parts of Canada than others, and some are more familiar in other countries, this guide profiles how these solutions have succeeded in the Canadian context. It highlights the complementary roles developers and local governments play in implementing complete solutions, using icons to indicate if the solution is applicable to local governments 🏛, developers ☐, or both 🏛 ☐.

While the solutions can be applied in almost any order, they are presented here as steps in the process of enabling development of a sustainable neighbourhood. The first is the development of the **skills and knowledge** needed to support and implement sustainable developments. The second and third are about removing **financial and regulatory barriers**. These are followed by approaches to **planning and development** that can increase the likelihood of planning/design success and long-term performance. Last are two supporting considerations: how to use **marketing**, and **contracting** to support and drive sustainable neighbourhoods.

| Category | Challenges | Solutions |
|---|---|---|
| Skills and knowledge | • Lack of familiarity with sustainable practices<br>• Lack of skills (e.g. for redevelopment and infill) | • 🏛 ☐ Education and awareness<br>• 🏛 ☐ Training and education<br>• 🏛 Incentives for planning/design practice |
| Financial solutions | • Higher capital costs<br>• Split incentive<br>• Formula-based and single-use financing models<br>• Business models do not capture potential value<br>• Projects too tightly scoped to capture value (e.g. from nearby synergistic opportunities) | • 🏛 ☐ Leverage partnerships<br>• 🏛 ☐ Link across systems and scale<br>• ☐ Green loans<br>• 🏛 Financial incentives, development charges, and investments<br>• 🏛 ☐ Utility partnerships<br>• 🏛 Focus on end-use, least-cost |
| Incentives and supportive policies | • Inappropriate zoning<br>• Overly prescriptive standards<br>• Restrictive street standards<br>• Weak policy support | • 🏛 Supportive policies, plans, and standards<br>• 🏛 Approvals checklists<br>• 🏛 Expedited approvals processes<br>• 🏛 ☐ Prioritize more sustainable sites |
| Planning and development processes | • Linear planning and development processes<br>• Public consultation emphasizes approvals over co-creation of value<br>• Inflexible, single-purpose design | • 🏛 ☐ Performance-focused development<br>• 🏛 ☐ Integrated design processes involving end-users<br>• 🏛 ☐ Pilot programs and one-offs<br>• 🏛 ☐ Build in flexibility and adaptability |
| Marketing | • Market research is biased to the status quo | • 🏛 ☐ Alternative market research methods<br>• ☐ Rating systems and awards |
| Contracting | • Contracts often focus on legal and short-term financial considerations | • 🏛 ☐ Requests for proposals (RFPs) with a "triple bottomline" approach<br>• 🏛 ☐ Land sale conditions<br>• ☐ Performance contracts |

# Skills and Knowledge

The skills to design and build sustainably, and the level of understanding and support for sustainable neighbourhoods, vary from place to place. Local governments need to be aware of the current capacity of designers, developers and builders in their market, and the community's culture, as they move to strengthen sustainable development practice. Some communities have strong latent demand for sustainable neighbourhoods, while in others the public has trouble envisioning these neighbourhoods and their benefits. Equally, some markets have few developers experienced in infill and redevelopment. In these areas, regulations that restrict greenfield development should only be considered in tandem with initiatives to help local government decision-makers and the development community gain the required skills.

## Challenges

- Community members do not understand the features and benefits of sustainable neighbourhoods.

- Developers, approving officers and other local government staff lack familiarity or comfort level with sustainable practices and solutions.

- Contractors and developers lack skills (e.g. for development of small or constrained sites).

## Solutions

**Education and awareness:** Programs that help shift public consciousness about the features and benefits of sustainable development can lay the groundwork for successful approval of policies, regulations and plans that support sustainable neighbourhoods. To be effective, these programs need to go beyond consultation on plans; they should reach a broad cross-section of the community and use cultural change approaches.

**Training and education:** Both the development community and local governments can provide training. Joint delivery of such programs would have the added benefit of helping each better understand the other's needs. For example, Metro Vancouver initiated BuildSmart, an initiative to encourage the local development community to use green development strategies and technologies and keep up with broader developments.

**Incentives for planning/design practice:** Using incentives to encourage developers or builders to adopt new practices is a way of encouraging learning by doing. An excellent example is a short-lived incentive Seattle provided to development teams to conduct integrated design processes. The program helped many local teams become proficient quickly, but then became over-subscribed. It was restricted to first-time applicants, and was removed entirely as the practice became widespread.

## SUNRIDGE
## LETHBRIDGE, AB

The City of Lethbridge (pop. 90,000) planned a green housing development called SunRidge and oversaw the construction of the first 84 houses. Key goals were to protect the environment, spur local builders to adopt green building techniques and inspire other municipalities to launch similar initiatives. The 84 dwellings are estimated to save 323 tonnes of greenhouse gases and 15 million litres of clean water per year. Approximately half a tonne of waste was diverted from landfill during construction of each house through greener building practices.

**Challenge:**
Lack of knowledge, understanding and clear framework for sustainable development

**Solutions used:**
- The city led planning and development and oversaw construction.
- The city adapted an existing, tested framework (BUILT GREEN®) with support from the development/ building community.
- The city offered cash rebates to encourage builders to meet the more stringent BUILT GREEN® Silver and Gold certification standards.

During the first two phases of development, 84 new homes in SunRidge met BUILT GREEN® standards: 78 were certified Gold, five were certified Silver and one was certified Bronze.

**More information:**
www.fcm.ca/gmf
GMF Project Number 7174
Lethbridge Land, Tel.: 403-320-3905



*Town homes under construction in the SunRidge neighbourhood of the City of Lethbridge, AB*
*(Credit: City of Lethbridge)*

# Financial Solutions

"It costs too much" is the refrain typically heard about sustainable development: we all want to do it, but can't find ways to make the numbers work. A number of solutions are available, some of which are surprisingly easy to implement. The aim is to match financial mechanisms to the structure of costs and the benefits. For example, investments in smart growth and walkable communities often take longer to payback than traditional development projects. However, if done right they also provide much greater value over time because they generate a thriving, livable community that attracts people and businesses over the long term. A good solution is to find more patient capital, such as large pension funds looking for steady, lower-risk returns for the long term.

## Challenges

- Higher capital costs for efficient, green technology

- Split incentive, where capital costs are borne by developers and operating savings are realized by buyers – but not recognized in the sales prices

- Formula-based and single-use financing models

- Business models do not capture potential value, e.g. build/sell models do not capture revenue from operating energy savings

- Projects are scoped tightly, missing key opportunities to capture value through synergies with nearby uses or systems

- Design for incremental improvements usually involves incremental changes and cost increases

- Design and planning typically focus on standard products or approaches that are expensive ways of meeting community needs.

## Solutions

- **Leverage partnerships:** Partnerships may involve many players, pairing developers with local governments, utilities, and other government agencies. For example, developer-municipal partnerships may deliver affordable housing that either party on their own would not be able to achieve. EcoDistricts (ecodistricts.org) and 2030 Districts (www.2030districts.org) are two organizations offering support to local governments building effective partnerships.

- **Link across systems and scales:** Seeing the neighbourhood as part of a larger community is critical, as is linking to strategies at a smaller (site or building) scale. For instance, a complete energy strategy considers investments at a city-wide (e.g., natural gas pipes), district (neighbourhood energy utility), and building (renewable production and energy efficiency) scale, and finds solutions that combine the best options among them. Integration across scales is a way to find new opportunities and new value. Similarly, linkages between systems are opportunities to find value. Parks are an obvious example, as their open space can meet multiple objectives for recreation, habitat, stormwater management, air quality, aesthetics, market value, alternative transportation and more. A plan for a sustainable neighbour-hood, such as a Sustainable Neighbourhood Action Plan (SNAP) is a good opportunity to identify and decide how to realize these linkages.

- **Green loans:** These bridge the "split incentive" mentioned above for residential developments. The developer determines the incremental capital costs of green features, and takes out a long-term loan on behalf of the condominium/property owners for that amount. The savings from reduced energy and water use are usually more than the loan servicing costs,

## PERTHWORKS
## PERTH, ON

The Town of Perth (pop. 6,000) created a plan for a one-hectare, 32-unit cottage cluster housing development, rezoned it, subdivided, and then sold the land through an RFP process. The development includes a large commons (a shared green space), requirements for energy performance equivalent to LEED® for Homes Gold, diverse housing forms, and more.

**Financial challenge:** The site was too big for local builders, who were challenged by the site servicing strategy, so market take-up was slower than expected.

**Solutions used:** The town increased interest through a number of financial incentives:

- Payment for the property can be spread out over two years.
- Fifty per cent of the development charges can be deferred until occupancy permits are requested.
- The city offers a rebate on de velopment charges of up to 35%, depending on the extent to which performance criteria are met.

All lots have since sold.

**More information:**
www.perthworks.com/
GMF Project Number 9080
Eric Cosens, Director of Planning, Town of Perth, Tel.: 613-267 3311

so there is a net financial benefit to the condominium owners. This benefit increases once the loan is repaid. In the Toronto area for example, Tridel works with the Toronto Atmospheric Fund (TAF) to provide these loans, and provides good consumer information about them (Tridel, 2015). In some markets, the loan is seen as a disincentive to buyers because it is treated as a lien by mortgage financers; however, this barrier should be easily overcome through marketing and awareness. In some jurisdictions, local governments can use Property Accessed Clean Energy (PACE) financing, in which property owners can take out a loan to pay for energy improvements. The loan is repaid, typically over 20 years, through a supplemental property tax assessment.

**Financial incentives, development charges, and investments:** Local governments may employ a number of financial incentives, which vary depending on the legislative authority in different provinces. These may include loans, competitive grants, feebates, fee reductions, differential development cost charges, and more. Municipal investments such as public realm improvements may reduce costs to developers and/or enhance property values, functioning as an indirect incentive to development.

**Utility partnerships:** In many parts of the country, energy utilities are offering significant incentives to offset costs related to designing and building more energy efficient buildings. Some have also begun to offer related services that reduce developer or municipal risk. For example, Fortis BC offers an integrated service for district energy systems, offering a finance/build/own/operate model. In this model, their services are recouped through monthly fees to users of the system. This approach situates financing and technical expertise with the utility, allowing developers and local governments to focus on their core business.

**Focus on end-use, least-cost:** A neighbourhood in which jobs, services, recreation, and housing can be accessed by a short walk allows people to meet their needs without the expense and danger of driving regularly. The end use of access is met through low cost modes (RMI, 1998). Setting end-use, least-cost as a design principle can prioritize much higher value investments.

*Houses being constructed as a part of PerthWorks in the Town of Perth, ON (Source: User Guide: Making a Rural Sustainable Neighbourhood Happen In a Small Urban Municipality (Federation of Canadian Municipalities report on the Town of Perth Sustainable Neighbourhood Development Plan Pilot Project, GMF Project Number 9080))*

# Incentives and Supportive Policies

**Since sustainable neighbourhoods have so many benefits, why are they not the norm? Some existing regulations can hinder or prevent sustainable practice. Developers may cite a lack of certainty as the main barrier. Conversely, they may say that regulations are not flexible enough to allow for innovation. While it is a challenge to appropriately balance certainty and flexibility, local governments have a number of tools for addressing regulatory barriers to change. These should be employed with due consideration for the specific issues and context at hand.**
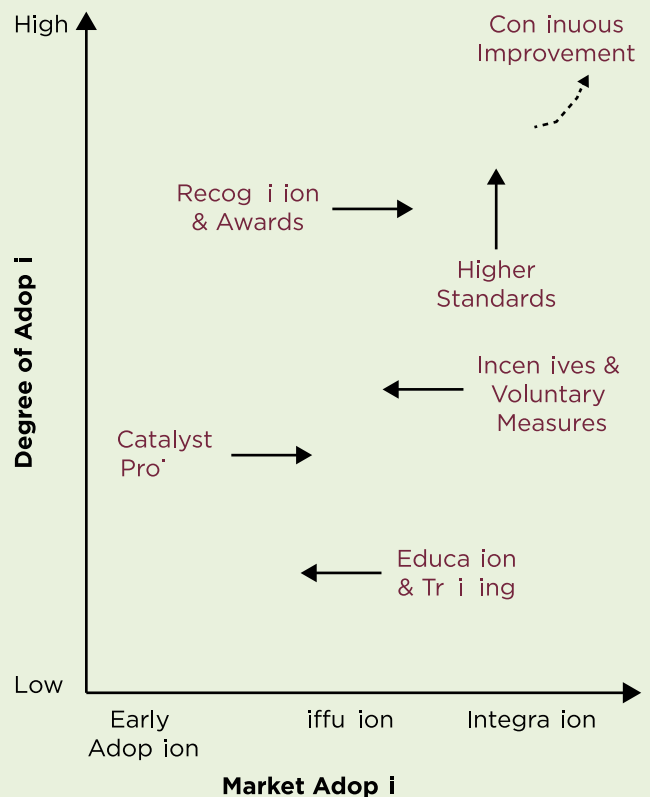
To support and incentivize sustainability practices, municipalities should choose solutions that match the specific challenges faced in the community, with a focus on practices that the market and the community are able to adopt. Local governments can increase the likelihood of success with the following "transformational strategy":

- When a practice is new, provide research and development support.

- Once a practice is proven, train and educate key players, demonstrate success with prominent catalyst projects, reduce cost barriers through loans and grants, and remove regulatory barriers.

- Once a practice is more widespread and viable, remove unnecessary financial incentives and set good practices in stone through the adoption of new regulations and standards.

Local governments can apply this "transformational strategy" to policy, programs and regulations. When governments publically articulate the strategy, developers can use it to identify challenges and request appropriate assistance. This "transformational strategy" is shown in the graph at right, which matches interventions to the phase of market adoption shown on the bottom axis.

Regulatory solutions are one piece of this strategy. They should be put in place to enable early adoption of new but proven practices, and to cement integration of proven good practices into business as usual.

## Transformational Strategy

## Challenges

- Zoning can prohibit mixed uses or mixed housing, or encourage uniform development.

- Overly prescriptive standards can be a barrier to innovation.

- Restrictive street standards may limit connectivity and prioritize motor vehicle movement over other uses.

- Weak policy support can create uncertainty for developers.

## Solutions

**Supportive policies, plans and standards:** As the concept of sustainability becomes more prevalent, it works its way down from broad policy to specific regulatory instruments. Internal conflicts often emerge between policy, local area plans and development standards. To encourage sustainable neighbourhood development, local governments should focus on the most critical barriers within their control: update plans for existing neighbourhoods to secure public and policy support for sustainable development (e.g. infill, higher density, mixed use, pedestrian movement and connectivity); update zoning, parking and related design regulations to enable better development and reduce costs; and update infra-structure development standards. Potential liability is a common issue for municipal engineers when considering new standards, and this should be addressed head-on.

**Approvals checklists:** Checklists may be used to translate policies into practical guidance. They may be more prescriptive, specifying practices, or more flexible, specifying performance or allowing developers to priori-tize among different practices and approaches. The City of New Westminster, BC, was one of the first local governments in Canada to use a "smart growth and sustainable development" checklist to assess how well developer applications meet municipal sustainability objectives (City of New Westminster 2011).

**Expedited approvals processes:** Accelerated approvals for projects that meet certain criteria (e.g. demonstrating certain practices or meeting performance expectations) function as a financial incentive in communities where land holding costs are high. Another option is to acceler-ate approval of sustainable practices that do not adhere to current standards, which acts to reduce the cost and risk to developers who want to develop more sustainably.

**Prioritize more sustainable sites:** While many local governments have growth boundaries, the supporting policies and regulations may not be strong enough to drive industry to consider major changes. A combination of taxation, charges, zoning, policy directions and other regulatory tools can help drive this shift.

## ZONING BYLAW UPDATE
## SUMMERLAND, BC

The District of Summerland (pop. 11,000) updated its zoning bylaw in 2001 through a 12-month consultative process. The new bylaw aims to lower greenhouse gas emissions, reduce infrastructure costs, support aging in place and create more attractive neighbourhoods.

**Regulatory challenges:**
Zoning did not allow small lots, secondary homes or higher densities.

**Solutions used:**
- Cross-departmental technical workshops
- Extensive public consultation
- "Residential Pocket Neighbourhood" (RPN) zone enabling cottage cluster housing
- Residential Single Detached Intensive zone enabling smaller lots
- New requirements for bicycle parking

The bylaw passed with very little concern. Since then, there has been significant interest in the new RPN zone.

**More information:**
http://www.fcm.ca/home/awards/fcm-sustainable-communities-awards/2012-winners/
2012-residential-development.htm

Ian McIntosh, Manager of Development Services, District of Summerland, Tel.: 250-404-4048





*A graphic illustrating some of the new zoning types and proposed developments (Credit: Nicolas Bevanda, CEI Architecture)*

# Planning and Development Processes

Rethinking the conventional development process is a critical element of successful sustainable neighbourhood development. Doing so brings new information to the table, supporting creative, high-performing solutions. The solutions presented below are best applied together, as each addresses a different need: a focus on end goals to drive performance; an integrated process, for more efficient solutions that meet multiple objectives; and pilot programs that make innovation less risky. All three solutions may be applied by either local governments or developers.

## Challenges

⟫ Planning and development processes are linear and not multidisciplinary.

⟫ Regulatory systems make innovation difficult.

⟫ Consultation approaches emphasize approvals late in processes over early value creation and relationship building.

⟫ Many aspects of communities are designed for a single purpose.



*Artistic sketch of a public space in the Emerald Hills Urban Village in Strathcona County, AB (Credit: Strathcona County, AB)*

## Solutions

**Performance-focused development:** This approach sets goals up-front, then drives the development team to achieve them. This is normal for financial performance, but not for environmental or social performance (except to meet regulatory requirements). Setting a number of goals and then challenging the team to find creative solutions that meet them all is essential to developing sustainably. A good example is the One Planet approach to sustainable development, which sets out 10 principles (or high-level goals) and then develops strategies to achieve them (One Planet Communities 2015). Neighbourhood projects that have set the bar high — carbon neutral, environmentally restorative, revenue positive on a lifecycle basis — have found that previously unfathomable results are possible and produce a positive return on investment. At the building scale, "there is no significant difference in average cost for green buildings as compared to non-green buildings" (Langdon 2007). One study produced for the City of Edmonton calculated the Sustainable Return on Investment (SROI) for three LEED certified buildings. The aggregate results showed a Net Present Value of $2,703,622 and a Discounted Payback Period of eight years. When they factored in sustainability considerations (such a reduced water use, reduced energy use, improved indoor air quality, etc.) the researchers saw the net present value double ($5,920,645) and the payback period cut by 40% (4.9 years) (HRD Corporation 2014).

**Integrated design processes involving end-users:** One of the most critical challenges facing sustainable neighbourhood development today is the compartmentalization of the process. Specialists working on different aspects or different stages of a development rarely work closely together. As a result, they are often unaware of objectives outside their immediate concern (and may not be equipped to respond to them). Thus, the conventional planning and design process misses many opportunities for creative problem solving. Integrated design processes

## EMERALD HILLS STRATHCONA COUNTY, AB

Strathcona County (pop. 85,000) is a mixed urban–rural municipality east of Edmonton. The county partnered with a team of four developers to pilot test the Sustainable Urban Neighbourhood (SUNLIVING) planning process developed by Natural Resources Canada. The plan for the 20-hectare development included attached bungalows, townhouses, condos and retirement apartments, all within walking distance of a commercial hub. The partners aimed to show that integrated planning can reduce the costs of sustainable development while reducing the neighbourhood's environmental footprint.

**Process challenges:** Applying innovative sustainability principles in a for-profit development project

**Solutions used:**
- SUNLIVING integrated process
- A partnership involving the developer, local government, NRCan and UBC
- A sustainability coordinator to ensure that the municipality, developers and design team cooperated effectively

Construction has started and is expected to be complete in 2018. The development is expected to require less energy and emit fewer greenhouse gases than a traditional neighbourhood.

**More information:**
www.sunliving.ca
GMF Project Number 9030
Contact:
Bard Golightly, Chief Operating Officer, Christenson Group of Companies, Tel.: 780-431-5180

link project planning across disciplines, through project phases, and between specialists and end-users. Development teams can identify better solutions faster, meeting more objectives and realizing the benefits of sustainable development. Integrated design is also more cost-effective, as sometimes a single solution replaces a suite of conventional practices (Lennerz and Lutzenhiser 2006; Mayhew and Campbell 2009). Such integrated approaches can also be applied to the management of local government capital assets, offering solutions that bridge objectives across multiple departments, such as infrastructure, buildings, parks and planning.

One key aspect of an integrated process is the involvement of end-users such as prospective residents and commercial tenants. This is a way to identify market niches and community needs, and find new solutions. End-user support can also help make the case to approve the departure from conventional standards and to approve the project as a whole. The "Integrated Design Process Guide" provides more information and resources on this topic (Zimmerman, n.d.).

**Pilot programs and one-offs:** Innovation brings risk, and what is "business as usual" in one community can be highly innovative in another. Pilot programs allow regulators and developers to experiment, without creating expectations that the experiment will necessarily become standard practice. For example, the City of Calgary set up the Customized Infrastructure Committee to review and approve changes to development standards for the Bridges, a new multi-residential, mixed-use development. Scoping this project as a one-off gave the city the flexibility to apply the new standards in this case while retaining the discretion to apply them elsewhere only if feasible and desirable (CMHC 2009).

**Built-in flexibility and adaptability:** The world is changing rapidly, from technology to demographics, climate to economy. Given that municipal infrastructure lasts 50–100 years, and the neighbourhood patterns are in place for the life of a city, built-in flexibility is essential to providing long-term value. Practically, this can be as simple as designing flexible layouts for houses or ensuring universally accessible sidewalks and easy transit access for seniors. It could mean avoiding floodplains through cluster development, or even integrating a climate adaptation strategy into early planning phases. One of the easiest and most effective ways to build in flexibility is to use grid-based street patterns, which accommodate changing movement patterns, uses and densities easily. The aim is long-term resilience for the neighbourhood and the residents and businesses within it.

# Marketing

As the "third partner" in sustainable neighbourhood development, the community — including businesses and families leasing, renting or buying new units, as well as neighbours — has a significant impact on what may or may not be feasible. Marketing can increase interest by accessibly "packaging" information about the sustainable features for community members. It can also reduce financing risk associated with products that are new in the local market.

## Challenges

> Market research focuses on past trends: it is biased to the status quo.

> Buyers are not always aware of the benefits of sustainable neighbourhood development.



*View of townhouses in Emerald Hills UrbanVillage in Strathcona County, AB (Credit: Architecture Tkalcic Bengert)*

## Solutions

**Alternative market research methods:** Typically, developers and lenders look to recent sales to under-stand what the market will buy. However, this approach is biased: new products that would meet market needs are not considered. Instead, target-market analysis, visual preference surveys, and analogs (products or features in other developments, usually outside the market) can be used to more effectively identify new products or features that would attract buyers in the local market. While some lenders may still be reluctant to finance these products, many will recognize the value of diligent market research. NOTE: By conducting this kind of research themselves, local governments can help developers identify new product niches that align with municipal goals (FCM 2015; City of Langley 2012).

**Rating systems and awards:** Despite their quirks, rating systems such as LEED® and BUILT GREEN® may be important marketing tools. These offer third-party veri-fication of performance and are accessible, marketable symbols of excellence: a LEED® Gold building is more marketable to a green market niche than one labelled "green" by the seller. In some markets, this kind of labelling is now recognized by the mainstream public, and is part of a much bigger push toward consumer labelling in North America.

## URBANOVA
## CITY OF TERREBONNE, QC

Urbanova is a 1,200-hectare area on the edge of the city of Terrebonne, located just outside Montreal. The city's plan aims to protect much of the area as a natural corridor containing valuable environmental features, accommodate 30,000 new residents in transit-supportive mixed-use villages, and build to high environmental standards. To realize these goals, the municipality developed a comprehensive change strategy involving developers and non-government agencies. One element of the strategy was to reduce market risk to developers, who would need to sell unfamiliar products to the local market.

**Marketing challenges:**
Attracting developers and buyers to a new form of development

**Solutions used:**
- A single brand for the whole area
- Collaboration with developers, to encourage them to use the Urbanova brand
- Conducting and sharing market research to assess how willing potential buyers are to pay for green features
- A residents' environmental awareness and commitment guide requires builders and residents to align their construction and renovations (respectively) with the planning, architecture and landscaping standards established for the community. Builders and homeowners must complete an evaluation grid for any new or renovation projects and must achieve a minimum point score in order to be approved. Projects are inspected upon completion to ensure consistency with what was approved.

As of 2015, construction and sales had started.
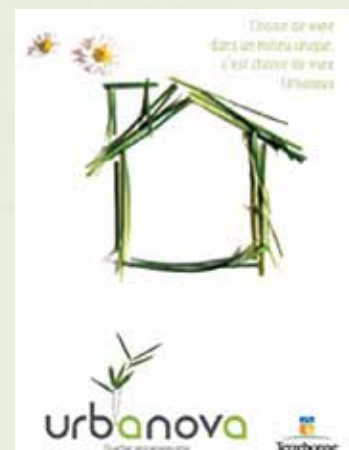
**More information:**
urbanova.ca/

Michel Larue, Manager, Sustainable Urban Planning, City of Terrebonne, QC, Tel.: 450-961-2001



*Aerial view during construction of the Urbanova neighbourhood in Ville de Terrebonne, QC (Credit: Ville de Terrebonne)*



*Promotional material for Urbanova neighbourhood created by the Ville de Terrebonne, QC (Credit: Ville de Terrebonne)*

# Contracting

Contracts may be used to set the stage for sustainable neighbourhood development, and to assure follow-through on sustainability goals by land purchasers. As a landowner, for example, a local government can use contract requirements as a powerful tool to shape sustainable neighbour hood development. Depending on the approach used, a lower purchase price may result. Long-term financial (and other) benefits should be evaluated to assess whether that trade-off makes sense (it often does).

## Challenge

▶ Contracts often focus on legal and short-term financial considerations.

## Solutions

**Requests for proposals (RFPs) with a "triple bottom line" approach:** Triple bottom line RFPs allow landowners to secure more than just financial benefits from a land sale. The process is an alternative to a traditional land sale process. Prospective purchasers have to supplement their financial proposals with conceptual designs and commitments to environmental and social performance targets. This approach offers a lot of flexibility and acknowledges trade-offs between economic and other objectives, but does typically mean a lower sale price for the land.

**Land sale conditions:** Sustainable development requirements that the landowner wishes to impose may be included in the land sale contract, secured by bond or similar means. For example, Taiga Nova eco-industrial park in Fort McMurray, AB, was developed by the Wood Buffalo Housing and Development Corporation. Light House led the consulting team and used "a novel sales process to ensure completed buildings would be green and local businesses had equal access to this high demand industrial property" (Light House 2011). This solution may be necessary for developers whose business model is to rezone, service and subdivide. If, as part of the purchase, developers commit to municipal rezoning conditions to be implemented at the building stage, they have to ensure compliance from builders who buy their serviced lots.

## DOCKSIDE GREEN
## VICTORIA, BC

Dockside Green is located on a 15-acre, formerly city-owned, industrial site on the Victoria harbour. Following purchase of the site, the developer created a comprehensive plan for a leading "green" development of 26 office, commercial and residential buildings. With Phase 1 complete, the project features a district heating system and an integrated water and waste system for managing stormwater and wastewater — reducing GHG emissions by 5,700 tonnes per year and water consumption by 56%.

**Contracting challenge:** Finding ways to leverage city-owned land for maximum benefit

**Solutions used:** Triple bottom line RFP process: The city used a triple bottom line process through which the developer committed to achieving 52 points in the pilot LEED® Neighbourhood Development program. Performance was secured through the Master Development Agreement with the city, which established up to $1 million in penalties for under-performance. Victoria City Council later accepted adjustments to the concepts in the initial agreement as more detailed studies established better options for viability, reliability and achievement of project goals.

**Contact:**
City of Victoria. Tel.: 250.385.5711
GMF Project Number 7259

**Performance contracts:** These contracts reward suppliers on the basis of performance, rather than on a time-and-materials basis or as a percentage of construction value. The concept has two relevant applications. In the first, developers wishing to encourage flexibility in the early stages of design processes can use contracts that reward design teams based on how well their designs achieve project goals. The second application of performance contracts involves contracting with "energy service companies" who design, install, finance and may operate energy systems, and who are paid out of operating savings. Different types of contracts are possible: a "first out" contract in which all the contractor's costs are repaid from savings; a "shared savings" contract in which savings are shared by contractor and owner; and a full energy/environmental services contract, in which the contractor takes over payment of utility bills, and charges a regular fee over the term of the contract (International Institute for Sustainable Development 2012).

## CASE STUDY: GARRISON WOODS
## CALGARY, AB

A private developer worked with the City of Calgary to redevelop Garrison Woods, the eastern part of the former Canadian Forces Base in Calgary, into a sustainable neighbourhood that recalls a 1920s-era pedestrian-oriented community. This "new urbanist" project reflected the principles behind several municipal plans and policies, but at a more detailed level. It also challenged a number of conventional approaches to community development in Calgary. Lanes and a comprehensive pathway system reconnect street grids to reduce walking distances to local shops, services and transit stops. Most residents live a short walk away from a bus stop (five minutes), a park (two minutes) and a range of businesses. While construction costs were 30% higher than for a traditional suburb, higher densities and higher consumer demand led to financial returns for the developer that were consistent with, or even higher than, what is typical for the industry.

**Planning and development process**
Area residents were concerned about the project s potential impact on traffic patterns. To address these fears, the developer and the city co-managed a 17-month consultation process. They addressed fears by showing how a modified grid pattern, or, alternatively, narrow streets with many access points to surrounding neighbourhoods, would disperse traffic and discourage shortcutting and speeding.

**Skill and knowledge development**
Although the narrower streets and modified-grid street pattern were supported by city policy, they were not consistent with existing engineering standards. The developer did extensive, detailed planning, and consulted with municipal staff to overcome their initial resistance to new approaches.

**Regulations**
The site plans initially faced significant scrutiny by city staff over non-compliance with the land use bylaw and design standards. To enable the project to proceed, the city implemented interim zoning regulations allowing short-term reuse of existing military housing. The regulations were eventually adopted on a block-by-block basis, allowing for iterative adjustments as each new block was constructed based on experience from the preceding phases.

**Contracting**
The developer needed to ensure that the plan to refurbish 400 of the 565 existing military housing units was implemented by the builders who purchased lots at Garrison Woods. The developer used contracts to require refurbishing, working with just six builders. They also required adherence to design guidelines, but provided enough flexibility within the guidelines to allow for an interesting range of styles.

## PROJECT INFORMATION

**Overview:**

- Developer: Canada Lands Company
- Date completed: 2003–2004
- Site area: 65 hectares
- Residential units: 1,600, including townhouses, single detached homes, three- and four-story apartments and coach houses
- Gross residential density: 25 units per hectare
- Other uses: retail space, schools, existing museum and arena

**Features:**

- Infill redevelopment
- Mixed use
- Diverse housing types
- Well-linked walking, cycling, transit, and road networks
- Integrated network of green space
- Safe, social and attractive environment
- Unique identity

**Solutions applied:**

- Extensive public and technical consultation
- Interim zoning regulations
- Contract terms to cement requirements and guidelines



*Public art installation, Garrison Woods, (source: Canada Lands Company)*



*Traditional main street, Garrison Woods, (source: Canada Lands Company)*



*Single family home, Garrison Woods, (source: Canada Lands Company)*



*Heritage street signs, Garrison Woods, (source: Canada Lands Company)*

# Sustainable Neighbourhood Development Checklist

Use this checklist to set appropriate expectations for a sustainable neighbourhood development project, and to maximize its success. For a neighbourhood-scale project in its early days, apply the steps in the order shown here. However, the checklist is flexible: use the steps in an order appropriate to your context and major initiatives. For instance, if updating a zoning or development standards bylaw, start at step 1, bullet 4, to prepare for pursuing a sustainable neighbourhood project in the future. Note that for most projects, step 1 is critical because it enables you to set appropriate expectations and target interventions at the right level, based on how ready the public and developers are to embrace change.

| 1. Assess readiness for sustainable neighbourhood development | ☐ Assess the level of knowledge of council, staff, developers, contractors and the community<br>☐ Assess the supportiveness of council, staff, developers, contractors and the community<br>☐ Review fees, taxation, incentives, development charges and municipal capital investment priorities to identify barriers and incentives<br>☐ Review bylaws and policy documents to identify barriers and support |
| --- | --- |
| 2. Build the knowledge and skills needed to support and implement sustainable neighbourhood development | ☐ Identify the development skills needed for successful implementation of a sustainable neighbourhood plan<br>☐ Develop and deliver education and training to increase knowledge and support |
| 3. Remove financial barriers | ☐ To the extent possible, reduce municipal financial barriers and put incentives in place<br>☐ Support partnerships that will reduce other financial barriers |
| 4. Remove regulatory barriers | ☐ To the extent possible, reduce regulatory barriers |
| 5. Outline the planning and design process for success | ☐ Develop ambitious performance goals<br>☐ Adopt design principles like an end-use, least-cost approach and adaptable design<br>☐ Use (or require) an integrated design process that involves end-users<br>☐ Support pilot tests and other mechanisms that enable innovation |
| 6. Support and drive sustainable neighbourhood development | ☐ Reduce risk through market research and marketing<br>☐ Use contracting to drive high levels of performance |

# Key Resources

Resources cited in this document are listed below along with some recommended reading. Many more detailed resources are available through FCM, the Canada Mortgage and Housing Corporation (CMHC), provincial governments and supportive non-profit organizations across Canada and the United States.

## Recommended Reading

**Books**

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Canada Green Building Council (CaGBC): www.cagbc.ca

Canada Mortgage and Housing Corporation (CMHC), Sustainability page: www.cmhc-schl.gc.ca/en/inpr/su/

Center for Neighbourhood Technology: www.cnt.org

Congress for the New Urbanism: https://www.cnu.org/

Victoria Transport Policy Institute (VTPI): www.vtpi.org

**Federation of Canadian Municipalities Resources**

Green Municipal Fund page: www.fcm.ca/gmf

Resources page (reports, case studies, awards and more): http://www.fcm.ca/home/programs/green-municipal-fund/resources.htm

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