# Pedestrian and Bicycle Counting Programs
# Additional information and links

Guidebook on Pedestrian and Bicycle Volume Data Collection (NCHRP Report 797)
http://www.trb.org/Main/Blurbs/171973.aspx

Guide to Bicycle and Pedestrian Count Programs: http://www.pdx.edu/ibpi/count

FHWA Traffic Monitoring Guide
http://www.fhwa.dot.gov/policyinformation/tmguide/

"Development of Estimation Methodology for Bicycle and Pedestrian Volumes Based on Existing Counts" (Colorado DOT Research Report 2013-18):
http://www.coloradodot.info/programs/research/pdfs/2013/bikecounts.pdf/view#!

Rails-to-Trails Conservancy Trail User Surveys and Counting:
http://www.railstotrails.org/build-trails/trail-building-toolbox/trail-enhancements-management/trail-user-surveys-and-counting/

Additional City of Ottawa information

- Cycling e-newsletter: News for Ottawa Cyclists / Nouvelles pour les cyclistes d'Ottawa
- Laurier Segregated Bike Lanes: Ottawa.ca/Bikelane
- Ottawa Cycling Plan: OCP2013
- 2011 Origin/Destination Survey: Cycling Profile

McGill University is interested in further collaboration with municipal and regional transportation departments. We are interested in validating our weather correction methodology using data from permanent bike counters that have operating for at least three years. If you are interested in collaboration, please contact David Beitel at david.beitel@mail.mcgill.ca

**Weather Correction: Objectives and Methodology**

Longitudinal studies are often conducted by cities and regions in order to determine whether cycling demand has increased or decreased over one or many years. Studies of this nature often involve analyzing bicycle demand data collected from permanent counters. The problem with this approach is that it doesn't account for the variation of bicycle demand as a function of weather. An unusually warm or cold season can either inflate or mask changes in cycling demand. As a result, a direct comparison of raw bicycle demand data between years can produce misleading results. The methodology employed in this study allows researchers and practitioners to compare weather adjusted bicycle demand (average annual daily bicycle traffic) between years.

In this study, raw bicycle demand data from five counting locations in the city of Ottawa are adjusted to account for weather variations. A regression model is calibrated using 2012 weather and bicycle demand data. The regression analysis revealed five significant weather indicators: the maximum daily temperature, the minimum daily humidity, the total daily rainfall, the accumulated amount of snow on the ground, and the maximum daily wind speed. The model is used to estimate daily counts based on (a) observed and (b) ten-year average weather conditions. The estimated daily counts are averaged for each year; the averages are then used to calculate an adjustment factor (the quotient of the estimated count based on observed weather data and the estimated count based on the 10-year average). The adjustment factor reflects the extent to which weather increased or decreased cycling demand. In this study, an adjustment factor was calculated for each cycling season, for each permanent counting location. The adjustment factors are then applied to the raw data to produce weather adjusted bicycle demand data, for each counter and for each year.

**Research and links:**

Nosal, T., Miranda-Moreno, L., Krstulic, Z., Götschi, T., (2015). "Accounting for Weather Conditions when Comparing Multiple Years of Bicycle Demand Data". Presented at the Transportation Research Board 93st Annual Meeting, Washington D.C., USA, January, 10-14, 2015.

Nosal, T., Miranda-Moreno, L., Krstulic, Z. (2015). "Incorporating Weather: A Comparative Analysis of Average Annual Daily Bicyclist Estimation Methods". Presented at the Transportation Research Board 93st Annual Meeting, Washington D.C., USA, January, 12-16, 2014. Forthcoming in TRR.

Nosal, T. and L. F. Miranda-Moreno (2014). "The effect of weather on the use of North American bicycle facilities: A multi-city analysis using automatic counts." Transportation Research Part A: Policy and Practice 66(1): 213-225. http://www.sciencedirect.com/science/article/pii/S0965856414000998

Miranda-Moreno, L., Nosal, T., Schneider, R.J., Proulx, F. (2013). "Classification of bicycle traffic patterns in five North American Cities", Journal of Transportation Research Record, Vol. 2339 pp. 68-79.

Miranda-Moreno, L. and T. Nosal (2011). "Weather or Not to Cycle." Transportation Research Record: Journal of the Transportation Research Board 2247(-1): 42-52. http://trb.metapress.com/content/2l14444m861042kw/