

Strategic Directions for Ottawa's New Official Plan: Active Transportation

Prepared by: Healthy Transportation Coalition and Bike Ottawa (August 2019)

Strategic Direction

To be healthy and become the most-livable mid-sized city in North America, while we substantially reduce our climate impact, Ottawa must shift its dominant transportation mode from cars to public transit, cycling, walking, and other forms of active transportation.

The city should develop along existing roads rather than building new roads, focus on intensifying central areas rather than suburban and rural areas, and should prioritize active transportation (including public transit) rather than driving. Specifically, the city should focus on:

- (1) Rapidly implementing the city-wide cycling and pedestrian networks, as well as completing the *Rapid Transit and Transit Priority - Ultimate Network* by 2030. This includes, beginning in 2020, converting existing roads to better prioritize pedestrians, cyclists, and public transit riders of all abilities, as well as maintaining Class A maintenance standards for winter active transportation (on sidewalks and bike lanes/paths); with the goals of:
 - Having two thirds of trips taken using active transportation and public transit by 2030, and
 - Decreasing the average number of kilometers driven daily per resident by 25% of the 2011 average by 2020.^{1, 2}
- (2) Densifying existing neighbourhoods so that 90% of residents live within a walkable distance of vital services by 2030 (with a focus on deeply affordable housing near rapid transit stations); this can be accomplished by immediately ending R1 zoning; and,
- (3) Implementing Vision Zero policy with the approach “that everyone has the right to move safely in their communities, and that system designers and policy makers share the responsibility to ensure safe systems for travel”.
(<https://visionzeronetwork.org/about/what-is-vision-zero/>)

¹ The City of Vancouver has the same goals of having two thirds of trips taken by active transportation and public transit, and 90% of residents live within walkable distance of vital services, by 2030. City of Vancouver, “Greenest City 2020 Action Plan.”

<https://vancouver.ca/files/cov/greenest-city-action-plan-implementation-update-2018-2019.pdf>

² In 2011, Ottawa residents drove 18.6 km/person/day on average. City of Ottawa, “Transportation Master Plan.”

Context

Transportation is the second largest source of greenhouse gas emissions in Ottawa, after buildings. It accounts for 46% of emissions in Ottawa's 2016 greenhouse gas emissions inventory.³ According to the Intergovernmental Panel on Climate Change (IPCC)'s special report *Global Warming of 1.5°C*, reductions to greenhouse gas emissions attributable to the transportation sector must come from a combination of electrifying cars, freight and public transit; encouraging a large-scale transition to low-emissions transportation modes; improving urban design to make walking, cycling, and public transit usage easier; reducing transportation demand; and increasing vehicle occupancy loads.⁴

It is also worth noting that combinations of improvements in the building sector can go hand in hand with reductions in GHG emissions if properly prioritized. A highly sustainable building in an area poorly served by transit, marketed to residents/occupants who must rely on privately owned (mostly single occupant) vehicles is not achieving our societal goals.

Benefits of Active Transportation

Active transportation has many benefits for healthy, prosperous communities. Increasing active transportation would reduce Ottawa's transportation emissions, increase tourism while supporting local businesses, and improve public health, public safety, livability, and mobility and accessibility for all residents, including groups currently underrepresented in active transportation.

Active Transportation Contributes to Healthy Communities

Active transportation benefits public health by fostering health and exercise, improving air quality (by reducing particulates linked to lung and cardiovascular diseases), and mitigating the lethal urban heat island effect (by requiring less hard-paved surface area for traffic lanes and parking).^{5 6}

³ City of Ottawa, 2016 Greenhouse Gas Emissions Inventory, <http://app05.ottawa.ca/sirepub/cache/2/v5110hwszqhqrjz1uyhdyzkd/5541440805201901183642.PDF>

⁴ IPCC, *Global Warming of 1.5°C*, Chapter 2, p. 142, https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_Chapter2_Low_Res.pdf

⁵ Grabow ML, Spak SN, Holloway T, Stone Jr B, Mednick AC, Patz JA. Air quality and exercise-related health benefits from reduced car travel in the midwestern United States. *Environmental health perspectives*. 2011 Nov 2;120(1):68-76.

⁶ Mueller N, Rojas-Rueda D, Basagaña X, Cirach M, Cole-Hunter T, Dadvand P, Donaire-Gonzalez D, Foraster M, Gascon M, Martinez D, Tonne C, Triguero-Mas M, Valentín A, Nieuwenhuijsen M. 2017. Urban and transport planning related exposures and mortality: a health impact assessment for cities. *Environ Health Perspect* 125:89–96; <http://dx.doi.org/10.1289/EHP220>

Active transportation also achieves social justice goals: proven research shows that areas with high traffic noise, and particulate pollution are overwhelmingly racially segregated and economically poorer; creating a better transportation plan increases the physical mobility of people, creating a stronger, more economically vibrant, healthier, community, decreasing long-term healthcare costs.

Active Transportation is Cost-Effective

According to the City of Ottawa's Transportation Master Plan (2013), in Ottawa, the cost of travel per person per kilometer, considering government costs, users' financial costs, and social costs, is \$0.159 for cycling, \$0.202 for walking, \$0.592 for transit, and \$0.716 for cars.⁷ To use its transportation budget efficiently, the city should build no new roads and instead provide greater investments in public transit and infrastructure for cycling and walking.

The city could use a wide variety of ways to fund active transportation infrastructure and programs by leveraging private wealth and public wealth:

- **Private Wealth:** The city should conduct a new background study to ensure that development charges sufficiently cover the capital costs of new transportation infrastructure needed to support growth along with an increase in public transit use and active transportation. Additionally, the city should increase the surcharge, and tie it to inflation, on vehicle-for-hire companies like Uber and Lyft to help pay for the infrastructure these businesses rely on. New York City collects a surcharge of \$2.50 per ride⁸, while Ottawa collects only \$0.22 per ride.
- **Public Wealth:** The city should pursue partnerships with hospitals, universities, colleges, large business owners, and other employment centres who benefit from the active transportation that brings users to their sites. This reduces the need for on-site parking, and promotes the social and environmental well-being of their community. This can include use of the 2% land transfer during site plan applications to be dedicated to on-site (city owned) bike parking; collaborations could include deeding physical space within a building (such as a condominium) to the city for bike parking; creating dedicated bike routes as Rights of Way, across shopping plazas to dedicated bike parking; integrating better quality multi-modal options on buses and LRT year-round and providing seed-funding for bike/scooter share programs to be an integral part of social procurement. The Ottawa Community Foundation could also be a potential source of funding for smaller projects, in particular. Finally, congestion fees and higher parking rates would help drivers pay for the true cost of driving and should be reinvested in

⁷ City of Ottawa, Transportation Master Plan, https://documents.ottawa.ca/sites/default/files/documents/tmp_en.pdf

⁸ World Resources Institute, <https://www.wri.org/blog/2018/08/cities-are-taxing-ride-hailing-services-uber-and-lyft-good-thing>

infrastructure and bike parking, respectively.⁹ An immediate termination of free parking at city owned facilities within the core, as a means to incentivize shoppers to visit events and festivals, would be of immediate benefit, especially if coupled with free transit to the same event (i.e., just as free transit is offered to a Red-Blacks game, offer free transit to Rib Fest, Busker Fest, etc... combined with elimination of free parking, as these would be of benefit and is an easily implemented tactic).

Current provincial legislation requires a direct link between a fee and the cost of the municipality delivering a service, meaning that, for example, the city's parking revenue can be invested only in parking.¹⁰ The city should advocate a change in the legislation to allow municipalities to invest revenues from parking, congestion fees, vehicle-for-hire surcharges, and other revenue from cars into implementing the recommendations outlined in this document. This ability would help municipalities discourage behaviours that are harmful to society and encourage beneficial behaviours instead.

A report by Advocacy Advance found that American municipalities are successfully using a wide variety of means to fund transportation infrastructure.¹¹ When it comes to funding active transportation, where there's a will, there's a way.

Recommendations

To be healthy and become the most livable mid-sized city in North America, whilst substantially reducing our climate impacts, Ottawa must shift its dominant transport mode from cars to public transit, cycling, walking, and other active transportation. The following recommendations are proposed to meet this objective:

1. Rapidly implement the city-wide cycling and pedestrian networks, as well as completing the Rapid Transit and Transit Priority - Ultimate Network by 2030.

Beginning no later than 2020, existing roads should be rapidly converted to better prioritize space for pedestrians, cyclists, and public transit riders, which should include dedicated bus-only lanes on existing roads. Pop-up bus-only lanes have been successful in the United States, as has the King Street streetcar project in Toronto, and

⁹ Advocacy Advance, "How Communities are Paying for Innovative On-Street Bicycle Infrastructure," <https://bikeleague.org/sites/default/files/PayingForInnovativeInfrastructure.pdf>

¹⁰ Ottawa Citizen, "On-street parking rates under scrutiny by city," <https://ottawacitizen.com/news/local-news/on-street-parking-rates-under-scrutiny-for-refresh-of-10-year-old-strategy/amp>

¹¹ Advocacy Advance, "How Communities are Paying for Innovative On-Street Bicycle Infrastructure," <https://bikeleague.org/sites/default/files/PayingForInnovativeInfrastructure.pdf>

cities in Europe are closing streets to cars altogether. Easily implemented examples include narrowing the lanes of existing (overly wide) two-lane roads to add a dedicated bus-only lane, and reduce the speed of remaining lanes (lane width is related to speed). This both adds capacity and increases safety.

Specific and immediate attention should be given to lower-income neighbourhoods that are not well-connected to existing cycling networks, nor will they be well-connected to rapid transit stations. Lower-income neighbourhoods that lack good connections to existing cycling networks and require specific focused attention are: i) Hawthorne Meadows - Sheffield Glen; ii) Ledbury - Herongate - Ridgemont - Elmwood; iii) Hunt Club Park; iv) Bells Corners West; v) Cummings; and vi) Greenboro East.¹² A 2018 opinion piece by Julia Szwarc, a graduate student in the Department of Communication at the University of Ottawa, highlighted that the Ottawa LRT route appears to often avoid reaching into low-income communities.¹³ Szwarc noted that, “while the LRT is a welcome addition to Ottawa’s transit system, it is unfortunate that this development ignores the needs of these communities. This means that the people who need reliable and affordable transit the most will not have easy access.”

The built environment is of great importance to key determinants of health, including our physical exposures to air pollution, our potential for active lifestyles in close proximity to green space, clean air, and our relationship with our community. According to the 2016 Canada Census, the 7.4% of employed workers aged 15 and over walk to work, 2.6% choose to bicycle, and 20.6% use public transit.¹⁴ A total of 30.6% commuters used some form of active transportation to get to their workplace. In the Ottawa-Gatineau census metropolitan area, 29.6% of commuters travel a distance of 0 to 4.9 km to their workplace. An additional 39.7% of workers in the region commute 5 to 14.9 km to their workplace, with median travel distance of 9.2 km. Google estimates a base speed for adult cyclists of approximately 16 km per hour in cities, and then adjusts for factors such as hills and intersections. This means that approximately 30% of workers live within a 20-minute bicycle ride of their workplace, and that those traveling the median distance of 9.2 km (or less) live within a 40 minute bicycle ride of their workplace.

This embraces the concept of the #lastmile, an urbanism concept that addresses how people make the connection between their final destination (work or home) and the terminus of their primary transit option. The last mile is often seen as a distance that is walkable (under 600m) or bikeable under a few kilometers. The key is that the route provide safe links to the transit destination (such as LRT stations) and provide either

¹² Zlatko Krstulic, City of Ottawa. “Ottawa Equity in Cycling Evaluation.” Presented at the Transportation Equity Summit during the “Prioritizing equity in transportation planning” concurrent panel presentation. 22 Sept. 2017.

<https://www.dropbox.com/s/ug4p6ty7ulepcam/Cycling%20Ottawa%20Equity%20in%20Cycling%20EVALUATION%20.pptx?dl=0>.

¹³ Szwarc, Julia. (November 15, 2018).

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

¹⁴ Canada Census 2016.

secure bike storage, ready access to bike-share, and/or provide plentiful means to bring bikes on transit. Creating safe routes to/from final destinations can enhance economic activity by linking the “last mile” with local shops, businesses, schools, daycares and other necessities of life.

We recognize that this may not be an attainable cycling distance for all individuals in a population, particularly year round, as cold winter weather is often attributed as a main deterrent to cycling throughout the winter months. It is important to acknowledge that other countries with similarly cold winter weather have active transportation modal shares greater than Ottawa’s, such as Oulu or Helsinki, Finland, where the active transportation modal share sits at 77%, and the cycling modal share is 20% and 11%.^{15,16} In the example of Helsinki, 34% of commuters used public transit, while 32% walked. While the walkability of Helsinki undoubtedly is impacted by the census area excluding some suburban areas, this still demonstrates the value and efficiency of building compact communities.

Two examples within Ottawa already demonstrate that building separated infrastructure can bring beneficial increases to modal shares. A 2017 article found the neighbourhoods of Old Ottawa South and East, and the Glebe, to have among the highest cycling modal share in Canada, with rates at 15.3% and 13.2%, respectively.¹⁷

One area where the census data falls short is that the transportation trips account only for commutes. This leaves out important utilitarian trips such as parents driving children to school, medical visits, and visits to the grocery store. Many of these trips are within 5 km of one’s home, but results in increased private vehicle traffic. A key factor to emphasize as we look to improve the share of commuters participating in active transportation is shifting private vehicle users to more trips using public transportation or active transportation. The perceived risk of traveling along apparently unsafe infrastructure aligns fairly well with the actual risk presented to cycling infrastructure users¹⁸, and women in particular are deterred by cycling routes that are perceived to be of higher risk.¹⁹ It is evident that women likely experience feelings of being unwelcome or unsafe on the cycling infrastructure in the region, given that the most recent Canadian census data suggests more males than females commute by bicycle in the city.²⁰

¹⁵ Jeffrey Pratte, "Mainstreaming Bicycling in Winter Cities: The case of Oulu, Finland", Masters thesis, University of Manitoba (Canada), 2011. P. 99-100

¹⁶ European Platform on Mobility management, n.d.a, in https://ruor.uottawa.ca/bitstream/10393/37043/1/Saidla_Karl_2017_thesis.pdf

¹⁷ City Clock Magazine, <http://www.cityclock.org/top-15-cycling-neighborhoods-canada-2017/#.XS6G0ZNKjIQ>

¹⁸ Winters et al. (2012), https://www.researchgate.net/profile/Michael_Cusimano/publication/260266221_Safe_Cycling_How_Do_Risk_Perceptions_Compare_With_Observed_Risk/links/5511acb50cf270fd7e313159.pdf

¹⁹ Winters et al. (2011), <https://link.springer.com/article/10.1007%2Fs11116-010-9284-y>

²⁰ Census Mapper, <https://censusmapper.ca/maps/1683#11/45.4329/-75.6752>

Increasingly, cities are turning toward pedestrianization and densification to improve livability, health and wellness and combat climate change. Pedestrianization offers better aesthetics, safety and more land available for community use. Traditionally, businesses have spoken against measures to expand walking and cycling infrastructure at the expense of car infrastructure, particularly parking spaces. However, studies do show that in mixed-use, high-traffic areas, expanding bike parking infrastructure has more economic impact than car parking.²¹ An early example is the 1972 Mayor of Curitiba, Brazil who ordered a six-block pedestrian-only transformation of one city street. Within days, shop owners were asking for an expansion of the street, impressed with the increase in business.²² Similarly, the King Street pilot study in Toronto found that making King Street a transit priority corridor increased the number of people visiting the street.²³ Cyclists visit shopping areas more frequently, stay longer in the area, and spend more than car drivers.^{24,25} As cycling is also more affordable than owning and maintaining a car, expanding the cycling network can increase locals' purchasing power, adding to the affordability of inner city neighbourhoods (this may be offset with an increase in property values for developments that are well-connected to active transportation infrastructure²⁶). Those who cycle regularly are more productive, increasing economic benefits for the community and beyond.²⁷ Ottawa's cycling network can also be a tourist draw²⁸ when combined with infrastructure in and around local landmarks as well as be more appealing to younger and future workers.

Re-designing established neighbourhoods is not impossible. For example, the city of Utrecht in the Netherlands updated its grid-system to establish better cycling routes and improve neighbourhood liveability.²⁹ The city achieved this by better concentrating main traffic flows within fewer streets—by establishing a neighbourhood “ring road” between the city's arterial roads and purely neighbourhood roads—and by changing many other streets into 30km/h zones to provide a safer space to pedestrians and cyclists. In Sevilla, a network of separated, raised cycle tracks with waist-high fences was

²¹ Alison Lee & Alan March, “Recognising the economic role of bikes: sharing parking in Lygon Street, Carlton”, <https://www.tandfonline.com/doi/full/10.1080/07293681003767785> ; <http://momentummag.com/how-bicycles-bring-business/>

²² <https://www.nytimes.com/2007/05/20/magazine/20Curitiba-t.html>

²³ City of Toronto, The Future of King Street: Results of the Transit Pilot, <https://www.toronto.ca/legdocs/mmis/2019/ex/bgrd/backgroundfile-131188.pdf>

²⁴ Clean Air Partnership, Bike Lanes, On-Street Parking & Business, https://www.cleanairpartnership.org/wp-content/uploads/2016/08/BikeLanes_ParkingandBusiness_Year1_Report_Feb2009_Final_NewCover.pdf

²⁵ City of Ottawa, Economic Benefits of Segregated Bicycle Lanes, <http://ottawa.ca/cs/groups/content/@webottawa/documents/pdf/mdaw/mdyx/~edisp/con056212.pdf>

²⁶ http://www.cite7.org/resources/documents/BFCD_ConsolidatedManual.pdf

²⁷ Tanja Haiden, “4 Reasons Why Businesses Benefit from Cycling”, <https://www.bikecitizens.net/businesses-benefit-from-cycling/>

²⁸ Adventure Cycling Association, <https://www.adventurecycling.org/about-us/media/press-releases/10-new-indicators-that-bicycle-travel-and-tourism-are-booming-and-changing/>

²⁹ Bicycle Dutch, <https://bicycledutch.wordpress.com/2013/08/08/making-a-1960s-street-grid-fit-for-the-21st-century/>

constructed to connect different parts of the city. The result was an 11-fold increase in the number of bike trips in a few years. The key to this success was segregation—separating the track completely to expand its accessibility to people of all ages and abilities rather than place them next to road traffic. Such a design is cognizant of the needs of different ages and gender (it is mostly young males who will typically ride alongside traffic). The lanes are also wheelchair accessible, increasing the mobility and accessibility of the city. The results of both of these examples is that cycling has become less of a leisure activity and more of an every-day activity.³⁰

2. *Densify existing neighbourhoods (with a focus on deeply affordable housing near rapid transit stations) so that 90% of residents live within walkable distance of vital services*

As noted by the City of Ottawa in its *Housing discussion paper* related to the Official Plan, housing “intersects with every other aspect of city building and neighbourhood life,” and it has a particularly strong connection to mobility, and overall affordability of city living. *The Metro Vancouver Housing and Transport Cost Burden Report* is worth referencing as we discuss mobility and housing affordability, in the context of climate change, and equity. It notes that

"Living near frequent transit makes it easier to absorb high housing costs. ... There are two ways to improve access to frequent transit. First, expand frequent transit so that households can reduce transportation costs and live more affordably. The second way is to recognize that every strategically located frequent transit stop is an opportunity to stabilize and add more affordable housing."³¹

Given the City’s desire to build a city for all people, including people from equity-seeking groups, and the strong connections between affordability of city living, housing and transportation, the building of many thousands of units of deeply affordable housing near rapid transit stations needs to be prioritized. In particular, deeply affordable housing should be built on the roughly 20 parcels of land that governments own, which the City’s related interdepartmental task force identified in the spring of 2019).³² It is extremely important for Ottawa to prioritize combining housing and transportation affordability, and to avoid gentrification near rapid transit stations.

³⁰ Peter Walker, *The Guardian*, <https://www.theguardian.com/cities/2015/jan/28/seville-cycling-capital-southern-europe-bike-lanes>

³¹ *The Metro Vancouver Housing and Transport Cost Burden Report*. 2015. <http://www.metrovancouver.org/services/regional-planning/PlanningPublications/HousingAndTransportCostBurdenReport2015.pdf>.

³² CBC News Ottawa. “City eyes baseball stadium, Tom Brown arena for development.” 29 March 2019. <https://www.cbc.ca/news/canada/ottawa/city-development-lrt-arena-stadium-1.5077133>.

Other considerations include adoption of a 20-20-20 model for new development. This forward thinking policy approach requires new development to provide 20% of new units as affordable housing (either in the building or nearby land deeded to the city); 20% of units as 3 bedroom or larger and 20% geared to housing affordability. This last metric is critical: it determines housing affordability based on the mean household income and the city provides the bulk of the deposit for the sale of the unit, to be reimbursed when the unit is sold; creating inclusive policy of this nature provides incentive to developers (20% of units are sold before marketing starts, reducing the number of units to be sold before construction can start) and reducing carrying costs.

Other opportunities include deferrals to development charges, allowing better cash-flow for smaller developers; improved planning processes to reduce timelines, and costs, for planning applications and incentivizing sustainable development near transit.

In support of addressing the climate emergency, the City of Ottawa needs to aggressively concentrate and accelerate new housing developments along rapid transit routes, particularly within 1 kilometer of all the City's rapid transit stations. To support growth management, to stop urban sprawl, and to reduce, or better yet, prevent any further expansion of the urban boundary, and in order to ensure housing and transportation affordability is considered together, "Housing options should include appropriate and affordable housing in locations where the combined transit, walking and cycling options make car ownership unnecessary. By doing so, the number of households who need or decide to acquire vehicles is reduced."³³

Considerations also include incentivizing development that provides no parking by improving planning timelines, removing mandatory minimum parking requirements, incentivizing developers to build shared bike parking, public bike parking facilities, and improving the public realm with multi-modal friendly incentives.

With the goal of removing cars from dense areas of the city, like downtown, the city should convert its parking lots and parking structures to parcels of land for affordable housing, electric vehicle charging stations, bike parking, electricity production, urban agriculture, or urban parks.

3. Implement Vision Zero Policy

With the implementation of the Vision Zero strategy for road design and construction, the City of Ottawa would be removing the stigma that many residents still hold where using roads as pedestrian or cyclist is dangerous. By making our roads safer, more residents would be more inclined to leave their cars behind and instead, walk or cycle as a means of transportation. This resulting change in behaviour would get us closer to

³³ City of Ottawa. "Official Plan Housing discussion paper." Page 16. 2019.
https://documents.ottawa.ca/sites/default/files/op_discuss_paper_housing_en.pdf.

the goal of reducing the number of kilometers driven to 25% below the 2011 average by 2020.

Vision Zero prioritizes the safe passage of this city's most vulnerable road users - cyclists, pedestrians and those using mobility devices. Every citizen has the right to survive using the city's transportation network. This policy takes a system-wide approach where road safety is shared between designers and users. The first holds the responsibility to build a traffic system that prevents crashes, injuries, and deaths by reducing vehicle speeds. Slower traffic speeds have the dual public health benefit of decreasing the severity of injury to all road users, while also decreasing local air pollution due to brake and tire wear.³⁴ In addition, designers must reduce dangerous interactions between vulnerable road users and vehicles all while recognizing the fact that humans make mistakes and so must account for this. The second, users, have the responsibility of following the rules of the road.³⁵

In Ottawa's 2013 Master Transportation Plan, there are many arterial roads that are slated to be expanded to increase load capacity, promoting the misconception that wider roads with more lanes is going to somehow solve road congestion. The exact opposite has proven true in North America, with wider roads making them more unsafe and unpleasant for all road users while reducing quality of life.³⁶ Livable cities plan for more spaces for people instead of cars.³⁷ By implementing a Vision Zero policy, through design, there should be more safe spaces for people to get around using active transportation instead of vehicles, thus reducing Ottawa's carbon emissions.

Part of this Vision Zero policy must include recognition of the opportunities inherent in all infrastructure projects. When roads are repaired or repaved/resurfaced, integrating separated bike infrastructure is a must; failing to do so, by not providing any infrastructure, or, worse, repainting existing lines, wastes an opportunity to make incremental improvements.

Conclusion

It is time for the city to prioritize active transportation. Cycling, walking, and public transit networks are more cost effective than building and maintaining infrastructure for cars,

³⁴ Jones SJ, Brunt HTwenty miles per hour speed limits: a sustainable solution to public health problems in WalesJ Epidemiol Community Health 2017;71:699-706.

³⁵ World Report on Road Traffic Injury Prevention (Geneva: World Health Organization, P.19-20, 2004) & (<https://visionzeronetwork.org/about/what-is-vision-zero/>)

³⁶ Brookings Institute, "Stop trying to solve traffic and start building great places", <https://www.brookings.edu/blog/the-avenue/2019/03/20/stop-trying-to-solve-traffic-and-start-building-great-places/>

³⁷ University of Toronto, "What Makes a City Liveable?" <https://utsc.utoronto.ca/news-events/news-events/commons-magazine/what-makes-city-livable>

especially considering cars' externalities – congestion, pollution, greenhouse gas emissions, noise, unsightliness, and injury and death.³⁸

Not only is walking, cycling, and public transit more cost-effective for the city, these options are more affordable for residents and will help ensure that its transportation network is fair and accessible for everybody. If we do not cut greenhouse gas emissions and take measures to adapt to the new climate, the cost of this inaction will be far greater. By making active transportation a priority, we can build a community that is livable for all residents and safer for road users with the added benefit of reducing our greenhouse gas emissions.

³⁸ CityLab, “The Social Costs of Driving in Vancouver, in 1 Chart”
<https://www.citylab.com/transportation/2015/04/the-social-costs-of-driving-in-vancouver-in-1-chart/389805/>