

PART V - NATURAL ENVIRONMENT AND SUSTAINABILITY

a) Natural Systems

The Secondary Plan area is located at the height of land between the Humber River and Don River watersheds. Black Creek runs along the western border of the study area. The development of a large urban park on the west side of the Secondary Plan area presents opportunities to establish and strengthen habitat, wildlife and recreational linkages to and between these watersheds, and in particular to provide an ecological transition to Black Creek through the creation of natural habitats.

Vegetation on the PDPI lands proposed to be developed as the National Urban Park has been evaluated over the years by Toronto and Region Conservation Authority and in 2006 by Dougan and Associates. Generally the more pristine vegetation communities are found within the Black Creek corridor, although some species of concern have also been found in isolated locations in the Park. Dougan and Associates notes that the PDPI lands are highly disturbed with much of the site planted with ornamental trees, shrubs and turf grass. They recommend increasing the habitat potential of the overall site, through planned vegetation communities, targeted to specific habitat needs of desirable wildlife species.

There is a remnant woodlot located north of Sheppard Avenue within the Secondary Plan area. The woodlot is a regular shaped yet small and fragmented piece of natural heritage. It is identified for retention in the existing Secondary Plan as well as in the most recent development concept issued by PDPI. The City of Toronto also recently updated the Ravine By-law to include this woodlot and adjacent treed areas along Keele Street. This means that specific analysis and evaluation is required prior to undertaking the alteration of any of these treed areas. Opportunities may be explored to preserve and reconnect the fragmented pieces of the woodlot.

PDPI is proposing to transform the west side of their lands within the national urban park from cultural meadow and urbanized condition to a more biologically diverse condition. Biodiversity will be created through a combination of naturalized habitats, urban agriculture and soft approaches to stormwater management. The plan proposes to include a large planted area of forest, meadow, wetland and large pond as well as a wetland canal located at the Keele/Sheppard gateway to the Park and the use of infiltration basins and bioswales to treat runoff from roads and parking areas. Green roofs are also identified as a stormwater management and habitat creation strategy.

Enhancing the urban forest will also be important particularly on the PDPI lands, which are void of trees for the most part except for the woodlot mentioned previously. The City-wide tree canopy targets are above 30%, with the aim in local communities to double the tree canopy wherever possible, through street tree plantings, in parks and on private property.

In support of a connected natural heritage system throughout the Secondary Plan area and linking to the adjacent watersheds, opportunities to adopt a naturalized planting approach

analogous to the program envisioned for the national urban park lands will be explored for the rest of the lands in the Secondary Plan area.

b) Parkland and Open Space

The current Secondary Plan requires that the national urban park be a minimum of 88 hectares. This does not include any local parks that may be required for development areas by the City. The PDPI development concept proposes approximately 127 hectares to be developed as a national urban park.

The municipal parkland and open space needs required to support future development will be evaluated as part of the Secondary Plan Review for all identified development lands in the Secondary Plan area, including the areas of the PDPI development concept.

c) Air Quality

The air quality in the study area is impacted by vehicular traffic throughout the City and, in particular on Highway 401 which is directly south of the study area. Operations associated with aircraft engine testing and flight testing at the Bombardier plant also affect air quality. To a lesser extent, vehicle traffic on Allen Road and the lesser arterials of Keele Street and Sheppard Avenue impact local air quality.

The opportunity to have a substantial impact on air quality in the study area is limited. However, air quality should be considered in reviewing and evaluating development options in terms of pursuing transit supportive development, cycling and walking as alternatives to driving, and the design and operations of existing and future roads, including the vegetation of the boulevard. Mitigation strategies such as buffering major roads and setting back developments from local emission sources would be prudent.

d) Urban Heat Island

The urban heat island effect and increasing heat concerns resulting from climate change must be considered when evaluating the design and materials used in new development and in the approach taken to the design and landscaping of public spaces. These have the potential to improve local climatic conditions – at the level of buildings, streets and neighbourhoods.

Concrete and asphalt absorb heat during the day and release it slowly at night, resulting in higher day-time and night-time temperatures. Trees and vegetation which normally capture and cool the surrounding air through evapotranspiration are reduced in urban areas. Elevated temperatures tax communities by increasing peak energy demand and heat-related illness and mortality. Smog and heat also create a positive feedback cycle where heat intensifies ground level carbon dioxide and other greenhouse gases. On average there are 120 heat related deaths in Toronto each year, with the greatest mortality occurring in between July and mid-August and during multi-day heat episodes.

NRCan Landsat thermal imagery taken on August 10, 2002 provides an indication of local heat conditions in the study area. As could be expected, the hottest areas are the Bombardier

airport runway which is an asphalt runway. Urban cooling strategies that will be considered during the planning process include: green roofs, increasing the tree canopy and pervious areas and use of surface materials with high reflectance values.

e) Noise

The area has certain noise characteristics associated with traffic volumes on major roads in the area. More significant however is the localized noise impact associated with the Bombardier manufacturing plant where engines are tested and aircraft takeoff and landings occur as part of their operations.

Transport Canada's document *Land Use in the Vicinity of Airports* (2005), sets out guidelines regarding land uses around airports based on noise level estimates. A Noise Exposure Forecast is produced to guide land use planning decisions in the vicinity of airports. These forecasts produce contours that reflect an estimate of the noise level anticipated from a specific location such as the runway.

Consideration of noise impacts and the operational characteristics of the Bombardier facility will be an important consideration in determining appropriate land uses and built form for the lands in the Plan area.

f) Sustainability Scan

A sustainability scan was conducted by PDPI for their lands as part of the preparation of the Sustainable Community Development Guidelines. This document takes a sustainable development approach to revising the Park and provides implementation guidelines and strategies addressing all three pillars of sustainability: social, environmental and economic (this document is available on the PDPI website: www.pdp.ca). PDPI intends to implement development on their lands in accordance with these guidelines.

Additional opportunities for sustainable planning approaches lie with the development and redevelopment of other lands in the Secondary Plan area and with the development of a Community Energy Assessment discussed later in this report. The Bombardier facility presents a challenging opportunity to implement sustainability principles that integrate the airport with the surrounding uses and decrease the ecological footprint of the facility.

PDPI has identified some opportunities for technological innovations on their site in the Sustainable Community Development Guidelines. These innovations – vacuum waste infrastructure, anaerobic digestion facility, biomass energy source and biological waste treatment - require additional feasibility study and review by the City prior to piloting or implementing any of them.

A Sustainability Framework is being developed as part of City Planning's Lawrence Allen Revitalization Study which encompasses lands south of the Secondary Plan area. The design of the framework enables broad application and it will be used through Secondary Plan Review process to assist in the evaluation of alternatives and the selection of a preferred plan.

g) Green Development Standards

Green building standards are essential to improving the energy and environmental performance of buildings and sites. Toronto's Build Green Standard includes mandatory and voluntary performance targets and strategies to ensure that Toronto's priority environmental issues are addressed in all new developments. While PDP has set an objective of LEED Silver or Gold as its development standard, the Toronto Build Green Standard (Level 1) is mandatory and must be met. This standard will help to achieve a LEED rating. Toronto's Level 2 voluntary standard sets enhanced targets for high performance buildings and sites. PDP will be encouraged to meet the enhanced standard.

The Build Green Standard incorporates policies and targets from across the City including the Wet Weather Flow Management Master Plan (WWFMMP). WWFMMP policy and guidelines must be met within the study area. Dougan and Associates, in their work for PDPI, noted that the site is "too efficient" in terms of stormwater runoff with little opportunity for retention and infiltration. Opportunities for wetland habitat creation combined with storage and detention facilities will be examined through the Secondary Plan Review.

The Review will develop a planning framework that is based on sustainability principles. Developing a planning policy framework that supports the implementation of green development standards in future development is an important objective for the City.

h) Community Energy Plan

The City of Toronto Energy Efficiency Office is the municipal lead in implementing an energy efficiency and conservation strategy for Toronto in support of the City's commitment to reduce carbon dioxide emissions by 6% by 2012 and 30% by 2020, from 1990 levels.

A Community Energy Plan can be an effective tool in supporting and implementing a municipal energy conservation strategy. By including a consideration of the energy use and supply implications associated with various development options, a Community Energy Plan can identify a commitment to energy efficiency in development at a local level, evaluate current conditions and identify and prioritize opportunities and initiatives.

Ameresco Canada completed a *Sustainable Energy Systems Strategy* for the PDPI lands in 2007. The study provides an examination of energy infrastructure and the potential to achieve Net Zero energy. Net Zero means requiring no more new energy to service future energy demand requirements than existing, through energy efficiency, on-site energy generation and renewable sources. The study provides a basis for the development of a Community Energy Assessment that encompasses the broader Secondary Plan area.

A Community Energy Assessment for the area will meet the following objectives:

- Promote energy conservation and efficiency and establish a commitment to increased renewable energy capacity.
- Establish goals to ensure energy security within the area.
- Lead to greater greenhouse gas emission reduction and air quality improvements.

- Be consistent with existing City of Toronto strategic, environmental and planning objectives.

To effectively realize a sustainable energy state, elements encompassing various factors impacting energy production and use must be considered in an integrated fashion as follows:

i) For a future timeline of 20 to 100 years, perform an energy demand projection based on anticipated population, economic and municipal conditions derived from the land use planning, transportation, municipal infrastructure and neighbourhood/site planning and building design characteristics of the area.

ii) Describe energy demand minimization strategies, including high performance building characteristics and passive design implementation.

iii) Describe energy supply alternatives appropriate for the area considering: "district" energy; waste heat utilization; geo energy; co-generation of heat and power; solar technologies; alternative fuels; and wind.

iv) Evaluate the alternative energy supply options. Link the energy consumption and production to environmental output, related to air emissions through a greenhouse gas conversion factor. Include energy costs and environmental costs.

v) Propose a preferred scenario for energy demand minimization measure(s) and alternative energy supply option(s) for the area. Make recommendations as to the role of the municipality in helping to develop these.

vi) Explore additional benefits to be realized from implementation of the Community Energy Plan, to address social impacts, economic impacts, health benefits, and contribution to the City and national effort of greenhouse gas reduction and other environmental issues.

vii) Recommend an implementation plan for the preferred scenario, which identifies aspects that require further study, expected barriers to implementing the Community Energy Plan, and appropriate mechanisms by which to overcome them (such as government programs, financial tools, etc.).

City Council at its meeting of June 2008 directed that a Community Energy Plan be completed for the Downsview Area Secondary Plan. City staff will move forward on this direction, the first step of which will be applying the Community Energy Plan Framework being developed for the Lawrence Allen Revitalization Study to the alternative concept plans to assist in the selection of the preferred plan.