

Benefits of Active Transportation

Active transportation includes any human-powered travel such as walking, cycling, running, using a non-mechanized wheel chair, or skateboarding.¹

People can use **active transportation** in different ways. Examples include¹:

- Walk or cycle/wheel to school or work.
- Walk to and from a transit stop.
- Walk or cycle/wheel for errands or to meet with friends.



CANADA'S PHYSICAL ACTIVITY GUIDELINES



Adults, 18-64 years, should achieve 150 minutes of moderate-to-vigorous physical activity per week.



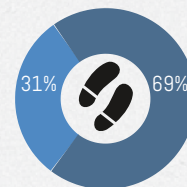
Children and youth, 5-17 years, should achieve at least 60 minutes of moderate-to-vigorous physical activity per day.

Ref: 2,3

ADULTS IN ALBERTA ARE NOT ACHIEVING ENOUGH **PHYSICAL ACTIVITY**

The 2017 Alberta Survey on Physical Activity⁴ assessed physical activity, walking, and sedentary behaviour levels of adult Albertans and found that:

- **43%** of Albertans are not getting enough physical activity to achieve health benefits.
- Only **31%** of Albertans achieve 10,000 or more steps per day.
- Albertans spend an average of **9 hours per weekday** and **8.5 hours per weekend day** in sedentary behaviours.



USE ACTIVE TRANSPORTATION TO HELP **ACHIEVE DAILY PHYSICAL ACTIVITY GOALS**

- People who use active transportation are more likely to be more physically active in their leisure time.^{5,6}
- Walking to and from public transit can help adults achieve **8 to 33 minutes** more physical activity each day.⁷
- Among 11-12 year olds, walking to and from school contributed to **22 minutes or over 1/3 of the total recommended daily moderate-to-vigorous activity**.⁸
- The odds of being physically active are reduced by **1.6%** for each hour of driving per week.⁹

HOW FAR CAN YOU TRAVEL ON THE EQUIVALENT OF 350 CALORIES?

30.4 m



5.6 km



16 km



Ref: 10

ACTIVE TRANSPORTATION CAN HELP REDUCE THE RISK OF DEVELOPING CHRONIC HEALTH PROBLEMS

Increasing physical activity levels through active transportation can help to:



Reduce risk of heart disease and stroke, as well as high blood pressure.



Reduce the risk of various cancers, including breast and colon.



Reduce the risk of type 2 diabetes.



Support good mental health.

Ref: 6,11,14-21

- Any level of physical activity, including low levels of walking less than 150 minutes/week, can prevent future depression.¹²
- Compared to driving, the benefits of cycling are about 9 times greater than the risks of cycling.¹³

The risk of obesity increases by 6% for each hour spent in a car daily.¹¹



ECONOMIC BENEFITS



People who use active transportation spend less money on car fuel, maintenance, and insurance.^{22,23}



Less motorized traffic can lead to decreased infrastructure and maintenance costs for roads, bridges, and parking facilities.^{24,25}



Active transportation can support increased productivity, lower absenteeism, and decrease lost productivity due to traffic congestion. Traffic congestion costs between \$2.3 billion and \$3.7 billion for the nine largest Canadian cities in 2006.²⁶⁻²⁸



Simply getting 10% more Canadians who are insufficiently active to move more and sit less could result in \$2.6 billion saved in healthcare spending on hypertension, type 2 diabetes, heart disease, and cancer over 25 years.²⁹



Direct and indirect healthcare costs related to low physical activity rates totaled \$5.3 billion per year in Canada.¹¹



\$0.58/km



\$0.06/km



Nearly free

Ref: 22,23

INVESTING IN ACTIVE TRANSPORTATION CAN BOOST LOCAL ECONOMY AND SENSE OF COMMUNITY

Cyclists and pedestrians stop more often than drivers and are more likely to spend their money at local destinations.^{30,31}

Wider sidewalks and other strategies can create pedestrian-friendly shopping experiences, benefiting shop owners.³²

Active transportation can support social relations, improve neighbourhood livability, increase tourism, and attract new business.³⁰⁻³⁶



Ref: 30-36



ENVIRONMENTAL BENEFITS OF ACTIVE TRANSPORTATION

Walking and cycling are "clean" modes of transportation — they result in no greenhouse gas (GHG) or criteria air contaminant (CAC) emissions.^{11,37,38}

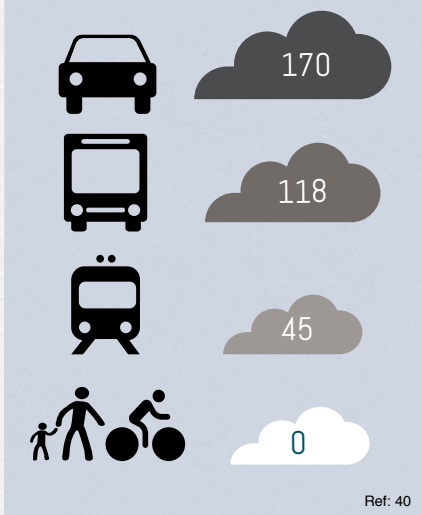
Active transportation lowers energy consumption. For example¹¹:

- A bicycle requires 100 times less energy to manufacture than an automobile, with little waste produced during the bicycle's life cycle.
- A bicycle can travel 423 kilometres on the equivalent of 1 litre of fuel for a vehicle.
- The ecological footprint of a cyclist is 1/10th of a commuting driver.

Based on the average Canadian household's environmental impact, motorized transportation accounts for³⁹:

- Almost 50% of toxic air pollution.
- Over 1/3 of greenhouse gas emissions.
- Almost 20% of toxic water pollution.

GRAMS OF CO₂ EMITTED
PER KM
PER PERSON



ACTIVE TRANSPORTATION INFRASTRUCTURE AND SUPPORTIVE POLICIES CAN HELP PREVENT INJURIES

SAFETY IN NUMBERS

As more people choose to use active transportation, the risk of injury and fatality rates decrease.⁴¹

Compared to driving, the benefits of active transportation have been found to outweigh these risks, such as collisions and exposure to emissions.^{13,42}

The risk of injury can be reduced by providing simple supports to encourage residents to choose active transportation.^{6,42}



Safe infrastructure, including sidewalks, crosswalks, and raised medians.



Supportive policies for driver behaviour, particularly around speed enforcement and impaired or distracted driving.



Safe cycling infrastructure, such as exclusive lanes and interconnected paths.



Safety education and information for drivers, pedestrians and cyclists.

Brought to you by:

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Active Living



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REFERENCES

1. Public Health Agency of Canada. What is Active Transportation? 2014; <http://www.phac-aspc.gc.ca/hp-ps/hl-mvs/pa-ap/at-ta-eng.php>. Accessed 3 February 2017.
2. Canadian Society for Exercise Physiology. Canadian Physical Activity Guidelines for Adults 18 to 64 Years. 2011; http://www.csep.ca/CMFiles/Guidelines/CSEP_PAGuidelines_adults_en.pdf. Accessed 28 February 2017.
3. Canadian Society for Exercise Physiology. 24-Hour Movement Guidelines for Children and Youth. 2016; <http://www.csep.ca/en/guidelines/canadian-24-hour-movement-guidelines>. Accessed 28 February 2017.
4. Macridis S, Johnston J, Vallance J. 2017 Alberta Survey on Physical Activity. Edmonton, Alberta: University of Alberta; 2017.
5. Wanner M, Gotschi T, Martin-Diener E, Kahlmeier S, Martin BW. Active transport, physical activity, and body weight in adults: a systematic review. *Prev Med.* 2012;42(5):493-502.
6. Mueller N, Rojas-Rueda D, Cole-Hunter T, et al. Health impact assessment of active transportation: a systematic review. *Prev Med.* 2015;76:103-114.
7. Rissel C, Curac N, Greenaway M, Bauman A. Physical activity associated with public transport use: a review and modelling of potential benefits. *International Journal of Environmental Research and Public Health.* 2012;9(7):2454-2478.
8. Southward EF, Page AS, Wheeler BW, Cooper AR. Contribution of the school journey to daily physical activity in children aged 11-12 years. *Am J Prev Med.* 2012;43(2):201-204.
9. Swanson KC, McCormack GR. The relations between driving behavior, physical activity, and weight status among Canadian adults. *J Phys Act Health.* 2012;9(3):352-359.
10. Transportation Alternatives - Bicycle Blueprint. Bicycle blueprint: A plan to bring bicycling into the mainstream in New York City. 1998; <http://www.transalt.org/files/resources/blueprint/contents.html>. Accessed 28 February 2017.
11. Transport Canada. Active Transportation in Canada: A resource and planning guide. Ottawa, ON; 2011.
12. Mammen G, Faulkner G. Physical activity and the prevention of depression: a systematic review of prospective studies. *Am J Prev Med.* 2013;45(5):649-657.
13. Johan de Hartog J, Boogaard H, Nijland H, Hoek G. Do the health benefits of cycling outweigh the risks? *Environmental Health Perspect.* 2010;118(8):1109-1116.
14. Daley A. Exercise and depression: a review of reviews. *J Clinical Psych.* 2008;15(2):140-147.
15. Furie GL, Desai MM. Active transportation and cardiovascular disease risk factors in U.S. adults. *Am J Prev Med.* 2012;43(6):621-628.
16. Institute of Medicine (US) Committee on Leading Health Indicators for Healthy People 2010. Leading Health Indicators for Healthy People 2010: First Interim Report. Washington (DC) 1998.
17. Warburton DER, Katzmarzyk PT, Rhodes RE, Shephard RJ. Evidence-informed physical activity guidelines for Canadian adults. *Appl Physiol Nutr Metab.* 2007;32(S2E):S16-S68.
18. Toronto Public Health. Road to health: Improving walking and cycling in Toronto. April 2012.
19. Hamer M, Chida Y. Walking and primary prevention: a meta-analysis of prospective cohort studies. *Br J Sports Med.* 2008;42(4):238-243.
20. Pucher J, Buehler R, Bassett DR, Dannenberg AL. Walking and cycling to health: a comparative analysis of city, state, and international data. *AJPH.* 2010;100(10):1986-1992.
21. Celis-Morales CA, Lyall DM, Welsh P, et al. Association between active commuting and incident cardiovascular disease, cancer, and mortality: prospective cohort study. *BMJ.* 2017;357:j1456.
22. Canadian Automobile Association. Driving Costs. 2012; http://caa.ca/docs/eng/CAA_Driving_Costs_English.pdf. *Based on total annual costs for 2012 Toyota Camry LE driven 18,000 km per year. Accessed 28 February 2017.
23. Victoria Transport Policy Institute. Transportation Cost and Benefit Analysis II – Vehicle Costs. 2011; <http://www.vtpi.org/tca/tca0501.pdf>. *Based on the median of the figure given by VTPI (5-15 cents per mile). Accessed 28 February 2017.
24. The City of Barrie. Road widening construction costs per metre. 2017; <http://www.barrie.ca/assets/engineering/nov2010/Appendix%20L%20%20Costs%20per%20metre.pdf> Accessed 23 February 2017.
25. Litman T. Whose Roads? Evaluating Bicyclists' and Pedestrians Rights to Use Public Roadways. 2013; <http://www.vtpi.org/whoserd.pdf> Accessed 28 February 2017.
26. Trubka R, Newman P, Billsborough D. The costs of urban sprawl: physical activity links to healthcare costs and productivity. *Environment Design Guide.* 2010;85(2010):1-13.
27. Hendriksen IJ, Simons M, Garre FG, Hildebrandt VH. The association between commuter cycling and sickness absence. *Prev Med Rep.* 2010;51(2):132-135.
28. Transport Canada. The Cost of Urban Congestion in Canada. 2006; <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.134.6880&rep=rep1&type=pdf> Accessed 28 February 2017.
29. Bounajm F, Dinh T, Thériault L. Moving Ahead: The Economic Impact of Reducing Physical Inactivity and Sedentary Behaviour. WellSpring 2015; https://www.centre4activeliving.ca/media/filer_public/5b/2f/5b2f73fb-cc21-46de-836d-dd49b5357ea0/2015-feb-sedentary.pdf Accessed 10 April 2017.
30. Drennen E. Economic Effects of Traffic Calming on Urban Small Businesses. 2003.
31. Clean Air Partnership. Bike lanes, on-street parking and business: A study of Bloor Street in Toronto's Annex neighbourhood. 2012; <http://www.tcat.ca/wpcontent/uploads/2014/10/Economic-Impacts-of-Active-Transportation-Background.pdf> Accessed 28 February 2017.
32. Toronto Centre for Active Transportation. The economic impacts of active transportation. 2012; <http://www.tcat.ca/wp-content/uploads/2014/10/Economic-Impacts-of-Active-Transportation-Background.pdf> Accessed 10 April 2017.
33. Urban Land Institute. Active Transportation and Real Estate: The Next Frontier. Washington, DC. 2016.
34. Giles-Corti B, Foster S, Shilton T, Falconer R. The co-benefits for health of investing in active transportation. *NSW Public Health Bulletin.* 2010;21:122-127.
35. The Built Environment and Active Transportation Initiative. The Path to Health: Built Environment and Active Transportation. 2008.
36. Halton Region. Active Transportation and Local Business. 2013; <http://www.halton.ca/common/pages/UserFile.aspx?fileId=102606>. Accessed 28 February 2017.
37. Walsh C JP, Moles R, O'Regan B. A comparison of carbon dioxide emissions associated with motorised transport modes and cycling in Ireland. *Transportation Research Part D: Transport and Environment.* 2008;13(6):392-399.
38. Brand C, Goodman A, Ogilvie D, iConnect consortium. Evaluating the impacts of new walking and cycling infrastructure on carbon dioxide emissions from motorized travel: a controlled longitudinal study. *Applied Energy.* 2014;128:284-295.
39. David Suzuki Foundation. Reduce your Carbon Footprint. 2014; <http://www.davidsuzuki.org/what-you-can-do/reduce-your-carbon-footprint/>. Accessed 23 February 2017.
40. City of Copenhagen. Copenhagen City of Cyclists: Bicycle account 2010. 2011.
41. Jacobsen PL. Safety in numbers: more walkers and bicyclists, safer walking and bicycling. *Injury prevention: Journal of the International Society for Child and Adolescent Injury Prevention.* 2015;21(4):271-275.
42. Reynolds CCO, Winters M, Ries FJ, Gouge B. Active transportation in urban areas: exploring health risks and benefits. 2010.
43. Alberta Transportation. Alberta Traffic Collision Statistics, 2014. In: Office of Traffic Safety, 2014.