

Pilot E-Cargo Tricycle Deliveries at U of T campus

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City Logistics for the Urban Economy



E-Cargo Cycles

Electric assist e-cargo cycles can be efficient for urban deliveries

- Zero tailpipe emissions
- Reduced impact on the curbside, especially parking
- Potential improved safety for vulnerable road users
- Lower impact on congestion
- Improved working environment for delivery workers?

Larger e-cargo cycles (>120kg) have not been permitted in Toronto until recently.

E-cargo cycles need infrastructure, e.g. micro-hubs, to fit into a delivery system

Need for research to demonstrate safety, environment and effectiveness

Recent research

PEMBINA
institute

Delivering Last-Mile Solutions

A feasibility analysis of microhubs and cyclelogistics in the GTHA

Janelle Lee
Carolyn Kim and Lindsay Wiginton
June 2019

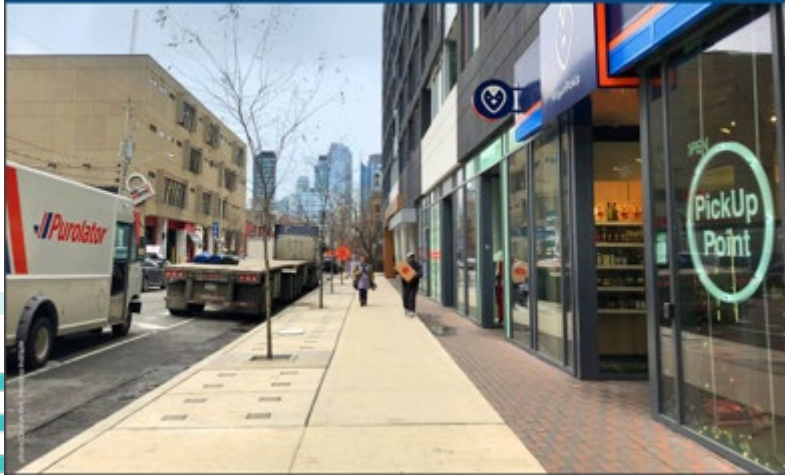


Image Source: Pembina Institute

PEMBINA
institute

Cargo e-bikes for urban deliveries

Regulatory approaches and standards

Mark Stout
Saeed Kaddoura
November 2021



Image Source: Pembina Institute


ASSESSING ELECTRIC ASSIST CARGO TRICYCLE OPERATIONS AT THE UNIVERSITY OF TORONTO CAMPUS


A Smart Freight Centre project with University of Toronto Transportation Research Institute and Purolator Courier


Final Report
Confidential
08.19.2019

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M.Eng Candidate 2019
Transportation Engineering
University of Toronto

Prepared for: Professor Matthew J. Roorda and Purolator

 SMART FREIGHT CENTRE



 UNIVERSITY OF TORONTO
FACULTY OF APPLIED SCIENCE & ENGINEERING
Transportation Research Institute

Recent regulatory changes

March 2021 - Ontario legislates a 5-year pilot to allow power assist cycles to operate on public roads

June 2021 - Toronto City Council partial opt-in to Ontario pilot by allowing cargo e-bikes, < 120kg, on streets, bike lanes and cycle tracks

December 2021 - Toronto City Council updates bylaws to allow cargo e-bikes > 120 kg

June 16, 2022 – Toronto City Council approves logistics minihub pilot on St George Street

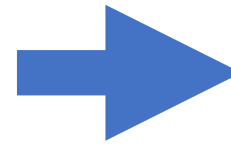
Why is > 120kg important?

- Increased payload and operational efficiency
- Safety features to protect drivers
- Desire to replace trucks 1 to 1

E-cargo cycle pilot on the U of T campus



Photocredit: Onkar Chander, 2019, University of Toronto



Photocredit: Purolator Inc.

Puro-hub planned for: 60 St George Street



Research: Efficiency



Image Source: Purolator Inc.



Image Source: Onkar Chander, 2019 MEng thesis

Research: Air Quality



Image Source: Junshi Xu, University of Toronto



Image Source: Junshi Xu, University of Toronto

Research: Purohub operational impact at the curbside

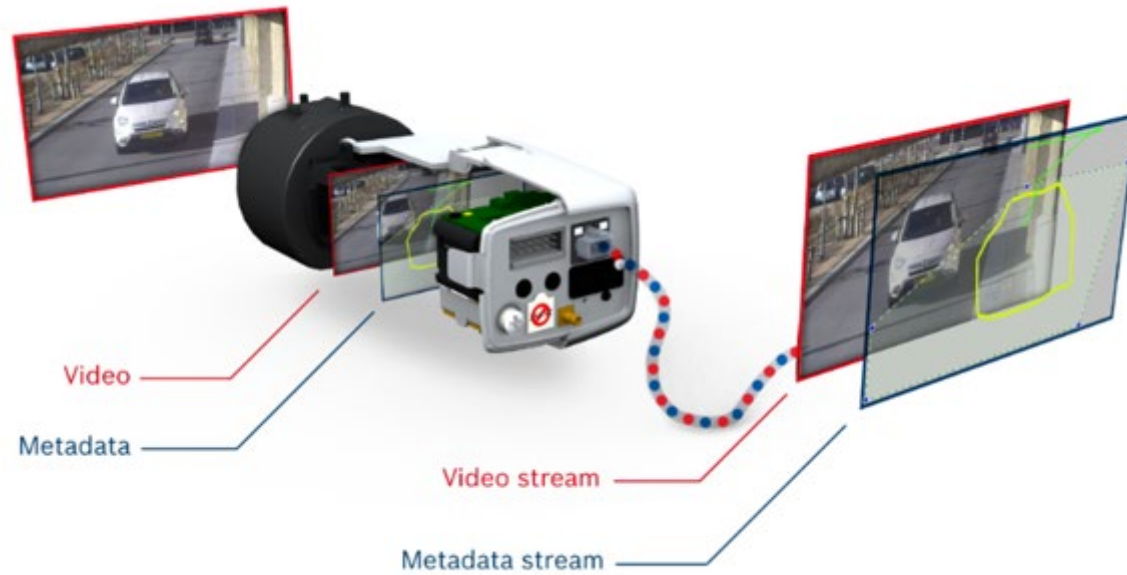
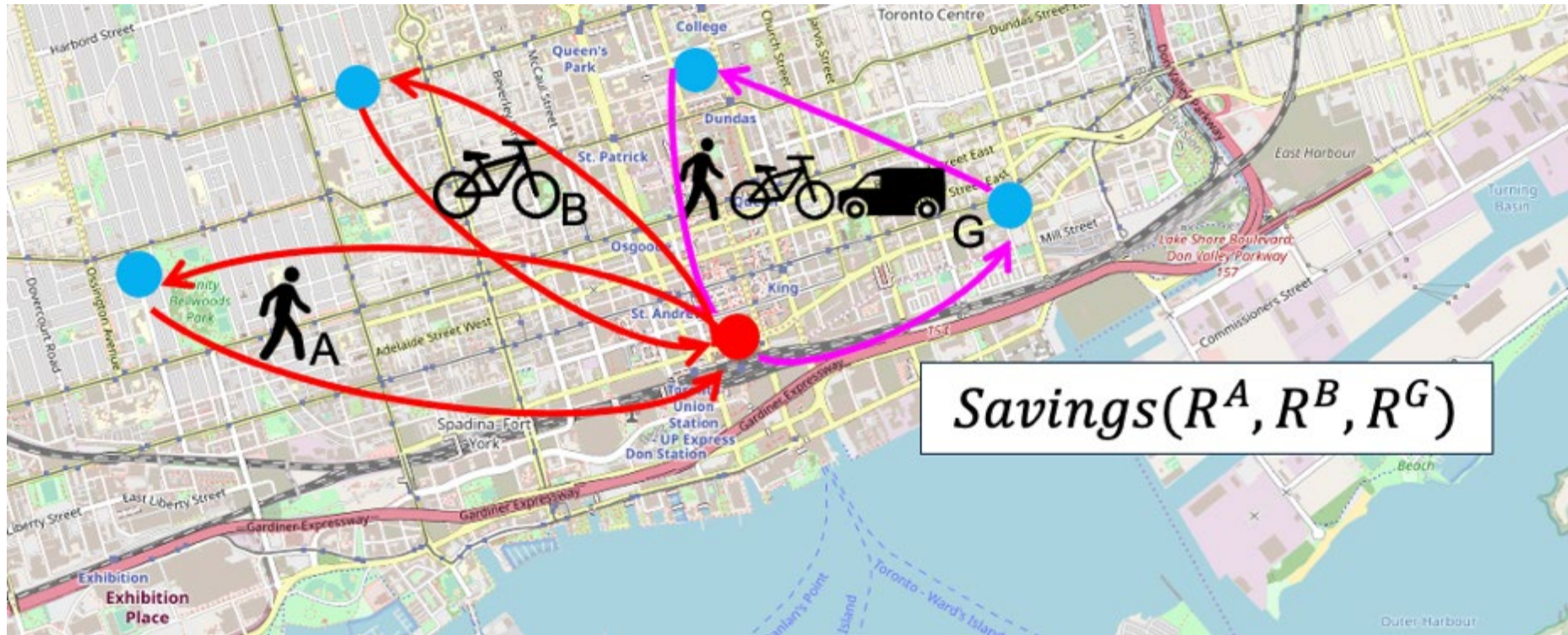


Image: Used with permission from Bosch

Research: Scalability



Targets

Currently – collecting data for the truck fleet operating on campus

Late summer 2022 – Initial pilot testing of the Puro hub / e-cargo tricycle

July – September – official launch

2022 – 2023 – data collection on e-cargo cycle operations.

People

Purolator:

Khelil Khelil
Christian Couture
Marcus Rees
Laurie Weston
Ranjan Paambur
Serbo Dimic
Alex Ziskoff
Soji Thomas
Aafia Anjum
Jonathan Sandiford

University of Toronto

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Thank-you