



City of Kingston
Report to the Environment, Infrastructure & Transportation Policies Committee
Report Number EITP-18-002

To: Chair and Members of Environment, Infrastructure & Transportation Policies Committee

From: Lanie Hurdle, Commissioner, Community Services

Resource Staff: Peter Huigenbos, Director, Real Estate & Environmental Initiatives

Date of Meeting: December 12, 2017

Subject: Community Bike Share Program

Executive Summary:

The City of Kingston is a cycling-friendly city and the provision of a community bike sharing program is regarded as a valuable service that allows residents and visitors to obtain transportation that is healthy, while reducing transportation related greenhouse gas emissions and other unwanted aspects of automobile travel. To gain experience with a community bike share, the City of Kingston recently concluded a pilot-scale venture with DropBike Inc. According to the results of a public consultation initiative, the pilot was successful and has precipitated support for a larger scale and more permanent community bike sharing service.

This report recommends that the city issue a request for proposals from bike sharing service providers that provides access to municipal property in exchange for the turn-key operation of a bike sharing service in Kingston.

Recommendation:

That the Environment, Infrastructure & Transportation Policies Committee recommend that Council direct staff to issue a Request for Proposal for a Community Bike Share provider based upon the terms of reference described within Report Number EITP-18-002; and

That the results of the Request for Proposals be brought to Council along with any recommendations appropriate for the creation of a community bicycle sharing service; and

That the Environment, Infrastructure & Transportation Policies Committee forward this report to Council for inclusion on the agenda at their December 19, 2017 meeting.

December 12, 2017

Page 2 of 10

Authorizing Signatures:

ORIGINAL SIGNED BY COMMISSIONER

Lanie Hurdle, Commissioner, Community Services

ORIGINAL SIGNED BY CHIEF ADMINISTRATIVE OFFICER

Gerard Hunt, Chief Administrative Officer

Consultation with the following Members of the Corporate Management Team:

Desirée Kennedy, Chief Financial Officer & City Treasurer	Not required
Denis Leger, Commissioner, Corporate & Emergency Services	Not required
Mark Van Buren, Acting Commissioner, Transportation & Infrastructure Services	

December 12, 2017

Page 3 of 10

Options/Discussion:

The City of Kingston is a cycle-friendly city and the establishment of a community bike share system that allows citizens and visitors to obtain affordable and convenient bicycle use for short distance trips can provide a number of community benefits including a reduction in greenhouse gas (GHG) emissions, while supporting active transportation, improved public health, reduced road congestion and enhancing the tourism economy.

In 2011, the City's Transportation Demand Management strategy identified bike sharing to support active transportation and reduction in automobile trips, and the Draft Active Transportation Master Plan (ATMP) currently being finalized by the city's Engineering Department includes support for bike sharing in Kingston. In 2017, City Council endorsed an assessment of community bike share options and subsequently a short-term pilot program with DropBike Inc. of their dockless bike share model within the University District and downtown areas of Kingston.

Bike Sharing Systems in North America

Bike sharing in North America has been rapidly evolving and expanding due to new technologies and an influx of bike sharing companies eager to expand into North American markets. The first bike sharing systems in North America, such as the Bixi system, included a network of permanent docking stations where users provided a deposit from a credit card using the attached payment terminal and received a printed out code to unlock one of the bicycles locked in the dock. The cost is automatically charged to the credit card when the bike is returned and locked at one of the stations. Newer bike share system companies are utilizing smartphone applications, mobile/online payment options, on-board bike locking mechanisms, and Bluetooth and GPS technologies to track bike locations. These technologies offer bike sharing systems without docks at a lower cost to users, system owners and operators. Bike share programs in North America now include those using a fully private business model in partnership with a host municipality, as well as some programs owned and operated by municipalities, government agencies or not-for-profits. Recently, in the face of demand from multiple bike sharing businesses, the City of Seattle opted for something unique in North America at the time, where they specified the rules for bike share providers in their city and allowed any provider to establish its system as long as those rules are followed.

Typical community bike share systems include numerous stations or hubs within a city at which bicycles in the system are found, and where they may be dropped off at the end of a ride. In order to add more flexibility for users, many systems now allow for a bike trip to end at any location for a small fee. The fee is not charged if the bike is returned to a station. Alternatively, completely dockless or "stationless" bike share systems have appeared in Asia and other locations where there is no bike rack or other physical structure to begin and end a trip. Locking mechanisms prevent the operation of the bicycle without a need to lock it to a rack or other physical structure. In Asia, purely dockless systems have troubled municipal authorities as they can often cause problems with large accumulations of bikes on public sidewalks and bikes that are damaged and not being well attended by system operators.

December 12, 2017

Page 4 of 10

Overview of DropBike and the DropBike Pilot Program

The City of Kingston entered into a licensing agreement with a community bike share company called DropBike to run a pilot bike share program that ran from July 1st to November 30th. This pilot project provided the city valuable information on the community's potential for acceptance of a permanent bike share system here in Kingston. The pilot program also allowed the city to assess first-hand how the newer and less resource-dependent dockless bike share systems could operate within Kingston. The license agreement between DropBike and the city required no capital investment from the city but did require that the city permits DropBike to locate their bikes and havens on the sidewalk portions of the city right-of-way. DropBike also placed bikes on Queen's University campus and at other private locations around the city. DropBike also operated pilot bike share systems in portions of Toronto and Montreal this summer and fall.

The DropBike system was attractive and innovative in that it did not require physical docking stations for the bikes. Instead, it utilized haven locations marked with paint and signage along designated sidewalk portions of the city right-of-way. City staff and DropBike officials selected and agreed upon the haven locations before the start of the pilot. Queen's University also provided DropBike with haven locations throughout their campus and a similar selection process was utilized. The DropBike system pilot program in Kingston consisted of 191 bikes and 18 havens, 15 of the havens were located on public and university property and 3 on private properties. The locations of the havens were mainly focused in the downtown core and Queen's Campus because it was thought that the high density of pedestrians and cyclists was ideal to test a limited pilot program.

DropBike is an app-based system; therefore, it does require the user to have a smartphone with mobile data service and a credit card for payment. There were two generations of bike designs used by DropBike during the Kingston pilot program. The first generation required the user to use their smartphone to scan a QR code located on the bike so that the app provided the user with a combination code that could be used to unlock the bike. When the user finished their ride, the app prompted them to take a photo of the bike which indicated the condition and location of the bike as well as providing the DropBike operators with a GPS location for the bike based upon the internal GPS of the smartphone being used. The second generation bike required the user to scan the QR code on the bike which automatically unlocked the bike via a Bluetooth signal between the user's smartphone and the bike. The app again prompted the user to drop the bike at a haven location and engage the lock before ending their ride on the app. The cost to use the DropBike system was \$1/hour and required an initial deposit of \$49.00 that could be returned at any time through the app when the user withdrew from the DropBike program and deleted the app. DropBike incented the attraction of new users by offering the first 10 rides for free upon sign up.

The DropBike bikes themselves were distinctly orange coloured and were equipped with the following features:

- Onboard lock for the dockless system;
- Red and white reflectors at the rear and front respectively;

December 12, 2017

Page 5 of 10

- Adjustable seat height;
- Antitheft screws throughout;
- Baskets on front for storage;
- Automatic lights for night riding;
- Hand operated bell;
- Foam tires that did not go flat; and
- Splash guards and chain guard.

The system was operated and maintained by two full time DropBike employees that had the official title of “Bike Warriors”. The Bike Warriors were supervised by an Area Coordinator and had roles and responsibilities that included:

- Ensuring that all DropBikes were located at designated havens or are returned to the approved zone on a daily basis;
- Reporting DropBikes in need of repair to the area coordinator and bringing them to the appropriate bike repair drop off location;
- Being a DropBike software and hardware expert to troubleshoot immediate issues and questions from the users about the service; and
- Promoting a healthy and safe biking community.

In addition to the Bike Warriors, the DropBike system also provided additional customer service features that included a call-in help number located directly on the bikes themselves and live chat built into the app that had three people working the system at all times. These customer service features could be used when riders experienced issues with the app or had concerns with the bikes.

DropBike Data

The data provided by DropBike to the city demonstrated a positive uptake of the system during the pilot program period indicating bike sharing as being desirable to visitors and residents. The performance of the DropBike system during the approximately 20 week program was recorded as follows:

- Total number of rides (free and bought): 6,043
- Unique users in Kingston: 1,851
- Total number of app downloads: 16,262 (these downloads are inclusive of systems operating in Toronto and Montreal as well)

As expected, the majority of DropBike trips occurred within the downtown and Queen’s University areas. Tracking of trip start and trip end locations did provide an indication of the most popular locations. Exhibit A provides a “heat map” indicating the most frequent locations for trip starts and trip ends.

December 12, 2017

Page 6 of 10

DropBike stated that one of its goals within the pilot was to determine if Kingston could support an average of 2 rides per day per bicycle provided. With over 300 rides per day logged in September when student populations returned to Kingston, the pilot program was able to meet DropBike's target.

While the city had no specific targets in place for the pilot program, the number of unique rides and users recorded indicates that the DropBike system was well used during its short and geographically limited deployment and likely bodes well for a larger scale implementation of a bike share system. It was not possible to determine the number of DropBike trips taken in lieu of automobile use and thus no estimate of avoided GHG emissions could be derived, but any future system should include a performance monitoring plan that allows for data collection and surveying of users to determine reasons for their bike share use and whether it is replacing another form of travel so that avoided GHG emissions can become a performance metric of the system.

Public Input

Public input regarding the DropBike program and bike sharing in general was received via calls and emails to the city and DropBike, and from responses to a public opinion survey provided by the city from September 27 through October 26, 2017.

Contacts made with the city and DropBike during the pilot program dealt mainly with concerns and questions related to operation of the DropBike app, DropBike bicycles that had been abandoned in non-haven locations, and DropBike havens where bicycles had fallen over and appeared "messy". The city received at least one call lamenting the fact that persons without a smartphone or means to afford the \$49 refundable deposit could not use the service.

The public engagement survey offered by the city sought opinions on both the DropBike pilot program and bike sharing in general. From the survey, 73.5% of respondents indicated that they had used the DropBike system and 90% of those indicated they were either satisfied or very satisfied with the DropBike system. Aspects of the DropBike system that respondents liked the least were quality of the bicycles and quality of the DropBike app.

For bike sharing in general, the most important benefits that respondents noted were reducing GHG emissions and access to convenient transportation. Additional results from the survey included:

- 88% of respondents indicated they would use bike sharing for trips of between 1 and 5 kilometres with the remainder indicating they would use the system for greater distances.
- A majority of respondents indicated they would use bike sharing at locations close to their homes and workplaces, within the downtown area and on parks, trails and pathways.
- The most important features of a bike share program indicated were:
 - cost per ride
 - abundance of rental locations and bicycles

December 12, 2017

Page 7 of 10

- quality of bicycles
- Aspects of bicycles that respondents indicated were most important were:
 - adjustability and ride comfort
 - safety
 - cargo carrying capacity
- 62% of respondents indicated they preferred a dockless bike sharing system while 27% indicated a preference for docked.
- Most respondents indicated they would not use a bike share system during winter months.
- Most also saw advertising on a bike share system as acceptable.

Most respondents indicated a preference for a private sector partner owning and operating the bike share system or had no preference.

Staff Observations/Lessons Learned

During the DropBike pilot program in Kingston, city staff observed its operation as well as participating in using the DropBike bicycles and app. Staff also took the opportunity to use bike sharing in Montreal, Toronto and Hamilton. The following key learning's are noted below:

- All systems were generally easy to use for the first time.
- The build quality and riding comfort of DropBike bicycles and those offered by similar dockless systems (Limebike, Ofo, etc.) is generally lower than that of existing docked systems (Bixi, Sobie, etc.).
- Staff using non-Apple smart phones experienced some difficulty with the DropBike app which contributed to some early frustration. A week after the launch DropBike issued an update to their app that fixed this problem.
- First generation DropBikes with mechanical locks were easily defeated by users, occasionally resulting in a loss of control over the locations of these bicycles and first generation bicycles being left in unwanted locations that could not be tracked.
- The use of smart phone GPS rather than GPS on board of bicycles contributed to occasional difficulty in locating misplaced bicycles, especially on first generation bikes.
- The single speed format of the DropBike bicycles was not ideal for longer distances.
- DropBike's dockless system resulted in bicycles occasionally being left in places that impeded pedestrian traffic and in bicycles being tipped over, thus creating an untidy and undesirable appearance on the sidewalk.
- As expected, certain havens experienced higher demand for pick up and drop off and the rebalancing of bicycles across haven locations became important so that popular locations were not empty of bicycles.
- Several private businesses (hotels, grocery stores, retail and health services) requested that DropBike set up havens to allow better service to their customers.
- While some city staff effort was expended to support the commencement of the DropBike pilot program, once it was up and running very little effort was required of the municipality.

December 12, 2017

Page 8 of 10

- The data collected by DropBike was a useful indicator of how often the system was being used but additional and more in-depth data would be useful in order to determine if and how community bike sharing was replacing other modes of travel and to derive estimates of avoided GHG emissions.

Staff have also consulted with facility management staff at Queen's University who indicated satisfaction with the DropBike pilot program and who expressed a strong desire to work with the city to establish a full scale bicycle sharing program that would serve Queen's students and staff. Representatives of St. Lawrence College also expressed a desire to participate in a bicycle sharing program for their students and staff. Staff anticipates that other institutions and businesses (i.e. RMC, CFB Kingston, hospitals, etc.) would also regard access to community bike sharing as a valuable amenity.

Consultation with Downtown Kingston! (DBIA) identified some concern over the tidiness of the DropBike havens with occasional observations of bikes tipped over at havens, bikes not being left at proper haven locations and overcrowding at some havens. However, the DBIA indicated their members' overall satisfaction with the DropBike program and their support for a community bike share program that can address the issues noted.

Next Steps - Terms of Reference and Request for Proposals

Based on the observations of the DropBike pilot program, analysis of the public survey responses, and the benefits that can be realized through a community bicycle sharing program, city staff are recommending that the city proceed with soliciting interest from bicycle sharing operators to establish a full scale operation in Kingston based upon a terms of reference that include the following key preferences:

- A system of bike sharing that uses designated racks for pick up and drop off of bicycles, where bicycles are not physically locked to the rack and where bicycles may be left away from a designated rack for an additional service charge.
- Designated racks should be low cost and need not contain any technology or locking mechanisms. Designated racks would be reserved for bike sharing and would be painted or marked to display the visual identity of the bike share system. Designated racks may be removed during winter months when the bike share system is not in use.
- A preference for no financial contribution from the city for capital or operating costs.
- Ownership of bicycles, racks and technology remains with the bike share vendor.
- Access to specific sidewalk and municipal property locations approved by the city via a 3-year License Agreement.
- Preference for sturdy, higher build quality bicycles with attributes such as:
 - Adjustable seat and handlebar heights
 - Cargo basket
 - Front and rear lights
 - More than one gear speed
 - GPS technology on the bike

December 12, 2017

Page 9 of 10

- Compatibility with Kingston Transit Rack and Roll
- As large a number of bicycles and rack locations as are feasible with a minimum of 200 bicycles and 50 racks.
- Preference for a larger service area that will support existing and planned investment in bicycle lanes, routes and sharrows, serve high density trip start and destination areas and attractions, integrate with Kingston Transit's Rack and Roll program, and includes the following locations at a minimum:
 - Downtown business improvement area
 - Kingston General Hospital and Queens University main and west campuses, Donald Gordon Centre and Innovation Park
 - Johnson and Brock Street loop
 - St. Lawrence College
 - Kingston Centre shopping area
 - Princess Street corridor from Ontario Street to Sir John A MacDonald Boulevard
 - Montreal Street corridor from Brock Street to Weller Avenue
 - Division Street corridor from Union Avenue to John Counter Boulevard
 - King Street - Ontario Street - Highway 2 corridor from St. Lawrence College to CFB Kingston including Fort Henry and RMC
 - Urban portion of the K&P Trail
- The use of existing on street public parking for bicycle sharing racks is not preferred.
- Daily (once per 24 hours, Monday to Friday and once per weekend) rebalancing of bicycle locations and recovery of unreturned bicycles is preferred.
- Preference for a system that is affordable and provides an option for access for those without smartphone technology.

Staff are recommending that the above list be used as the terms of reference to solicit interest from bike share service providers via a Request for Proposals (RFP) process. The results of the RFP process would be provided to City Council with a recommendation appropriate for the responses received.

It is expected that a variety of bike sharing models will be proposed by respondents and that respondents will provide options for different aspects and sizes of systems, and that some may indicate requirements for financial support or service fees, and support from the city in seeking grant funding, sponsorships or other forms of support.

Staff expect that amendments to by-laws that regulate streets, sidewalks and business licensing may be required to implement a full scale bicycle sharing system. These potential amendments will be brought forward to Council, as appropriate, with the results of the RFP process.

If authorized by Council, staff expect the RFP process to be completed in early 2018 making selection of a vendor and implementation of a full scale bicycle sharing system possible during the summer of 2018.

December 12, 2017

Page 10 of 10

Existing Policy/By-Law:

The DropBike pilot program was authorized by City Council as per Report Number 17-189.

City of Kingston By-Law Number 2004-190 “A By-Law to Regulate the Use of City Streets” was amended to permit and set out terms for the DropBike pilot program.

Notice Provisions:

Not applicable

Accessibility Considerations:

Accessibility provisions will be included as a required element of the community bike share request for proposals.

Financial Considerations:

There are no direct financial implications of this report to existing or proposed operating or capital budgets.

Contacts:

Paul MacLatchy, Environment Director, Real Estate & Environmental Initiatives

Mark Dickson, Traffic Supervisor, Engineering Department

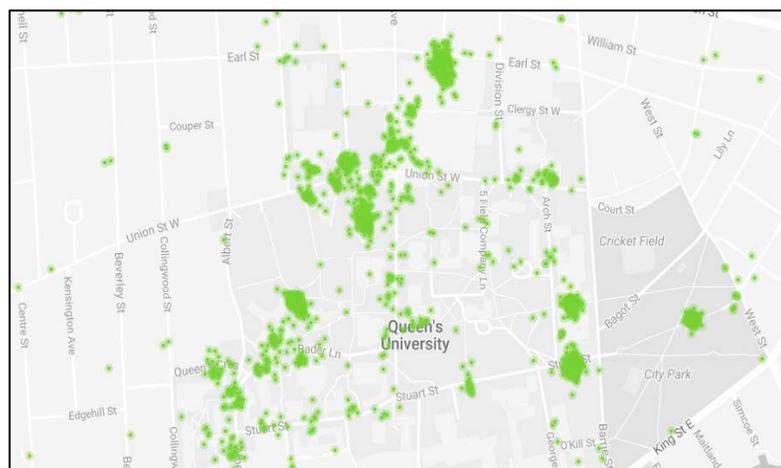
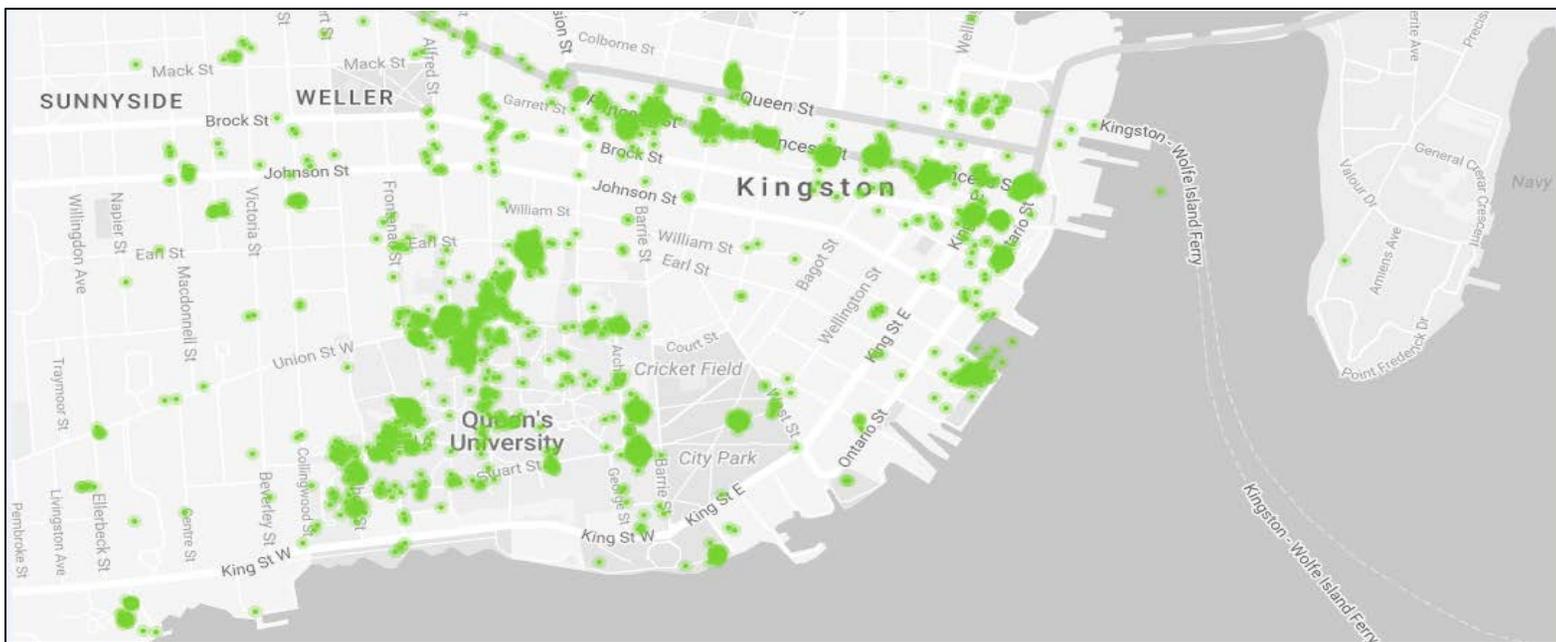
Other City of Kingston Staff Consulted:

Susan Nicholson, Director, Legal Services & City Solicitor

Exhibits Attached:

Exhibit A DropBike Heat Maps for Trip Starts and Ends

Heat Map of Drop Bike Trip Start Locations



Heat Map of Drop Bike Trip End Locations

