Planning for Cycling in Peterborough

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Abstract
With a changing climate driven by an unsustainable lifestyle, cycling is becoming increasingly popular due to its environmental benefits as well as its physical and mental health benefits. Cycling emits virtually no greenhouse gases and is a quick and easy way for anyone to travel. Recent trends in urban planning have placed greater emphasis on denser cities and alternative modes of transportation including public transit, walking, and cycling. In North America, these trends have been slow to catch on aside from a few communities that are starting to make waves. This paper examines the current state of cycling infrastructure and policy in Peterborough, Ontario and assesses the future plans for the city. Innovative ideas from some of the world’s top cycling countries, the Netherlands, Denmark, and Germany, are discussed and situated in the local context. Suggestions are made as potential options for Peterborough and other North American communities to improve cycling rates and make our cities healthier and happier.

Keywords
City Planning — Geography — Transportation

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Issue
The bicycle is familiar to cultures and nationalities around the world. As the first machine to be mass-produced for personal transportation, the bicycle was once an important aspect of life, alongside the horse and buggy. Some components of the bike, such as ball bearings and expansion breaks, were even carried over to be used in cars once they began to take control of the landscape. By the mid-20th century, personal automobiles and large scale roadways dominated North American cities, pushing bicycles aside as they were slower, less convenient, and becoming increasingly dangerous to ride. Through the 1950s, 60s, and 70s, cycling rates declined in North America and Europe because of the growth of the automobile and suburban living. Distances increased and roads became built solely to move motor vehicles. Cyclist demographics changed as well with adult men becoming the majority engaging in the risky activity. The number of bike trips made by women and children dropped and the purpose of cycling shifted from being a mode of transportation to being a recreational activity.

By the 1980s and 90s, bike trips in North America gradually began to rise but paled in comparison to the rates of increase and current rates in many European countries. According to National Personal Transportation Surveys (NPTS) and National Household Travel Surveys (NHTS) covering the years 1977 to 2009, the total number of trips taken by bike increased from 0.6% to 1.0% in the United States while the number of commuter trips by bike stayed constant around 0.5%. Canadian data covering the years 1996-2006 found a gradual increase in the number of commuting trips taken by bike with the share increasing from 1.1% to 1.3%. Attitudes toward cycling have changed over the years and are continuing to do so. Factors like climate change and population growth are pushing society toward a more sustainable lifestyle characterized by high density living and less automobile dependence. Such a change can and likely will be aided by increased usage of bicycles for personal transportation. Governments can influence this trend through a wide variety of planning and policy techniques that are continually evolving to improve quality of life for all.

Planning Policy Background
The City of Peterborough is a small city located in southcentral Ontario and a regional service hub for the surrounding County of Peterborough. The county is a very rural region with many people commuting to work from outside the city. Peterborough faces a challenge in promoting cycling as it is not a realistic possibility for many workers. In addition, Peterborough’s population is one of the oldest in Canada. Based on data from the 2011 census, about 20% of the city’s population is over the age of 65, a statistic that is one third higher than the national average of about 15%. With an older population,

cycling may be difficult for many residents due to age and mobility issues. Despite Peterborough’s aging demographic, it is currently one of the top cycling communities among cities designated as comparable in the Transportation Association of Canada’s Urban Transportation Indicators Survey.\(^6\) In 2006, Peterborough ranked second behind only Kingston, Ontario with 2.3% of commuter trips being taken on bikes, a value that puts the city above comparable cities such as Thunder Bay, Brantford, and Barrie.\(^6\)

The status of Peterborough as one of the top performers for cycling in small cities has come about because of increased awareness and effort to meet changing demands and values in society. The region is abundant with natural beauty and the city has created a wide network of off-road trails that weave through the urban landscape and connect with nature outside the urban limits. In this case, off-road does not refer to rough terrain but rather paved pathways that are off limits to motorized vehicles. As of 2011, Peterborough had 38 kilometers (km) of off-road bike trails compared to just 15 km on-road that come in the form of bike lanes or signage alerting drivers to be aware of cyclists.\(^6\) In addition to this network, the city publishes information guides and maps of the routes so that cyclists can plan their route beforehand.\(^8\) The maps even point out route characteristics that may be of importance to the cyclist such as steep hills, viewpoints, and bike-fix stations.\(^6\) Some other strategies that the city has undertaken to promote cycling are initiatives such as car-free school days to introduce children to cycling, a cycling commuting skills course, and a workplace transportation challenge aimed at businesses to encourage their employees to cycle to work.\(^7\)

Evidence from Other Locations

The growth in cycling frequency and infrastructure is likely to continue but Peterborough, and North America in general, has a long way to go to challenge European countries and world leaders such as the Netherlands and Denmark. In the early 2000s, cycling trips in Denmark made up 18% of all trips in the country and in the Netherlands that number was 27%.\(^10\) Although these are by far the highest rates in the world, several other European countries had rates around 10% including Finland, Sweden, and Germany.\(^10\) Following the steep decline

\footnotesize{\begin{itemize}
  \item \textsuperscript{6}Morrison Hershfield. (2012). 
  City of Peterborough Comprehensive Transportation Plan (pp. 1-175, Rep.). City of Peterborough, 15.
  \item \textsuperscript{7}Morrison Hershfield, City of Peterborough, 109.
  \item Pucher & Buehler, Making Cycling Irresistible, 498-504.
\end{itemize}}
in cycling rates through the previous 20 years, major policy changes were made from the mid-1970s to the mid-1990s to improve cycling infrastructure and increase the costs associated with driving personal automobiles. The result was improved cycling rates and improved demographics which span a much wider range in Europe than in North America. In Germany, Denmark, and the Netherlands, women make up 45%, 49%, and 55% of all bike trips respectively, compared to just 24% in the USA and 29% in Canada. In addition, ridership only drops marginally with age, best exemplified by the Dutch, whose citizens over the age of 65 make 24% of their total trips by bike.

In order to make a serious attempt to improve cycling, there is a wide range of measures that can and should be taken, all of which have been done to some degree in the Netherlands, Denmark, and Germany. This exhaustive list includes implementing networks of separated cycling facilities, modifying intersections and priority signals, traffic calming, bike parking, coordination with public transit, traffic education, and traffic laws. Making changes to these aspects can have a profound effect on the perceived safety of cycling, a major key to improving cycling rates. Each of these elements could be explained in great detail but due to space constraints, only a few will be touched on.

Likely the most important of all the categories is the creation of separate cycling facilities. These include bike lanes as well as physically separate bike paths and represent “the cornerstone of Dutch, Danish, and German policies to make cycling safe and attractive”. From the mid-1970s to the mid-1990s, separate facilities expanded in all three countries, with the length of Dutch and German networks doubling to about 20,000 and 30,000 km respectively. Although large cities contribute to much of these networks, smaller cities also own relatively lengthy systems such as Groningen, Netherlands who, with a population of about 180,000, have over 420 km of lanes and pathways. Colour-coded signage and detailed maps describing the various routes top off the networks making them virtually independent of vehicular roads and easily accessible for all.

Another aspect that can have a large influence is traffic calming. Traffic calming is the act of designing streets to

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11 Pucher et al., Bicycling Renaissance in North America?, 455.
12 Pucher & Buehler, Making Cycling Irresistible, 511.
13 Pucher & Buehler, Making Cycling Irresistible, 511-513.
accommodate all forms of transportation while ensuring the most vulnerable feel comfortable and safe using the street.\textsuperscript{14}  There are a wide variety of techniques and although many of them are geared toward pedestrians, the result would be a safer street for all, cyclists and drivers included. Many techniques, including street narrowing, raised crosswalks, and traffic circles, have been adopted in the countries focused on in this briefing, but there are a few unique ideas worthy of mentioning. The first is an idea from the Netherlands called the “woonerf” or “Home Zone”. This concept is used in residential streets and limits automobiles to walking speeds allowing cyclists, pedestrians, and children to use the street how they wish.\textsuperscript{15}  A similar idea is the bicycle street. This design gives cyclists the full right-of-way on narrow streets while limiting cars to speeds of 30 km/h or less.\textsuperscript{15}  Instead of having to cycle next to the curb, cyclists can ride anywhere they like and drivers must yield to them.\textsuperscript{15}  When used over widespread areas and combined with car-free zones, traffic calming techniques can provide a huge boost to the popularity of cycling in a city.\textsuperscript{15}

The remaining measures of those listed above may have less of a direct impact on cycling rates but nonetheless contribute to the enjoyment and safety of the practice. In the previously discussed European countries, intersection modifications have made cyclists more visible and given them priority at signals.\textsuperscript{15}  Improved bicycle parking conditions such as sheltered and secured facilities have allowed people to park their bikes without the fear of damage or theft.\textsuperscript{15}  School children receive instruction on safe and efficient cycling from real police officers and even have road tests.\textsuperscript{15}  Finally, traffic laws hold drivers legally responsible for collisions with cyclists in the majority of cases.\textsuperscript{15}  Law enforcement is stricter for both cars and bikes as cyclists are more likely to be ticketed than those in North America if they are not obeying the laws.\textsuperscript{15}  These changes have led to much improved safety with far fewer cycling fatalities in Germany, Denmark, and the Netherlands. From the year 2002 to 2005, the average number of cyclist deaths in the USA was 5.8 people per 100 million km cycled compared to 1.7 people in Germany, 1.5 in Denmark, and 1.1 in the Netherlands.\textsuperscript{16}  These countries have shown that it is certainly possible to significantly reduce dependence on the automobile and increase safe bicycle usage.

Moving to North America, model cycling cities are harder to find but do exist. Portland, Oregon has the highest cycling rate in the USA with 5.9% of commuter trips taken by bike.\textsuperscript{17}  Despite a lower cycling rate, New York City, New York is making waves with the recent improvements taking place in the metropolis. Many bike lanes in the city are based off a Danish design where the bike lane is situated between parked cars and the sidewalk rather than parked cars and moving traffic.\textsuperscript{18}  Such a design allows an increased sense of safety for cyclists while also benefitting pedestrians by shortening the walking distance where they are exposed to traffic.\textsuperscript{18}  From 2006 to 2009, New York City managed to create over 320 km of various types of bike lanes, a number that famous planner Jan Gehl stated was larger than what Copenhagen, Denmark had implemented over 50 years.\textsuperscript{18}  Although this is just a small sample of what has been done in New York City, it demonstrates that North American cities are capable of becoming bicycle-friendly as well.

### Policy Options

As seen by the policies of select European countries, there is a wide array of options that the City of Peterborough could adopt. As noted above, the implementation of separate cycling facilities and traffic calming techniques are immensely important to improve cycling conditions. Transportation planners in the City of Peterborough recognize this fact and have announced plans to more than triple the extent of on- and off-road facilities over the next 20 plus years.\textsuperscript{19}  The goal is to increase on-road bike lanes from the 2011 value of 15 km to 97 km and off-road paths from 38 km to 86 km.\textsuperscript{19}  In total, this represents an increase from 53 km to 183 km in just over 20 years.\textsuperscript{19}  A map of the planned routes demonstrates the extent of the network and shows a strong connection to the downtown with plenty of routing options to get around. Implementation of this plan will continue in the spring and summer of 2017 when the city intends to lengthen the George Street bike lane to Sherbrooke Street from its current end at Hunter.\textsuperscript{20}  The city would also like to improve access to end-of-trip facilities such as more secure bike parking, personal storage lockers, and change rooms.\textsuperscript{21}  The city’s Comprehensive Transportation Plan recommended in 2012 that the city change zoning by-laws requiring sites to have certain end-of-trip facilities based on the usage of the location.\textsuperscript{21}  In addition, the plan recommended that the city entertain the idea of car-free Sundays and traffic safety education courses.\textsuperscript{21}  Although these plans may help promote cycling, they are likely not enough, aside from the extension of the current network. Traffic calming is becoming more prevalent in planning and many streets in Peterborough would benefit from such techniques. Adding bike lanes may slow traffic but narrowing vehicle lanes further with wider sidewalks and wide bike lanes would indicate drivers to slow down.\textsuperscript{22}  Additionally, many streets contain small shops and restaurants making them an excellent location to encourage walking and cycling. Implementing raised crosswalks would be an appropriate method to slow traffic while serving pedestrians and cyclists. Several streets could also feature bulb sidewalk corners that give drivers the impression of a narrowing lane, sub-consciously


\textsuperscript{15}Pucher & Buehler, Making Cycling Irresistible, 514-520.

\textsuperscript{16}Pucher & Buehler, Making Cycling Irresistible, 505.


\textsuperscript{18}Sadik-Khan & Solomonow, Streetfight, 154-158.

\textsuperscript{19}Morrison Hershfield, City of Peterborough, 127.

\textsuperscript{20}Nyniki, More bike lanes.

\textsuperscript{21}Morrison Hershfield, City of Peterborough, 106-110.

\textsuperscript{22}Sucher, Getting Around, 396-397.
slowing their speed. By making these changes to Simcoe Street, the location of the main bus terminal in Peterborough, more people may be willing to bike to the bus station to access locations on the edges of the city thus combining sustainable modes of transport. Furthermore, the city should consider allowing bikes on public transit or fitting buses with racks so that cyclists can travel longer distances and do not have to worry about return trips in bad weather or darkness.

Numerous policy options are available to improve cycling conditions and encourage this sustainable mode of transportation. Many lessons can be drawn from other cities to determine what is the best fit for Peterborough. Although the city, as well as the entire country of Canada, has plenty of room to improve, trends and innovative ideas are continually shaping our cities. The attitudes and behaviour of citizens will not change overnight but with continuing improvements it is only a matter of time before cycling catches on.

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Relevant Links and Sources
Morrison Hershfield. (2012). City of Peterborough Comprehensive Transportation Plan (pp. 1-175, Rep.). City of Peterborough

The City of Peterborough’s Comprehensive Transportation Plan is a 175-page document outlining all aspects of transportation in the city. The report starts with an introduction and overview of the existing transportation system covering roads, transit, and active modes. Following this it assesses the city’s transportation needs and alternative options to consider. It finishes with the Transportation Master Plan which provides suggestions and recommendations for the future of Peterborough. In terms of cycling, the report describes the current network in place and acknowledges weaknesses. It explains the plans for cycling lanes in the city and offers recommendations for infrastructure including end-of-trip facilities, intersection improvements, and traffic calming techniques.


Pucher and Buehler provide a thorough and extensive analysis of cycling in three of the world’s most bicycle-friendly countries; the Netherlands, Denmark, and Germany. One large and one small city is chosen from each country for a case study on what specific action these cities took and how they affected the trends over time. Several statistics are included on total bike trips and how these trips are broken down in terms of work trips, shopping trips, etc. Seven measures are described in detail of how they contribute to improved cycling rates and many examples are provided. They conclude that coordinated implementation of all aspects is crucial to increasing the popularity of cycling.


Pucher, Buehler, and Seinen analyze cycling trends in Canada and the USA over a twenty-year time span. National data is used from both countries as well as data from nine select cities used for case studies. They found that cycling levels increased in both countries while fatalities have fallen. Cycling is also concentrated in larger cities whose cycling rates and changes over time are much higher than those of the national averages. The results show that commuter cycling is twice as popular in Canada than in the USA. The authors then analyze the select cities and describe their accomplishments and lessons that can be learned from them.


Janette Sadik-Khan is the former commissioner for New York City’s Department of Transportation. While in this position she managed many projects to promote bicycling including the creation of bike lanes and new policies to grow its popularity. She used new lane designs taken from European cities like Copenhagen, Denmark and started the Citi Bike bikeshare program to move hundreds of thousands of people around New York. Her book is a descriptive collection of some of her finest works as well as some of the opposition she received from them.

23Sucher, Getting Around, 402.