

CROSS-BORDER INSTITUTE

RESEARCH AT THE CROSS-BORDER INSTITUTE

Bill Anderson, CBI Director EBTC, Montreal, September 26, 2017





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MAKING THE BORDER WORK BETTER

INFRASTRUCTURE	 traffic and economic impacts of
parkway /	bridge
	- CGE model / opportunity studies
	 cross-border supply chains
POLICY	- security, customs, immigration
	- cross-border medical research
	- human trafficking
TECHNOLOGY	- sensors, biometrics, simulation
	- GPS / big data analytics
	- AI / short-term projection of travel times
	- virtual secure border corridor
EDUCATION	- specialist training
	- graduate and post-graduate research
	- making better border crossers





BIG DATA ANALYSIS OF GPS RECORDS





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GPS PINGS



MAP-MATCHED ROUTE



AGGREGATING ROUTE FREQUENCIES



REAL TIME TRAFFIC MONITORING

RTMS radar sensors to detect and record border traffic in the Windsor region









AVERAGE TRAFFIC FLOW, AMBASSADOR BRIDGE





TWO CURRENT PROJECTS

- Economic impact and opportunity study on Gordie Howe International Bridge (partnership with MSU researchers.)
- Short term prediction of border crossing times
 - SOSCIP, IBM Canada, Inovex Inc.
 - CGLR Great Lakes 4.0





GORDIE HOWE INTERNATIONAL BRIDGE PROJECT







THE GORDIE: WHY DOES IT MATTER TO W-E?

HIGHWAY TO HIGHWAY

Eliminates 17 signalized intersections between 401 and the border

URBAN PLANNING

Directs cross-border traffic away from densely settled areas

LOCAL INDUSTRY

FCA van plant alone requires hundreds of daily crossings

MORE RELIABLE CROSSING

Less uncertainty about crossing time will reduce cross-border supply chain costs.

REDUNDANCY

Closure of existing bridge would be an economic catastrophe

IMPROVED GEOGRAPHY

Say what?





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SHORT TERM PREDICTION OF CROSSING TIMES

- Prediction of truck crossing times 15 minutes to two hours in advance
- Fuse data from various sources
 - Border conditions
 - Roadside sensors and mobile probes
 - Weather, accidents, construction, etc.
- Artificial Neural Net analysis of real time data
- Allows adjustment to supply chain
 - Change route
 - Dispatch alternative supply
 - Keep receivers informed





15 Minute Prediction Results: Observed & Predicted Crossing Time (min)



NEW PROJECTS

- Making a border crossing more like an airport
 - Virtual secure corridor (tracking data)
 - Continuous risk assessment







VIRTUAL SECURE CORRIDOR





CONTINUOUSLY UPDATED RISK ASSESSMENT



