

Section 2: Themes and Strategies for Healthy Apartment Neighbourhoods By Design

Themes and Strategies

Theme 1: Natural Environment

Theme 2: Built Environment

Theme 3: Transportation

Theme 4: Housing

Theme 5: Employment, Income and Opportunities

Theme 6: Education and Learning

Theme 7: Food Security

Theme 8: Community Health

Health Strategies Summary Chart



Theme 1: Natural Environment

How does the natural environment affect health?

Factors in the natural environment such as air quality, water quality, the climate, and green space can have a significant impact on health. The natural environment can affect:

- **Air Quality** – Air pollution associated with the transportation sector, the heating of homes, the generation of electricity, and other sources, can have a significant impact on public health. In 2004, Toronto Public Health estimated that the five common air pollutants contribute to approximately 1,700 non-traumatic deaths and between 3,000 and 6,000 hospital admissions each year in Toronto” (TPH, 2004).
- **Physical Activity and Mental Health** - Parks, gardens and other public green spaces play an important role in community health. These areas provide opportunities for exercise, physical activity and relaxation. Studies suggest that contact with nature can produce health benefits such as lower blood pressure and cholesterol levels, enhanced survival after a heart attack, more rapid recovery from surgery, fewer minor medical complaints and lower self-reported stress. In children with attention disorders and in teens with behavioural disorders, contact with nature has resulted in significant improvement (Frumkin, 2001; Croucher, 2008; Maas, 2006).
- **Social Cohesion** - Parks also build healthy communities by contributing to stable neighbourhoods and strengthening community development. Research shows that residents of neighbourhoods with greenery in common spaces enjoy stronger social ties (Gies, 2006). Increasingly, parks are also being used for community gardens which provide residents with healthy, affordable food and opportunities for physical activity and socialization (TPH, 2011).

- **Extreme Heat** – Trees, grass, shrubs and other vegetation also provide benefits to health by mitigating the health impacts of climate change. Based on historical analysis over five decades, extreme heat contributes to 120 deaths on average per year in Toronto. This number is expected to increase as Toronto experiences hotter days and longer heat episodes with climate change. Certain populations, such as the frail, elderly and isolated, are more vulnerable to heat than others (TPH, 2011a).



Image:

Top: Crescent Town from Taylor Creek, Toronto, 2006

Bottom: Community gathering in ravine near apartment neighbourhood, Scarborough, 2012, courtesy of Holly Pagnacco

The Opportunity in Apartment Neighbourhoods

The form of Toronto's apartment towers generally consist of towers and slab apartment buildings located within large open spaces. The provision of large areas of green open space was considered a key feature in the planning underpinning the development of these neighbourhoods. Many apartment neighbourhoods are in areas of considerable green open space, often having mature trees and vegetation, and are commonly set next to ravines, natural features and public parks.

Apartment neighbourhoods often enjoy a strong visual or physical connection to the natural environment. However, the current relationship of the natural environment with many apartment neighbourhoods is subject to several barriers. These are a result of both their original design and changes within neighbourhoods over the last decades. These include:

- Fragmented neighbourhood sites, divided by fences and served by discontinuous, indirect walkway systems preventing access to ravines, public parks and other outdoor natural amenities;
- Large percentage of surface parking occupying open space;
- Poor usability of available open green space because of a lack of amenities such as playgrounds, benches or trails, programming, or maintenance;
- Harsh micro-climate due to wind tunnels, urban heat island effect, and lack of shading in areas suitable for amenities and outdoor activity;
- Inefficient and outdated building systems that waste energy resulting in the high production of emissions that contribute to air pollution and climate change and the over-use of water resources.

The following are strategies for optimizing the relationship between apartment neighbourhoods and the natural environment:

1.1 Improve Microclimate and Outdoor Comfort

1.2 Provide Access to Green Space, Parks and Natural Areas

1.3 Reduce Negative Impacts to Air and Water Quality

1.1 Improve Microclimate and Outdoor Comfort

Context

Microclimate refers to localized environmental conditions that affect human comfort. It can be affected significantly by built form and landscape features.

In the case of apartment neighbourhoods, the massing and open spaces around buildings can create microclimatic conditions that are uncomfortable or hazardous. Wind tunnels can cause persistent snowdrifts blocking walkways, making outdoor walking uncomfortable and difficult. Large paved surfaces that characterize much of the outdoor environment within apartment neighbourhoods can exacerbate summer heat – creating heat island effects. Large open spaces with little shade can become inhospitable for walking, relaxation and play, and leave people vulnerable to direct and prolonged UV exposure.

These microclimatic conditions affect the ability to use existing open space. Improved conditions could encourage outdoor physical activity such as walking by mitigating inhospitable sunlight, heat, wind or snow accumulation.

Solution

Microclimate in apartment neighbourhoods can be optimized through a series of interventions such as introducing windbreaks and sun shading. These interventions can be done through a variety of measures, including increasing the tree canopy, plantings and hedges; the provision of shade structures, such as covered decks or canopies; and the introduction of new buildings to mitigate extreme and uncomfortable wind and sun exposure (see Built Environment). Additional measures to improve microclimate include the use of 'green' permeable paving to reduce heat island effects, as well as the use of radiant paving to prevent snow and ice accumulation.

Making it Happen

The following describes the extent to which the current planning framework in apartment neighbourhoods would be supportive, limiting, or neutral, should a community or building owner propose solutions such as these at a particular site.

Official Plan: Supportive

These solutions would generally be supported by current Official Plan policies.

Zoning by-laws: Limiting

'Soft' landscaping such as planting trees or shrubs would not be prohibited by current zoning. However, projects introducing a new structure or affecting existing setbacks, such as a covered deck, could require a variance from the zoning by-law, approved through the Committee of Adjustment specifically if the deck is enclosed.

Other considerations

The solutions could be subject to site plan approval.



Image:

Plantings to reduce sun exposure on community open space and buildings, Amsterdam, Netherlands, 2009

1.2 Provide Access to Green Space, Parks and Natural Areas

Context

Apartment neighbourhoods were designed as 'towers in the park' where an abundance of green space would provide a respite from urban living. Tower clusters were often built to provide views overlooking the city's many ravines and valleys. Despite this vision, large green spaces surrounding apartment properties are often sterile, inaccessible and under-utilized. The many parks and ravines adjacent to apartment neighbourhoods are often difficult to access due to fences that surround apartment properties and a lack of formal pathways and access points.

Solution

Making the green spaces in and around apartment neighbourhoods more welcoming, and better able to meet the original intention of providing a natural respite for urban residents, can be done by naturalizing areas of existing open space, introducing community gardens, and better defining green spaces by planting trees. Likewise, apartment tower residents could be connected with adjacent natural ravine lands by installing walking paths and entry points.

Making it Happen

The following describes the extent to which the current planning framework in apartment neighbourhoods would be supportive, limiting, or neutral, should a community or building owner propose solutions such as these at a particular site.

Official Plan: Supportive

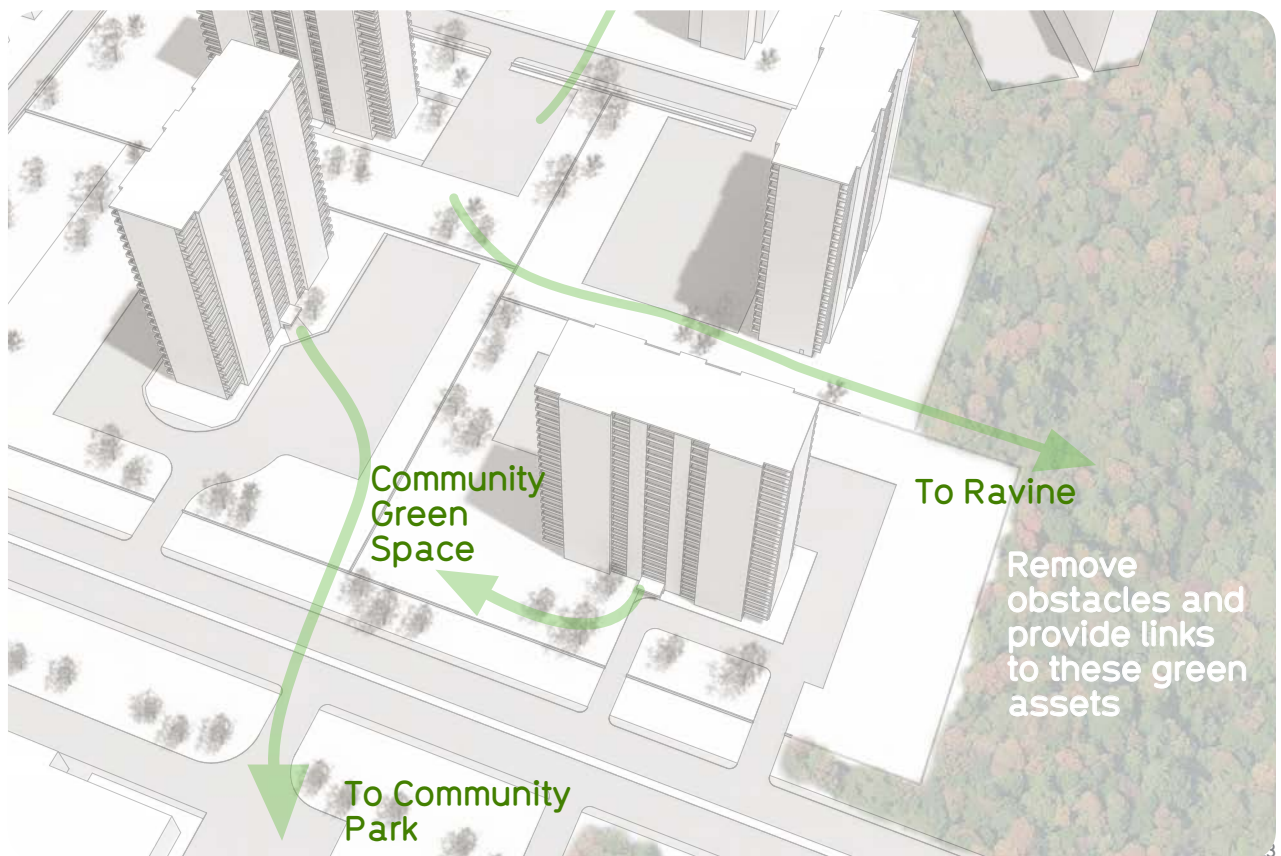
These solutions would generally be supported by current Official Plan policies.

Zoning by-laws: Neutral

Green space naturalization and introduction of new pathways would likely not be constrained by current zoning.

Other considerations

Approvals may be required from the Toronto and Region Conservation Authority for new access points to conservation areas, and cooperation would be required amongst neighbouring landowners concerning access and rights-of-way.



1.3 Reduce Negative Impacts to Air and Water Quality

Context

Buildings making up apartment neighbourhoods consume considerable energy and water in their daily operations. They use more energy per square metre than a single family home for daily operations. (TNRGGH 2010). Collectively, Toronto's apartments are estimated to produce several megatons of carbon each year. Improving the efficiency of aging apartment towers could contribute substantially to reducing emissions of air pollutants and greenhouse gases.

Solution

A wide variety of solutions exist for refurbishing post-war apartment towers to make them more energy efficient, and significantly reduce environmental impact. These solutions include:

- introducing measures for energy conservation, including the installation of low flow fixtures, smart meters and in-suite monitoring, and tenant awareness programs;
- isolating the building envelope by overcladding, installing high performance windows, and introducing heat recovery systems; and
- utilizing clean energy systems, such as solar water heating, geothermal heating and cooling, and cogeneration systems.

Making it Happen

The following describes the extent to which the current planning framework in apartment neighbourhoods would be supportive, limiting, or neutral, should a community or building owner propose solutions such as these at a particular site.

Official Plan: Supportive

The Official Plan generally supports energy efficiency and measures to mitigate environmental impacts of land use.

Zoning by-laws: Limiting

Due to an amendment passed in 2008, current zoning would permit uses, such as co-generation, which were not anticipated at the time the by-laws were drafted. Minor variances may be required for over-cladding, if the wall system was to substantially reduce side yard setbacks or add to the height of the building.

Other considerations

Costs and access to financing for capital improvements are common challenges facing property owners who want to introduce environmental retrofits to their buildings.

Notes:

A compilation of international precedents for green refurbishment can be found in the report *Tower Neighbourhood Renewal in the Greater Golden Horseshoe* (2010), and solutions suited to the local condition have been analyzed in the report *Tower Renewal Guidelines* (2009) and *Tower Renewal Community Energy Plans* (2010).



Images:

Top left: Thermal over-cladding of residential tower, Guelph, Ontario, 2009

Top right: 'Solar house' renewal of apartment blocks, Göteborg, Sweden, (Gårdstens Bostäde 2007)

Middle left: Thermal over-cladding of tower blocks, Manchester, 2009

Middle right: Green waste management building within apartment neighbourhood, Göteborg, Sweden, 2009

Bottom left: Sun-shading to reduce solar gain, Rotterdam, Netherlands, 2009

Bottom right: Solar wall tower retrofit, Berlin, Germany, 2009

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