

Cycling infrastructure in the Ottawa-Gatineau area: a complex assemblage of data

Sylvie Lafortune¹, Joël Rivard²

Abstract

The Ottawa-Gatineau National Capital Region (Canada) has a well developed and well used cycling network of over 1,000 km which spans both sides of the Ontario and Quebec provincial boundary. The purpose of this study is to map out the complex data landscape behind the cycling infrastructure in the National Capital Region (NCR), which is largely based on inter-jurisdictional cooperation and partnerships with cycling advocacy groups. The questions we try to answer are: What data are collected for cycling infrastructure and activities? Who are the data producers and stakeholders? What are the relationships amongst the various data producers and stakeholders? The study reveals that the complexity of the cycling data landscape in the NCR is due to the complexity of the relationships between the various data producers and stakeholders.

Keywords

Cycling infrastructure data, cycling advocacy, cycling data stakeholders, cycling data producers, National Capital Region (Canada), active transportation data

Introduction

This article is based on the results of an exploratory study conducted in 2017-2018 and presented as a poster at the IASSIST 2018 conference in Montreal, Canada. The theme of the conference was 'Once upon a data point: sustaining our data storytellers' and it provided us with a great opportunity to explore the data story behind the cycling infrastructure in Ottawa, Canada's capital city.

We felt that our topic was particularly timely as we had noticed a heightened interest in active transportation research over a number of years. This became apparent with an increase in requests for cycling data which, we might add, are frequently difficult to obtain. As a result, the overall goal of our study was to get a better understanding of the data collected to build and maintain the cycling network in the National Capital Region (NCR). We chose this geographic region for the following two reasons:

1. The NCR is an interesting and possibly unique location to examine because it is situated across two cities (Ottawa and Gatineau) as well as two Canadian provinces (Ontario and Quebec). It is also managed by a federal commission which is described below. These five bodies are governed in different ways and follow their own processes for collecting, managing and sharing active transportation data.
2. Most of the requests we get for cycling data are generally limited to the NCR, which is where both of our universities are based and where our users are conducting research.

Background and purpose of the study

The National Capital Region has a well developed and well used cycling network of over 1,000 km of cycling routes which spans both sides of the Ontario and Quebec provincial boundary. The cycling network started in the 1980s when the National Capital Commission (federal government) secured the majority of industrialized waterfront lands as public land to create public green spaces, acquired a vast area in the Gatineau Hills to create a federal park, and established the 203-square-kilometre National Capital Greenbelt around Ottawa.³

Over the past two decades the Ottawa-Gatineau area has seen continued growth in cycling infrastructure but according to Citizens for Safe Cycling, an active advocacy group in Ottawa, there has been 'decades of under-investment in active transportation which means that there is a lot of catching up to do'.⁴

In the past few years, governments in Canada have followed the sustainable transportation development trend and shifted funding in this direction. As a result, municipalities such as Ottawa have made strategic decisions to further invest in cycling infrastructure. These include expanded and improved bike lanes and paths, traffic calming measures, parking facilities, bike-transit integration, bike sharing and training programs to promote cycling and increased cycling safety.

The purpose of this exploratory research is to gain a better understanding of the data landscape behind the cycling infrastructure in the Ottawa-Gatineau area which is largely based on inter-jurisdictional cooperation and partnerships with cycling advocacy groups. The questions we try to answer are:

1. What data are collected for cycling infrastructure and activities?
2. Who are the data producers and stakeholders?
3. What are the relationships amongst the various data producers and stakeholders?

Methodology

Given the scope of this study, we decided to conduct a website content analysis. We began with a general web search on cycling infrastructure in the Ottawa-Gatineau area. This led to the web sites and planning documents issued by the governments that have jurisdiction over this region: the City of Ottawa, the Ville de Gatineau and the National Capital Commission. From these webpages, other data stakeholders such as the TRANS Committee, Bike Ottawa, Action vélo Outaouais and VeloGO emerged and were further explored.

To validate information found on these web pages and documents, certain individuals were contacted to verify the accuracy of the information. We then compiled the types of cycling data produced and which organization was producing the data. Finally, we attempted to establish the relationships between the various data producers and the stakeholders.

Findings

A. Data collected

The following briefly describes the various data which contribute to the cycling infrastructure in the Ottawa-Gatineau area, including how they are collected and who collects them.

Public Consultations

Public consultations are regulatory means of getting feedback from the general public about cycling and its infrastructure in the national capital area. These include in-person and online consultations to help organizations draft reports and plan for future directions. Target audiences for public consultations on cycling include residents from both Ottawa and Gatineau and are conducted by various organizations such as the City of Ottawa, the City of Gatineau and the National Capital Commission (NCC).

Rapport sur l'état du vélo à Gatineau en 2015

A comprehensive report on cycling in the Ville de Gatineau in the province of Quebec. This is produced by Vélo Québec which draws from a province-wide survey of cycling practices in Quebec, with a sample of 400 respondents for the Ville de Gatineau. The report also includes an analysis of the 2005 and 2011 Origin-Destination surveys of the Ottawa-Gatineau agglomeration.

Origin-Destination Survey

The Origin-Destination (O-D) Survey, held every five years, examines the “who, where, why, when, and how” of transportation trips made by residents of the National Capital Region (NCR) resulting in extensive, up-to-date information on current daily trip patterns of area residents. The survey is conducted through voluntary, confidential telephone interviews over a 12-week period by a team hired by the TRANS committee, the organization responsible for administering the survey. The survey is conducted at the beginning of fall because during this period trip patterns are usually more stable than at other times of the year. Results from the 2005 and 2011 survey are available on the TRANS committee webpage. The next survey will take place once the first stage of implementation of the light-rail has been implemented at the City of Ottawa.

User-generated active transportation data

Data generated by users when they sign up to use a mobile app that publicly tracks bicycle rides, runs and other fitness activities. The data can be uploaded and become part of anonymized datasets which are licensed to city planning groups. Strava Metro is one of the leading companies which collect user-generated active transportation data. The City of Ottawa, the Ville de Gatineau and the NCC share a Strava Metro account.

Cartographic data

These include geospatial data, maps (paper and digital) as well as interactive maps that have been created by various local organizations. The cartographic products are used to illustrate the historical, current and future cycling infrastructure in the NCR.

Quality of Facilities Measure

Currently, a small-scale preliminary ‘quality of facilities measure’ study is being conducted in the City of Ottawa. It uses the Level of Traffic Stress (LTS) methodology to determine the actual and perceived level of safety of the cycling infrastructure. It uses road characteristics such as vehicle

speed, number of vehicle lanes, and the presence of parking to determine the quality for a particular segment.

Collision Data

The annual collisions report provides data on all reported collisions, including bicycles, on roads within the jurisdiction of the City of Ottawa. It should be noted that during our research (spring 2018), this data was only found on the City of Ottawa's Open Data portal. When searching the City of Gatineau's Open Data portal, the data was not available. No further steps were taken to confirm whether or not this data existed for the City of Gatineau.

Post-infrastructure implementation survey

These are online surveys conducted to get a better understanding of the travel behavior of cyclists once the cycling infrastructure is established. These surveys are part of a larger consultation process conducted through meetings or email.

Bike Counters

Infrastructure that collects the number of times a bicycle crosses the counter (both directions summed unless otherwise noted) at various locations in the NCR.

B. Organizations

Data Producers

National Capital Commission (NCC)

The National Capital Commission is a federal Crown corporation created by Canada's Parliament in 1959 under the National Capital Act. The NCC is subject to the accountability regime set out in Part X of the Financial Administration Act. It reports to Parliament through the minister designated as minister responsible for the National Capital Act. The NCC is the main federal urban planner in Canada's Capital Region. In this role, the NCC works in collaboration with stakeholders to enhance the natural and cultural character of the Capital. The NCC manages 236 kilometres of the pathways in the Ottawa-Gatineau region, which extend from Gatineau Park, through Ottawa and into the Greenbelt.

City of Ottawa

The City of Ottawa's land area covers 2,792 km² with a population of 934,243 in 2016. It operates under the Ontario Municipal Act and the City of Ottawa Act, both overseen by the Ontario Ministry of Municipal Affairs. In 2013, the city added an extensive cycling plan to the *Building a Liveable Ottawa 2031* report, which was a city-wide review of land use, transportation and infrastructure policies, launched in 2012. In 2015, the city owned and maintained a cycling network of 700 km. According to Bike Ottawa, the City of Ottawa has budgeted approximately \$25 M in 2018 for cycling-related projects.

Ville de Gatineau

The Ville de Gatineau spans a territory of 343 km² with a population of 276,245 in 2016. It operates under the Cities and Towns Act and the Charter of Ville de Gatineau, both overseen by the Ministère des Affaires municipales et de l'Occupation du territoire du Québec. The city is currently creating its first cycling network master plan which is expected to be adopted in 2018-2019. This master plan will update the 2013 *Plan de déplacements durables*. In 2015, the city offered a cycling network of 269 km. According to the 2018 Ville de Gatineau budget, \$7.5M will be available for the

development of the cycling network and an extra \$1.4M per year afterwards. Additionally, the Ville de Gatineau has planned to spend \$470K annually for the cost of maintenance of the cycling network.

TRANS Committee

The TRANS Committee was established in 1979 to coordinate efforts between the major transportation planning agencies of the National Capital Region. The Committee is a neutral forum for the exchange of information on technical guidelines and best practices. In addition, it manages transportation studies and collects data for transportation planning. The six members of the committee span all three levels of government. They include the National Capital Commission, the ministère des Transports, de la Mobilité durable et de l'Électrification des transports du Québec, the Ministry of Transportation of Ontario, Ville de Gatineau, the City of Ottawa, and the Société de transport de l'Outaouais. Funding responsibilities are shared by the six member agencies. The proportion of contributions may vary for some projects.

Stakeholders

Bike Ottawa

Bike Ottawa (also known as Citizens for Safe Cycling) is a cycling advocacy group established in 1984 and based in Ottawa. According to its website, this organization promotes “cycling as a safe, fun, and environmentally friendly form of transportation.” The organization has a strong volunteer base involved in writing letters to city councillors, participating in city consultations, gathering and analyzing data from Statistic Canada, the Ottawa Cycling Plan, bike counters, Transport Canada as well as Weather Canada to promote safe cycling and cycling as active transportation.

Action vélo Outaouais

Action vélo Outaouais is a cycling advocacy group based in Gatineau. According to its website, the focus of this group is on the planning and development of a safe cycling network in the Outaouais region (including the Ville de Gatineau). Action vélo Outaouais partners with the Ville de Gatineau by networking with cycling groups in the Gatineau area to gather feedback on cycling projects and by submitting briefs and reports to the city. It partners closely with Vélo Québec, a long-standing provincial cycling advocacy group which produces detailed cycling reports at the regional level in the province. The organization is also involved in promoting active transportation, recreational cycling and cyclotourism, as well as finalizing the development of the Route Verte (cycling infrastructure throughout the province of Québec).

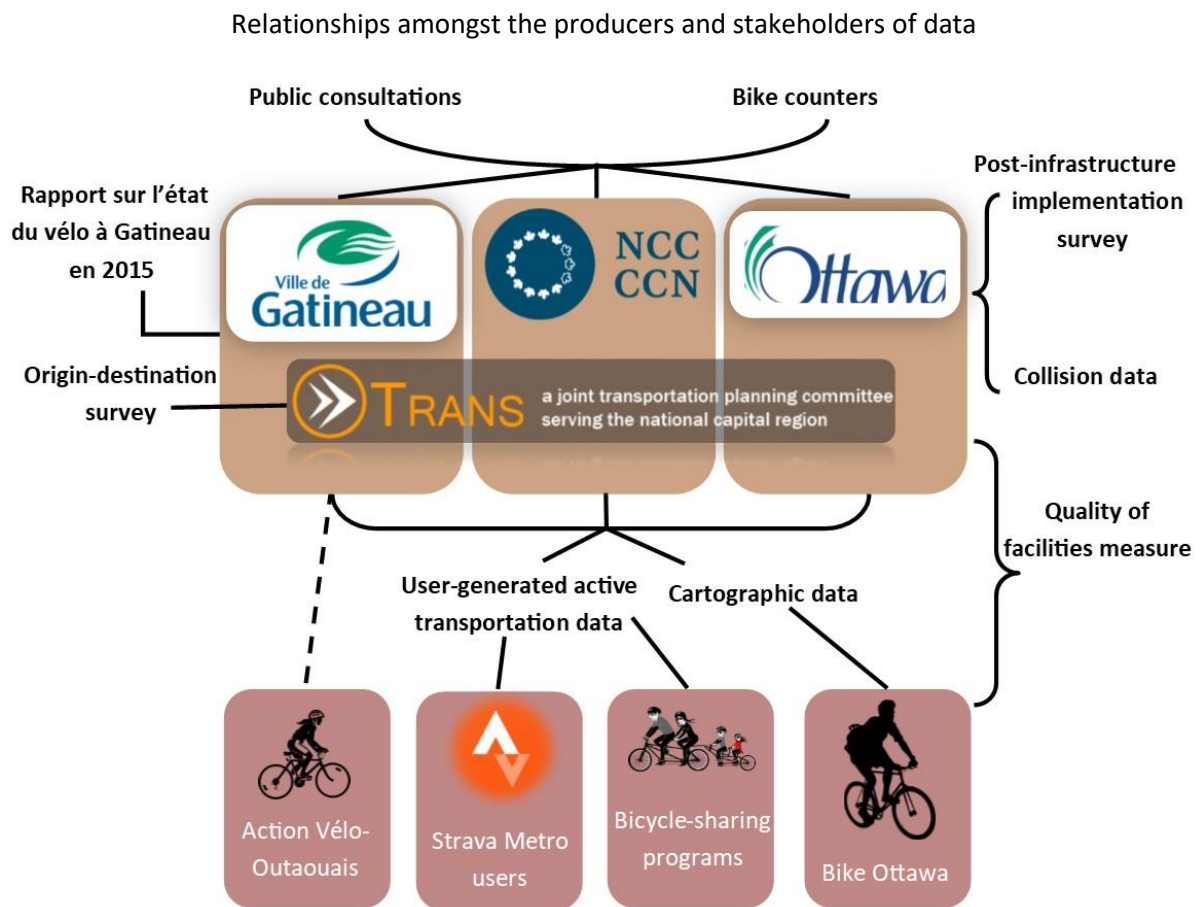
Bicycle-sharing program

A service in which bicycles are made available for shared use to individuals on a very short term basis, for a fee. VeloGo is the official bicycle-sharing program for the Ottawa-Gatineau area and it uses “smart-bikes” which come equipped with real-time GPS, GSM, RFID and NFC technologies. This program is a public-private partnership between CycleHop, the City of Ottawa, the National Capital Commission and the Ville de Gatineau. Cyclehop shares its VeloGO GPS data with its partners.

C. Relationships

An important insight offered by this study is that the complexity of the cycling data landscape in this area is largely due to the complexity of the relationships between the various data producers and

stakeholders. Most relationships were outlined above, but to get a deeper understanding of the actual collaboration between organizations, we created the diagram below.



Further observations

The National Capital Region (NCR) is a unique geographic area in Canada, where two provinces, two municipalities, and one federal organization must work together to develop a safe and sustainable cycling infrastructure for the residents and visitors who travel within and between both municipalities and federal parks. The cycling data landscape is further complicated by an increasing number of stakeholders such as cycling activist groups and bike sharing companies who have an obvious interest in promoting and challenging transportation projects which involve cycling. Finally, an additional challenge in the NCR is that the infrastructure must be implemented in either one or both of Canada's official languages.

However, we found that the intricate nature of the region is somewhat counterbalanced by a long-standing formal culture of data sharing through the TRANS Committee as well as an informal one between the various stakeholders (users and data producers). In an era of growing active transportation and open government, how these relationships evolve could be further explored. However, and not surprisingly, we noted that each of the three jurisdictions in the NCR operates independently and information on their cycling planning is not always publicly available in the same manner.

Further studies on how the NCR stakeholders use and combine the various cycling datasets, more specifically the user-generated active transportation data, to improve infrastructure should also be considered.

Finally, further investigation on how infrastructure decisions are actually arrived at would require interviews with the data producers and stakeholders.

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End-notes

¹ Sylvie Lafortune is a Social Sciences Librarian at Carleton University, Ottawa, Canada. Her email address is: sylvie.lafortune@carleton.ca.

² Joel Rivard is the Geography and GIS Librarian at the University of Ottawa, Canada. His email address is: joel.rivard@uottawa.ca

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