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**REPORT TO:** Community and Infrastructure Services Committee

**DATE OF MEETING:** April 8, 2013

**SUBMITTED BY:** Ken Carmichael, Interim Director of Transportation Services, ext. 7372

**PREPARED BY:** Josh Joseph, Transportation Demand Management Coordinator, ext. 7152

**WARD(S) INVOLVED:** All Wards

**DATE OF REPORT:** March 23, 2013

**REPORT NO.:** INS-13-032

**SUBJECT:** Bicycle Friendly Downtown Initiatives and Cycling Engagement Strategy

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## RECOMMENDATIONS:

**That current and future initiatives identified in the Council-approved Cycling Master Plan be implemented through the BikeKitchener cycling engagement strategy, including the following cycling proposals:**

- **City of Kitchener BikeFest**
- **City of Kitchener Bike Map**
- **City of Kitchener Cyclist Survey**
- **Bicycle Friendly Downtown Initiatives**
- **Bike2Work Challenge 2013**

## OVERVIEW:

Across the globe, cities are transforming their streets and public spaces to make it safer and more convenient to ride a bicycle. Millions of people travel by bicycle and are embracing cycling as a low-cost, healthy, and fun way to get to school, work, or around the city. The City of Kitchener is excited to be part of this global momentum by promoting and encouraging cycling through implementation of the City's Cycling Master Plan.

Kitchener's Cycling Master Plan identifies a number of key objectives to attract new cyclists, strengthen bicycle policies, create a bikeway network on City streets, increase bicycle parking, expand programs to support cycling, increase funding for bicycle facilities, and create a sustainable culture of cycling development. Cycling offers a variety of benefits to individuals, communities, and the environment, including healthier and active lifestyles, reduced traffic congestion and parking demand, and improved air quality.

By accommodating all modes of transportation and emphasizing the importance of sharing the road, the City of Kitchener will improve safety for all road users, including pedestrians, motorists, transit users, and cyclists.

## REPORT:

BikeKitchener provides the City with a platform to promote and foster a sustainable culture of bicycling among Kitchener residents of all ages, backgrounds, and abilities. Whether residents are looking for information on cycling routes, safety tips, promotional events or upcoming projects, BikeKitchener is the City's cycling engagement strategy geared towards providing information, resources, and support to those interested in cycling.

The BikeKitchener cycling engagement strategy will include a variety of strategic communications such as:

- An e-newsletter to provide Kitchener residents with information on current and future cycling programs, policies and initiatives.
- Improved website content with information on rules of the road, safe cycling tips and skills, by-laws relating to cyclists, popular cycling amenities, and more.
- Print and online communications material related to cycling, including route maps, brochures, pamphlets, posters, social media materials and more.
- BikeKitchener display booths hosted at strategic locations throughout the City, enabling cyclists to engage with staff and Cycling Advisory Committee members about their cycling experiences and to learn more about the City's efforts to encourage cycling
- Community outreach events, programs, and festivals, such as Bike2Work challenges, BikeFest, Wellness Fairs, and more.

The BikeKitchener cycling engagement strategy aligns with many policy objectives identified in the City of Kitchener's Cycling Master Plan that promote and support cycling, including:

- *"Develop a marketing program to promote cycling"*
- *"...communicate the benefits of cycling, sharing the road education, and promoting cycling and the cycling network..."*
- *"Provide new programs to deal with gaps in the stages of changing behavior"*
- *"...delivery of cycling education programs and campaigns for youth and adults"*

The following cycling initiatives are planned and will be delivered through the BikeKitchener platform:

### **City of Kitchener BikeFest:**

BikeFest is a City festival to celebrate the bicycle and raise awareness of its potential in positively transforming our health, environment, and community. Scheduled for Sunday, May 26<sup>th</sup>, 2013 between 11:00am and 4:00pm, the event will feature free bicycle tune-ups, a Downtown scavenger hunt, a bicycle polo tournament, food and live music, and a variety of cycling related prizes and giveaways. The City of Kitchener has also established a partnership with the Heart and Stroke Foundation of Canada to host the BigBike team event, a national fundraiser to promote better cardiovascular health through physical activities such as cycling. Approximately 8 teams of 29 participants will ride from Kitchener City Hall to Madison Avenue along King Street. The event will also feature cycling skills training workshops delivered by certified CAN-BIKE instructors in order to educate residents about positive cycling behaviour.

### **City of Kitchener Bike Map:**

As part of an overall strategy to promote and encourage cycling, the City of Kitchener is developing its first bicycle map as a resource for residents to plan cycling trips to work, school, or around the City. The bicycle map will display on and off-road bikeways, signed routes and connections, secure bicycle parking facilities, popular amenities such as the Iron Horse Trail and Walter Bean Trail, and other important information related to cycling. The bicycle map will be free of charge and residents will be encouraged to share feedback on the map as future versions will be published. Printed copies will be made available at City of Kitchener facilities and will also be available for download online from the City's website. The bicycle map is currently under development and will be finalized and distributed in summer of 2013.

### **City of Kitchener Cyclist Survey:**

In partnership with the City of Kitchener Cycling Advisory Committee, a cyclist survey is under development that will serve to address the following:

- Investigating factors that encourage or discourage cycling in Kitchener.
- Understanding cyclist and motorist perceptions and attitudes towards cycling in Kitchener.
- Gaining an improved understanding of the demographics of cyclists and their trip origins and destinations, comfort level on the roadway, and preferred type of cycling infrastructure.
- Assessing public awareness of City of Kitchener cycling programs, policies, and initiatives.

The data from the survey will be used as a baseline to compare in future years, and will be a useful tool in engaging community members and measuring the impact that BikeKitchener is having on promoting and encouraging recreational and commuter cycling among residents. The development of a cyclist survey is consistent with the Cycling Master Plan, Section 6.4.2 Performance Monitoring and Evaluation. The cyclist survey is currently under development and will be finalized and distributed in summer of 2013.

### **Bicycle Friendly Downtown Initiatives:**

A number of initiatives and plans spearheaded by the City of Kitchener and the Region of Waterloo will result in more people living and working in the downtown core and traveling by walking, cycling, and transit:

- **The Kitchener Growth Management Strategy**, which aims to “add a combination of 10,000 new residents and jobs to the Urban Growth Centre from 2008-2031, with a target of 66% of those as residents in order to increase the ratio of residents to jobs to at least 40:60.”
- **The Downtown Kitchener Action Plan**, which highlights that during the next five years, 21,575 KW residents are expected to consider urban living.
- **The City of Kitchener Cycling Master Plan**, which states that “outcomes expected consist of more than doubling the number of trips by bicycle every three to five years.”

As a result of these plans, cycling rates will undoubtedly increase, and therefore, improved cyclist facilities will be required on King Street to accommodate the projected increases in bicycle use. However, the width of the traffic lanes on King Street in the Downtown core cannot safely accommodate a cyclist traveling alongside a vehicle. A cyclist requires a minimum of 1.2 metres, and a vehicle requires a minimum of 3.0 metres. The current lane width of approximately 3.5 metres would not be able to support a vehicle and a cyclist traveling side by side without creating an environment where the cyclist would be riding in the 'door zone' of a parked vehicle.

The Highway Traffic Act states that if a lane is too narrow for cyclists and motorists to travel side-by-side, the cyclist may "take the lane" to discourage the motorist from passing too closely. Since the width of the roadway would not support a standard bicycle lane, the application of on-road sharrows are being proposed to inform road users that cyclists are entitled to take the lane along King Street, between Francis Street and Madison Street. Signage reminding road users that cyclists may take the lane is also proposed to be installed and will further reinforce the importance of sharing the road. A detailed technical design of the sharrows and signage locations are available in Appendix A. If implemented, the City of Kitchener will be the first municipality in Ontario to install super-sharrows and encourage a single-file approach amongst cyclists and motorists in a Downtown urban environment.

The City of Kitchener's Cycling Advisory Committee has identified sharrows on King Street as a top cycling priority for 2013. In addition, the City of Kitchener's Cycling Master Plan, approved by Council in 2010, recommends sharrows on King Street in Downtown Kitchener due to narrow traffic lanes, frequent blocks, wide sidewalks, high pedestrian traffic, and low traffic speeds.

The ideal scenario for sharrows is low speed roadways where there is insufficient width for bicycle lanes. From November 2 – November 9, 2012, volume and speed studies were conducted on King Street at three separate locations. The following data was recorded:

Location	AADT*		Total AADT	85 <sup>th</sup> Percentile**	Average 85 <sup>th</sup>
King Street, between Water Street and College Street	Eastbound	2,690	5453	40.2 km/hr	43.1 km/hr
	Westbound	2,763		45.7 km/hr	
King Street, between Ontario Street and Young Street	Eastbound	3,787	8221	38.0 Km/hr	38.8 km/hr
	Westbound	4,434		39.5 km/hr	
King Street, between Scott Street and Eby Street	Eastbound	3,063	7179	45.5 km/hr	44.2 km/hr
	Westbound	4,116		43.0 km/hr	

\* AADT: Average Annual Daily Traffic (vehicles per day)

\*\* 85<sup>th</sup> Percentile: The speed at which 85% of vehicles are traveling at or below

The 85th percentile speed is 42.0 km/hr, the speed at which 85% of vehicles are travelling at or below. The traffic volume and speed study conducted further supports the recommendations identified in the Cycling Master Plan to support sharrows on King Street due to the Downtown urban environment and lower vehicle speeds.

It should be noted that the Pedestrian Death Review conducted by the Office of the Chief Coroner for Ontario calls for a complete streets approach and reduced speed limits to improve pedestrian safety. The Review references the World Health Organization’s (WHO) World Report on Road Traffic Injury Prevention, and cites a well-established impact of vehicle speed on death, where “the fatality risk at 50km/hr being more than twice as high as the risk at 40 km/hr and more than five times higher than the risk at 30 km/hr.”

### What is a sharrow?

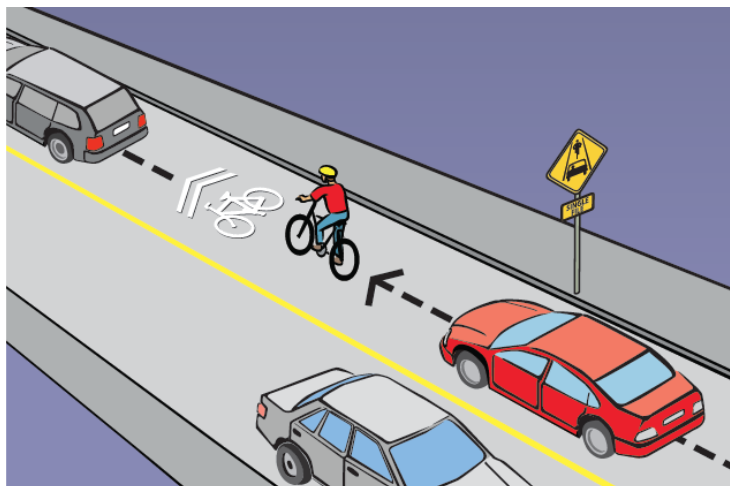
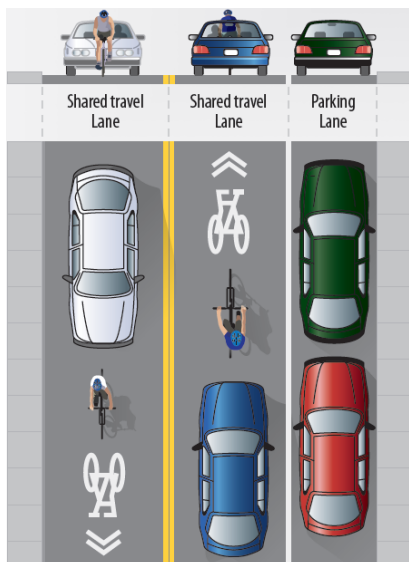


Sharrows are road markings, represented as a bicycle with two chevrons, which remind motorists and cyclists to be courteous and share the road. Super-sharrows expand upon regular sharrows through further treatments such as coloured paint to create a highly visible presence on the street. Sharrows can provide a variety of benefits for pedestrians, motorists, and cyclists, such as:

- Reducing incidences of wrong-way cycling and sidewalk cycling, improving safety for pedestrians and reinforcing positive cycling behaviour.
- Assisting cyclists in positioning themselves with on-street parallel parking in order to reduce the chance of a door-zone conflict.
- Advising cyclists that they may ‘take the lane’ where travel lanes are too narrow for riding alongside a vehicle safely and comfortably within the same lane.
- Creating a safe and predictable environment where motorists are aware of the space that cyclists are likely to occupy in the lane.

### What do sharrows mean for cyclists and motorists?

Sharing the road is an important component in creating a safe, healthy, and vibrant environment in Downtown Kitchener. The sharrows will remind cyclists and motorists to be predictable, respectful, and courteous by obeying traffic rules consistently.



Photos courtesy of the City of Saskatoon.

### **Important information for cyclists:**

- The sharrows in the middle of the traffic lanes indicate that cyclists *may* take the full lane and reminds drivers to share the road with cyclists.
- Although it is recommended for cyclists to take the lane due to the narrow traffic lanes on King Street, cyclists may also ride as close as practicable to the right hand curb. For safety reasons, cyclists should ride one metre from the curb to avoid the “door zone” of parked vehicles.
- Cyclists are considered vehicles under the Highway Traffic Act and are obligated to obey all traffic rules as identified in Ontario’s Guide to Safe Cycling.
- Cyclists should always travel in a straight line. When changing position on the road or switching lanes, cyclists should always shoulder check, signal, and shoulder check again to ensure it is safe and clear.

### **Important information for motorists:**

- The super-sharrows in the middle of the traffic lanes indicate that cyclists *may* take the full lane and reminds drivers to share the road with cyclists.
- Motorists should only pass a cyclist where there is enough room to do safely. A comfortable distance is a minimum of one metre between the motorist and cyclist.
- Motorists should always reduce their speed if passing and watch carefully for cyclists when making lane changes or turns.
- Motorists should always be careful when pulling into or out of parking spots and always look for oncoming cyclists before opening your car door.
- Motorists should always be aware that cyclists are vulnerable to different hazards than drivers (e.g. minor pot holes and debris), and must provide enough space for cyclists to maneuver comfortably.

### **Are sharrows effective at improving safety for road users?**

Study results in San Francisco and Florida have shown that sharrow markings are effective at encouraging cyclists to ride further from parked cars to avoid the “door zone” and the curb. Studies have found that cyclists are more likely to ride in the street (versus on the sidewalk) when sharrows are present and with traffic (as opposed to the wrong way). Surveys have found that cyclists report they feel more comfortable riding on streets with sharrows than streets without sharrows. The City of Toronto has conducted their own evaluations of sharrows, which support these findings.

### **Sharrow Case Studies**

As part of the City of Kitchener’s Cycling Master Plan, a bicycle facilities design toolbox has been developed through an intensive research review of North American and European bikeway design guidelines. The toolbox recommends certain types of cycling infrastructure based on road classification and use. Shared-used lane markings (“sharrows”) were studied and included in this toolbox, and specifically recommends this type of cycling infrastructure for downtown Kitchener. The case studies provided in Appendix B serve to further support the recommendations identified in the Council-approved Cycling Master Plan.

## **King Street Before and After Cycling Study**

The City of Kitchener's Cycling Master Plan emphasizes the importance of establishing a process to monitor progress, evaluate deficiencies and strengths, and report on strategic actions and objectives. Considering the uniqueness of super-sharrows and 'take the lane' approaches in North America, a cycling study will be conducted to assist the City of Kitchener in determining the effects of the sharrows. The cycling study approach and methodology was developed through a collaborative partnership between city staff, the cycling advisory committee, and the Tri-Cities Transport Action Group (TriTAG).

### **Cycling Study Goals:**

The main goal of the cycling study is to answer the following questions:

- 1) Do sharrows increase the number of cyclists on King Street?
- 2) Do sharrows increase the percentage of cyclists who ride according to the rules of the road?
- 3) Do motorists respect the sharrows and share the road courteously with cyclists?

In order to answer these questions, the following data will be collected as part of the cycling study:

- Number of cyclists traveling in each direction
- Number of cyclists demonstrating unsafe cycling behavior (i.e. sidewalk cycling, wrong-way cycling)
- Number of cyclists demonstrating positive cycling behavior (i.e. taking the lane or riding 1m out from the curb)
- Number of pedestrians traveling in each direction
- Number of cars traveling in each direction
- Number of cars attempting to pass cyclists
- Number of cars exhibiting unsafe driving behavior (i.e. not leaving 1m when passing, honking at cyclists, etc.)
- Number of cars exhibiting safe and courteous driving behavior

The study will determine the impact of the sharrows on King Street by monitoring both cyclist and motorist behavior. The success of the sharrows will rely on motorists and cyclists sharing the road courteously and understanding that Downtown Kitchener is intended to be a welcoming place for all transportation users.

There are additional questions that can be asked in this study, such as whether sharrows attract new cyclists by generating new trips. As this is the City of Kitchener's first cycling study of this type, future opportunities will be explored to improve upon methods of monitoring and evaluating the City's cycling objectives.

### **Artistic Bike Racks:**

Approximately twenty (20) artistic bike racks are being proposed at key locations on King Street, between Francis Street and Madison Avenue. The racks will increase the amount of short-term, convenient, and highly visible bicycle parking in Downtown Kitchener, adding capacity for approximately forty (40) parked bicycles. In addition, the artistic bicycle racks also serve as a visual reminder that cyclists are welcome in Kitchener's Downtown. In the future, opportunities to host design competitions encouraging community members and local artists to create designs for bicycle racks will be explored. The artistic bike racks are planned to be installed during the summer of 2013.



**The appearance of the artistic bike racks, which will be painted similar to the City's downtown marketing colours.**

### **Bike2Work Challenge – June 2013:**

The City of Kitchener, with sponsorship from Ziggy's Cycle, hosted a 2012 Bike2Work Challenge in collaboration with Google, Communitel, and Desire2Learn, which aimed to:

- Provide an opportunity for employees to try commuting to work by bicycle.
- Demonstrate that cycling is a viable and sustainable mode of transportation.
- Enable the public and private sectors to lead by example by encouraging their staff to travel more sustainably.
- Set a precedent for future challenges that would eventually include more downtown businesses and members of the community as participants.

The 2012 Bike2Work Challenge resulted in over 2000 total kilometers cycled from home to work by participants who previously had never biked to work. In two months, more than 5,000 website hits were recorded on an online blog in which participants shared their commuting experience.

The success of this challenge has motivated the City of Kitchener and Ziggy's Cycle to partner again to host a 2013 Bike2Work Challenge, building upon the previous year by providing more bicycles (approximately 16 in total) and allowing any adult who lives or works in Kitchener to participate. The challenge will be promoted in April and May and will be hosted in June 2013.



## **ALIGNMENT WITH CITY OF KITCHENER STRATEGIC PLAN:**

The cycling initiatives outlined in this report align with many elements of the City of Kitchener's Strategic Plan, including:

- **Leadership and Engagement:** The City of Kitchener is taking an active leadership role by investing in cycling and engaging the public to better understand how to encourage people to ride bicycles to work, school, and other activities.
- **Quality of Life:** Promoting and encouraging cycling will lead to an improvement in quality of life through reduced traffic congestion, improved air quality, and providing residents with more opportunities for physical activity.
- **Environment:** Cycling is a sustainable mode of transportation that emits zero greenhouse gas emissions. By supporting cycling, the City of Kitchener is taking an active role in becoming more environmentally friendly.
- **Diversity:** The City of Kitchener is committed to providing residents with equitable access to the social, economic, and cultural fabric of civic life. Cycling as a mode of transportation provides current and future residents of Kitchener with an affordable and accessible means of transportation.
- **Development:** The Strategic Plan specifically mentions supporting transportation alternatives and developing communities that are safe and connected. Cycling is a sustainable transportation alternative that complements and supports people-friendly development.
- **Dynamic Downtown:** The City of Kitchener's vision for a vital and lively Downtown will rely on more residents traveling by foot, bicycle, or public transportation.

## **COMMUNITY ENGAGEMENT:**

Kitchener's Cycling Master Plan was strongly guided by public input through consultation with the Cycling Advisory Committee, stakeholders, and members of the public at various cycling tours, stakeholder workshops, and consultation events. In addition, the following departments, committees, and stakeholders were consulted regarding the bicycle friendly Downtown initiatives and the cycling engagement strategy.

- Transportation Services, City of Kitchener
- Economic Development, City of Kitchener
- Community Services, City of Kitchener
- Cycling Advisory Committee, City of Kitchener <sup>1</sup>
- Kitchener Youth Advisory Committee, City of Kitchener
- Downtown Kitchener Business Improvement Area Board of Directors <sup>2</sup>
- Downtown Action and Advisory Committee, City of Kitchener <sup>3</sup>
- Waterloo Regional Police Service <sup>4</sup>
- Tri-Cities Transport Action Group (TriTAG) <sup>5</sup>
- Bike2Work 2012 Challenge Participants <sup>6</sup>
- Mobycon, an independent research and consulting company in the Netherlands with 25 years of experience in traffic, transport and mobility <sup>7</sup>

<sup>1</sup> At the November 13<sup>th</sup> 2012 meeting of the Kitchener Cycling Advisory Committee, sharrows on King Street were identified as one of the top cycling priorities for 2013.

<sup>2</sup> At the Tuesday, March 19<sup>th</sup> 2013 meeting of the Kitchener Business Improvement Area Board of Directors, a motion was passed to support the bicycle friendly Downtown priorities and the cycling engagement strategy.

<sup>3</sup> At the Thursday, March 28<sup>th</sup> 2013 meeting of the Downtown Action and Advisory Committee, a motion was passed to support the bicycle friendly Downtown priorities and the cycling engagement strategy.

<sup>4</sup> The City of Kitchener has established a partnership with Waterloo Regional Police Service (WRPS) to educate the public about the King Street sharrows and the importance of sharing the road through the distribution of educational materials, posting online content, and having a presence at Kitchener's BikeFest event.

<sup>5</sup> The Tri-Cities Transport Action Group (Tri-TAG) consists of a group of citizens who raise awareness of issues, challenges, and opportunities related to transit, active transportation and urban infrastructure in Waterloo Region. Tri-TAG was a key partner in developing the King Street Before and After Cycling Study.

<sup>6</sup> Bike2Work Challenge participants from 2012 have prepared a letter of support for improved cycling infrastructure in Kitchener, and explicitly support the installation of sharrows in Downtown Kitchener. This letter of support is provided in Appendix C.

<sup>7</sup> On November 19 - 20, 2012, consultants from the Netherlands and Denmark visited the City of Kitchener to host a KickStand Session, a two day workshop focused on creating locally relevant solutions and actionable steps for building bicycle cultures and increasing sustainable urban mobility. These European countries have some of the world's highest cycling rates with decades of experience planning for pedestrians, cyclists, and transit users. By staying in Downtown Kitchener, the consultants were able to witness Kitchener's culture, built form, and cycling environment in order to form a professional opinion on King Street sharrows. A letter of support from Mobycon is provided in Appendix D.

#### **FINANCIAL IMPLICATIONS:**

Funding for the proposed cycling initiatives will be allocated from the Cycling Master Plan capital budget.

- The costs associated with the King Street sharrows, signage, and installation are approximately \$20,000
- The costs associated with the artistic bike racks are approximately \$10,000
- The costs associated with the bicycle map are approximately \$5,000
- The costs associated with the 2013 Bike2Work Challenge are approximately \$2,000
- The costs associated with the BikeFest event are approximately \$5,000
- The costs associated with the cyclist survey and BikeKitchener branding are approximately \$5,000

#### **CONCLUSION:**

The City of Kitchener has a unique opportunity to emerge as a strong leader in the global cycling movement by being the first municipality in Ontario to install super-sharrows and encourage a single-file approach amongst cyclists and motorists in a Downtown urban environment. Furthermore, the additional initiatives contained in this report serve to further promote and encourage cycling. As the City of Kitchener strives to improve quality of life, celebrate diversity, and develop sustainably, cycling will play a key role in positively transforming our community and creating a safer environment for all road users.

<b>ACKNOWLEDGED BY:</b>	Pauline Houston, Deputy CAO Infrastructure Services Department
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**Appendix A: Technical Design for King Street Sharrows and Signage**



Sharrow  
Pavement  
Marking



'Single File'  
Signage



Francis Street to Water Street



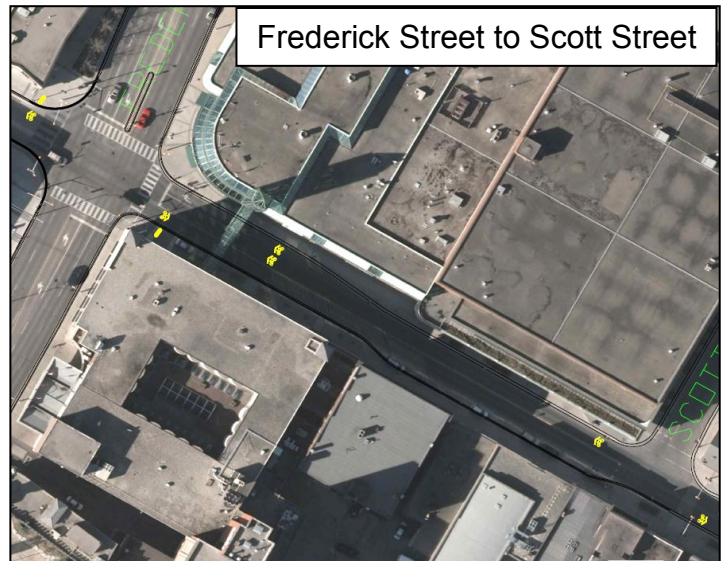
Water Street to Gaukel Street



Gaukel Street to Ontario Street



Ontario Street to Frederick Street



Frederick Street to Scott Street

## Appendix A (continued): Technical Design for King Street Sharrows and Signage



Design standards for the sharrows and signage were referenced from the City of Kitchener Cycling Master Plan and the Bikeway Traffic Control Guidelines for Canada (2012 edition) and include the following technical elements:

- Sharrow pavement markings are spaced *approximately* every 75 metres, including immediately after an intersection and approximately 10 metres before the end of a block
- Signage is spaced approximately every 300 metres

## Appendix B: Sharrow Case Studies

Sharrows and a ‘take the lane’ approach are currently being explored in North America. A few cities in the United States have implemented sharrows and studies have been published regarding their effectiveness at decreasing sidewalk cycling and wrong-way cycling. The study examines cities of various sizes, however, the results provide insight on the overall effectiveness of sharrows.

**San Francisco, California:** Data was recorded in several locations with a variety of on-street characteristics. All locations are high-volume cyclist routes with on-street parking and relatively narrow shared lanes. In all cases sharrows were placed with the centre line 3.35m from the curb, or about 1.22m from the parked cars. The primary goal of this study was to determine whether the sharrows better communicated the desired message to road-users: share the road safely.

**Miami Beach, Florida:** Data was recorded in Miami Beach, FL, along Washington Avenue, a main arterial corridor for both cyclists and motorists, carrying 18,000 vehicles per day northbound and 9,000 per day southbound. It is a four-lane, divided roadway with parallel parking on both sides. It is a main transit corridor and regular taxi use is common. It is also common for cyclists to ride between travel lanes and parked cars as well as between cars in travel lanes.

**Chapel Hill, North Carolina:** Data was collected in Chapel Hill, NC, along Martin Luther King Jr (MLK) Boulevard, a four-lane undivided roadway with a two-way left-turn centre lane. It is major corridor to the University of North Carolina with an annual average daily traffic (AADT) of 27,000 vehicles per day and is served by several bus routes. Vehicle speeds are 56.3 km/h and the roadway does not include on-street parking. The sharrows were installed approximately 1.1m from the curb and approximately 60m apart.

Sidewalk Cycling			
Location	Before	After	% Reduced
San Francisco, CA	6.5%	4.2%	35.4%
Miami Beach, FL	55.3%	45.0%	18.6%
Chapel Hill, NC	43.0%	23.0%	46.5%

Wrong Way Cycling			
Location	Before	After	% Reduced
San Francisco, CA	3.0%	0.6%	80.0%
Miami Beach, FL	3.0%	2.3%	23.3%
Chapel Hill, NC	10.8%	8.3%	22.5%

**Appendix B (continued): Sharrow Case Studies**

<b>Door Left Open with Oncoming Bicycle</b>			
<b>Location</b>	<b>Before</b>	<b>After</b>	<b>% Reduced</b>
<b>Seattle, WA</b>	1.3%	0.0%	100.0%
<b>Cambridge, MA</b>	4.6%	2.2%	51.1%
<b>Miami Beach, FL</b>	6.6%	3.3%	50.2%

<b>Cyclist Nearly Hit by Door</b>			
<b>Location</b>	<b>Before</b>	<b>After</b>	<b>% Reduced</b>
<b>Seattle, WA</b>	1.3%	0.0%	100.0%
<b>Cambridge, MA</b>	3.7%	0.3%	92.5%
<b>Miami Beach, FL</b>	0.8%	0.3%	59.1%

<b>Vehicle Obstructing Cyclist by Pulling In or Out of Parking Space</b>			
<b>Location</b>	<b>Before</b>	<b>After</b>	<b>% Reduced</b>
<b>Seattle, WA</b>	2.0%	0.7%	66.0%
<b>Cambridge, MA</b>	11.1%	4.5%	59.9%
<b>Miami Beach, FL</b>	8.1%	4.0%	51.0%

**References**

The studies were primarily collected through a Transportation Demand Management online list-serv, hosted by the Center for Urban Transportation Research at the University of South Florida. The online list-serv is an open forum where hundreds of transportation professionals from across North America ask questions and provide solutions.

Hunter, William W., Libby Thomas, Raghavan Srinivasan, and Carol A. Martell. *Evaluation of Shared Lane Markings*. Tech. no. FHWA-HRT-10-041. Office of Safety Research and Development, Dec. 2010. Web. 13 Feb. 2013.

Hunter, William W., Raghavan Srinivasan, and Carol A. Martell. *Evaluation of Shared Lane Markings in Miami Beach, Florida*. Tech. no. BMD10 977-01. Florida Department of Transportation, Apr. 2012. Web. 13 Feb. 2013.

Birk, Mia, Arif Khan, Ian Moore, and Daniel Lerch. *San Francisco's Shared Lane Pavement Markings: Improving Bicycle Safety*. Tech. San Francisco: San Francisco County Transportation Authority, Feb. 2004. Web. 13 Feb. 2013.

## Appendix C: Letter of Support from a Bike2Work Challenge 2012 Participant



**12 bikes.  
12 riders.  
12 cars left at home.**

**March 27, 2013**

To City of Kitchener Council,

During June 2012, myself and eleven other lucky participants were fortunate enough to take part in the Bike2Work Challenge, a tandem initiative presented by the City of Kitchener and Ziggy's Cycle. Each participant was provided a bike and all of the safety equipment necessary to get through the challenge. For one month, we would commute to work with our new bikes for a minimum of three days a week. I don't think that any one of us began this journey with a clear understanding of how much it would change us, but it did...for the better.

Each of us successfully completed the challenge, it was a huge achievement, and we were eager to continue riding to work. As much as we enjoyed the journey, there were some striking realizations that were never top-of-mind as a motorist, but imperative issues to take into account as a cyclist. To our surprise, many of us ran into the same issues. The roads were not safe for cyclists. In my personal experience, twice narrow stretches without bike lanes resulted in motor vehicles forcing me so close to the sidewalk that my pedal became lodged on the curb. I was very lucky not to have been seriously injured and instead just shaken from the experience.

We shared stories among us of motorists simply not watching for cyclists, motorists forcing cyclists onto the sidewalks and overall motorists just not seeming to feel any obligation to share the road. Although I can only speak for myself, I think we all understood why motorists behaved this way. In the end each of us were also motorists and without this challenge we may never have considered cyclists from this new outlook. Our cycling journeys from home to work allowed us to gain a better understanding of the roadway experience from the cyclist's perspective.

I have written this letter and told you these stories because I believe there is an opportunity for our City to be safer for cyclists, pedestrians and motorists. As a participant in the 2012 Bike2Work Challenge, I would strongly encourage you to approve the proposal set forth to install sharrows in Downtown Kitchener, between Francis Street and Madison Avenue. This proposal is paramount to a safer, healthier and environmentally conscious Kitchener and I hope to see this vision realized in the near future.

Kind Regards,

Laura McQuinn  
Bike2Work Challenge 2012 Participant

## **Appendix D: Letter of Support from Mobycon, a Dutch consulting firm**



**Date:** 29 March 2013

**Subject:** Support for Sharrows in Downtown Kitchener

**Dear Kitchener City Council,**

Mobycon is an independent research and consulting company with more than 25 years of experience in traffic, transport and mobility. Our 30 consultants work on sustainable mobility solutions, combining their knowledge and skills to manage people and processes. The multi-disciplinary team consists of traffic planners and engineers, urban and rural planners, economists and human geographers. As a team we cover a broad range of topics, from cycling plans and designs, to travel demand management activities and programs, parking solutions for cities and transit in urban and rural areas.

One of the projects that we are bringing to Canada is the Kickstand sessions ([www.kickstandsessions.com](http://www.kickstandsessions.com)). The aim of this 'Masterclass' is to bring together groups with world class expertise in the areas of bicycle planning, policy, and culture. We create locally relevant solutions and actionable steps for building bicycle cultures and increasing sustainable urban mobility. In 2012, we delivered a Kickstand Masterclass in Waterloo Region (November 19-20) at the School of Pharmacy in Downtown Kitchener. Other cities in Canada that have hosted a Kickstand session include Ottawa, Winnipeg, Halifax and Victoria.

Staying in the heart of Downtown Kitchener for a few days allowed us to gain perspective and insight on the current conditions for cyclists and pedestrians and how this could be improved. It also gave us a feel for the city. The older buildings and factories help you to remember the history and development of the city. When renovated, they can bring a charming and rooted atmosphere to the urban core. At the same time, the city inspires and energizes its citizens with innovative buildings and plans, like the upcoming plans for Light Rail Transit in Waterloo Region.

Our impression of King Street in Downtown Kitchener was that it is a street with relatively low speeds for cars, although there is not a low speed limit. There are wide sidewalks and enough room for vehicles to park. On route, there are frequent blocks and intersections. There are a lot of plans for new developments in the core, which means that more (young) people will live, work and play in Downtown Kitchener. At present, the number of cyclists on King Street seems to be low. We can imagine that people who are not yet experienced in 'urban cycling' are not confident enough to cycle here. Although the speeds of cars is already low, car drivers do not expect cyclists to be on the road. There is nothing to remind drivers that they should share the space with cyclists and be aware of their presence. That is why we think that this proposal for sharrows on King Street is a huge step in the right direction for a Canadian city. The sharrows will 'tell' everybody in Downtown Kitchener that it is allowed and possible to ride your bike on King Street when you want to commute, go to college, go out, or go shopping.



Looking at King Street, the main street in Downtown Kitchener, we see a street that you would want to facilitate as much as possible to have good opportunities for shopping, a stroll, a relaxing bike ride, drinking a coffee, or meeting up with friends. A place to be, instead of a place to run through. In the longer term, we imagine King Street a shared street that is the domain for pedestrians and cyclists. Cars and trucks are not forbidden, but they are guests. When there is a purpose to be on King Street for a car, for example to deliver goods or to drop off elderly people who want to go shopping, the vehicle is welcome to use the street. Through traffic would utilize the roads parallel to King Street. This paves the way for a lively Downtown where people would want to sit on a terrace and enjoy spending their time and resources. This is especially important for new generations and this will help positively shape the future of Kitchener and Waterloo Region.

We also see an important role for the future Light Rail Transit to already start connecting with the latent opportunities for cyclists in Kitchener. Bicycles and transit make a very smart team. In the Netherlands, 40% of all trips to stations are done by bicycle, and another 30% of the trips from the station to the destination are done by bicycle. Together, they can cover longer distances without putting more pressure on roads and also avoiding high investments in car parking. An important step to take would be to work on defining a primary and secondary network for cyclists. By doing this, it is possible to think about different types of designs for streets with different functions. High speed roads can be built and maintained as such, streets with mixed use and high volumes may need separated bike lanes, while other mixed use streets can do with lowering the speed and sharing the road. This way, it is possible to have safe and comfortable facilities for pedestrians, cyclists and car drivers without having to provide facilities for everybody, everywhere. This is a very cost efficient approach that the Dutch have practised with success for many years. It is the country with the highest mode share for bicycles (27% of all trips are done on the bicycle) and still one of the leading countries in road safety (4 deaths per 100,000 inhabitants, compared to 6.5 deaths per 100,000 inhabitants in Canada).

Canada and the United States are two of the fastest-moving and forward-thinking countries when it comes to innovation and development. Countries that many people look to for inspiration. When it comes to cycling infrastructure and culture, it is The Netherlands and Denmark that people look at. These are small countries and we would love to see North America become the next big place to embrace cycling as an accepted and widely used mode of transport. Through our experiences in the Kickstand sessions, we know that this can be achieved. We feel that Kitchener could move to the forefront of cities that develop initiatives that make cycling attractive and possible as a normal mode of transport for everybody. We see this proposal for sharrows on King Street as an important step in the process to revitalize Downtown Kitchener and improving conditions for pedestrians and cyclists.

Sincerely,

A handwritten signature in black ink, appearing to read 'Angela van der Kloof', is written over a light blue rectangular stamp. The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Angela van der Kloof, MSc

*The organization, company policy and working methods are in accordance with the Quality Management Systems – Requirements (ISO 9001:2008).*

PO Box 2873 2601 CW Delft t 0031 15 2147899 info@mobycon.com www.mobycon.com  
Statutory registration 27195561 ABN-AMRO nr. 51.90.86.538