Corporate Centre in Mississauga, which is one of the GTA's largest suburban office nodes.

Another major suburban office node, Mississauga's Meadowvale Business Park, has evolved to incorporate a broader range of uses with a newly developed employment support component, which includes restaurants, banks and day care facilities. These amenities, along with the area's strong transportation network connections, have been a catalyst for office development in the area.

Future outlook

The evolving office market presents opportunities for suburban municipalities. Market conditions for office development within urban mixed-use settings (in both greenfield and intensification areas) are becoming more favourable. These opportunities need to be thoroughly explored if suburban municipalities hope to improve their competitive position within the GTA office market.

It is anticipated that downtown Toronto will remain an attractive location for office development. However, it is anticipated that businesses and developers in the office market will increasingly look for opportunities in other areas of the GTA, which offer desirable attributes, to accommodate future growth. Municipalities that are progressive in planning for future office development will be the clear beneficiaries.

Erik Karvinen, MCIP, RPP, PLE, is a senior project coordinator with Watson & Associates Economists Ltd. specializing in industrial and office market studies, employment land and growth management strategies, and growth forecasting. Erik will be speaking at the 2015 OPPI Conference October 6-8 in Toronto.

Complete Streets in the GGH

Online resource

By Colin Wolfe, Raktim Mitra, Nancy Smith Lea & Paul M. Hess

Throughout the Greater Golden Horseshoe the conversation around intensification is broadening. Good city building is about more than reconfiguring height, massing and density. It requires a better understanding of the strategies that make densification work for communities. One such strategy lies in the complete streets approach, which is shown to enhance liveability by offering safer, healthier and more engaging transportation options.

A team of investigators from the Toronto Centre for Active Transportation, Ryerson University and the University of Toronto set out to research examples of complete streets projects in the Greater Golden Horseshoe. The result is a scalable and easy to navigate online catalogue, designed to aid practitioners in their interpretation of the complete streets concept. The resource provides local examples in a range of urban contexts.

Colin Wolfe

Raktim Mitra

Nancy Smith Lea

Paul M. Hess

The research

The researchers began by exploring how the complete streets approach is currently understood and what it looks like on the ground. They sought to add rigour to the approach to aid in its continuing relevance for street design.

Using the 27 growth centres identified in the *Growth Plan for the Greater Golden Horseshoe* as the geographical context, the researchers surveyed municipal planners, engineers and urban designers asking them to identify examples of complete streets in their communities. In 19 growth centres respondents indicated they had implemented or funded complete streets projects. However, none of those surveyed indicated that they have a comprehensive set of performance measures, although many do conduct ridership counts and intercept surveys.

Interviews revealed that most complete streets projects are implemented to improve safety and provide a range of transportation options for all street users. Other reasons cited were to support future growth, improve connections between destinations and to serve specific groups like students or seniors.

This research also explored how complete streets projects transformed traffic management on roadways. The results showed that in eight of the 19 growth centres traffic calming measures were employed and in five of the 19 speed limits and traffic lanes were reduced.

While not all projects included bike infrastructure, those that did used a variety of designs. Conventional painted bike lanes were used in about one-third of the projects. Cycle tracks, separated bike lanes and contra flow lanes were each used in two or three projects and infrastructure at intersections (e.g., left lane turning boxes) was used in five instances. Four small and mid-size centres employed off-street multi-use trails.

Nearly all 19 projects included urban design and/or pedestrian realm improvements.

The catalogue

The online catalogue, Understanding Complete Streets in the Greater Golden Horseshoe, highlights details of each featured project. This is layered in three elements:

Checklist—quick reference guide that provides high-level information about the 19 featured GGH projects. Categories include cycling, pedestrian and transit improvements, road

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diet, traffic calming, streetscaping and accessibility.

Detailed Project Information—detailed account of the key aspects of each project, such as how the project changed the street function and the community's use of the street. Categories include street context, traffic, transit, cycling, pedestrians and accessibility.

Case Studies—four case studies illustrate the diversity of complete streets approaches in the GGH. A graphical narrative is presented for the defining features, innovations, challenges and opportunities of each project.

Navigating through this resource offers users a concrete understanding of the physical elements of the complete street. Most importantly, the catalogue helps tell a story of how a more balanced approach to transportation and mobility options addresses the community's priorities. Municipalities seeking to implement their own complete streets projects will find the catalogue to be a valuable tool.

Ultimately, this research helps to demystify the complete streets approach to road design. We urge you to share and build on this work.

Colin Wolfe is a TCAT researcher and urban planner interested in intensification approaches that promote improved quality of life outcomes for communities. Nancy Smith Lea is the director of the Toronto Centre for Active Transportation, part of the Clean Air Partnership. Paul M. Hess, PhD, is an associate professor and the associate chair and director of the Graduate Programs in Planning in the department of Geography and Planning at the University of Toronto. Raktim Mitra, PhD, is an assistant professor of Urban and Regional Planning at Ryerson University. *Thanks to Brendan Rice for his support. This research was supported by Province of Ontario through the Places to Grow Implementation Fund.*

Markham's Bird Friendly Guidelines

Soaring to new heights

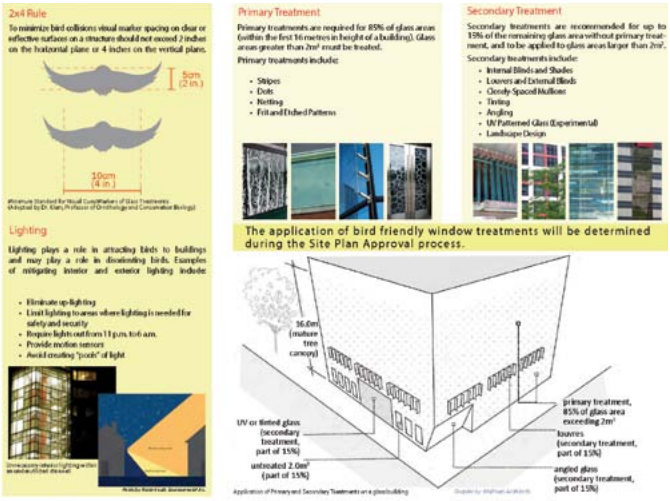
By Ruth Rendon & Lilli Duoba

Markham has joined the growing flock of communities protecting their bird populations by adopting bird friendly guidelines. The city's proactive response to bird-window collisions began in 2009 with the retrofit of the city's fire and emergency services building. This was followed by the retrofit of the Markham Museum (2011), Thornhill Community Centre (2011), Fred Varley Art Gallery (2012) and the Markham Civic Centre (2012) and the design of such new buildings as Cornell Community Centre (2012), Markham Pan Am Centre (completion date 2014) and South-East Community Centre (completion date 2015). As a result of these experiences, council directed staff to prepare a comprehensive set of bird friendly guidelines for all future development in the city.

Ruth Rendon

Lilli Duoba

Bird-window collisions are related to the bird's perception of glass. Reflective surfaces may appear as outside trees or vegetation confusing and causing them to fly into the glass. Atrium designs with interior plants and near building landscaping contribute to the growing problem of bird-window collisions. One of the greatest threats to birds is believed to occur during bad weather events when birds descend to much lower heights to improve visibility or take refuge. Lighting and disorientation result in building collisions. Bird strikes are the second highest



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Bird Friendly Guidelines

Markham Museum