The Healthy Development Index
Recommendations Report
Peel Health

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In association with du Toit Allsopp Hillier

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Gladki Planning Associates and du Toit Allsopp Hillier were retained by the Heart and Stroke Foundation of Canada to assist in the refinement, evaluation and implementation of the Region of Peel’s Healthy Development Index (HDI) Standards.

Purpose

The HDI is a tool for assessing the urban form of existing and proposed communities along standards that support active living and thereby positive health outcomes. Active living is a lifestyle in which physical activity, such as walking or cycling, is incorporated into day-to-day life. The HDI is evidence-based and isolates elements and measures that can be quantitatively assessed. The elements and targets established in the HDI serve as a checklist and evaluation form for assessing whether a particular urban form meets healthy development criteria.

The practical purpose of the HDI is to enable the Region and local municipalities to assess planning policies, zoning by-laws, secondary plans and site development proposals using well-grounded and defensible criteria. It will also allow an evaluation of existing communities and provide some direction on how they might evolve over time to reflect healthy community principles.

This report makes recommendations on the refinement and implementation of the HDI. The recommendations present a framework for strengthening the HDI as an assessment tool and integrating its principles into the policymaking, planning and development process.

Methodology

To form our recommendations we tested the HDI by using it to assess proposed and existing urban form, a process referred to as a situational assessment. In completing the situational assessments, the HDI was evaluated taking into consideration two different aspects: 1) The practicality of completing the HDI using available data; and 2) The appropriateness of the elements and indicators of the HDI in reflecting a healthy community.

Two existing and three proposed communities in Peel were the subject of situational assessments. Communities were chosen to represent a range of community types: from communities designed based on current conceptions of good planning to more traditional suburban form. Once completed, the findings of the situational assessments were presented to an Advisory Committee at a workshop to solicit further insight from Regional and local area municipality staff.
Recommendations

The strengths of the HDI are significant. It is an excellent distillation of the components that make up complete communities and healthy built form. The indicators attempt the difficult task of providing a quantitative analysis of elements that do not always lend themselves easily to this approach. The results of the situational assessments of the communities under study made intuitive sense and clearly indicate where improvements can be made.

Despite these many positive aspects, there are opportunities to refine the HDI further and improve its usefulness as an appropriate measure of healthy community principles and a practical tool well-suited to the different circumstances in which it will be used.

Our recommendations focus on maintaining the quantitative foundation of the HDI, but improving the ease of assessing individual measures. They also suggest the incorporation of qualitative means of assessment when quantitative measures on their own fail to account for the breadth of possible responses that would meet healthy built form standards. Also, it is recommended that the HDI be presented in a manner which uses narrative to clearly communicate the principles that are the foundation of the HDI and the links between these principles and individual elements and measures.

A further recommendation concerns implementation and the desire for the application of the HDI to have the fullest impact possible. Using the HDI to assess plans and development proposals and hold development proponents to a high standard will be important. However, in tandem with the use of the HDI as an assessment tool, the Region and area municipalities must also work to ensure that their standards, policies and practices work in common purpose with HDI principles. Regional and municipal standards and policies influence built form and in many instances present barriers to the realization of the principles embodied in the HDI. A comprehensive review of these standards and policies are required in order to create the conditions whereby healthy communities are possible.

Building communities along healthy community principles is a departure from the status quo and therefore likely a long term project. A revised HDI will be a useful point of departure and guide for realizing healthy built form in Peel.
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The HDI was developed in 2009 by St. Michael’s Hospital Centre for Research on Inner City Health on behalf of Peel Public Health. The HDI is a tool for assessing the urban form of existing and proposed communities along standards that support active living and thereby positive health outcomes. Active living is a lifestyle in which physical activity, such as walking or cycling, is incorporated into day-to-day life. The HDI is evidence-based and isolates elements and measures that can be quantitatively assessed. The elements and targets established in the HDI serve as a checklist and evaluation form for assessing whether a particular urban form meets healthy development criteria.

The practical purpose of the HDI is to enable the Region and local municipalities to assess planning policies, zoning by-laws, secondary plans and site development proposals using well-grounded and defensible criteria. It will also allow an evaluation of existing communities and provide some direction on how they might evolve over time to reflect healthy community principles.

The St. Michael’s team consulted with area municipal and regional planners on the appropriateness of the HDI in assessing developments in Peel and performed GIS-based validity testing to ensure that the measurement of these elements was feasible and accurate using available Peel data. The findings of this review indicated that the HDI required further refining in order to be easily incorporated into planning evaluations.

Recommendations on the refinement and implementation of the HDI are the subject of this report. These recommendations address what improvements are required to make the HDI both:

- a useful description of what characteristics define a healthy development/community; and
- a practical and appropriate tool for evaluating the presence of these characteristics.

Moving beyond consideration of the improvement of the tool itself, recommendations are also made on implementation and how the HDI can be used to have the greatest impact on developments and communities in Peel Region. A significant part of this evaluation is to consider at what stage in the municipal planning and development process each element addressed by the HDI is best influenced. In sum, the recommendations present a framework for strengthening the HDI as an assessment tool and integrating its principles into the policy-making, planning and development process.
The Peel Healthy Development Index: Initial Scoring Guide and Scorecard – as created by the St. Michael’s team – is the basis of our evaluation of the HDI. It is included in the Appendix. As the scorecard details, the HDI is divided into seven built environment elements:

- Density
- Service Proximity
- Land Use Mix
- Street Connectivity
- Road Network and Sidewalk Characteristics
- Parking
- Aesthetics and Human Scale

Each element is evaluated using a series of measures that quantify the level to which a plan or development proposal is in keeping with healthy community principles. These measures include prerequisites and credit indicators. Prerequisites establish the basic minimum requirement for a healthy community/development. Credit indicators include a numeric scale on which communities/developments can score points. The individual scores in each element are aggregated to produce an overall score for the development as a whole. These scores would entitle the development to earn a Gold, Silver or Bronze accreditation.

HDI Principles

The HDI breaks healthy communities into their component elements in order to quantify them. Before examining how the elements and indicators work in practice, it is important to understand how they link to the basic principles of healthy communities as a whole.

What do we mean by a healthy community? In this instance, a healthy community is one that promotes and enables physical activity (other issues related to health, such as air quality, public safety, climate change adaptation challenges, social cohesion, and access to healthy foods are not directly addressed in the HDI).

In its State of the Region’s Health Report, Peel Health makes the causal link between car-oriented development patterns and the high prevalence of obesity and low rates of physical activity in the region.

The report makes clear that the way our physical environment is formed influences levels of physical activity. Traditional suburban environments – by reducing density, separating land uses, and building environments to the scale and speed of the private automobile – have influenced our lifestyles; where once we walked, now we drive. Longer commute times and more time spent in the car reduce the opportunity for physical activity in daily life. The physical
activity referred to in the context of healthy communities is not related to gym membership or recreational opportunities (although these can be important for physical health as well). Healthy communities hardwire physical activity into daily life. People use active transportation to carry out their daily activities. Active transportation refers to any form of human-powered transportation – walking, cycling, using a wheelchair, in-line skating or skateboarding. People walk or cycle to work; children walk to school; transit allows active modes of transportation to be combined with public transportation to traverse larger distances. The way our communities are shaped and designed can make active transportation possible, convenient and preferred. These forms of physical activity have significant positive health outcomes.

The elements and measures included in the HDI can be traced back to this general understanding of the importance of active transportation in the creation of healthy communities. The key linkages between elements and healthy communities are:

- **Density** interacts with **Service Proximity** and **Land Use Mix** to determine the concentration and distribution of people and destinations in the built environment. Higher densities support higher concentrations of services, retail, employment and other destinations, and increased provision of transit. Simply put, locating people and destinations closer to each other makes active transportation feasible. People are more likely willing to walk 5 or 10 minutes to pick up groceries, than 30 minutes. Looking at these indicators in isolation is less helpful. Density without Service Proximity does little to promote active living as there is nothing within walking distance of where people live. **Service Proximity** without **Density** is unlikely to be feasible as there will be fewer people to support these services within walking or cycling distance. **Land Use Mix** is a feature of **Service Proximity** as it allows uses to exist closer together rather than being separated.

- **Street Connectivity** affects the directness of travel and the number of routes between any two destinations. It promotes active transportation by reducing route distances, increasing non-motorized route options and convenience, and dissipates vehicle traffic through a finer-grained network, thereby making these routes more hospitable to pedestrians and cyclists. **Road Network and Sidewalk Characteristics** are also largely about making routes hospitable to pedestrians and cyclists by: 1) ensuring that there are physical spaces for these active modes of transportation, such as bike lanes and sidewalks; and 2) making these modes as safe and comfortable as possible by reducing potential conflicts with vehicular traffic through calming measures and lower vehicle speeds and by ensuring appropriate lighting. Of course, the ability of **Street Connectivity** and **Road Network and Sidewalk Characteristics** to encourage active transportation is dependent on whether there is anywhere to go, thereby linking back to **Density**, **Service Proximity** and **Land Use Mix**.
• If **Density, Service Proximity** and **Land Use Mix** are elements meant to ensure that people and destinations are within distances that make active transportation an option, and **Street Connectivity** and **Road Network and Sidewalk Characteristics** are meant to ensure that the routes to destinations are short, convenient and comfortable, **Aesthetics and Human Scale** moves beyond the mechanics of active transportation to consider the quality of the spaces we create for active transportation and thereby the quality of the urban environment at large. Are urban spaces designed to be traversed at 70 km/hr, or at 7 km/hr? Do urban spaces invite people to enjoy active transportation or do they throw up barriers to pedestrians and create inhospitable landscapes? **Aesthetics and Human Scale** assesses the quality of the human environment to promote safe, inviting, and physically- and visually-pleasing pedestrian and recreational environments scaled to the size relative to the average human and their physical and sensory capabilities.

• A final element is **Parking**. In common with the elements above, the Parking element seeks to promote active transportation by limiting parking’s potential negative impacts on proximity, density and aesthetics. For example, large surface parking lots are uninviting pedestrian environments. As well, free and ample parking is an encouragement to drive and therefore supports car-oriented lifestyles and urban form. Reduction in the availability of parking and an increase in its cost may provide an incentive for more active modes of transportation.

As can be seen from the above description, the elements when assessed in isolation do not provide a useful conception of how a healthy community works. In combination, however, they tell a compelling story:

People who live in communities that support a broad provision of services and employment within walking or cycling distance, in circumstances where active transportation is given preferential treatment over the use of cars, and in environments where active transportation is a pleasant experience through design treatment, are more likely to incorporate walking, cycling and other active modes of transportation into their lifestyles. There is strong evidence that physical activity of this variety leads to positive health outcomes.

The indicators at work in the HDI are not ends in and of themselves. They are a way of measuring progress toward the realization of this vision of how a healthy community works.
3 METHODOLOGY

The purpose of this report is to make recommendations on the refinement and implementation of the HDI. The principal method to inform these recommendations was to test the HDI by using it to evaluate proposed and existing urban form, a process referred to as a situational assessment. In completing the situational assessments, the HDI was evaluated taking into consideration two different aspects:

- The practicality of completing the HDI using available data; and
- The appropriateness of the elements and indicators of the HDI in reflecting a healthy community.

The issue of feasibility was primarily concerned with the availability of information and mapping, and the ease of scoring the HDI indicators. The issue of appropriateness took a step back from this process and asked whether the current HDI indicators measured the right things, weighted the individual indicators in a manner that made sense and, more generally, were an effective measure of healthy built form. Once completed, the findings of the situational assessments were presented to an Advisory Committee at a workshop to solicit further insight on the practicality and appropriateness of the HDI from Regional and local area municipality staff.

SITUATIONAL ASSESSMENT

Situational assessments used the HDI to analyze two existing and three proposed communities in Peel. Area municipalities were consulted to select three recently planned communities that were the product of the latest conceptions of good planning (intensification and growth management, environmental sustainability, transit-oriented development and complete communities) and, as a counterpoint, two existing communities that represented a more traditional approach to suburban development.

The three recently planned areas were:
- Mount Pleasant Secondary Plan – City of Brampton
- Mayfield West Secondary Plan – Town of Caledon
- Downtown21 Master Plan – City of Mississauga

These communities were at various stages of the planning and development process. As such, most of the data inputs were based on proposed built form.

Two traditional suburban areas were also selected for the situational assessment, referred to as Traditional Suburban Areas A and B. As these communities were long established, information on the actual built form of these communities was used to score the HDI.

A complete description of the situational assessment methodology and findings, including the HDI scores of the subject communities, are detailed in The Healthy Development Index Situational Assessment Report (June 6, 2011) included in the Appendix.
An Advisory Committee was formed at the beginning of the project to involve key staff from Peel Region and local area municipalities in the project and gain their insights at key points in the process. Members included planning policy and development approval staff, transportation engineers, urban designers and public health officials. Upon completion of the situational assessments, a special half-day workshop was held with Advisory Committee members to present findings and solicit feedback on:

- the specific elements and indicators that comprise the HDI;
- the overall vision of a healthy community presented in the HDI; and
- the potential use of the HDI by the Region and area municipalities and how it might be best shaped to enter into the planning and development process.

Key points that emerged from the workshop are detailed in a summary included in the Appendix.
Situational assessments were completed for all five of the planned and existing communities based on available data. The scorecards for each community and a full reporting on findings are presented in The Healthy Development Index Situational Assessment Report (June 6, 2011), found in the Appendix. Using the HDI to complete the situational assessments was instructive in understanding the strengths and weaknesses of the tool.

The strengths of the HDI are significant. The elements selected are an excellent distillation of the components that make up complete communities and healthy built form. The indicators attempt the difficult task of providing a quantitative analysis of elements that do not always lend themselves easily to this approach. The results of the situational assessments of the communities under study make intuitive sense and clearly indicate where improvements can be made. Despite these many positive aspects, the purpose the situational assessment analysis was to identify areas of improvement, which are organized below in terms of the practicality of using the HDI as an assessment tool and the appropriateness of its indicators.

General findings on the practicality of using the HDI to complete the situational assessments are:

Data may not always be available to fully complete the HDI.

1. The information needed to complete the situational assessments was not all readily available from existing documents and data sources. It was necessary to combine an analysis of secondary plans, community design plans, plans of subdivision, zoning by-laws and other documents with requests to area municipalities for further information and mapping. The kinds of information that were available varied greatly between study areas, resulting in different methodologies for assessing individual indicators.

2. For the three proposed communities, secondary and community design plans were the primary sources of information. However, these planning documents differed in the kinds of information they included. The level of detail required to complete the HDI was not always present.

3. Even for the already-built traditional suburban neighbourhoods, the information and mapping provided by municipalities included major gaps, implying that the kinds of information necessary to complete the HDI were not readily available and would require data collection and processing.

In some instances, information available in plans may not be a reliable way of assessing what will eventually be built.

1. HDI indicators assess many kinds of information, from densities and street patterns to urban design features, to the brightness of lighting and approaches to pay parking. Planning documents do not include all these kinds of details, and often do not even provide certainties
on the most basic matters; for example, density maximums may be referenced, but even block plans may still refer to ranges of numbers of units; an area might be allocated for retail uses, but there was no way of knowing what numbers of retail outlets or services will eventually be built.

- To fill in the blanks where no information was available, a general understanding of the intent of plans was gained from municipal staff closely involved with the plan development process. While helpful in filling in the gaps, this way of scoring reflects best intentions rather than development realities.

The spatial analysis needed to complete the HDI requires time-consuming mapping.

- Some of the indicators in the HDI required spatial analysis, which required an analysis of maps of the areas under study.
- The base mapping received from the municipalities was in many different forms and formats – from paper plans of subdivision, to AutoCad drawings, to GIS maps. The level of information available on these maps differed from study area to study area.
- Creating similarly formatted maps from different sources was time consuming and in the final analysis not feasible.

Some indicators are very difficult to score.

- Some indicators, while worthwhile in theory, proved unworkable to score in practice. They required a level of spatial assessment that was not possible given current levels of data and mapping capabilities. For example, an indicator for service proximity required an assessment of the percentage of units within 800 m of seven different neighbourhood services. Both residential units and neighbourhood services are dispersed. Each unit has a unique spatial relationship to the services in the area, requiring an assessment of proximity to services on a unit-by-unit basis. The level of spatial analysis required to complete an assessment of this kind was not available. Another indicator assessed average building height to street width ratio. While minimum and maximum ratios would be easy to determine, calculating the average would be substantially more challenging.

In addition to observations on the practicality of using the HDI to assess both planned and existing communities, issues related to the effectiveness of the HDI at capturing a full picture of the healthiness of a community also emerged while completing the situational assessments:

Care should be paid to the weighting of indicators.

- A more careful look should be given to each individual indicator and to its weight in the HDI score as a whole. Some indicators are largely aspirational – the promotion of unbundled parking and priced parking
in a suburban context, for example. By including indicators in the HDI for which credits are never awarded, the weighting of the HDI may be compromised. In other instances, the weighting of particular elements relative to others seemed imbalanced. Should street connectivity and unbundled parking bear the same weight with 10 credits to contribute to the HDI score? The weighting of the HDI will require especially close attention.

Adding a qualitative element to the assessment could strengthen the HDI.

- Questions regarding weighting raise other issues with the HDI. The HDI attempts to develop a quantitative approach to assess characteristics of built form that promote active transportation. From a practical point of view, the above analysis indicates that such an exercise is difficult to do. For the parts of the HDI that are possible to score, the results are informative at the level of the individual indicator, but lose meaning and value once aggregated into the total score. As discussed in Section 2, it is the interplay between the HDI elements that decide whether the sum total of a community’s built form supports active living. These links are best made by including some level of qualitative analysis into the HDI assessment. To be clear, we believe that the HDI should include both quantitative and qualitative assessment. The challenge of the refinement of the HDI will be to find the right balance between the two.

- Although the St. Michael’s report discusses how elements of the built environment interact to promote health, a lack of narrative in the score-card means that these links are lost in the minutiae of the quantitative approach. A complement to the qualitative approach suggested in the previous point would be to include a narrative that establishes the links between the broader vision and understanding of healthy urban form and the interplay of the individual elements in achieving it.

In addition to the general conclusions detailed above, The Healthy Development Index Situational Assessment Report also analyzes the HDI on an indicator by indicator basis.
Situational assessment findings were presented and discussed at a half-day Advisory Committee workshop. This session proved useful in accessing the expertise of Regional and area municipal staff – a group of professionals who will eventually use the HDI as a planning and policy development tool.

Key general points that emerged from the workshop are:

- **The HDI is a valuable tool.** There was a positive response to the HDI’s principles and systematic approach. Participants indicated that the HDI would be drawn on in creating planning tools for use in area municipalities on related themes, such as sustainability guidelines in Brampton.

- **The HDI should be carefully tailored to the Peel context and the various circumstances in which it will be used.** Much of the discussion focused on tailoring the HDI to the Peel context. Many of the standards included in the HDI were found to be very ambitious, something reflected in the low scores of most of the Situational Assessment communities. Participants indicated that assessing urban and suburban areas using the same standards was problematic. It was also noted that the HDI had to work in a variety of contexts and evaluate different scales of development – site, block, neighbourhood, community. Therefore the indicators had to be fine-tuned to provide meaningful results in all these circumstances.

- **The HDI is currently over-prescriptive and not sensitive to local context.** Many of the indicators are overly prescriptive. For example, a detailed description of cyclist-friendly design features presents one specific way of creating cyclist-friendly streets, but does not give credit for other approaches. Participants noted that building adaptability into plans is essential. The challenge is how to permit flexibility while meeting planning objectives. A weakness of the HDI in its current form is that it is not context sensitive and therefore cannot give credit to locally appropriate solutions.

- **Numerical scoring is of limited use.** The HDI serves as a quantitative measure on a universal scale. Although scores for individual indicators demonstrated where problem areas were, participants did not find the HDI total scores as helpful. They indicated that a descriptive analysis (based on quantitative and qualitative findings) discussing the strengths and weaknesses of the area under study would be more useful than a numerical score.

- **A qualitative component should be incorporated into the HDI.** The solution to several of the HDI’s current challenges is to add elements of qualitative assessment. More description should be added to the indicators to justify the standards that are included and reveal the objectives of a particular indicator. The indicators themselves could be evaluated using a combination of qualitative description supported by quantitative measure, where needed.
• **The HDI is a tool that must be adapted for different purposes.** The HDI is the product of the latest research and thinking on the interaction between health and the built environment. It should be turned into a tool box that can be drawn on in a variety of circumstances. First, the HDI is an important tool for policy development. Existing policies at the Regional and municipal levels impact whether communities are able to meet healthy community objectives. An assessment of existing policy should be undertaken to identify where policy needs to be updated to support HDI principles. Second, the HDI can be tailored to be used in all stages of the planning and development process – early planning, approval and on-going monitoring. Different features of a community are decided at different decision points; the principles of the HDI should guide decision-making at these critical junctures and provide continuity over the entire planning process. Lastly, the HDI can be used to consider how established communities can be retrofitted over time to improve their impacts on health.

In addition to the above general conclusions from the workshop discussions, a critical analysis of individual elements and indicators also emerged from the workshop. A full summary of workshop proceedings is included in *Advisory Committee Workshop Summary (June 14, 2011)* in the Appendix.
6 General Recommendations

The general conclusions of the situational assessment and Advisory Committee workshop are that the principles that serve as the foundation of the HDI are strong, but that changes are required to make the HDI an appropriate measure of these principles and a practical tool well-suited to the different circumstances in which it will be used.

In undertaking a refinement of this nature, it is important to clearly understand the goals behind the creation of the HDI:

**HDI Ultimate Goal:** To promote urban form that fosters active transportation and thereby improves health outcomes in Peel communities. To accomplish this goal the HDI will influence new build and provide ideas on the retrofit/evolution of existing communities.

**Sub-goal:** To use the HDI as a practical description of healthy built form. The HDI will explain to users how the elements of built form combine to create healthy communities. It will provide measures against which proposed developments and existing communities can be evaluated.

**Sub-goal:** To tailor the HDI to implementation requirements. HDI principles will have to enter into all stages of the policy, planning and development process in order to have an impact on Peel communities. Characteristics of built form are established at different points in the policy making and development approval process. The HDI must be used to influence these characteristics at key decision points.

Based on these goals, the following recommendations are made:

**Recommendation #1:** Rework the HDI to enhance its usability by including a combination of qualitative and quantitative measures linked by a narrative to serve as a description of healthy urban form and a tool for its assessment. The narrative should reference the evidence on which the HDI is based to strengthen the case for a move toward meeting HDI standards. Quantitative measures will serve as the backbone of the HDI; these measures will be complemented by qualitative measures when it adds value to the assessment.

The revised HDI should meet the following directions:

- Indicators must rely on data that is readily available (acknowledging that different levels of information are available at different stages of the planning and development process). The analysis required by the HDI should also reflect current spatial analysis capacities. For example, measures in the Service Proximity element assess the percentage of residential units in proximity of neighbourhood services. Precise information on numbers of services is often not available at the plan level. Additionally, the spatial analysis required is complex. Sim-
plified measures should be developed that makes these measures easier to score.

- The HDI currently includes prerequisite and credit measures. The distinction between the two should be clarified. Prerequisites address the core elements of healthy built form and land use and indicate the minimum standards for healthy developments/communities. Credit measures indicate how communities can improve their support of active transportation beyond the minimum standards.

- Workshop participants indicated that they did not find numerical scoring to be useful in reporting the findings of the HDI situational assessments. In place of the numeric scoring of indicators, the HDI should use a more descriptive approach for reporting findings which focuses on attainment of healthy built form standards. Instead of scoring credits, results could be reported in words, for example: fails to meet minimum standard, marginally exceeds minimum standard or significantly exceeds minimum standard.

- The HDI includes some credit measures that are, at this point in time, entirely aspirational; measures that are worthwhile objectives – such as a large percentage of pedestrian-priority streets or unbundled parking – but that are currently unlikely to be met. A distinction should be made between credit measures that are generally attainable and those that are aspirational.

- The HDI should remain primarily a quantitative assessment of healthy built form and land use. However, in some instances, the HDI would benefit from the introduction of qualitative measures to complement the quantitative approach. This is especially true in instances where HDI measures are currently over-prescriptive. For example, the cycle-friendly design indicator currently lists a series of features that will earn credits. If an approach to cycling safety does not meet these exact features, no credits are earned. A qualitative evaluation could more easily award credits based on the performance criteria for a safe cycling system.

- The HDI should avoid being overly prescriptive in cases where there may be multiple ways of fulfilling healthy built environment principles. Allowing for flexibility enables the development of locally appropriate solutions. In the Aesthetics and Human Scale and Road Network and Sidewalk Characteristics elements especially, the HDI is specific in providing standards for urban design features like setbacks, lane widths, and facade treatments. Urban design features are normally not considered formulaic; design objectives are interpreted in a manner that suits a particular urban environment. It might be more useful to clearly outline these design objectives – such as a safe and comfortable pedestrian environment – and assess these on a qualitative basis rather than against specific standards.
The refinement of the indicators should be undertaken with the Peel context in mind. The HDI will be used in urban, suburban and rural communities and to assess built form of different scales: site, block, neighbourhood and community.

The HDI document should provide a narrative that explains each element, how individual measures support it and how the elements combine to create healthy communities.

In reporting on the use of the HDI to evaluate a particular plan, an analysis of the results for individual elements should feed into an analysis that describes how the component elements combine and what features of a healthy community are present and where improvements can be made. An analysis of this kind will be more useful than the total score that is the final result of the current use of the HDI.

**Recommendation #2:** Create a companion document to the HDI – an HDI Implementation Guide – that breaks the HDI into its component pieces and indicates at what specific points in the municipal policy-setting, planning and development approval processes they need to be considered. The guide will emphasize the continuity and consistency required throughout these processes in order to achieve healthy built form.

Such a guide will link healthy community principles into the policy-making, planning and development approvals process and help Regional and local area municipal staff understand what kind of information they require from developers to properly evaluate their applications.

The Guide will address how the HDI and healthy community principles should help establish the framework for development, by being integrated into the following standards, policies and plans:

- Municipal standards, particularly around roads and parking
- Official Plans
- Transportation Plans
- Secondary Plans
- Design Guidelines and Standards
- Precinct Plans

The Guide will indicate how the HDI will evaluate and support the development of healthy built form during the development approval process, including at these critical decision points:

- Plans of subdivision
- OP and Zoning by-law amendments
- Site approvals

Finally, the Guide will address how the HDI can be used to assess existing built form and identify opportunities for improvement.
An element-by-element and measure-by-measure analysis of the HDI – with a summary of findings from the situational assessments and Advisory Committee Workshop, and resulting recommendations – is included in the Appendix. In this section, recommendations are summarized for each element.

1 **Density**

- Density is an important element of built form that must be considered by the HDI and is well-suited to a quantitative analysis.
- The standard of 35 units/hectare is an appropriate minimum standard.
- The standard of 0.7 FAR for commercial, mixed use and multi-family structures is an appropriate minimum at the site level, but not as an average at a block-, neighbourhood- or community-scale. In the current HDI, all non-residential, mixed-use and multi-family structures are included in calculating average FAR. Many different kinds of built form are mixed together, from malls and their parking lots to high-rise apartment buildings. By treating FAR as a minimum at the site level, rather than an area average, the lower density urban form no longer meets HDI standards.
- The evaluation of this indicator should be matched to the stage in the planning and development process at which densities are finalized and may have to be continuously evaluated throughout. Densities included in secondary and block plans are often variable and subject to change. Attention should be paid to tracking densities as plans evolve and development occurs. Alternatively, more fixed information on density should be required earlier in the planning process. Minimums should be referenced as well as maximums in plans and zoning.

In addition to these recommendations, further consideration may be paid to the following issues:

- Should net residential unit densities exclude commercial land and only include residential and mixed use land? The HDI currently includes all land occupied by commercial, residential and mixed uses in its calculation of residential units/ha (while excluding public spaces and rights-of-way and lands with zoning designations other than residential, mixed-use and commercial). An area under study with a large amount of land used for commercial uses, such as many traditional downtowns, may score poorly even though overall building densities meet HDI standards. Removing commercial land area from this calculation would eliminate this problem.
- At the neighbourhood or community scale, Places to Grow density targets present an alternative density measure; 50 residents and jobs per hectare for greenfield development, 200 residents and jobs per hectare for Downtown Brampton and the Mississauga City Centre. An analysis of how these standards convert into residential units/hectare
and FAR would be useful in understanding whether these targets are appropriate substitute measures.

- Concern was expressed by workshop participants as to the feasibility of the HDI density standards in the context of suburban communities. An analysis of the variety of urban form that could exist within these standards may help in deciding their appropriateness.

- The merits of including a description of the dispersion of density within the area under study and the proportion of land used by commercial and residential uses could be included in an analysis to qualify the densities reported.

### 2 Service Proximity

- All indicators in the Service Proximity element need to be greatly simplified to improve the practicality of scoring.

- **Service Proximity** – Proximity to services is an important element of walkable communities and the standards included in this set of indicators are appropriate measures. However, the challenge is their measurability. Both residential units and neighbourhood services are dispersed. Each unit has a unique spatial relationship to the services in the area, requiring an assessment of proximity to services on a unit by unit basis. The level of spatial analysis required to complete an assessment of this kind was not available during the situational assessments. Further complicating matters, information on the number and variety of services may not be determined until after construction is completed and leasing arrangements made. At earlier stages, the inclusion of areas and spaces that will house these kinds of uses can be evaluated but not with the precision required of this indicator. The HDI implementation guide should assess what information is possible to gather at specific points in the planning and development process.

- **Mix of employment and residential uses** – The mixing of employment and residential uses should be encouraged where feasible. However, it is far from certain what exact mix is ideal. Therefore, the specific ratios of residential units to jobs should be dropped from the Service Proximity element. The employment component of this measure might be better located in the Land Use Mix element and used to assess only large areas.

- **Transit** – A basic minimum standard for transit provision should be included as a prerequisite in the HDI, rather than only included for credit as it is now. Standards for transit provision should address proximity of stops, frequency of service and journey times to a major destination. The HDI implementation guide will consider how transit provision should shape proposed developments in the early stages of planning and development.

- **Proximity to Employment** – Access to employment by active transportation and transit is an important aspect of healthy communities to
consider. The current HDI measure is impossible to score due to data availability and the complexity of the spatial analysis required. The measure needs to be greatly simplified.

Further consideration may be paid to the following issues:

- **Service Proximity** – Further work is required to determine a simplified and appropriate measure for proximity to services. One alternative would be to determine the number of services in the area overall and assess their dispersion. Further research may be required to determine if the centralization or decentralization of services is preferable in encouraging active transportation.

- **Transit** – Further research is required to determine an appropriate standard of transit provision addressing proximity to stops, frequency of service and journey times to a major destination.

- **Proximity to Employment** – Further research is required to determine a feasible measure for proximity to employment. One possibility is an assessment of proximity of sending areas to employment areas and the accessibility of employment in these areas by transit in general (for example, the transit may serve an employment area, but if this area is low density with dispersed places of employment, how many jobs can be considered easily accessible by transit?).

3 Land Use Mix

- The Land Use Mix element includes no prerequisite measures and therefore no minimum standards. The issue of land use mix is at least partially addressed through the combination of Density and Service Proximity elements.

- The Land Use Mix element seems like a collection of indicators that do not fit elsewhere: open space, housing type, ground floor uses. Current Land Use Mix measures should be evaluated to ensure they support a coherent narrative for this element and clearly outline desired characteristics.

- One possible approach would be to include other indicators that explicitly assess the mix of uses, as well as the opportunities for mixed use buildings and flexible spaces that might evolve into a mix of uses over time. Indicators addressing the presence of employment uses could be moved from Service Proximity.

Further consideration may be paid to the following issues:

- Elaborate a narrative on the significance of land use mix in promoting healthy communities, and develop a coherent set of qualitative and quantitative measures to support the evaluation of this element.
Determine if unit type is a more suitable measure of housing variety than housing type.

Evaluate the desirability of a concentration of services and amenities at a community centre.

4 Street Connectivity

- The Street Connectivity element attempts to measure permeability of the street pattern as well as an element of pedestrian comfort. The current HDI measures do a reasonable job of assessing this element.

Further consideration may be paid to the following issue:

- None of the situational assessment plans are even close to meeting the street connectivity prerequisite. Therefore, some thought might be given to assessing the appropriate minimum standard. Street layout studies could inform this analysis. Case studies from Peel would be of use in determining walkable blocks appropriate to the local context.

5 Road Network and Sidewalk Characteristics

- Complete Streets – The standards for complete streets are not reflective of how streets in Peel municipalities currently function; the measure concentrates on describing the features of streets with speed limits less than 40km/h when barely any streets of these speeds exist in Peel. Additionally, the measure is considered overly prescriptive and does not present a full vision of what complete streets are. The indicator currently concentrates on how much space is allocated to vehicular, cyclist and pedestrian traffic. Alternative approaches to assessing complete streets should be developed that broaden the consideration of complete streets to include how they function as part of the public realm.

- Traffic Calming – Counting traffic calming measures per hectare is not a good way of assessing the success of traffic calming. More desirable is to design streets in a manner that calms traffic without having to include obvious traffic calming measures. A qualitative assessment of traffic calming strategies is more appropriate for this measure.

- Traffic Speed and Pedestrian-priority – In the absence of pedestrian-priority streets in the Peel Region at present, the inclusion of this indicator is largely aspirational. Some thought should be given to how aspirational measures should be treated within the HDI.

- Sidewalks and Buffer Strips – The issue of sidewalks and buffer strips is detailed here separate from the conceptions of complete streets addressed in the measure described above. This may not be necessary. Some measures in Land Use Mix, Road Network and Sidewalk Characteristics and Aesthetics and Human Scale elements...
address issues that are often included in community design guidelines. It may be of use to incorporate healthy development principles into existing urban design guidelines at a further level of detail than possible in the HDI.

- **Cycle-friendly Design** – The cycle-friendly design measures included in the HDI are very prescriptive, but are by no means the only measures that can facilitate a safer and more comfortable cycling experience. This indicator will have to be redeveloped in such a manner as to allow more flexibility in achieving cycle-friendly design objectives. Perhaps the objectives of effective cycle-friendly design could be outlined, and local bicycle networks could be evaluated on the extent to which they fulfil these objectives.

- **Lighting** – Municipal lighting standards (based on guidelines from the Illuminating Engineering Society of North America) largely determine lighting in new communities. Therefore information was generally easy to collect and assess for the situational assessments. Basic municipal lighting standards do not meet the HDI measures. None of the existing communities earned any credits. For the planned communities, when pedestrian scale of lighting was added to supplement the basic lighting standard, full credits were earned. No major change is required for this measure, although the HDI should clarify if luminance or illuminance is being assessed.

Further consideration may be paid to the following issues:

- Create a definition of complete streets that goes beyond traffic issues and elaborate quantitative and qualitative measures to support it.

- Determine a qualitative approach, supported by quantitative information when possible, to traffic calming and cycle-friendly design.

- Consider whether the development of Healthy Development Design Guidelines might be included in the implementation strategy for the HDI.

### 6 Parking

- The approach taken in the HDI to the Parking element is largely aspirational and would represent a large shift from the status quo for Peel municipalities. Parking is generally free and abundant in most Peel communities; unbundled and shared parking is only beginning to be considered; parking minimums are the rule, not maximums. Participants at the Advisory Committee meeting felt that many of the parking indicators were more appropriate to urban environments than suburban ones.

- The exception to this general critique was the measure for parking location criteria which was broadly supported.
As with the approach to pedestrian-priority streets discussed above, some thought should be given to how aspirational measures will be treated within the HDI.

Further consideration may be paid to the following issue:

- Consideration should be given to the idea of developing two standards for parking: one for urban areas served by higher order transit; the other for suburban areas where car ownership remains a necessity.

7 Aesthetics and Human Scale

- Concerning the Aesthetics and Human Scale element as a whole, there was consensus among workshop participants that the criteria related to building-heights-to-street ratio, setbacks, and street walls should be simplified. The criteria were difficult to score and it was unclear from where these standards were gathered, as these issues are generally not regarded as formulaic. It was also noted that there appeared to be some overlap with the criteria for complete streets in the Road Network and Sidewalk Characteristics element.

- Aesthetics, in general, are difficult to quantify. Any indicators developed to assess Aesthetics would need to establish broad goals while leaving flexibility for creativity and the development of locally-appropriate solutions. The Healthy Development/Community Design Guidelines described above would complement the approach taken to Aesthetics and Human Scale in the HDI.

- All measures under the Aesthetics and Human Scale element would be improved by the addition of qualitative indicators linked to design objectives.

Further consideration may be paid to the following issue:

- Develop a narrative that links the measures included in Aesthetics and Human Scale and detail the design objectives to support that narrative; test current measures against these objectives with the goal of determining minimum standards and identifying any gaps that need to be filled.

Once the HDI has been revised to improve the appropriateness of its measures and the practicality of its use, the remaining challenge is to facilitate its integration into the policy-making, planning and development process in order to realize healthy built form and land use. The implementation of the HDI will require three steps.
8 Recommendations for Implementation

1 Setting the Framework for Growth and Development

The standards, policies and by-laws of the Region of Peel and its constituent area municipalities shape growth and development in the Region. When revised, the HDI will serve as a description of a healthy development/community and a means of assessing existing and proposed built form. It will be used as the standard against which development proposals will be evaluated. Before it can serve this role to best effect, the Region of Peel and area municipalities must ensure that current standards, policies and by-laws: 1) do not present barriers to the realization of healthy communities; and 2) actively promote HDI principles.

Part 1 of an implementation guide for the HDI would examine Peel’s body of standards, policies and by-laws to identify possible contradictions with HDI principles and opportunities to use this framework to advance HDI goals. See examples in Text Box A.

A. Examples of a Review of the Framework for Growth and Development

The potential for the policy framework to facilitate or prevent the realization of healthy community objectives is enormous. It is therefore an important first step for the Region and municipalities to examine all parts of the framework that influence urban form and land use to ensure internal consistency. Examples of issues that should be part of this review include:

- Regional and Municipal traffic by-laws determine road speeds, the presence of bike lanes, and intersection frequency on arterial roads. Public Works and engineering standards often specify lane widths, number of vehicle lanes and pavement widths to accommodate high volume traffic flows. These standards are often based on principles of road safety and emergency vehicle access. However, they may make some features of healthy communities difficult to achieve. An evaluation of how these standards can be changed to meet multiple objectives is required.

- Municipal lighting standards are usually based on guidelines established by the Illuminating Engineering Society of North America. These standards often have very little to do with pedestrian comfort and therefore need to evolve to respond to HDI principles.

- Regional and municipal Official Plans have recently been brought into conformity with Places to Grow, the Growth Plan for the Greater Golden Horseshoe. These changes have moved communities closer to meeting healthy community standards. An examination of how healthy community principles can be further enabled by these statutory documents is required.

- Similar to Official Plans, parts of the policy framework – both statutory and non-statutory – like zoning by-laws, standards for subdivision design, and streetscape guidelines all influence the form of communities. Barriers to the realization of HDI principles must be removed and in their place standards that strongly advance these principles included.


2 Holding Development to a New Standard

The HDI will establish the basic minimum requirements of healthy built form and land use, as well as detail features that go above and beyond these minimums. Different elements of a healthy community are finalized at different stages in the planning and development process. HDI measures and indicators must be used at these decision points to ensure that the features of a healthy community are in place.

To meet these objectives, Part 2 of an implementation guide could include versions of the HDI tailored to critical junctures in the planning and development process: secondary plan, plan of subdivision and site control approval. Each version would include measures suitable to the level of information available at that particular stage and the particular scale of analysis. Repeating the analysis as proposals moved through the planning and development process would ensure continuity in the consideration of HDI principles and their application at a finer and finer grain. An examination of what HDI indicator might apply at each stage of this process is included in Table 1 (page 25).
Table 1: The Applicability of HDI indicators at Key Points in the Planning and Development Process

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<tr>
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<th>Secondary Plans</th>
<th>Plans of Subdivision</th>
<th>Site Plans</th>
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<tr>
<td><strong>1 Density</strong></td>
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<td>People and Jobs per Hectare</td>
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<tr>
<td>Net Residential Density (units/ha)</td>
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<td>FAR</td>
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<td>X</td>
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<td><strong>2 Service Proximity</strong></td>
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<tr>
<td>Proximity of Neighbourhood Services</td>
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<td>Transit Provision</td>
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<td>Proximity to Employment</td>
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<td><strong>3 Land Use Mix</strong></td>
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<td>Open Space</td>
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<td>Mix of Uses at Centre</td>
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<td>Ground Floor Activity</td>
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<td>Mix of Housing Types</td>
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<td><strong>4 Street Connectivity</strong></td>
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<td><strong>5 Road Network and Sidewalk Characteristics</strong></td>
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<tr>
<td>Complete Streets</td>
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<td>Traffic Calming</td>
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<td>Sidewalks and Buffer Strips</td>
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<td><strong>6 Parking</strong></td>
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<td>Parking Maximums</td>
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<td><strong>7 Aesthetics and Human Scale</strong></td>
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<td>Building Setbacks</td>
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<td>Setbacks and Streetwalls</td>
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<td>Tree Placement and Characteristics</td>
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3 Thinking about the Evolution of Existing Communities

The challenge of implementing HDI principles in Peel is that they represent a departure from the region’s traditional suburban development model. As such, much of the existing built form performs poorly when evaluated by the HDI.

Part 3 of the implementation guide would provide an approach to assessing existing communities. The retrofit or evolution of existing communities to urban form more supportive of active transportation will be a significant challenge. The lay-out of roads and streets and the highly parcelized pattern of land ownership mean that the opportunities to restructure and redevelop these areas are constrained. Recognizing these difficult realities, the guide would outline a practical series of measures by which these communities could move toward meeting healthy development principles over time through infill and urban design improvements.
The HDI represents a significant step towards improving the capability of regions and municipalities to evaluate and influence built form based on healthy community principles. Its conception of how healthy communities function is based on the best and most recent research. The HDI breaks this conception into its component elements and explains how features of community combine to make active transportation possible and attractive. It proposes an evidence-based approach to the evaluation of communities and attempts the very difficult task of measuring the presence of these elements in a quantitative manner.

The purpose of the current phase of work is to test the HDI on planned and existing communities. The process of using the HDI to evaluate built form and the discussion of results with an advisory committee has confirmed the usefulness of the HDI approach. The evidence base on which the HDI is grounded is strong. However, it has also indicated that the HDI is several steps away from being a practical and readily applicable tool, one that will help realize results in Peel communities.

The first step is to refine the HDI itself. This report describes how the weaknesses of the current iteration of the HDI can be remedied. Our recommendations focus on maintaining the quantitative foundation of the HDI, but improving the ease of assessing individual measures. It also suggests the incorporation of qualitative means of assessment when quantitative measures on their own fail to account for the breadth of possible responses that would meet healthy built form standards. The HDI should also be presented in a manner which uses narrative to clearly communicate the principles that are the foundation of the HDI and the links between these principles and individual elements and measures.

The second step is to consider how the application of the HDI can have it fullest impact. Using the HDI to assess plans and development proposals and hold development proponents to a high standard will be important. However, in tandem with the use of the HDI as an assessment tool, the Region and area municipalities must also work to ensure that their standards, policies and practices work in common purpose with HDI principles. Regional and municipal standards and policies influence built form and in many instances present barriers to the realization of the principles embodied in the HDI. A comprehensive review of these standards and policies are required in order to create the conditions whereby healthy communities are possible.

Building communities along healthy community principles is a departure from the status quo and therefore likely a long term project. A refined HDI will be a useful point of departure and guide for realizing healthy built form in Peel.