

Trails for Active Transportation

City of Greater Sudbury



City of Greater Sudbury



Walk and Bike for Life

Walk and Bike for Life is a not for profit organization dedicated to improving awareness of the benefits of walking and cycling as activities, and of urban parks and trails as great places. Walk and Bike for Life is committed to empowering communities through community participation and education. Currently, Walk and Bike for Life is working with 10 communities across Ontario as part of the Trails for Active Transportation project, funded by the Ministry of Health Promotion's Trails for Life Fund. The overall goal of the **TFAT** project is to provide communities with the tools necessary to promote and support trails as low-cost, readily available means of transportation and recreation.

Our goal is to re-conceptualize the trail (on-street trails, bikeways, greenways, linear parks, hydro corridors, rail trails) as an integral part of the community; interwoven to its fabric, connecting people who live, work, or play along its path. The project engages local citizens through a series of public meetings and workshops, culminating in the creation local Community Action Groups (CAGs) who will take on the implementation of their individualized action plan with Walk and Bike for Life's continuing support.

Biography: Gil Penalosa, Executive Director, Walk & Bike for Life



The Trails for Life project is the brainchild of Walk & Bike for Life Executive Director, Gil Penalosa. A leading executive and urban strategist with years of public and private sector senior managerial experience, Gil is celebrated around the world for his ability to create walkable, bike-able cities with healthier, happier residents.

Gil is perhaps most famous for his achievements during his tenure as Commissioner of Parks, Sport and Recreation for the city of Bogotá, Colombia. In Bogotá, a metropolis of 7 million people, Gil led his team to design and build over 200 parks, of which the best known is the Simon Bolivar (360 hectares/899 acres). Under Gil's leadership, Bogotá was revolutionized through the opening of 91 kilometres of car-free city roads on Sundays. These Sundays are now known as the Ciclovía, where over 1.5 m people come out weekly to walk, run, skate and bike. The Ciclovía model has captured imaginations globally and is emulated in cities large and small.

Because of his uniquely effective blend of pragmatism and passion, Gil's leadership has been sought out by many organizations. Gil works as Senior Advisor with NYC's Project for Public Spaces and as Senior Consultant for the renowned Danish firm Gehl Architects. He serves on the Boards of Directors of American Trails and City Parks Alliance.

Gil is a much sought after international speaker and consultant. In his presentations and workshops on creating better communities, Gil demonstrates how walking and bicycling, and parks and trails, can promote economic development, environmental sustainability, public health, efficient transportation, and recreational opportunities for all people, regardless of social status or physical ability. The Trails for Life project makes Gil's expertise and flair for innovation available to communities throughout Southern Ontario as they attempt to build great places and become vibrant cities with happy, healthier residents.

Gil holds a Master in Business Administration degree from UCLA's Management School. He lives in Ontario, Canada and enjoys outdoor activities with his wife and their three children.



The City of Greater Sudbury

The City of Greater Sudbury was the key community partner for the Trails for Active Transportation Project. The City was instrumental in setting up the schedule and meetings for Walk and Bike for Life's three day visit in Greater Sudbury. This project supports the objectives of the City's Healthy Communities Strategy, Official Plan, Physical Activity Action Plan, and the resolution to become the most pedestrian friendly city in Ontario by 2015.



Ministry of Health Promotion - Active 2010

The Ministry of Health Promotion was created in 2005 with a mandate to support and deliver programs promoting healthy lifestyles and healthy choices in the province of Ontario. The Ministry focuses on a number of key priority areas including active living, healthy eating, injury prevention, Ontario's smoke-free strategy, and mental health. ACTIVE2010 is a comprehensive strategy to increase participation in sport and physical activity throughout Ontario. The Ontario Trails Strategy directly supports the Government's ACTIVE2010 initiative which aims to raise the percentage of Ontarians who are physically active to 55% by the year 2010.

The Trails for Life Fund provided 60% of the funding for the Trails for Active Transportation Project.



Rainbow Routes Association

Rainbow Routes Association (RRA) is an incorporated not for profit organization dedicated to the development and promotion of non-motorized routes in Greater Sudbury. RRA is the lead proponent of the Trans Canada Trail through Greater Sudbury and aims to have it completed by 2010. Since its inception, RRA has developed over 35 kilometers of new non-motorized routes within the city limits. The organization's promotional activities include maps, signs, monthly trail hikes, the History Hike Project and the exciting "Learning Through Trails" program, now in its second year.

For more information visit: www.rainbowroutes.com



Sudbury & District

Health Unit

Service de
santé publique

Sudbury and District Health Unit

The Sudbury & District Health Unit is a progressive, accredited public health agency governed by the Sudbury & District Board of Health. With a head office in the City of Greater Sudbury and four branch offices throughout the Districts of Sudbury and Manitoulin, the Sudbury & District Health Unit has a staff of over 200 who deliver provincially legislated public health programs and services to a population of almost 200,000. The Sudbury & District Health Unit is a teaching health unit (the northern site of the provincial Public Health Research, Education and Development Program (PHRED) and is affiliated with Laurentian University. The Sudbury & District Health Unit works locally with individuals, families, the community, and partner agencies to promote and protect health and to prevent disease. Public health programs and services are geared toward people of all ages and are delivered in a variety of settings including workplaces, day care and educational settings, homes, health care settings, and community spaces.

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Foreword



Walk & Bike For Life
233 Lakeshore Rd. E., #1
Port Credit, Mississauga
Ontario L5G 1G8
February 17, 2009

Dear Gil, Amanda and Sarah,

We would like to thank you for traveling to our community, especially in mid January, to help us move our 'puck' closer to the goal. Your insight into active transportation and the means to achieve our goals of becoming a walkable and bikeable community was just the 'Coach's Corner' presentation our community needed.

We really appreciate that you took the time to acquaint yourselves with the City of Greater Sudbury and our sustainable transportation issues. Your presentations have impacted our community in a variety of ways including influencing support for a one year pilot traffic calming policy project, your words being quoted by various community leaders and community members submitting articles to the local media on the need for supportive infrastructure and programming.

We are now firing on all cylinders thanks to you and look forward to the final report. We sincerely hope to work with you in the near future to transform our community into the most pedestrian friendly community in Ontario by 2015.

Sincerely,

Deb McIntosh
Executive Director

Executive Summary



The City of Greater Sudbury is the most populous city in Northern Ontario and the largest municipality in Canada. The city is comprised of several distinct communities, ranging from very rural to highly urban. The expansiveness of the city creates a number of mobility challenges for its citizens. At the same time, surrounded by the raw beauty of the Canadian Shield and dotted with over 300 spectacular lakes, **the city has tremendous potential for developing a well connected trail and active transportation system that utilizes these natural assets.** Although transportation in Sudbury is currently dominated by the automobile, the city has committed to changing this, by increasing investments in trail infrastructure and by resolving to become the most pedestrian friendly city in Ontario by 2015.

A city is only a means to a way of life. If we choose to plan and design our cities for people, we must do it in a way that maximizes people's happiness and quality of life. For decades, city planning has been focused on cars' mobility. A human-scaled approach to planning recognizes the benefits to providing safe and convenient facilities for people to walk and bike as a means of transportation and recreation. This approach also emphasizes the importance of parks, trails, and public spaces as great places for interaction and community cohesion.

Walk & Bike for Life initiated the Trails for Active Transportation (TFAT) project to address these emerging issues in southern Ontario. The City of Sudbury was chosen as one of the 10 pilot communities of the TFAT project, the goal of which is to engage citizens in local active transportation issues and empower them with tools and resources to promote walking and bicycling in their community.

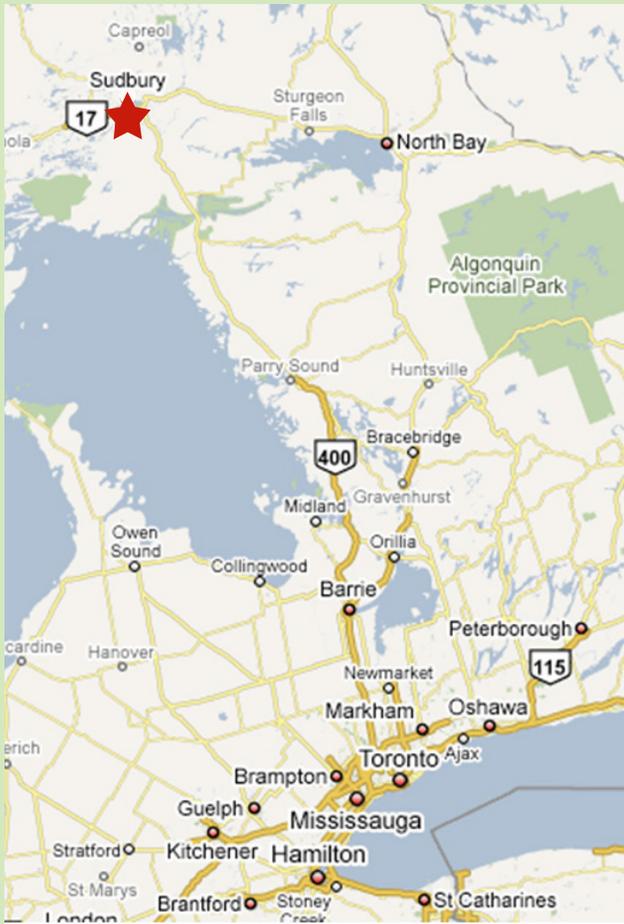
Over four days in January 2009, Walk & Bike for Life held a series of workshops with community leaders, stakeholder groups, and residents throughout Sudbury. Workshops were led by Gil Penalosa, a leading international expert on active transportation and quality of life issues in cities, and explored best practices in planning for bicycling and walking. Workshops were followed by individual and group exercises designed to help people work together to plan specific short and long term solutions for bike-ability, walkability, and quality of life in Sudbury. Workshop participants and survey respondents included many members of the general public, as well as municipal council members, key staff from the City of Greater Sudbury, developers, local service organizations, and students at both the primary and post-secondary levels.

Key recommendations from the community included infrastructural improvements, such as the construction of pedestrian shortcut trails and the development of a regional network of bicycle routes; programming initiatives, such as bicycling and walking promotion programs, transit improvements to support walkers, and the expansion of Car-Free Day events; and policy changes, such as a complete streets policy and an enhanced commitment to nurturing dense, multi-use neighbourhood centres. Another idea that came up, which Walk and Bike for Life would like to particularly highlight, is that Sudbury should develop a comprehensive Sustainable Mobility Plan, which improves walking, bicycling, and all other forms of active transportation with the higher order goal to

make **Sudbury**
a great place **for**
residents and
a destination
for visitors.

Snapshot

The City of Greater Sudbury



The City of Sudbury is 400 km from Toronto, north of Georgian Bay.

The City of Greater Sudbury is the most populous city in Northern Ontario, with a population of roughly 160,000 people as of 2006.ⁱ In 2001 the towns and cities which comprised the former Regional Municipality of Sudbury (Sudbury, Capreol, Nickel Centre, Onaping Falls, Rayside-Balfour, Valley East and Walden), and several unincorporated townships (Fraleck, Parkin, Aylmer, Mackelcan, Rathbun, Scadding, Dryden, Cleland and Dill) were amalgamated into one Greater Sudbury. With an area of 3307 km, the city is the largest municipality, in terms of land area, in Canada.ⁱⁱ

To put its vast size into perspective, Greater Sudbury has a land area equal to that of 15 Southern Ontario cities (See Figure 1). In addition, the city is comprised of several distinct communities, ranging from very rural to highly urban. The expansiveness of the city creates a number of mobility challenges for its citizens. At the same time, surrounded by the raw beauty of the Canadian Shield and dotted with over 300 spectacular lakes, the city has tremendous potential for developing a well connected trail and active transportation system that utilizes these natural assets as a way to develop linkages across its huge land area.

Currently transportation in Sudbury is dominated by the automobile. Canadian census data for 2006 indicates that 77% of residents in Sudbury commute to work by car whereas only 5% of residents commute by public transit and 6.8% of residents commute by walking or bicycling.ⁱⁱⁱ The city has an extensive road network with over 3,600 kilometers of municipal roads^{iv} and two major highway systems run through Greater Sudbury (Highways 69 South and 17 Trans-Canada Highway). The public transit system provides approximately 30 bus routes across the city and provides service to approximately 3.7 million passengers per year.^v

While the city of Greater Sudbury has great challenges when it comes to mobility, there have been some amazing milestones in the last few years that have demonstrated the city's commitment to promote more sustainable and active forms of transportation.

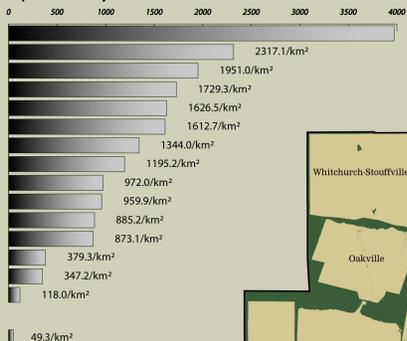


Greater Sudbury vs. Southern Ontario Cities

Land Area & Population Comparison

City	sq km	Pop. (2006)
Toronto	630.2	2,503,281
Mississauga	288.5	668,549
Newmarket	38.1	74,295
Orangeville	15.6	26,925
Brampton	266.7	433,806
Richmond Hill	100.9	162,704
Ajax	67.1	90,167
Oakville	138.6	165,613
Oshawa	145.7	141,590
Aurora	49.6	47,629
Burlington	185.7	164,415
Vaughan	273.6	238,866
Pickering	231.6	87,838
Grimsby	68.9	23,937
Whitchurch	206.7	24,390
Total (incl. Sudbury)	2,707.5	4,854,005
Greater Sudbury	3,200.6	157,857

Population Density Chart



Greater Sudbury Infrastructure

Road Lanes	3600+
Water System	886
Sanitary System	723
Arenas	14
Libraries	13
Lift Stations	75
Fire Stations	25
Lakes (over 10 ha.)	330
Licensed Daycares	107

Municipal Buildings	620
Ambulance Stations	11
Citizen Service Centres	7
Parks/Fields/Playgrounds	406

Southern Ontario Cities
 City of Greater Sudbury

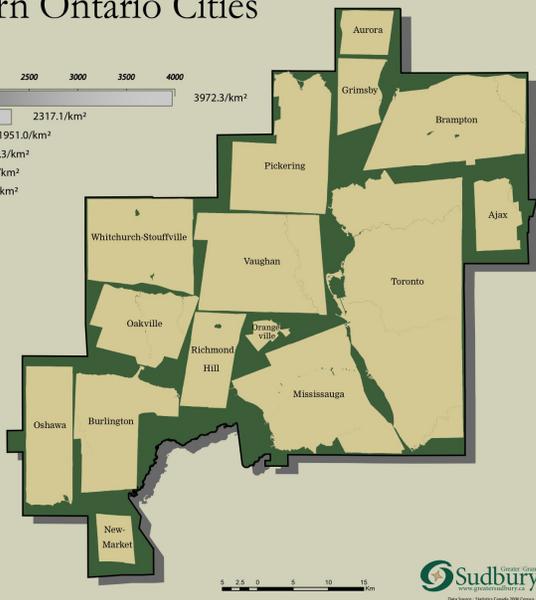


Figure 1: Sudbury has a very large land area compared to other Ontario municipalities.

■ The City's Official Plan adopted in June of 2006 identifies active transportation and a pedestrian and bicycle network as an element of the Sudbury transportation system, and recommends protecting and expanding the existing pedestrian and bicycle network in the City as essential to creating quality of place. The OP also identifies that sidewalks, bike lanes, bike paths and walking trails need to be fully integrated components of the overall transportation system, providing safe access for pedestrians and cyclists supported by good urban design principles, and that opportunities to engage in recreational and leisure activities are also tied to the transportation network.

■ The city has also been working in collaboration with a local champion organization the Rainbow Routes Association to increase investment in trail infrastructure.

■ The city's Physical Activity Action Plan 2005-2010 recognizes the need to remove and reduce barriers to physical activity by improving infrastructure in order to support pedestrians.

■ In May 2007, City Council passed the resolution that the City of Greater Sudbury accepts the challenge to become the most pedestrian friendly city in Ontario by 2015.

There is no doubt that the city is up to the challenge of becoming the most pedestrian friendly city by 2015. Sudburians have shown leadership in what many thought was an impossible task to restore the land from the negative environmental effects of the mining industry through the widely successful and award-winning Land Reclamation Project. This project demonstrated the ability of the entire community to come together over a shared vision for a more healthy and sustainable city. The city can surely come together again to create a well connected trail system with safe pedestrian and cycling infrastructure for all.

Chapter 1

Trails and People: Making Connections between People and Places

Trails & people



Redefining the word TRAIL

Many communities in Ontario enjoy the benefits of an abundance of natural assets including the trails that take people along the many beautiful creeks, rivers, lakes, and other spectacular natural features that are characteristic of this province. Given these existing assets, there is tremendous opportunity to build on what we have to create trails and trail systems that are an integral part of the community, interwoven to its intimate fabric, connecting people who live, work, or play along their path.



One of Sudbury's existing trails along Ramsey Lake.

Very often the word 'trail' resonates with a specific activity, be it cycling, walking, cross-country skiing, hiking or other specific recreational activities. At Walk and Bike for Life we see trails as all those things and more. Trails can be used as efficient modes of transportation as well as a mechanism of creating and con-

necting great public spaces. All too often we see trails that operate like sports arenas that are "drive-to" facilities. But do we want people to drive to the trail to take a walk or to bike as they would drive to the arena to play hockey? If not, we have to build the pedestrian and cycling connections to the trails.



Snowshoeing is a popular form of active transportation on the trails in Sudbury.

Trails become more efficient as the connectivity increases. A network of trails across a city can become an excellent connector of recreational as well as transport users. Trails can connect a myriad of users across

many diverse cultural, economic and social backgrounds. Many cities face the challenge of turning their patchwork of trails into a complete network. A successful network of trails has to connect a large portion of the population to many key destination points across the city. These destinations can consist of many different facilities and places of interest that can include work places, schools, city centres, transport hubs, recreational areas, and many other great public places. One of the challenges that Walk and Bike for Life as well as many communities across Ontario are facing is creating a cultural shift in redefining the word 'trail' and incorporating it into the context of active transportation and vibrant city planning.

It is important to note the different needs of different users of trails. Recreational users enjoy the very curvy, winding paths of trails that are often outside of the urbanized areas of the city and allow them to experience the natural beauty and green spaces of a city. In terms of transportation, the most effective and well-used bike and pedestrian paths into urbanized areas do not meander around the city, but are straight corridors between places of origin and destination. Those that use active forms of transport want to get to their destination in the most efficient manner possible and need corridors that go North-South, East-West in a grid system for efficient transportation. An effective trail system is one that combines both of these types of trails. Minneapolis in the United States is an example of a city that has been able to create a network of trails that combines recreational and transport uses and links urbanized areas of the city to natural areas and green spaces across the city (*see Toolkit for Minneapolis Case Study*).

Trails & people



The Benefits of a Great Trail system

Trails have both “Emotional” and “Quantifiable” benefits. The “Emotional” benefits of trail networks greatly increase the quality of life of its residents. They are social equalizers and sources of happiness for community members. They also strengthen communities and improve safety in neighbourhoods. The “Quantifiable” benefits of trails are ones that can be calculated in terms of several different criteria. They provide benefits that increase property values, increase tourism, increase economic activity, lower health care costs, and create greener more environmentally sound cities by reducing greenhouse gas emissions.^{vi}

As mentioned previously, connecting people to great places is one of the main benefits of a successful trail network. One challenge that many cities face is the lack of such places and poor connections to surrounding neighbourhoods. It is difficult to define what exactly makes a great place, it is a subjective topic. Although each great place will be different to almost anyone, there are some common symptoms of great public spaces.^{vii}

GOOD PLACES TO SIT



It is simple but often overlooked. Seating is critical to creating an inviting space for people to rest, people-watch and/or interact.

SOCIABILITY/PEOPLE IN GROUPS



People meeting in groups and being social with one another is an indicator of a great public space.

Trails & people



DIVERSITY



A place with a diversity of ages, ethnicities, and abilities is another indicator of a great public space that is accessible and inviting to all.

HIGH PROPORTION OF WOMEN



Women are much more discerning when it comes to choosing a place. If there is a high proportion of women in a place it usually means the area is safer, cleaner and more aesthetically pleasing.

AFFECTION



People are generally affectionate when they feel comfortable in a place.

In a general sense, these symptoms paint the image of a safe, socially active, comfortable and happy place. The place can either be a neighbourhood corner, a park, an entire community, a district, or a whole city. A network of trails that connects all these places can create a city that has so many great places in it that it eventually becomes one great city. This is the goal of many cities, but cities as big as they are, tend to forget that city life blooms on the street corner.

Trails that act as cultural corridors and as a place for active transportation have widespread benefits across all aspects of society and are explained further in the EARTH concept below.

Walking and Bicycling



Walking and bicycling: More than just fun and games

It would be easy to write a laundry list of the perfect conditions needed to make the case for active transportation. These could include; increased public concern and awareness about environmental degradation, climate change, a global economic crisis, an obesity epidemic, and worsening traffic congestion. Today, all of these conditions exist, creating a perfect storm of challenges that make investing in safe and convenient walking and bicycling facilities relevant solutions to many of today's problems.

Walk & Bike for Life has developed the **EARTH** umbrella concept, which represents a shelter from the storm of challenges we are facing today and describes the numerous benefits of walking and bicycling in detail.



The **EARTH** concept

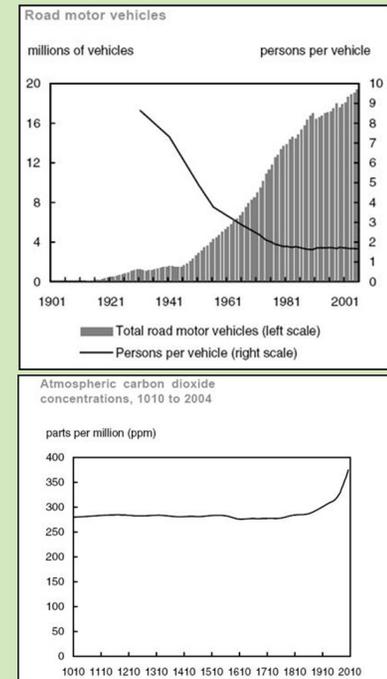
Environment

Only a few years ago scientists questioned the very existence of human-induced climate change. Now there is general agreement within the scientific community that global atmospheric concentrations of greenhouse gases such as carbon dioxide have increased markedly as a result of human activities, particularly through the use of fossil fuels and land use change.^{viii}

In 2004, emissions from the transportation sector accounted for 25 per cent of all the greenhouse gases emitted in Canada. Private vehicles alone (*passenger cars and trucks*) account for over 11 per cent of total GHG emissions. With such a significant portion of our emissions released through transportation, moving toward more sustainable transportation options such as public transit, bicycling, and walking hold the ability to drastically reduce Canada's carbon footprint.

Shifting away from private car use and toward non-motorized forms of transportation is less daunting than one might perceive. Research shows that a large percentage of trips made by car are within walking and bicycling distance. Metrolinx, the regional transportation authority in the Greater Toronto and Hamilton Area, reported in 2008 that 40 per cent of the total trips taken across the GTHA were within biking distance (*under 5 km*) and 17 per cent were within walking distance (*under 2km*).

Calculations based on data from Environment Canada's greenhouse gas inventory, population statistics from Statistics Canada, and Transport Canada's urban transportation emission calculator reveal that **if each Sudbury driver walked or biked to work one week in a year, the city could reduce its annual emissions by 762 tonnes** (see Appendix C for calculations).



The number of motor vehicles on the road has increased sharply in the last 30 years, as the number of people per vehicle has decreased. A dramatic rise in Carbon Dioxide, the most prevalent Greenhouse Gas, has accompanied this trend. For each commuter in Sudbury who switches from vehicular to active transportation, approximately 685.18 kg less of Carbon dioxide will be released into the atmosphere. If each Sudbury driver walked or biked to work one week a year, the city could reduce its emissions by 762 tonnes (see Appendix C for calculations).

The EARTH concept



Economic **A**ctivity

In the 19th century, wealth was measured in terms of land, making land the most valuable of any asset. By the 20th century the market's focus had shifted to capital. Today, people are at the heart of the economy. Attracting and retaining highly educated, creative people is the greatest challenge facing cities in the 21st century.

In an ever-more globalized world, the most skilled people – be they carpenters, artists or doctors – can live anywhere they choose. Why live in Halton Hills and not Vancouver, Paris or Sao Paulo? A walkable, bikeable community is a critical factor in creating lively, attractive neighbourhoods, and quality of life has become a main element of economic competitiveness.

Mercer's Quality of Living survey, used by thousands of companies to decide where to locate their offices, recognizes the importance of active transportation. Pedestrian and bicycling facilities positively influence 5 of the 10 categories used in the survey to determine the best places to set up a business.¹

Vibrant commercial districts, and the small businesses which populate them, rely heavily on foot traffic. Walkable, bikeable neighborhoods are safer, more attractive, and more pleasant to shop in. Traffic calming is so good for business that business owners in affected areas often go from initial fear over the loss of parking to passionate support for further traffic calming, both in their own neighborhood and others.^{ix}

Have you ever heard anyone return from a vacation in Paris and talk about how beautiful the highways were?

Great public spaces, pedestrian plazas, parks and trails attract tourists and generate economic activity. Tourism is a billion dollar industry. In 2007, tourism in Canada generated \$19.7 billion in government revenue alone.^x The cities making the most of this service industry are inclusive of all types of people. Crucially, these cities recognize that tourists are primarily pedestrians. Increased investment in the unique beauty of Canadian cities through well-placed trails, parks and public spaces will add to the appeal – and bank accounts – of our neighbourhoods.

¹ Categories positively affected by high quality pedestrian and bicycle infrastructure: Medical and Health Considerations (Air Pollution), Natural Environment (Climate), Public Services and Transit, Recreation (Sport and Leisure Activities), Socio-Cultural Environment (Limitation on Personal Freedom)



Local business owners in Copenhagen had a huge boost in economic activity from increased foot traffic after streets were replaced with pedestrian plazas

The EARTH concept



Recreation

In the year 1700, most physical activity took place in the workplace. In North America in 2008, only about five per cent of our physical activity takes place in the work place, while recreational activities account for 30 per cent (Figure 2).

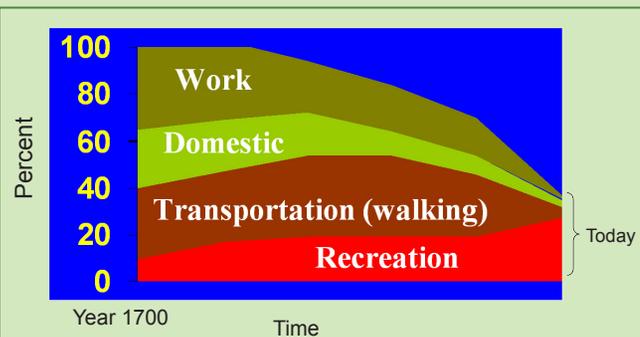


Figure 2: The ways in which we get our physical activity have changed drastically in the past 300 years, as recreation has come to play an increasingly important role in our lives and our physical health

Walking, bicycling, and running are now some of the most popular forms of physical activities in the world.

In addition, current trends show that people are turning increasingly to unscheduled and unorganized activities such as walking and bicycling as a form of daily exercise. According to Statistics Canada's 2005 Community Health Survey walking is by far the most popular form of physical activity in Canada, with bicycling placing in the top five.^{xi}

These activities are free of charge, enjoyable in groups or alone, and accessible to all ages.

In order to build communities that facilitate participation in these activities, it is important to provide city dwellers with the facilities that encourage spending time outdoors. Well-maintained and managed trails, urban parks and public spaces allow residents to enjoy, relax and take pride in their city.

In addition, more localized recreational facilities encourage more frequent use by community members because people have both a physical and mental connection to them. That is, these facilities are physically accessible to users through a short walk or bike ride and mentally connected to them as a result of frequent events, festivals and promotions. For example, you are probably more inclined to take your dog for a walk on a Thursday evening if you can walk to the nearby neighbourhood trail or park as opposed to driving to it. You may even be more inclined to take that walk if you can grab a coffee on your way, or if there are interesting things happening in and around the trails or park.

Recreation is something more than what people do on the weekend

by building and improving upon community trails, parks, greenways, and public spaces it can become part of people's daily routine and serve as a way to unwind, connect with nature, and to just have fun.



A functional and inviting public space provides a number of opportunities for different activities to take place; Portland, Oregon



Wading Pool; Portland, Oregon

The EARTH concept



Transportation

Transportation is about moving people, not about moving cars. Yet the way some North American cities are built, it would appear the opposite is true. More than 1/3 of Greater Toronto and Hamilton area residents do not have a driver's license.^{xii} To live up to the Canadian principles of equity and accessibility, our cities must be built to allow the mobility of those who cannot - or choose not - to drive.

Furthermore, providing safe, extensive infrastructure for cyclists and pedestrians has been proven to alleviate congestion. Such infrastructure paves the way for affordable, convenient transportation, which in turn can have a profound impact on the economy. Traffic congestion contributes to delays in moving goods, lost productivity and higher fuel costs. Congestion costs Ontario over \$5 billion in lost GDP every year.^{xiii}



Transportation infrastructure must be designed for the mobility of all users, not just drivers

Cities like Copenhagen and Amsterdam have invested heavily in bicycling infrastructure and have achieved significant results. In Copenhagen, bike mode share has gone from 10% in 1975 to 36% in 2004, outperforming automobile mode share by 9%.^{xiv} With 329 km of cycling tracks in place, Copenhagen has continuously been improving its infrastructure.^{xv}

Furthermore, the city recognizes that increasing active transportation use is a matter of planning-for-people and creating a cultural shift.

Health

Many Canadians today find themselves driving to the gym to walk on a treadmill. Meanwhile, 23 per cent of Canadians over the age of 18 are obese.^{xvi} Obesity is at the root of a myriad of diseases and health problems, and inactivity is one of the major contributing factors to obesity. Sedentary living is creating a huge strain on our healthcare system and our wallets.

Today, health experts agree that 30 minutes of moderate physical exercise can halve vulnerability to heart disease, control blood pressure and reduce cholesterol. Experts say that exercise also increases energy levels and improves moods, sleeping habits and digestion.^{xvii}

Building convenient and accessible pedestrian and cycling infrastructure makes it easier for physical activity to become a part of our daily routine. A study from the American Journal of Preventative Medicine published in 2004 found that every additional hour spent in a car was linked to a six per cent increase in a person's chances of becoming obese. Conversely, each kilometer walked was linked to a 4.8 per cent decrease in the chance of becoming obese.^{xviii}

Furthermore, as illustrated in *Figure 3*, obesity rates for several highly industrialized countries consistently drop when alternative forms of transportation, such as walking, cycling, and public transit are used.

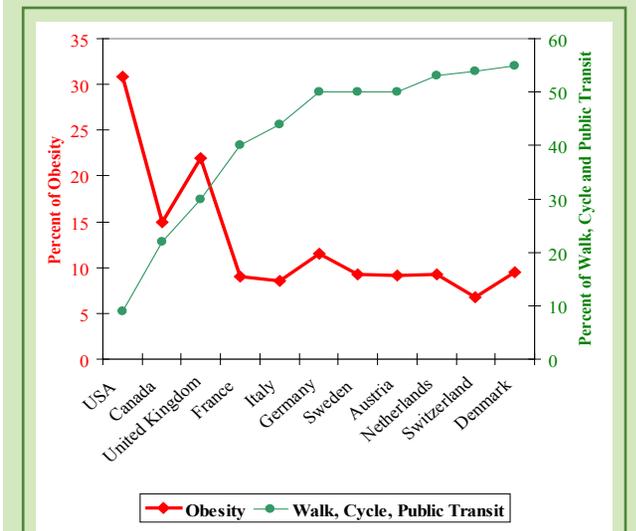


Figure 3: Obesity rates fall sharply with increased walking, bicycling and public transit use

Chapter 2

Trails for Active Transportation: City of Greater Sudbury



Trails for Active Transportation: Sudbury

At Walk & Bike for Life we recognize that citizens hold the greatest expertise when it comes to the communities in which they live. Walk & Bike for Life's Trails for Active Transportation project uses this idea as the basis for its approach with engaging communities in connecting trails and promoting more walking and bicycling-friendly places. Walk and Bike for Life was in Sudbury for four days as part of the Trails for Active Transportation project that consisted of a series of stakeholder sessions, presentations, and community workshops.

Stakeholder sessions

Over the course of four days in Sudbury, Walk and Bike for Life met with several key stakeholder groups to share ideas on connecting people and places through active transportation and great trails. These stakeholder sessions lasted on average two hours and included a presentation, titled "Connecting People and Places: Creating a Great Sudbury" by Gil Penalosa, followed by questions and discussion. The presentations highlighted best practices in creating more walkable, bikeable and vibrant public spaces from cities in Canada and around the world, and demonstrated how these strategies could be applied to Sudbury. Participants also filled out Individual Surveys, the results of which are included in the "What You Said" section of this report.

The following is a list of the stakeholder groups that participated in the TFAT process:

Monday January 12th, 2009

- My Sudbury Walks Task Group that included participants from Rainbow Routes Association, YMCA Sudbury, City of Greater Sudbury and the District Health Unit.
- City of Greater Sudbury Healthy Communities Cabinet
- Laurentian University Student General Association

Tuesday January 13th, 2009

- Students from St. Charles Elementary School Grade 5-6 Class as part of the Rainbow Routes Learning through Trails program (*Figure 4*).
- Sudbury and District Health Unit staff affiliated with physical activity, injury prevention and environmental health programming.



Figure 4. Gil Penalosa speaks with a Grade 5-6 class as part of the Rainbow Routes Learning through Trails Program.



Wednesday January 14th, 2009

- Local agencies such as Canadian Diabetes Association, Universities, and others
- City of Greater Sudbury staff associated with transportation and planning.
- 10 minute presentation to the Mayor and City Council.
- Informal meeting with local developers.

Thursday January 15th, 2009

- Presentation to members of the Rotary Club of Sudbury.

Overall, the stakeholder sessions consisted of approximately 90 participants over the four days.

Community workshop

On Tuesday, January 13th members of the Walk and Bike for Life team facilitated a 3-hour workshop to gather ideas from citizens on how to improve the overall walkability, bikeability, and connectivity of trails in Sudbury. It began with the “Connecting People and Places: Creating a Great Sudbury” presentation by Gil Penalosa. Participants were split into groups of 5-6 people and each group was given a Group Activity Sheet to fill out concerning their short-term (“petunias”) and long-term (“orchids”) recommendations for making Sudbury more pedestrian friendly, cycling-friendly and an overall great place. Each group then presented their recommendations to the room, discussing and comparing their ideas with those of other groups. Participants also filled out Individual Surveys. The results of the discussions, surveys, Group Activities Sheets and group presentations are compiled and summarized in the “What You Said” section of this report.

A total of 43 people attended the community workshop, and their recommendations are distilled directly out of the ideas and wishes expressed by survey respondents and workshop attendees.

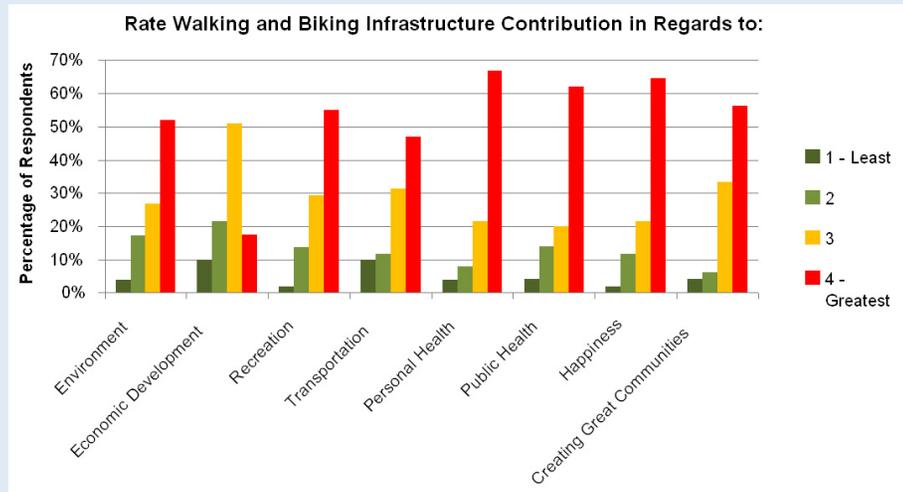


Figure 5. Walk and Bike for Life's Community workshop at Tom Davies Square.

What You Said: Results of the Individual Surveys



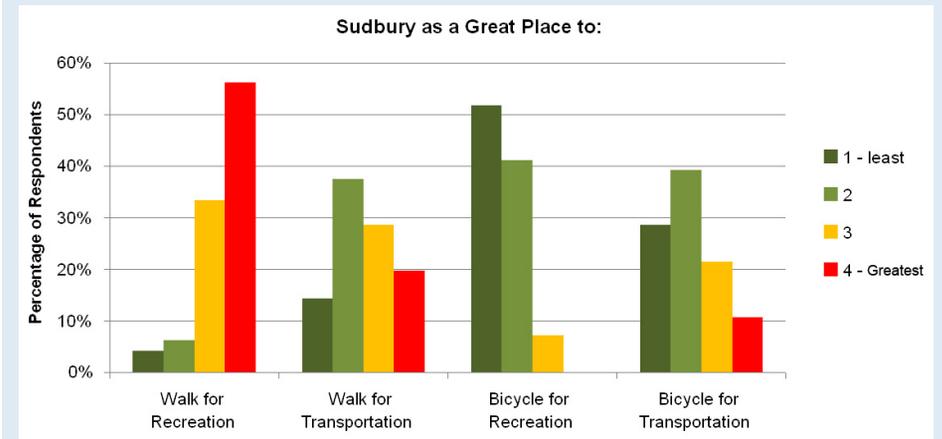
Question 1: When you think of the activities of walking and biking and the infrastructure that supports these activities, how would you rate these activities AND facilities in regards to their contributions to: the environment, economic development, recreation, transportation, personal health, public health, happiness, creating great communities?



Graph 1: Respondents evaluate the degree to which walking and bicycling facilities improve various aspects of a given community.

Graph 1 shows that health and quality of life factors are perceived as most affected by walking and bicycling, with over 60% of respondents indicating a high contribution to personal health, public health, and happiness. Place-making (creating great communities) is also rated high.

Question 2: How do you rate Greater Sudbury as a great place to: walk for recreation, walk for transportation, bicycle for recreation, bicycle for transportation?



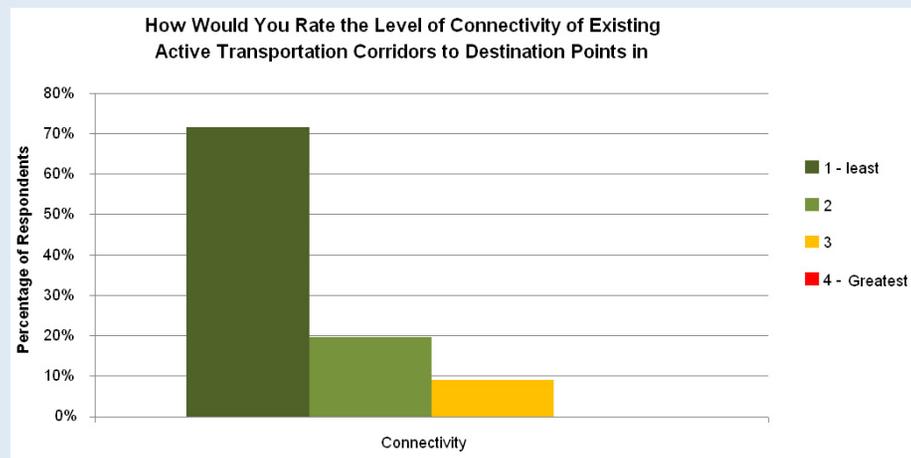
Graph 2: Respondents evaluate Sudbury as a place to walk or ride a bike.

Graph 2 shows that an overwhelming majority (93%) of respondents rate Sudbury negatively for bicycling for recreation. A similarly large majority rates Sudbury positively for walking for recreation. Both walking and bicycling for transportation are rated fairly negatively.

What You Said: Results of the Individual Surveys



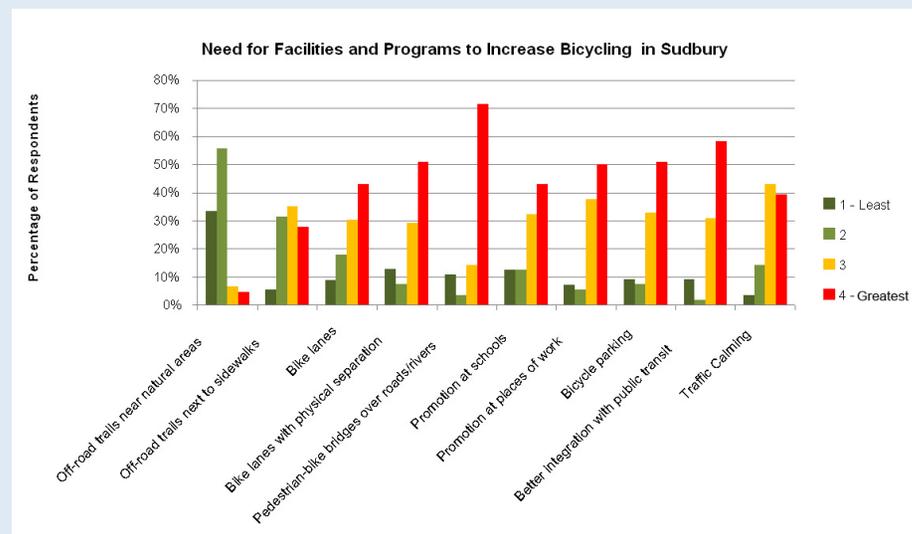
Question 3: How would you rate the level of connectivity between existing trail networks to destination points in Greater Sudbury?



Graph 3: Respondents rate the level of connectivity of trails in Sudbury.

Graph 3 shows that connectivity is perceived as very poor by 71% of respondents, and somewhat poor by another 20% respondents. Notably, not a single respondent rated it as very good.

Question 4: How would you rate the need for the following programs and facilities in Greater Sudbury to increase the number people bicycling on a regular basis: off-road trails near natural areas, off-road trails next to side-walks, bike lanes, 'bike lanes' with physical separation from cars/pedestrians, pedestrian-bike bridges over roads/rivers, promotion at schools, promotion at places of work, bicycle parking, better integration with public transit, traffic calming/slower speeds on neighbourhood roads, other?



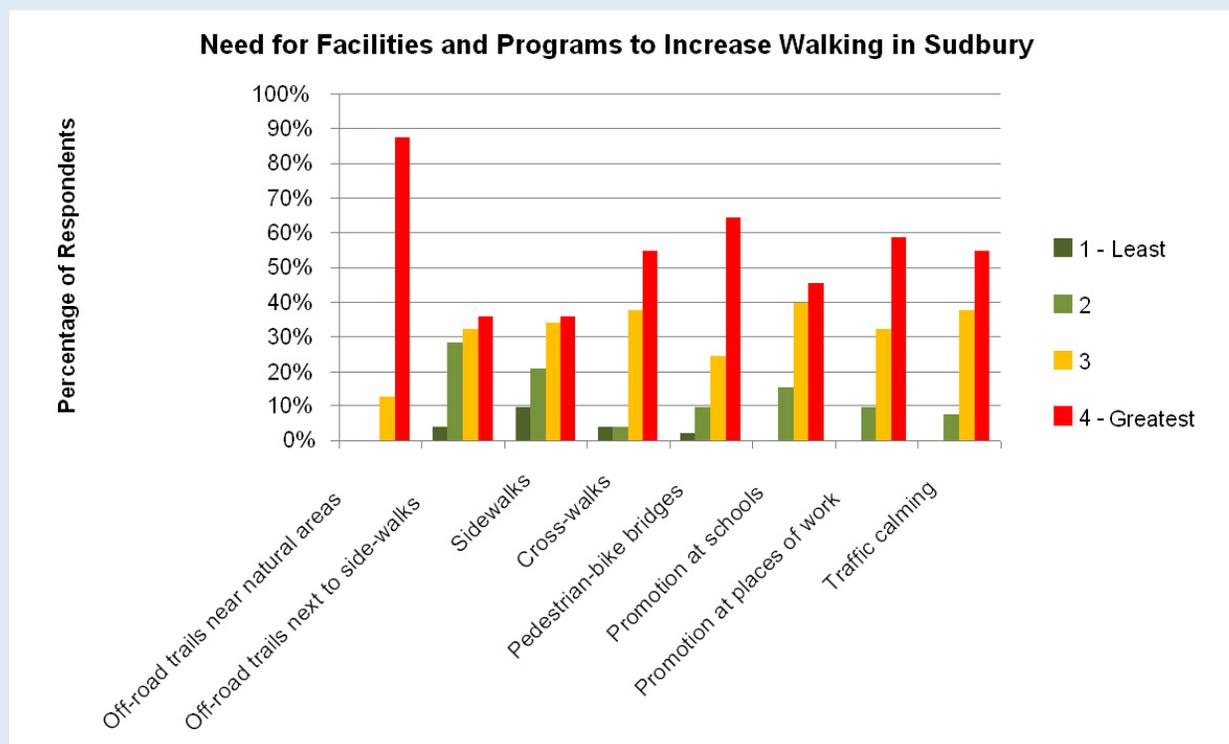
Graph 4: Respondents rate the need for various types of bicycle initiatives.

Graph 4 shows that 71% see pedestrian-bike bridges as a high priority to get more people bicycling. Better integration with public transit, promotion at places of work, and traffic calming were also rated as somewhat high need.

What You Said: Results of the Individual Surveys



Question 5: How would you rate the need for the following programs and facilities in Greater Sudbury to increase the number of people walking on a regular basis: off-road trails near natural areas, off-road trails next to side-walks, sidewalks, cross-walks, pedestrian-bike bridges over roads/rivers, promotion at schools, promotion at places of work, traffic calming/slower speeds on neighbourhood roads, other?



Graph 5: Respondents rate the need for various initiatives to improve walkability in Sudbury.

Graph 5 shows that 88% of respondents see a high need for off-road walking trails near natural areas. Pedestrian-bike bridges are also rated as high or somewhat high need by a combined 89% of respondents. Promotion at places of work, and traffic calming were also rated highly.



What You Said:

Recommendations from the Community Workshop

Each workshop group was asked to discuss possible ways to make the city more pedestrian-friendly, bicycling-friendly, and a great place. The following recommendations were of highest importance for the groups and most in alignment with the results of the individual surveys.

Additional questions from the group activity session from the community workshop can be found in Appendix B which also includes the full transcript of all ideas presented at the meetings and workshop.

Year 1- Low cost, high benefit, good visibility and easy to implement actions that could be taken right away to make Sudbury more:

Pedestrian-friendly:

- Increase sidewalk maintenance to ensure sidewalks are safe and clear all year round.
- Launch a walking promotion initiative at schools, workplaces, and community centres, including curated historical/nature walks and 'active and safe routes to school' programs.
- Identify the worst pedestrian crossings in Sudbury - the ones which are currently most hazardous/intimidating for pedestrians - and upgrade them.



Given Sudbury's large amount of annual snowfall, clearing all sidewalks was recognized as a key action to get more people walking in the winter.



Bicycling-friendly:

- Improve the quantity and quality of bicycle parking across the city.



An example of sheltered bicycle parking at a GO train station in Southern Ontario.

- Expand 'Rack and Roll' program by putting racks on more buses, beginning with the most popular routes, and routes serving postsecondary campuses.
- Launch a bicycling promotion program at schools, workplaces, and community centres, including safe cycling skills training for youth and adults.

- Install a bicycle path along Ramsey Lake Road, beginning with 2.4 km connecting Municipal Road 80 to Laurentian University (Figure 6).

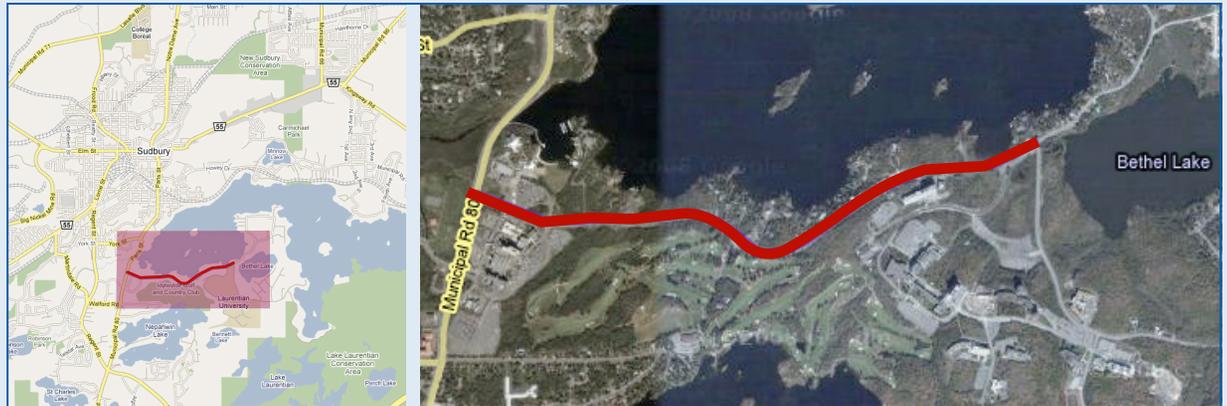


Figure 6: Proposed bikeway for Ramsey Lake Road.

- Complete the off-road path north of Bennett Lake to allow direct bicycle travel between Laurentian University and Four Corners via University Road and Loach's Road (Figure 7).

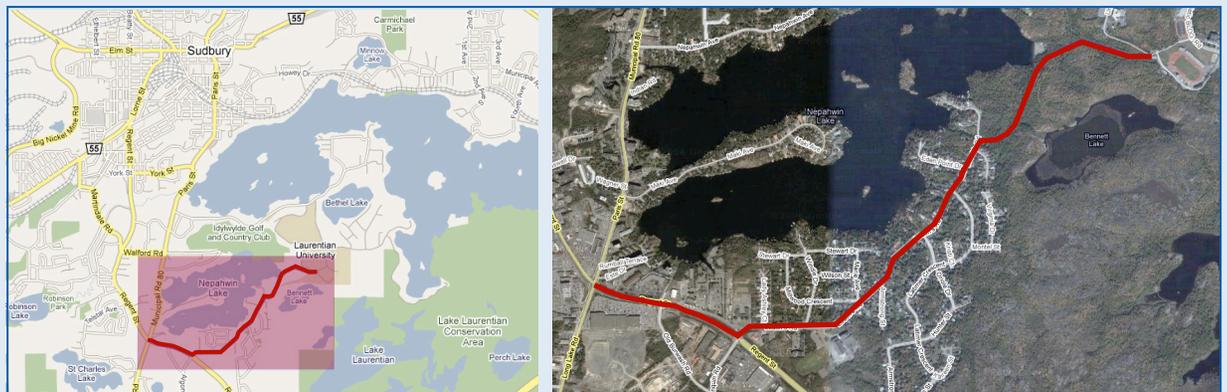


Figure 7: Proposed off-road path



A great place:

- Launch a Car-Free Day program on and around Paris, Durham and/or Elgin streets (Figure 8).

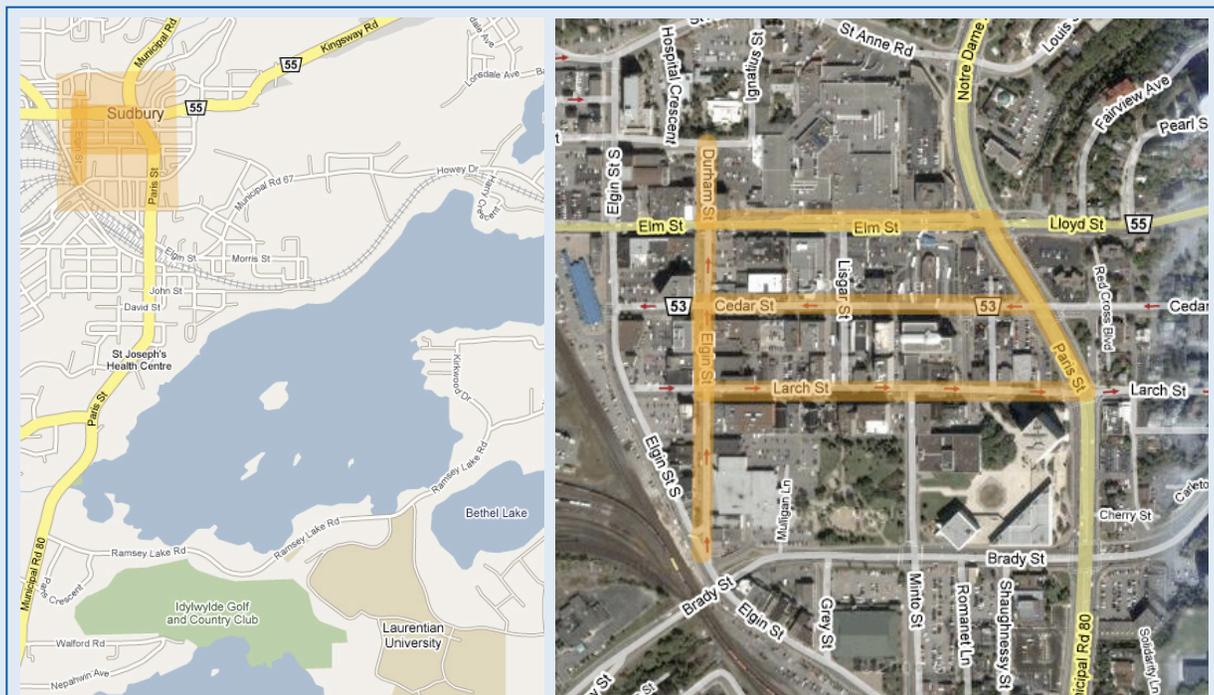


Figure 8: Places to consider Car-Free Day programs.

- Install more benches and other simple amenities to enhance public spaces in neighbourhood centres.



New York City's Car Free Sunday or "Summer Streets" on Park Ave, August 2008.



Year 2-5: Higher cost, longer-term actions to make Sudbury more:

Pedestrian-friendly:

- Enact a complete streets bylaw to ensure that all new construction, and all renovated streets, include sidewalks and other infrastructure to support walking. Initiate a pilot project to make Ramsey Lake Road into a “complete street.”
- Given the sheer size of Sudbury, people who want to walk to daily destinations must be supported by an efficient and effective public transit system.
- Improve bus shelters and maintenance (especially snow clearance at stops) to make conditions better for those who walk to transit.
- Introduce fast and frequent bus service, possibly an express route or bus rapid transit, running from the Four Corners shopping centre in the south, through downtown, north to the retail district in Val Therese (Figure 9).
- Identify natural and human made physical barriers to active mobility, such as rivers and highways, and install pedestrian and bicycle bridges as necessary



Transportation hierarchy from Transportation Alternatives (www.transalt.org).

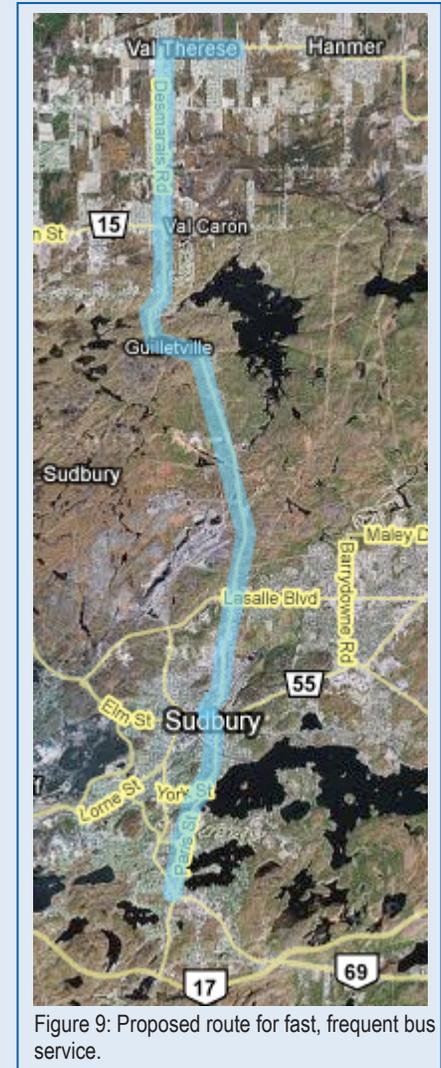


Figure 9: Proposed route for fast, frequent bus service.



Bicycling-friendly:

- Enact a complete streets bylaw to ensure that all newly built streets and all renovated streets are safe and comfortable for bicycling. Initiate a pilot project to make Ramsey Lake Road into a “complete street.”
- Construct a city-wide network of high quality bicycle facilities. On-street facilities should be separated from car traffic on arterial streets, and have painted lanes, possibly in a different colour, on quieter streets. Off-road facilities should be continuous and well connected to other on and off road routes. The bikeways recommended in this report would be a very good start on this project, and would give Sudbury a bike-friendly downtown, connected to an 18km. loop of bikeways around Lake Laurentian.



Example of physically-separated bicycle infrastructure in Montreal.



Specific priorities outlined by community members include:

- Install separated bikeways along Notre Dame, from the Nickeldale Conservation Area south to Four Corners (Figure 10).

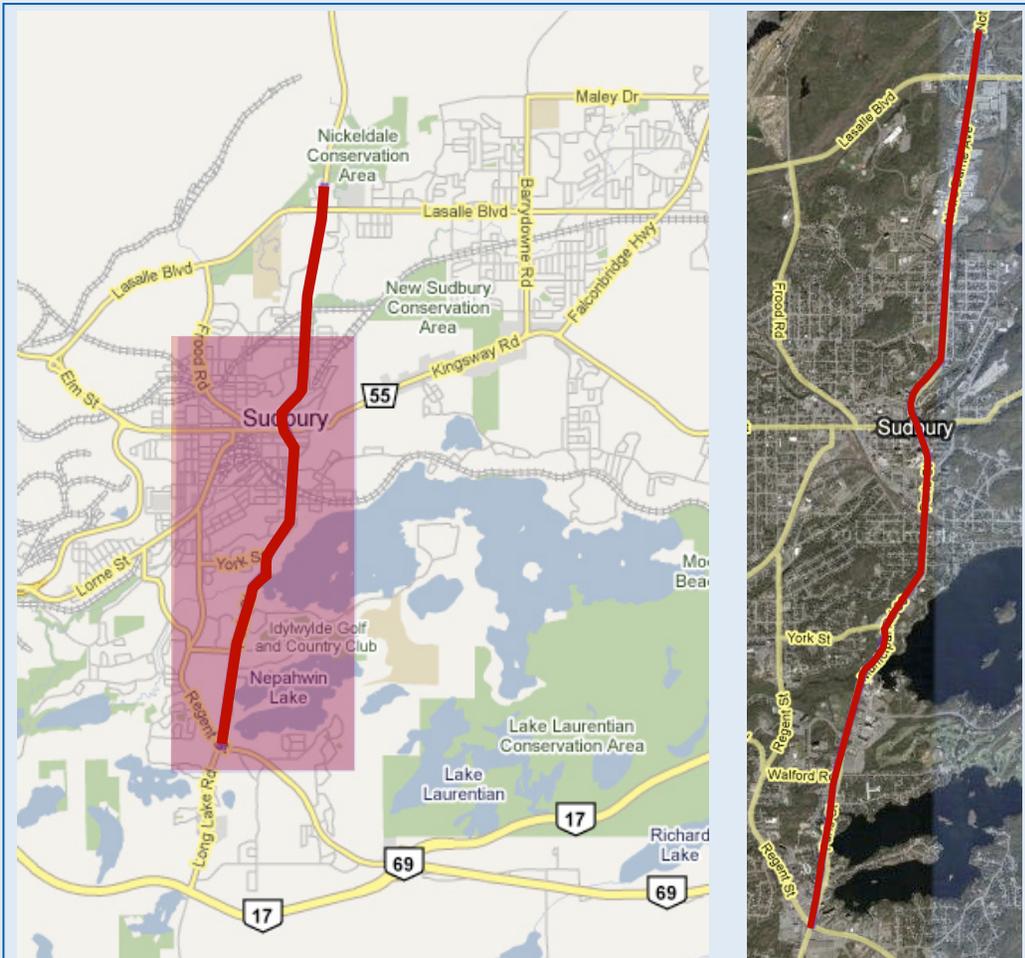


Figure 10: Proposed Notre Dame bikeway.

- Connect Cambrian College to downtown with a bike-way south through the New Sudbury Conservation Area (Figure 11).

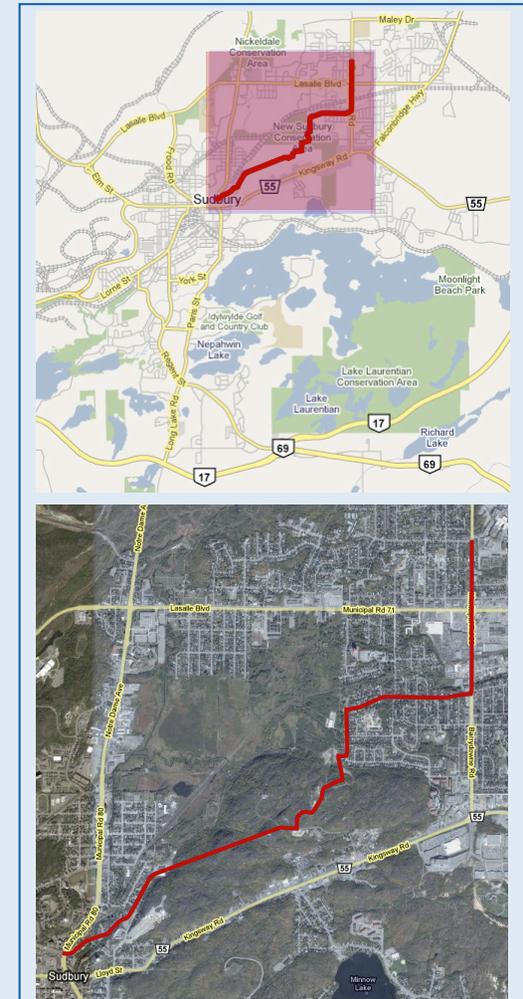


Figure 11: Proposed off-road trail through New Sudbury Conservation Area.



- Finish the trail from Moonlight Beach Road west through Lake Laurentian Conservation Area to South Bay Road; eventually extend bike route to meet up with proposed Ramsey Lake Road route (Figure 12).

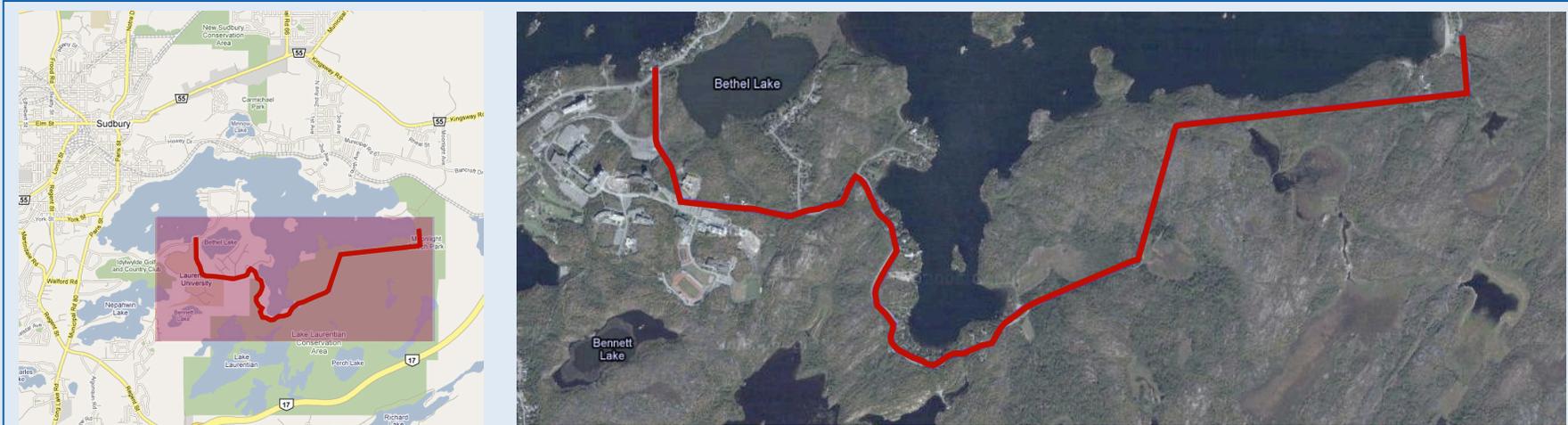


Figure 12: Proposed off-road trail through Lake Laurentian Conservation area.

- Develop a bikeway linking Municipal Rd. 66, Kingsway and Moonlight Ave (Figure 13).

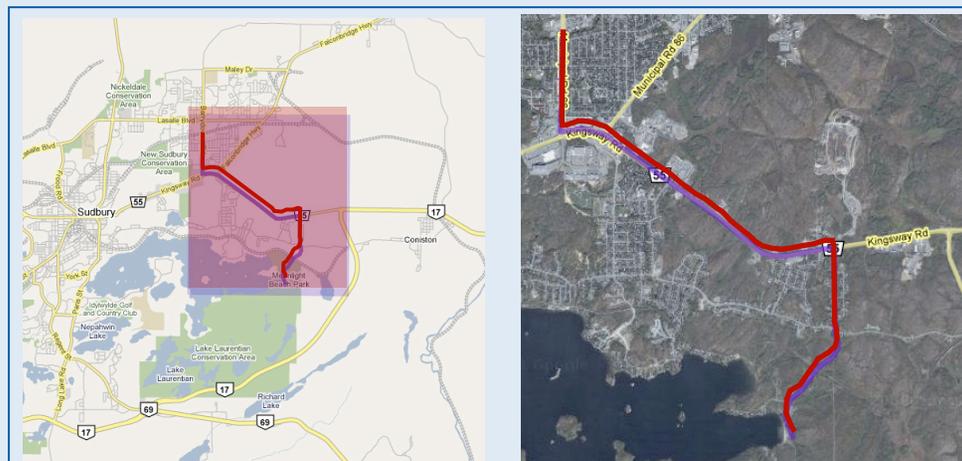


Figure 13: Proposed north-east connecting bike route.



- Use short multi use paths to improve connectivity of neighbourhood-level walking and bicycling routes to eliminate the need for long detours and make walking and bicycling more convenient for short trips.
- For example, a path was suggested which would connect the east end of this shopping complex directly to Nephawin Avenue. (Figure 14).

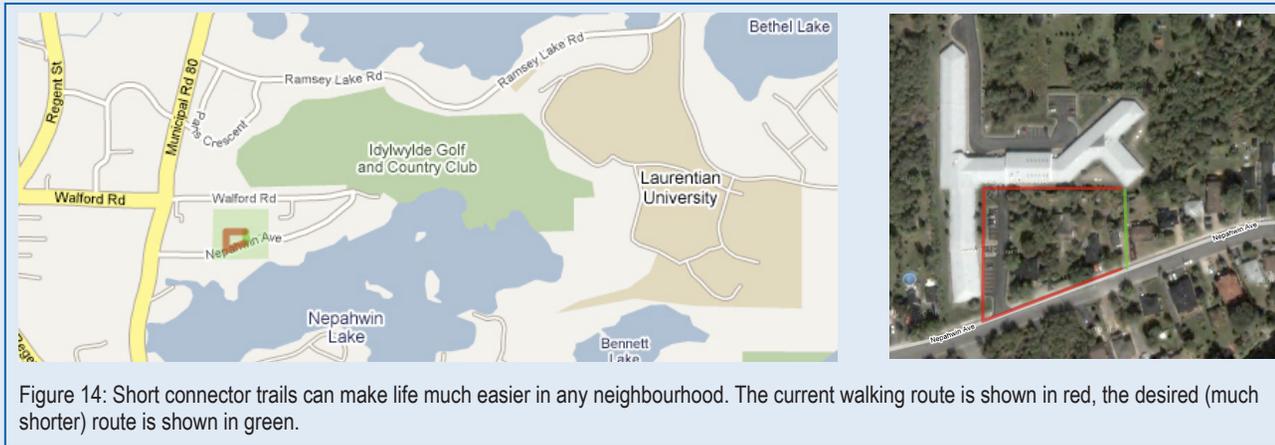


Figure 14: Short connector trails can make life much easier in any neighbourhood. The current walking route is shown in red, the desired (much shorter) route is shown in green.

- Provide active links between residential areas and important destinations like community centres and parks.
- For example, connect Centennial Arena and surrounding parkland to Municipal Route 80, either through green space or along Centennial Drive (Figure 15).

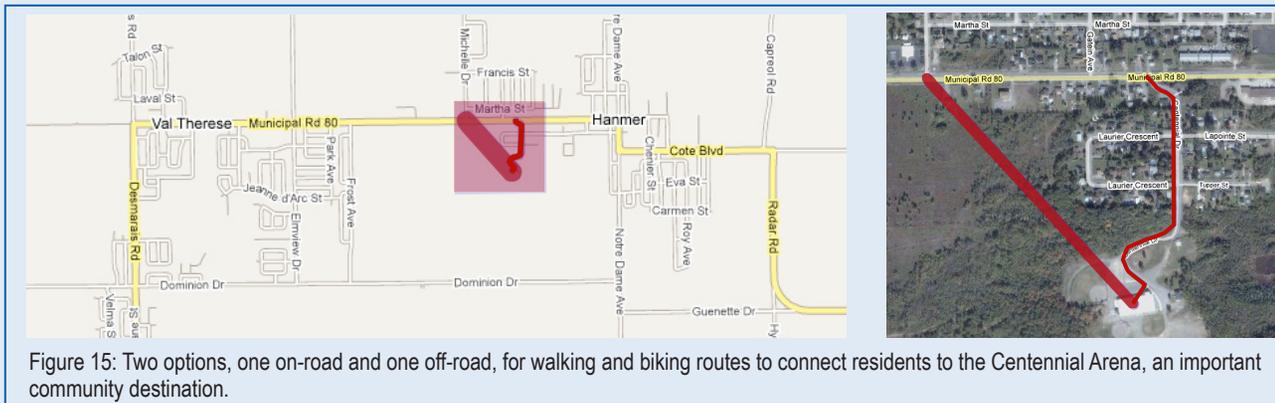


Figure 15: Two options, one on-road and one off-road, for walking and biking routes to connect residents to the Centennial Arena, an important community destination.

- Expand programs to encourage cycling, particularly downtown and at university and college campuses.
- Partner with Laurentian University's Outdoor Adventure Leadership program to promote mountain bike tourism





Creating Great Places:

- Nurture and animate Sudbury's public spaces through festivals and active family events.
- For example, host a multi-venue, walkable art festival in partnership with downtown businesses
- Host skating/tobogganing events in winter
- Set a goal to have enough small parks that every Sudbury resident can walk to a local green space
- Create a planning policy framework to nurture dense, multi-use neighbourhood centres



Downtown Portland, Oregon. This area used to be a highway and was converted into a well-used public space.



Ramsey skate path, Sudbury. An example of a great public space that could be animated with festivals and events.

Conclusion



These recommendations are a distillation of the **ideas and aspirations expressed by Sudbury community leaders and residents** about how to make Sudbury a better place to walk, bike, and live a good life. The information gathered from the community workshop and the individual responses to Walk and Bike for Life's surveys reflects the great potential that Sudbury residents see for active transportation in their community. Despite the challenges posed by long distances and an even longer winter, residents value active transportation, particularly as it contributes to health, happiness, quality of place and quality of life.

Some of the key recommendations from the community included infrastructural improvements such as the construction of pedestrian shortcut trails and the development of a regional network of bicycle routes, programming initiatives such as bicycling and walking promotion programs and the expansion of Car-Free Day events, and policy changes such as a complete streets policy and an enhanced commitment to nurturing dense, multi-use neighbourhood centres.

Walk and Bike for Life would like to add that there is a need in Sudbury to capture all of these aspirations within a comprehensive Sustainable Mobility Plan, which addresses walking, bicycling, and all other forms of active mobility, and aligns efforts to promote active transportation with the higher order need to make Sudbury a great place for residents and a destination for visitors. That said, as *Figure 16* shows, the community has already identified steps, which should be taken towards a future that will see Sudbury with a more vibrant downtown, an efficient bicycle network, and improved citywide mobility.

The aforementioned recommendations were developed as a resource for stakeholders to draw on when making any new plans or developments within Sudbury. General ideas and examples for effective pedestrian-friendly, bicycling-friendly, and public place improvements can be found in the Toolkit contained in Chapter 4 of this report.

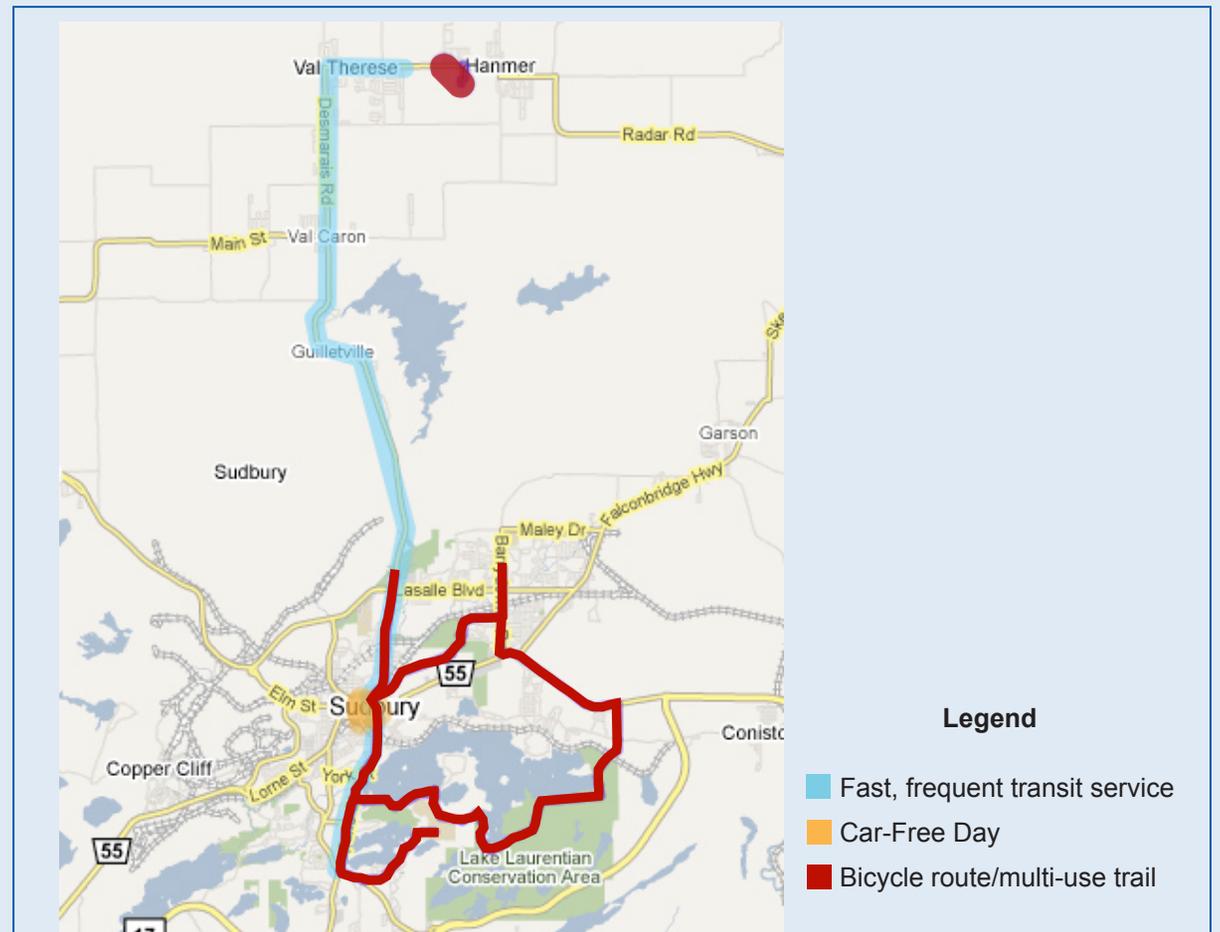


Figure 16: Putting all of the proposals on one map shows that if these ideas were implemented Sudbury would have the foundation for a highly integrated multimodal regional transportation system, with bikeways and trails all the way around Lake Laurentian, good transit connections between community hubs, and a more vibrant downtown.

Chapter 3

Next Steps

Moving from Talking to Doing



Harnessing this form of holistic planning can help cities become world class destinations. But how do we turn these ideas into action? Gil Penalosa, Executive Director of Walk & Bike for Life, has spent many years working on walking and bicycling in cities. After reflecting on his successes, Gil has identified the following:

five elements which are necessary in order to stop talking and start doing.

Leadership

Every movement needs a leader. Having passionate, committed, and knowledgeable leaders can inspire people to not only understand these issues but act upon them as well. It's not about knowing everything; it's about motivating others and making them understand the importance of your work. It is understood that planning and transportation issues can be incredibly complex and controversial. However, by having leaders who are focused on doing the right things rather than doing things 'right', cities can begin to develop on a human-focused scale. Leaders often occupy positions of power but this is not always necessary. You can become a leader in your community by gathering the knowledge and resources necessary to inspire and create action. Getting involved in relevant community events is a great way to get yourself connected to other actors within your community. Nevertheless, whether it is you who is leading or not, it is imperative that you make your voice heard by those who are. This can be done through, emails, letters, petitions, or events.

Although having passionate, progressive leaders in your area makes it much easier to implement change, don't give up if this is not the case. There are still four more factors that can turn *talking* into *doing*.

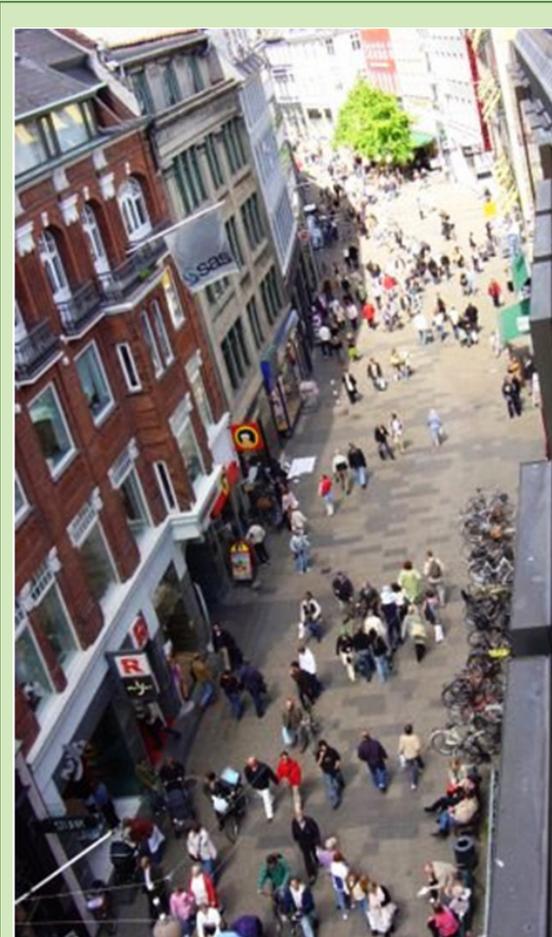


Figure 17: One of Copenhagen's successful pedestrian plazas

Political Will

When it comes to building infrastructure in our city, community members can only do so much. The plans and proposals for new roads, trails, public spaces, and parks need to come from our politicians. It takes guts to take an innovative idea and move forward with it – but the rewards of being that person are considerable and long-lasting. In Copenhagen, the first steps towards improved public spaces were met with intense backlash on multiple fronts. Not only were business owners worried about the impact upon their profits, but drivers were also worried about decreased car mobility. Despite this reaction, leaders in office had a long term vision which they stuck with– and now residents are grateful for their politicians' foresight. With the improved economic activity and decreased congestion brought on by their plans, Copenhagen's placemakers proved that great politicians with the courage to create real change can build world class cities (see *Figure 17*).

That being said, politicians work for the people, and if there is no visible support for an issue coming from constituents, then politicians will be much less likely to fight for it. With so many matters on their minds, we cannot expect politicians to focus on the issues that are not being brought to their attention. Local groups and citizens must work together to make these topics visible to politicians as well as encouraging them to make the gutsy decisions necessary to create real change.

Moving from Talking to Doing



“Doers” in the public sector

It's not enough for politicians to talk about their goals and ideas; someone needs to do the work to follow through upon those promises. Janette Sadik-Khan, Transportation Commissioner for New York City was inspired by the cycling facilities that she saw around the world. Thirty days after she announced New York City's new bike plan, a physically separated bicycle lane was set up on 9th Avenue. Sadik-Khan is now transforming the meaning of transportation in New York City and being hailed as a visionary for her actions (see Figure 18).

It is a common theme within the public sector to find different departments, who often work on similar or neighbouring infrastructure, to lack communication or cohesion. Often you will find work being duplicated because certain departments don't think to, or prefer not to work together. Local organizations, citizens, and politicians must work to bring these departments together in order to improve co-operation and efficiency. For example, many municipal, regional, and provincial transportation, public works departments build infrastructure without consulting each other. This often leads to different areas of the same road or public space to be worked on at different times or with different characteristics. This is not only a waste of time, but a massive waste of money. Promoting a more cohesive communication system will help to align departments in both principle and practice. This alignment will in turn lead to more efficient and effective action.



Figure 18: New York City's first physically separated bicycle lane.



New York City continues with impressive improvements on Broadway

Community Engagement

It takes the work of a strong and active community to make change in our cities. Everyone has their own cause, so if you aren't writing letters and making calls to city officials, then someone else is. If city representatives are not hearing about an issue, they have no way of knowing that it is a priority to their constituents. So citizens need to speak up, speak to their elected officials and make known that transportation is an important issue in this community – politicians are paid to listen.

Sense of Urgency

With the Greater Golden Horseshoe expecting to see a 50% population increase in the next 25 years, carbon emissions pushing the globe's temperature to rise at record rates, and unpredictable fuel prices making it difficult for households and public agencies alike to budget from one year to the next - transportation is one of the most urgent issues facing us today.^{xix} So why aren't we feeling the pressure to invest in active transportation? The connections are not being made concerning the important role that transportation will play in meeting the great challenges of this generation. A lack of urgency permits complacency and procrastination – attitudes that cities cannot afford. The importance of this issue must be made clear; its urgency will force all stakeholders to pay attention and to begin taking action now.

Community Action Group



What is a Community Action Group?

The Trails for Life program aims to transform ideas into action, and to prompt real, tangible change by harnessing the energy and capability that exist within communities. Walk and Bike for Life acknowledges that the members of every community understand their unique challenges and solutions better than any outside organization. Therefore, the key actor in this process will be the Community Action Group (CAG), a locally driven coalition of individuals and organizations with the passion and capacity to advance initiatives for walkability, bike-ability, and the creation of great public spaces in a given jurisdiction. CAGs will include representation from any and every interested party: members of the public, government agencies, business leaders, environmental groups, school groups, and any other concerned community members. The Trails for Life program will generate action within a number of promising communities across Ontario through the development of each CAG. Our Walk and Bike for Life Community Action Groups will be given the opportunity and resources to work at a grassroots level to implement unique and localized solutions in their neighbourhoods.

When working with Community Action Groups, Walk and Bike for Life will serve a centrally supporting role, providing assistance with administration, public relations, media and advocacy strategy, and research. As the groups develop, Walk and Bike for Life will facilitate discussion and contact among CAGs throughout Ontario to create a mutually supportive network for information and resource sharing on walkability, bike-ability, and quality of life issues in the province.

Individuals and organizations
with the passion and capacity to
advance initiatives for
walkability, bikeability, and the
creation of great public spaces

Chapter 4

Tool Kit

Myths vs. Facts

When it comes to dedicating time and money to the creation of parks, trails, and people-friendly infrastructure, naysayers tend to raise the same objections time and again. Here we will take some time to put these common misconceptions and misunderstandings to rest. This will allow us to focus our time and energy on finding solutions to the challenges faced by our neighbourhoods and on overcoming real, rather than imagined, obstacles.

Myth: Walking and bicycling are not safe modes of transportation.

Fact: Activities become safe when appropriate infrastructure and safety measures are implemented.

Statistics in Canada show that more and more people are choosing to use their cars as their main means of transport – and who can blame them?^{xx} An average of 7 pedestrians and 1 cyclist are killed in motor vehicle accidents every week in Canada.^{xxi} To put that in perspective – each year almost twice as many Canadians are killed by cars while walking and cycling than are killed by firearm violence.^{xxii}

While there are dangers to walking and cycling in Canadian neighbourhoods, there is no reason to throw out walking and cycling as legitimate modes of transportation. Think about it - when water is contaminated, we don't tell people to start drinking juice, we clean up the water! In the same way, we need to clean up our streets by implementing the infrastructure that makes them safe for cyclists and pedestrians. Only through the construction of such infrastructure will pedestrian and cyclist deaths decrease.

(Figure 19) shows that cyclist and pedestrian fatality rates decline in direct proportion to the quality of infrastructure in a city. The reasons behind this decline are multilayered. As infrastructure improves, more people cycle. As more people use their bicycles, cyclists become a common sight on the road, making drivers much more aware of, and reactive to, their presence. Conversely, drivers who are not used to seeing cyclists tend to be less respectful, aware and comfortable driving alongside them. In fact, (figures 20 and 21) show that cyclist and pedestrian fatality rates also decline in direct proportion to the number of pedestrians and cyclists using the sidewalks and roads. In the U.S, cycling and walking levels are only about 1% and 5% respectively, with death rates at about:

7 deaths/ 100 km travelled for cyclists,
and 14 deaths/ 100 km travelled for pedestrians.

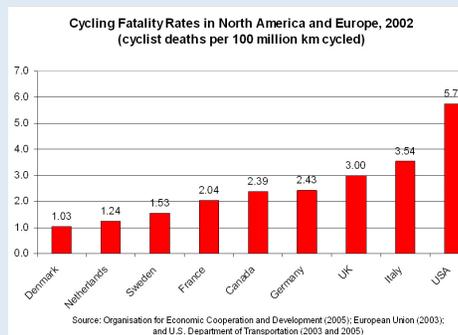


Figure 19: Cyclist fatalities per 100 km of riding. Denmark, famous for their extensive walking and cycling infrastructure, has a fatality rate that is less than half that of Canada's.

In the Netherlands, where cycling and walking levels are more than 4 times higher than those in the US, death rates drop dramatically to 2.5 cyclists/ 100 km travel and only 2 pedestrians /100 km travelled.

So, yes, walking and cycling are dangerous without the proper infrastructure in place. Once that infrastructure is in place, more people will use non-motorized transportation, cars will become more used to sharing the roads, and less pedestrians and cyclists will be killed – making our roads safer for all.

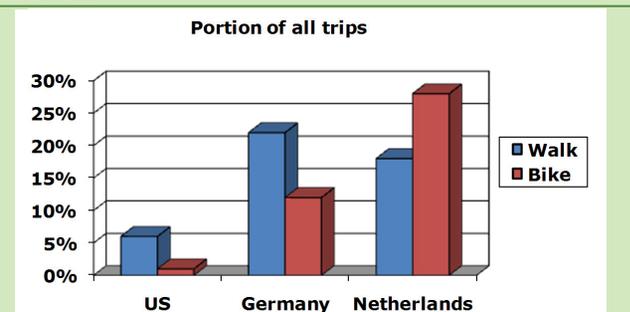


Figure 20: Percentage of trips made by foot and bicycle in the United States, Germany and the Netherlands.

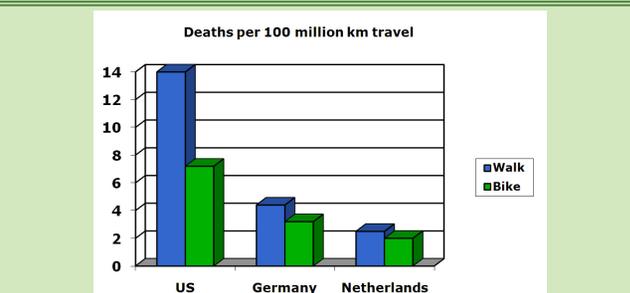


Figure 21: Cyclist and pedestrian deaths per 100 km travelled. Fatality rates are dramatically lowered in countries where there are more pedestrians and cyclists on the roads and sidewalks.

Myths vs. Facts

Myth: Creating walkable, bikeable communities, trails and parks is too expensive.

Fact: Building healthier communities is a matter of priorities.

From 1995 – 2001 Bogota Colombia, a city with approximately one eighth the per capita income of Sudbury, built over 850 parks, including 5 parks located in city centers. In 3 years, an 899 acre park with a 280 km separated bicycle path network was built in the heart of the city. Furthermore, the city's bike share program increased to 300 000 users from 28 000. The point is - **changing our cities is a matter of doers, not dollars.** With a cohesive long term plan, short term attainable goals and most importantly, a serious desire to make change, our cities' wealth can be used to reflect our priorities. Of course, cities cannot fund everything proposed, but to say that this infrastructure is too expensive is simply not the case.

Pedestrian and cycling infrastructure is much cheaper and serves many more people per dollar than does infrastructure for motorized vehicles.

Funding is dependent on how high these issues are on decision makers' list of priorities. Therefore, if they choose to make it a priority, they will always have the funding.

Myth: The people in this city love their cars, this will not transform into a city of cyclists.

Fact: Bicycle infrastructure increases bicycle commuting.

In 1990 Portland, Oregon had a disjointed and minimal trail network made up of bike-ways which were often disconnected from one another. The city's residents were not interested in biking, and the majority of trips made to the city centre were by car, with only 2-7% made by bicycle in most places.^{xxiii} All that changed when in 2000 a Transportation Master Plan was implemented that included an extensive, accessible and cohesive cycling network (*Figure 22*). A large part of the city now boasts ridership of over 10% with most of the surrounding areas at 8-10%.^{xxiv} In other words, **Portland officials doubled their city's ridership just by increasing the extent and integration of their bike trails.**

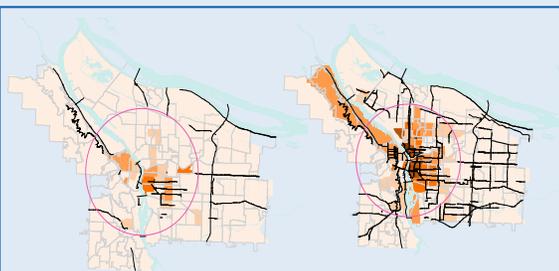


Figure 22: Portland's cycling trails moved from disconnected in 1990 (left) to cohesive and extensive in 2000 (right). Ridership doubled as a result of the change.

Myth: Winter makes walking and biking impossible in Sudbury.

Fact: Winter is a challenge that can be met. With proper maintenance of sidewalks and well-designed trails, all residents can enjoy active mobility all year round..

The average annual snowfall in Sudbury measures 274 cm^{xxv} That is a lot of snow – more than Hamilton (144 cm), Ottawa (235 cm) or even Barrie (238 cm).^{xxvi} Harsh winters make it even more important to implement measures which prevent residents from being stranded once the snow begins to fall. With proper year-round maintenance, including ploughing and salting of sidewalks, walking can remain viable and safe throughout the winter – and remember that every trip includes at least a short walk, even if it's just a dash from the parking lot. Bike lanes should be cleared through the fall and spring seasons. With careful design of off-road trails, snowshoeing, cross-country skiing, and snow biking can be substituted for bicycling in winter months. With proper support Sudbury residents can enjoy an active outdoor lifestyle and good personal mobility all year round.



Snow biking has become popular enough that manufacturers now produce special bicycles designed to handle well in ice and powder

Myths vs. Facts

Myth: Canadian people want more cars and more highways.

Fact: When citizens become engaged, cities focus on people.

In the Economist's 2007 ranking of the world's cities, **Vancouver was rated the number 1 most liveable city in the world.** When asked, the Economist Intelligence Unit cited low crime rates, little threat from terrorism, and advanced communications and transportation infrastructure as the reasoning behind Vancouver's rank.^{xxvii} The city's award winning transportation isn't car focused. In fact, city staff, politicians and citizens haven't allowed new highways into Vancouver's city centres in 30 years! No one group is dictating these decisions – Vancouver prides itself on extensive citizen engagement and has actively chosen a people-centred way of life.



City planners in Vancouver, with extensive citizen input, coordinate their planning of Land Use and Transportation.

Myth: European cities can't be used as a guide to make this city more walkable and bikeable. They were built to be people-centred hundreds of years ago.

Fact: Many European cities have seen drastic turnarounds in the last 20 years by taking risks and making the tough decisions during their urban planning development.

Fifteen years ago citizens of Copenhagen, Denmark thought that a vibrant public life based around walking and bicycling was impossible – residents were too dependent on cars, the city's weather was too harsh, and extensive walking and biking was not part of Danish culture. Today, residents know better.

Figure 23 shows that in 25 years the number of people using bicycles as their primary vehicle in Copenhagen has doubled. In those 25 years the number of bicycles entering Copenhagen during the morning rush hour has increased from 8 000 to over 20 000, while the number of cars entering the city has decreased from 23 000 to only 18 000.

Copenhagen's planners made a choice and took the necessary measures to create a walkable, bikeable city. The result has been citizens who are proud, happy and comfortable in their community- no wonder outsiders think that life has always been this way.



Figure 23: Morning rush hour commuters into Copenhagen. From 1990-2005 bicycle use increased dramatically and now surpasses car use in the downtown core.

Myths vs. Facts

Myth: Walking and cycling infrastructure is about painting lines on the pavement.

Fact: Designing proper infrastructure is about re-evaluating our priorities.

A survey in Portland showed 65% of cyclists to be male and 70% of cyclists aged between 25 and 50 (see Figure 24).^{xxviii} This gender and age imbalance in the cycling community is a direct result of the design of our streets. A prevalent attitude among decision makers seems to be that if there is enough money left over, a bike lane *might* be painted onto the road. The result is roadways that are great for cars, but intimidating and unusable for most cyclists, and dangerous for those who do cycle.

Transportation, just like all other government matters, must be inclusive, and must reflect the needs of all citizens, especially the most vulnerable. Riding a bike beside a large transport truck when separated by only a painted line makes even experienced cyclists feel threatened. So, if you wouldn't feel comfortable putting your 80 year old grandparents out on a bike in your city, consider it a sign that you've still got work to do.

Building better infrastructure requires the recognition that all means of transportation are equally important and, therefore, need to be given equal consideration in planning. That means investing money in physically separated bike lanes, wider sidewalks, clearly marked intersections, and coherent trail systems. It means making the transportation of people, rather than cars, into the primary consideration of road design.



Physically separated facilities are safe and comfortable for all users: drivers, cyclists, and pedestrians.

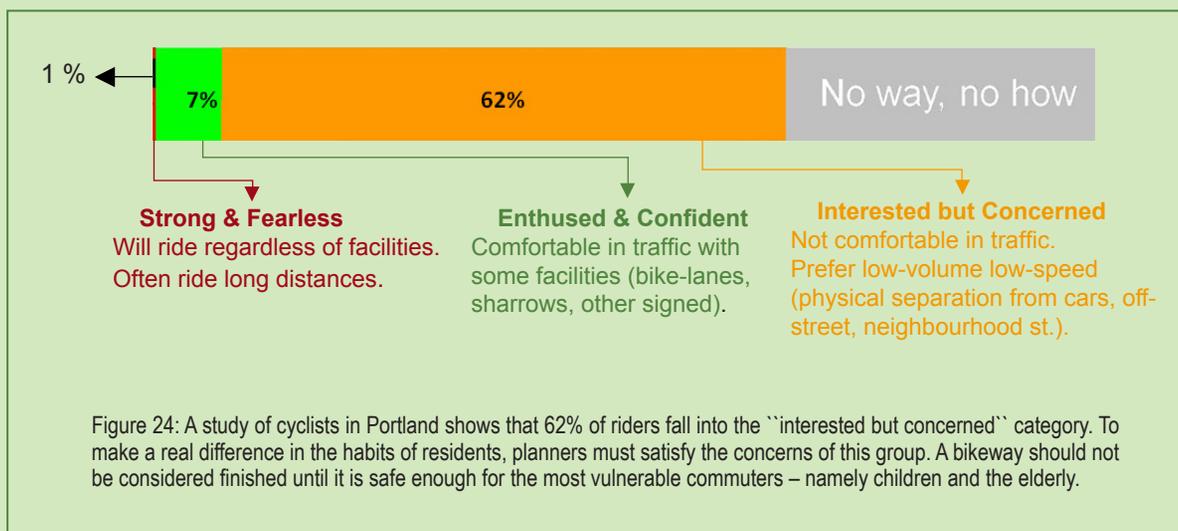


Figure 24: A study of cyclists in Portland shows that 62% of riders fall into the "interested but concerned" category. To make a real difference in the habits of residents, planners must satisfy the concerns of this group. A bikeway should not be considered finished until it is safe enough for the most vulnerable commuters – namely children and the elderly.

Case Studies

People Are Doing It! Case Studies in Walkable, Bikeable Communities

Sometimes you need to see it to believe it. Each of the following cities had hurdles to overcome similar to those faced in Halton Hills. Taking inspiration from their innovation and experiences can help us to work toward building our cities into unique, healthy, and happy communities.

Chain of Lakes – Minneapolis

Putting their beautiful waterfront scenery to good use, Minneapolis created their famous “Chain of Lakes.” With parks and trails located along the lakeshore and 21.4 kilometres of walking/jogging/biking friendly pathways the Chain of Lakes provides a safe and accessible opportunity for residents to actively transport and enjoy themselves.^{xxix} It also draws over 14 million visitors a year. With the purchase of food, services and accommodations that those visitors make, the trails are **generating millions of dollars in revenue for the city.**



Minneapolis residents and visitors making the most of their waterfront location

Winter Cycling- Copenhagen, Denmark

In light of Sudbury’ winters, some might say that cycling infrastructure is a waste of time and money, claiming that even if bikeways were cleared and salted, no person would want to leave the comfort of their car for the cold of winter. In fact, a number of cities with cold, snowy winters have looked past this perceived impediment and found such perceptions to be unfounded. In Copenhagen, Denmark 30% of residents cycle to work and 70% of those cyclists continue to bike even during Copenhagen’s cold, snowy winters.^{xxx}



Commuters make their way to work during a Copenhagen winter. 70% of cyclists continue to ride during Copenhagen’s winters.

Case Studies

Car Free Sunday – Ottawa, Canada

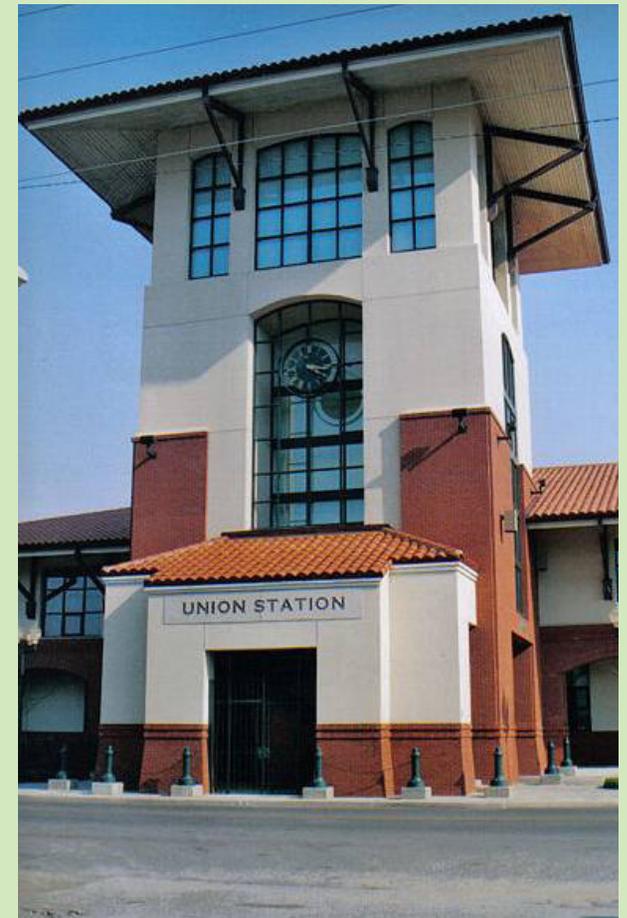
Every Sunday from Victoria Day to Labour Day, Ottawa closes its streets to cars and opens them to people. Over 50 km of roadways are shut down each week allowing citizens and tourists to actively enjoy the city's streets. Car free Sundays are a great way to foster a community atmosphere – not only do they keep people active, but they change our perceptions by presenting our well paved, wide and comfortable roads as public places for all citizens.



Taking back the streets – enjoying Ottawa's wide open road space on the city's summertime car-free Sundays.

Multi-Modal Transportation Centre – Meridian Mississippi

In 1997 Meridian Mississippi, a city of only 38 314 people transformed their central railway station into a community hub and money maker. After consulting with architects, engineers, specialists and, most importantly, the local community, Meridian made a decision to capitalize on the potential of their transit station. Today the Station hosts a railway museum and conference room and is surrounded by a farmer's market, public park, restaurants and a designated festival and events area – all largely supported by the local Business Development Corporation. Local citizens love the station's integration into the community and have shown their financial support. The station offers a patron's program which allows citizens to donate anywhere between \$40 and \$2500 to dedicate plaques around the station. These plaques have been placed on anything from bricks to lampposts. Tourists are also showing their support for the transformation as the local industry has been stimulated and the station now regularly hosts events such as weddings, conferences and private parties.



Meridian Station, Mississippi

Case Studies

World Class Streets – New York

New York's World Class Streets program is developing several new streetscape projects across the city to enhance public spaces. The World Class Streets initiative is incorporating several methods in enhancing public spaces. It includes: a public plaza program, Broadway boulevard project, complete street projects and design standards, safe streets for seniors and students, public art program, coordinated street furniture, and weekend pedestrian and cycling streets. New York is committed to achieving its goal of having a public open space for every resident within 10 minutes of walking for every resident. To do this, the city is creating or enhancing a public plaza in every community. In June 2008, New York launched the NYC Plaza Program that established long-term partnerships between the NYC Department of Small Business Services and community groups in order to maintain and program the plazas so they continue to be well managed and active destinations. One of the great accomplishments of the project is the revamping of 9th avenue. The before and after photos show the extensive transformation the street went through.



Madison Square after DOT pilot project



9th Avenue Before



9th Avenue After

The 8/80 Rule



Step 1:

Think of a child that you love and care for who is approximately **8 years of age**. This could be a child, grandchild, sister, brother, cousin etc.

Step 2:

Think of an older adult, approximately **80 years of age** who you love and care for. This could be a parent, grandparent, friend etc.

Step 3:

Ask yourself: Would you send that 8 year old along with the 80 year old on a walk, or a bike ride on that infrastructure? If you would, then it is safe enough, if you would not, then it is not safe enough.

This rule may seem simple but it holds many implications. Interestingly, when you are forced to think of the ability of most cycling and pedestrian infrastructure to safely serve all citizens, they often fail.



Helpful Groups and Websites



Helpful Groups and Websites:

Walk and Bike for Life: www.walkandbikeforlife.org

WalkON: www.walkon.ca

Ministry of Health Promotion: www.mhp.gov.on.ca

Canada Walks www.canadawalks.org

Green Communities Canada www.gca.ca

Rainbow Routes Association www.rainbowroutes.com

Waterfront Regeneration Trust www.waterfronttrail.org

Ontario Trails Council www.ontariotrails.on.ca

Complete the Streets: www.completestreets.org

Project for Public Spaces: www.pps.org

Transportation Alternatives: www.transalt.org

Gehl Architects: www.gehlarchitects.com

End notes



- i Statistics Canada, 2006.
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- iii Statistics Canada, 2006.
- iv Rodriguez, J. 2008.
- v City of Greater Sudbury, 2009.
- vi Ontario Trails Council.
- vii Project for Public Spaces
- viii IPCC, page 2
- ix Drennen, E. 2003
- x Statistics Canada, 2007.
- xi Statistics Canada, 2008
- xii Metrolinx, 2008, p. 62
- xiii Ontario Chamber of Commerce, 2004, p. 8.
- xiv Nelson et al., 2007, p. 9.
- xv Unknown author (b).
- xvi Statistics Canada, 2005.
- xvii Heart and Stroke Foundation of Ontario, 2008.
- xviii Frank, Anderson, & Schmid, 2004
- xix Ontario Ministry of Public Infrastructure Renewal, 2006, p. 3.
- xx Statistics Canada, 2008, p. 72.
- xxi Transport Canada, 2008.
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Image Credits



1. Figure 1: Diagram by City of Greater Sudbury
2. Figure 2: Pan-American Health Organization
3. Figure 3: John Pucher, Rutgers University
4. Figure 6-16: Maps produced by Walk & Bike for Life using Google Maps
5. Figure 19: Organization for Economic Cooperation and Development (2005), European Union (2003), and Us Department of Transportation (2003 and 2005)
6. Figure 20 and 21: Complete the Streets
7. Figure 22: Portland Department of Transportation
8. Figure 23: Gehl Architects
9. Figure 24: “Why Aren’t People Cycling”
10. Snow biking photo sourced 03/10/09 from www.bowcycle.com/viks-picks
Any maps not cited courtesy of Google Maps.
Any images not cited taken by Gil Penalosa, Walk and Bike for Life.

Appendix A

Group Activity Sheets



1. How would like to see the City of Greater Sudbury in 20 years? How to make this area a vibrant, healthy community with happy residents

2. What are the key destination points in Greater Sudbury? (Public spaces, parks, shopping).

3. **Year1**-low cost, high benefit, good visibility and easy implement.

List at least two actions that could be taken right away and that wouldn't cost a lot to make Greater Sudbury more:

Bicycling-friendly
Pedestrian-friendly
A Great Place

4. **Years 2-5** higher cost, longer-term

List at least two actions that could be taken in the long term that would have the biggest impact to make Greater Sudbury more:

Bicycling-friendly
Pedestrian-friendly
A Great Place

5. List any barriers or obstacles that must be overcome in order to implement your suggested actions within the following areas (Please be as specific as possible):

A. Urban/Suburban:
B. Rural:

6. What local partnerships or local talent can you identify that could help implement some of your proposed improvements? Please be as specific as possible.

Appendix B

Group Activity Sheet Answers



Question 1: How would like to see the City of Greater Sudbury in 20 years? How to make this area a vibrant, healthy community with happy residents.

Connecting trails (x5)

- All the trails connected so they can be used for recreation for getting to work/school-brings communities together
- More connections between communities
- Connecting trails between neighbourhoods
- Bus infrastructure- biking from community to community with Greater Sudbury – connecting trails, downtown to 4 corners by bike.

Improve transit (Bus, trains and stops) (x6)

- Increase bus service to/from outlying areas (include: park and ride, reserve bus lanes)
- Improve stops
- We need a sustainable transportation plan initially- should be simple, inclusive, and exciting.
- Better Public Transit
- Train service downtown or take tracks out
- Pedestrian friendly-Bus stops improve.

Development (x4)

- Housing-develop downtown cores for residents= higher density neighbourhoods which are connected with services.
- Redevelop areas close to city core
- Shops, restaurants, park downtown, gathering places-galleries
- Usable and functional park space/ green space

Bicycle Lanes /Pedestrian walkways (x5)

- Bicycle paths
- Bike and Pedestrian emphasis in City Planning and Engineering
- Pedestrian access and parkland downtown
- Connect Outlying areas to city centre with combined pedestrian, bus and car routes.
- Pedestrian squares-complete streets

Car Free Days (x1)

- Consolidate entrance for cars-car free Sundays

Decrease use of cars (x2)

- Less cars than today-more bikes and buses.
- Bicycling used as safe/viable transportation method less people using cars-more people walking/cycling.

Appendix B

Group Activity Sheet Answers



Question 2: not applicable – map drawing exercise

Question 3: Bicycling-friendly

Bike lanes (x15)

- Increase the number of and quality of bike lanes
- By-law: all new developments include bike lanes and safe bike parking
- Build bike lane from southwest bypass (at Long haul Rd.) to downtown
- Designate certain routes as bike friendly, mark lanes and communicate to all users to be expecting bicycle traffic.
- Bicycle to Durham on Elgin- more bike paths.
- To have dividers between cars, bikes and pedestrians.
- increase number of visibility of bike lanes
- Develop minimum of one off-road trail next to side walk in downtown area
- Bike lanes or dedicated routes
- Bicycle lanes with physical separation (using paint and poles) in and around downtown shopping area
- choose one major traffic route to downtown and install separate, bicycle lane
- safer bikeways/ routes
- promotion of non-motorized trails and bike friendly roads by Rainbow routes
- wider roads for bike lanes
- Remove parking on street for bike lanes

Commuter routes (x2)

- Promote existing commuter routes
- Improve crosswalks

Development (x4)

- Businesses adopt intersection like Ottawa.
- Bus and Car pool lane on main arteries

Promotion (x4)

- increased promotion by leisure, community department and tourism
- Health promotion at work and school
- Promote health value/ physical benefits
- Link with healthy community initiatives/ lobby council for support

Bike Storage (x9)

- Need bike storage in safe place
- Need to have better, more visible bike rack/storage facilities.
- More bike racks on busses
- Bicycle racks- proper bike storage
- Bike parking spots
- better access to bike racks (more security and availability)
- Have more buses equipped with bike racks to facilitate and encourage transportation
- More bike racks/ parking
- bike parking

Education/Signage (x8)

- Education to drivers and cyclists
- Bike signage and education
- Education on how to drive when bikes are on the road
- Continue to increase public awareness ie: cyclists safety and rights (Share the road)
- Provide Can-bike program
- Education
- Signage to encourage sharing the roads
- educate in schools

Appendix B

Group Activity Sheet Answers



Enforce laws (x2)

- police enforcement of traffic rules for all vehicles
- ticket cars that park in existing bike lanes

Car Free Days (x11)

- Sunday lane closings and main roads for cycling, pedestrians, roller blades – Car free
- Sundays and Summer Streets
- Rotating one-time closure of major arteries
- Close down a main road to traffic for biking Sundays
- Regular biking-Sundays
- Sunday street closure for cycling for July/August
- Close one lane from downtown to New Sudbury all Sundays between 9-3 Notre Dame Lasalle different trails every Sunday but finishing at the same place- car free zone Market place.
- Special bike day and time (Sunday 12-2 no cars. Bikes only)
- Close down certain streets for specific days, increase community engagement
- Have a section of downtown closed to cars once per season
- 15 km of highway could be closed Sunday mornings without directly impacting a single business or property owner, Highway 17 from intersection with long road East along 'new' bypass to Hwy 17 intersection between Sudbury and Coniston

Pedestrian-friendly

Safe trails (x7)

- Create better, safer links
- Guided Rainbow Route History Hikes
- Start neighbourhood "Safe Walking/ Biking" routes in individual neighbourhoods.
- improve (continue to) trail connectivity in cafes (especially in outlying areas)
- connecting sidewalks and trails to destinations
- undertake pedestrian mobility master plan
- promotion of trails by Rainbow routes

Sidewalks (x9)

- Build more sidewalks, restrooms, benches
- Build more sidewalks
- improve cross walks and traffic calming measures (Pedestrian Safety)
- more sidewalks
- more sidewalks
- require sidewalks on all streets
- provide separation between sidewalk and street
- safe sidewalks, routes
 - Remove parking on street at least one side of the street

Car Free days (x2)

- Summer streets
- Close downtown, cars during specific times in the Summer

Snow Cleaning (x5)

- Keep sidewalks and bus stops cleared of snow (not done often enough at present time).
- Sand or clear sidewalks- priority for snow clearing
- improve condition and maintenance of sidewalks (snow cleaning)

Appendix B

Group Activity Sheet Answers



- clear sidewalks well especially at intersections
- plow sidewalks as a top priority- quickly and consistently

Traffic control (x3)

- Vehicle calming- speed bumps etc.
- Walking signs
- Take school buses off the road

Crossings (x6)

- Press Light for crossing- visible crossing
- Diagonal all way can stop for pedestrians
- By-law not favouring for car i.e. Elm Street/ transit crosswalk
- Give more time to pedestrians to cross roads (change the timing of lights to help pedestrians)
- paint crosswalks
- improve crosswalks at rainbow centre

Promotion (x7)

- Promotion at schools/ workplaces
- Implement the walkability checklist
- Traffic calming based on input from checklist
- promotion of what is available- media, workplace, schools
- partnerships with workplace/ schools
- increased promotion by leisure, community department and tourism
- Health promotion at work and school

Car Free Zones (x1)

- Make Durham car-free zone connect Bell Park to downtown by markers, footprints.

Development (x5)

- Pilot project Brady and Paris, Colour and Texture
 - Add bathrooms on certain walkable routes
 - Beautification of downtown core and neighbourhoods
 - Better lighting and easy access to “emergency stations” (much like ‘blue-light’ on Laurentian campus)
 - ready available maps

A Great Place

Improve use of Parks (x2)

- To have distributed recreational facilities in order to make better use of existing facilities and parks.
- Parks more accessible for pedestrians

Development (x5)

- By-law to encourage terraces/ cafes in downtown, South end throughout Sudbury
 - Have coffee/drinks/snacks stands along the walkways
- More seating in public places.
- Public squares for pedestrians (meeting places) good places to sit.
 - Close lanes and some streets once a month to eventually once a week as a pilot project.
 - No more drive-throughs in new developments
- Maintain current facilities (i.e. arenas, fields)

Festivals and Activities (x4)

- Have festivals downtown
- Market-ethnic stands, country singers etc.
- Expand summer community activities (e.g. the street closings downtown).
- Create partnerships with organizations and businesses to support and promote activities.

Appendix B

Group Activity Sheet Answers



Question 4: Bicycling-friendly

Bike Lanes- (x16)

- Safer, separated, elevated bike lanes, with bollards, curbs in order to have physical separation from cars.
- Dedicated, separated bicycle lanes-bollards, curbs
- Make it mandatory to include bike paths/ lanes in new developments. (Residential, commercial, and industrial)
- Separated bike lanes-reducing car lanes.
- Bike routes between outlying communities.
- Bike lanes physically separated from cars
- Bike lanes at colleges and universities encourage 15000 students
- Turn major roads into 1 lane instead of 2- 1 for cars and 1 for bikes
- Separated sections for bike transportation (raised and separated from the road
- Bike lanes with physical separations (for highways) and painted lanes (for residential)
- Continue to develop off-road trails next to sidewalks
- Separated bike lanes on major streets
- Have separate bike paths
- build separate bike lanes on other major roads (like Paris, Notredame) or on feasible direct alternative routes
- add dividers for bike routes and new bike routes to connect all the city
- development of separate lanes for bikes/cyclists
- driver awareness, coloured pathways/ roads

Bike Storage (x4)

- More bike racks on buses
- Bike parking
- Bike racks that are sheltered
- Increased bike racks across the city

Enforce laws (x2)

- Pass laws to implement bikeable trails
- Increase in enforcement for traffic violation

Programs (x10)

- Free bikes for students promising not to use car
- Free bikes at schools, i.e. 100 per school
- Bus station-have bike rentals there.
- To have boat stops at various points around the lake- as a facility to take bikes on the boat.
- Recycle bike program- where you hop and ride bikes.
- 'Rent a bike' program like that of various cities in Europe
- Continue to provide can-bike sessions
- City bikes for use downtown
- University, bikes for use on campus
- comprehensive promotional/ incentive program

Education (x4)

- Bike training for kids and education.
- Bike sharing program around the city
- Continuous safety education.
- Change public perception that cars have right-of-way

Development (x2)

- Get rid of parking lots- save cost of making it subsidized to give economic incentives for biking, walking and buses i.e. bus pass for employees.

Connecting trails (x4)

- Connect existing trails that go somewhere-focus on safety
- Connect all trails- education, health benefits
- Development of connected trail system between downtown and communities
 - invest in cycling infrastructure/ paths trails

Promotion (x1)

- Marketing needed to raise awareness

Car Free Days (x1)

- Expand street closure to more months of the year

Appendix B

Group Activity Sheet Answers



Pedestrian-friendly

Connect trails (x3)

- Connect trails already in existence and mark them well-distance and destination.
- add more walking trails to link actual communities to trails
- bigger trails that infiltrate themselves within city limits

Crosswalks- (x2)

- Cross-walk signals, not at street intersections
- Pedestrian crosswalks

Side walks (x9)

- Safer sidewalks
- Sidewalks on both sides separated from cars, at least one pedestrian only zone downtown
- more sidewalks
- widen sidewalks, have separate bike lanes, make sure there
- Sidewalks on every street and beside
- roads- the road to the university for example forces people to bike/walk on the soft shoulder-very unsafe
- sidewalks in all areas/ street ways in the city
- add more side walks
- driver awareness, coloured pathways

Improve transit (x4)

- Shuttle bus-trolley bus, mass transit to work places.
- Mass transit to work places
- Improved public transit
- Bus shelter improvements
- better transit routes/ schedules

Snow Cleaning (x1)

- snow plow sidewalks (especially to bus routes or stops and schools)

Development (x5)

- Over passes over major streets
- Make it mandatory to include pedestrian paths in new developments.
- Carpooling hubs in outlying communities.
- Traffic Calming
- build sidewalks where they are missing

Education (x1)

- Pedestrian safety education

Car free days (x4)

- no car day
- no bus day
- Have city host and organize car-free days in summer within downtown core such as NYC did.
- Close downtown area to vehicle traffic

Appendix B

Group Activity Sheet Answers



A Great Place

Build core city areas/ increase density population (x4)

- An Artistic district downtown with outside shows which are within biking and walking to them.
- Building more high density areas not Suburbia
- Sliding-station, skating / café style sitting areas
- Small water/ pool areas/ Benches seating area

Develop Parks/trails (x3)

- More parks in all neighbourhoods
- More walkable neighbourhoods schools and stores
- Train tracks and station for pedestrians rail to trails

Question 5:

a. Urban/ Suburban

Low population density (x6)

- Major obstacle- size of the city-“urban” Suburban sprawl
- Large distances and low population density.
- General apathy- perception of distance , snow climate
- City polarized- large distances, low population density
- Community/ Public support and engagement
- Public official and engagement

Routes

- Existing traffic routes

Bike Storage

- Little bike parking in downtown

Attitudes and perception (x8)

- Change pothole mentality
- mind shift- ex: pedestrian priority among population and council
- Attitudes of people about seeing bikes and walking as inferior
- Prioritization of car over pedestrians and bikes.
- perception of value by local population, acknowledging the worth of community development
- Government change its attitude and spend more money
- direction and management
- convince decision makers that now is the time to invest for the future environmentally, lifestyle/ economic

Other

- Lack of municipal support from municipal leaders
- Lack of funding money
- Funding (x2)
- Education
- Major weather extremes (Snow removal)
- Weak economy (short-term)
- Citizen concern re roads and need to fix pot holes.

b. Rural

Organization partnerships(x2)

- Include major corporations in plans to reduce use of large heavy vehicles
- Amalgamate appropriate organizations to work together (Builders/City)

Other

- Change mind set of politicians and drivers (to educate)
- Lack of support for integrating bikes with existing bus routes.
- Low population density

Appendix B

Group Activity Sheet Answers



Question 6:

Organizations:

- Rainbow Routes
- Engineers (community) and their association
- Downtown Village Development organization and Metro Board
- Association of young professionals.
- Bruce Mau- High profile
- School of Architecture
- Energy systems, Technology program Cambrian
- Mayor's legacy (Think about legacies like Bell Park and Boardwalk)

Other

- Builders/ developers
- School boards
- Soccer, Hockey (Teams Associations)
- Community support service sector
- Businesses get kids involved in volunteering along with their ideas.
- Public Health
- Municipality
- Environmental groups

Appendix C

Environmental and Health Impact Calculations



Canadian GHG Emissions 2006		
	Absolute (in Megatons)	% Share
Total	721000	100.00
Transport	190000	26.35
Light Duty Gas Vehicles (LDGV)	38900	5.40
Light Duty Gas Trucks (LDGT)	44800	6.21
Passenger Total	83700	11.61

Source:
Environment Canada (2006) Canada's 2006 Greenhouse Gas Inventory - A Summary of Trends.
Accessed online 11/16/08 www.ec.gc.ca/pdb/ghg/inventory_report/2006_report/td

Canada GHG Emission Baselines	
GHG Factors (carbon equivalent kg/L)	
LDGV	2.479
LDGT	2.556
Fuel Efficiency (L/100km)	
LDGV	9.8
LDGT	12.6

Source:
Transport Canada. Urban Transportation Emission Calculator.
Accessed online 11/16/08 www.tc.gc.ca/programs/environment/UTEC/menu-eng.htm

GHG Emission Factors for Sudbury	
<i>Assumptions:</i>	
Fleet Split	
LDPV	60%
LDPT	40%
Annual Workdays (50 weeks x 5 days)	
	250
Annual <u>Worktrips</u> (250 x There N Back)	
	500
<i>Therefore:</i>	
Fleet Fuel Efficiency	
L/100km	10.92
L/km	0.1092
Fleet <u>Emissions</u>	
Carbon equivalent (CO ₂ e)	
kg/L	2.5098
Greater Sudbury GHG Emission Factor	
Carbon equivalent (CO ₂ e)	
kg/km	0.274

Source:
Statistics Canada (2006) 2006 Census: Community Highlights for Greater Sudbury.
Accessed online 1/16/2008 <http://www12.statcan.ca/census-recensement/2006/>

Appendix C

Environmental and Health Impact Calculations



Sudbury Background Information

Population	158,258	
Labour Force Participants	81,760	
Journey to Work by Mode		
	Number	%
Total Commuting Population	71865	100.00
1% of Commuting Population	718.65	1.00
Car, truck van as driver	55620	77.40
Car, truck, van as passenger	6805	9.47
Public transit	3710	5.16
Walked or biked	4925	6.85
Other	800	1.11
Sudbury Trip Statistics		
Median Trip Length by Mode (km)		
C, t, v, as driver	5	
C, t, v, as passenger	3.3	

Source:
 Statistics Canada (2006) 2006 Census: Community Highlights for Greater Sudbury.
 Accessed online 1/16/2008 <http://www12.statcan.ca/census-recensement/2006/>

Potential Weight Loss in Sudbury

Assumptions:

Calories per pound of body fat	3500	
Average cycling speed	km/h	17
	km/minute	0.28
Calories burned by cycling	per hour	500
	per minute	8.33

Therefore:

Average duration of work trip (minutes)	18
Calories burned during average <u>worktrip</u>	147
Pounds burned per trip	0.042

Annually, each driver that switches to cycling

Lbs. burned per trip x Annual worktrips 21.01

Annually, for each 1% of population that switches from driving to biking

Annual worktrips x 1% of commuters x Lbs./trip 15097.69

Annually, if each driver biked one week per year

Total drivers x 10 trips x Lbs./trip 23369.75

Potential GHG Emissions Reductions in Sudbury (CO₂e)

<i>Annually, for each driver that switches to active modes</i>	Kg	685.18
kg/km x km/trip x Annual <u>worktrips</u>		
<i>Annually, for each 1% of trips shifted from driving to active modes</i>	Kg	492401.30
kg/km x km/trip x <u>worktrips</u> x 1% of commuting population	Tonnes	492.40
<i>Annually, if each driver biked or walked to work one week a year</i>	Kg	762189.11
kg/km x km/trip x 10 trips x total drivers	Tonnes	762.19