

# Executive Summary

## OVERVIEW

Retrofitting the suburbs into places that are more sustainable, accessible, and livable is considered by many to be the biggest challenge of the next century (Dunham Jones, 2011). New books are continually adding methods and case studies to a growing body of literature focused on tackling this massive task. The result of these projects are urbanized town centres with places to live, work and play, better transit, and more resilient local economies (Dunham Jones, 2011).

The objective of this report is to analyze the redevelopment, or retrofit potential of three study areas in Kingston, Ontario: the Riocan Centre, the Frontenac Mall, and the Kingston Centre. All three areas are along major arterial roads in Kingston and present qualities such as struggling retail, massive parking lots, or vacant land, which make them possible candidates for retrofit projects.

## METHOD

By using Geographic Information Systems (GIS), this research is able to take fairly simple physical analysis and apply it easily to many (in this case three) large areas. The value of this tool is its potential for widespread application as a way to identify potential areas for redevelopment priority. This analysis tests the physical factors in each study area that contribute to, or reduce, the possibility of a retrofit project.

This study examines “urban tissues” to make judgments about each study area. Urban tissue refers to the pattern of streets and buildings in an area. Different patterns, or tissues, can dramatically change how an area feels to the person within it. For instance, a suburban neighbourhood has winding streets and spread-out houses, while a downtown in a city generally has straight streets and closely-spaced tall buildings. These differences have impacts on the likelihood of any area to experience change. The likelihood of change is being measured as retrofit potential.



**Riocan Centre Study Area**



**Frontenac Mall Study Area**



**Kingston Centre Study Area**

### Figure 1: The Study Areas

The images above are of the large commercial properties at the centre of the three study areas. There are similar aspects of each of these study areas, such as expansive surface parking lots, that make them potential targets for retrofit. The purpose of this study is to identify which study area has the most potential.

This study identifies three different types of urban tissue for analysis: Campus tissue, Elastic tissue, and Static tissue. Campus tissue is found where a single large property is owned by a single organization. Typical examples of Campus tissue include University campuses, big box retail outlets, and industrial lands. Elastic tissue is made up of smaller properties with single buildings, usually along an arterial road. Strip malls and commercial streets are examples of Elastic tissue. Static tissue is a collection of small properties with small buildings, typical of a residential neighbourhood. Static tissue, elastic tissue, and campus tissue have increasing potential for change in the same order. Potential for large scale retrofit projects (or change) is measured by comparing these three different types of urban tissues within each study area. Using theories from Scheer (2002), this will determine which study area may be more easy to retrofit on a large scale.

Strengths and weaknesses (connectivity, accessibility, density, diversity, and parking) for smaller-scale retrofits are analyzed using adapted methods from Emily Talen (2011). By using a standard sized circle for each study area, the quantitative results can be directed compared to one another. After analyzing each study area on a variety of characteristics, recommendations are made for prioritizing improvements to these areas.

## **RECOMMENDATIONS**

The analysis reveals that while all three study areas present some opportunities for large scale retrofit, the Riocan Centre Study Area has the most potential. Recommendations for each study area are described below. These recommendations target the features in each study area that are considered to be the best opportunities, or the features that are most direly needed. Tables 1 through 3 describe the results for each study area in more detail.

### **Riocan Centre Study Area**

#### **Recommendation 1: Identify the Riocan Centre Study Area as a priority area for a large-scale retrofit project.**

This study area scored highest on the Scale of Retrofit Score. This is a result of a combination of factors including that it had the most Campus tissue (very likely to change) of all three study areas, the least Static tissue (not likely to change), as well as having large lots with low lot coverage. This makes it the best candidate for a large scale retrofit project according to this measure. It is therefore recommended that this area be identified as a priority area for future redevelopment. This may be achieved when creating policies guiding areas for future development in the City of Kingston. Table 1 on the following page gives an explanation of the individual results for the Riocan Centre Study Area.

**Table 1: Riocan Centre Study Area results**

Scale of Retrofit Score (out of 10): <b>7.56</b>	<ul style="list-style-type: none"> <li>• Highest scoring for large-scale retrofit</li> <li>• Due to large lots with little coverage, typical of large-format retail developments</li> </ul>
Street Centreline Length: <b>7840 metres</b>	<ul style="list-style-type: none"> <li>• Lowest street centreline length</li> <li>• Due to suburban arterial road system and super-block structure</li> </ul>
Intersections per hectare: <b>0.09</b>	<ul style="list-style-type: none"> <li>• Lowest intersection density</li> </ul>
Accessibility: <b>393</b> residential parcels	<ul style="list-style-type: none"> <li>• Fewest residential parcels</li> <li>• Largely commercial and light industrial uses</li> </ul>
Diversity: <b>4.46</b>	<ul style="list-style-type: none"> <li>• Lowest diversity score</li> <li>• Residential units mostly single-family and duplexes, with a few apartment buildings</li> </ul>
Density: <b>33</b> people and jobs per hectare	<ul style="list-style-type: none"> <li>• Lowest density score</li> <li>• Mostly large-format retail which have low employment densities</li> <li>• Very few residents</li> </ul>
Parking: <b>34%</b>	<ul style="list-style-type: none"> <li>• Most abundant parking of all three study areas</li> <li>• Significant infill opportunity</li> </ul>

**Frontenac Mall Study Area****Recommendation 1: Improve connectivity by adding new streets and intersections.**

Connectivity was low in this study area. This is likely a result of nature of a suburban road network. As a smaller scale intervention, connectivity should be improved to better accommodate nearby neighbourhoods and to improve internal movement. Suggestions for these improvements include adding connections between the mall property, Bath Road, and the neighbourhoods to the north and south-east.

**Recommendation 2: Increase residential and employment density and diversity by adding new buildings on underutilized parking.**

Density and diversity were considered low when comparing these values against targets for intensification corridors in the Places to Grow Act. With a large amount of parking in this study area, there is opportunity to increase density and diversity by using some of this parking for infill development. Table 2 details the individual results of this study area.

**Recommendation 3: Consider this area for a large scale retrofit development site.**

This area scored fairly high on the Scale of Retrofit Score due to the presence of Campus and Elastic tissues. The large Frontenac Mall property is a major source of this redevelopment potential. It is therefore recommended that this study area be considered for priority when considering areas for future growth within the City.

**Table 2: Frontenac Mall Study Area results**

Scale of Retrofit Score (out of 10): <b>6.69</b>	<ul style="list-style-type: none"> <li>• Middle scoring for large-scale retrofit</li> </ul>
Street Centreline Length: <b>8987 metres</b>	<ul style="list-style-type: none"> <li>• Middle street centreline length</li> <li>• Suburban arterial road system</li> </ul>
Intersections per hectare: <b>0.16</b>	<ul style="list-style-type: none"> <li>• Middle range intersection density</li> </ul>
Accessibility: <b>617</b> residential parcels	<ul style="list-style-type: none"> <li>• Most residential parcels</li> <li>• Significant residential neighbourhood</li> </ul>
Diversity: <b>10.85</b>	<ul style="list-style-type: none"> <li>• Middle diversity score</li> <li>• Single family, multi-units, and apartment buildings</li> </ul>
Density: <b>37</b> people and jobs per hectare	<ul style="list-style-type: none"> <li>• Lowest density score</li> <li>• Mostly large-format retail, which have low employment densities</li> </ul>
Parking: <b>13%</b>	<ul style="list-style-type: none"> <li>• Smallest proportion of parking space</li> <li>• Large parking lot at the Frontenac Mall provides infill opportunity</li> </ul>

**Kingston Centre Study Area****Recommendation 1: Consider the central part of this area for a small scale retrofit project.**

While this study area scored lowest on Scale of Retrofit Score, the strengths and weaknesses surrounding the central properties suggest that it has the potential for a smaller-scale retrofit focusing on improving connections to surrounding areas and increasing density to improve its functionality as a focal point and transit hub in Kingston. It is therefore recommended that this study area be a priority for future development near the core of the City.

**Kingston Centre Study Area Recommendation 2: Create urban blocks to increase connectivity.**

This area scored well on connectivity, but there are areas where improved connectivity could be beneficial. Adding new roads through the central area will improve access for people, cars and transit. The current entrances restrict access to the study area to the detriment of connectivity. New streets should first be created to connect surrounding neighbourhood streets directly to the area.

**Kingston Centre Study Area Recommendation 3: Increase density by adding new buildings for residential and employment uses.**

While this area scored highest of the three on density, it is still considered low density for its function as both a focal point in Kingston and a transit hub. Increasing density would support transit and commercial operations in the area. New buildings should frame streets, giving spatial definition and improving the pedestrian environment in the area.

**Table 3: Kingston Centre Study Area results**

Scale of Retrofit Score (out of 10): <b>6.32</b>	<ul style="list-style-type: none"> <li>• Lowest scoring for large-scale retrofit</li> <li>• Due to large proportion of fragmented land, and small amounts of Elastic Tissue</li> </ul>
Street Centreline Length: <b>16227 metres</b>	<ul style="list-style-type: none"> <li>• Highest street centreline length</li> <li>• Three major arterial roads</li> <li>• Many local neighbourhood streets, some existing grid street network</li> </ul>
Intersections per hectare: <b>0.23</b>	<ul style="list-style-type: none"> <li>• Highest intersection density</li> <li>• Intersections lacking on arterial roads preventing good connectivity to commercial centre</li> </ul>
Accessibility: <b>606</b> residential parcels	<ul style="list-style-type: none"> <li>• Three mixed-housing neighbourhoods within study area</li> </ul>
Diversity: <b>23.17</b>	<ul style="list-style-type: none"> <li>• Highest diversity score</li> <li>• Many single family homes, duplexes, multi-unit buildings, and larger apartment buildings</li> </ul>
Density: <b>56</b> people and jobs per hectare	<ul style="list-style-type: none"> <li>• Highest density score</li> <li>• Mix of office and different retail types</li> <li>• Residents from large neighbourhoods</li> </ul>
Parking: <b>22%</b>	<ul style="list-style-type: none"> <li>• Significant infill opportunity mainly on central property</li> </ul>



**Riocan Centre Study Area**



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**Figure 2: Scale of Retrofit Score Analysis**

These images show the different types of urban tissues in each study area. Campus tissue is represented by orange, Elastic tissue by purple, and Static tissue by green. Simply by comparing the images it is obvious that there are different amounts of each type of urban tissue in each study area. The Riocan Centre Study Area has a lot of Campus tissue (orange), Elastic tissue, and very little Static tissue. When calculated into a score, these aspects give the Riocan Centre Study Area a high score. This is in contrast to the other two study areas, which both have much larger proportions of Static tissue which, among a few other factors, bring their Scale of Retrofit Scores down.

**CONCLUSIONS, LIMITATIONS, AND FUTURE WORK**

The value of this study is to expand the understanding of the type of urban form that holds the greatest potential for redevelopment. This study uses urban design principles to make judgments about the appropriateness of redevelopment in three study areas. As such, it does not presume to estimate the financial feasibility or political importance of these developments. Future work could expand this tool to be applicable on a city-wide scale. This could be employed to identify sites for redevelopment consideration with a possible implication for development policy. The flaw in this tool is that it leaves out other important factors in the redevelopment process such as consideration the age of buildings, performing financial feasibility studies, and examining environmental factors. Therefore as a future step in the identification of possible redevelopment sites, methods to analyze these missing pieces should be explored.