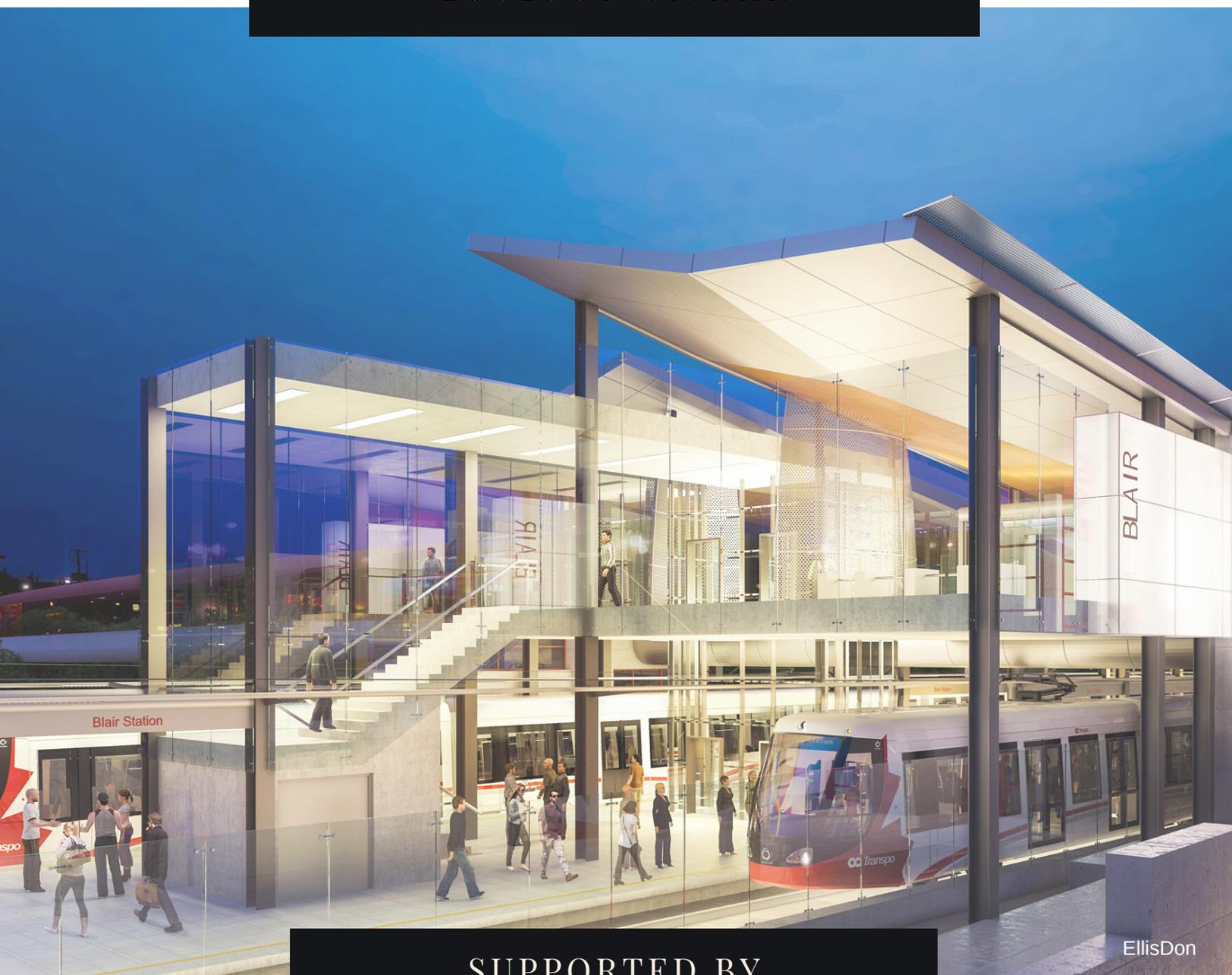


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# A CITIZEN AUDIT OF GREEN FACTORS IN OTTAWA'S LIGHT RAIL STATIONS

ECOLOGY OTTAWA



EllisDon

SUPPORTED BY

Ken and Debbie Rubin Public  
Interest Advocacy Fund



**Succession**

Table of Contents

- ACKNOWLEDGEMENTS .....2
- 1. EXECUTIVE SUMMARY .....3
  - 1.1 OVERVIEW.....3
  - 1.2 KEY OPPORTUNITIES.....4
- 2. INTRODUCTION AND BACKGROUND .....6
- 3. METHODOLOGY .....6
  - 3.1 ON-SITE AUDIT.....7
  - 3.2 EXTERNAL SOURCES.....8
- 4. GAPS IN RESEARCH FINDINGS .....8
- 5. STATION-SPECIFIC FINDINGS .....11
  - 5.1 RIDEAU STATION FINDINGS .....11
  - 5.2 PARLIAMENT STATION FINDINGS .....13
  - 5.3 RIDEAU AND PARLIAMENT STATIONS RECOMMENDATIONS .....14
- ANNEX 1: AUDIT ON LIGHT RAIL TRANSIT STATIONS .....16
- REFERENCES .....21

## Acknowledgements

Ecology Ottawa would like to thank all the volunteers who assisted with the audits.

Multiple partner organizations were consulted throughout the process: the Council on Aging of Ottawa; the Canadian National Institute for the Blind; Healthy Transportation Coalition; Free Transit Ottawa; MS Society of Canada, Ottawa Chapter; and the Ottawa & District Labour Council. The project would not have been possible without financial support from The Ken and Debbie Rubin Public Interest Advocacy Fund.

The final version of the report was compiled and edited by Emilie Grenier and Robb Barnes at Ecology Ottawa. Any errors or omissions contained in this document are the responsibility of the principal authors.

## 1. Executive summary

This report will first give a brief overview of the context leading to the audit; the most salient recommendations stemming from our general findings, which are not station-specific; the impacts of the lack of access to public information collected by the City; as well as specific data and audit findings for both Rideau and Parliament stations.

### 1.1 Overview

The City of Ottawa launched the first stage of the light rail transit system in September 2019. Multiple issues arising soon after the inauguration, Ecology Ottawa and The Ken and Debbie Rubin Public Interest Advocacy Fund saw an opportunity to assess and shed more light on how light rail stations perform across a range of social and sustainability-related concerns. As a pilot program, Ecology Ottawa sees a need for further study of the challenges and opportunities surrounding the implementation of light rail in Ottawa, ongoing monitoring of the Confederation Line network, as well as for content that will help ensure the successful delivery of the second stage of the light rail. This is a first attempt at delineating several lines of evaluation, studying only two stations.

This report was designed both for residents and city officials. For residents, this is an advocacy tool to help you build a greener Ottawa – one where light rail, along with other elements of our sustainable transportation infrastructure, respond to your needs. For city officials, we hope this tool will be used to keep track of challenges and opportunities. As the second stage of the light rail is still in the works, it is hoped that this report is timely in suggesting a way forward for city planners. The wins or losses that have been assessed throughout the audit will hopefully influence the way forward in the planning of future light rail stations, which are under development, and slated for completion in 2023.

The data that inform this report will be drawn from two main sources. First, volunteers were asked to collect qualitative information and report back on their experiences with light rail stations using our light rail Audit Checklist (developed alongside various organizations listed on page 7 of this document) (see annex 1 for the checklist). In cases where quantitative data was sought, we drew from a variety of third-party organizations (e.g., the City of Ottawa, nonprofit and community-based databases, etc.).

## 1.2 Key opportunities

Below are mentioned the most salient issues stemming from the audits of both Rideau and Parliament stations. Station-specific findings are available in sections 5.1 and 5.2.

- The audits have shown that current bike parking availability at both Rideau and Parliament stations is insufficient to provide for all individuals who are likely to be actively commuting to the light rail stations. **This represents a key opportunity for the future stages of the light rail, where planners can further strategize to offer more availability of such infrastructure. It is also a clear opportunity for meaningful, low-cost improvements to existing stations and their surrounding areas.**


- On October 2<sup>nd</sup>, October 9<sup>th</sup>, and October 23<sup>rd</sup> 2019, Ecology Ottawa emailed the Rideau Transit Group through the City's Light Rail Office, the Program Manager at the Transportation Services Department, as well as the Program Manager at the Zoning and Intensification Department of the City, asking for any available data on renewable energy generation, the walkability and cyclability of areas near the stations, as well as accessibility for low-income communities. Unfortunately, upon printing the report, we have not yet received a reply. We therefore have gaps in our analysis regarding this data. **We recommend that the data concerning these subjects be publicly available.**
- Ecology Ottawa wanted to include data on the air quality of the light rail stations themselves as well as their surroundings, in order to assess whether or not the stations are currently on par with healthy air quality standards developed by the World Health Organization<sup>1</sup>. Unfortunately, we were unable to access any schematics or data regarding the research that has been done to evaluate the

<sup>1</sup> See detailed facts about air pollution from the World Health Organization at [https://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health).

air quality of the stations. **We recommend that air quality monitors be installed in and around light rail stations, and that the results be publicly available.**

- The audits have also shown that station infrastructure needs to be improved to facilitate bringing bikes into the light rail stations, as well as onto trains. There are often few elevators (and some elevators take users through stores or shopping malls), while staircases do not always have ramps to slide a bike down to lower floors. **We recommend that bike-friendly ramps be added to existing infrastructure or built into the future stations.**
- Areas surrounding Parliament and Rideau stations are currently covered with non-permeable concrete. This makes them cut off from green space but also leads to issues with flooding of surface water in key urban areas<sup>2</sup>. **With wide sidewalks and large storefronts, we recommend that the audited areas be retrofit to add green infrastructure such as permeable surfaces, trees, bioswales and rain gardens.**
- The risks of gentrification, as well as many lower income communities being under-served by rapid public transit service are high in Ottawa. **We recommend that greater diversity and affordability be a priority in building developments surrounding current and future transit hubs.**

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<sup>2</sup> University of Delaware, Permeable vs. impermeable surfaces, Agriculture and Natural Resources, Online. <https://www.udel.edu/canr/cooperative-extension/fact-sheets/permeable-impermeable-surfaces/>.

## 2. Introduction and Background

In Ottawa, 44% of city-wide greenhouse gas emissions are transport-related<sup>3</sup>. This means addressing climate change must involve making our commuting patterns less dependent on fossil fuel-burning vehicles. Two major ways to reduce our emissions in this sector are to promote public transit as well as active transportation options over the use of motor vehicles.

Making transit more reliable, easier to access, connections more frequent, and stations better integrated with surrounding communities and active transportation infrastructure would go a long way to promote carbon-free transportation. The ecological benefit of transit is multiplied when the improvement of air quality due to carbon-neutral alternatives is considered. Increasing the number of people using active and public modes of transit reduces atmospheric pollution and decreases pulmonary pathologies and premature deaths<sup>4</sup>. Active and public transportation options also decongest a city, as they require less infrastructure and space than motor vehicles, both in the streets and for parking.

For all the reasons mentioned above, it is critically important that the City work to support and improve public transportation. This report encourages a more sustainable, accessible and user-friendly light rail system, as part of a broader effort to improve transit in our city.

## 3. Methodology

Ecology Ottawa intended to use many different sources of information – on-site audits of light rail stations and trains, as well as external sources such as Google Maps, local newspapers, and official city and Rideau Transit Group schematics of the stations. Unfortunately, despite repeated emails sent by the Ecology Ottawa team, as described above, the schematics were never shared.

The final format of this report provides statistics and salient themes arising from the quantitative results. The audit questions were phrased to be answered with yes/no responses, or selections on a 1 to 5 Likert scale. Statistics were drawn from the auditors' completed forms. Qualitative assessments of the stations audited by the volunteers were also added to the report when relevant.

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<sup>3</sup> City of Ottawa, Air Quality and Climate Change Management Plan (AQCCMP), Online. <https://ottawa.ca/en/planning-development-and-construction/official-plan-and-master-plans/air-quality-and-climate-change-management-plan-aqccmp>

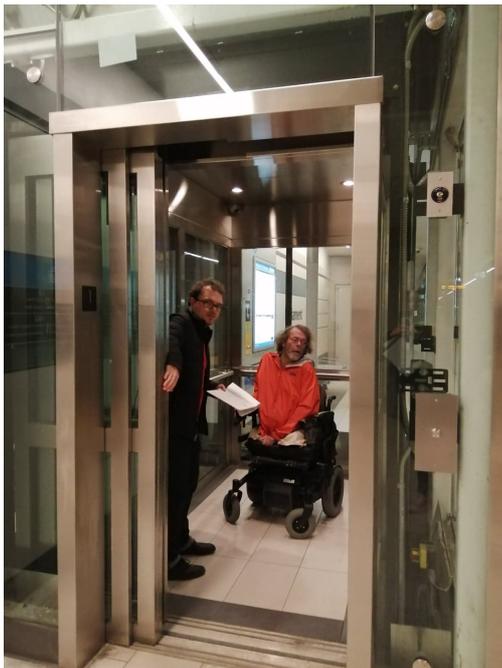
<sup>4</sup> Health Canada, Health Impacts of Air Pollution in Canada – An estimate of premature mortalities, November 2017, Online. [http://publications.gc.ca/collections/collection\\_2018/sc-hc/H144-51-2017-eng.pdf](http://publications.gc.ca/collections/collection_2018/sc-hc/H144-51-2017-eng.pdf).

### 3.1 On-Site Audit

Months before the launch of the audit, knowledgeable partners were consulted on data sources for the project. The questions that were developed with their help are comprehensive, all-round and inclusive of multiple different issues. With their valuable input, the questionnaire (available in Annex 1) was developed and used throughout the process. The following individuals were consulted:

- Dianne Breton, the Council on Aging of Ottawa
- Nancy Biggs, Ecology Ottawa
- Kathleen Forestell, Canadian National Institute for the Blind
- Heather Dunlop, Ecology Ottawa
- Trevor Haché, Healthy Transportation Coalition
- Kirstin Pulles, Free Transit Ottawa
- Karen Scott, MS Society of Canada, Ottawa Chapter
- Sean McKenny, Ottawa & District Labour Council

In addition to the experts who helped with the initial discussions and prior research, 21 participants volunteered their time to audit the Rideau and Parliament light rail stations with the checklist available in annex. All auditors surveyed both stations during the month of October. Although not every participant answered all of the audit questions, they all received the same basic training (what the questions were meant to study, what the Likert scale referred to, etc.) before the start of the audit. Considering the consistency of the results, we consider this number widely sufficient in supporting our conclusions, findings and recommendations. Station-specific findings and recommendations for each station are available in section 5 below.



### 3.2 External sources

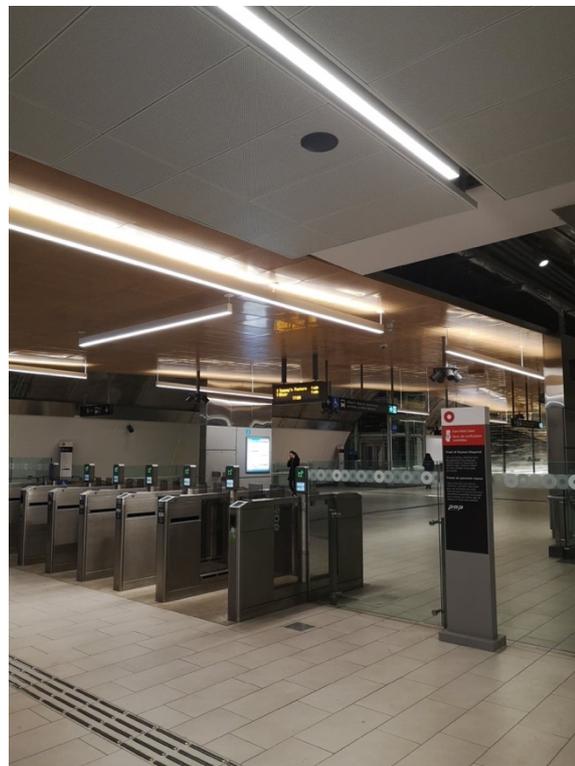
Although Ecology Ottawa was able to gather important information from nonprofits and community organizations for the audit, our report planned to include various datasets relating to air quality, use of renewable energy, and affordability of housing near major stations. Although city officials were repeatedly contacted as described above, they did not respond. As such, the research below is supplemented with additional research from external think tanks, articles, nonprofits and charities working in the sector.

### 4. Gaps in research findings

Residents and city councillors lack information on light rail issues, including solutions in the works to solve problems. It is said that the situation is so bad that individuals are choosing to use their vehicles rather than use unreliable public transit<sup>5</sup>.

The lack of information provided to transit users demonstrates the level of accountability of the City and the Rideau Transit Group.

Ecology Ottawa would like to encourage the City to consider the co-benefits stemming from the light rail. The reduction of deaths from air pollution and road traffic, as well as the investments in technological innovation that were garnered thanks to this project may lower the costs of climate action and may even lead to an economic benefit.<sup>6</sup> We hope that the Rideau Transit Group can be encouraged to continue improving the diverse issues currently making user-experiences less than exemplary.

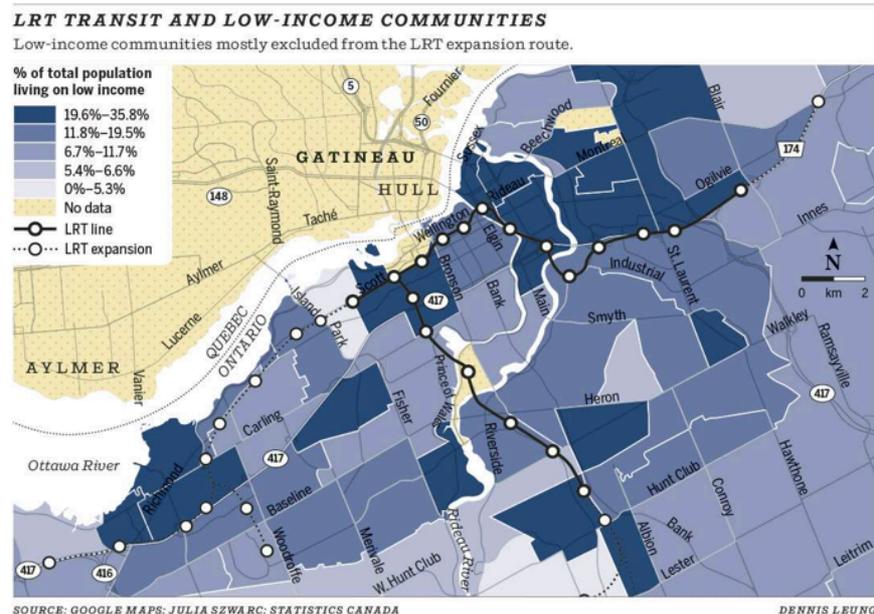


<sup>5</sup> Councillor Carol Anne Meehan, <https://www.cbc.ca/news/canada/ottawa/councillors-call-emergency-transit-commission-meeting-1.5338129?fbclid=IwAR18VP2x9RQm8TV0pjaDpgGhvwVoku6KdPJRpgsqAM-WIjp3WroRBU1mrQQ>

<sup>6</sup> <https://www.cbc.ca/news/technology/climate-change-mitigation-co-benefits-1.5205552>

## Low-income housing

As shown on the map below<sup>7</sup>, the route and stations of the light rail avoid passing through some sectors heavily populated by low-income households such as Overbrook, Carson Grove – Carson Meadows, Wateridge Village, and Vanier. Many lower income communities are underserved by



rapid public transit service in Ottawa. The City should be prioritizing such areas of the city to address inequities. The gentrification of neighborhoods around light rail stations also constitutes an issue of high importance as developers cater to wealthy individuals. An easy access to the transit system is a gateway for many to education, training, work and the economy as a whole<sup>8</sup>. As transit systems are known to increase the value of real estate within close range of the stations, City Council and City Planners must ensure individuals with lower incomes are not driven out of their neighborhoods<sup>9</sup>. The infrastructure of the first stage of the light rail will be a part of Ottawa's built environment for many years to come. If we want an equitable and fair city, stage two must provide higher mobility standards for all, making low-income communities a priority<sup>10</sup>. Affordable housing needs to represent a large percentage of the built environment surrounding the light rail stations<sup>11</sup>.

Ecology Ottawa is a member organization of the Healthy Transportation Coalition, which is working with its members, supporters and people city-wide to ensure transportation equity is prioritized in Ottawa, and one aspect of that means affordable housing being prioritized near rapid transit stations.

<sup>7</sup> <https://ottawacitizen.com/opinion/columnists/szwarc-light-rail-project-ignores-ottawas-low-income-communities-which-need-public-transit-the-most>

<sup>8</sup> <https://www.cbc.ca/news/canada/ottawa/light-rail-leave-disadvantaged-in-lurch-1.4302355>

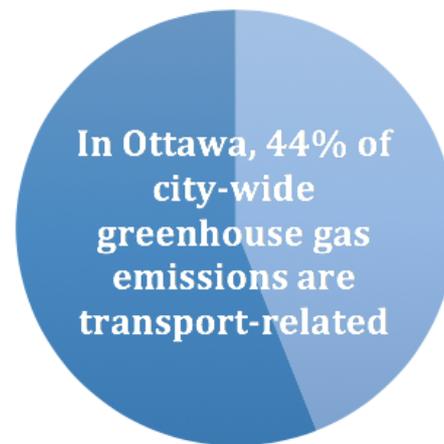
<sup>9</sup> <https://www.cbc.ca/news/canada/ottawa/affordable-housing-light-rail-extension-1.4645621>

<sup>10</sup> <https://ottawacitizen.com/opinion/columnists/szwarc-light-rail-project-ignores-ottawas-low-income-communities-which-need-public-transit-the-most>

<sup>11</sup> <https://www.cbc.ca/news/canada/ottawa/affordable-housing-light-rail-extension-1.4645621>

## [Air quality and use of renewable energy](#)

As mentioned previously, Ecology Ottawa reached out to city officials, planners and the Rideau Transit Group for air quality data charts as well as renewable energy infrastructures amid and around light rail stations, that would support the use of non-renewable energy sources. Unfortunately, we received no reply. While we are aware of one provincial air quality monitoring station in east Lower-town, we do not have any evidence that air quality is monitored in other areas at this time. Considering the co-benefit of monitoring the air quality both for environmental impact and for public health, Ecology Ottawa strongly encourages the implementation of permanent air quality tracking systems in and around transit hubs – both in the light rail stations, as well as in areas with high level of bus transit.



As a first step in the process of air quality monitoring, Ecology Ottawa will be launching *Breathe Easy Ottawa* in 2020. Non-permanent, mobile and innovative air-quality monitors will be circulated via volunteer pedestrians and cyclists in high traffic areas, residential areas, school districts and transit hubs. A real-time map of the city's core will be created with the data collected, hopefully incentivizing Ottawa and its residents to take meaningful action against the main sources of air pollution.

## 5. Station-specific findings

Although multiple elements need to be improved in and around both Rideau and Parliament stations, many positive aspects were mentioned by auditors. Due to the central locations of both Rideau and Parliament stations, auditors identified pedestrian and cycling accesses as being well-lit for safe connections. Auditors felt safe when accessing the transit hubs and identified the walkways as being free of hazards.

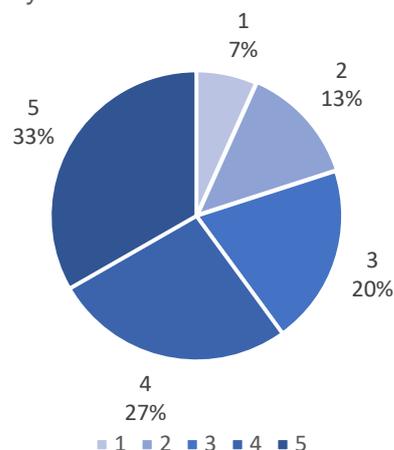
Below is the Likert scale used by the auditors and referenced in the graphics below.

1	2	3	4	5
Terrible / Dangerous	Bad / Unsafe	Ok / Neutral	Great / Safe	Excellent / Very safe

### 5.1 Rideau station findings

Many different types of questions were asked of auditors, ranging from bike parking availability, general feelings of safety, convenience and connection to green space, as well as infrastructure-related questions, such as aides for the visually impaired. (All questions are in Annex 1 of this report.) There was a high level of consistency in the responses of auditors.

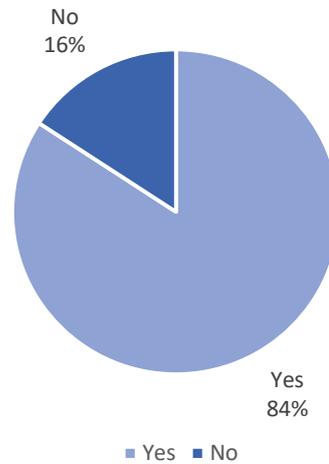
As a pedestrian, how safe is it for you to enter the station?



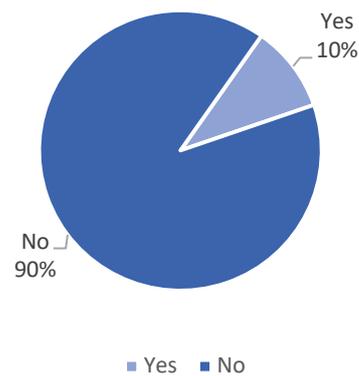
Most significantly, auditors identified access to Rideau station by foot or bus transfer as safe (60% of participants circled 4 or 5 on the scale). Participants also thought there are enough emergency call units present in the stations. Unfortunately, not all station design elements were positively reviewed. Auditors noted that bike parking was insufficient. Also, they noted a striking lack of greenspace and green infrastructure surrounding Rideau station. 100% of participants noted that Rideau station does not make any evident use of green infrastructure (circling 1 or 2 on the scale of 5).

As a key part of the City of Ottawa, the ByWard Market area could lead by example. If Rideau station were to showcase permeable surfaces, renewable energy infrastructure, trees, bike parking, outdoor furniture, as well as safe and segregated bike paths, it would go a long way towards showcasing Ottawa as a greener city.

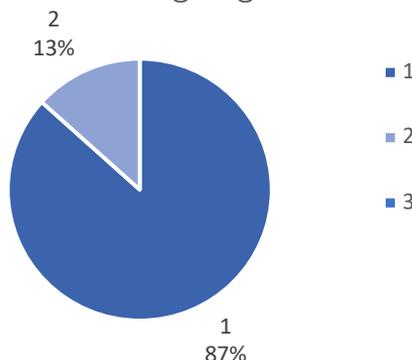
Are there enough emergency call units present?



In your opinion, is there sufficient bike parking at the station?



Does the station make use of any green infrastructure surrounding the station? (permeable sidewalks or parking lots, storm water storage, gardens, etc.)



## 5.2 Parliament station findings

Like Rideau station, Parliament station is centrally located in Ottawa's downtown core. As such, pedestrian access and the frequency of connections to bus routes was rated as highly satisfactory. On the other hand, the quantity of bike parking and segregated bike lanes was just as unsatisfactory at Parliament as at the Rideau station area.

The quality of the shelter from the rain and the cold during a bus transfer was also rated as highly insufficient to offer refuge from our Canadian winters. The open bus stops as well as the small lobbies of the light rail station were not considered good enough for the auditors. They mentioned that long waits for delayed buses would deter them from using the transit system in the winter considering the cold weather.

As a transit user, is the frequency of local bus route connections to the station satisfying?

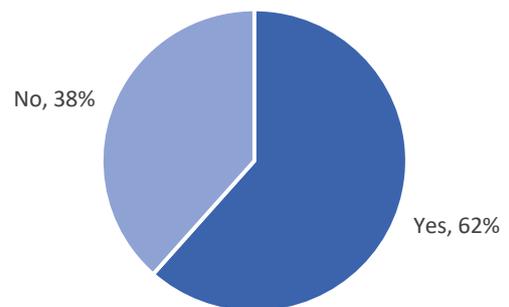


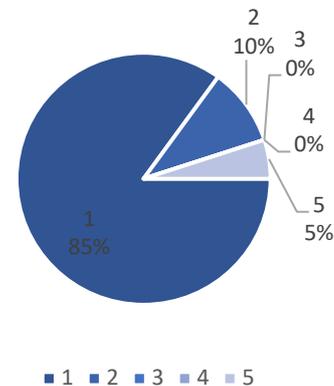
Photo: Laura Osman/CBC

As another high-traffic area for tourists, dignitaries and other visitors to Ottawa, Parliament station would be a great venue for the City to demonstrate high standards in green and sustainable infrastructure, as well as transit connectivity.

### 5.3 Rideau and Parliament stations recommendations

- We recommend that green infrastructure be integrated into stations and their surrounding areas. Examples could include trees, permeable surfaces, bio-swales and rain gardens.
- We recommend that more green bins, recycling bins and garbage bins be available throughout the stations as they were difficult to find, very small, and only available on the train platforms.
- The elevators in the stations did not always leave enough time for children or individuals with impaired mobility to enter. **We recommend that the elevators leave adequate time for all users.**
- Entrance gates at all light rail stations do not accept pre-paid tickets, which must first be scanned through the ticket machine. **We recommend that instructions are not provided on the gate screen.**
- Certain paths of tactile pedestrian flooring do not begin directly in front of the elevator doors or disappear upon some exits of the stations without guiding individuals to the connecting bus stops. The William Street/Byward Market exit from the Rideau station is particularly poorly designed. **We recommend that guides for the visually impaired be better situated throughout the stations.**
- We recommend that ParaTranspo drop off and pick-up areas be better identified at both stations.

Upon arriving to the station, how connected to green space does the surrounding city planning make you feel?



## 6. Conclusions

The audits of the Rideau and Parliament light rail stations revealed important issues that had not yet been discussed in the media. Ecology Ottawa is confident that the results of the audits support other studies conducted by partner organizations in the sector such as the Council on Aging of Ottawa with their Snow Mole audits, and Ottawa Transit Riders.

Ecology Ottawa encourages the City of Ottawa to acknowledge and fix the issues with the first stage of the LRT, as well as urges both the City and the Rideau Transit Group to consider the recommendations stated above to avoid similar problems in the second stage. While some constitute significant investments, such as implementing better weather-sheltered bus stops, others are simple fixes that will make the Ottawa transit system much more appealing. Ranging from suitable bike ramps, sufficient bike parking, and an increase of users' sense of place with improvements of the access to greenspace and green infrastructure, we hope the City sees the co-benefits involved in implementing these suggestions, such as reduced road traffic and better air quality.

The advantages involved in improving the light rail experience for transit users is multifaceted and is directly linked to the ability Ottawa has of being a leader in its response to the climate crisis. Ecology Ottawa is hopeful that further steps will be taken to have a bigger and better impact, both on the transit riders' point of view, but also on the climate front.

## Annex 1: Audit on Light rail Transit stations

1
2
3
4
5  
 Terrible / Dangerous      Bad / Unsafe      Ok / Neutral      Great / Safe      Excellent / Very safe

Please circle the number, or Yes/No/None option, that, to your knowledge, best answers the questions. If you think your answer needs more clarification, please add a comment. The questions are in an order that should follow your logical progression through the station. Thank you for your participation!

YOUR STATION OF ENTRANCE: \_\_\_\_\_

BEFORE ENTERING THE STATION	COMMENTS
How well-lit are pick-up or drop-off areas adjacent to the station?	1 2 3 4 5
How well-lit are paths (pedestrian or cyclist) connecting to the station?	1 2 3 4 5
As a pedestrian, how safe is it for you to enter the station?	1 2 3 4 5
How convenient and effective is it to transfer from a bus to the train transit system?	1 2 3 4 5
As a transit user, how satisfying is the frequency of bus route connections to the station?	1 2 3 4 5
How easy is it for you to move from the bus stop to the train station?	1 2 3 4 5
In your opinion, is there sufficient bike parking at the station?	1 2 3 4 5
As a cyclist, how safe is it for you to enter the station?	1 2 3 4 5
As a cyclist, how convenient is it for you to enter the station?	1 2 3 4 5
There is enough clear signage and maps indicating where you are and where you want to go.	1 2 3 4 5
There are "way-finding" announcements for visual and hearing impaired.	1 2 3 4 5

Are the specific infrastructures for people with mobility challenges well-designed? (e.g. practicality for mobility scooters & wheelchairs)	1	2	3	4	5	
The walkways are smooth and even, and free of hazards.	1	2	3	4	5	
Is there a safe and accessible ParaTranspo drop-off area at the station?	Yes				No	
For the visually impaired: Are there enough tactile pedestrian crossings (detectable warning surfaces) to access the station?	1	2	3	4	5	
For the visually impaired: Are there enough translations in braille to enter the station?	1	2	3	4	5	
For the hearing impaired: Are there enough visual signs to enter the station?	1	2	3	4	5	
What is the quality of shelter from rain and snow?	1	2	3	4	5	
What is the quality of shelter from the cold?	1	2	3	4	5	
To what extent is the station integrated with the surrounding community? (e.g. proximity to neighborhoods, pedestrian and cycling infrastructures, shops, grocery stores, etc.)	1	2	3	4	5	
Upon arriving to the station, how connected to green space does the surrounding city planning make you feel?	1	2	3	4	5	
Does the station make use of any green infrastructure? (permeable sidewalks or parking lots, solar panels, storm water storage, gardens, etc.)	1	2	3	4	5	

IN THE STATION					COMMENTS	
How well-lit is the station?	1	2	3	4	5	
How easy is it for users to bring bikes onto trains?	1	2	3	4	5	
Are there enough emergency call units present?	Yes	No	None			
There are enough garbage /recycling bins.	Yes	No	None			
Are there accessible toilets and drinking fountains in this station?	Yes	No	None			
Is there an easy-to-use ticket machine to buy or upgrade a Presto card?	Yes			No		
For the visually impaired: Are there enough audio announcements at the station (e.g. for next train coming)?	Yes	No	None			
Are the specific infrastructures for people with mobility challenges well-designed? (e.g. practicality for mobility scooters & wheelchairs)	1	2	3	4	5	
The timing of the train door opening and closing is long enough for wheelchairs/walkers to enter and exit safely.	1	2	3	4	5	
The walkways are smooth and even, and free of hazards.	1	2	3	4	5	
For the visually impaired: Are there enough tactile pedestrian crossings (detectable warning surfaces) in the station?	Yes	No	None			
For the visually impaired: Are there enough translations in braille in the station?	Yes	No	None			
For the hearing impaired: Are there enough visual signs in the station?	Yes	No	None			

THE STATION OF YOUR EXIT: \_\_\_\_\_

UPON EXITING THE STATION					COMMENTS	
How well-lit are pick-up or drop-off areas adjacent to the station?	1	2	3	4	5	
How well-lit are paths (pedestrian or cyclist) connecting to the station?	1	2	3	4	5	
As a pedestrian, how safe is it for you to leave the station?	1	2	3	4	5	
How easy is it for you to move from the train station to the train stop?	1	2	3	4	5	
As a cyclist, how safe is it for you to leave the station?	1	2	3	4	5	
As a cyclist, how convenient is it for you to leave the station?	1	2	3	4	5	
In your opinion, is there sufficient bike parking at the station?	1	2	3	4	5	
There is enough clear signage and maps telling where you are and where you want to go.	1	2	3	4	5	
Are the specific infrastructures for people with mobility challenges well-designed? (e.g. practicality for mobility scooters & wheelchairs)	1	2	3	4	5	
The walkways are smooth and even, and free of hazards.	1	2	3	4	5	
Is there a safe and accessible ParaTranspo drop-off area at the station?	Yes		No			
For the visually impaired: Are there enough tactile pedestrian crossings (detectable warning surfaces) to exit the station?	Yes	No	None			
For the visually impaired: Are there enough translations in braille to exit the station?	Yes	No	None			
For the hearing impaired: Are there enough visual signs upon exiting the station?	Yes	No	None			

What is the quality of shelter from rain and snow?	1 2 3 4 5	
What is the quality of shelter from the cold?	1 2 3 4 5	
To what extent is the station integrated with the surrounding community? (e.g. proximity to neighborhoods, pedestrian and cycling infrastructures, shops, grocery stores, etc.)	1 2 3 4 5	
Upon exiting the station, how connected to green space does the surrounding city planning make you feel?	1 2 3 4 5	
Does the station make use of any green infrastructure surrounding the station? (permeable sidewalks or parking lots, solar panels, storm water storage, gardens, etc.)	1 2 3 4 5	
How convenient and effective is it to transfer between train and bus transit systems?	1 2 3 4 5	
As a transit user, how many transfers are normally required to get you to or from the station to your final destination?	(Please write #)	
As a transit user, is the frequency of local bus route connections to the station satisfying?	Yes No	

## References

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