FCM FEDERATION OF CANADIAN MUNICIPALITIES FÉDÉRATION CANADIENNE DES MUNICIPALITÉS

Sustainable land use practices in Canadian municipalities: A snapshot

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The information in this report is a consolidation of insights informed by leading knowledge and practice, and does not necessarily reflect the individual views of the contributors or the organizations with which they are associated.

Canada

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A report commissioned for the Green Municipal Fund (GMF) at the Federation of Canadian Municipalities (FCM)

Sustainable land use practices in Canadian municipalities: A snapshot

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About this report

Land use decisions made by local governments profoundly influence the environmental, social and economic health of communities. Density levels and land use mixes will determine travel distances between the places where residents live, work and play. The economic vibrancy of any given neighbourhood and the potential for district energy also hinge on the mix and density of land uses found there. Street design, combined with investments in transit and cycling infrastructure, greatly influence residents' transportation choices and the resulting greenhouse gas (GHG) emissions. Green spaces, wetlands and other natural assets act as carbon sinks. Their other benefits include helping to increase a municipality's resilience by preventing heat islands, reducing flooding risk and providing wind breaks.

This summary report presents highlights of land use trends from a detailed report on the land use sector in Canada completed for the Federation of Canadian Municipalities' (FCM) Green Municipal Fund. This report provides a snapshot of current issues and best practices related to sustainable land use, and should not be interpreted as an official policy position of FCM.

The research scan was conducted to better understand domestic and international issues and practices related to sustainable land use. The research sought to identify how municipalities are planning and designing new development, retrofitting and redeveloping existing built environments, and preserving and restoring natural areas.

The research revealed key land use issues faced by Canadian municipalities, and identified 27 best practices that are enabling them to move toward achieving one or more of the key sustainability objectives listed below.

Key sustainability objectives supported by municipal best practices

- Reduce the rate at which greenfield sites are developed.
- Concentrate development in already-developed areas.
- Preserve agricultural activity outside urbanized areas and strengthen the rural economy.
- Promote and provide a variety of transportation options equitably throughout the population.
- Reduce carbon emissions from transportation, space heating and cooling, and other sources.
- Make best use of existing infrastructure.
- Preserve, reclaim and restore natural areas and ecosystem services.
- Generate a sufficient supply of housing that is affordable and adequate to the needs of all social groups, in appropriate locations.
- Generate significant other environmental, social and economic benefits.
- Take advantage of opportunities to make progress in other sectors, such as water, waste, transportation and energy.

The researchers analyzed the 27 best practices in terms of their ability to generate significant reductions in GHG emissions, as well as triple bottom line benefits (economic, social and environmental). This analysis revealed 10 “high impact” best practices that have significant potential to increase the sustainability of land use in Canadian municipalities.

The research findings presented in this report are drawn from an extensive literature review as well as a series of surveys, interviews and focus groups conducted with land use planning experts from across Canada.

Key land use issues for Canadian municipalities

As municipalities face an uncertain future due to climate change, migration, an aging population and other risks, long-term resilience has become a major concern.

The research identified several key issues facing many municipalities across Canada:

- Infrastructure to support economic growth: Municipalities are concerned with the infrastructure deficit and would like to see more investment in all forms of infrastructure, but especially in transportation, water and wastewater.
- Availability of land: Municipalities need sufficient land that is suitable to support employment and well-served by transit.
- The cost of housing: In some places, housing costs have made it difficult to attract employees and fill specialist positions. This appears to be a barrier to economic growth, particularly in regions with very high land prices.

The most pressing social issues for Canadian municipalities centre around the theme of housing. Providing an adequate supply of affordable housing, especially rental housing that is well-serviced by transit, and addressing homelessness and the wider manifestations of poverty, are major preoccupations for many municipalities across the country. Other social issues that appear to be growing in importance include providing adequate services for an aging population and for recent immigrants.

A pressing environmental issue of significant concern to municipalities is planning for and adapting to extreme weather events—especially flooding, drought, wildfires, sea level rise and erosion. Climate change mitigation, improving air quality, reducing the heat island effect, and providing more sustainable modes of transportation are also concerns, particularly within larger cities. Loss of agricultural lands and loss of wildlife, natural habitats and woodland are also concerns for many municipalities, regardless of size.

The built environment has a major role to play in addressing many of these environmental, social and economic issues. The design of our communities greatly influences their vulnerability to risks like extreme weather events related to climate change. Sprawl is adding to the infrastructural and financial woes of many municipalities in Canada due to the inefficient use of land, not to mention its other undesirable impacts, including the loss of farmland and ecological assets, and ever-increasing car-dependency and congestion. The research revealed that municipalities are aware of the potential for redeveloping the existing built environment, but concerned about daunting barriers standing in the way, such as uncertain public support and a culture deeply attached to the use of private vehicles for personal transport.

Municipal strategic directions and best practices

Municipalities of all sizes are implementing a wide range of innovative approaches to respond to these land use issues. These approaches can be broadly categorized into nine "strategic directions."

Municipal strategic directions in sustainable land use

- Stem sprawl through redevelopment and intensification.
- Reduce environmental impacts and maximize socio-economic benefits through neighbourhood/site design and retrofit.
- Improve sustainability and quality of life through design of streets and public places.
- Make housing more affordable and communities more equitable.
- Enhance green infrastructure and the role of semi-natural features in and near communities.
- Adapt communities to climate change.
- Use market-based tools to encourage sustainable land use.
- Leverage data to improve land use decisions.
- Enhance public engagement in planning and municipal decision-making.

These strategic directions represent the most innovative and important currents of change with regard to sustainable land use in Canadian municipalities. They are strategies that any community could consider adopting in order to accelerate progress toward sustainable land use goals.

An extensive review of current trends in sustainable land use identified a set of 27 best practices that support each of these strategic directions.[1] The best practices meet the following criteria:

- They have significant triple bottom line benefits (social, economic and environmental)—especially the reduction of GHG emissions.
- Others have implemented them and their impacts can be estimated or are known.
- They are not highly context-dependent and they have strong potential to be replicated in other municipalities.

Table 1 lists the 27 best practices analyzed in this research, along with specific examples from across Canada and beyond, as well as the key factors that ensured their success.

[1] In the context of this research, a "best practice" is considered to be an innovative municipal policy, process or initiative that is starting to disseminate across communities in Canada and has therefore been tested in a variety of settings but is not yet in wide use, or an innovative practice that has been implemented in communities outside of Canada but has not been tested in Canada.

Table 1: Municipal strategic directions in sustainable land use and associated best practices

Municipal strategic direction	Best practice	Example	Key success factors
Stem sprawl through redevelopment and intensification	**Nodal development strategy**	**Metro Vancouver, BC: Regional Growth Strategy** This regional growth strategy encourages compact, nodal development, particularly around SkyTrain stations. It is being implemented through municipal actions.	▸ Strong regional or community growth management plan ▸ Coordination with transit (and other infrastructure) planning ▸ Transit investment by other orders of government
	Intensification targets	**Edmonton, AB: 2010 Municipal Development Plan** The city's land use plan adopted a target of 25% intensification (measured by housing units) of the already urbanized area through neighbourhood infill, transit-oriented development, and downtown revitalization.	▸ Regional or community growth management plan ▸ Good evidence base ▸ Political leadership
	Coordinating corridor land use and transit development	**Saskatoon, SK: Growth Corridor study** This plan aims to intensify several corridors that will accommodate the city's planned Bus Rapid Transit system.	▸ Transit investments ▸ Strong planning framework and incentives ▸ Attention to public realm
	Mid-rise development	**Toronto, ON: Avenues and Mid-Rise Buildings Initiative** These planning policies and design guidelines aim to encourage mid-rise development on the city's main avenues.	▸ Clear regulatory framework ▸ Incentives ▸ Building code that allows wood construction
	Infill guidelines	**Edmonton, AB: Residential Infill Guidelines** These guidelines aim to encourage a variety of housing forms that would gradually increase the density and vitality of mature neighbourhoods while controlling the location and design of these introduced housing types.	▸ Clear guidelines that identify infill opportunities and rules ▸ Inter-departmental coordination ▸ Consultation with the public

Municipal strategic direction	Best practice	Example	Key success factors
Reduce environmental impacts and maximize socio-economic benefits through neighbourhood/ site design and retrofit	**Sustainable neighbourhood land use plan**	**North Cowichan and Duncan, BC: Collaborative University Village Sustainable Local Area Plan** This 30-year plan targets a fast-growing area as a medium- to high-density growth centre using New Urbanist and green design principles.	▸ Strong regional or community growth management plan ▸ Coordination with transit (and other infrastructure) planning ▸ Transit investment by senior governments
	Sustainable neighbourhood retrofit program	**Markham, ON: Toronto and Region Conservation Authority, Sustainable Neighbourhood Action Program (SNAP)** This integrated action plan aims to foster local sustainability and well-being through proactive steps within the public realm (e.g. natural stormwater management) and by encouraging actions that can be achieved on private residential lots (e.g. home energy retrofits).	▸ Inter-departmental coordination ▸ Collaboration with residents ▸ Communications emphasis on public health benefits
	Carbon-neutral mixed-use redevelopment	**Malmö, Sweden: Bo01, Western Harbour** Under the city's guidance, the Bo01 project has redeveloped a derelict industrial waterfront into Europe's first carbon-neutral, mixed-use neighbourhood built according to strict sustainability principles.	▸ Integrated energy and land use plans ▸ Inter-departmental coordination
Improve sustainability and quality of life through design of streets and public places	**Complete streets strategy**	**Quebec City, QC: "Rues conviviales"** This strategy aims to convert 25% of city streets into complete streets.	▸ City-wide rather than street-by-street solutions ▸ Communications emphasis on public health benefits ▸ Incorporation of guidelines into routine street design procedures

Municipal strategic direction	Best practice	Example	Key success factors
Make housing more affordable and communities more equitable	**Inclusionary housing strategy**	**Montréal, QC: Inclusionary Housing Strategy** An integrated approach to the inclusion of affordable housing in large new residential and mixed-use buildings that is delivered through a mix of policy guidance, regulatory tools and economic incentives.	▸ Clear objectives and rules with different options for developers to contribute ▸ Integration into planning approval process
	Rental housing strategy	**New Westminster, BC: Affordable Rental Strategy** This housing policy seeks to facilitate retention and maintenance of existing rental housing as well as increase the supply of new rental housing units.	▸ Multi-pronged approach ▸ Use of incentives ▸ Provincial policy support ▸ Addressing planning barriers
	Community land trust for housing	**Vancouver, BC: Kingmarkent Community Land Trust Project** Using donated city-owned land, a community land trust is creating 358 units of non-market rental housing on four sites, with 10,000 square feet of retail space at one location.	▸ Land grant from municipal government ▸ Provincial funding ▸ Close working relationship between municipality and community land trust organization
	Joint venture between public housing authority and private developer	**Toronto, ON: Regent Park Project** A joint venture between public and private sector developers is creating a mixed-tenure and mixed-income, and mixed-use project linked to a district heating plant.	▸ Close working relationship between public and private actors ▸ Clear definition of roles and aligned goals
	Affordable housing on donated sites near high-quality transit	**Puget Sound, WA: Sound Transit's Equitable Development Near Transit Stations Policy** This policy enables the transfer of surplus parcels adjacent to light rail stations to developers of affordable housing for little to no cost.	▸ Policy support from other orders of government ▸ Robust community engagement program

Municipal strategic direction	Best practice	Example	Key success factors
Enhance green infrastructure and the role of semi-natural features in and near communities	**Green infrastructure requirements**	**Seattle, WA: Green Factor Policy** This regulatory tool is integrated into Seattle's building code so that developers must meet Green Factor standards to obtain building permits for new residential and commercial buildings.	▸ Integration into early stage of site planning ▸ Inclusion of aesthetic and green infrastructure factors
	Urban forest master planning	**Halifax Regional Municipality, NS: Urban Forest Master Plan** This plan proposes a suite of measures including tree planting on public property, native tree selection, public education and stewardship, tree maintenance, and research to preserve existing trees and add new trees to the urban forest.	▸ Understanding of the urban forest as a system ▸ Communications emphasis on economic value and public health ▸ Robust community engagement
Adapt communities to climate change	**Climate change adaptation strategy**	**Ajax, ON: Climate Change Adaptation Strategy** The strategy integrates climate change adaptation policies into land use planning processes, including the official plan and development approvals.	▸ Strong evidence base ▸ Robust community engagement ▸ Embedding of strategy into planning instruments
Use market-based tools to encourage sustainable land use	**Development charges linked to compact growth**	**Niagara Region, ON: Smart Growth discount on regional-level development charges** Development charges and levies are discounted by up to 50% to encourage (re)development in targeted areas.	▸ Clear system to link the level of charges with urban design features
	Greenhouse gas offset program	**Laval, QC: Greenhouse gas compensation program** This program applies development charges in the form of offset payments for GHG emissions, the revenue from which is used in the financing of sustainability initiatives.	▸ Fees linked to goals in the wider planning framework ▸ Use of proceeds only for green projects
	Incentives to encourage development on brownfield sites	**Kingston, ON: Brownfields incentives through a community improvement plan** These financial incentives include tax breaks and grants to encourage brownfield redevelopment. They are enabled through a community improvement plan.	▸ Program focus on strategic locations ▸ Incentives that cover all stages of site rehabilitation ▸ Incentives large enough to overcome financial barriers to redevelopment

Municipal strategic direction	Best practice	Example	Key success factors
Leverage data to improve land use decisions	**Ecosystem assets valuation**	**Grand Forks, BC: Kettle River Flood Mitigation Benefits** The municipality is assessing natural assets in terms of monetary value and viability for service delivery—in this case, flood mitigation on a natural floodplain.	▸ Strong evidence base ▸ Integration with planning policies
	Infrastructure costing and modelling	**Prince George, BC: The Community Lifecycle Infrastructure Costing (CLIC) Tool** The municipality is piloting a tool that municipal officials are using to estimate the infrastructure costs associated with land use decisions over an extended period of time.	▸ Inter-departmental coordination ▸ Emphasis on joint benefit of the tool
	Energy density mapping	**Guelph, ON: Energy Density Map** The municipality is piloting a geospatial tool for representing the energy use associated with different land uses and building types within the community.	▸ Inter-departmental and inter-sectoral coordination
	Growth scenario modelling	**Calgary, AB: Growth Management Options Study** This study analyzes the capital and operating costs associated with two scenarios for urban growth: dispersed and compact.	▸ Inter-departmental coordination ▸ Collaboration with external consultant/ academic ▸ Robust public engagement
Enhance public engagement in planning and municipal decision-making	**Building support for smarter growth**	**Deux-Montagnes, QC: Using the "Oui dans ma cours" ("Yes in my backyard") engagement process** This engagement tool aims to identify desirable forms of densification and necessary regulatory adjustments to improve the social acceptability of the development of a transit-oriented development area.	▸ Focus on upstream engagement ▸ Use of engaging materials and relevant cases
	Citizen assembly	**Vancouver, BC: Grandview-Woodland Citizens' Assembly** A group of citizens was selected by lottery to advise the city on the planning of a mature neighbourhood adjacent to a SkyTrain station.	▸ Use of outside agency ▸ Municipal support for the process and implementation of recommendations
	Co-design of neighbourhood retrofits	**Peterborough, ON: Bethune Street Redesign** A grassroots initiative took advantage of a routine street reconstruction project by the city to radically alter the corridor, including green infrastructure, public realm improvements, active transportation and intensification of land use.	▸ Use of an NGO intermediary ▸ Emphasis on public health benefits ▸ Municipal support for the process and implementation of recommendations

"High-impact" best practices: 10 promising approaches for Canadian municipalities

The researchers analyzed the 27 best practices discussed in the previous section, in terms of their potential to reduce GHG emissions and generate environmental, economic and social (or "triple bottom line") benefits. Based on this analysis, the researchers identified 10 "high-impact" best practices with significant potential to increase the sustainability of land use practices in Canadian municipalities. These are summarized in Table 2.

Table 2: "High-impact" sustainable land use practices

Best practice	Summary
Sustainable neighbourhood retrofit programs	Retrofitting the existing built environments can result in a wide array of environmental, social and economic benefits. Opportunities include residential energy retrofits through partnerships with private landowners, stormwater pond retrofits to provide improved water management and supply water for local irrigation, and redesigning streets to prioritize active modes of transportation. Sustainable neighbourhood retrofit programs can be scaled and applied in all community types. A local champion is critical for successful implementation.
Sustainable neighbourhood land use plans	Sustainable neighbourhood land use planning can help municipalities foster compact and energy-efficient development, expanded green spaces, connected streets, mixed land uses, and a more coherent urban form. Benefits include enhanced accessibility and mobility, revitalized neighbourhoods, new economic development opportunities and reduced GHG emissions.
Encouraging intensification	Municipalities can encourage intensification through the use of two key tools: minimum **intensification targets** and **infill guidelines.** Minimum density or intensification targets, or both, are applicable to most types of municipalities, but especially to those that are rapidly growing. Ideally these targets are ambitious and should be included in the official plan or regional growth strategy. Infill guidelines allow a variety of housing forms to gradually increase density and vitality in mature neighbourhoods while controlling the location and design of these introduced housing types. This can include corner rowhouses, garden suites, garage suites and secondary suites. Guidelines may also permit the splitting or subdivision of large lots and the building of "skinnies" or long narrow homes. This can increase housing options and the potential for greater affordability. Infill guidelines can be applied to most community types, but are especially applicable in medium-sized, large and very large municipalities. Encouraging intensification has multiple benefits, including reduced GHG emissions (due to more compact neighbourhoods), cost savings from using existing infrastructure more efficiently, increased efficiency of transit services, and health benefits from increased active transportation opportunities and social connections.

Best practice	Summary
	Resistance to even modest intensification is often prevalent because the costs and benefits are not clearly understood. Municipalities can use innovative approaches, such as the "Oui dans ma cours" engagement process undertaken by Deux-Montagnes, QC (see Table 1), to engage the community and build public support for densification.
Coordinating corridor land use and transit development	The recent boom in transit development in Canadian cities is creating opportunities for intensification not only around transit stations, but along the connecting corridors. Coordinating planning exercises on land use and transportation can help municipalities develop more integrated transportation networks and enhance connectivity for all modes. Coordinating planning exercises can also increase access to transit in residential, commercial and employment areas, and greatly improve the economic viability of transit services and local businesses. This best practice is applicable to medium-sized and larger cities where extensive transit is available or planned and where growth pressures are strong. A robust growth management plan will help steer growth into these locations.
Carbon-neutral mixed-use redevelopment	Carbon-neutral, mixed-use developments typically involve the use of renewable energy resources, higher densities, a mix of land uses, energy-efficient buildings, and smart city technologies. These initiatives tend to have multiple benefits, including improved air quality, reduced stormwater management costs, increased vibrancy, and promotion of active travel. Carbon-neutral, mixed-use redevelopment can be done in most communities and especially in those with rapid growth and high-frequency transit. These communities are also ideal for brownfield redevelopment.
Nodal development strategies	A nodal development strategy works to ensure that a city has the right balance and mix of development and supports the development and implementation of long-term investment around LRT stations, transit hubs, and important destinations within a city. A variety of benefits are associated with nodal development, including potential cost savings from using existing infrastructure, increased walkability and active travel opportunities, and reduced GHG emissions (due to more compact neighbourhoods). Nodal development is applicable to growing communities with high-frequency transit and strong growth management plans.
Development charges linked to compact growth	Municipalities can reduce or adjust development charges to encourage compact growth or higher densities. This approach is often used to catalyze development on brownfield sites and in already urbanized areas where new infrastructure is not required. There are a variety of benefits associated with compact growth, including potential cost savings from using existing infrastructure, reduced maintenance, increased opportunities for active travel, and reduced GHG emissions. The applicability of this approach varies by province but it can generally be used by municipal governments of all sizes. In practice, this approach is more commonly used in larger municipalities where there is rapid growth.

Best practice	Summary
Mid-rise development	Policies and guidelines to encourage mid-rise development are emerging slowly in Canada. This form of development provides a number of benefits, including municipal cost savings from using existing infrastructure, increased viability of transit services, reduced GHG emissions (due to compact growth) and the potential for greater housing affordability. Mid-rise development is applicable to medium-sized and large municipalities with high land values and clear incentives and zoning requirements for developers.
Complete streets strategies	"Complete streets" accommodate all travel modes—transit, motorized vehicles, walking and cycling—and people of all ages and abilities. This is achieved through physical design elements, including sidewalks, cross-walks, bike lanes, good lighting, seating, shelter from sun and wind, safe intersections, good pedestrian connections with transit facilities, and traffic calming measures. All municipalities can put in place complete streets strategies. These strategies have multiple benefits, including increased active travel, decreased heat island effect (due to tree shading), increased vibrancy and opportunities for connection and access to services, and the potential to increase the viability of transit services.
Green infrastructure requirements	Green infrastructure, such as wetlands, forests and streams, can be used to help address a variety of municipal and community needs. Green infrastructure requirements are a regulatory tool that can be integrated into local building codes where such codes are allowed (i.e. in cities with their own charters from the province). Green infrastructure requirements can also be integrated into rezoning procedures whereby developers must meet green infrastructure standards to obtain building permits for new residential and commercial buildings. This approach is relevant for municipalities of all sizes. Benefits include increasing climate change adaptation and resiliency, promoting healthier environments, restoring ecosystems, reducing infrastructure requirements and operational costs, and potential energy savings.

Conclusion

Municipalities are dealing with a number of challenging issues related to land use, including a lack of infrastructure, the need for sufficient land to support employment, housing supply and affordability, and the need to plan for climate change impacts such as extreme weather.

Nine strategic directions summarize the most innovative and important currents of change with regard to sustainable land use in Canadian municipalities:

- Stem sprawl through redevelopment and intensification.
- Reduce environmental impacts and maximize socio-economic benefits through neighbourhood/site design and retrofit.
- Improve sustainability and quality of life through design of streets and public places.
- Make housing more affordable and communities more equitable.
- Enhance green infrastructure and the role of semi-natural features in and near communities.
- Adapt communities to climate change.
- Use market-based tools to encourage sustainable land use.
- Leverage data to improve land use decisions.
- Enhance public engagement in planning and municipal decision-making.

To pursue these strategic directions, municipalities are implementing a number of best practices in sustainable land use that have triple bottom line (social, economic and environmental) benefits, proven impacts and strong potential for replication. The research identified 10 of the most promising, high-impact practices:

- Sustainable neighbourhood retrofit programs
- Sustainable neighbourhood land use plans
- Encouraging intensification
- Coordinating corridor land use and transit development
- Carbon-neutral mixed-use redevelopment
- Nodal development strategies
- Development charges linked to compact growth
- Mid-rise development
- Complete streets strategies
- Green infrastructure requirements