Region of Peel
Health Background Study
IMPLEMENTATION STRATEGY

May 27, 2011
Prepared by The Planning Partnership

In Association With:
Implementation Strategy

1.0 Introduction

1.1 Project Overview

The Peel Health Background Study project was initiated to explore the possibility of establishing a context-sensitive system for requiring the consideration of health impacts during the land use development approvals process. This project builds on the Peel Healthy Development Index, which identified core elements of the built environment that impact health, such as density, land use mix, and street design. The Index itself supports the establishment of a Health Background Study by presenting an evidence-based assessment of the connection between health and the built environment.

1.2 Developing the Health Background Study Terms of Reference and User Guide

Since the project’s initiation, The Planning Partnership has undertaken an in-depth study of what a Health Background Study Framework could look like in terms of:

- Core Elements,
- performance standards, and
- implementation frameworks.

This study has included literature, policy and program reviews (through the Situational Assessment), and much consultation with stakeholders through workshops, targeted interviews, and the on-going review of our work in progress. Throughout this process we have received feedback from a diversity of professional from the Region of Peel, City of Mississauga, City of Brampton, Town of Caledon, and the City of Toronto – including staff from planning, urban design, transportation, public health, and parks and recreation.

The products of this research and consultation include the Terms of Reference and User Guide for a Health Background Study, which are based on six Core Elements:

- Density
- Service Proximity
- Land Use Mix
- Street Connectivity
- Streetscape Characteristics, and
- Parking.

The implementation framework for the Terms of Reference is established in the User Guide, which reiterates the standards associated with each Core Element, and highlights how each standard applies to greenfield or infill development, or both, using menu icons. The User Guide also includes an Application Matrix, which identifies the stage(s) in the planning process (e.g. Secondary Plan, Block Plan) where the achievement of each standard can be assessed.

The Terms of Reference and User Guide incorporate the extensive feedback received from stakeholders regarding the content and applicability of a Health Background Study. All of our research and the feedback collected for this study is further reflected within this Implementation Strategy.

2.0 The Implementation Strategy

The Implementation Strategy outlined in the following sections builds on the User Guide by providing the Region of Peel, its local municipalities and other municipalities, a game plan and for implementing the Health Background Study, should they chose to do so.

The Implementation Strategy presents the requirements for a supportive legislative environment for the Health Background Study, and provides specific procedural details such as who does what and when. The Implementation Strategy also includes a plan for monitoring the implementation and success of the Health Background Study by the Region of Peel and its local municipalities, as well as a broader discussion of how to promote health through planning. The Implementation Strategy concludes with Key Priority Actions the Region of Peel should take to implement the Health Background Study.
The general approach to implementing the Health Background Study is outlined here, however, it will and should vary according to the local context. Additionally, single- and two-tier municipalities will necessarily differ in their approach to implementing the Health Background Study, based on the jurisdiction and available tools for each player in the process.

Unlike a single-tier municipality (such as Toronto) where one government is responsible for the planning and development application process, responsibility for implementing the Health Background Study in the Region of Peel will be shared by planning and public health staff at the Region and the three local municipalities. The implementation of the Health Background Study will need to work within existing jurisdiction - where local municipalities are the primary approval authority for most development applications, which are circulated to the Region for commentary prior to approval.

This process will pose certain challenges that need to be addressed prior to implementing the Health Background Study. For instance:

- How can the Region consistently apply a Health Background Study Terms of Reference across the three municipalities in a way that reflects unique local circumstances?
- Is there a need for a Regional Terms of Reference? If yes, how will it differ from local Terms of References?
- What role should the Region play in formulating local Terms of References?
- With regard to the day-to-day application of the Health Background Study, how can Regional staff be brought into the pre-application process to ensure healthy development criteria are addressed comprehensively, early on?

The answers to these questions and others must be negotiated among the Region and local municipalities, and cannot be prescribed from the upper-tier downward. That said, open communication and a focus on collaboration will likely be the key to success.

Within this context, the upper-tier municipality can undoubtedly make a significant contribution to implementing a Health Background Study. First and foremost, the Region can play a leadership role in implementing the five priority actions outlined in this Implementation Strategy - each of which lay the groundwork for ensuring the uptake and success of the Health Background Study. These priority actions focus on reviewing local applicability of the Health Background Study, educating stakeholders, applying the Study to public pilot projects, recognizing innovation, and monitoring the application and outcomes of the Study. Taking the lead on implementation is a natural role for the Region, which has already taken a leadership role by initiating this project.

### 2.1 Key Principles

The following is a summary of the fundamental principles that should underpin the implementation of the Health Background Study.

#### 2.1.1 Establish a Supportive Policy Framework

Through their Official Plans, local municipalities and the Region should establish a strong policy framework that:

- makes the connection between development and health outcomes;
- establishes corresponding policy objectives/targets for public health; and,
- enables the requirement for a Health Background Study as part of the development approvals process.

**Region of Peel**

The Region of Peel has been a leader in emphasizing healthy communities as a fundamental concept and objective through amendments to the Regional Official Plan, local Official Plans in Brampton and Caledon, and through Mississauga’s new draft Official Plan. In particular, Mississauga’s, Caledon’s and the Region’s Official Plans now include the Health Background Study in the list of studies that may be required as part of a “complete application”. To allow for the implementation of a Health Background Study in all areas, Brampton should adopt a similar enabling policy through an amendment to its own Official Plan.

**City of Toronto**

The City of Toronto has also taken significant strides to make the link between planning decisions and health outcomes through broadly supportive Official Plan policies and specific requirements under the Toronto Green Development Standard. In this context, there has been debate whether a Health Background Study would be redundant, however, there are significant opportunities for Toronto to further promote healthier communities, especially through the rehabilitation of its “stable neighbourhoods”.

Toronto’s Official Plan identifies large swaths of residential neighbourhoods as “stable” in its Official Plan, and in doing so fails to articulate a plan for the long-term evolution of these neighbourhoods. Many of these stable neighbourhoods, particularly further away from Downtown, reflect the least healthy forms of planning and development, as is characteristic of traditional suburbs.
As it is about to embark on its 5-year Official Plan Review process, the City of Toronto should look at ways to influence and support the rehabilitation of its stable neighbourhoods to make them more active, vibrant and less auto-reliant over the long-term. The usefulness of a Health Background Study should be considered in this context.

2.1.2 Do Not Impede the Approvals Process
As expressed by numerous stakeholders consulted for this study, timing and efficiency are important considerations in the development approvals process. Timing in particular has a direct impact on development costs, and can have significant impacts on the viability of a development project, particularly in tenuous economic circumstances. In fact, one of the stated purposes of the Planning Act is to ensure the planning processes are fair, by making them open, accessible, timely and efficient (S1.1).

The implementation of a Health Background Study requirement in the planning process should, therefore, have a clear role and not impede or add unwarranted amounts of time to the development process. Assurances that the new Health Background Study requirements will not have a significant impact on application review and processing times will go a long way to alleviate concerns from development interests. Such assurances may even build a certain level of acceptance from the development industry.

As such, it is recommended the Region and local municipalities develop supportive policies that provide some level of certainty around approvals timing, and clearly articulate expectations throughout the development approvals process. For example, such policies may specify how health impacts will be considered early on in the development application process to avoid back-tracking and unnecessary delays.

Such policies will benefit development proponents and municipalities, since additional lag in the approvals process could expose municipalities to costly litigation through the Ontario Municipal Board, subject to the type of application and associated decision time frames established by the Planning Act.

2.1.3 Lead by Example
In order to generate support for the implementation of the Health Background Study, municipalities must lead by example – meaning they must demonstrate that their own developments and planning initiatives comply with the Health Background Study requirement and achieve its Standards.

Recognizing that there may be growing pains associated with the initial implementation of the Health Background Study, municipalities should plan to provide an extra level of assistance to the first affected applicants. Staff must be prepared to instruct development applicants on how to proceed, they must communicate expectations, and deal with early interpretation issues. This extra level of service will go a long way to demonstrate the municipality’s commitment to the Study requirements, and help to identify potential deficiencies in the Standards and/or their implementation.

2.2 The Health Background Study’s Place in the Planning Process
The HBS and its Standards are applicable throughout the various stages of the planning and development approvals process, including the Secondary Plan, Draft Plan, Block Plan and/or Site Plan. The achievement of some Standards can be assessed at a higher level of planning, such as in the Secondary Plan, while others will be assessed at more detailed approval stages, such as Draft Plan, Block Plan and/or Site Plan.

In general, the Secondary Plan will establish the policies for Standards that will be further outlined and evaluated at subsequent levels of approval. As such, (and as recommended by our interview subjects), the Secondary Plan level is the most conducive to enabling broad change in the development approvals process. We recommend the Secondary Plan should set out the healthy development policies and guidelines against which development proposals will be assessed throughout the approvals process. Notwithstanding that, the achievement of Standards may be evaluated for areas where there is no Secondary Plan, during the Draft Plan, Block Plan or Site Plan approval.

A table indicating where in the planning and development approval process each HBS Standard can apply is provided as an Appendix to this Implementation Strategy. This table has been developed to assist developers, municipal staff, and others involved in the planning and development process in completing the HBS.

It is at the discretion of the local municipality to determine the applicability of each HBS Standard and the precise evaluation parameters for a specific development proposal. Evaluation parameters will recognize challenges and opportunities posed by the natural environment, economics, and logistics. Every Standard will not necessarily apply to every development project. During the pre-application stage, staff and proponents should assess the applicability of the Standards to a specific development, based on the location and scale of development, and other relevant factors.

2.3 Who Does What?
The responsibility for completing and reviewing the Health Background Study will fall on development proponents, planning staff and public health staff. As stewards of the
development application process, planning staff will need to take a lead role, with substantial involvement and support from public health.

2.3.1 Development Proponents
Development proponents will be responsible for demonstrating how their proposal achieves the Standards for healthy development, as outlined in the Terms of Reference and Health Background Study. Applicable Standards will be identified in consultation with planning staff during the pre-application stage.

To demonstrate the achievement of applicable Standards, development proponents will need to complete the Reporting Requirements outlined in the Terms of Reference and User Guide, and submit these items as the Health Background Study to planning staff for review.

2.3.2 Planning Staff
Municipal planning departments and their staff will be expected to integrate the requirements of the Health Background Study with the review of development applications. Specific responsibilities are likely to include:

- planning, organizing and coordinating the application process;
- reviewing the Health Background Study documents;
- providing information and communicating;
- motivating a wide range of people;
- managing conflict;
- facilitating events;
- negotiating; and
- monitoring and reviewing the process.

Planning departments will also be required to help applicants find their way through the process, through pre-consultation meetings, continuing support and access to public health officials to provide additional expertise. The aim should be to resolve as much as possible of the potential conflict arising from a development proposal.

2.3.3 Public Health and Other Municipal Staff
The proactive organization of the planning and development process will involve multi-disciplinary cooperation among various departmental staff to foster an approach where planners, designers, engineers and development interests work closely together. Most importantly, it will be essential to integrate public health officials into this process to increase the credibility of the Health Background Study, and incorporate their expertise in the review of development applications.

Incorporating public health officials, specifically during the beginning of the process, will also reduce the risk of a lengthy review. By working together to implement the Health Background Study and to review development applications, planning and public health staff will jointly contribute to each other’s development as Health Background Study reviewers. Planners will become increasingly knowledgeable of health concerns, while public health staff will gain a better understanding of the planning process and the design of the built environment.

Ultimately the outcome of the planning process depends on how effectively people work together: those who initiate and implement development; those who guide and control design; and the planners, designers, public health officials, and engineers who manage the process.

2.4 Key Priority Actions
The following are key recommendations and priority actions that the Region of Peel, its local municipalities and the City of Toronto should undertake, should they choose to implement the Health Background Study. These priority actions reflect the input and concerns expressed by workshop and interview participants. We heard from them concerns about timing and delays in the development application process, costs to developers, the availability of expertise and resources, and the feasibility of achieving higher standards. They also expressed the need to engage stakeholders and build political support by involving developers and the public in the process, receiving clear direction from City Council, and promoting the Study through education and marketing. Finally, we heard that to gain buy in from stakeholders, it is imperative that the Study result in improved development outcomes.

In response to this input, we recommend five key actions each municipality should take towards implementing a Health Background Study. These are outlined in detail in this section, and include:

- Commit Staff Resources to Review Local Applicability of the Health Background Study
- Promote Education
- Initiate Pilot Projects
- Recognize Innovation
- Establish a Monitoring Program

Combined, these five actions seek to address the concerns expressed by stakeholders, and to ensure the success of the Health Background Study, no matter where it is adopted.

2.4.1 Commit Staff Resources to Review Local Applicability
The Health Background Study Terms of Reference are based on current best practices in planning and urban design, and the Standards have been designed to be broadly applicable to most development contexts. Given the broad applicability of the Health Background Study, it is recommended that municipalities commit staff and resources to customize the Terms of Reference to suit local circumstances.
Prior to implementing the Health Background Study as a requirement in the local planning approvals process, a municipality may assign an interdepartmental team of staff to review the Terms of Reference in the context of the local planning policy and development regulation regime. This internal review would help the implementing municipality to identify:

- potential conflicts between the Terms of Reference and local regulations,
- where local regulations exceed the standards within the Terms of Reference, or
- where local standards may need enhancements, and
- where other local planning initiatives may be cross-referenced or integrated into local Health Background Study requirements.

In municipalities with a two-tier governance structure, both the upper and lower-tiers would likely need to go through this exercise cooperatively.

Following this review, the implementing municipality would be in a position adopt a revised Terms of Reference to suit their local circumstances, and amend other local policies/standards as needed to avoid duplication or conflicts.

2.4.2 Promote Education

The extent to which the planning process facilitates high quality development that is based on key healthy development principles and standards, depends on developing the right skills, knowledge and attitudes among those responsible for reviewing and approving development applications.

As part of their implementation of the Health Background Study, municipalities should facilitate internal learning modules on the linkage between planning and health outcomes, and how the Health Background Study requirement will be applied within the local development approvals processes. Such learning modules may be provided for relevant departmental staff, regional and local public health staff, and Council members. Planning staff will also require detailed training on the use of the Health Background Study, including the Standards, and its role within the development application review process.

2.4.3 Initiate Pilot Projects

In advance of wider local implementation of a Health Background Study requirement, each implementing municipality should pilot test the Health Background Study as part of an actual planning initiative such as a Secondary Plan.

Pilot testing the Health Background Study as part of an actual planning initiative will provide an opportunity for the municipality, as well as local development interests, to analyze and fine-tune the applicability of the standards and associated reporting requirements, as well as understand the costs and timing associated with fulfilling the reporting requirements.

2.4.4 Recognize Innovation

As part of their effort to promote healthy community development, implementing municipalities should make a concerted effort to formally recognize local achievement, uptake and innovation in healthy development. This recognition may take the form of an awards program – either stand-alone awards program or integrated into already established local urban design awards program – that celebrates creativity and success in the completion of healthy development projects.

2.4.5 Establish a Monitoring Program

Evaluation and monitoring is important to ensure that the local regulatory mechanisms are effective in achieving fundamental healthy development goals. Monitoring will also help to ensure that the Health Background Study continues to meet the need of those who use it.

As a new and relatively untested regulatory tool, implementing municipalities should establish a monitoring program to evaluate how the Health Background Study is being implemented, how applicants are responding to it and whether desired results are being achieved. Monitoring efforts may, at minimum, include:

- short questionnaires to applicants on their experience completing the Health Background Study requirements;
- internal tracking of approvals timing; and
- follow-up reviews of completed developments that went through the Health Background Study.

All components of the monitoring program should be established as part of the implementation framework for the Health Background Study. This will help to ensure that data collection begins as soon as the Health Background Study requirement is initiated, so lessons can be learned that much sooner.

3.0 Conclusion

The outcomes of the Health Background Study project indicate there is a substantial role for municipalities to play in creating healthy communities through the development application process. The need for action has been clearly expressed, and a plan for action outlined through this Implementation Strategy. It will be, however, each municipality’s discretion to implement a Health Background Study, balancing their local needs, desires, resources and authority with the approach outlined in the Terms of Reference, User Guide and this Implementation Strategy.
Appendix
### Health Background Study Standard

**Density**

1. All development on Designated Greenfield Areas shall achieve a minimum overall density target of 50 people and jobs per hectare.

2. All development in Designated Urban Growth Centres in the Region of Peel (including Downtown Brampton and Mississauga City Centre) shall achieve a minimum overall density target of 200 people and jobs per hectare.

3. Notwithstanding the above standards, where the local municipality has established higher density targets than those established by The Growth Plan, the higher density target should apply.

**Service Proximity**

**Transit**

4. The distance between at least 50% of the projected population of the development and a low-order transit stop shall be no more than 200 m. The transit service proposed should provide a direct route to a Regional Urban Node, Intensification Corridor, or smaller higher-density, mixed-use transit supportive activity centre with a maximum transit trip of 30 minutes.

5. Where a high-order transit route bisects the development area, 75% of the projected population should be within 400 m of it.

6. Ensure design quality of both transit stops and the journey to the stop. Transit stops should, where appropriate, provide shelter from the sun and inclement weather and seating. High-order transit stops/stations should also include secure bicycle parking facilities.

**Neighbourhood Community and Retail Services**

7. The distance between at least 75% of the projected population and three or more of the following services and amenities must be no more than 800 m: Childcare facility, community garden, park, hospital or health clinic, public library, places of worship, adult/senior care facility, social service facility, performance or cultural space, post office or recreation centre. (Multiple services of the same type may be counted.)

8. The distance between at least 25% of the projected population and a minimum of 5,000 m² of mixed service commercial retail space shall be no more than 800 m.

9. The distance between at least 75% of the projected population and a minimum of 150 m² of mixed service commercial retail space shall be no more than 800 m.

10. The distance between at least 90% of the projected population and a playing field, park, square or natural open space should be no more than 400 m.

11. The distance between 100% of the projected population and a planned elementary school shall be no more than 1.2 km.

12. The distance between 100% of the projected population and a planned secondary school shall be no more than 2.4 km.

13. Where appropriate, a new community should provide mixed service commercial retail facilities that can be used by adjacent communities.
### Service Proximity continued

14. Access to drug and grocery stores should be encouraged.

15. In key locations convenience commercial uses are permitted throughout residential designations.

### Employment

16. The development should be within reasonable proximity to an existing or planned employment centre or urban centre. Specifically, the distance should be no more than 10 km.

### Land Use Mix

17. Where the scale of the residential community is large enough, a range of uses should be provided, as follows:

- for communities of 5,000 people or more, provide neighbourhood-scale retail and services (such as corner stores, elementary school, library, etc.)
- for communities of 10,000 people or more, provide a full-range of uses, including larger-scale retail, services, and employment opportunities.

18. Where the scale of employment lands is large enough, small scale commercial retail and services should be encouraged, where appropriate.

19. Where the scale of the community permits, it should include dwelling structures from all three of the following housing type groups, with no group making up more than 50% or fewer than 10% of total units:

   i. Single detached, semi-detached, and duplex
   ii. Townhouses and multiplex
   iii. Apartment building

20. Special housing types, such as group homes or seniors’ residences, should be encouraged.

21. Primary suites should be encouraged where appropriate.

22. Live-work units should be encouraged where appropriate.

23. Site design of auto-oriented developments, such as uses which include drive through facilities, gas bars and related uses shall make pedestrian access a priority and contribute to high quality public realm and streetscapes.

24. The location of retail uses on the ground floor of multi-unit and mixed use buildings should be encouraged.

### Street Connectivity

25. Infill development should identify opportunities to increase street connectivity.

26. Street networks and off-road paths in greenfields should always:

   - provide the maximum choice for how people will make trips;
   - take full account of the kinds of movement a development will generate; and
   - make clear connections to existing routes and facilities.
### Health Background Study Standard

#### Street Connectivity continued

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<tr>
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<th>Planning Approval</th>
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<tbody>
<tr>
<td>27.</td>
<td>Cul-de-sacs are not permitted unless required for technical reasons.</td>
<td>G</td>
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<tr>
<td>28.</td>
<td>Crescent streets, reverse frontage lots and loop roads must not constitute more than 20% of total street frontage and should be discouraged.</td>
<td>G</td>
</tr>
<tr>
<td>29.</td>
<td>Blocks in the proposed development must not exceed 80 m x 150 m in size. Exceptions are made for blocks consisting solely of Parkland or of Employment uses.</td>
<td>G-I</td>
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<tr>
<td>30.</td>
<td>Intersections should be frequent, with street blocks decreasing in size as density increases.</td>
<td>G-I</td>
</tr>
<tr>
<td>31.</td>
<td>Sidewalks, bike lanes and <em>multi-use paths</em> should connect to street networks, major destinations and transport nodes.</td>
<td>G-I</td>
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#### Streetscape Characteristics

##### Sidewalk Amenities

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<th>Planning Approval</th>
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<tr>
<td>32.</td>
<td>All streets must have sidewalks on each side that are at least 1.5 m wide in low-density residential areas, and at least 2 m wide in medium-density residential neighbourhoods, high-density residential neighbourhoods, mixed use areas, and commercial areas.</td>
<td>G-I</td>
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<tr>
<td>33.</td>
<td>A variety of street trees that are hardy, resilient, and low maintenance should be planted at regular intervals (as specified by the municipality) adjacent to all streets.</td>
<td>G-I</td>
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<tr>
<td>34.</td>
<td>Transit shelters and other <em>street furniture</em> should be provided, especially on major pedestrian routes. Other <em>street furniture</em> may include benches, waste receptacles, newspaper outlets, community information boards, water fountains, public washrooms, <em>bicycle parking</em>, and <em>bicycle sharing</em> system components.</td>
<td>G-I</td>
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##### Cycling Amenities

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<tbody>
<tr>
<td>35.</td>
<td>A connected and destination-oriented <em>bikeway network</em> should be provided throughout the community, including a variety of on- and off-street <em>bikeway facilities</em> that provide an appropriate degree of separation from motorized traffic, given the speed and volume of traffic on the street. These on-street <em>bikeway facilities</em> may include (but are not limited to) <em>bicycle lanes</em>, <em>cycle tracks</em>, <em>sharrows</em>, <em>signed routes</em>, <em>bicycle boulevards</em>, and <em>multi-use paths</em> on the boulevard.</td>
<td>G-I</td>
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Where there is a local Bicycle Plan, the *bikeway network* proposed in the Plan should be implemented in the development area, and opportunities to enhance or connect to the proposed *bikeway network* should be identified.

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<th>Planning Approval</th>
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<tbody>
<tr>
<td>36.</td>
<td>At a minimum, 100% of the population shall be within 150 m of a continuous and connected <em>bikeway facility</em>.</td>
<td>G-I</td>
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</tbody>
</table>
### Streetscape Characteristics continued

#### Intersections

37. All intersections should be designed to increase the visibility of cyclists and pedestrians, give them priority, reduce crossing distance, and provide adequate crossing time. Intersection design elements may include, but are not limited to:

- Pavement treatments and markings for pedestrian crossings (e.g. brick paving, zebra/ladder markings)
- Curb cuts/ramps
- Raised crosswalk
- Curb extension/bulb out
- Centre Median or refuge island
- *Pedestrian scramble* (a.k.a. Barnes dance)
- *Bicycle box*
- Conflict zone markings for bicycles (e.g. coloured lane, skip lines, chevrons, *sharrows*)
- Audible pedestrian crossing signals
- Countdown signals
- Leading pedestrian and/or bicycle signals (advance walk/bike signal)
- Pedestrian and/or bicycle actuated signals
- Right-turn on red light prohibitions
- Mid-block signalized crossings

#### Lighting

38. All *mixed-use* streets must have an average luminance of 10 lux, with a minimum of 5 lux.

39. Pedestrian-level street lamps of 4.6 m in height or less, spaced apart no more than 30 m, must be provided on all streets.

#### Wayfinding

40. A *wayfinding* system should be implemented on a community-wide basis to allow residents and visitors to determine their location; identify key destinations (parks, transit stations, community and cultural facilities, shopping centres, off road trails); and develop a plan to take them from their location to desired destination by walking or cycling. The *wayfinding* system may include maps, directional signs or other elements, and should be useful and easy to understand.

#### Traffic Calming

41. In *greenfield development*, or where new streets are introduced through *infill development*, *traffic calming* will be achieved on neighbourhood streets by using:

- Minimum traffic lane widths
- Minimum number of traffic lanes in the roadway
- Pedestrian-priority streets, woonerfs or home-zones (speed limit under 15 km/hr, vehicles must yield to pedestrians and cyclists)
### Streetscape Characteristics continued

42. For infill development, traffic calming should be achieved on existing neighbourhood streets by using any of, but not limited to, the following elements:

- Reduced/minimum traffic lane width
- Reduced/minimum number of traffic lanes in the roadway
- Pedestrian-priority streets, wooners or home-zones (speed limit under 15 km/hr; vehicles must yield to pedestrians and cyclists)
- Speed humps
- Bollards (short vertical posts)
- Channelization islands (raised islands that force traffic to turn in a particular direction)
- Chicane (curb bulges or planters or alternating sides, forcing motorists to slow down)
- Choker (raised islands in parking zones that narrow a roadway)
- Curb extension, planter, or centerline traffic island that narrows traffic lanes
- Horizontal shift (a lane centerline that curves or shifts)
- Rumble or warning strip
- Semi-diverter or partial closure (restricts entry and limits traffic flow at intersections)
- Signal timing to reduce traffic speeds
- Radar trailer that shows drivers their current speed and the posted speed limit
- Traffic circles or roundabouts
- Speed table

43. While increasing comfort and safety for pedestrians, the design of traffic calming elements should not create undue hazards or obstacles for cyclists.

### Parking

#### Automobile Parking

44. Reductions in parking requirements should be given to:

- buildings and other facilities within 400 m of a transit stop; and
- apartments/condominiums offering car share parking spaces (with each car share space equivalent to 10 regular spaces).

45. On-street parking should be included on all streets except where inappropriate for technical or safety reasons.

46. Efficient use of parking should be promoted by identifying systems for sharing parking spaces by two or more user groups at different times of the day or week (for example, office staff during weekdays and restaurant clientele in the evenings and on weekends), and by providing preferential parking for carpool vehicles.

47. Where available, economic incentives should be identified and utilized to provide structured parking, rather than surface parking.
48. Where surface parking is provided, it should be designed to minimize negative aesthetic and environmental impacts. This can be achieved by locating the parking lot away from the street frontage and by incorporating the following into the parking lot design:

- Tree planting
- Landscaping
- Stormwater management
- Porous/permeable surfaces
- Light-coloured materials (rather than black asphalt)
- Pedestrian access and circulation

49. All new developments should meet or exceed the higher of:

   a) Local bicycle parking requirements (provided in local zoning by-laws, Bicycle Master Plans); or
   b) The minimum bicycle parking standards outlined in Table 1.

<table>
<thead>
<tr>
<th>Use</th>
<th>Minimum Spaces by Bicycle Parking Type</th>
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<tbody>
<tr>
<td></td>
<td>Occupant/Employee</td>
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<tr>
<td>Multi-unit Residential</td>
<td>0.7/unit</td>
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<tr>
<td>Retail, Services, &amp; Community Facilities</td>
<td>0.1/100 m²</td>
</tr>
<tr>
<td>General Office</td>
<td>0.15/100 m²</td>
</tr>
<tr>
<td>Medical Office</td>
<td>0.15/100 m²</td>
</tr>
<tr>
<td>Hospital</td>
<td>0.06/100 m²</td>
</tr>
<tr>
<td>Elementary/Secondary School</td>
<td>0.06/100 m²</td>
</tr>
<tr>
<td>Post-Secondary School</td>
<td>0.06/100 m²</td>
</tr>
<tr>
<td>Other non-residential (e.g. Industrial)</td>
<td>0.06/100 m²</td>
</tr>
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</table>
| High-order Transit Station         | Complete a bicycle parking demand estimate for the station, for example using boardings, alightings and local bicycle mode share data.