

Complete Streets Guidelines Peer Review

Report Prepared for the City of Kitchener

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Submitted by The Centre for Active Transportation at Clean Air Partnership



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Preface

Background

The City of Kitchener's *Integrated Transportation Master Plan: Transportation's Role in a Complete and Healthy Kitchener* (June 2013) makes frequent reference to Complete Streets, while also stressing the need for a standalone Complete Streets policy. A Complete Streets approach accommodating all modes and users is an integral part of the active transportation section of the TMP.

In the City of Kitchener's *Official Plan: A Complete & Healthy Kitchener* (approved by the Region of Waterloo on November 19, 2014), a Complete Streets policy is included within the Parks Strategic Plan and Leisure Facilities Master Plan and some additional direction is provided about creating safe streets within the Integrated Transportation Systems section.

In 2019 the City of Kitchener strengthened its commitment to Complete Streets by developing a new set of Complete Streets guidelines including an implementation plan for integrating the guidelines into the City's corporate culture and (re)construction projects. A draft of the guidelines was provided to TCAT on July 29, 2019. The final version is expected to be submitted for City Council approval on Oct 23, 2019. The City of Kitchener commissioned TCAT to provide an objective, third party "peer review" of the draft guidelines.

Project Scope

TCAT will:

1. Review relevant Complete Streets background policies from the City of Kitchener
2. Analyze policies based on key themes (e.g. Elements of a Complete Streets policy)
3. Conduct a review of 2-3 Complete Streets guidelines to assemble examples of best practice and areas of key concern. These guidelines could be a standalone document or incorporated into a municipality's Official Plan or Transportation Master Plan. The goal will be that the selected guidelines will have some or all of the following criteria present:
 - a. Are specifically referred to as "Complete Streets" guidelines (e.g. not more generically "design guidelines", "urban design guidelines", etc.)
 - b. Canadian municipality
 - c. Mid-sized municipality of similar size (population up to 1 million) and similar climate (e.g. winter) to Kitchener
 - d. Include specific guidance for areas of key concern (e.g. curb radii, PXOs, facilitating emergency services, etc.)
 - e. Direct use of latest and best design criteria
 - f. Demonstrate good track record of implementation (e.g. specific Complete Street case studies), ideally a city that has been using their guidelines for a minimum of 2-3 years
4. Review City of Kitchener's draft Complete Streets Guidelines
5. Analyze guidelines to identify potential gaps and areas of strength/weakness
6. Prepare short report summarizing key findings, providing recommendations for any changes in policies and guidelines based on best practice review, and possibly providing an endorsement.

Corporate Profile and Relevant Experience

Clean Air Partnership (CAP) is a registered charitable organization, established in 2000, with an accomplished track record in working with partners to improve air quality, minimize greenhouse gas emissions and reduce the impacts of air pollution and climate change to improve community health and resiliency. Located in Toronto, CAP works with communities across Ontario and employs a range of tools to achieve results, including research, participatory planning, policy initiatives and training events. Its Clean Air Council is a network of 28 municipalities and health units that work collaboratively on the development and implementation of clean air, climate change, sustainability and resilience actions.

The Centre for Active Transportation (TCAT) is a project of CAP, launched in 2006, with the core mission of advancing knowledge and evidence to build support for safe and inclusive streets for walking and cycling, as modes of transportation that contribute to clean air, vibrant cities and a healthy population. TCAT is at the forefront of knowledge generation in active transportation and Complete Streets with a highly-regarded track record of conducting leading-edge research and policy analysis. TCAT provides professional services to municipalities to advance safe and active streets for all, through: 1) informed decision making, 2) engaged communities, and 3) prepared professionals.

Since 2009, TCAT has played a Complete Streets leadership role in Canada to build momentum and focus community and government interest in Complete Streets. In 2012, TCAT launched the [Complete Streets for Canada](#) website which is a “go-to” hub for Complete Streets policy, design, case studies, and research. The website (with a new and improved design launched in 2019) provides the necessary knowledge base and policy framework for municipalities to move toward streets that provide equitable access to all modes of travel. With the help of student interns and volunteers, TCAT continues to track, document, and research Complete Streets policy and best practice across the country.

In addition to the website, TCAT has taken on a range of other Complete Streets projects:

- Between 2010 and 2015, TCAT hosted six international [Complete Streets Forums](#), bringing together Complete Streets experts and practitioners.
- In 2013, TCAT worked on a team commissioned by Toronto Public Health to identify and [assess published evidence for how specific street design choices influence health outcomes](#). This work influenced the development of [Toronto’s Complete Streets Guidelines](#) and TCAT Director Nancy Smith Lea was on the City of Toronto’s Complete Street Guidelines Stakeholder Advisory Committee (2015-2016).
- TCAT led the development of a series of research publications about Complete Streets including [Complete Street Transformations](#) (2016), [Complete Streets Catalogue & Evaluation Tool](#) (2015), and [Complete Streets by Design](#) (2012).
- In 2015, TCAT was commissioned by the Grey Bruce Health Unit to develop a [Complete Streets Policy & Implementation Guide](#) for Grey and Bruce Counties.
- In 2018, TCAT released the [Complete Streets Game](#) 2.0 (the beta version was released in 2013), a fun, interactive capacity-building workshop tool that helps groups understand the size and scale of different modes of transportation and work collaboratively to re-imagine their local street as a Complete Street.

See team bios in Appendix A.

1. Review of Kitcheners' relevant Complete Streets background policies

The City of Kitchener has demonstrated an interest in Complete Streets policy dating back to 2013, as follows:

1. The City's Transportation Master Plan (2013) "*Integrated Transportation Master Plan: Transportation's Role in a Complete and Healthy Kitchener*" makes frequent reference to Complete Streets, while also stressing the need for a standalone Complete Streets policy. The TMP specifically recommends that a Complete Streets policy be developed and included within:
 - a new sidewalk infilling policy "based on the principle of 'Complete Streets'" in order to ensure there are no gaps in the sidewalk network (1, 63)
 - a revised Urban Structure Nodes and Corridors framework to "provide a balanced and safe environment for drivers, pedestrians, cyclists and transit-users alike" (36)
 - "the Official Plan, Zoning Bylaw and Development Manual to ensure there is clarity regarding what the City requires in terms of transportation and circulation features as part of development applications" (95)
2. The City's Official Plan (2014) "*Official Plan: A Complete & Healthy Kitchener*" includes a Complete Streets policy embedded within the Parks Strategic Plan and Leisure Facilities Master Plan: "The City will develop a system of Complete Streets, linked open spaces, multi-use pathways and bikeways throughout the city relying heavily on the city's parklands, watercourses, utility corridors, natural heritage areas and schools" (8-C.1.12). While Complete Streets policy language is not included within other sections of the plan that apply more directly to streets, some additional direction is provided in Section 13 "Integrated Transportation Systems" about creating safe streets for all.
3. A Sidewalk Infill Policy (2015) requires sidewalks on both sides of the street, with warrant criteria outlining when exceptions may be made. A Complete Streets rationale is provided for the new policy within the staff report.
4. The City's draft Complete Streets Guidelines (2019) "*Complete Streets Kitchener: Streets for All*" provides:
 - a vision for Complete Streets in Kitchener
 - a set of three design goals for every street to prioritize (design for safety, improve transportation choice, advance sustainability)
 - a set of six design principles (foster a sense of place, encourage social connections and equity, promote healthy lifestyles, deliver services, plan for all seasons, prepare for temporary conditions)
 - existing policies that serve as key tools to implement Complete Streets (2014 Official Plan, 2013 Transportation Master Plan, 2010 Cycling Master Plan, 2012 Multi-use Pathways and Trails Master Plan, 2017 Pedestrian Charter, 2015 Sidewalk Infill Policy, 2016 Ontario Growth Plan)
 - a set of standard and preferred alternative design objectives for Kitchener's four street classification types (local, minor collector, major collector, arterial)
 - a set of design objectives for 10 different function types (pedestrian, cycling, transit, motor vehicle, intersection, streetscape, sustainable infrastructure, operations & utilities, temporary conditions, smart streets)
 - a set of design objectives on three emerging trends (mobility hubs, micromobility, curbside management)
 - a Complete Streets scorecard

- an implementation plan
- results of a community engagement process (key stakeholder interviews, online survey, street team in-person surveys, design charrettes) to get input into the development of Complete Streets guidelines for Kitchener.

2. Analysis of Kitchener’s Complete Streets policy based on ten elements of an ideal Complete Streets policy

As noted above in Section 1, the City of Kitchener has several existing official documents that reference Complete Streets and there are two related policies that have been adopted:

- The City’s Official Plan (2014) incorporates Complete Streets policy direction in the Parks Strategic Plan and Leisure Facilities Master Plan. However, as the policy is embedded within a recreational context only, it is not directly applicable to transportation decisions about the street network, which is the purpose of a Complete Streets policy.
- The Sidewalk Infill Policy (2015) is not a Complete Streets policy per se, but rather the impetus for it was to incorporate a Complete Streets approach to provide a safer pedestrian environment (aka the requiring of sidewalks on both sides of every street). By its nature, the policy is specific only to pedestrian infrastructure, and as a result does not provide direction on designing streets to be safer for everyone, as a Complete Streets policy does. Notably, though, the sidewalk policy incorporates one of the ten ideal elements of a Complete Streets policy which is to set out clear, accountable expectations pertaining to the granting of exceptions to the policy.

The draft Complete Streets Kitchener guidelines (2019) is also not a Complete Streets policy per se, and as noted “by itself does not guarantee the implementation of complete transportation networks.” However, the guidelines were developed in alignment with the ten elements of an ideal Complete Streets policy as identified by the National Complete Streets Coalition:

1. **Vision and intent:** *Complete Streets Kitchener* contains a vision that “Every street in Kitchener is safe, comfortable and convenient for all.” It clearly indicates that every roadway reconstruction is an opportunity to improve the design and functionality of a street for all users and contains three design goals to prioritize to assist in prioritization: 1) design for safety, 2) improve transportation choice, and 3) advance sustainability.
2. **Diverse users:** Prioritizing safety for the most vulnerable road users (pedestrians and cyclists) is at the forefront of *Complete Streets Kitchener*, as is the importance of connected networks with direct routes to major destinations for all modes of transportation.
3. **Commitment in all projects and phases:** The guidelines put an emphasis on roadway reconstruction, whereas maintenance and ongoing projects are not highlighted.
4. **Clear, accountable expectations:** The guidelines provide a comprehensive and detailed implementation and evaluation plan based on guidance from other cities and the National Complete Streets Coalition. A list of 21 action items is included within five sub-categories: 1) Alignment with city strategies, 2) Change management, 3) Community engagement, 4) Street design applications, and 5) Data collection, monitoring and evaluation. However, the guidelines do not include any direction regarding if and when exceptions to Complete Streets may occur, or a process for how to handle those exceptions.
5. **Jurisdiction:** The guidelines address coordination between government departments, specifically 1) collaboration between Transportation and Planning divisions on the Urban Design

Manual, Official Plan amendment, and other planning policies and reviews, 2) the creation of a corporate committee consisting of management from Development Services divisions and external stakeholders to monitor the program, and 3) working with the Region and other municipalities to develop “complete level-of-service” measurements for signal function and prioritization.

6. **Design:** The street design section of the guidelines uses the latest and best design criteria and guidelines for all modes (e.g. Book 18, NACTO, TAC). Instructions are provided for establishing clear timelines for using the scorecard analysis so that upgrades are identified early in the design process.
7. **Land use and context sensitivity:** The guidelines take into consideration the surrounding community’s current and expected land use and transportation needs by way of a recommended update to the Development Manual and the Official Plan and integration with the Master plan, subdivision, site plans, and secondary plans.
8. **Performance measures:** Monitoring and evaluation of the guidelines are proposed to be conducted via an annual Complete Streets report using the scorecard, the collection of new active transportation data using counting technologies, and an update to Council in 2024.
9. **Project selection criteria:** Specific criteria to encourage funding prioritization for Complete Streets implementation is not included. However, the guidelines recommend that a fund be established for active transportation connections that are considered out of scope for many street reconstructions.
10. **Implementation steps:** The guidelines include a detailed implementation and evaluation plan including 21 action items. However, while a report-back to Council is recommended within five years (by 2024), no other timelines are currently provided. Timelines would be a helpful addition to the implementation plan, as would a separate motion from Council directing staff to incorporate the guidelines into any street reconstruction or new build.

3. Review of Complete Streets Guidelines in Similar Cities

This section details TCAT’s review process and outlines the selection criteria for similar cities, the step-by-step selection methodology, and our findings for best practices in key areas of concern including pedestrian crossings, curb radii, and accommodation of fire trucks.

Selection criteria for similar sized cities

Our team proposed the following selection criteria for conducting a peer review of 2-3 Complete Streets guidelines to establish examples of best practice and areas of key concerns. These guidelines could be a standalone document or incorporated into a municipality’s Official Plan or Transportation Master Plan.

The goal was that the selected guidelines will have some or all of the following components:

- Are specifically referred to as “Complete Streets” guidelines (e.g. not more generically “design guidelines”, “urban design guidelines”, etc.)
- Canadian municipality
- Mid-sized municipality of similar size (population under 250,000) and similar climate (e.g. winter) to Kitchener
- Include specific guidance for areas of key concern (e.g. curb radii, PXOs, facilitating emergency services, etc.)
- Direct use of latest and best design criteria
- Demonstrate good track record of implementation (e.g. specific Complete Street case studies)

Our search methodology to identify 2-3 similar sized cities with Complete Streets guidelines was as follows:

1. Consult wikipedia to compile list of Canadian cities and city regions with population between 100 000 - 400 000.¹ 19 cities found.

City	Province	2016 Population
London	Ontario	383,437
Victoria	British Columbia	335,696
Halifax	Nova Scotia	316,701
Oshawa	Ontario	308,875
Windsor	Ontario	287,069
Saskatoon	Saskatchewan	245,181
St. Catharines–Niagara Falls	Ontario	229,246
Regina	Saskatchewan	214,631
St. John's	Newfoundland and Labrador	178,427
Kelowna	British Columbia	151,957
Barrie	Ontario	145,614
Sherbrooke	Quebec	139,565
Guelph	Ontario	132,397
Abbotsford	British Columbia	121,279
Kingston	Ontario	117,660
Kanata	Ontario	117,304
Trois-Rivières	Quebec	114,203
Moncton	New Brunswick	108,620
Chicoutimi–Jonquière	Quebec	104,222

2. Eliminate cities whose the working language is French. 15 results remain.
3. Perform Google search: “Complete Streets (design / policy / guideline)”. Of the 19 cities of similar size to Kitchener in Canada, the search returned three results: **London (2018), Saskatoon (2017), Niagara Region (2017)**
4. Search for implementation examples in each of the selected cities using results from the Complete Streets for Canada database where possible. Examples of implementation can be recently completed, approved, or ongoing projects that reflect guidance from their respective design guidelines.
5. Search for whether specific areas of concern were addressed: pedestrian crossovers (PXOs), fire trucks, and curb radii. Page numbers addressing key areas are referenced and summarized in this report.

Similar Sized Cities Selected

Following the above methodology, the Complete Streets guidelines of three cities and regions are included in our review:

¹ https://en.wikipedia.org/wiki/List_of_the_100_largest_population_centres_in_Canada#By_population_rank
 Accessed 10 August 2019

- [Saskatoon](#)
- [London](#)
- [Niagara Region](#)

In addition, this review also uses supporting sections on pedestrian crossings, fire trucks, curb radii from a larger city that has specific guidance in these areas.

- [Calgary](#)

Implementation Examples

Below are selected examples where Complete Streets have been implemented in our selected similar sized cities.

City	Description	Image
London	Snapshot of intersection along Colborne Street. Pedestrian crossing clearly marked. Flexi-post separate bike lane from traffic and green paint continue through intersection. Also note bike box on Colborne St. Source: Google Street View	
London	New installation of King Street cycle track in London following completion of award-winning Complete Streets guidelines. Source: City of London	
Niagara Region	Niagara Region is constructing a four metre wide asphalt multi-use path along the south side of Sir Isaac Brock Way between Schmon Pkwy. and Hwy. 406 in the City of Thorold and the City of St. Catharines. Source: Niagara Region	

Saskatoon	<p>Intersection of 3rd Ave. N. and 23 St. E. displaying bicycle features. Green paint indicates bike position in intersection and bike box provided for two-stage left turn. Source: Google Street View</p>	
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Best Practice Review

Pedestrian Crossovers

Highlights from Complete Streets Kitchener Guidelines

- Emphasizes the importance of short crossing distances
- Curb extensions to be used with crosswalks where possible
- Raised crosswalks recommended on certain street typologies
- Pedestrian refuge islands recommended at mid-block uncontrolled crossings
- Refers to OTM Book 15 for further guidance on Pedestrian Crossovers (PXOs)

Highlights from guidelines of similar sized cities

- City of London (88) gives option for PXO or pedestrian refuge islands for their Civic Boulevards and Main Streets
- City of London (106) gives example of rapid flashing rectangular beacons
- City of London (30, 112) gives specific guidance for pedestrian and cyclist movements at PXO near roundabouts
- Various design guidelines give direction on which street typologies are suitable for mid-block crossings, and for minimum intersection spacing to warrant a mid-block crossing for each street typology

Recommendations for Kitchener

- PXOs may be more effective using a combination of pedestrian crossing features in conjunction with PXO lighting and signage. Crossing features mentioned elsewhere in the report include: short crossing distances, curb extensions, raised crosswalks, and refuge islands
- The design guidelines should define where PXOs are to be used in terms of street typology and intersection spacing
- Protected bicycle infrastructure with sufficient buffer space can offer a waiting area for pedestrians to negotiate with cyclists and motorists separately

Curb Radii

Highlights from Complete Streets Kitchener Guidelines

- Target curb radii provided for each street typology
- Freight and emergency vehicles considered for arterial streets, with guidance for different radii depending on intersecting street typologies
- Gives guidance for curb radii when describing intersection design and extensively describes the use of design vehicle and control vehicle
- Uses 6.0 m as preferred turning radii for most streets, and only larger as needed

- Describes difference between corner radius and effective radius

Highlights from guidelines of similar sized cities

- City of London (104) recommends against right turn channels
- City of London (45, 50) suggests curb aprons can be used to provide extra space for the turning sweep of larger vehicles
- City of London (46) states, “Determining a design and control vehicle should be based on the street classification, place type, and observed counts of different vehicle classes”
- Niagara Region (70) states, “changes to curb radii should have a neutral impact on the operation of cycling facilities”
- City of Saskatoon (70) states, “the actual curb radius design should be defined after considering the effective curb radius”
- City of Calgary (79) provides lookup table of recommended turning radii in relation to different street typologies
- The Complete Streets guidelines of similar sized cities do not provide ranges, lookup tables, or formulas for curb radii

Recommendations for Kitchener

- Where appropriate, protected cycling infrastructure at intersections reduce the effective turning radius compared to bike lanes. This can be integrated into future bicycle infrastructure designs.
- Truck aprons are mentioned once in the Kitchener document. May be effective to mention throughout document if this point is important.
- Guidance may be needed in relation to right turn channels
- NACTO states, “While standard curb radii are 10–15 feet (3-4.5 metres), many cities use corner radii as small as 2 feet (0.6 metres).”²

Accommodating Fire Trucks

Highlights from Complete Streets Kitchener Guidelines

- Fire truck dimensions given in draft guidelines alongside car, bus, and truck dimensions
- Makes the link between reducing collisions using Complete Streets design and reducing the number and severity of collisions that emergency services have to respond to (48)
- Minimum 6.0 m clear width is needed to accommodate fire trucks on all city streets
- Fire trucks can serve as the control vehicle where using a smaller design vehicle is appropriate

Highlights from guidelines of similar sized cities

- City of London (44) points out that emergency vehicles can use bus-only lanes when needed
- City of London (89) states, “planted centre medians may be appropriate if they do not have an undue negative impact on emergency services' response times or demand for left turns into / from private property”
- City of London (94) states that for neighbourhood connectors, the needs of emergency vehicles should be considered but also balanced against the benefits of managing motor vehicle speeds and volumes in residential areas
- City of Calgary (10) states, “Emergency services, fire trucks to be accommodated on all street classifications”
- City of Saskatoon (70) states, “The effective curb radius may be minimized by choosing the

² <https://nacto.org/publication/urban-street-design-guide/intersection-design-elements/corner-radii/>

smallest design vehicle possible, allowing vehicles to cross-over beyond the nearest receiving lane and permit emergency vehicles to utilize the full area of the intersection for making turns”

- Note: Fire departments in the City of Hamilton and City of Toronto have recognized that smaller fire trucks better meet urban needs and are in the process of adding smaller fire trucks to their fleet.³

Recommendations for Kitchener

- 6.0 m clear zone could be reduced if streets are one-way or if streets are designed with the possibility that fire trucks may cross over to opposing lanes
- Bus-only lanes may benefit emergency response times
- On local streets, a trade-off will need to be made between emergency vehicle speeds and street design, keeping in mind that slower speeds may reduce the number of collisions in the first place.

4. Section-by-Section Review of Kitchener’s draft Complete Streets Guidelines

This section provides a chapter-by-chapter analysis of Kitchener’s draft Complete Street Guidelines using the similar cities as best practice references where applicable. Page references are provided matching the July 15, 2019 draft version of the Kitchener Complete Streets Guidelines document.

Section 1: Vision

Complete Streets Kitchener contains a vision that “Every street in Kitchener is safe, comfortable and convenient for all.” It clearly indicates that every roadway reconstruction is an opportunity to improve the design and functionality of a street for all users and contains three design goals to prioritize to assist in prioritization: 1) design for safety, 2) improve transportation choice, and 3) advance sustainability.

Section 2: Street Classifications

The four-tier classification of streets is consistent with other Complete Streets guidelines in classifying streets according to their “place” and “movement” functions. The woonerf alternative is innovative, and here the 3D graphic is essential to communicating the pedestrian-centric design of the woonerf concept. This section could benefit from:

- A visual introduction to the four street types, with a table or chart clearly stating the “place” and “movement” functions that each typology satisfies. May be an addition to the table “summary of street classifications” (19).
- Map of street classifications in the city, if readily available. See example City of Saskatoon (36)
- The pictures (to be added) should illustrate a variety of land-use environments within each street typology. For example, “major community collectors” may struggle to serve their dual function as connectors while providing access to shopping malls, gas stations, and residential buildings. Pictures can illustrate various sub-environments.
- Consider: illustrating the land uses and travel modes that are targeted for each street type. See example from City of Saskatoon (23)

Section 3: Street Design

Excellent demonstration of a user-centered approach to street design, and the illustrations of the

³ See City of Hamilton press release [here](#) and City of Toronto council minutes [here](#)

“design user” is a key piece that makes this document stand apart from others.

- The “design user” can be referenced to justify the list of pedestrian zone enhancements that are in the document. For example, pedestrian refuge islands can be seen as an extension of the sidewalk, allowing the “design user” to negotiate one direction of traffic at a time, reducing stress. Similar arguments can be made for PXOs, curb extensions, crosswalks, and others.
- Examples would be useful to illustrate how various treatments can be combined. For example, raised crosswalk with PXO or cycle track clear zone combined with sidewalk clear zone.
- Ideally, all bicycle facilities should be designed to be low-stress, high quality routes that are safe and comfortable for people of all ages and abilities, but different bicycle facilities can also be categorized according to the “design user”. For example, cycle tracks may be the least stressful for slower cyclists and cargo bike users, whereas painted bike lanes accommodate faster travel by more confident and vehicular cyclists.
- Transit facilities will benefit by designing in conjunction with pedestrian facilities. For example, PXOs, refuge islands, and curb bump-outs will allow pedestrians to cross the street to catch buses going the other way.
- The draft guidelines (46) states that, “vehicle lanes serve vehicular movement, including through and turn movements”. Note that cyclists are considered a vehicle under the Highway Traffic Act, and as such vehicle lanes, regardless of whether or not there is separate bicycle infrastructure, also serve cyclists.
- Parking on sidewalk level may enhance the streetscape, lending unused parking spaces to pedestrian use as an extension of the sidewalk. Example: [Bernard Ave](#) in Kelowna, BC

Section 4: Emerging Trends

The emerging trends focuses on mobility hubs, micromobility, and curbside management. These trends highlight important issues and pose open questions for cities as technology develops.

- Mobility hubs: Objectives 1 (minimize distance) & 3 (provide amenities) can be considered land-use objectives that will require higher intensity land-use to achieve. Objectives 2 (reduce conflict among travelers) & 4 (provide information) can also be considered as ways to improve travelers’ interaction with Kitchener’s transportation system. “Conflict” in this case can also be framed as “interactions”.
- Micromobility: Bike-sharing systems (including e-bikes) are most effective when paired with rapid transit with longer stop spacing to increase catchment area compared to walking. For a compact city like Kitchener, micromobility options can be used for the entirety of commutes.
- Curbside management is an excellent opportunity to demonstrate that parking is often not the most effective use of curbside space. Cycle tracks offer curbside access without creating additional conflict between cyclists and drivers.

Section 5: Making it Happen

This section contains a five-step scorecard which is a useful tool for the project management team to operationalize the principles within the guidelines and to evaluate the street before and after changes have been made to improve the level of service for pedestrians, cyclists, and transit users. The scorecard can place stronger emphasis on the placemaking function of local streets by making "what makes a street recognizable, unique and enjoyable?" a mandatory scoring component.

This section also provides a comprehensive and detailed implementation and evaluation plan based on guidance from the National Complete Streets Coalition. A list of 21 action items is included within five sub-categories: 1) Alignment with city strategies, 2) Change management, 3) Community engagement, 4) Street design applications, and 5) Data collection, monitoring and evaluation.

However, the guidelines do not include any direction regarding if and when exceptions to Complete Streets may occur, or a process for how to handle those exceptions. Exceptions from similarly sized cities are based on right-of-way constraints, and this guideline can include additional factors such as street characteristics, funding, and community advisement. A report-back to Council is recommended within five years (by 2024), but no other timelines are currently provided.

Section 6: Changing Kitchener – for the better

This section explains how community engagement has been performed for the current design manual, which may be suited to an appendix. We recommend including process-focused guidelines in its place:

- A process guide for how the community should be consulted for specific Complete Streets projects and timelines for this process
- A guide on how the community should be consulted about future updates to the Complete Streets guidelines and timelines for this process
- Defining the objectives of community consultation in relation to Complete Streets design

5. Analyze guidelines to identify potential gaps and areas of strength/weakness

Areas of Strength

- Inclusion of woonerf concept as a design alternative can be leveraged to enhance the character and safety of residential areas with frequent pedestrian activity
- Simplified street typologies give clear direction to how existing and future streetscapes can be enhanced according to the character of the built environment
- Sixty-four references from a diversity of local and international sources to support design recommendations in this guideline
- Includes most elements of the ten elements of an ideal Complete Streets policy, especially focusing on design best practices
- Presents comprehensive design guidance especially when compared to Complete Streets guidelines of similar sized cities
- Innovative user-centered design approach mirrors the structure of well-known guidelines such as the London Streetscape Guidance and CROW Design Manual for Bicycle Traffic
- Extensive and well-documented community engagement process with input from a diversity of users

Areas of weakness

- For clearer communication, more graphics and visual examples can be given to support the following elements: woonerfs and transit facilities
- Ambitious implementation plan includes a long list of specific items and short-term objectives, though lacking timelines on when they will be accomplished
- Report back to council is recommended within five years, and this can be complemented by recommending shorter-term, more specific implementation plans that are reviewed every year to track progress and make adjustments as needed
- A map illustrating the location of current street typologies will highlight opportunities for interventions based on the current layout of the city

6. Recommendations

To promote further development resulting in the implementation of Kitchener's Complete Street Guidelines, we recommend the following steps to be taken:

1. Incorporate Complete Streets policy language into the next Official Plan update within the sections of the plan that pertain most directly to streets and include direct references to this design guideline where appropriate
2. Include Complete Streets policy language within the next Transportation Master Plan update and include direct references to this design guideline where appropriate and to other applicable policy documents (i.e. Official Plan)
3. Use every opportunity when a new plan or policy is being adopted to reinforce the City of Kitchener's commitment to Complete Streets
4. Continue to foster collaboration between planning, design, and transportation staff, using Complete Streets as a tool to improve both the transportation system and the quality of the built environment
5. Incorporate timelines for the 21 action items within the implementation and evaluation plan
6. Consider including guidance within the implementation and evaluation plan regarding if and when exceptions to Complete Streets may occur, and a process for how to handle these exceptions.
7. On a five-year cycle, continue to review Kitchener's Complete Street Guidelines to include best practices from national and international innovations in street design
8. Celebrate the completion of each Complete Streets project by clearly documenting and highlighting the benefits to the community
9. Provide training opportunities for staff and contractors involved in street design and delivery
10. Seek Council support for incorporating the Complete Streets Kitchener guidelines, including the implementation and evaluation plan, into any street reconstruction or new street build. Instilling the Complete Streets Kitchener guidelines into daily practice is an opportunity to improve the design and functionality of Kitchener's street network and to ensure that the needs and safety of all road users are considered.

In conclusion, the City of Kitchener has demonstrated an interest in Complete Streets policy dating back to 2013. In 2019 Kitchener strengthened its commitment to Complete Streets by developing a set of Complete Streets guidelines and an implementation plan for integrating the guidelines into the City's corporate culture and (re)construction projects. "Complete Streets Kitchener: Streets for all" is a well-referenced and in-depth document that highlights how best practices in Complete Streets design can be implemented in Kitchener. Kitchener's guidelines were developed in alignment with the ten elements of an ideal Complete Streets policy as identified by the National Complete Streets Coalition, and use the most recent and best design criteria for making streets safe, comfortable and convenient for all.

Appendix A: The Centre for Active Transportation Team Bios

Nancy Smith Lea, MA

Nancy Smith Lea is the Director of TCAT. She has decades of project management experience and specialized knowledge in applied research and policy analysis specific to Complete Streets, safe and inclusive streets for walking and cycling. Nancy has published several articles and led numerous research projects aimed at improving understanding and conditions for active transportation. In 2011, Nancy was awarded the Toronto Foundation's Vital People grant for "Putting Active Transportation on the map". In 2016 she was featured in Spacing magazine as a "Safer Streets Crusader" and one of 12 extraordinary women city builders. In 2018, she was featured in LocalLove.ca as one of eight top women change makers in Toronto working hard to make the city a better place. Also in 2018, Nancy received a Wheels of Change award presented to TCAT at the Ontario Bike Summit from the Share the Road Cycling Coalition in the category of Community Collaboration for their important role in the success of the 2016-17 Bloor Street Bike Lane Pilot Project. Nancy has led TCAT's Complete Streets work since 2009. She was the conference director for six international Complete Streets Forums, held annually between 2000 and 2005, bringing together Complete Streets experts and practitioners. In 2013, Nancy worked on a team commissioned by Toronto Public Health to identify and assess published evidence for how specific street design choices influence health outcomes. This work influenced the development of Toronto's Complete Street Guidelines. She was on the City of Toronto's Complete Streets Guidelines Stakeholder Advisory Committee (2015-2016). Nancy has led the development of a series of publications about Complete Streets including Complete Street Transformations (2016), Complete Streets Catalogue & Evaluation Tool (2015), and Complete Streets by Design (2012). In 2015, she was commissioned by the Grey Bruce Health Unit to develop a Complete Streets Policy & Implementation Guide for Grey and Bruce Counties. In 2018 she led the development of the Complete Streets Game 2.0, an interactive tool to help community members work together to redesign their streets. She is currently a collaborator on the "Complete Streets in Chilean cities" research project (2018-2022). She is regularly invited to speak at conferences and other public events about TCAT's Complete Streets work and has lectured at the University of Toronto, Ryerson University and York University.

George Liu, MES Pl., Ph.D. Candidate

George is a PhD researcher studying the design of cycle highways in the western European context through the lens of user experience. He is cross-appointed at Eindhoven University of Technology and University of Amsterdam as part of the The Netherlands Organisation for Scientific Research funded Smart Cycling Futures project. Previously, he studied at the University of Toronto in Human Factors Engineering and worked at U of T to analyze cycling patterns in suburban communities and evaluate the effectiveness of cycling programs. George holds a Master in Environmental Studies (Planning) degree from York University and an Honours Bachelor of Arts degree from University of Toronto. He is co-organizer of the annual international Cycling Research Board conference and leads monthly bicycle infrastructure learning tours in the Dutch city of Eindhoven. George offers expertise in:

- User-centered design of bicycle infrastructure
- Shared space traffic environments
- Application of Complete Streets, Vision Zero & Sustainable Safety principles
- Designing for e-bikes and micro electric vehicles
- Bicycle and pedestrian wayfinding