



ACTIVE TRANSPORTATION PLANNING BEYOND THE GREENBELT:

The Outer Ring of the Greater Golden Horseshoe Region



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Clean Air Partnership (CAP) is a registered charity dedicated to improving air quality, minimizing greenhouse gas emissions and reducing the impacts of air pollution and climate change. The Toronto Centre for Active Transportation (TCAT), a project of CAP, advances knowledge and evidence to build support for safe and inclusive streets for walking and cycling, and believes that active transportation plays a critical role in creating environmentally and economically sustainable cities.

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1. OVERVIEW

1.1 Background

Active transportation has become increasingly popular in urban centres across Canada. As the cities and communities within Ontario's Greater Golden Horseshoe (GGH) Region become denser, more people are choosing to walk and bike to get to work, school, and other destinations. Grassroots advocacy in urban centres has also contributed to the popularity of active transportation and a potential shift in people's perceptions of their mobility options. Municipalities are responding to the increased demand by building more and better infrastructure (e.g. wider sidewalks, protected bike lanes) to make streets safer and more comfortable for pedestrians and cyclists.

Since 2014, Nancy Smith Lea at the Toronto Centre for Active Transportation (TCAT), Dr. Raktim Mitra at Ryerson University, and Dr. Paul Hess at the University of Toronto have worked together to investigate Complete Streets in the GGH Region through the development of a series of publications that feature the diversity and effectiveness of recent active transportation projects (Smith Lea, Mitra, & Hess, 2014; Smith Lea, Mitra, & Hess, 2015; Smith Lea, Mitra, Hess, Quigley & Loewen, 2016). These publications have largely focused on efforts in larger municipalities throughout the region.

In comparison, relatively little is known about active transportation planning practice and the related challenges and opportunities in smaller and more rural municipalities, although interest in the

topic is starting to garner more interest. For example, *Small Town and Rural Multimodal Networks* (Dickman et al., 2016) is a design resource for building multimodal streets in U.S. rural areas and small towns, which also includes case studies that demonstrate implementation and applicability of different treatment types. Another useful publication (Rails-to-Trails Conservancy, 2012) provides a typology of different kinds of rural environments, and addresses how best to accommodate walking and cycling outside of U.S. urban centres. Two separate publications produced previously by TCAT, on the topic of accommodating active transportation in the rural environment, also informed this work. The first is a backgrounder (Verlinden, 2016) that features various approaches taken in rural areas across Canada, and discusses the elevated safety concerns posed by higher speeds on roadways. Second, a Complete Streets policy and implementation guide, produced jointly by TCAT and MMM Group (Basinski, De Vellis, Smith Lea, Neudorf & McLaughlin, 2015), provides an analysis of the specific challenges for active transportation in the rural environment and how these were addressed in Ontario's Grey and Bruce Counties, located just outside of the northwestern boundary of the GGH Region.

The 13 municipalities featured in this publication face challenges to creating walking and cycling-friendly communities in contexts that are often somewhat different from the more urbanized locations highlighted in our previous Complete Streets research in the GGH Region (i.e. Smith Lea et al, 2014, 2015, 2016). These municipalities are generally smaller, surrounded by rural land uses, and more

isolated from regional transit networks. Despite these factors, some municipalities are experiencing significant growth pressures. Most Inner and Outer Ring GGH municipalities are forecast to grow in the coming decades, and what happens in the Outer Ring could impact the overall success of the Growth Plan for the Greater Golden Horseshoe (through the Places to Grow initiative). With fewer physical constraints, some of the incentives for curbing sprawl and building compact complete communities in rural and rural-adjacent municipalities are not as obvious. Yet, for the future health and vitality of this region, the need is just as critically important to address.

1.2 The Inner and Outer Rings of the GGH Region

The GGH Region is a densely populated yet largely car-dependent planning district. To ensure that growth is managed sustainably, the Province of Ontario adopted a Growth Plan in 2006 (Ontario Ministry of Municipal Affairs and Housing, 2013) designed to curb sprawl. A proposed update to the existing plan (Ontario Ministry of Municipal Affairs, 2016) goes even further in providing stronger direction and improved clarity for municipalities to accommodate “forecasted growth in complete communities, whether urban or rural” (2.1) and to “prioritize active transportation, transit and goods movement over single-occupant automobiles.” (3.2.2.4c)

The GGH Region is bifurcated by the Greenbelt, a “broad band of permanently protected land” (Ontario Ministry of Municipal Affairs and Housing, 2013) including significant natural features,

such as the Oak Ridges Moraine and the Niagara Escarpment. The Inner Ring, the most densely populated and urbanized section, is on one side of the Greenbelt, and the Outer Ring, comprised of more rural and smaller communities, is on the other side. Of the 21 jurisdictions in the new proposed Growth Plan (2016), 15 are in the Outer Ring, consisting of the cities of Barrie, Brantford, Guelph, Kawartha Lakes, Orillia and Peterborough; the Counties of Brant, Dufferin, Haldimand, Northumberland, Peterborough, Simcoe, and Wellington; and the Regions of Niagara and Waterloo. The remaining six, located in the Inner Ring, are: City of Hamilton, City of Toronto, Region of Durham, Region of Halton, Region of Peel, and Region of York.

Despite covering a larger geographical area, less than a quarter of the population of the GGH Region lives in the Outer Ring (2.3 million out of a total of 9.4 million) (Clayton & Wolfe, 2015). Demographically, the Outer Ring also differs from the Inner Ring in that it has a higher fertility rate, lower proportion of residents aged 20-50, and higher proportion of residents aged 50 and above (Hemson Consulting Ltd., 2012). The Outer Ring also features a lower median income (Hemson Consulting Ltd., 2012) and higher rate of residence in a detached house (59.8% to 35%) than the Inner Ring (City of Peterborough, 2009). The combination of a large landmass and predominance of low-density housing presents a challenging context for active transportation planning, but one in which we show that headway is being made.

1. OVERVIEW



Rural Projects

- 4.1 Wellington County: Cottontail Road Trail
- 4.2 Northumberland County: County Cycling Network
- 4.3 Simcoe County: Beachwood Road

Challenges Discussed

Resources Public Support Liability Design Environments Authority








Built Features

Road Diet Cycling Pedestrians Streetscaping Accessibility







Suburban Projects

- 4.4 City of Brantford: Garden Avenue
- 4.5 City of Barrie: Hurst Drive
- 4.6 City of Cambridge: Conestoga Boulevard
- 4.7 City of Orillia: Highway 12 Overpass
- 4.8 Region of Niagara: Merrittville Highway














Urban Projects

- 4.9 City of Guelph: Trail Network Upgrade
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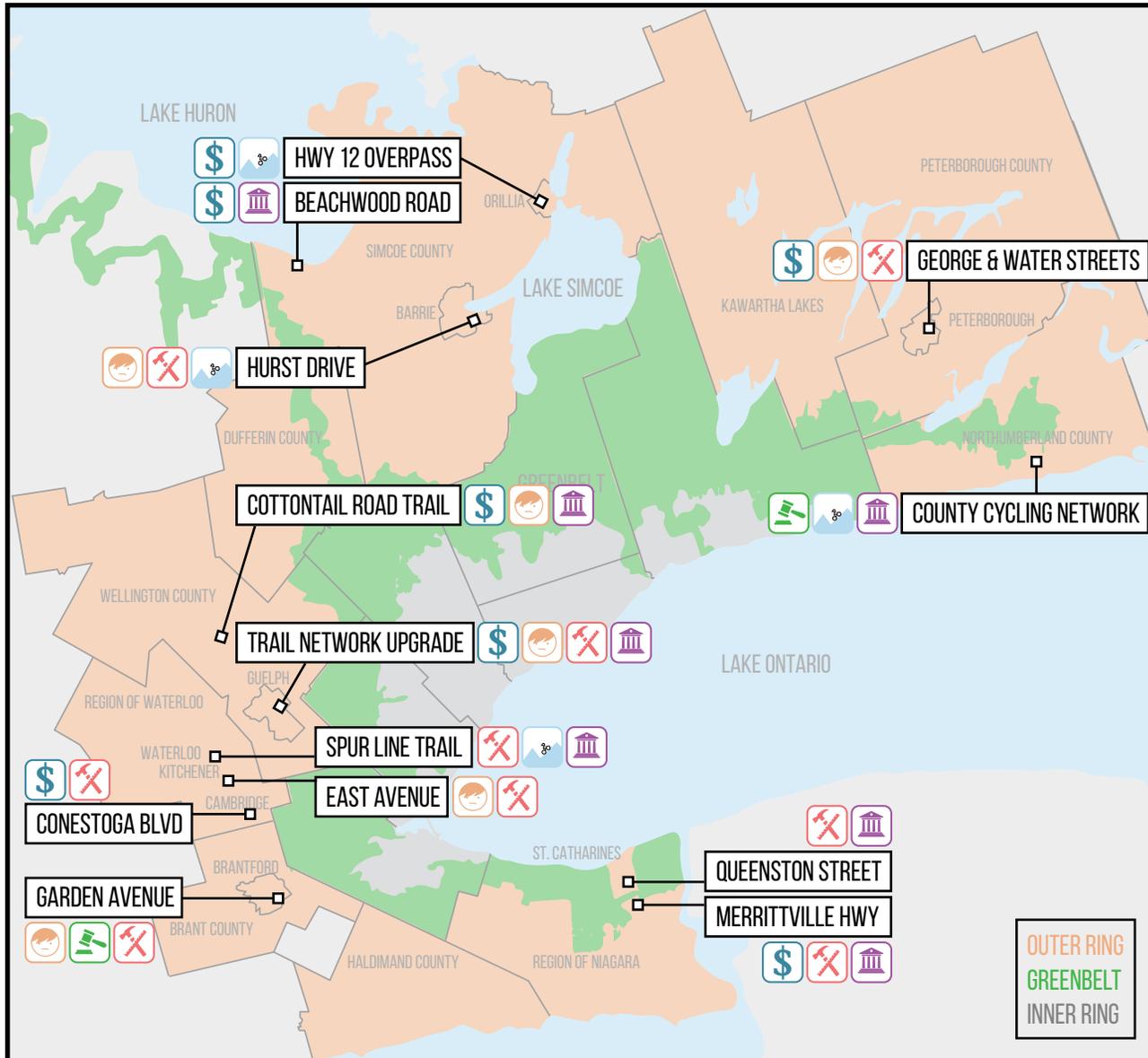










The 13 featured projects spread across the Outer Ring of the Greater Golden Horseshoe Region.

2. METHODOLOGY

Research for this publication took place between December 2016 and February 2017 and included two major means of investigation: (1) a review of related literature, and (2) surveys and a series of interviews with key informants representing municipalities in the study area.

2.1 Review of Literature

5 A scan of existing literature focusing on challenges and successes relating to active transportation and Complete Streets planning in the rural context was conducted. Academic and non-academic sources from Ontario, Canada, and elsewhere were examined. Both scholarly databases and non-scholarly search engines were used to find scholarly, peer-reviewed articles, as well as government reports and other documents. Search filters were applied by discipline and relevant subject terms (e.g. “active transportation rural”; “active transportation challenges rural”; “walking rural best practice”; “bicycling rural best practice”) and further filtered by “most relevant”, resulting in a review of more than 30 documents. While no initial limitation was put on publication year, the results that best matched our search criteria were published between 2000 and 2016. This is not unexpected, given the surge in interest in active transportation and Complete Streets during this period. Any challenges and solutions to how rural active transportation is being promoted and accommodated found in the articles were noted and categorized. The frequency of a particular challenge being cited helped determine the most common challenges, which were further explored in the context of the GGH Region during key informant interviews.

2.2 Surveys and Key Informant Interviews

Online surveys and telephone interviews with municipal officials were conducted to help understand the overall challenges to improving conditions for walking and cycling in the Outer Ring of the GGH Region and to compile information about best practices. Key informants were identified by 1) contacting municipal representatives that were consulted during the course of our previous research in the GGH Region (e.g. Smith Lea et al, 2016), 2) searching the municipality’s website, or 3) contacting the municipality and requesting a representative who would be best able to discuss active transportation in that jurisdiction. This resulted in planners, engineers, or other public employees being recruited from the 19 municipalities listed below. These 19 municipalities consist of all 15 Outer Ring jurisdictions (nine upper-tier counties and six single-tier cities), as well as an additional four lower-tier municipalities containing a designated growth centre.

Upper-tier Municipalities: Region of Niagara, Region of Waterloo, Brant County, Dufferin County, Haldimand County, Northumberland County, Peterborough County, Simcoe County, Wellington County;

Single-tier Municipalities: City of Barrie, City of Brantford, City of Guelph, City of Kawartha Lakes, City of Orillia, City of Peterborough;

Lower-tier Municipalities Containing Growth Centres: City of St. Catharines, City of Kitchener, City of Waterloo, City of Cambridge.

Once a key informant agreed to participate in the project, they were sent a link to an online survey consisting of general questions regarding challenges, policy supports, and some specific questions on successful projects. Respondents were asked to rate the importance of 10 challenges to improving conditions for walking and cycling in their municipalities, to add any challenges that we had not included in the list, and to provide information about any supportive policy or design guidelines. We then grouped these challenges together, along with any solutions to these that we found, into six overarching issues and organized them according to prevalence based on both the survey responses and the literature scan. They are: 1) resources, 2) public support, 3) liability, 4) design, 5) environments, and 6) authority. Each survey respondent was also prompted to select one project in their municipality from the last five years that would be representative of the best practices in active transportation planning in a rural context. From these, we chose the projects to be featured via the following criteria:

CRITERIA FOR SELECTING CASE STUDIES

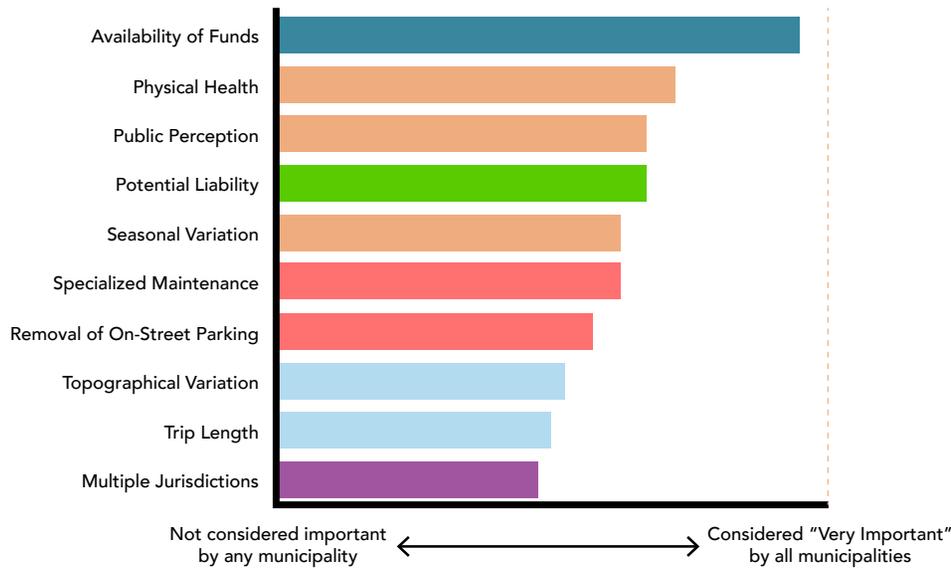
1. projects which constituted a process that addressed a clearly stated “challenge” to improving active transportation in smaller centres and/or rural areas,
2. projects for which there was adequate information, photographs, drawings, with which to adequately describe and discuss them,
3. projects which represented a range of varying contexts including urban-rural and geographic spread across the region, and
4. projects which represented a range of infrastructure types (e.g. bike lane, multi-use path, pedestrian infrastructure improvement).

Any information required to feature the selected projects in the publication was obtained from the key informants over email and by follow-up interviews over the phone, including maps, photographs, other images, and in-depth information about the project process.

Following this method, a total of 13 active transportation planning-related case studies are featured in this publication, all located in the Outer Ring of the GGH Region. We received varying amounts of information from the participating municipalities. As a result, we have profiled five of the case studies (Wellington County, City of Brantford, City of Guelph, City of Peterborough, and Region of Waterloo) in a more in-depth manner than the rest. Once compiled, we grouped case studies into rural, suburban, and urban contexts. These groupings are based on the geographic location and built form of the immediate context for each project and do not reflect their municipalities as a whole.

3. CHALLENGES

**RESULTS OF THE SURVEY OF MUNICIPAL CONTACTS,
RATING 10 POTENTIAL CHALLENGES IN THEIR MUNICIPALITY**



**SIX TYPES OF CHALLENGES UNCOVERED
THROUGH SURVEYS AND LITERATURE**





3.1 RESOURCES

The most commonly cited challenge that we found, evident in both the interviews with municipalities and in the literature, is the shortage of resources. The two key resource shortage barriers to undertaking the planning and construction of bicycle and pedestrian infrastructure, as reported by municipalities in smaller, and more rural communities, were: 1) inadequate funding, and 2) staffing.

3.1.1 Funding: Securing adequate financing for transportation projects to improve conditions for walking and cycling is a widespread problem in municipalities in Ontario and beyond (Keeney, 2015; Kaptur, 2014; The Social Research & Planning Council, 2012). Until recently, the financing of active transportation projects in Ontario was considered the primary responsibility of the municipalities. Ontario should be recognized for now implementing a funding strategy for cycling projects (as discussed further below), as other Canadian provinces have done (e.g. Quebec and British Columbia).

3.1.2 Staffing: Many communities noted that they did not have enough staff to carry out the work, or in fact did not have anyone tasked with planning and/or developing active transportation-related facilities and programming. In these municipalities, if any improvements were made, it was due to the initiative of planners and other municipal staff working in other departments taking active transportation on as a secondary responsibility, as was found to be the case in Wellington County. For some of these

municipalities it was difficult to collect even basic information (e.g. whether any infrastructure was built or not) because there is no obvious representative to consult with.

3.1.3 Solutions: The existing literature emphasizes the importance of funding support from upper levels of government and collaborative partnerships between organizations with the goal of combatting local limitations to funding built infrastructure (Kaptur, 2014; Twaddell & Emerine, 2007). In particular, adequate funds to hire staff to undertake the planning and implementation of such facilities is necessary (Twaddell & Emerine, 2007; Dickman et al., 2016). In the context of the GGH, the new *Ontario Municipal Cycling Infrastructure Program* (Ontario Ministry of Transportation, 2015) was frequently cited as a potential source for funding, and six of the municipalities that we contacted were recipients of funding from this program in 2015. Many of these municipalities noted that the infrastructure projects they are currently building would not have happened without this program. Increasing education and training across departments to help carry out active transportation projects can also help to address staffing concerns (Transportation Association of Canada, 2012).

3.2 PUBLIC SUPPORT



A major challenge in improving conditions for active transportation is whether or not there is public support. Changing habits and attitudes is seen as one of the most difficult challenges to address in rural municipalities where dependence on automobiles for personal mobility has become the norm. Walking and cycling are often not actively promoted or supported in either policy or road design in these communities (Kaptur, 2014). One of the most cited concerns amongst rural residents for choosing not to walk or bike is safety concerns, such as high volumes and speed of motor vehicles, high collision rates, and inadequate demarcated space on the roads for pedestrians and cyclists (Gangeness, 2010; Basinski, De Vellis, Smith Lea, Neudorf, & McLaughlin, 2015). Demographic factors (i.e. aging populations) and disparities in health (e.g. higher rates of obesity and chronic disease) for people living in communities of the Outer Ring were one of the most commonly cited challenges by survey respondents. Despite this, none discussed it directly in interviews or offered any solutions.

3.2.1 Solutions: In order to shift car trips to walking and cycling in rural and smaller municipalities, the literature suggests that more awareness and education programs surrounding the benefits of active transportation and the ways for people to incorporate it into their lifestyles could be useful (Health Canada, 2011; Walia & Leipter, 2012). Building and improving active transportation infrastructure to address safety concerns may encourage people to walk and cycle more often, both for recreation and transportation when trip distances are reasonably short (Kaptur, 2014; Smart Growth America & National Complete Streets Coalition, 2015).

Many sources also noted that the installation of cycle paths and the creation of a cycling network can help boost the economy in rural settings by attracting visitors and supporting tourism. By adding pathway connections, cycling infrastructure, and/or additional crosswalks and sidewalk infrastructure in village cores, economic benefits may also be generated (Smart Growth America & National Complete Streets Coalition, 2015; Basinski et al., 2015).

Finally, several municipal contacts cited in their survey responses that enhanced public engagement strategies are key to bringing their projects to fruition. By notifying affected residents and businesses early and maintaining the two-way flow of information, planners in Wellington County, Brantford, and Kitchener were able to ensure that concerns about a project were being addressed and that the benefits of the project were understood by all parties. Through the use of public meetings, tabling at community events, media promotion, online engagement, and going door-to-door, many respondents noted they were able to build support for their projects among the public. Specifically, Wellington developed branding to help build support for their project, while Brantford emphasized the key to gaining public support was the municipality's willingness to alter the design of the project based on feedback.



3.3 LIABILITY

One of the challenges for municipalities in building facilities specifically for active transportation, particularly cycling, is the perceived potential for legal liability issues. This topic was brought up frequently by survey respondents, more so than in the literature. The potential risk of injury to users of the infrastructure for which municipalities may be legally responsible, whether real or perceived, may prevent municipalities from developing such infrastructure. For example, Wellington County chose to develop off-road infrastructure as opposed to a paved shoulder due to fears of liability surrounding injury to cyclists.

3.3.1 Solutions: Several survey respondents mentioned “Book 18”, Ontario’s Traffic Manual for Cycling Facilities (Ontario Ministry of Transportation, 2013) as a useful guideline for designing safe cycling facilities. Another recent development that addresses liability concerns is Ontario’s Bill 31 Making Ontario’s Roads Safer Act which clarifies safe driving practices near cyclists by introducing regulations that require motorists to leave larger distances between them and cyclists when passing, and tougher consequences for “dooring of cyclists” through higher fines and demerit points (Ontario Ministry of Transportation, 2014; Basinski et al., 2015).

Another important aspect of Ontario’s Bill 31 is the amending of the Highway Traffic Act (HTA) to make it legal for cyclists to ride on paved shoulders. This is of particular significance to rural cyclists as quieter alternate routes to highways often do not exist in these areas and paved shoulders may be the only relatively safe road space available to ride in. Further, ensuring maintenance of roads during all seasons along with the upkeep of roads can help to deter potential liability (Basinski et al., 2015).



Cyclists using a paved road shoulder.

3.4 DESIGN



Improving conditions for walking and cycling often requires tradeoffs to be made between different travel modes within a constrained space. The removal of on-street parking for bike lanes, for example, is an issue that is typically discussed in the context of larger urban centres, but can be a challenge in smaller municipalities as well. A more significant design challenge for rural municipalities is the presence of provincial highways that run through the middle of towns. Highways are a challenging environment for safely accommodating walking and cycling as they carry high volumes of motor vehicle traffic traveling at high speeds. Smaller municipalities may also not have specialized maintenance equipment for clearing snow from sidewalks, bike lanes, and trails. Roads and routes that are not maintained can deter people from using them due to unsafe conditions (Dickman et al., 2016; Badland, Duncan, & Mummery, 2008).

3.4.1 Solutions: The HTA change noted above, that makes it legal for cyclists to ride on paved shoulders, is a good, albeit modest, step forward for facilitating cycling in rural environments in Ontario. A safer, more pleasant, yet costlier design solution for rural environments is to provide a cycle track or multi-use trail completely separated from the highway, as is common throughout the Netherlands and is starting to appear in the North American context as well.

Regarding negative reactions to the removal of parking or travel lanes, this can be addressed or preempted through innovative

public engagement efforts by municipalities, including the use of data showing expected functional impacts. Several survey respondents attributed the success of their projects, in spite of design-related challenges, to early and effective two-way communication with impacted residents and businesses, a willingness to renegotiate design changes, and the use of visuals and data.

The City of Guelph addressed specialized maintenance concerns for its gravel trails by adapting an existing maintenance vehicle to be able to clear snow without disturbing the surface material. Northumberland County's paved road shoulders and Barrie's Hurst Avenue bike lane are cleared to the same standard as the adjacent motor vehicle lanes, which required little operational adjustment as they are not physically separated from the roadway.



Bollard-separated cycle track along paved shoulder of Waterloo Regional Road 42 near Cambridge.



3.5 ENVIRONMENTS

One of the defining traits of rural areas is the greater distances between destinations, which can impact the willingness to use active modes of transportation. Data on travel distance is not currently available for the Outer Ring, but our recent research in the Greater Toronto and Hamilton Area (GTHA) indicates that nearly half (46%) of all personal trips are less than 5 km in length, a distance that can reasonably be walked or cycled (Mitra, Smith Lea, Cantello, & Hanson, 2016). While some destinations are far apart in the rural context, others (e.g. town centres) are quite short, and as a result easily walkable and bikeable, provided that a supportive environment is provided. Steep hills can also be an impediment to active transportation (Pucher, Buehler, Bassett & Dannenberg, 2010; Basinski et al., 2015), although this may not independently explain cycling rate differences between cities (Pucher, Komanoff & Schimek, 1999).

3.5.1 Built Form: Built form has a direct impact on transportation behaviour; a more compact community is more conducive to walking and cycling (Pucher et al., 2010). Outside the compact cores of older towns, land uses and services in the Outer Ring are unevenly dispersed. Jobs and schools for example, are not often within walking or cycling distance, making it challenging for people to actively travel to their daily destinations (Health Canada, 2011; Kaptur, 2014). The absence of a complete and connected active transportation network is a key challenge as even if there is some infrastructure in parts of a community, there may not be convenient connections between points of interest.

3.5.2 Climate: Winter can present a challenge for pedestrians and cyclists as they do not have protection from adverse weather conditions (e.g. rain, snow), which may impact willingness to use active modes of transportation (Caldwell, Krachling, Kaptur & Hu, 2015; The Social Research and Planning Council, 2012). Inadequate snow clearing in the winter and lack of shade in the summer are two of the most commonly cited climate-related challenges that rural communities face (Dickman et al., 2016; Pucher et al, 2010).

3.5.3 Solutions: Although rural areas feature greater distances between centres, many small towns have compact, diverse cores that provide favourable conditions for active transportation that could be strengthened through supportive planning and growth policy (Dickman et al., 2016; Smart Growth America & National Complete Streets Coalition, 2015). Regarding the hilliness that can be found in some parts of the Outer Ring, it is possible to address topographic challenges through route planning. In San Francisco, for example, “The Wiggle” is a bike route that was planned to minimize that city’s famously hilly inclines (San Francisco Bicycle Coalition, n.d.). Finally, the perceived effect of weather on travel mode choice may be exaggerated. Northern Europe, for example, can be quite cold and rainy, yet has a much higher cycling rate than the drier, sunnier, and warmer southern Europe (Pucher et al, 1999), indicating that it is possible for municipalities to ameliorate some of the weather-related barriers to active transportation. Ensuring timely and comprehensive snow removal during winter months is important to promote year-round use of active transportation (Dickman et al., 2016) as is done in Barrie and Northumberland County.

3.6 AUTHORITY

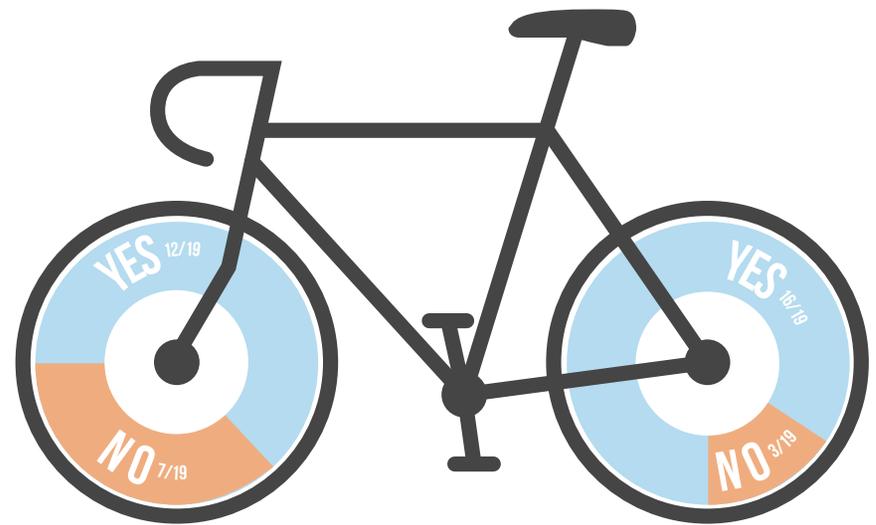


In many rural communities there is considerable overlap in terms of sharing and maintenance of facilities. For example, a rural community may have a provincial highway running through it, yet decisions about the design and maintenance of this roadway are outside municipal control. Splitting responsibility of upkeep between different jurisdictions makes it difficult to coordinate and requires cooperation among various stakeholders. In our surveys, jurisdictional cooperation is of greater concern to counties and lower-tier municipalities.

3.6.1 Mandate: Multiple respondents representing counties in the Outer Ring specifically cited a lack of mandate for developing active transportation infrastructure as a key challenge. The lower-tier municipalities are responsible for recreational paths and trails, while the counties are responsible for transportation which is often not understood to include cycling and walking. In order for counties to build infrastructure, the case must be made that it is critical for transportation and mobility throughout the region and that the county's public works department should build and maintain it.

3.6.2 Policy: Another factor in this category is a lack of supportive policy. Without incorporating active transportation knowledge and prioritization in policy, the adoption and implementation of walking and cycling projects are often less successful, which hinders the growth of further projects. (Sears, 2014; Collinson, 2013). The implementation of facilities tends to be most successful in municipalities that have specific active transportation plans.

3.6.3 Solutions: One way to address the multi-jurisdictional maintenance challenge is to plan and divide the responsibilities from the outset of the project (Twaddell & Emerine, 2007). It should be noted that the vast majority of Outer Ring survey respondents have supportive policy in place, and some are currently developing more targeted and action-oriented policies to complement the existing framework. Guelph's extensive active transportation study, St. Catharines' Cycling Policy/Initiatives, and Northumberland's cycling plan all demonstrate the commitment of smaller municipalities to developing policy that is tailor-made for their communities.



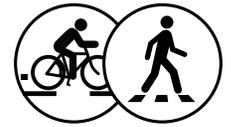
"Does your municipality have an active transportation plan?"

"Do you have any recently completed or planned (fully-funded) active transportation (pedestrian and/or cycling) projects in your municipality (past five years)?"

4.0 CASE STUDIES

COTTONTAIL ROAD TRAIL

WELLINGTON COUNTY | COMPLETION: 2016



Multi-use Path

PROJECT DESCRIPTION

The Cottontail Road Trail is a mostly off-road trail that now runs 14km in its entirety through the pastoral landscape of rural Wellington County. The trail represents the completion of the Trans Canada Trail through the county and connects two other major trails: The Kissing Bridge Trailway and Elora Cataract Trailway. A number of distinct sections were linked together into a cohesive and singularly-branded trail, including gravel paths upgraded to asphalt, a paved highway shoulder, and grassed stretches. In developing Cottontail Road Trail, a logo and branding identity were created, featuring the silhouette of a Cottontail Rabbit that was used on all signage and promotional materials. This has proven popular with trail users and residents.

The segmented nature of the trail meant that planners had a variety of partners to work with, including lower-tier municipalities, internal departments, the Province, and the University of Guelph, whose leased land the trail runs through. The design process involved several iterations and compromises to satisfy the multitude of interests.

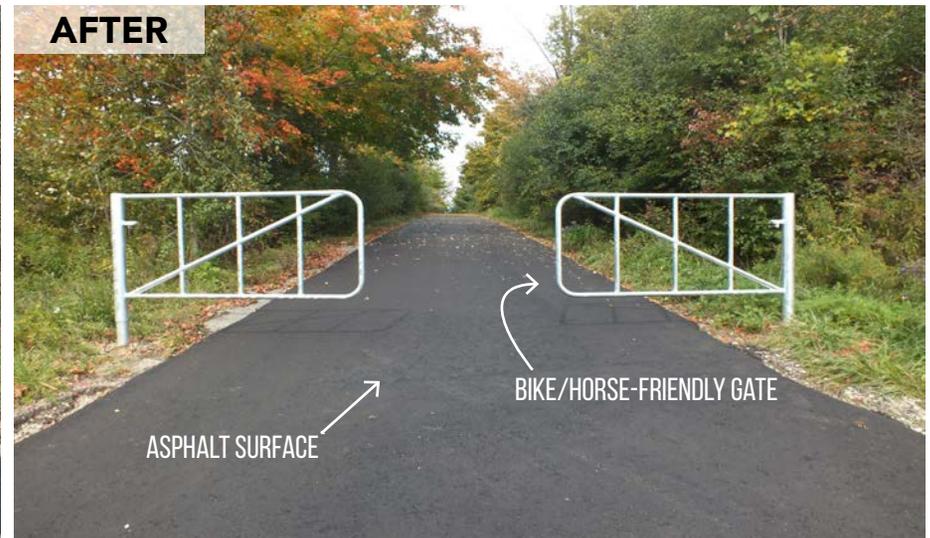
The implementation of this project was possible due to external funding of \$150,000 from a Pan Am Games Legacy Grant and Trans Canada Trail Organization Grant, in addition to \$100,000 from the County of Wellington.

POLICY CONTEXT

Wellington County Active Transportation Plan

This plan, supported in principle in 2012, included a recommendation for paving shoulders to accommodate cyclists, though Ontario law did not permit cyclists to ride on paved shoulders at that time. Despite a supportive policy tool, fears of liability in the event of injury to cyclists using this infrastructure prevented the county from implementing parts of the active transportation plan. This route is mostly off-road and is part of the Trans Canada Trail network, so was not subject to these same liability concerns.

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Showing a section of the trail that was formerly closed off and graveled, now with a paved surface and active-transportation-friendly gate that is also accessible for horseback-riding.

A 14km trail runs off-road through the countryside, connecting to other multi-use trails and completing Wellington's segment of the Trans Canada Trail.

COTTONTAIL ROAD TRAIL, WELLINGTON COUNTY

COUNTY POPULATION: 90,932



Staffing

Wellington County has no dedicated staff for active transportation issues, meaning the project relied on staff with other responsibilities driving the project forward on their own volition.



Public Perception

Community engagement throughout the process bolstered support for the project. The development of the cottontail brand and imagery helped to popularize the project and unify its identity with users.



Multiple Stakeholders

Jurisdiction Cooperation

Multiple stakeholders were involved, including neighbouring residents, the Township of Centre Wellington, the Province, and University of Guelph. Finding solutions to address each stakeholder's unique needs was critical to the success of this project. Collaboration between different departments and jurisdictions was also important in achieving the best outcomes for the project.



Context Map



Way-finding signage on the grassed section of the trail.

COUNTY CYCLING NETWORK

NORTHUMBERLAND COUNTY | CONSTRUCTION: ONGOING



Paved Shoulders and Signed Route Network

PROJECT DESCRIPTION

Northumberland County is improving conditions for cyclists through a program of paving rural road shoulders in an interconnected county network. Expected economic development through increased tourism is being utilized as a key driver of this active transportation project. The paving of shoulders follows the 2011 *Northumberland County Cycling Master Plan*, which identified 300km of potential infrastructure along five named routes. The plan changed County policy to pave roads 10m wide instead of 7m to accommodate cyclists, and has been mostly implemented, with 50km of shoulders paved. This is a relatively easy and cost-effective way to introduce active transportation infrastructure in smaller municipalities.

17

Liability

To address concerns over snow clearing as well as liability, the shoulders are maintained to the same standard as the rest of the roadway.

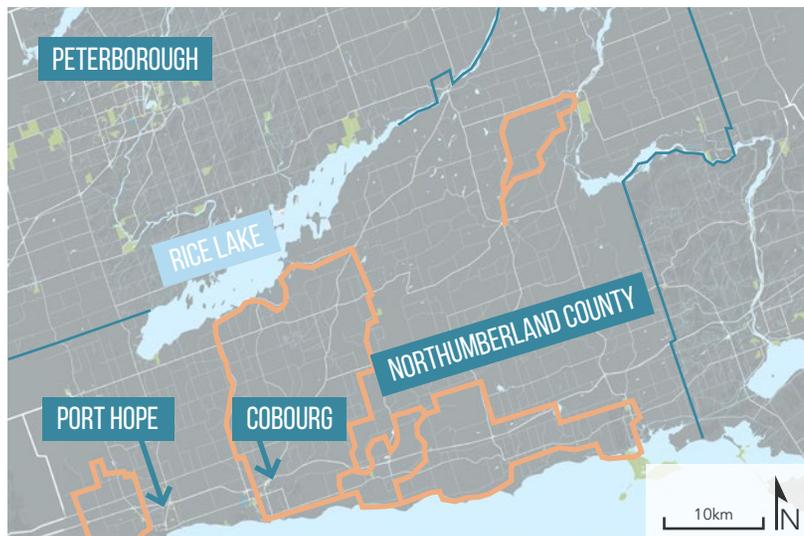
Seasonal variation

The network involves several routes traversing the entire county and makes passage much safer and more comfortable for cyclists.

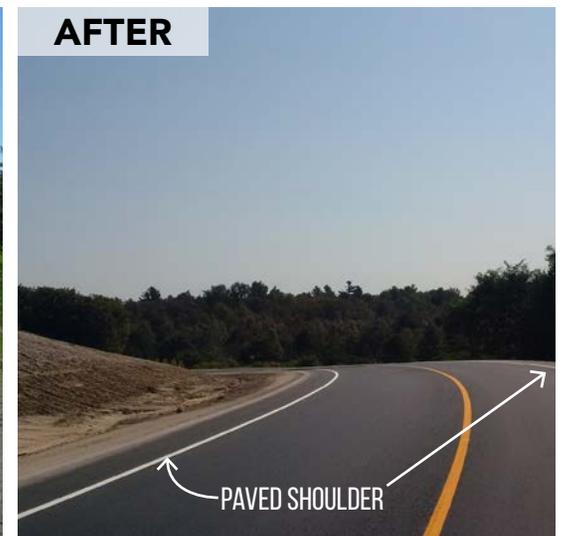
Long distances

Seven member municipalities

To address the complexities of multi-jurisdictional responsibility, being flexible in vision and the willingness to compromise is critical. Funding decisions in particular can be complicated as it can be difficult to determine who is responsible for what part of a project.



Context Map





Paved Shoulder

PROJECT DESCRIPTION

Formerly under provincial authority, Beachwood Road was downloaded to the Towns of Collingwood and Wasaga Beach after a bypass route was constructed. Beachwood Road is a strategic link and now the safest route for cyclists between the two towns. The project was bolstered by funding from Simcoe County, and was noted in the County's *Trails Master Plan* and *Transportation Master Plan*. Most upper-tier governments do not have specific management purview over, or own any trails. However, Simcoe County intends to connect its communities through an active transportation network. The County thus provides its 16 member municipalities more funding and facilitation opportunities, up to \$250,000 per year for the county.



Context Map

4.3 RURAL PROJECT:

BEACHWOOD ROAD

SIMCOE COUNTY | COMPLETION: 2014

Funding



This project made use of a strategic opportunity as the Ministry of Transportation agreed to pay for road resurfacing though the Towns of Collingwood and Wasaga Beach would fund the paving of shoulders. The towns were assisted by funding from the County of Simcoe.

Multiple jurisdictions



As the road passes through two Towns and received funding from both of them as well as the County and Province, coordination was complex and drawn-out. The project would have benefitted from earlier communication between the partners.

BEFORE



AFTER



4.4 SUBURBAN PROJECT:

GARDEN AVENUE

CITY OF BRANTFORD | COMPLETION: 2017



Bike Lanes



Sidewalks



Trees + Median



AODA
Compliant

PROJECT DESCRIPTION

Located at the edge of Brantford's urban area, improvements along Garden Avenue from Colborne Street to Elgin Street were implemented to improve safety, calm traffic, enhance the public realm, and enable active transportation access. Painted bike lanes and sidewalks were installed on either side of two vehicular traffic lanes. Median islands with street trees were added at every intersection.

The road had seen piecemeal development over many years and increasing traffic volume and speeds. This section of Garden Avenue, which is a public transit route, featured two traffic lanes with narrow shoulders and a railway crossing, making accessibility, safety, and connectivity difficult. Varying slopes and

driveway heights along the roadway added many constraints to the design of the widened street. This, combined with the number of trees that needed to be removed, meant that existing properties would be affected by the redevelopment.

The railway crossing posed a design and liability challenge as it was determined that the roadway could not be safely expanded without rebuilding the entire crossing.

The rebuilt street connects bicycle facilities on Colborne Street, Grey Street, and toward Henry Street, while the pedestrian infrastructure meets the requirements of the *Accessibility for Ontarians with Disabilities Act* (AODA), expanding active mobility options for residents.

POLICY CONTEXT

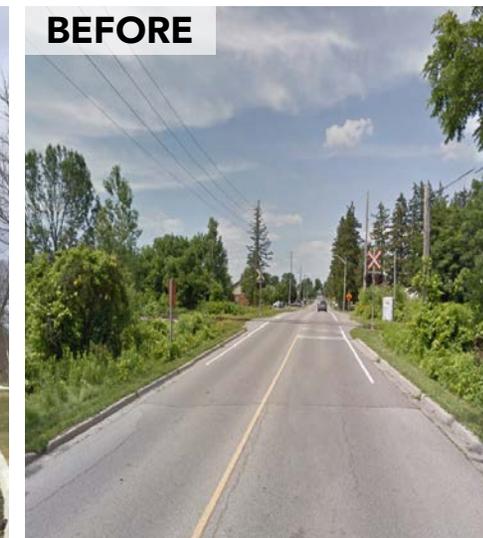
This project was supported by Brantford's *Transportation Master Plan* which identified bikeways and existing trails network and included Garden Avenue as a bike lane. There have also been reassessments of the design criteria for new cross-sections of streets which are to include and encourage active transportation. In addition this project had to comply with the barrier free guidelines set out by the AODA.



BEFORE



AFTER



BEFORE



AFTER

Garden Avenue pre and post-construction of the new road design.

The new design at the crossing of the rail line.

A formerly rural road has been redeveloped with sidewalks, curbs, street trees, and bike lanes, improving access for all modes.



Impacted neighbours

Ongoing consultation and engagement with the community throughout all stages of the planning process were critical to the outcome of this project. Design strategies were implemented to respond to community needs for better traffic calming measures, and while trees needed to be removed they will be replaced with a 3:1 ratio. Public meetings were held in anticipation of these concerns and to solicit community feedback, while this flexibility in the design process made for a more successful design.



Liability

A safety audit conducted for the railway crossing cited poor sightlines and forced the City to upgrade and rebuild the entire crossing, improving safety for all users and preempting liability issues.



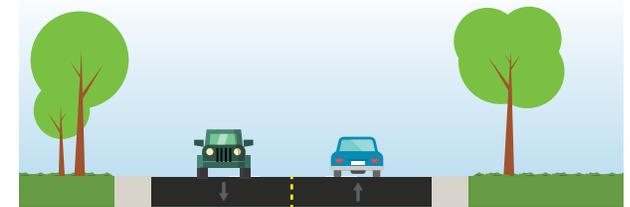
Complex design

As the neighbourhoods along this formerly rural road were urbanizing, planners and engineers had to contend with a multitude of design issues, including driveways at different heights, trees close to the road, and a rail crossing.

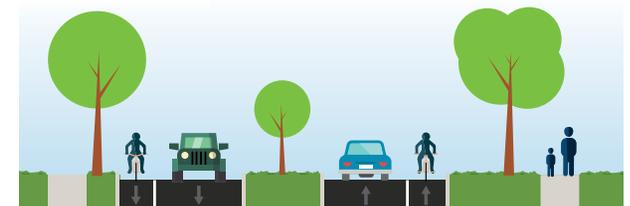


Context Map

BEFORE



AFTER



HURST DRIVE

CITY OF BARRIE | COMPLETION: 2015



Road Diet



Bike Lanes

PROJECT DESCRIPTION

Hurst Drive connects the southeast end of Barrie to the Waterfront and is considered a major thoroughfare for the city. The project stretches from Big Bay Point to Cox Mill Road along Hurst Drive and adds an important cycling connection by reducing traffic speeds. This project added painted bike lanes on both sides of the road, and introduced a road diet that transformed four lanes into two with a turning lane in the middle. The project was called for in Barrie's *Active Transportation Master Plan*. There was a dramatic change in the use of the street after the project, with the number of cyclists doubling and car volumes being reduced.

21

Public support



Some residents did not recognize that Hurst Drive was important for cyclists and were vocally opposed to the project. Planners realized they had not sufficiently engaged this group, and so reached out to them and spoke in the media about the facts around this project and how it would improve conditions for all road users. Using data, they demonstrated that the street was now safer and more accessible which garnered a lot of support from the public.

Removal of traffic lanes



Due to space limitations, parking and traffic lanes had to be reduced in order to add the bike lanes. This was contentious but data now shows the new design is safer.

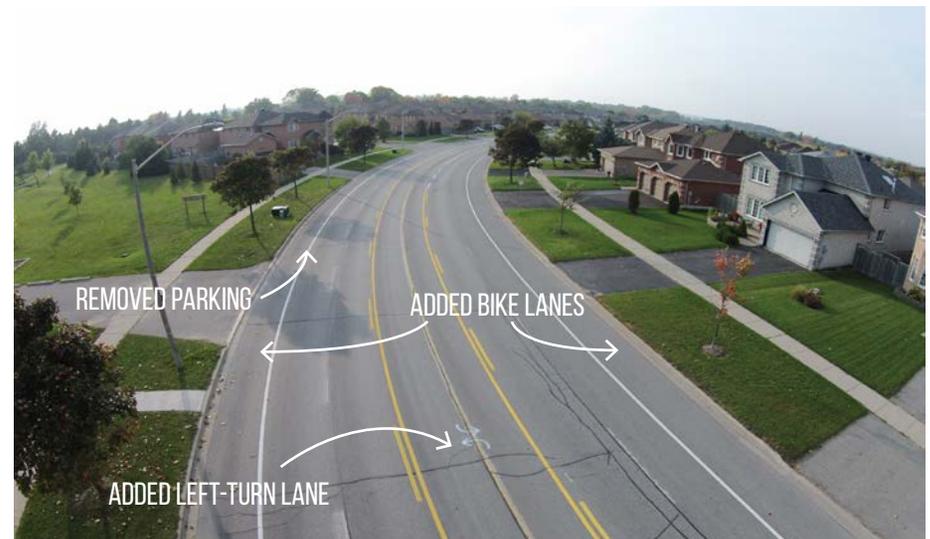
Seasonal variation



Barrie has snowier, harsher winters than many other cities, so to encourage cycling the routes are cleared to the same standard as other traffic lanes.



Context Map





Multi-use Path



AODA Compliant

PROJECT DESCRIPTION

Conestoga Boulevard is a major road running through an industrial area in Cambridge. The road had a pre-existing painted bike lane for many years. When it was determined that left-turn lanes would be added to Conestoga and the bike lanes would need to be removed, the City decided to upgrade the bike lane to an off-street multi-use path for cyclists and pedestrians. The project is supported by existing policy, and was politically easier to implement due to the low impact on adjacent property owners. The multi-use path will be constructed in 2017 and will open up new space for pedestrians in addition to improved safety and comfort for cyclists.

Funding



In order to combat funding challenges, a collaborative funding solution between the City of Cambridge, Region of Waterloo, and *Ontario Municipal Cycling Infrastructure Program* was obtained. The project was prioritized as it was supported by Cambridge's existing *Trails Master Plan* and *Bikeway Network Master Plan*.

Width of right-of-way



Instead of removing cycling facilities from Conestoga as turning lanes were added, the City upgraded the pre-existing facilities by moving it off street into the right-of-way. This posed its own challenge, however, as permission had to be granted from Hydro One to use the land in their easement.



Context Map



HIGHWAY 12 OVERPASS

CITY OF ORILLIA | COMPLETION: 2017



Bike Lanes



Sidewalks

PROJECT DESCRIPTION

The redevelopment of the interchange between Highways 11 and 12 in Orillia paved the way for an active transportation component on the east-west overpass. The multi-use trail will be the only strong cycling connection to the west side of Orillia, which is experiencing growth and contains both the West Orillia Sports Complex and a campus for Lakehead University. The project represents a fresh way of planning and designing highway interchanges and the modes they accommodate. There was difficulty gaining approval to add the trail to the project as the Ministry of Transportation generally builds interchanges solely for motor vehicle traffic. Upon completion, the route will add a needed link in the City's active transportation network.

23

Funding



The project was made possible by an *Ontario Municipal Cycling Infrastructure Program* grant of \$325,000.

Long distances



The west side of Orillia is divided from the rest of the city by a large highway, which this project will bridge.

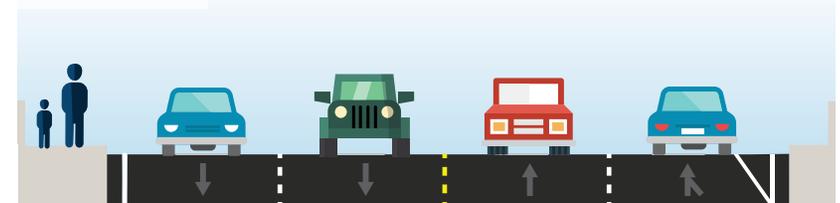
Topography

Steep grades pose a challenge to cyclists who may have difficulty with hills. However, the enhanced separation and safety offered by the new design will allow for a safer climb.

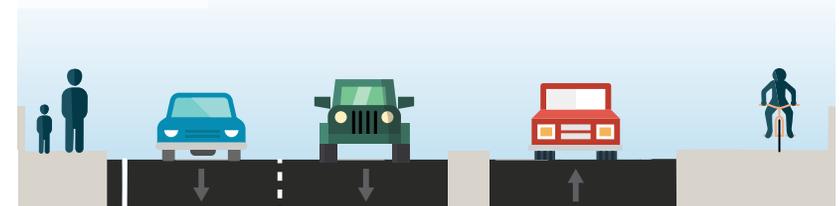


Context Map

BEFORE



AFTER





Multi-use Path

PROJECT DESCRIPTION

The Region of Niagara is building a multi-use path along an existing stretch of the Merrittville Highway which features significant and growing traffic for students travelling to and from Brock University. The path will link into pre-existing and proposed paths at each end, contributing to a network of off-road cycling and pedestrian infrastructure in this developing district on the edge of the City of Thorold and adjacent to St. Catharines. These connections were identified in the 2005 Bikeways Master Plan. Due to this plan, a painted bike lane on the highway had already been built, but in order to also provide a safe route for pedestrians this was upgraded to a fully off-road path.

4.8 SUBURBAN PROJECT:

MERRITTVILLE HIGHWAY

REGION OF NIAGARA | CONSTRUCTION: 2017

Funding



The project received funding from the *Ontario Municipal Cycling Infrastructure Program*, as well as Niagara Region's *Bikeways Grant Program*.

Built along wetland



One of the greatest challenges was in designing the path to be off-road without disturbing the adjacent wetland. Coordination with the local conservation authority reduced this risk while the best built form was engineered.

Multiple Jurisdictions



Typically, lower-tier municipalities are responsible for construction and maintenance of multi-use paths, so the Region applied for this grant on behalf of the City of Thorold who will sign an agreement to maintain it.



Context Map



TRAIL NETWORK UPGRADE

CITY OF GUELPH | COMPLETION: ONGOING



Off-road Multi-use Path Network

PROJECT DESCRIPTION

The *Guelph Cycling Master Plan* was developed in 2012 with the goal of shifting mode share towards cycling and away from driving. However, as the infrastructure was built (over 60% complete), planners found they were not getting the ridership they were expecting. Surveys of residents showed a large fraction that would not commute by bike unless it was on protected, off-road trails. The (draft) *Guelph Active Transportation Network Study* (GATNS) envisions using the spine route of existing trails and making strategic upgrades (widening, improved surface material) to enable this group of residents to cycle throughout the city on an entirely off-road network of routes.

Some upgrades have already occurred, using information from the draft policy. These

upgrades allow safe passage for pedestrians and cyclists through peaceful environments separated from automobile traffic. Winter maintenance will also be streamlined, as the GATNS policy will identify opportunities to review coordination between public right-of-way and trails networks in order to improve the effectiveness of the overall network. Design guidelines have been developed to address unique features and environments such as wetlands, parklands and boulevards.

Most trails fan out through the city following waterways and rail lines. Steep hills often pose issues for active transportation, but the recreational trails tend to avoid these spots and feature more gentle topography.

POLICY CONTEXT

Active Transportation Network Study (in progress)

2012 Guelph Cycling Master Plan

Complements the *2016 Sidewalk Needs Assessment*

The GATNS is a proposed policy that builds on the *2012 Guelph Cycling Master Plan*, which lays out a network of on-road cycling routes only. It will inform the update to the *Guelph Trails Master Plan*.

25



Conditions before (left) and after (middle) construction of multi-use path at points along Woodlawn Road. Right: typical multi-use path in Guelph.

Safe, comfortable, off-street commuter routes are to be created using pre-existing recreational trails as recommended in a new network plan.



Funding

The GATNS identifies operating cost impacts and hopes to ensure a funding boost to support winter maintenance. Funding for components within the right-of-way have been approved for the next 5 years, while off-road components are anticipated to be funded through a *Trails Master Plan* update in 2018.



Specialized maintenance

To maintain trails in winter, a specialized vehicle was adapted that clears snow without disturbing surface conditions on gravel paths.



Public perception

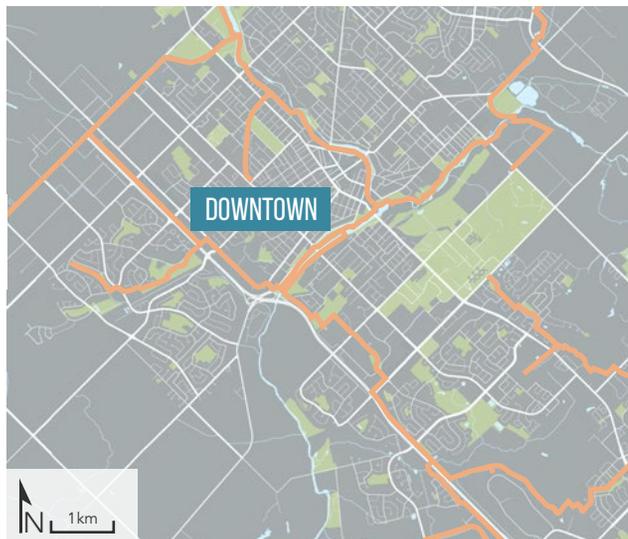
Public perception of cycling safety and comfort is the main impetus for the development of the GATNS. The draft policy recommends that selected recreational trails be upgraded for commuter use city-wide and responds to feedback from residents that they would commute by active modes if routes were not on streets.



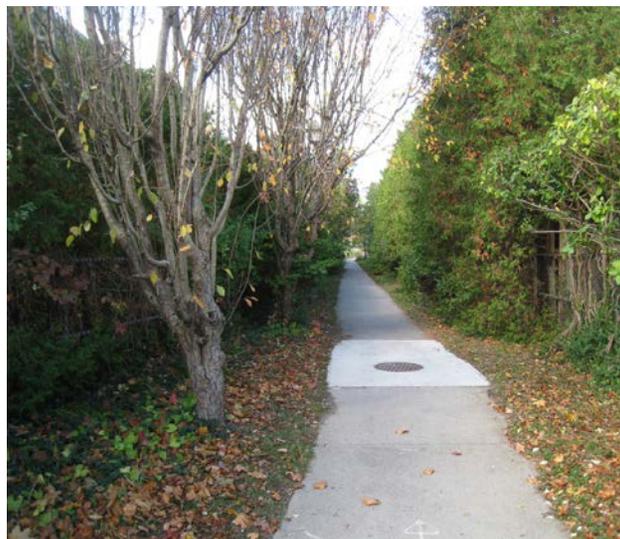
Internal coordination

Supportive policy

The project addresses issues of internal coordination as it combines recreational and commuter active transportation networks. Recreational trails are maintained by the Parks Department while on-street bike lanes are maintained by Public Works, but the GATNS policy document orients their efforts around a cohesive, shared plan.



Context Map



Off-road trail requiring minimal upgrades to contribute to network.



Specialized maintenance vehicle designed in Guelph for clearing snow from multi-use paths.

4.10 URBAN PROJECT:

GEORGE & WATER STREETS

CITY OF PETERBOROUGH | COMPLETION: 2017



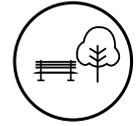
Road Diet



Bike Lane



Added Crossing



Landscaped Median

PROJECT DESCRIPTION

George Street and Water Street in Peterborough are the two main north-south one-way streets running through downtown Peterborough. The bike lanes' northern terminus connects to the Rotary Greenway Trail, while at the south they end adjacent to trails along the waterfront. The bike lanes are intended to provide a safer route through the downtown area than was previously possible for cyclists, forming a vital axis in Peterborough's active transportation network. There had been painted bike lanes on part of this route for decades, but they allowed parking in the lane during off-peak hours. South of downtown, the road varied from 2-4 lanes in width and featured high speeds with many collisions. The street featured narrow sidewalks with

many commercial driveways and there were often dangerous mid-block crossings.

The pre-existing bike lane was upgraded to no longer allow cars to park in it. Moving south, the street features one traffic lane in each direction with painted bike lanes on each side and parking along the curb. In the final phase, the southern extent of the lanes will feature one new traffic signal and pedestrian crossing, centre left-turn lanes, and green paint at intersections.

POLICY CONTEXT

2012 Comprehensive Transportation Plan

2013 Provision of Sidewalks Policy, which recommends an accessible pedestrian environment on all streets, including sidewalks on both sides, adequate crossings, and ramps onto sidewalks.

Approval of the project required an environmental assessment process, part of which involved a traffic study. This study was useful in gaining support for the project as it showed that the businesses would not be harmed by the lost parking spaces and reduced travel lanes.

BEFORE



AFTER



A pair of bike lanes running through the heart of Peterborough form a new spine for the city's cycling network.



Funding

Planners took advantage of routine roadwork scheduled for the street, postponing lane-painting by a full year while determining how the lanes would be configured. This strategy allowed for cost-savings and ease of implementation.

The City was awarded an *Ontario Municipal Cycling Infrastructure Program* grant of \$325,000 for this project, which enabled the road diet third phase of construction.



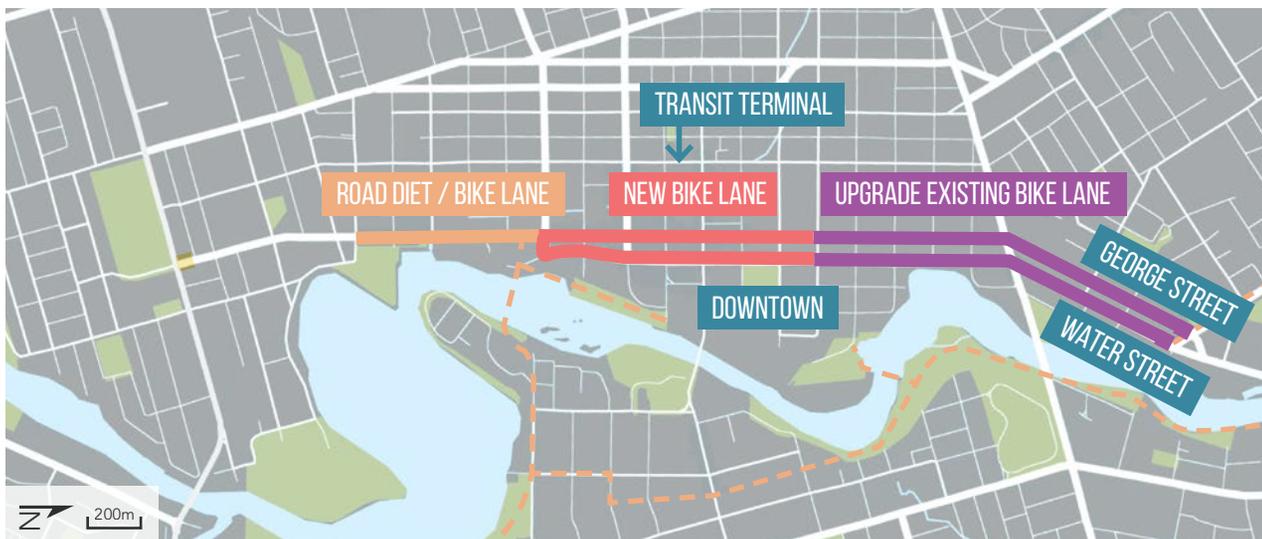
Public perception

Early and regular communication with impacted businesses and residents allowed planners to assuage concerns and incorporate feedback. Business owners also became aware of the number of collisions, so they were receptive to the traffic-calming measures.



Removal of parking

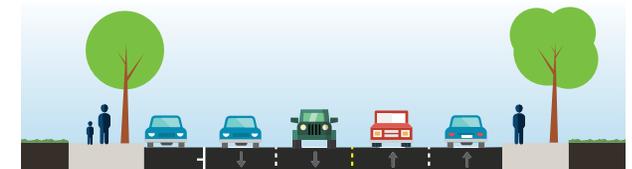
Using data on parking supply enabled planners to show that businesses would not be negatively impacted by the reduced capacity.



Context Map

BEFORE

ROAD DIET / BIKE LANE



AFTER

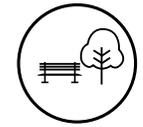


SPUR LINE TRAIL

REGION OF WATERLOO | COMPLETION: 2016



Multi-use Path



Added Vegetation

PROJECT DESCRIPTION

The Spur Line Trail is located in the Region of Waterloo and is a 2.4 km long off-road multi-use trail that runs adjacent to an active rail corridor and connects Uptown Waterloo with Downtown Kitchener and the Kitchener GO Station. Although only a limited number of trains operate at night at slow speeds, the rail corridor was the guiding force in the design and implementation of the multi-use trail. The space adjacent to the rail line had been used informally as a connection through town. Funding from Metrolinx enabled the Region to develop a formal, high-quality pathway that allowed more users to pass along it comfortably and conveniently.

A strong partnership between the Region and the Cities of Kitchener and Waterloo was fundamental to the project's success. The cross-jurisdictional nature of the project required close collaboration and multiple levels of approval for funding, design, implementation, and maintenance plans for the project. For example, while Region of Waterloo owns the rail corridor, the City of Waterloo provides winter maintenance on their portion of the trail.

Signage and wayfinding was introduced as well, creating a clearer, more defined identity for the route and users. The trail serves both pedestrians and cyclists. In 2016 an average of 223 pedestrians and 332 cyclists used the trail each day.

POLICY CONTEXT

2014 Active Transportation Master Plan: Spur Line Trail identified as a Special Study Area project to be completed as part of the *Walking and Cycling Network Action Plan*.

2005 Pedestrian Charter: Council endorsed charter that outlines requirements for pedestrian-supportive urban environments and infrastructure.

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Typical conditions before and after construction at different points along the Spur Line Trail.

Utilizing the right-of-way of an active rail track, a new path provides pedestrians and cyclists with a convenient link between Uptown Waterloo and Kitchener GO Station.



Adjacent rail track

Grading, vegetation, and buffers were added along the new path to respond to design challenges created by the track, ensuring the privacy of neighbouring communities and the safety of trail users. Unobtrusive, dark-sky lighting was utilized to enhance trail safety without impacting nearby residences.



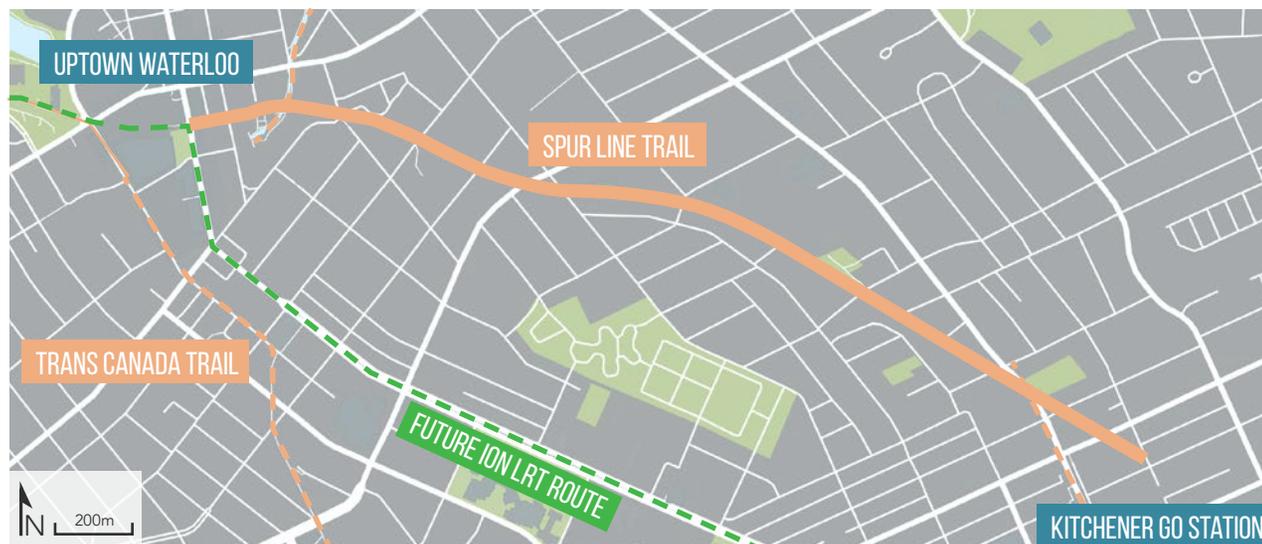
Connecting nodes

This project provides residents with a dedicated active transportation corridor between the two downtown cores and major employment centres of Kitchener and Waterloo. Trail users can also connect to nearby trails, light rail transit, and the Kitchener GO Station.



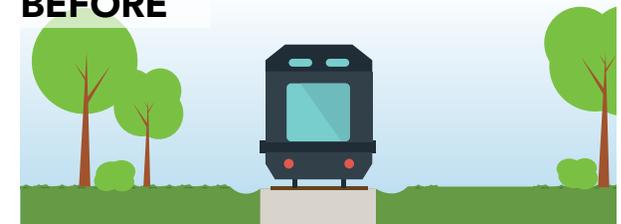
Multiple jurisdictions

The development of a clear vision and outreach from the beginning of the project aided coordination. This included multiple levels of policy supports, agreements around maintenance, and ongoing collaboration. This was critical to the success of this project as it increased the ability to capitalize on opportunities, such as external funding from Metrolinx, to move the project ahead.

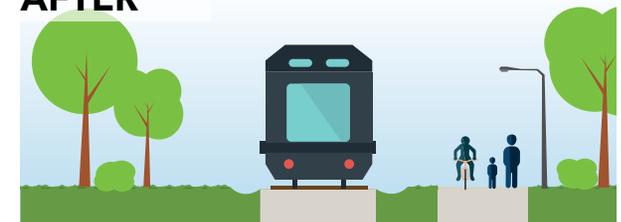


Context Map

BEFORE



AFTER



EAST AVENUE

CITY OF KITCHENER | COMPLETION: 2015



Road Diet



Bike Lanes

PROJECT DESCRIPTION

The City of Kitchener implemented a bike lane and road diet along East Avenue from Borden Avenue to Frederick Street, a cross street that had a pre-existing bike lane. East Avenue is serviced by a local bus route, multiple schools, and parkland which provides strong connections for cyclists. Previously, the street had two travel lanes and two parking lanes, so one lane of parking was removed enabling bike lanes to be added to both sides. The project was noted in Kitchener's *Cycling Master Plan*. When it was initially proposed, more parking was slated for removal, though this was ultimately reduced to quell community concerns.

Public support



Early communication and engagement with the community and stakeholders was critical to the success of this project. Residents felt involved in the process and were supportive of the project design. Organizing communication and engagement opportunities in places that people already frequent enhanced outreach. Flexibility and openness to solutions in determining an appropriate design also strongly influenced the successful outcome of this project, which was evident in that the community was willing to compromise and support the removal of parking on one side of the road.

Width of right-of-way



The implementation of bike lanes came with tradeoffs, as the width of the road could not be increased. To accommodate this, parking was removed from one side.

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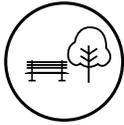


Context Map





Bike Lanes



Trees + Lighting

4.13 URBAN PROJECT:

QUEENSTON STREET

CITY OF ST. CATHARINES | CONSTRUCTION: 2018

PROJECT DESCRIPTION

Queenston Street is an arterial road in St. Catharines and a major conduit into the downtown area, as well as a part of the Wine Route and Greenbelt Cycling Route. The City is rebuilding the road to include bike lanes on either side while removing half of the on-street parking. Landscape elements will also be added, including lighting and street trees along this site of a large former hospital and major redevelopment area. The bike lanes are supported by the *St. Catharines Cycling Policy/Initiatives*, which recommends the inclusion of cycling and walking facilities in the reconstruction of arterial roads where feasible. This policy is a stop-gap measure that is to be included in the City's *Transportation Master Plan*, currently in development.

Removal of parking

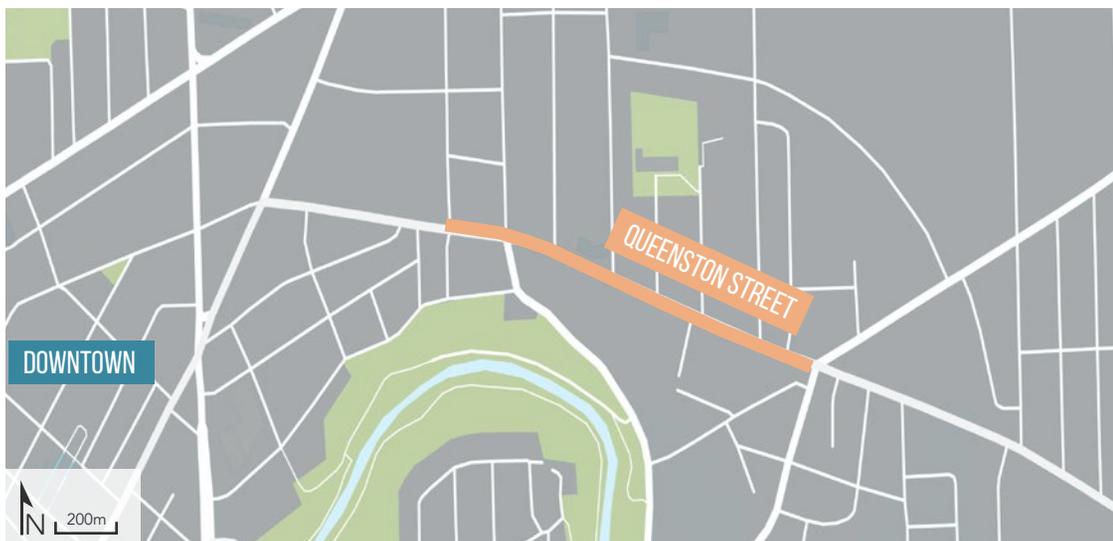


St. Catharines noted the removal of parking as a challenge in our survey, but was able to overcome it with this project. Parking is to be removed to make space for the bike lanes, but the decision faced little opposition. With the nearby hospital closed, demand for parking space had decreased, and while the area is to be redeveloped soon, the City took this strategic opportunity to overcome a persistent challenge.

Lack of supportive policy



This project is the direct result of the *Cycling Policy/Initiatives*. The policy is responsible for the construction of 25km of bike lanes in St. Catharines thus far.

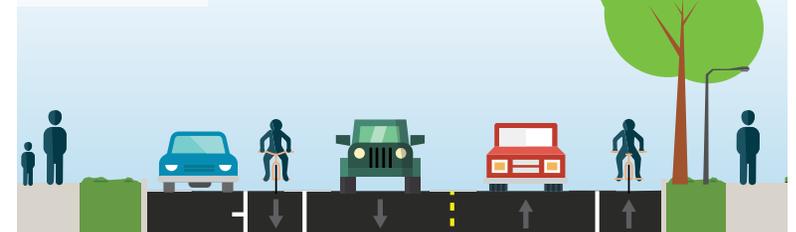


Context Map

BEFORE



AFTER



5. CONCLUSION

This work highlights how municipalities across the Outer Ring of the GGH are pursuing both the planning and building of active transportation infrastructure. A supportive policy framework is already in place in most of the communities surveyed, with 12 of 19 jurisdictions having developed active transportation master plans, and others are in the process of developing them. Projects are also being built across a variety of settings, from compact centres, to more rural, very low-density areas. Many of the same types of strategies applicable to larger urban centres are being employed with success across the Outer Ring — this includes both the types of facilities (e.g. painted bike lanes, multi-use pathways), the development of supportive policy, and public education and engagement processes.

There are also some specific conditions in the Outer Ring such as rural highways that are being addressed with simple solutions such as paving roadway shoulders to make rural cycling safer and support longer trips. It has only recently become legal for cyclists to use paved shoulders, but they are a relatively inexpensive improvement that should be considered an important, if modest improvement. Dedicated facilities, fully separated from highway-speed traffic should ultimately be realized as safer, more supportive facilities.

Rail trail conversions, former rail lines that are being repurposed as multi-use paths for cyclists and pedestrians, are also important active transportation facilities across the Outer Ring. We did not find any recent conversions to highlight in the case studies, but

there are some spectacular pre-existing examples in the Outer Ring, most notably the 77 km Hamilton-Brantford-Cambridge trail system alongside the beautiful Grand River. Primarily intended for recreational use, rail trails and other multi-use paths in rural settings can also make connections that support longer distance utilitarian cycling. In more urban settings, rail trails can also make direct off-street connections to important destinations, such as the Spur Line Trail does between Uptown Waterloo and the Kitchener GO Station.

There are also some specific challenges to planning for active transportation across the Outer Ring, including a lack of staff to be able to dedicate to active transportation plans and projects. The number one challenge as noted by nearly every municipality in the survey is funding. New provincial funding support, including the *Ontario Municipal Cycling Infrastructure Program*, helped support the financial requirements for many of the projects featured in this report. Continued provincial funding will be critical to further the development of active transportation infrastructure and encouraging increased active transportation modal share as recommended in the Growth Plan.

The second most commonly-cited challenge reported is the public perception that walking and cycling is not a viable travel option. In part, this may have to do with longer travel distances in more rural settings that are being addressed with the development of paved shoulders and off-road multi-use paths such as rail trails. There are also, however, many compact, mixed-use centres across the Outer Ring that can be more supportive of the increased use of active

transportation with more bike lanes, safer pedestrian crossings, and other infrastructure improvements. Many of the surveyed jurisdictions highlighted the importance of consultation to better communicate active transportation projects and their benefits to gain support from the community, something that requires staff resources. In many of the municipalities, there are also active transportation advisory committees, which can serve an important role in giving voice to the importance and benefits of active transportation infrastructure improving over time.

Despite challenges, this report highlights that smaller municipalities are making sustained efforts to improve the walking and cycling environment in a variety of settings across the Outer Ring. These municipalities are clearly transferring and implementing knowledge often developed in more urban settings, as well as responding to unique challenges and opportunities of their own, less urban contexts. Given limited staff and financial resources, these efforts should be celebrated. They also need continued and even deepened support to allow them to continue working towards meeting the active transportation goals of the Growth Plan.



The Cambridge to Paris Rail Trail.

6. GLOSSARY

Terminology used in active transportation projects may not be widely known among the general public, and can vary among different jurisdictions. For reference to how we have used various terms in this publication, we have compiled the following definitions.

BIKE LANE

A *bike lane* is “a portion of a roadway which has been designated by pavement markings and signage for the preferential or exclusive use of cyclists” (Ontario Ministry of Transportation, 2014). Pavement markings generally include a diamond followed by a bicycle symbol as well as a single stripe of paint to separate the space from motor vehicles. A buffered bike lane expands the separated space between cyclists and motor vehicles through the use of hatched pavement markings.

BICYCLE TRAIL AND MULTI-USE TRAIL

Bicycle trails or *multi-use trails* are off-street paths that are physically separated from the roadway by a strip of grass or boulevard. Bicycle trails are marked for the exclusive use of cyclists, while multi-use trails are intended to accommodate multiple uses including cycling, walking, in-line skating, skateboarding, wheelchair use, and jogging.

OPERATING SPEED (85TH PERCENTILE)

Currently, most posted speed limits are set based on the observed speed of 85% of motor vehicles traveling along a given section of a roadway. This is referred to as the operating speed of the roadway, and is usually determined by the roadway characteristics, such as street width, geometry, and intersection frequency.

RIGHT OF WAY

This is the area of a street that is publicly owned and maintained between properties. It includes roadways, sidewalks, bike lanes/cycle tracks, rapid transit lanes, boulevards, and planting areas, as well as traffic signs and signals, street furniture, and other public infrastructure.

ROAD DIET

A *road diet* is the reduction of the number of traffic lanes and/or lane width to improve roadway safety and level of service for all road users. Typically, the reclaimed space is used to accommodate other uses such as turn lanes, pedestrian refuge islands, bike lanes and landscaping.

RURAL

Areas of very low development density, including small towns and villages, and featuring low residential use relative to agricultural purposes and/or natural areas. Rural areas may have limited to no municipal services, including public transit.

SEPARATED BICYCLE LANE OR CYCLE TRACK

An on-street cycling facility that includes many of the features of a conventional painted bike lane, but is distinguished by a clear separation between motorists and cyclists through a buffer with physical barriers such as a line of bollards, a median, parked vehicles, or some combination of these. Additional separation can be attained by raising the lane above the curb.

SUBURBAN

Areas of low-density development designed primarily around automotive travel, post 1950's. Suburban development is typically found outside of older built-up areas, and at the edges of cities and towns.

TRAFFIC LANE

Traffic lanes are for the use of vehicle travel. Bicycles are recognized as vehicles under Ontario's *Highway Traffic Act*. Cyclists are permitted to use traffic lanes even when bicycle lanes are provided.

TURN LANE

A *turn lane* is a designated lane at signalized intersections for vehicles to move into when turning left or right.

URBAN

Cities featuring higher residential and commercial densities that have been developed before the 1950's and the proliferation of automobiles. In addition to higher development densities, urban areas tend to have more mixed uses, and denser, more connected street systems supported by fixed-route and frequent transit services.

7. BIBLIOGRAPHY

Active Transportation Alliance. (2014). Complete Streets Complete Networks Rural Contexts.

Badland, H. M., Duncan, M. J., & Mummery, W. K. (2008). Travel perceptions, behaviors, and environment by degree of urbanization. *Preventive Medicine*, 47, 265-269.

Basinski, C., De Vellis, S., Smith Lea, N., Neudorf, J., & McLaughlin, D. (2015). Complete Streets Policy & Implementation Guide for Grey Bruce. Toronto Centre for Active Transportation & MMM Group Ltd: Grey Bruce Public Health Unit.

Caldwell, J.W.; Krachling, P., Kaptur, S., & Hu, J. (2015). Healthy Rural Communities Tool Kit - A Guide for Rural Municipalities, University of Guelph, Guelph, Ontario.

Clayton, F.A., & Wolfe, C. (2015). Background Report: Are the Growth Plan Population Forecasts On Target? Toronto, Ontario: Centre for Urban Research and Land Development. Retrieved from http://www.ryerson.ca/content/dam/cur/pdfs/Backgrounders/Growth_Plan_Population_Forecasts-%20Backgrounder.pdf

City of Peterborough. (2009). Planning Peterborough to 2031: How the Growth Plan for the Greater Golden Horseshoe will affect the City of Peterborough. Retrieved from: <http://www.peterborough.ca/Assets/City+Assets/Planning/Documents/Ongoing+Planning+Studies/Growth+Plan/Places+to+Grow+Conformity+Exercise.pdf>

Collinson, J. (2013). Regional Planning for Growth Containment in Unincorporated Rural Areas: The Place of Complete Communities and Agricultural Urbanism? A Case Study of the RDN's Rural Village Centre Strategy. Department of City Planning, University of Manitoba, p ii-165.

Dickman, D., Falbo, N., Durrant, S., Gilpin, J., Gastaldi, G., Chesston, C., Morrill, P., Ward, C., Walker, W., Jones, B., Cheng, C., Portelance, J., Kack, D., Gleason, R., Lonsdale, T., Nothstine, K., Morgan, J., & Pressly, R. (2016). Small Town and Rural Multimodal Networks. Washington, D.C.: Federal Highway Administration.

Gangeness, J. E. (2010). Adaptations to achieve physical activity in rural communities. *Western Journal of Nursing Research*, 32(3), 401-419.

Health Canada. (2011). Planning Healthy Communities Fact Sheet Series No.1: Active Transportation, Health and Community Design: What is the Canadian evidence saying? Healthy Canada by Design CLASP initiative.

Hemson Consulting Ltd. (2012). Greater Golden Horseshoe Growth Forecasts to 2041: Technical Report. Retrieved from: <http://www.hemson.com/wp-content/uploads/2016/03/HEMSON-Greater-Golden-Horseshoe-Growth-Forecasts-to-2041-Technical-Report-Nov2012.pdf>

Kaptur, S. (2014). Exploring how healthy rural and small town built environments can be achieved through municipal policies which encourage innovation. (Unpublished master's thesis). University of Guelph.

Keeney, K. (2015). Enhancing Rural Community Assets through Active Transportation Planning: A Case Study of Norway, Maine. Tufts University. ii- 91.

Mitra, R., Smith Lea, N., Cantello, I. & Hanson, G. (2016). Cycling Behaviour and Potential in the Greater Toronto and Hamilton Area. Toronto: Clean Air Partnership. Retrieved from: <http://transformlab.ryerson.ca/portfolio-item/cycling-behaviour-and-potential-in-the-greater-toronto-and-hamilton-area/>

Ontario Ministry of Municipal Affairs. (2016). Proposed Growth Plan for the Greater Golden Horseshoe, 2016. Retrieved from: http://www.placestogrow.ca/index.php?option=com_content&task=view&id=9&Itemid=14&lang=eng

Ontario Ministry of Municipal Affairs and Housing. (2013). Growth Plan for the Greater Golden Horseshoe, 2006. Office Consolidation, June 2013. Retrieved from: http://www.placestogrow.ca/index.php?option=com_content&task=view&id=420&Itemid=101

Ontario Ministry of Transportation. (March 2014). Keeping Ontario's Roads Safe Act. Retrieved from <https://news.ontario.ca/mto/en/2014/03/keeping-ontarios-road-safe-act.html>

Ontario Ministry of Transportation. (July 2015). Ontario Municipal Cycling Infrastructure Program. Retrieved from <http://www.mto.gov.on.ca/english/safety/ontario-municipal-cycling-infrastructure-program.shtml>

Ontario Ministry of Transportation. (December 2013). Ontario Traffic Manual (OTM) Book 18: Cycling Facilities

Pucher, J., Buehler, R., Bassett, D. R., & Dannenberg, A. L. (2010). Walking and Cycling to Health: A Comparative Analysis of City, State, and International Data. *American Journal of Public Health*, 100(10), 1986-1992. <http://doi.org/10.2105/AJPH.2009.189324>

Pucher, J., Komanoff, C., & Schimek, P. (1999). Bicycling renaissance in North America? Recent trends and alternative policies to promote bicycling. *Transportation Research Part A*, Vol. 33, Nos. 7/8, pp. 625-654.

Rails-to-Trails Conservancy. (2012). Active Transportation Beyond Urban Centers: Walking and Bicycling in Small Towns and Rural America.

San Francisco Bicycle Coalition. (n.d.) The Wiggle. Retrieved from: <http://www.sfbike.org/our-work/street-campaigns/the-wiggle/>

8. PHOTO CREDITS

Sears, Brett. (2014). Incorporating Complete Streets into Transportation Master Plans, ITE Journal, 84(4), p. 32-36.

Smart Growth America & National Complete Streets Coalition. (2015). Complete Streets Work in Rural Communities. Washington DC: National Complete Streets Coalition; 2015 [cited 2015 April 16]. Available from: <http://www.smartgrowthamerica.org/complete-streets/implementation/factsheets/rural-areas-and-small-towns/>

Smith Lea, N., Mitra, R., & Hess, P. (2014). Complete Streets Catalogue: Understanding Complete Streets in the Greater Golden Horseshoe Region. Toronto: Clean Air Partnership. Retrieved from: <http://www.tcat.ca/knowledge-centre/complete-streets-catalogue/>

Smith Lea, N., Mitra, R., & Hess, P. (2015). Complete Streets Evaluation: Understanding Complete Streets in the Greater Golden Horseshoe Region. Toronto: Clean Air Partnership. Retrieved from: <http://www.tcat.ca/knowledge-centre/complete-streets-evaluation-tool/>

Smith Lea, N., Mitra, R., Hess, P., Quigley, B. & Loewen, N. (2016). Complete Street Transformations in the Greater Golden Horseshoe Region. Toronto: Clean Air Partnership. Retrieved from: <http://www.tcat.ca/knowledge-centre/complete-street-transformations/>

The Social Research & Planning Council. (2012). The Road Ahead: A Study of transportation needs across Huron and Perth Counties. Retrieved from: <http://perthhuron.unitedway.ca/wp-content/uploads/2013/08/Transportation-Report.pdf>

Verlinden, Y. (2016). Backgrounder: Rural Complete Streets. Toronto: Clean Air Partnership.

Transportation Association of Canada. (2012). Primer on Active Transportation: Making it Work in Canadian Communities. Ottawa, Canada. Retrieved from <http://www.tac-atc.ca/sites/tac-atc.ca/files/site/doc/resources/primer-active-trans2012.pdf>

Twaddell, H., & Emerine, D. (2007). Best practices to enhance the transportation-land use connection in the rural United States. Washington, D.C.: Transportation Research Board

Walia, S., and Leipert, L. (2012). Perceived facilitators and barriers to physical activity for rural youth: an exploratory study using photovoice. Rural and remote health, 12, 1842-1842.

Front Cover: City of Peterborough
p. 3 top: Northumberland County
p. 3 middle: Robb Meier
p. 3 bottom: City of Peterborough
p. 10: HJEH Becker, Third Wave Cycling Group Inc.
p. 11: Google Streetview
p. 15 left, right: Wellington County
p. 16: Wellington County
p. 17 left, right: Northumberland County
p. 18 left: Town of Wasaga Beach
p. 18 right: Simcoe County
p. 19 first from left, third from left: Google Streetview
p. 19 second from left, fourth from left: City of Brantford
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p. 24: Niagara Region, Transportation Engineering
p. 25 Left, Middle: Guelph Coalition for Active Transportation
p. 25 right: MMM-WSP Group
p. 26 left, right: MMM-WSP Group
p. 27 left: Google Streetview
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