City of Richmond

Report to Committee

To:	Public Works and Transportation Committee	**Date:**	April 26, 2010
From:	Victor Wei, P. Eng. Director, Transportation	**File:**	10-6360-16-01/2010-Vol 01
Re:	**POTENTIAL FOR PUBLIC BICYCLE SYSTEM IN GREATER VANCOUVER**		

Staff Recommendation

1. That staff continue to work with TransLink and other interested municipalities on the future development and implementation of an integrated public bicycle system in Greater Vancouver.

2. That the City send a letter to TransLink and the City of Vancouver requesting that any implementation of a public bicycle system within its jurisdiction be expandable to other municipalities in the Greater Vancouver area in the future to ensure a compatible and seamless regional system for users.

Victor Wei, P. Eng.
Director, Transportation
(604-276-4131)

FOR ORIGINATING DEPARTMENT USE ONLY		
CONCURRENCE OF GENERAL MANAGER		
REVIEWED BY TAG	YES ☑	NO ☐
REVIEWED BY CAO	YES ☑	NO ☐

2876399

Staff Report

Origin

At the March 15, 2010 meeting of the General Purposes Committee, the following referral was carried:

> *That a bike-sharing/rental program be referred to staff to discuss the matter with other interested cities and report back.*

This report summarizes the analyses undertaken to date regarding the feasibility of implementing a public bicycle system in Greater Vancouver and identifies the City's involvement in these studies.

Analysis

1. What is a Public Bicycle System?

A public bicycle system (PBS) typically offers a large fleet of high-quality, public-use bicycles accessible via a smart card from self-service docking stations located on street corners every few blocks. After paying an initial subscription fee, users typically have low-cost or free access to the bikes and can pick them up and return them to any docking station within the system. Since one-way trips are possible, the bikes can be used for daily travel needs. As a result, once the network is extensive enough, public bicycles can become an integral component of the wider public transportation system.

Indeed, one of the principal goals of a PBS is to better integrate transit facilities within an urban network to achieve a higher overall level of mobility and efficiency for not only users of PBS, but also transit users and motorists who benefit from increased capacity in transit vehicles and on the road network. For example, a survey of users of Paris' *Vélib* system found that 28% of subscribers use the service to travel from home to a bus station, another 28% use the system to travel from a subway station to work or school, and the remaining 23% using the system for transferring between buses and subway stations.

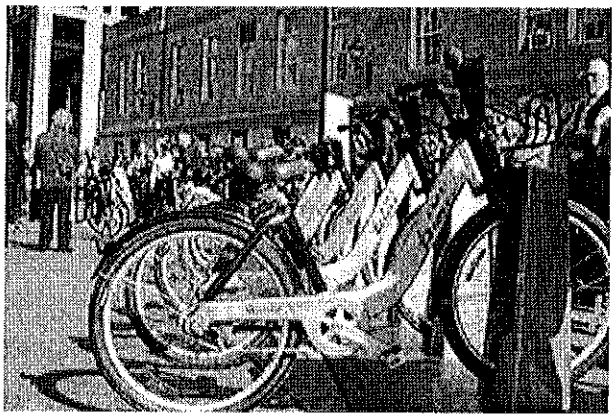
While improved mobility may be the primary goal *and* benefit of PBS, the majority of cities around the world have a range of secondary goals they believe can be advanced by implementation of a PBS that include, but are not limited to: fighting climate change, improving air quality, reducing reliance on the private automobile, improving public health, creating jobs, stimulating economic activity, increasing tourism, and creating opportunities for impromptu social interaction. There is also a hope that a PBS will act as a catalyst to increasing the acceptance of cycling as a legitimate mode of urban transportation, eventually leading to significant increases in levels of cycling on both PBS as well as privately-owned bicycles.

2. Public Bicycle Systems around the World

Copenhagen was the first major city to launch a self-service, fixed station public bicycle system, called *Bycyklen* in 1995. By the late 1990s, a new generation of fully automated, self-service public bicycle systems with sophisticated, electronically controlled locking mechanisms had emerged. The pioneering system was launched in France in 1998 and the *Vélib* system in Paris is

now the largest PBS in the world. Washington, DC was the first city in North America to deploy a PBS (*SmartBike DC*) in April 2008; Montréal became the first city in Canada to launch a PBS (*Bixi*) in April 2009.

Following the success of the *Bixi* system in Summer 2009, the Public Bike System Company (developer of the *Bixi* system) has entered into contracts to help run similar systems in London, England, Boston, MA and Minneapolis, MN, all of which will be deployed in Summer 2010, plus Toronto, ON, which plans to deploy a system in May 2011. A number of other North American cities are currently studying the concept including New York, Chicago and San Francisco. By the end of 2009, there were 120 public bicycle systems world-wide.



***Bixi* Bikes at a Docking Station**

Attachment 1 describes notable public bicycle systems around the world currently in operation or planned to be deployed in the near future. Existing systems are typically funded by a mix of subscription revenues and general public revenues, including revenues derived from the sale of advertising rights and parking charges. All existing systems are controlled by a public agency (municipality or transportation agency) but a number of operating models are in use ranging from completely contracted out services to in-house systems. Of the systems listed in Attachment 1 that currently operate in Canada or the U.S., relevant provincial and state laws do not require adults to wear a bicycle helmet although the programs encourage the use of helmets.

3. TransLink Public Bicycle System Feasibility Study

In 2008, TransLink undertook a feasibility study and worked with municipal partners, including Richmond, to investigate the options for deployment of a PBS in Greater Vancouver. The four-part study[1] examined systems in operation at that time and, having identified their success factors, then examined the local context of Greater Vancouver to determine if and how a PBS could be successfully implemented locally.

The study concluded that a PBS delivers significant real benefits and is feasible in parts of Metro Vancouver where residential and employment densities are high, land uses are diverse, and good cycling facilities are available. Based on an analysis of these indicators, multiple neighbourhoods in Greater Vancouver are considered strong candidates for a successful PBS, including Richmond's City Centre, as shown in Table 1 below.

[1] The 4-part study (Environment Scan, Local Context Analysis, Market Research, and Business Strategy plus an Executive Summary) can be accessed at: http://www.translink.ca/en/Cycling/Public-Bicycle-System.aspx.

Table 1: Assessment of Greater Vancouver Areas (2008)

Area/Neighbourhood	Population Density	Demographics	Employment Density	Cycling Mode Split	Transit Mode Split
Metropolitan Core(1)	High	High	Very High	High	Very High
Richmond City Centre	High	Medium	Very High	Medium	High
Lonsdale Quay	High	Medium	Medium	Medium	Very High
Joyce-Collingwood	High	Medium	Medium	Low	High
Metrotown	High	Medium	Very High	Low	Very High
Edmonds	High	Medium	High	Low	High
New Westminster	High	Medium	High	Medium	High

(1) Comprises the City of Vancouver neighbourhoods of the downtown peninsula, Kitsilano, Fairview, Mount Pleasant, Grandview, and Strathcona.

The key findings of the 2008 study are summarized below.

- *Network Area*: In terms of system design, a viable PBS requires a network area of sufficient size and density that is large enough to capture many origins and destinations. A phased approach of implementation was recommended with the downtown peninsula as the minimum recommended start-up area and the extended Metropolitan Core, which includes the downtown peninsula, as the preferred recommended start-up area. Based on the larger preferred network area, the study recommended a PBS with 250 stations and 3,800 bicycles with stations placed every 300 m; this configuration was forecast to provide between 5-10 million trips per year.

- *Fare Structure*: Similar to existing PBS, the recommended fare structure shown in Table 2 is intended to encourage frequent short-term use by having a low annual registration fee and making the first 30 minutes free. Longer duration use is discouraged by rapidly escalating rates for additional one-half hours, which also make it more attractive to rent a bike from an existing bike rental business.

Table 2: Recommended Fare Structure

Component	Fare
Registration	$50/yr, $10/wk, $2/day
1st 30 minutes	Free
2nd 30 minutes	$1.50
3rd 30 minutes	$3.00
Every additional 30 min	$4.50

- *Estimated Costs*: Costs for a PBS based on the preferred network were estimated at $18.5-$34.5 million for direct capital costs and $7-$12 million for direct annual expenses with an estimated $5-$9 million recovered annually in direct system revenues.[2] User fees were projected to recover up to 70% of operating costs so that the annual operating deficit would be $2-$4 million excluding capital costs.

- *Operating Model*: The study recommended that a PBS be positioned as part of the public transit network and that TransLink should be responsible for its delivery to ensure a consistent standard of service and inter-operability across Greater Vancouver. Day-to-day operations would be provided by a contract operator reporting to a new or existing TransLink operating subsidiary. Operating and capital funding for the new system should be contained

[2] The four major cost components of a PBS are: (1) direct capital costs for procuring and installing the system (bicycles and terminals); (2) direct operating costs; (3) associated capital costs for cycling infrastructure and needed streetscape improvements (bike lanes and docking station areas); and (4) associated operating costs for maintaining the on-road cycling and docking station infrastructure.

within TransLink's annual financial plans with the capital costs including fleet procurement, station design and build, maintenance facilities, service vehicles, and IT systems but excluding on-street cycling facilities and docking station streetscape improvement costs. The study recommended that these latter two capital costs be funded by local municipalities, given the breadth of benefits associated with a PBS that would accrue to a municipality (e.g., first 30 minutes of use are free).

- *Helmet Use*: Existing provincial legislation that requires all cyclists in British Columbia to wear a helmet is expected to reduce PBS ridership here in the Lower Mainland since it makes usage less convenient. Loaning helmets via a network of vendors or some form of automated dispenser raises hygiene issues, sizing issues (one size does not fit all), liability issues due to unreported defective helmets, and tracking issues. The study recommends that the conditions of use for a Greater Vancouver PBS state that a helmet must be worn and that it is the responsibility of the individual user to provide one. Any RFP should include a requirement for the operator of the system to develop a network of helmet rental locations similar to TransLink's Fare Dealer network.

- *Local Municipality Involvement*: The study recognized that the successful implementation and ongoing operation of the PBS will require active municipal partnerships for tasks such as enhancing and maintaining cycling infrastructure, selecting docking station sites, providing the requisite public right-of-way, and facilitating the construction of docking stations. The study recommended that host municipalities be required to provide, at no cost to TransLink, 6 m of on-street, sidewalk or other public realm space (in highly visible locations and adjacent to all major trip generators/attractors) every 300 m within their PBS network region. Host municipalities could elect to offset any resultant losses in parking revenues through any funding mechanism at their disposal such as general revenues or outdoor advertising revenues.

To date, TransLink has not made any funding commitment towards a PBS and its major planning documents, *Transport 2040* and its *10-Year Transportation Plan*, do not specifically identify the implementation of a PBS. However, the agency is currently developing *Cycling for Everyone: A Regional Cycling Strategy for Metro Vancouver 2010-2040*, which will provide guidance on how cycling can contribute to realizing the goals of *Transport 2040*. The current draft report states "consider support for municipal Public Bicycle Systems in areas of high cycling potential, including coordination to ensure that they integrate with each other and transit" as part of a broader strategy to increase public access to bicycles.

4. City of Vancouver Public Bicycle System Study

In February 2009, the City of Vancouver launched the *Greenest City* initiative with a goal to map out how Vancouver can earn that title by 2020. The implementation of a PBS is one of eight "Quick Start Actions" (44 in total) and is identified as a high priority project for 2009-2011.

As part of its analysis, the City arranged for a public demonstration of Montréal's *Bixi* system in June 2009 so that residents and visitors could see how a self-serve rental station for bikes works and provide their feedback. Residents and visitors were also surveyed to find out what they thought about a PBS in Vancouver and how they might use it. Overall results indicated that if a

similar bike share system was available in Vancouver, about 80% of respondents would use it in summer and 70% would use it in winter.[3]

City of Vancouver staff are currently reviewing business analysis and cycling safety issues regarding this project. As staff believe that the presence of cycling infrastructure that offers greater protection to cyclists from vehicles (i.e., some form of physical separation) would be critical to the success of a PBS, particularly in the downtown area, a possible implementation scenario for this project is the creation of more protected cycling facilities in 2010 followed by the deployment of a PBS in 2011.

5. University of British Columbia (UBC) Public Bicycle System Feasibility Study

In 2009, the UBC TREK Program Centre, which is the campus' transportation demand management department, undertook a study to determine the feasibility of an on-campus PBS.[4] The report documents a number of benefits of a PBS for UBC residents, faculty, staff, students, and visitors such as improved on-campus mobility, health benefits, reduced greenhouse gas emissions, and opportunities for research projects across a variety of fields.

Based on a *Bixi*-like system with the deployment of 165 bicycles in Year 1 and growing to 250 bicycles by Year 10, the report concludes that a PBS at UBC is likely to generate enough revenue from subscriptions and user fees to cover annual operating costs plus provide an annual surplus estimated at $51,000 that could be applied to the capital costs of a PBS. However, this net revenue from operations is estimated to cover only 50% of the capital investment and thus sponsorship, grant funding or the inclusion of advertising would be required to fully fund the total capital costs estimated at $1.03 million over the 10-year period.

The TREK Program Centre, a division of Campus + Community Planning at UBC, is currently engaged in building a business case for PBS at UBC and securing funding to support a future system.

6. City of North Vancouver Request for Expression of Interest re a Public Bicycle System

The City of North Vancouver recently issued a Request for Expression of Interest (RFEI) regarding a PBS, which closed on March 24, 2010. The RFEI was intended to determine whether there is a private sector interest in developing and operating a PBS within the City.

Prior to the issuance of the RFEI, the City examined the most viable strategy for a PBS installation. Based on land use, topographic and demographic considerations, staff determined that a PBS would be most feasible initially as an east-west system, extending from a central hub at the waterfront area, as the TransLink study identified Lonsdale Quay as a strong candidate for a PBS (see Table 1). City staff feel that a PBS would be primarily utilized by commuters and short-term users.

The scope of services under the RFEI included all work related to overall management, planning, design, and implementation of a PBS, in addition to the ongoing system management, marketing,

[3] A summary of the PBS survey results can be accessed at: http://vancouver.ca/engsvcs/transport/cycling/plans/publicbikeshare.htm.
[4] The report can be accessed at: http://www.trek.ubc.ca/research/pdf/PBS_Final.pdf.

maintenance and servicing required by the associated infrastructure and equipment. Respondents were asked to provide an overview of the following financial considerations:

- sources of capital funding and coverage of operating costs;
- potential costs and revenues to the City;
- operational, management and financial objectives; and
- anticipated participation level between the City and respondent.

The City is currently evaluating the responses and has not yet determined whether or not to proceed further with the initiative.

7. Next Steps

City staff were part of the Steering Committee for TransLink's PBS feasibility study and support the report's conclusion that the City of Vancouver's metropolitan core has the best combination of factors that would support the initial implementation of a PBS in Greater Vancouver. At such time as the City of Vancouver implements a PBS, its relative degree of success will indicate the likelihood of a successful expansion of the PBS to other parts of the region, such as Richmond's City Centre or the Lonsdale Quay area of North Vancouver.

At this time, there are a few key areas that will require resolution and/or on-going efforts to ensure a successful PBS for Greater Vancouver, including Richmond.

- *Regional Compatibility*: staff believe that, regardless of where a PBS implemented first, it is critical that the system's operating structure allow it to be expanded to other jurisdictions in the region so that a seamless and fully compatible system is created for users that can be accessed with a single smart card.[5] Separate public bicycle systems operating in isolation within smaller municipalities are unlikely to be successful, which is why the TransLink study recommended that the regional transportation authority be responsible for its delivery. Indeed, suburban cities adjacent to the City of Paris wish to have the *Vélib* system extended to their jurisdictions but the existing contract precludes this opportunity. Accordingly, as the City of Vancouver would likely implement the first PBS in the Greater Vancouver area, staff recommend that the City send a letter to that municipality requesting that any implementation of a PBS within its jurisdiction be expandable to other municipalities in the Greater Vancouver area in the future to ensure a cohesive regional system.

- *Cycling Infrastructure Available*: as the TransLink study also found that the degree of cycling network density in a chosen area is an important factor contributing to the successful implementation of a PBS, further development of cycling infrastructure in the City Centre, per the *City Centre Transportation Plan*, would be required to support a PBS in Richmond. The City's annual capital program typically includes cycling infrastructure projects and current and future projects in the City Centre area, such as the introduction of bike lanes on Minoru Blvd in Summer 2010, will contribute towards creating an environment that would support a future PBS.

- *Appropriate Financial Model*: based on staff's research, many existing systems appear able to recover operating costs via membership and user fees but require but require some form of

[5] TransLink currently plans to implement a transit-based smart card by 2013.

external funding support to help offset capital costs. Based on the responses to the City's recent street furniture RFP, it seems unlikely the City could attract a company to provide a PBS at no net cost to the City in return for outdoor advertising rights (like the *Vélib* system). A more likely scenario is securing a sponsorship/grant to fund part or all of the capital costs, which is the approach that UBC is pursuing. Interestingly, the City of Toronto has negotiated a new approach – the City is contracting a company to run its PBS with the City's cost limited to a loan guarantee for the company to borrow $4.8M for capital costs.

- *Use of Bicycle Helmets*: to staff's knowledge, all existing PBS operations around the world do not require users to wear a helmet and studies suggest that such a requirement could be a significant impediment to the success of a PBS. Indeed, Mexico City repealed its helmet law prior to the implementation of its PBS. Should BC's existing helmet law remain in force, it may be a challenge to provide a PBS that meets the legislative requirement while also viewed as convenient to use (e.g., can accommodate spontaneous trips).

In the interim, staff recommend that the City continue to liaise with TransLink and other interested municipalities regarding the future implementation of a PBS in Greater Vancouver through staff membership in TransLink's Bicycle Working Group, which is a technical committee that meets regularly and comprises TransLink, municipal and provincial staff responsible for planning and designing cycling infrastructure as well as cycling education and promotion programs.

Financial Impact

None to the City at this time.

Conclusion

In 2008, a TransLink study on the feasibility of implementing a public bicycle system in Greater Vancouver concluded that the City of Vancouver's metropolitan core is the preferred start-up area due its favourable mix of demographics, population and employment densities, and cycling and transit mode shares. Richmond's City Centre was also identified as a potential candidate. The City of Vancouver is now actively investigating the implementation of a PBS as part of its *Greenest City* initiative.

Staff recommend that the City continue to liaise with TransLink and other interested municipalities regarding the future implementation of an integrated PBS in Greater Vancouver through staff membership in TransLink's Bicycle Working Group. Staff also recommend that the City send a letter to the City of Vancouver requesting that any implementation of a public bicycle system within its jurisdiction be expandable to other municipalities in the Greater Vancouver area in the future to ensure a compatible and seamless regional system for users.

Joan Caravan
Transportation Planner
(604-276-4035)

JC:lce

Attachment 1

Notable Public Bicycle Systems

City / Start Year	Name	Operator	Pop.	# Bikes	Cost	Funding
Paris, France (July 2007)	*Vélib*	3rd Party Contractor (JCDecaux)	2.2M	• 20,600 bikes • 1,451 stations	• First 30 minutes free • Next 30 minutes: €1.00 • 2nd 30 minutes: €2.00 • Each additional 30 min: €4.00	• Subscriptions & outdoor advertising
Barcelona, Spain (April 2007)	*Bicing*	3rd Party Contractor (Clear Channel)	1.6M	• 6,000 bikes • 400 stations	• First 30 minutes free • Each additional 30 min (up to 2 hours): €0.50	• Subscriptions & parking revenues
Lyon, France (May 2005)	*Vélo'v*	3rd Party Contractor (JCDecaux)	466,500	• 4,000 bikes • 340 stations	• Short-term (1-7 days) and long-term (>7 days) options • First 30 minutes free • Next 30-90 minutes: €0.75-1.00 • Each hour thereafter: €2.00-3.00	• Subscriptions & outdoor advertising
London, England (Summer 2010)	*Cycle Hire*	3rd Party Contractor (Serco Group)	7.4M	• 6,000 bikes • 400 stations	• First 30 minutes free • Next 30 minutes: £1.00 • Each additional 30 min: £3-4.00	• Subscriptions & sponsorship
Mexico City, Mexico (February 2010)	*Ecobici*	3rd Party Contractor (Clear Channel)	8.8M	• 1,114 bikes • 85 stations	• Annual subscription: US$23 • First 30 minutes free • Next 30 minutes: US$0.80 • Each additional 30 min: US$2.70	• Subscriptions & outdoor advertising
Washington, DC (April 2008)	*SmartBike DC*	3rd Party Contractor (Clear Channel)	600,000	• 120 bikes • 10 stations	• Annual subscription: US$40 • Free for each use	• Subscriptions & outdoor advertising
Montreal, PQ (April 2009)	*Bixi*	Regional Agency (Stationnement de Montréal)	1.6M	• 5,000 bikes • 400 stations	• Annual, monthly or daily fee • First 30 minutes free • Each additional 30 min: $1.50-$6.00	• Subscriptions & parking revenues
Denver, CO (April 2010)	*B-cycle*	Non-Profit 3rd Party (Denver Bike Sharing)	555,000	• 500 bikes • 50 stations	• Annual, monthly, weekly, or daily membership fee plus usage fee • First 30 minutes free • Each additional 30 min: US$1.10-$4.40 to maximum of US$65	• Subscriptions, fees, donations, sponsorship
Boston, MA (Summer 2010)	*To Be Determined*	To be determined	600,000	• 1,000 bikes • 85 stations	• Annual subscription: to be determined • First 30 minutes free • Each additional 30 min: TBD	• To be determined
Minneapolis, MN (Summer 2010)	*Nice Ride*	Non-Profit 3rd Party Contractor (Nice Ride Minnesota)	380,000	• 1,000 bikes • 80 stations	• Annual subscription: US$60 • First 30 minutes free • Each additional 30 min: TBD	• Subscriptions, federal funding & sponsorship
Toronto, ON (May 2011)	*Bixi Toronto*	3rd Party Contractor (Public Bike System Company)	2.5M	• 1,000 bikes • 80 stations	• Annual subscription: to be determined • First 30 minutes free • Each additional 30 min: TBD	• Subscriptions & sponsorship • Loan guarantee from City of Toronto

Note that none of the jurisdictions listed require adult cyclists (i.e., persons older than 18 years) to wear a bicycle helmet.