

Bikes as a public good: What is the future of public bike sharing in Toronto?

Summary Report



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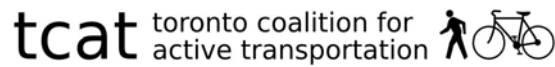
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The Clean Air Partnership (CAP) is a registered charity that works in partnership to promote and coordinate actions to improve local air quality and reduce greenhouse gases for healthy communities. Our applied research on municipal policies strives to broaden and improve access to public policy debate on air pollution and climate change issues. Our social marketing programs focus on energy conservation activities that motivate individuals, government, schools, utilities, businesses and communities to take action to clean the air. The Toronto Coalition for Active Transportation (TCAT) is a project of CAP and the unified voice of over fifty groups promoting an improved environment for walking and bicycling in the City of Toronto. TCAT provides policy analysis and plans and implements research and planning studies to this end.

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EXECUTIVE SUMMARY

Bicycle sharing is a form of personalized mass transportation that has the potential to lessen the environmental impacts of transportation, enhance urban mobility and support access and egress to public transport (Ishaque & Noland; DeMaio). According to Councillor Adrian Heaps, the City of Toronto is hoping to launch a public bikesharing program, possibly as early as the summer of 2009, pending a fact-finding mission of the best aspects of programs in other jurisdictions.¹ Initial public consultation reveals support for the implementation of such a program in Toronto.

On September 18th and 19th, 2008, the Toronto Coalition for Active Transportation, the Clean Air Partnership and the Community Bicycle Network held a community forum and stakeholder roundtable entitled *Bikes as a Public Good: What is the future of public bike sharing in Toronto?* The aim of this 2-day event was to engage the general public, the cycling community and other stakeholders in discussing the future of this new form of personalized mass transportation in Toronto.

Discussion was initiated with two short film screenings, *Bike Share in Paris* by Streetfilms and Tina Hahn's *Tales of a Yellow Bike*, and a series of presentations: Herb van den Dool on the Community Bicycle Network's *BikeShare* program, Alain Ayotte on Stationnement de Montreal's new *Bixi* program, Nate Kvamme on Humana's *Freewheelin* programs and David Boyce on *Veloway* transportation's approach to bicycle sharing. The audience of approximately eighty people unanimously supported the implementation of a new program.

At the stakeholder roundtable, participants concluded that a new program should allow for flexible access and registration options to accommodate low income groups, expand from the downtown core to the suburbs in a two-phase implementation process and target a variety of user groups. They suggested that urban professionals, transit users and tourists would be the target market, that bicycle rental hubs should be integrated with existing and planned mobility hubs and transit infrastructure will be paramount to its' success.

1. INTRODUCTION

This report summarizes discussion at the *Bikes as a Public Good: What is the future of public bike sharing in Toronto?* community forum and stakeholder roundtable on bicycle sharing as personalized mass transportation. The Toronto Coalition for Active Transportation, the Clean Air Partnership and the Community Bicycle Network engaged the general public, the cycling community and other stakeholders in discussing the future of bicycle sharing in Toronto.

¹Boyle, T. "City gears up for bike rental plan", August 21, 2008, Toronto Star.
<http://www.thestar.com/printArticle/482631>

The *Bikes as a Public Good* community forum at Innis Town Hall attracted a lively audience of approximately eighty people to hear presentations on current bicycle sharing models and the history of bicycle sharing in Toronto. It addressed key community concerns regarding the potential for a new bicycle sharing program to ameliorate the marginalization of commuter cycling in Toronto, the potential impact of bicycle sharing on retail bicycle shops, advertising on bicycle sharing hubs and bicycles, and more specific information relating to the systems presented.

The stakeholder roundtable engaged a wide range of public, private, community and non-profit stakeholders in outlining key concerns and areas for further research on a new bicycle sharing program in Toronto.² The following summary of the discussion begins with a brief discussion of relevant background information on community bicycle sharing. It then proceeds to a summary of the community forum and a discussion of the user groups, marketing, service area, technology and financing of a future bicycle sharing program in Toronto.

2. BACKGROUND INFORMATION

The terms ‘public bikes’ and ‘bicycle sharing’ are interchangeable, and a standard technical term has not yet been generally adopted. However, the latest generations of bicycle sharing systems are commonly called ‘smart bikes’. Paul DeMaio is a transportation consultant based in Washington DC and is an expert on public bicycle sharing. His research and planning work has led to the development of the system currently being implemented in Washington, and his background research is cited in this report.

DeMaio identifies the two primary types of bicycle sharing models as community bicycle sharing and residential bicycle sharing.³ Whereas residential bicycle sharing programs require the user to return the bicycle to the originating rental location, community bicycle sharing allows the user to return the bicycle to a rental hub at their destination.⁴ The topic of discussion at the community forum and stakeholder roundtable was community bicycle sharing.

DeMaio distinguishes between four generations of community bicycle sharing programs.⁵ Each generation makes different design decision based on target users. While some improvements are made between each generation, there are advantages to all four with the result that operational examples of each generation currently exist.

The first generation involves placing thousands of donated mass-market, single-coloured bicycles on the street for free use by the public and does not require the user to return bicycles

² A list of stakeholder attendees can be found in Appendix B.

³ DeMaio, Paul. “Will Smart Bikes Succeed as Public Transportation in the United States?” *Transportation Quarterly* 57 (2003): 1-15.

⁴ Ibid.

⁵ DeMaio, Paul. “Smart Bikes: Public Transportation for the 21st Century.” *Transportation Quarterly* 51.1 (2003): 9-12.

to a specific location.⁶ The first generation programs, like Amsterdam's White Bicycle Program (in operation since 1968⁷), are the least expensive to operate but are also subject to high levels of theft and provide little reliability for users wishing to find a public-use-bicycle.⁸

The second generation improves upon the reliability and security of bicycle sharing by requiring users to provide identification and pay a membership fee, implementing bicycle racks at mobility hubs in high density areas and designing bicycles specifically for bicycle sharing.⁹ These second generation programs, like the *BikeShare* program operated by Toronto's Community Bicycle Network between 2001 and 2006 (see image below), are more expensive to operate but are much more reliable than first generation programs because of the introduction of mobility hubs where public-use bicycles can be obtained.¹⁰



Photo: Herb van den Dool

The third and fourth generations are commonly called smart bikes.¹¹ They use the same principles of unique, durable bicycle design and rental hubs in high density areas that are used in second generation programs but also include the tracking, or surveillance, of bicycles to reduce theft.¹² Whereas second generation programs are usually released from rental hubs with a coin, smart bikes use magnetic stripe cards or cell phones to release the bicycle from the rental

⁶ DeMaio, "Smart Bikes" 4.

⁷ Furness, Zack. "Biketivism and Technology: Historical Reflections and Appropriations." *Social Epistemology: A Journal of Knowledge, Culture and Policy*. 19.4 (2005): 401-17.

⁸ DeMaio, "Smart Bikes" 2-4

⁹ Ibid.

¹⁰ Ibid.

¹¹ DeMaio, "Smart Bikes" 2.

¹² DeMaio, "Smart Bikes" 9.

hub.¹³ The use of magnetic stripe cards or a cell phone reduces theft by allowing the program to store personal information and charge a user if a bicycle is not returned to a rental hub.¹⁴

The fourth generation of smart bikes uses smart cards and/or credit cards that store more information and can be more easily integrated with public transit access and registration systems.¹⁵ The image below is a rendering of Montreal's *Bixi* smart bike hub:



Photo: Bixi website

Smart bike programs potentially compliment other forms of public transit by extending the service area covered by a mobility hub, reducing the wait time between transfers, reaching underserved destinations and attracting and retaining public transit customers.¹⁶ According to DeMaio, smart bike programs have advantages over other forms of public transportation, including:

- requiring less infrastructure;
- cheap to purchase and maintain;
- generally do not add to vehicular congestion or create pollution; and
- provide users with exercise.¹⁷

Despite some disadvantage of smart bike programs including that they require cycling skills and may be inaccessible to people with disabilities, are vulnerable to weather fluctuations and challenges of difficult topography, in recent years ¹⁸ smart bike programs have been growing and drawing attention due to their potential to lessen the environmental impacts of

¹³ Ibid.

¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ Noland and Ishaque. "Smart Bicycles in an Urban Area: Evaluation of a Pilot Scheme in London." Journal of Public Transportation 9.5 (2006): 71-96.

¹⁷ DeMaio, "Will Smart Bikes Succeed?" 2

¹⁸ DeMaio, "Will Smart Bikes Succeed?" 2

transportation while enhancing urban mobility and supporting access and egress to public transport.¹⁹

There are currently six smart bike programs in North America, including programs in Washington, Minneapolis – St Paul, Denver, Louisville, Chicago (St Xavier University) and Montreal.²⁰ This forum included presentations on three of these programs: Montreal's new *Bixi* program, *Veloway's* program at St Xavier University, and Humana's *Freewheelin* programs in Denver, Minneapolis – St. Paul and Louisville. Montreal's *Bixi* program will be the largest North American smart bike program when it launches its 2,400 custom-built bikes at 300 solar-powered docking stations in six boroughs next year.²¹ Time magazine recently named *Bixi* (a combination of the words "bicycle" and "taxi") the nineteenth best invention of 2008, placing it in front of the synthetic organism and the shadowless skyscraper and just behind the new Mars rover.²²

3. COMMUNITY FORUM SUMMARY

The *Bikes as a Public Good* community forum consisted of a screening of *Bike Share in Paris* by StreetFilms, a preview screening of Tina Hahn's *Tales of a Yellow Bike*, three presentations on bicycle sharing programs and a final panel discussion. A ten-minute question period followed each presentation and the panel discussion. The screening of *Bike Share in Paris* introduced the notion of bicycle sharing as personalized mass transportation and the overall success of the *Vélib* system, which is operated by J.C. Decaux in Paris. The presentation from Veolia Transportation's David Boyce stimulated interest in bringing a bicycle sharing program to Toronto and initiated discussion about the design of bicycles for a future program. Herb van den Dool's presentation offered perspectives on some of the achievements and challenges of the Community Bicycle Network's *BikeShare* program. In his presentation, Stationnement de Montreal's Alain Ayotte impressed the audience with an insider's account of the design and imminent implementation of North America's largest bicycle sharing program and its ambitious goal of being completely self-financed.

The goals of this community forum were to educate about bicycle sharing as personalized mass transportation, to garner some initial community feedback and to initiate discussion about the future of bicycle sharing in Toronto. We learned that there is tremendous interest in a new bicycle sharing program in Toronto. The audience unanimously voted for a new bicycle sharing program in Toronto and estimated that a new system should start with approximately 5000 bicycles.

¹⁹ Noland and Ishaque, "Smart Bicycles in an Urban Area" 71-3; DeMaio. "Will Smart Bikes Succeed?" 1-2.

²⁰ *Bike Sharing Blog*, ed. DeMaio, Nov 6, 2008. Oct 29, 2008. <http://bike-sharing.blogspot.com/>.

²¹ Stationnement de Montreal Official Website, www.statdemtl.qc.ca

²² Caplan, Jeremy et al, "TIME's Best Inventions of 2008", TIME Magazine Online Nov 2008, <www.time.com/time/specials/packages/0,28757,1852747,00.html>

The community audience engaged our speakers on a range of issues, including:

- fees;
- bicycle design;
- liability;
- insurance;
- helmet provision;
- community participation in the servicing of public-use bicycles;
- influence of bicycle sharing programs on retail bicycle businesses; and
- advertising concerns.

There were also a range of questions on the history of the *BikeShare* program, including funding and the fate of the *BikeShare* bicycles.

Since the majority of the current large-scale public bikesharing programs are operated by outdoor advertising companies in exchange for the use of public space for advertising, the audience was also engaged on this issue. Approximately one quarter of the community audience would not be comfortable with advertising on bicycle sharing hubs, while half of the audience would not feel comfortable with advertising on the bicycles themselves.

At the end of the community forum, the presenters were asked “If there was no public funding available, would you be willing to bring a bicycle sharing program to Toronto with the cooperation of the city?” Boyce said that *Veloway* would have to look for sources of corporate or federal funding to address the initial shortfall in funding during the implementation of the program. Ayotte explained that Stationnement de Montreal has developed a system that would work in any other city (even those that already have street furniture agreements in place with a commercial provider), and that there is no issue in developing a public bike system in Toronto like the one they are currently implementing in Montreal. Since the Montreal system is funded and operated entirely by a public agency, they are open to sharing it with other municipalities.

4. STAKEHOLDER ROUNDTABLE DISCUSSIONS

4.1 USER GROUPS & MARKETING

The aim of the breakout discussion on user groups and marketing was to identify potential customers for a new bicycle sharing program in Toronto and to brainstorm the various marketing and promotional initiatives that would be necessary for the success of a new program. The group concluded that there are some clearly identifiable user groups that a new bicycle sharing program in Toronto should target, including:

- populations who have barriers to owning a bicycle;
- people who want to travel between 500 meters and 5 kilometers to access retail or public transit;
- public transit users;
- Autoshare/Zipcar users;

-
- health conscious users; and
 - University students.

It was emphasized that while these groups are likely markets for a new program, the influence of bicycle sharing on a population is largely unpredictable because of the behaviour-creating character of bicycle sharing.

There has not been extensive research on the demographic characteristics of current community bicycle sharing users groups. However, surveys conducted on program user groups in Rennes, Copenhagen and in the Norwegian city of Sandnes suggest that users tend to be younger individuals between twenty and forty years of age.²³ Users are between 20 and 39 years old in Copenhagen and 45% of users are between 21 and 45 years old in Sandnes.²⁴

The 26 to 35-age bracket primarily use the *OY Bike* program in London.²⁵ *OY Bikes'* North American brand, *Veloway*, is targeting a similarly young age bracket at Saint Xavier University. While Humana's *Freewheelin* program in Louisville serves all employees, its marketing campaign acknowledges the younger demographic by defining *Freewheelin* as "the creation of emotive engagement and youthful freedom." (Kvamme) Finally, Montreal's *Bixi* Smart Bike program is targeting users between 18 and 44 years of age.

The potential of the younger age bracket was identified. Specifically, University students were mentioned as a user group that would likely use a new bicycle sharing program.

The Community Bicycle Network's (CBN) *BikeShare* program cumulatively attracted 2000 users, 400 active users at a time, and was heavily used by tourists and university students. This second-generation community bicycle sharing program had an average of 6 trips per user annually and a ratio of three users per bicycle. The ratio of users per bicycle is much higher in smart bike programs. (By comparison, Montreal's *Bixi* program anticipates a ratio of between 12 and 15 users per bike.) CBN's program targeted low-income groups at a relatively low cost per member of approximately \$25 per year. The bulk of CBN's program was financed through grants and corporate sponsorships.

People with barriers to owning a bicycle were identified as potential users of a bikesharing program including: low-income residents, new immigrants, 'ultra light urban lifestylers' (those who wish to own less and live simply), condo dwellers and tourists.

The potential user groups of a new smart bike program in Toronto are unpredictable because bicycle sharing may create new behaviours, as evidenced by the fact that 13% of users of Humana's *Freewheelin* program had never cycled before. Nate Kvamme emphasized that the *Freewheelin* program in Louisville has generated completely unexpected behaviours amongst its employee user base; from employees traveling to business meetings via bicycle to using the

²³ DeMaio, "Will Smart Bikes Succeed?" 7.

²⁴ Ibid.

²⁵ Noland and Ishaque, "Smart Bicycles" 77

public-use bicycles for recreational purposes during lunch hour. This behaviour-creating tendency was also experienced by the *OY Bike* program in west London, where 23% of survey respondents noted that they would not have traveled if *OY Bike* was not available.²⁶

Ayotte emphasized that the self-financing business model of the new *Bixi* program relies upon targeting tourist user groups visiting the boroughs of Rosemont-La Petite-Petrie, Plateau-Mont-Royal and Ville-Marie. This targeted user group is supported by Muhammed Ishaque and Robert Noland's survey research on *OY Bikes* pilot program in west London that suggested leisure and recreational trips as the primary market for the potential expansion of the program, although commuting and utilitarian trips also accounted for a significant percentage of trips.²⁷ Namely, Ishaque and Noland advocated for more hubs at recreational destinations in order to connect public transit to leisure or recreational hubs.²⁸ During the stakeholder roundtable discussions, tourists were identified as a potential user group for a new smart bike program, though not the primary marketing focus.

Roundtable participants emphasized that a new bicycle sharing program should target people who want to go between 500 meters and five kilometers (the typical trip range that is too long to walk to transit and short enough to easily ride by bike) and public transit users, who have four medium sized trips per day that would be ideally served by a bicycle sharing program. This identified user group is strongly supported by Ishaque and Noland's finding that 43% of *OY Bike* users during the pilot phase were public transit commuters.²⁹ While the participants did not specifically identify bicycle owners as potential users of a program, the fact that 30% of *OY Bike* users identified as bicycle commuters points to the possibility of marketing to bicycle owners in addition to those with barriers to owning a bicycle. However, a bicycle-owning community participant at the public forum emphasized that a new program could only attract cyclists like her by providing cargo bicycles with ample carrying capacity unavailable on standard public-use bicycles.

4.2 SERVICE AREA

The aim of the breakout group on service area was to outline a potential service area for a new bicycle sharing program in Toronto. DeMaio notes that creating a service area outline is one of the first steps of the planning process for a new program.³⁰ He reflects, "...the boundary will usually be the central business district with adjacent high-density residential neighborhoods.", while hubs will include "...transit stations, commercial and residential centers, and other employment sites".³¹ The *OY Bike* program started with a small pilot program in the dense,

²⁶ Ishaque & Noland, "Smart Bicycles" 78.

²⁷ Ishaque & Noland, "Smart Bicycles" 92.

²⁸ Ibid.

²⁹ Ishaque & Noland, "Smart Bicycles" 77.

³⁰ DeMaio, "Smart Bikes" 15.

³¹ Ibid.

primarily residential borough of Hammersmith and Fulham (LBHF) in West Central London.³² The pilot program formed the basis for some initial market research on user groups and the influence of seasonal variables.³³ The program was eventually expanded to the rest of Central London, Cambridge, Cheltenham, Reading and Farnborough.³⁴

In contrast, the *Vélib* program implemented thousands of bicycles in downtown Paris without a pilot program and is now expanding out to the suburbs.³⁵ Similarly, Ayotte spoke of Montreal's plan to implement the program in the six boroughs of Plateau Mont Royal, Rosemont-La Petite Patrie, Ville Marie, Outremont, Villeray-St. Michel and the South-West'' in a two-phase implementation program. Smaller programs, like Louisville's *Freewheelin* program, have only involved one phase of implementation and a single campus service area.³⁶

CBN's *BikeShare* program covered a service area encompassing 16 hubs at community centers and cafés across Toronto, although more highly concentrated in the west end of the City.

The roundtable participants argued that the service area should be initially bounded by the dense downtown core and should move out to the suburbs in a second phase. They discussed areas that should be included within the boundary for a new bicycle sharing program in Toronto, including:

- Queen West, Parkdale;
- the Annex;
- downtown financial district;
- heavily used bike corridors like Harbord or Queen street;
- island airport ferry dock;
- dense apartment complexes in suburban areas;
- recreational bike trail heads; and
- city parks.

Participants also suggested some of the hub locations that would be important for the success of a new program, including: transit stations (in particular Union Station and the bus terminal), major employers and universities. Furthermore, participants identified particular areas of concern with regard to the placement of rental hubs on the street and negotiation with private property owners over the location of hubs. In regard to the latter concern, Ayotte pointed out that Montreal's *Bixi* program has received numerous requests from private developers to have hubs located on their properties.

Within the context of the potential for smart bike programs to complement existing transportation infrastructure, roundtable participants were asked the question, "How should a

³² Ishaque & Noland, "Smart Bicycles" 6.

³³ Ibid.

³⁴ [OY Bike Website](http://www.oybike.com/). Nov 7, 2008. Ed. OY Bike Systems Ltd. <<http://www.oybike.com/>>

³⁵ Bike Sharing Blog, ed. DeMaio.

³⁶ Ibid.

bicycle sharing program be integrated with existing and planned cycling and public transportation infrastructure in the outlined service area?” Respondents emphasized that hubs should be located near bicycle shops for service and be integrated with the development of bicycling infrastructure so that program users have sufficient access to roadways.

On a related note, participants asked the presenters if there is a certain amount of bicycle-friendliness and/or bicycle infrastructure that is necessary for the implementation of a new bicycle sharing program. Ayotte emphasized that the implementation of a new bicycle sharing program would create the strength in numbers, or critical mass, necessary to encourage municipalities of the need for bicycling infrastructure. While many of the first bicycle sharing programs were implemented in cities with already high levels of bicycle mode share and infrastructure, the *Vélib* program in Paris was implemented in a context of relatively low bicycle modal share and poor cycling infrastructure. In support of Alain’s argument, there has been significant progress on cycling infrastructure and a rise in bicycle mode share since *Vélib* launched.

In a recent article examining cycling in Canadian cities, Pucher and Buehler highlight the disparity between a rising bicycle modal share within key corridors of Toronto’s downtown core and both inner and outer suburbs, where bicycle mode share has stagnated.³⁷ Within this context, participants were asked the question, “Should a new bicycle sharing program attempt to ameliorate inequalities in bicycle mode share between the downtown core and the suburbs?” One of the breakout group’s suggestions was that a new bicycle sharing program would create demand for cycling infrastructure and better service within the suburban service area covered by a new program. Furthermore, the higher volume of sidewalk and road space would allow for an easier placement of hubs than in the downtown core, and schools and community centers could serve as hubs.

The challenge of addressing the diversity of trip origins and lack of density in the suburbs was creatively addressed by participants. Two main options were put forward:

- 1) self-contained bicycle sharing programs in the suburbs that are integrated with existing public transit infrastructure; or
- 2) suburban clusters connected by transit and/or bikeway to the downtown core.

With regard to the latter option, it was suggested that fees would have to factor in the long cycling distances between the suburbs and downtown. One option put forth was to charge the user only as long as the public-use bicycle is in motion.

³⁷ Pucher and Buehler. “Cycling Trends and Policies in Canadian Cities.” *World Transport Policy* 11.1 (2005): 1-51.

4.3 TECHNOLOGY & INFRASTRUCTURE

The aim of this breakout group was to discuss the benefits and limitations of specific bicycle sharing technologies and infrastructure, as these relate to user groups, accessibility, vandalism and theft. The discussion focused on the registration and access systems associated with smart bike programs and the flexibility of different bicycle sharing programs in dealing with seasonal fluctuations in bicycle mode share.

The primary difference between second generation bicycle sharing programs and third or fourth generation systems, or smart bikes, is the use of magnetic stripe or smart cards, which reduces the susceptibility to theft that coin operated, second-generation systems experienced.³⁸

Toronto's second-generation *BikeShare* program reduced theft and vandalism via an access and registration system that ensured security and community involvement while somewhat limiting convenience. A user would sign a waiver at CBN, purchase a yearly membership card for \$25 and the *BikeShare* volunteer would sign the bicycle out online and give the registered user the key for the bicycle. This access and registration system also tracked bicycle theft and vandalism online by having hub volunteers record damaged or missing bicycles. While *BikeShare* lost between 10 and 20 bicycles per year, they were able to recover approximately 10 per year through leafletting and the high level of community ownership of the program. Thus, *BikeShare* avoided the high level of theft and vandalism experienced by many second-generation bicycle sharing programs that utilized a coin operated access system, and certainly avoided the extremely high levels of theft associated with first generation programs. However, *BikeShare* was only accessible at a limited number of hubs and was not accessible during many hours of the day. While offering more grassroots involvement than current smart bike programs, *BikeShare* was less convenient.

Roundtable participants were asked the question, "What registration and access system would be most convenient for Toronto users?" The main theme emphasized within the ensuing discussion was flexibility. The registration and access system should be as flexible as possible and allow for a range of registration options that do not limit user groups without access to credit cards or cell phones. Participants emphasized that there should be as many places to register as possible, and that people should be able to purchase a temporary swipe card, so that ownership of a credit card is not necessary for use of the system and low-income groups are accommodated. Furthermore, the registration and access system should provide multiple language options and various photo ID options for those without a driver's license. Participants also emphasized that they did not want to limit user groups who do not have access to the Internet, so having both low-tech and high-tech options should minimize the registration barriers.

The potential for GPS chips to be used in order to protect against vandalism and theft of bicycles was also discussed as an option. However, participants were worried about the 'big

³⁸ DeMaio, "Smart Bikes" 10.

brother' characteristics of this form of surveillance that would likely discourage many user groups from using the program.

The final discussion topic for this breakout group was the relative adaptability of different smart bike hubs to seasonal fluctuations in bicycle mode share in Canada. Boyce emphasized the modularity of the *Veloway* hubs and the ease of removing them during the winter months. Likewise, Ayotte explained the ease of moving the Bixi hubs into storage during the winter months when the system is inactive. Within the context of the community forum, approximately half of the community members in attendance thought that a new bicycle sharing program should be available year-round, while the other half thought the logistical nightmare of running a program during the winter months would make it acceptable to only run the program nine months of the year. Participants emphasized that a bicycle sharing program should be modular and storable during winter months. Montreal's Bixi system was deemed the most flexible in this manner.

4.4 FINANCING

The breakout group looking at financing sought to address the advantages and disadvantages of possible financing schemes for a new bicycle sharing program in Toronto. Specifically, availability of funding and public-private partnerships versus public sector funding was discussed.

According to DeMaio, there has not yet been a smart bike program that has made a profit.³⁹ DeMaio notes that many smart bike programs are not-for-profit and are funded by outdoor advertising agencies in return for public space that is used for outdoor advertising.⁴⁰ For instance, Clear Channel's smart bike systems are often supported entirely through advertising revenues and do not charge a user fee.⁴¹ However, Montreal's *Bixi* program has a unique business model that relies on additional 20% revenue through the tourism industry to become entirely self-financing with a small level of corporate sponsorship and no revenues generated through outdoor advertising. While their research and development costs are being held by their subsidiary, they are working toward sharing those costs with other cities that will implement their system.

Roundtable participants first addressed the question, "Should a new bicycle sharing program be funded through a public-private partnership?" The advantages discussed by participants included: a competitive procurement process to get the best bid for quality and price, and transference of risks to the private sector. However, the participants in this breakout group argued that it is important for the public sector to set clear and strong guidance criteria for a private sector designed bicycle sharing program to follow. The main disadvantage of a public-

³⁹ DeMaio, "Will Smart Bikes Succeed" 9.

⁴⁰ Ibid.

⁴¹ Ibid.

private partnership as addressed by the participants was the lack of city ownership and consequent lack of a strong stake in the success of a bicycle sharing program.

The participants noted that a publicly run program would have the advantages of allowing for access to land owned by public agencies, like the TTC, and would perhaps allow City Council to influence those who are blocking progress. When asked the question “How might a bicycle sharing program be funded within the public sector?”, participants concluded that grants can be found at all levels of governments but have numerous restraints, including maximum funding amounts that may not be sufficient. The group concluded that the project could be broken down into different components and funding could be applied for each part separately. For instance, the project could be broken down in to the following components:

- 1) research and development;
- 2) pilot project;
- 3) capital set up; and
- 4) pilot operations.

The following organizations were mentioned as possible sources of funding for a new bicycle sharing program: Toronto Parking Authority, Community Go Green, EcoMobility, Urban Transportation Showcase Program, Toronto Atmospheric Fund, and Metrolinx.

The final question for this breakout group was: “What type of fee structure should a new bicycle sharing program adopt?” Participants emphasized that a variety of fee options would ensure that the program meets the needs of all users even though it would make for a more complicated fee collection system. The most important feature of most smart bike fee structures, including Montreal’s *Bixi* program, is charging for extra-time beyond the first complimentary half-hour so that the bicycles are in constant rotation, a high ratio between bicycles and users is maintained, and a system can potentially break-even.

The participants brainstormed a number of possible marketing strategies for attracting tourists to the program, including: hotel pass, family discount pass, and inclusion of bicycle sharing in destination tourist packages. Furthermore, while the impact of a new bicycle sharing system on existing bicycle rental companies should be considered, it should be understood that smart bike programs are basically in a different business –personalized mass transportation by the minute versus short term rental by the hour or day.

In order to determine the fees necessary to have a break-even system like Montreal’s *Bixi* program, the participants noted that a business plan should include the capital and operating costs per bike, per year divided by the average number of members per bike. A market analysis would then determine the average number of members per bike that could be expected. According to Ayotte, between 12 and 15 members per bike are needed to finance a break-even system.

4.5 STAKEHOLDER SUMMARY

The stakeholder roundtable fostered discussion on a number of issues that need to be addressed in the initial planning stages of a new bicycle sharing program in Toronto. The user groups and marketing breakout group started the process of identifying potential user groups for a new bicycle sharing program, but did not address the market research and marketing strategies that would be needed for the successful implementation of a new program. Similarly, the discussion group addressing service areas started the process of identifying neighborhoods and important hubs that would need to be included within the boundary of a new bicycle sharing program, but did not outline the exact boundary of a new program. Nonetheless, both the user groups and service area discussion groups came to some significant conclusions.

These two breakout groups concluded that possible user groups of a new bicycle sharing program include: populations who have barriers to owning a bicycle, people who want to travel between 500 meters and 5 kilometers for shopping or public transit, public transit users, Autoshare/Zipcar users, health conscious users and University students. The Service Area for a new bicycle sharing program would have to include: Queen West, Parkdale, the Annex, downtown financial district, heavily used bike corridors like Harbord or Queen Street, island airport ferry dock, dense apartment complexes in suburban areas, recreational bike trail heads and city parks. Within the context of the necessity of attracting tourist user groups in order to finance a break-even system in Toronto, the service area of a new program should include ample tourism, leisure and recreational destinations. Furthermore, within the context of addressing inequalities in bicycle mode share between the downtown core and the suburbs, the service area for a new program should expand to the suburbs in the second phase of its implementation.

The technology and infrastructure group concluded that a new bicycle sharing program in Toronto should include flexible registration and access options so that low-income groups are able to use the new program. The discussion group on financing concluded that there are numerous advantages of public-private partnerships, including: a competitive procurement process to get the best bid for quality and price, and transference of risk to the private sector. However, if the disadvantage of lack of city ownership of a program that comes with a public-private partnership is considered to outweigh the benefits of such partnerships, there are also other public financing options that could be pursued. The main idea put forth was to apply for separate grants for each of the stages of implementing a new bicycle sharing program. Finally, fee structures should account for the fact that tourist user groups need to be successfully targeted in order to finance a break-even program.

5. CONCLUSION

The City of Toronto is currently considering launching a public bikesharing program in the summer of 2009. Initial public consultation reveals support for the implementation of such a program in Toronto.

One of the key decisions to be made is how the program would be financed. In order to choose the best possible system for Toronto, a competitive procurement process is required. While private companies in exchange for advertising on street furniture as well as the bikes themselves elsewhere fund the majority of the large-scale programs, this may not be the most popular option with the general public. The *Bixi* system offers an interesting funding model to consider, in which the system is funded and operated entirely by the public parking agency.

The Toronto Coalition for Active Transportation, the Clean Air Partnership and the Community Bicycle Network support the implementation of a new bicycle sharing program in Toronto and hope to be of further assistance in the planning and implementation of a new program.

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APPENDIX B – STAKEHOLDER LIST

Organization	Contact Name	Title	Sector
AutoShare	Kevin McLaughlin	President	Private Sector/Consultant
Bike Pirates	Geoffrey Bercarich	Volunteer	Non-Profit
Bike Pirates	Dexter Tao	Volunteer	Non-Profit
Center for Social Innovation	Yvonne Bambrick	Community Animator - Events and Communications	Non-Profit
Cervelo Cycles	Mark Remennik		Private Sector/Consultant
City of Toronto	Pauline Craig	Planner, Transportation Planning	Public Sector/Government
City of Toronto	Jana Neumann	Community Cycling Organizer	Public Sector/Government
City of Toronto	Sean Wheldrake	Bicycle Promotions Coordinator	Public Sector/Government
Community Bicycle Network	Herb van den Dool	Advisory Board Member	Non-Profit/Presenter
Environmental Consulting and Communications	Beth Jones	Consultant	Environmental Consultant/Organizer
GO Transit	Jennifer Niece	Transportation Planner	Public Sector/Government
Humana Innovation Center	Nate Kvamme	Director	Health Maintenance Organization/Presenter
Metrolinx	Michael Canzi	Transportation Policy/Planning Advisor	Public Sector/Government
Metrolinx	David Pritchard	Research Analyst	Public Sector/Government
Metrolinx	Jeff Short	Analyst/Coordinator	Public Sector/Government
Ministry of Energy and Infrastructure	Janet Lo	Senior Associate	Public Sector/Government
Ministry of Transportation	Rob Dolezel	Senior Policy Advisor	Public Sector/Government
Smart Commute	Ryan Lanyon	Team Lead	Public Sector/Government
Smart Commute - North Toronto, Vaughan	Adam Arnold	Program Manager	Public Sector/Government
Stationnement de Montreal	Alain Ayotte	Executive Vice President	Municipal Parking Authority/Presenter

Toronto Bicycle Network	Ron Fletcher	Past President	Non-Profit
Toronto Coalition for Active Transportation	Laurel Atkinson	Steering Committee Member	Non-Profit/Organizer
Toronto Coalition for Active Transportation	Andrew Bieler	Event Planner	Non-Profit/Organizer
Toronto Coalition for Active Transportation	Christine Brennan	Volunteer	Non-Profit
Toronto Coalition for Active Transportation	Anthony Humphreys	Steering Committee Member	Non-Profit
Toronto Coalition for Active Transportation	Fred Sztabinski	Project Coordinator	Non-Profit/Organizer
Toronto Cyclists Union	Rick Conroy	Coordinator	Non-Profit
Toronto Pedestrian Committee	Dylan Reid	Co-Chair	Non-Profit
Toronto Transit Commission	Tim Lawson	Transportation Engineer	Public Sector/Government
University of Toronto	Andre Sorenson	Professor	Academia
Wheel Excitement	Kevin H. Currie	Owner	Retailer