

Greening cities with citizens

What you'll find in this factsheet:

- 1 Health and environmental issues associated with urban heat islands;
- 2 Strategies to combat heat islands: greening the city;
- 3 Regulations designed to encourage public greening initiatives;
- 4 Inspirational examples.

Les Petits Frères, an extended family of single seniors, La Boutique des Petits Frères, Gifford Street, Montréal, 2009. Credit: MUEC

The process of urbanization leads to a sharp increase in the amount of concrete or asphalt surfaces; in summer, these surfaces turn into what are known as “heat islands”, where temperatures can be more than 10°C higher than those in surrounding rural areas. Serious health problems may develop as a result. To offset the harmful effects of heat islands, «greening» the city is a very effective strategy. From flower-covered balconies to large municipal parks, the spaces that lend themselves to these efforts come in all shapes and sizes. City residents are eager to contribute to a greener living environment and municipal regulations can serve as a launchpad for these initiatives. **Greening is good for our physical and mental health, the environment and community building. So rollup your sleeves and get your hands in the soil!**

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Greening the city: fun, healthy and environmentally friendly!

In urban environments, many inorganic surfaces are covered with asphalt or concrete, including building roofs, walls, streets, parking lots, etc. These surfaces have a high heat absorption capacity, which can significantly boost the ambient temperature and cause a variety of environmental and health problems.

These impacts can be offset by greening inorganic spaces. Installing climbing plants along a wall, replacing concrete surfaces with vegetable gardens and installing green roofs are all ways to make the city greener. Studies show that in addition to improving physical health, the presence of greenery boosts our spirits!

Growing numbers of urban residents are ready to take action; municipalities can support their efforts by adopting regulations designed to facilitate public involvement. The adoption of municipal programs and the publication of information tools can reinforce the regulatory process.

Urban heat islands: hot enough to make you sick!

The ambient temperature in a city can be up to 12°C higher than in surrounding regions that are less urbanized. This temperature difference is particularly evident around surfaces made of heat-absorbing materials such as concrete and asphalt, which are found in abundance in downtown areas, industrial/commercial zones, large parking lots, major thoroughfares, etc. These areas create “urban heat islands,” where temperatures can become problematic. In addition, there may be negative consequences for human health and the environment.^{1,2}

The health impacts of extremely high temperatures are numerous: heat stress for workers, increased risk of chronic disease, along with aggravated symptoms (e.g. respiratory, cardiovascular, neurological and kidney disorders, diabetes), discomfort, weakness, heat stroke, dehydration, etc. Groups such as the elderly are particularly vulnerable. Heat waves are associated with increased smog, which can also exacerbate heart and lung problems. Indoor air is affected as well since heat contributes to the spread of dust mites, mould and bacteria inside buildings.

The presence of heat islands increases the need for refrigeration and air conditioning, driving up the demand for energy considerably and potentially leading to higher greenhouse gas emissions, depending on energy source. Heat islands also lead to higher consumption of drinking-

grade water (swimming pools, water play, irrigation, etc.)

Reducing heat islands through urban greening initiatives

Increasing the urban vegetation cover is one of the most effective strategies in the fight against heat islands. Greening can take various forms and can be adapted to a wide range of spaces. Balconies, walls, roofs, front/back yards, curb extensions, parking lots, vacant lots, municipal parks, brownfield, etc., can all become green sites that contribute to improved public health and urban environments. Urban agriculture is another form of greening.

Thanks to increased awareness of environmental health impacts (including global warming), more and more Canadian municipalities are adopting policies for greening public spaces (plazas, parks, municipal lots, street trees, etc.). However, urban residents are also making significant contributions to a greener living environment. Municipalities can support these efforts by putting in place regulations and programs designed to facilitate public involvement.

Definitions

Greening: An effort to introduce more vegetation (by planting trees, shrubs, climbing plants, flowers, vegetable crops, grass, etc.) aimed at improving environmental quality, economic benefits or aesthetic aspects of the urban landscape.³

Urban agriculture: The growing of edible plants and the raising of animals (chickens, bees, fish, etc.) in an urban environment, not only for personal consumption or local sale, but also for the purposes of social integration and/or environmental education. Urban agriculture is carried out on sites of varying sizes, ranging from balcony flowerpots to urban farms, home vegetable gardens and collective/community gardens.^{4,5}

Municipal regulations that encourage residents to take action⁶

Municipal regulations and city planning requirements are used to authorize and oversee the greening of public spaces by local residents. Municipalities can also implement programs to support public greening initiatives. Here are some potential steps in the greening process:

- Authorize and support the greening of urban alleys: adopt a procedure and issue clear guidelines for residents.
- Authorize and support the growing of ornamental or edible plants in planted-tree wells and curb extensions: adopt a procedure and issue clear guidelines for residents.
- Reduce or eliminate licence fees for greening activities on public lands.
- Authorize the use of city-owned land that is conducive to urban agriculture.

Municipalities can also make good use of privately owned land by authorizing certain practices and establishing related standards:

- Authorize front-yard vegetable gardens.
- Require a minimum amount of vegetation cover on residential, industrial and commercial lots.
- Require a minimum number of trees to be planted when issuing building or extension permits.
- Require the replacement of felled, dead or damaged trees.
- Cap the total number of parking spaces and ease requirements governing the number and width of parking spaces based on usage patterns.
- Require greening and low-heat-absorption paving materials in parking lots.
- Require green or reflective roofs to be installed on new buildings or when old roofs are replaced.
- Authorize the temporary use of unused areas for greening and urban agriculture.

Benefits of greening

Educate through contact with nature

IMPROVE RAINWATER RETENTION

Enhance aesthetic appeal

IMPROVE MENTAL HEALTH

Reduce heat islands

REDUCE ISOLATION

REDUCE FOOD INSECURITY

ENCOURAGE RESIDENTS TO WALK BY MAKING ROUTES MORE PLEASANT AND COMFORTABLE

FAVOUR BIODIVERSITY

Complementary measures

- Municipal programs aimed at encouraging and supporting community and collective gardens
- Incentives aimed at installing green roofs on commercial, institutional and industrial buildings
- Incentives aimed at greening business districts and developing partnerships with businesses
- Partnerships aimed at greening schoolyards and making them more accessible
- Awareness-raising campaign to encourage the greening of walls and yards, together with a beautification contest
- «A Birth, a Tree» program.

In any case, it is important to facilitate residents' access to information while promoting incentive programs and making education tools available. Here are three guides produced by the Montréal Urban Ecology Centre that may come in handy for your urban greening initiatives!

Guides produced by the Montréal Urban Ecology Centre

- **Climbing Plants: A Refreshing Solution (in English)**
- **Implanter un jardin en bacs sur les toits : guide pour les milieux institutionnel et commercial (in French only; guide to roof gardens for institutions/businesses)**
- **Aménager des îlots de fraîcheur et améliorer les espaces de vie : guide pour les gestionnaires d'habitation (in French only; «cool islands» guide for housing managers)**

Available on our website

Inspirational examples

Green alleys of Rosemont · La Petite-Patrie, Montréal

Rosemont-La-Petite-Patrie captivated people's imaginations when it inaugurated 20 new green alleys in 2013, bringing the total number in the borough to 65 (Rosemont-La-Petite-Patrie, 2014). Tasked with allocating «eco-district» funding, the local economic development corporation (Société de développement environnemental de Rosemont/SODER) assists local residents with their greening initiatives.

Noteworthy features:

- The emphasis is placed on local residents, not property owners. In the event of disputes with businesses, this approach ostensibly gives more weight to residents' concerns.
- No fees are charged for using public space in a green alley authorized by the Director of Public Works (section 55 of the City of Montréal's fee regulations).
- Licences are also issued free of charge.
- The excavation work is performed by the borough, meaning fewer complications and lower project costs.
- Support requirements are more modest, making projects easier to complete.



Marconi green alley, Petite-Patrie, Montréal
Credit: MUEC

Zoning changes in Edmonton aimed at fostering urban agriculture

In February 2016, Edmonton's municipal council approved zoning bylaw changes authorizing a wider range of activities relating to urban agriculture and local food production on municipal land.⁷ The amendments included three new land use classes: urban outdoor farms, urban indoor farms and urban gardens. These new land use classes officially give urban agriculture a full-fledged place within municipal regulations while distinguishing it from other related activities (conventional farming, greenhouses, nurseries and garden centres). These land use classes are now permitted in certain residential areas, while urban farms are allowed in commercial areas such as shopping malls.⁸

Transforme ta ville, a call for resident-oriented greening and urban agriculture projects

The MUEC, in partnership with the J.W. McConnell Family Foundation, has launched two editions of the «Transform Your City» project. Invitations were extended to residents seeking to transform the city at the local level (block, district, alley). The selected projects involve activities in public spaces by small groups of residents (at least three) and receive up to \$500 in financial support. A large number of innovative projects involve greening and urban agriculture.



La grande tortue Credit: MUEC

LINK TO TOOLKIT



<http://www.ecologieurbaine.net/fr/transformer-sa-ville>

LINK TO UP GUIDE



<http://www.ecologieurbaine.net/en/documentation-en/technical-guides/79-urbanplanningguide>

SOURCES

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- 4 Agriculturemontreal.com (undated). *L'agriculture urbaine, qu'est-ce que ça mange?* Online: www.agricultureMontréal.com/l-agriculture-urbaine-qu'est-ce-que-ca-mange-.
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- 7 The City of Edmonton. Online: http://www.edmonton.ca/city_government/urban_planning_and_design/urban-agriculture.aspx. http://www.edmonton.ca/city_government/urban_planning_and_design/food-and-urban-agriculture.aspx. [http://webdocs.edmonton.ca/zoningbylaw/ZoningBylaw/Part2/Commercial/320.\(CSC\)_Shopping_Centre_Zon.htm](http://webdocs.edmonton.ca/zoningbylaw/ZoningBylaw/Part2/Commercial/320.(CSC)_Shopping_Centre_Zon.htm).
- 8 Shopping Centre Zone, Edmonton Zoning Bylaw 12800, Bylaw Amendment 17527