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Bicycle Safety

La sécurité à vélo

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There's nothing like a bike ride through city streets to start a discussion about cyclist safety: to notice the complexity of interactions between cyclists and drivers and realize that the design of our cities often totally disregards the specifics of bicycle traffic. The rules of the road still too often favour cars over all other modes of transportation. Statistics show that cyclist safety is indeed improving, which is especially impressive when we consider the increase in the number of cyclists and the cumulative distances travelled. But this is no reason to let down our guard and claim that everything is wonderful. Since 2014, Quebec's *Highway Safety Code* has been under review and a bill eagerly awaited by the cycling community should be tabled in the National Assembly sometime this year. This is the cornerstone for cycling safety. Any consideration of this issue should make three things very clear: cyclists must be better protected, bicycle travel must be made more efficient, and cycling's share of the transportation mix must increase.

Better protection for cyclists

Development and upgrading of cycling infrastructure are essential conditions for improving cyclists' comfort and safety. They are also key factors in persuading less experienced cyclists to travel by bike every day. More must be done to ensure safe cycling throughout the road system.

More efficient travel by bicycle

Whether we like it or not, the traditional design of our streets gives cars the upper hand. To strike a better balance, bicycle traffic must be made more efficient through street layouts, right of way over motor vehicles, and a highway safety code better adapted to current use. Travel must be made safe and accessible for everyone, regardless of a cyclist's experience or age. Many jurisdictions where bicycle use resembles that in Quebec have introduced measures in recent years to increase the efficiency and potential of cycling. Beyond the typical cycling infrastructure (bicycle paths or lanes) and precisely with the aim of giving cyclists right of way, some municipalities have introduced bike boxes and have adjusted and synchronized traffic lights to favour cyclists.

This head start is a bold concept deemed "unfair" by many traffic specialists, but we must challenge the underlying concepts of public thoroughfares and some of the rules established in the last century, essentially to manage automotive traffic. Denmark and the Netherlands already did this a few decades ago, while Belgium and France have recently followed suit by passing a new traffic code that specifically gives pedestrians and cyclists the right of way and raises driver awareness about their safety.

Increasing cycling's share of the transportation mix

Experience in recent years has taught that when cycling is made safe, we promote increased use of this mode of transportation. To be consistent with government and municipal policies favouring sustainable mobility, land use, better energy use and promotion of healthy lifestyles, new cycling safety measures are needed to encourage more people to switch to bikes. The potential is substantial. In Montreal, Quebec City

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and Gatineau, one third of all workers live less than five kilometres from their workplace. In cities such as Trois-Rivières and Sherbrooke, this proportion rises to half. Cycling 5 km in a city takes 20 to 25 minutes. Given that 54% of Quebecers already cycle and 37% use their bicycle for transportation, there is every indication that cycling has a promising future, provided of course that everyone agrees on the conditions that truly promote greater comfort and safety.



Suzanne Lareau
Vélo Québec

Éditorial : Le point sur la sécurité à vélo

Il n'y a rien de tel qu'une balade à vélo dans les rues de nos villes pour amorcer une discussion sur la sécurité des cyclistes. Rien de tel pour comprendre la complexité des interactions entre cyclistes et automobilistes et constater que le design de nos villes n'a souvent rien à voir avec les particularités de la circulation à vélo. Pour constater aussi que les règles de la circulation favorisent encore trop souvent l'automobile plus que tout autre mode. Si on regarde les statistiques, oui le bilan routier des cyclistes s'améliore et cela est particulièrement impressionnant lorsque l'on considère l'augmentation du nombre de cyclistes et du kilométrage effectué. Mais cela n'est pas une raison pour baisser la garde et claironner que tout va bien. Depuis 2014, une révision du Code de la sécurité routière est en cours au Québec. Un projet de loi, très attendu de la communauté cycliste, devrait être déposé au cours de l'année à l'Assemblée nationale. Il s'agit d'une pièce maîtresse lorsque l'on parle de sécurité à vélo. En fait, toute réflexion dans ce sens devrait nous amener à trois évidences. Il faut mieux protéger les cyclistes, rendre les déplacements à vélo plus efficaces et augmenter sa part modale.

Mieux protéger les cyclistes

Le développement et l'amélioration des infrastructures cyclables sont des conditions essentielles pour améliorer le confort et la sécurité des cyclistes. Elles sont aussi déterminantes pour amener des personnes moins expérimentées à se déplacer à



En fait, toute réflexion dans ce sens devrait nous amener à trois évidences. Il faut mieux protéger les cyclistes, rendre les déplacements à vélo plus efficaces et augmenter sa part modale.

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Qu'on le veuille ou non, avec le design traditionnel de nos rues, l'auto a une longueur d'avance sur le vélo.

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vélo quotidiennement. Il importe de faire plus pour que les cyclistes soient en sécurité sur l'ensemble du réseau routier.

Rendre les déplacements à vélo plus efficaces

Qu'on le veuille ou non, avec le design traditionnel de nos rues, l'auto a une longueur d'avance sur le vélo. Pour rétablir une forme d'équité, il faut alors rendre la circulation à vélo plus efficace : par des aménagements, par des mesures favorisant sa priorité à l'égard des véhicules moteurs et par un Code de la sécurité routière mieux adapté à son utilisation actuelle. Il faut sécuriser et rendre possible les déplacements pour tous, peu importe le degré d'expérience et l'âge des cyclistes. Dans plusieurs administrations où l'usage du vélo se compare à ce que l'on peut observer au Québec, on a constaté au cours des dernières années l'instauration de mesures afin d'augmenter l'efficacité et le potentiel du vélo. Au-delà de l'aménagement cyclable typique (piste ou bande cyclables) et justement dans cet esprit d'accorder une forme de priorité au vélo, certaines municipalités ont introduit le sas vélo et procédé au réglage et à la synchronisation des feux de circulation en faveur des cyclistes.

Il faut oser donner cette longueur d'avance, une notion jugée *injuste* par bien des spécialistes de la route. Il faut oser remettre en question les façons de concevoir les voies publiques et certaines règles établies au milieu du siècle dernier pour gérer la circulation automobile, essentiellement. C'est ce qu'ont fait les Pays-Bas et le Danemark il y a quelques décennies. C'est ce qu'ont fait plus récemment la Belgique et la France, en adoptant la démarche *Code de la rue*. La particularité de celui-ci est qu'il octroie un plus haut niveau de priorité aux piétons et aux cyclistes et sensibilise les automobilistes à la sécurité de ces derniers.

Augmenter les parts modales du vélo

L'expérience des dernières années nous prouve qu'en sécurisant la pratique du vélo, on agit en faveur de l'augmentation de la part modale de celui-ci. Pour être conséquent avec les orientations gouvernementales et municipales qui militent en faveur de la mobilité durable, de l'aménagement du territoire, d'un meilleur usage de l'énergie et de la promotion des saines habitudes de vie, il faut que les nouvelles mesures qui sécurisent la pratique incitent de nouvelles personnes à se déplacer à vélo. Et le potentiel est considérable. À Montréal, Québec et Gatineau, le tiers des travailleurs résident à moins de 5 km de leur lieu de travail. Dans des villes comme Trois-Rivières et Sherbrooke, 50 % résident à moins de 5 km de leur lieu de travail. Parcourir 5 km à vélo en ville prend de 20 à 25 minutes. Considérant que déjà 54 % de la population québécoise fait du vélo et que 37 % l'utilise à des fins de transport, il n'est pas illusoire de penser que le vélo est promis à un bel avenir, à condition bien sûr que tous s'entendent sur les conditions qui favorisent réellement un plus grand confort et une sécurité accrue.

Suzanne Lareau
Vélo Québec

Great Bike Routes to Increase Cycling and Reduce Injuries

Résumé : Faire du vélo en Europe du Nord est plus fréquent et plus sûr que dans l'Amérique du Nord, mais serait-ce une question de culture ou d'infrastructure ? Nous donnons ici un aperçu de la recherche canadienne qui identifie différents types de routes à vélo pour les améliorer afin d'augmenter l'usage du vélo et la sécurité des cyclistes.

Public policy for bicycling is a tale of two solitudes. In northern European countries like Denmark and the Netherlands, extensive bike facilities (especially “cycle tracks” also known as separated bike lanes) are provided along busy streets serving destinations such as offices, shops and schools. In Canada, bike routes are rare and where they are available, typically use only paint to denote shared space or bike lanes. Here, cycling is a sub-culture dominated by young men, helmet use is common, and about 1% of trips are made by bike. In the northern European countries, helmet use is rare, and men and women of all ages cycle, with 10 to 40% of trips by bike. Cycling is safer in the high cycling countries of Europe with death rates one-half to one-fifth of those in North America [1].

Some people say that these are just differences in transportation culture. We conducted a series of studies in Canada to see if the successes seen in the northern European countries could apply here. We asked the opinions of current and potential cyclists about what kinds of routes they would like to cycle on [2]. We also studied injured cyclists who were treated at emergency departments to determine which route types increased or decreased injury risks [3].

What we found is great news for road safety professionals:

- Canadians prefer the kinds of routes provided in northern European countries: physically separated bike lanes or cycle tracks alongside busy streets, bike routes on quiet residential streets, and off-street bike paths [2]. These routes are preferred by people who cycle both regularly and rarely, men and women, young and old, people with children and those without. This means that we don't need to build special route types for each type of cyclist.
- The routes that Canadians want to cycle on are also safer, so routes that increase cycling also reduce injury risk [3]. Safety concerns are the main deterrent to cycling, and cycling is safer when more people ride [4], so providing safe routes is a great way to create a positive feedback loop.

We found that three bike route types are best for increasing both cycling and safety (Figure 1). A network of these routes will increase cycling to destinations in busy city centres, to neighbourhood shops and schools, and through parks and scenic areas. Providing these high quality bike routes is the northern European approach.

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Safety concerns are the main deterrent to cycling, and cycling is safer when more people ride, so providing safe routes is a great way to create a positive feedback loop

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The good news is that Canadian cities are starting along this path. Examples include Montreal's growing system of separated bike lanes – already the longest in North America, Calgary's new network of downtown cycle tracks, Vancouver's residential street bikeway network, and off-street bike paths along rivers and abandoned rail lines leading from suburbs to downtown in Ottawa and Victoria. Everywhere these are built, we see more and safer cycling – a great result for the health of Canadian cities and their citizens.

Figure 1. Three best bike route types to increase cycling and safety



Busy streets

Physically separated bike lanes or cycle tracks alongside the street (photo: City of Calgary)



Quiet streets

Residential streets quieted with traffic diversion and speed limits ≤ 30 km/h (photo: author, Vancouver)



Off-street

Paved paths for bikes only, obstacle-free with clear sightlines, and with lighting for night-time cycling (photo: BICE Study, Vancouver)



Kay Teschke
The University of British Columbia

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Bikemaps.org: Citizen science to improve cycling safety

Résumé : Le site web BikeMaps.org, créé en 2014 par l'équipe du laboratoire « Spatial Pattern Analysis and Research » de l'Université Victoria, permet aux cyclistes d'indiquer sur une carte et de façon anonyme les endroits où ils ont été victimes d'un accident ou d'un accident évité de justesse. Ce site permet d'obtenir plus d'information sur les collisions impliquant les cyclistes, puisque la grande majorité de ces collisions ne sont pas signalées à la police ou aux compagnies d'assurance.

People who ride their bikes regularly know where the trouble spots are. These are locations where they had a near miss or even a collision. With the creation of BikeMaps.org in 2014, the Spatial Pattern Analysis and Research (SPAR) Laboratory at the University of Victoria (UVic) has been tapping into this avenue of citizen science to better understand cycling safety.

The idea for BikeMaps.org came to SPAR Lab head researcher and avid cyclist Dr. Trisalyn Nelson upon learning that there were huge gaps in data on cycling incidents. Previous research by Dr. Kay Teschke estimated that only 30 to 40% of all cycling collisions were reported through insurance or police reports. BikeMaps.org uses volunteered geographic information to fill in the missing data.

Cyclists add a 'pin' to BikeMaps.org to mark a location where they have had a collision, fall, or near miss. Reporting only takes a minute or two and is anonymous.

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People who ride their bikes regularly know where the trouble spots are. Cyclists add a pin to BikeMaps.org to mark a location where they have had a collision, fall, or near miss.



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Incidents have been reported all over the world, although the majority are in Victoria and Metro Vancouver where the project has been actively promoted. Data collected includes details about the incident as well as demographic data. Reports can be made on the website, BikeMaps.org, or through mobile apps for android or iOS devices.

Reporting a hazard or a theft to inform other cyclists is also possible on BikeMaps.org. Users of BikeMaps.org can create a profile on the website and define a riding area in order to receive alerts when something is pinned in their area of interest. Municipalities are encouraged to take advantage of this service in order to be alerted of hazards in their jurisdiction. In addition, BikeMaps.org has a visualization page where real-time trends in data can be viewed by geographic area.

The BikeMaps.org project is the result of hard work by an enthusiastic team committed to improving cycling conditions. The website was developed by UVic Geomatics student Taylor Denouden and MSc student Darren Boss created the mobile apps. Other students are involved with geographic analysis of data or developing new technologies. In addition to the SPAR Lab, the BikeMaps.org team includes cycling safety expert Dr. Meghan Winters and her team at Simon Fraser University, as well as Robyn Robertson and Dr. Ward Vanlaar from the Traffic Injury Research Foundation (TIRF).

UVic Geography MSc student Ben Jestico has been using BikeMaps.org data to study cycling safety in the Capital Regional District (CRD) in British Columbia. Ben uses spatial analysis methods such as Kernel Density Estimation (KDE) to identify groupings of incidents in order to create heat maps. Ben's research has focused on incident hot spots along the multi-use paths in the CRD, which had never been examined despite being heavily used by cyclists.



*MSc Student Ben Jestico demonstrating BikeMaps.org at UVic Bike to Campus Day in October 2014.
Photo Credit:
T. Nelson*

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The data collected on BikeMaps.org can also be used to construct crash models, commonly used in research on cycling safety and injury risk. Regression-based models allow researchers to understand what factors contribute to certain hot spot locations. With enough data we can predict which locations have a higher risk for incidents based on infrastructure characteristics, cycling volumes, vehicle volumes, and environmental variables. The citizen data collected on BikeMaps.org can supplement existing crash records resulting in a powerful tool for better understanding cycling safety. Addressing where and understanding why problem areas exist can improve cycling conditions and ultimately lead to increased ridership.

Through funding provided by the Public Health Agency of Canada (PHAC), BikeMaps.org will be introduced in several other cities, including Ottawa and Edmonton.

Karen Laberee
BikeMaps.org

Cycling Death Review:

A review of all accidental cycling deaths in Ontario from January 1st, 2006 to December 31st, 2010

Résumé : Le Bureau du coroner en chef de l'Ontario vient de publier un rapport synthèse sur les décès de cyclistes survenus à la suite d'une collision dans la province de l'Ontario au cours de la période 2006-2010. Les collisions analysées sont accidentelles mais l'équipe de recherche souligne que toutes ces collisions auraient pu être évitées. Des mesures d'intervention sont suggérées afin de prévenir de telles tragédies dans l'avenir.

In June, 2012, the Office of the Chief Coroner for Ontario released the report of an expert panel that reviewed fatalities resulting from collisions involving cyclists in the Province of Ontario over a five-year period. The cases included in the review were those where the collision itself had played a role in causing the death of a cyclist; incidents where death had occurred purely due to natural causes (e.g., heart attack) while an individual person was riding a bicycle were excluded. All such deaths were classified as being accidental; however, the review team held that all of the incidents were also preventable. Consequently, in accordance with the primary mandate of the Coroner's Office, the review team analyzed the resulting data and suggested a range of countermeasures that might prevent such deaths in the future.

A total of 129 cyclist deaths were examined in the detailed review process.

The vast majority of the fatalities occurred during clear weather, on dry roads, with good visibility; more than half (53%) of the collisions occurred in daylight conditions.

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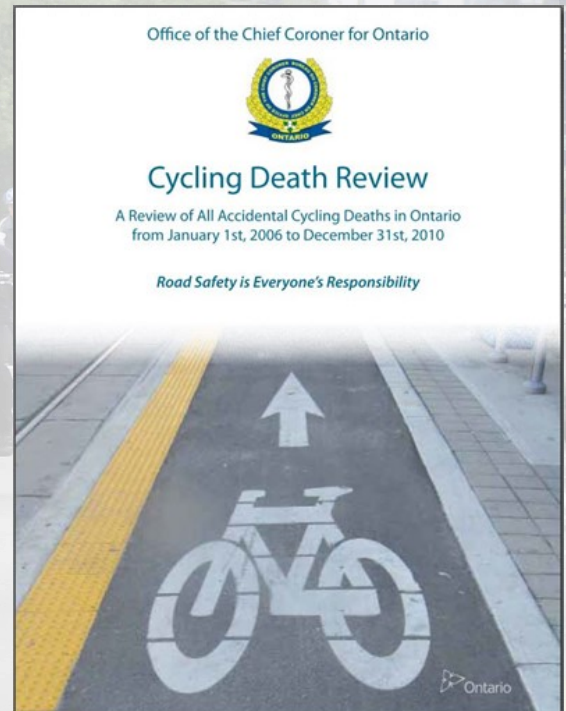
Males accounted for 86% of the cyclists killed, with the peak age for cycling deaths being 45-54 years. Children represented a smaller, but significant, portion of cycling deaths. A total of 19 deaths (15%) occurred in those aged 19 and under; 8 of those (6%) being in children aged 14 or under.

Only 27% (35 of 129) of those who died as the result of a cycling collision were wearing a helmet. Furthermore, despite mandatory legislation, only 6.25% of cyclists under the age of 18 who died were wearing a helmet.

Collision causation was attributed to contributing factors on the part of the cyclist alone in 44 cases (34%); on the part of the driver of a vehicle alone in 33 cases (26%); and on the part of both the cyclist and the driver in 48 cases (37%). In a few cases, the circumstances of the collision were unclear.

Following the review, the expert panel's recommendations included:

- Adoption of a "complete streets" approach – focused on the safety of all road users - to guide the redevelopment of existing communities and the design of new communities throughout Ontario.
- Development of an Ontario Cycling Plan to guide the development of policy, legislation and regulations and the commitment of infrastructure funding to support cycling in Ontario.
- A comprehensive cycling safety public awareness and education strategy, starting in public schools, and continuing through the purchase of every new and used bicycle and through driver's license testing.
- Legislative change (Highway Traffic Act (HTA); Municipal Act; relevant Municipal By-Laws) aimed at ensuring clarity and consistency regarding interactions between cyclists and other road users.
- Strategies to promote and support helmet use for cyclists of all ages.
- Implementation of mandatory helmet legislation for cyclists of all ages, within the context of an evaluation of the impact of this legislation on cycling activity.



Read the full report at
<http://tinyurl.com/ckxjsn8>

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- Establishment of a “one-meter” rule for vehicles when passing cyclists.
- Prioritizing the development of paved shoulders on provincial highways.
- Mandatory side-guards for heavy trucks.
- Enforcement, education and public safety activities targeted to the specific issues of cycling safety identified in a given community.



Office of the Chief Coroner for Ontario
“We Speak for the Dead to Protect the Living”

Bicycles, Education, and Equity: When infrastructure isn't enough

Résumé : Les femmes immigrantes et réfugiées ont souvent un accès limité à un moyen de transport et pourrait bénéficier fortement d'une plus grande mobilité. Il leur manque souvent des compétences fondamentales pour utiliser un vélo, en raison de contraintes culturelles. Des programmes aux Pays-Bas et au Canada enseignent aux femmes à faire du vélo. Ces programmes montrent des résultats positifs, favorisant l'autonomisation de ces femmes en améliorant leur mobilité.

When talking about growing cycling modal share and increasing road user safety, the accepted mantra has been ‘build it and they will come’. This speaks to a latent demand for new mobility options and a segment of the population that is ready to engage when presented with safe, connected options. While this is largely true, it ignores an important consideration of who is engaging, and perhaps more importantly, who isn't.

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...as of 2009 there were 18 organizations in Amsterdam providing cycle lessons to women. With over 1500 women participating, and a waiting list at many of these programs, demand for such instruction is significant..

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Many non-western, immigrant, and particularly refugee women can greatly benefit by the increased mobility and resultant accessibility to more services that cycling provides. However, often due to cultural circumstances, many lack the skills and confidence to ride a bicycle; a prerequisite often taken for granted. This lack of access to one of the most basic forms of transportation epitomizes the transport poverty many of these women face.

This issue is perhaps most easily observed in Amsterdam, Netherlands, where quality bicycle infrastructure is ubiquitous and first and second-generation non-native inhabitants form 48% of the population. Here we find that non-western immigrant women complete 19.9% of their trips by bicycle, versus native Dutch women at 29.8%. This discrepancy in uptake, given the presence of world-class infrastructure, illuminates the issue that safe street design isn't sufficient for all users to access the mobility options available.

In an attempt to close this gap in bicycle use, as of 2009 there were 18 organizations in Amsterdam providing cycle lessons to women. With over 1500 women participating, and a waiting list at many of these programs, demand for such instruction is significant. The recent mini-documentary film, *Mama Agatha* [2], presents an insightful look into one of these programs, and some of the motivations behind how increasing mobility through the bicycle can also be a tool for fostering civic engagement.



The benefits and impacts of such programs have not been lost on the Canadian context. Programs such as The WRENCH (Winnipeg, MB) and Bike Host (Toronto, ON) are just two examples finding great success employing similar tactics in their respective cities. Bike Host has found between 200-300% increase in cycling amongst participants in their programs, with many participants returning in consequent years to mentor newcomers. While taking a slightly different approach, The WRENCH focuses on teaching the skills necessary to build, repair and maintain

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bicycles. Though learning to ride is evidently critical to success, owning a functioning bicycle is reported amongst the top barriers to cycling amongst this demographic.

While it is evident that there may not be a silver bullet solution to increasing mobility options, programs targeted at migrant women have shown great success not only in accomplishing mobility and traffic safety goals, but also in empowering these women and improving access. For professionals in the Road Safety field the actions of the most vulnerable road users can be a litmus test for the quality of the infrastructure. Catering to our most vulnerable road users starts with the awareness that the act of cycling is not always as simple as one individual may personally experience.

Angela van der Kloof Mobycon

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Bicycle Facility Planning

Résumé : Alors que le nombre d'aménagements pour les cyclistes a considérablement augmenté au cours de la dernière décennie au Canada, il y a eu des cas où ils ne sont pas bien reçus et l'autorité routière a pris la décision de les éliminer. Une attention particulière est donc nécessaire pour chaque type d'aménagement (soit partagé, exclusif ou séparé), même que pour les vitesses moyennes et le volume de la circulation sur la rue.

While the number of facilities dedicated to cycling has increased exponentially over the past decade in Canada, there have been instances where they have not been well received, and the road authority has made a decision to remove them. For example, in Edmonton, the City Council recently voted to remove bike lanes on a number of Edmonton roads at a cost of over \$1 million due to a cited lack of use by cyclists among other reasons.

Where bicycle facilities have had greater success, further thought and planning typically went into the type of facility being considered (i.e., whether the facility was to be shared, designated or separated). These three broad types of cycling facilities are:

- Shared roadways (shared lane markings, wide curb lanes, etc.)
- Designated cycling operating spaces (paved shoulders, exclusive bicycle lanes, etc.)
- Separated bicycle facilities (active transportation pathway in boulevard, buffered paved shoulders, etc.) or along a lower volume parallel alternate roadway

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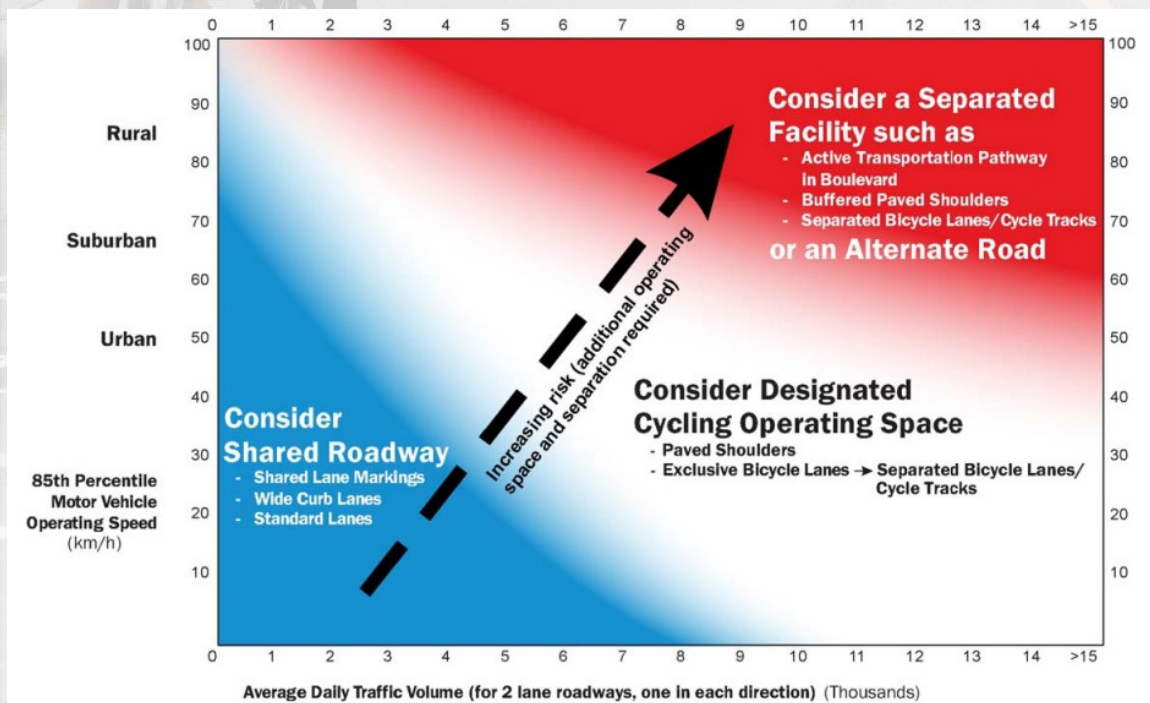


Where bicycle facilities have had greater success, further thought and planning typically went into the type of facility being considered.

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A primary input in selecting the appropriate bicycle facility should be the operating speed of the roadway and the volume of traffic. As the speed and volume of traffic increases, the amount of separation between motorists and cyclists should increase. In many instances, bicycle lanes have been installed at a location but are not being used due to cyclists feeling unsafe. Busy high speed arterials are not a desirable location for on-street facilities, and separated facilities should be deployed instead.

Guidance has been provided to traffic engineers in Ontario on the selection of appropriate facilities. In the *Ontario Traffic Manual, Book 18: Bicycle Facilities*, a nomograph is provided that may be used as an initial screening tool for determining the broad category of bicycle facilities that should be considered (see figure below). When initially screening a location for bicycle facilities, the primary information required for the nomograph is the operating speed of the roadway (85th percentile motor vehicle operating speed) and the average daily traffic (ADT) of the roadway. It should be noted that the nomograph does not explicitly define the boundaries between the three categories since there are no absolute thresholds at which one particular facility is preferred over another.



Source: Ontario Traffic Manual, Book 18: Bicycle Facilities – Figure 3.3

Other considerations may include:

- The vehicle mix on the roadway (i.e., amount of truck traffic)
- The collision history on the roadway (amount of collisions involving cyclists)
- Available right-of-way and lane width
- Anticipated use in terms of bicycle rider skill and trip purpose

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- Anticipated amount of cyclist use
- Cost
- Function of route within bicycle facility network
- Opportunity to work within context of overall road improvement project
- On-street parking facilities
- Number of intersections and number of access points

For further information, please refer to the Ontario guidelines on cycling facilities. This resource is a valuable tool for planning bicycle facilities and is available online for free at the following location: <http://tinyurl.com/js8699e>

Jeff Suggett
Associated Engineering Inc.

Tour du Silence : rouler pour sensibiliser!

Abstract: First organized in 2003, Ride of Silence is a yearly international event to commemorate cyclists killed while riding on public roads. It also reaffirms the importance of mutual respect between road users. Year after year, Ride of Silence events are held in an increasing number of countries and communities. Each year, silent bicycle rides adapted to all ages and levels of fitness are held simultaneously around the world on the third Wednesday of May, in the safety of a police escort. You may well find a Ride of Silence event near your location.

Le Tour du Silence est un événement planétaire annuel visant à commémorer les décès cyclistes et à réitérer l'importance du respect mutuel entre usagers de la route. Né d'une initiative qui a vu le jour au Texas, en 2003, le Tour du Silence ou *Ride of Silence*, de son appellation originale, a depuis franchi bien des frontières et fait des petits partout sur la planète. Chaque année, cela représente près de 400 tours organisés mondialement, sur 4 continents, et ce, au même moment. Cette randonnée silencieuse a lieu tous les ans, le troisième mercredi du mois de mai, simultanément à l'échelle mondiale.

Depuis 2010, la Fédération québécoise des sports cyclistes (FQSC) s'est jointe au mouvement du *Ride of Silence* et a pris sous sa gouverne, grâce à l'appui constant et renouvelé de la Société de l'assurance automobile du Québec (SAAQ), les différentes initiatives régionales en les réunissant sous la bannière québécoise du Tour du Silence.

La fonte de la neige et la hausse du mercure qui accompagnent l'avènement du printemps annoncent également l'arrivée massive des cyclistes sur les routes. Or,

(Continued on page 16)



Le Tour du Silence est un événement planétaire annuel visant à commémorer les décès cyclistes et à réitérer l'importance du respect mutuel entre usagers de la route.

(Continued from page 15)

après une absence de quelques mois, leur retour ne se fait pas toujours sans heurt. Un rappel des principes d'une saine cohabitation entre les différents usagers de la route est donc toujours de mise. Et d'année en année, le Tour du Silence s'impose comme un outil de sensibilisation efficace.

L'implication de porte-paroles crédibles qui acceptent de prêter leur voix à la cause constitue évidemment un atout. Aux Pierre Lavoie, Louis Garneau et autres ambassadeurs de choix des éditions antérieures, succède le journaliste et chef d'antenne à TVA Pierre Bruneau, qui est également un cycliste aguerri et l'instigateur du Tour CICB Charles-Bruneau.

La randonnée s'effectue sur un parcours de 20 kilomètres au plus, le tout à une vitesse moyenne de 18 km/h, de manière à être accessible à tous. Tous les cyclistes réunis roulent en silence, escortés par des policiers. Des arrêts symboliques sont parfois effectués afin d'honorer la mémoire de défunts cyclistes. Des hommages sont aussi livrés par la famille et les proches des victimes, rappelant la pertinence d'une telle activité de sensibilisation. L'accès est gratuit et le port du casque est obligatoire.

Pour l'édition 2016 du Tour du Silence, la septième chapeautée par la FQSC, une vingtaine d'initiatives régionales se tiendront simultanément sur le territoire québécois le mercredi 18 mai, à compter de 18 h 30.

Au traditionnel Tour du Silence s'ajoutera un volet scolaire, lequel sera présenté pour une troisième année et sous différentes déclinaisons. Ainsi, des écoles tiendront un mini-Tour et organiseront des activités afin de sensibiliser les jeunes à l'enjeu du partage de la route (visite de policiers, jeux d'habiletés, atelier éducatif sur le maniement du vélo et les règles de sécurité, etc.).

Tous les détails se trouvent au tourdusilencequebec.com. Pour ne rien manquer de ce *happening* mondial, aimez notre page Facebook **Tour du Silence provincial, Qc** et suivez les nouvelles à partir du compte Twitter **@FQSC** grâce aux mots-clics **#TourDuSilence** et **#RideOfSilence**.

Laure Hennebique La Fédération québécoise des sports cyclistes





*This study involved an unprecedented in-depth analysis of nearly 3,000 collisions involving bicycle users and motor vehicles...the analysis examined **where** reported cycling collisions and injuries crashes took place, **how** they occurred, **when** they took place, and **who** was involved.*

How Vancouver is Making Cycling Safer for People of All Ages and Abilities:

The Cycling Safety Study and Action Plan

Résumé : Afin d'améliorer le bilan routier et pour mieux comprendre la dynamique de certains sites accidentogènes, la Ville de Vancouver a étudié en profondeur 3 000 collisions impliquant des cyclistes et des véhicules routiers entre 2007 et 2012, ainsi que les données d'urgence hospitalière de 2008 et 2009. Douze problématiques de sécurité ont été documentées et les constats ont servi à élaborer un plan d'action et des mesures concrètes pour accroître la sécurité des cyclistes à Vancouver.

The City of Vancouver is one of the most bicycle-friendly cities in North America. It has an extensive bicycle network, as well as one of the highest cycling mode shares among major North American cities with 4.4% of all work trips (2011 Canadian National Household Survey). The City has committed to making cycling safe, convenient and comfortable for people of all ages and abilities and the City's Transportation Plan, Transportation 2040, sets a target to work towards zero traffic-related fatalities. To help reduce traffic fatalities, the City conducted the Cycling Safety Study to gain a better understanding of cycling safety hotspots and provide critical information on key safety and design concerns within the bikeway network. This information was then used to develop an evidence-based action plan to improve cycling safety in the city.

This study involved an unprecedented in-depth analysis of nearly 3,000 collisions involving bicycle users and motor vehicles reported to the Insurance Corporation of British Columbia in Vancouver between 2007 and 2012. In addition, the study analyzed injury data from bicycling crashes that resulted in treatment at a hospital emergency room in Vancouver in 2008 and 2009. This data was from the Bicyclists' Injuries and Cycling Environment (study conducted through the University of British Columbia Cycling in Cities program). Based on these datasets, the analysis examined **where** reported cycling collisions and injuries crashes took place, **how** they occurred, **when** they took place, and **who** was involved.

Top Collision Types	
Intersections – 50.5%	Mid-Block Collisions – 40.4%
Right turning vehicles – 12.6%	Doorings – 15.2%
Left turning vehicles – 14.9%	Driveways, alleyways, and parking lots – 10.7%
Traffic circles – 5%	Travelling the same direction – 5.7%
Sidewalk riding – 3.4%	Sidewalk riding – 2.7%

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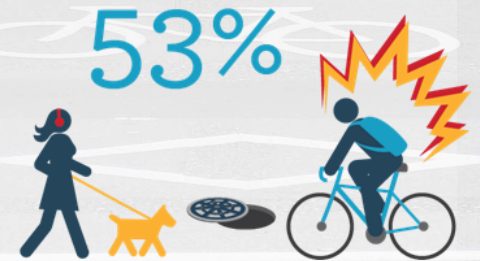
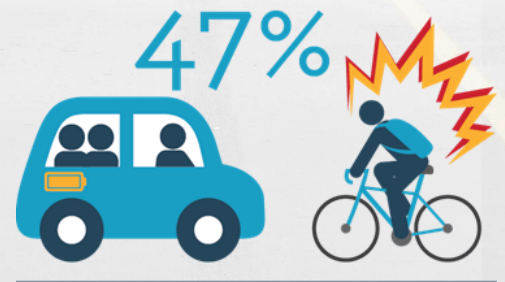
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The data analysis included a detailed review of each individual collision record, and required the assembly, documentation, and integration of a wide variety of datasets, including infrastructure, weather, lighting, and spatial data in addition to collision and injury data. This data integration allowed for an innovative approach to classifying each individual cycling collision to determine trends and to help identify situations that resulted in cycling collisions. Twelve specific cycling safety issues in Vancouver were identified:

1. Doorings
2. Conflict Zones
3. Right Hooks
4. Left Crosses
5. Sidewalk Cycling
6. Two-way Stop Signs
7. Non Motor Vehicle Collisions
8. Collision Hotspots
9. High Collision Locations
10. Designated Bikeways
11. PM Peak
12. Adverse Weather and Low Light

Some other findings from the study include:

- Half of all bicycle collisions leading to hospital visits did not involve vehicles;
- Only 50% of collisions between bicycles and vehicles happen at intersections, less than previously thought;
- More than half of collisions happen on arterial streets;
- Where it was possible to determine, right-of-way was held by the cyclist in 93% of cases;
- Vehicle left and right turns contributed to more than one quarter of all collisions; and
- Car doors opening into bicycles are the leading cause of bicycle vehicle collisions.



Based on the findings of the study, the City is now actively moving forward with implementing the tool kit of actions that was developed for the study contributing to improving safety for cyclists as well as all road users.

Sarah Freigang
Urban Systems



#Biketoria: Building a safe and comfortable cycling network for all

Résumé : La ville de Victoria a fixé l'objectif ambitieux de devenir d'ici 2018 « un leader à l'échelle nationale en ce qui concerne l'infrastructure cycliste et la planification de rues complètes, avec un réseau cyclable complet comprenant des gens de tout âge et de toutes les capacités, en reliant tous les quartiers et les centres des villages ». Les principes utilisés pour concevoir le réseau s'appuient sur la nécessité de rendre le nouveau réseau cyclable plus confortable, complet et convenable. Le réseau comprendra des pistes cyclables protégées sur les routes principales, des voies cyclables sur des rues plus calmes et des sentiers à vélo hors rue.

The City of Victoria, with its mild weather, gentle topography and compact land use, already has a reputation as a city for cycling. It continuously boasts the highest bike to work mode share in Canada and many people ride the off-road paths and waterfront streets for recreation. Still, when the City began asking why more people did not cycle, the most common answer was concerns about safety. Many people did not feel comfortable riding with traffic, riding with their children to school, or undertaking their daily activities by bike.

Though cycling has been discussed extensively during many of the city planning processes, most recently the City Council's Strategic Plan set the ambitious goal that by 2018 Victoria will be "a national leader for cycling infrastructure and complete streets planning, with a completed all-ages and abilities cycling network connecting all neighbourhoods and village centres."

With this goal, the City has hired a team of internationally renowned bicycle planners, engineers and city builders to bring the project one giant step closer to reality. This team, led by Brian Patterson of Urban Systems, includes Andreas Rohl, Gehl Architects (and former Bicycle Program Manager for the City of Copenhagen) and Gil Penalosa, founder of 8 80 Cities and tireless advocate for safe streets for all.

The project, branded #Biketoria, has involved extensive analysis and public consultation to design a network of All Ages and Abilities cycling facilities. The guiding principles used to design the network and facilities are:

- #Comfortable – Facilities that are comfortable for people of All Ages and Abilities;
- #Complete – A connected minimum grid network; and,
- #Convenient – A network that connects people to the destinations they want to go to.



the City Council's Strategic Plan set the ambitious goal that by 2018 Victoria will be "a national leader for cycling infrastructure and complete streets planning, with a completed all-ages and abilities cycling network connecting all neighbourhoods and village centres."

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Included in this network are three types of All Ages and Abilities cycling facilities. These are:

- Protected bicycle lanes on major roads;
- Neighbourhood bikeways on quiet streets (less than 1,000 cars a day and less than 30 km/h speed); and
- Off-street cycling pathways.



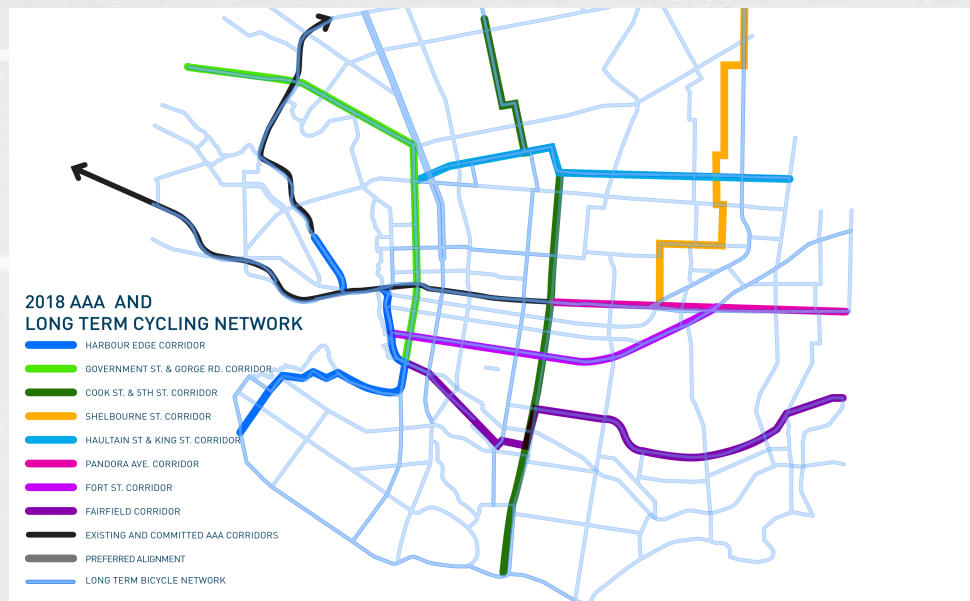
Not only are these facilities welcoming to people of All Ages and Abilities, they are also the safest cycling facilities and attract the most people to cycling. The introduction of these facilities, particularly protected bicycle lanes, will increase the comfort and safety of all road users by ensuring each mode has its own physical space and there is a greater clarity of what behavior is expected on the road.

The complete and connected network of All Ages and Abilities cycling facilities will help the City of Victoria reach its strategic goals and transportation mode share goals. In addition, by encouraging more people to cycle, this network will contribute to other city aspirations, including greenhouse gas emission reductions, local economic development, and increased community health and equity.

What is next? The #Biketoria Final Report, including the proposed network, facilities and implementation plan, will be presented to City of Victoria Council in Spring 2016 for consideration and direction on building a minimum grid of All Ages and Abilities cycling facilities by 2018.

Kate Berniaz
Urban Systems

URBAN
systems



Right-Hook Collisions at Urban Intersections



One of the most common bicycle-vehicle crash types at intersections is the right-hook crash, a collision that occurs between right-turning vehicles and through-moving cyclists

Résumé : La sécurité des cyclistes est un problème en Amérique du Nord. Alors que les décès liés aux véhicules ont baissé dans la dernière décennie, le pourcentage de décès liés aux collisions entre cyclistes et véhicules a augmenté de 16% depuis 2010. L'un des types d'accidents entre bicyclettes et voitures les plus courants aux intersections est le crochet droit, une collision qui se produit entre les voitures qui tournent à droite et les cyclistes qui traversent la même intersection. Différents types de traitements d'ingénierie peuvent être appliqués pour diminuer le risque des crochets droit aux intersections. Ces traitements peuvent être répartis dans les catégories de conception géométrique, marquage de chaussée et signalisation.

Bicyclist safety is an issue across North America. While overall vehicle-related fatalities have gone down in the past decade, the percentage of fatalities associated with bicyclist-vehicle collisions has increased by 16% since 2010 [1]. According to the National Highway Traffic Safety Administration (NHTSA), "Crashes often occur at intersections because these are the locations where two or more roads cross each other and activities such as turning left, crossing over, and turning right have the potential for conflicts resulting in crashes," [2]. In addition, the NHTSA also states that bike collisions at intersections represent a third of all reported collisions involving cyclists [3]. One of the most common bicycle-vehicle collision types at intersections is the right-hook (34% of all parallel-path collisions), a collision that occurs between right-turning vehicles and through-moving cyclists [4]. The Institute of Transportation Engineers (ITE) reports that in approximately 70 percent of bicyclist-vehicle collisions at intersections, the motorist stated that "they did not see the bicyclist before the collision" [5]. This occurrence appears to be a main factor contributing to right-hook collisions.

There are many different types of engineering treatments that can be applied to reduce the number of right-hook collisions at signalized intersections with bicycle lanes and/or shared right-turn and through lanes. These treatments can be divided into the following categories:

Geometric Design

Protected Intersection Treatment

These treatments are relatively novel in North America, but have been implemented in a number of urban settings over the last few years. Some of these treatments include: curb extensions, separate signal phasing and bike boxes.



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Pavement Marking

Intersection Approach

Dashed lane markings at the approach of an intersection can be used to help raise awareness for both cyclists and drivers of the interaction zone. By allowing vehicles to begin their turning maneuver before the intersection, they are able to better evaluate possible bicycle-vehicle interactions.

Signage

A number of signs have been developed to help reduce right-hook collisions. The intention of the signage is to inform both the motorist and the cyclist of the impending merging movement. Signage is also considered a cost-effective right-hook treatment. Sign comprehension by users has been raised as a key issue. A number of studies have been developed to help evaluate sign comprehension and develop more effective guidance systems for all road users [6,7].

Right-hook collisions are a serious conflict that affects bicyclists along various roadway facilities. Targeted implementations of the available treatments at priority locations, along with the development of new countermeasures with higher crash reduction potentials, will help stakeholders provide safer bicycle networks which will lead to higher cyclist volumes, and more efficient and inclusive road networks.

Paul Anderson-Trocme Fireseeds North Infrastructure

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Bicycle Traffic Monitoring

Résumé : Il existe maintenant différents types de technologies capables de compter les cyclistes 24/7 et de fournir aux professionnels une image plus complète de l'activité cycliste sur leur territoire. De nombreuses villes recueillent maintenant de façon continue des données sur le volume de cyclistes et ont été en mesure d'utiliser ces données pour démontrer les nombreux avantages sur la santé et la sécurité que peuvent engendrer une augmentation de l'utilisation du vélo sur une communauté.

Until recently, the term "traffic counting" has typically referred to counting motor vehicles only, not bicyclists or pedestrians. However, thanks to new demand and technological developments, this term now includes all modes of traffic. There are a number of technologies capable of counting bicyclists on a 24/7 basis, such as inductive loops, pneumatic tubes, video imaging, and passive or active infrared sensors. Advancements in these technologies have allowed for count differentiation between motor vehicles, bicyclists, and pedestrians to be done by one device, so that counting can occur on shared facilities.

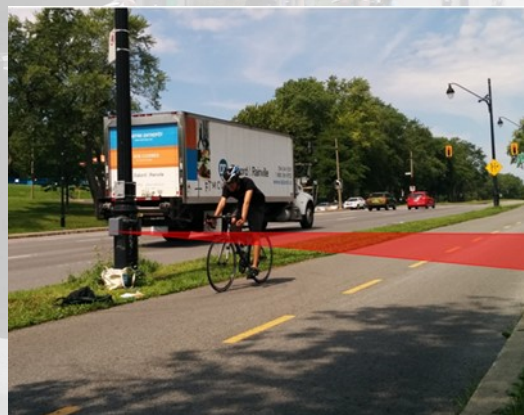


Figure 1: Infrared sensor being used to count bicyclists



Figure 2: Inductive loops being installed on a multi-use pathway to count bicyclists

Many Canadian cities have initiated standardized bicyclist counting programs similar to those carried out for motor vehicles. Cities such as Vancouver, Calgary, and Ottawa have dedicated resources to start their data collection programs. Information obtained from these programs can help practitioners improve road safety for all users. Bicyclist counts show where, when, and how many users have travelled through a given location, which can be used to prioritize areas of the network that require attention. Counting bicyclists can help with budget allocation, justifying new infrastructure spending, and assessing the safety impacts of infrastructure improvements. Bicyclist volumes can strengthen road safety analyses by providing a

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Counting bicyclists can help with budget allocation, justifying new infrastructure spending, and assessing the safety impacts of infrastructure improvements.

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critical measure of exposure for collision rate calculations. This type of information is important for many communities, especially those where there is pushback from citizens who claim that improving roadways for motorists trumps the needs of bicyclists.

Research from Canada and Europe using bicyclist counts has shown that increasing funding to bicyclist infrastructure increases the level of bicyclist activity in a community, which in turn decreases the per capita risk of fatal and injury bicyclist collisions. For example, bicyclist counts from Quebec, which is the province that spent the most on bicyclist infrastructure in the 1990s, showed that the number of bicyclists increased by 50%, while bicyclist fatalities and injuries decreased by 42% and 56%, respectively [1, 2].

In Vancouver, practitioners used bicyclist counts to evaluate the effectiveness of the “Burrard Bridge Lane Trial”, a project which involved changing one of the motor vehicle lanes on the Burrard Bridge into a dedicated bicyclist-only lane. Prior to the project, the bridge consisted of six lanes for motor vehicles and two sidewalks that were both shared between pedestrians and bicyclists. This lane trial provided separated facilities for pedestrians, bicyclists, and motor vehicles in an effort to improve safety and comfort for all users. Before-and-after bicyclist counts showed that the trial project increased bicyclist trips over the bridge by 24%, for a total of over one million bicyclist trips over the bridge in 12 months. As a result, this project became permanent infrastructure in the City of Vancouver.

Whether it is to justify the need for new facilities or evaluate the effectiveness of infrastructure improvements, bicyclist counts can better inform decision-making, which can result in an increase in bicyclist mode share and overall safety.

Adam Budowski
Eco Counter

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Working for Road Safety 26th CARSP Conference Halifax, NS, June 5-8, 2016

The theme for this conference is *Working for Road Safety* to emphasize that motor vehicle crashes are a significant cause of traumatic workplace injury and death in Canada, and these injuries and deaths impact families and workplaces both emotionally and financially. Keynote address by Mark Ordeman of WorkSafeBC. Panel sessions on Work-related Road Safety, Cannabis and Road Safety, and Distracted Driving.

Learn more at:

<http://www.carsp.ca/carsp-conference/carsp-conference-2016/>

Held at the Westin Nova Scotian, which overlooks Halifax Harbour. Early Bird deadline is May 5th! Book now at <http://www.carsp.ca/carsp-conference/carsp-conference-2016/carsp-conference-2016-hotel-booking/>

Brenda Suggett
CARSP

La sécurité routière au travail 26e Conférence ACPSER Halifax, NS, 5-8 Juin, 2016

Le thème de cette année est « La sécurité routière au travail », pour mettre en évidence les accidents routiers sur le lieu de travail et leur impact significatif sur les individus, les familles et le milieu du travail. Les accidents routiers sont la principale cause de blessures et de décès au Canada. Conférencier d'honneur : Mark Ordeman de WorkSafeBC. Panels sur la sécurité routière au travail, le cannabis et la sécurité routière et les distractions au volant. Pour en apprendre davantage : <http://www.carsp.ca/fr/carsp-conference/carsp-conference-2016/>

Tenue au Westin Nova Scotian, qui surplombe le port de Halifax. La date limite pour les inscriptions hâtives est le 5 mai ! Réservez votre chambre dès maintenant au : <http://www.carsp.ca/fr/carsp-conference/carsp-conference-2016/carsp-conference-2016-hotel-booking/>

Brenda Suggett
CARSP



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Next Issue

The summer 2016 issue of the Safety Network Newsletter will cover the 26th CARSP Conference in Halifax, NS. Please contact Rebecca Peterniak rebecca.peterniak@fireseedsnorth.ca if you would like to contribute an article or photos on the conference. Submissions are due June 20, 2016 and should be between 300 and 500 words plus accompanying pictures and graphics.

Prochain Numéro

Le numéro estival du bulletin Le Réseau-sécurité traitera de la 26^e Conférence ACPSE qui aura lieu à Halifax, N.-É. SVP contacter Rebecca Peterniak si vous voulez soumettre un article ou des photographies de la conférence, au plus tard le 20 juin 2016. Les articles doivent contenir entre 300 et 500 mots et être accompagnées de figures ou photographies.