Roads to Change
Transportation Conference

Reducing Idling Times of Vehicles Along a Busy Corridor – A Case Study (City of Burnaby)

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BRITISH COLUMBIA
Ministry of Transportation

ce bc
Consulting Engineers of British Columbia

Agenda

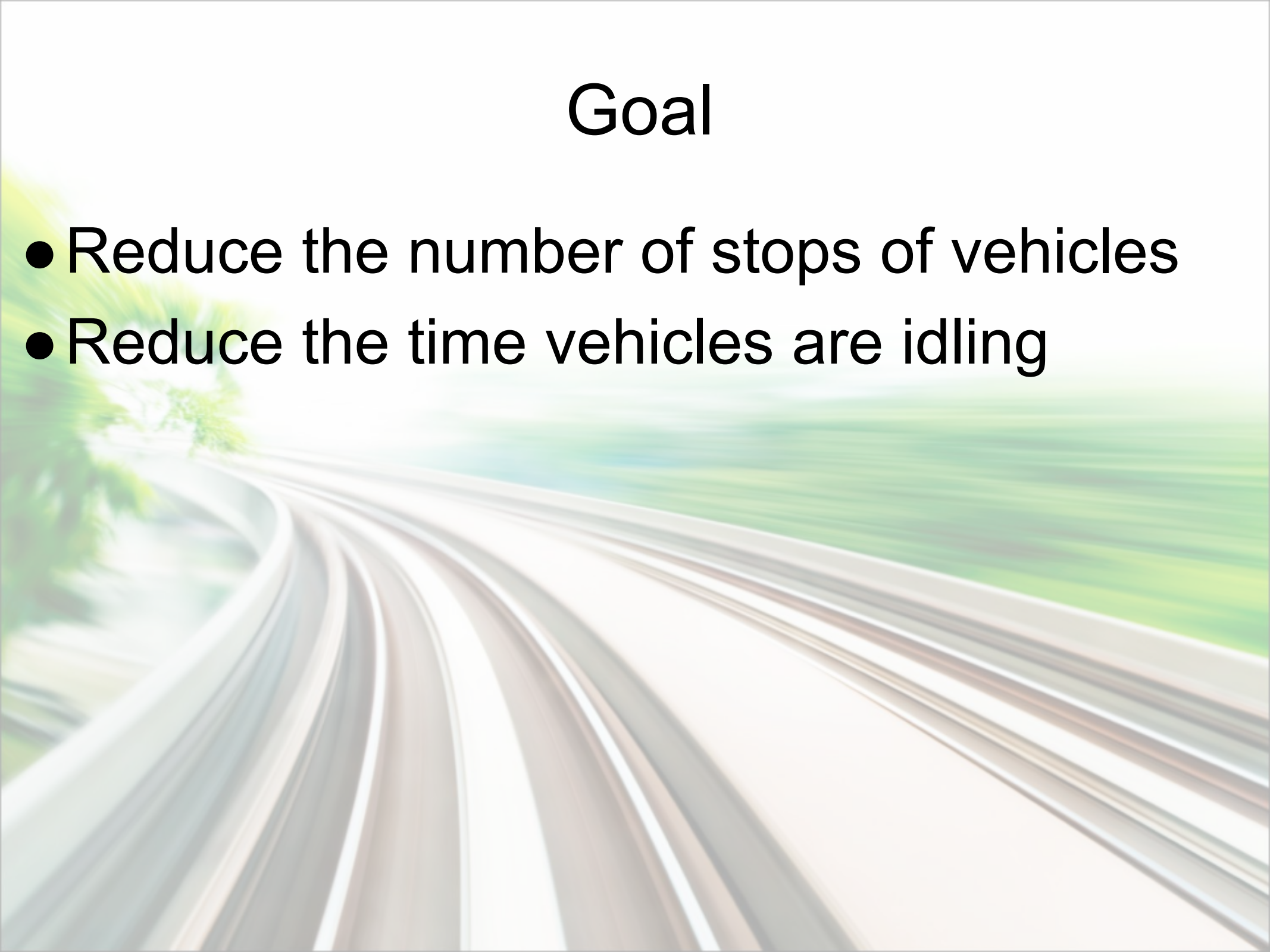
- Problem with Idling Vehicles
- Goal
- Solution
- Hastings Project - Analysis
- Hastings Project - Results/GHG reduction
- Questions

Problem with Idling Vehicles

- Idling Vehicles = Air Pollution
- 1L gasoline = 2.3 kg of CO_2
- Stop & Go Traffic

Goal

- Reduce the number of stops of vehicles
- Reduce the time vehicles are idling

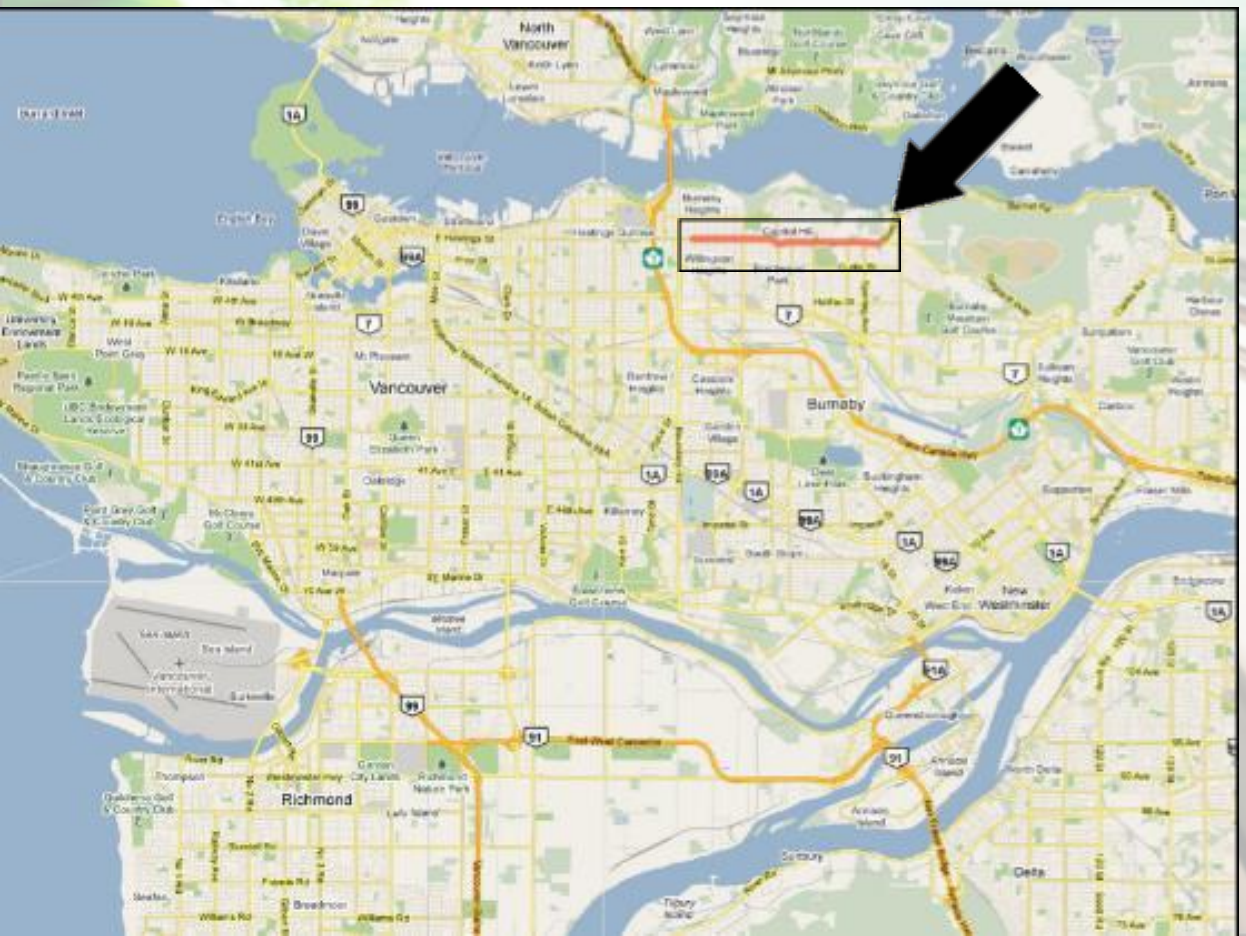


Solution

- Adjust timings in the traffic controllers
- Create a “green band” to eliminate stops

Intersection 1 Intersection 2 Intersection 3

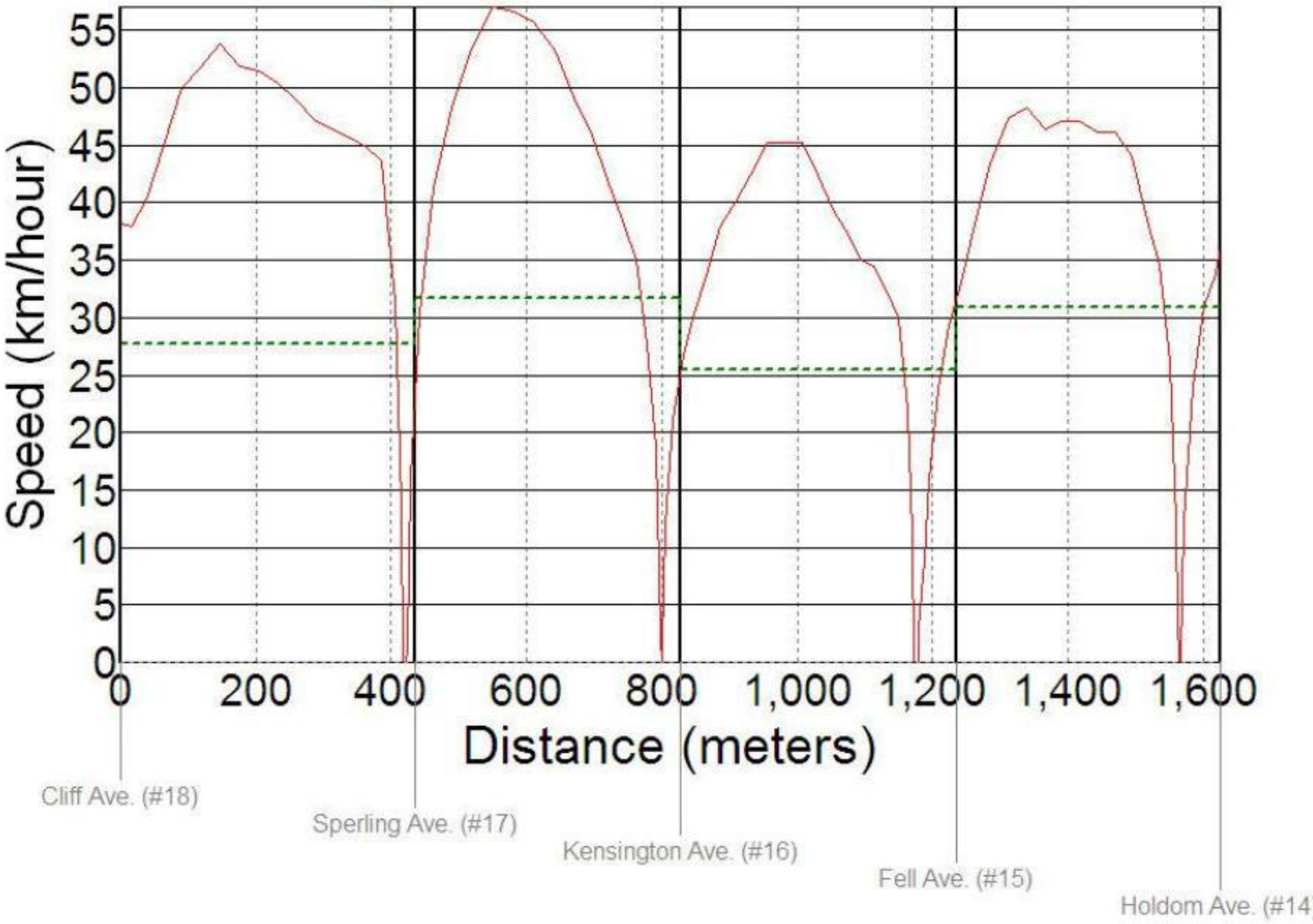
Hastings Street – Analysis

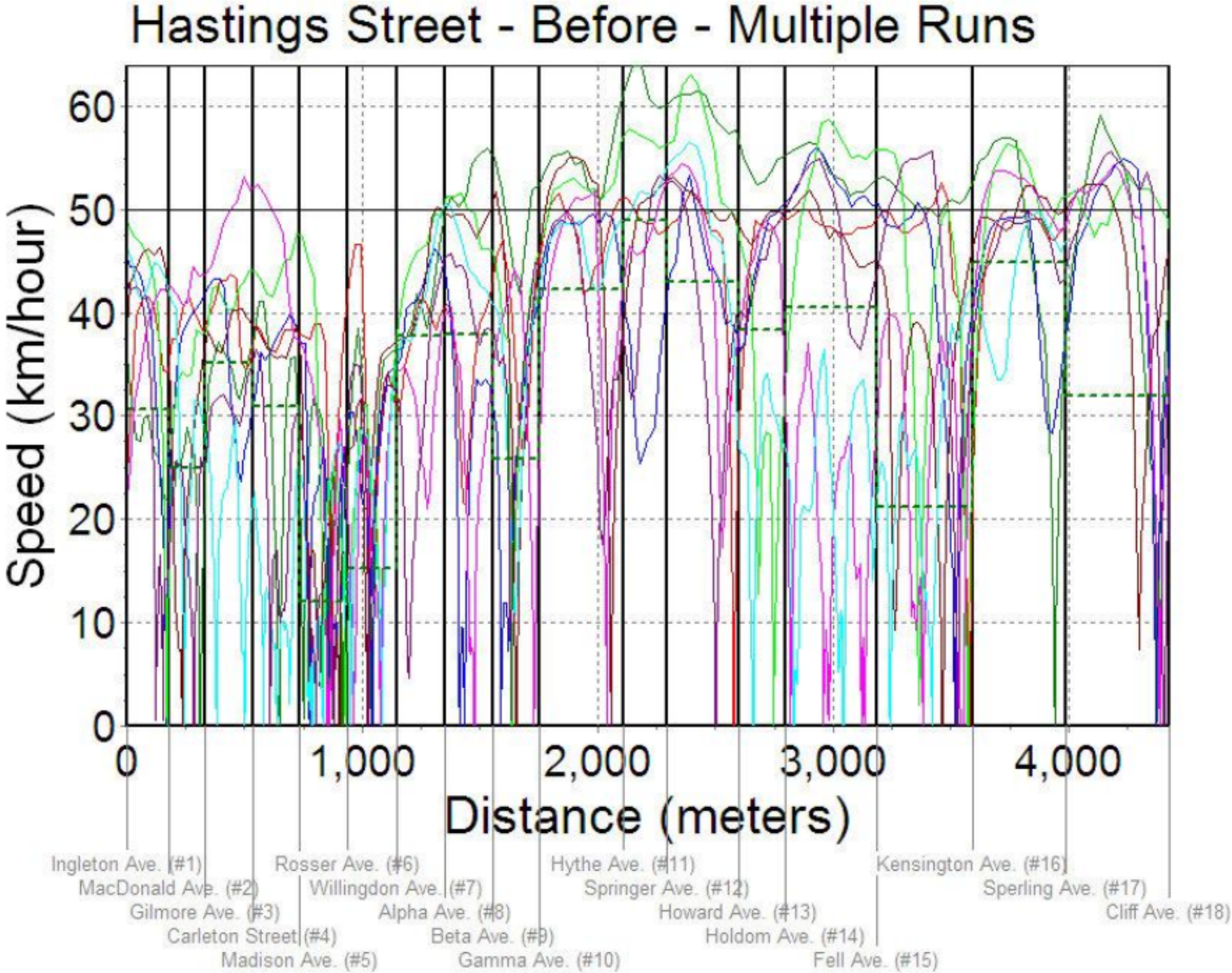


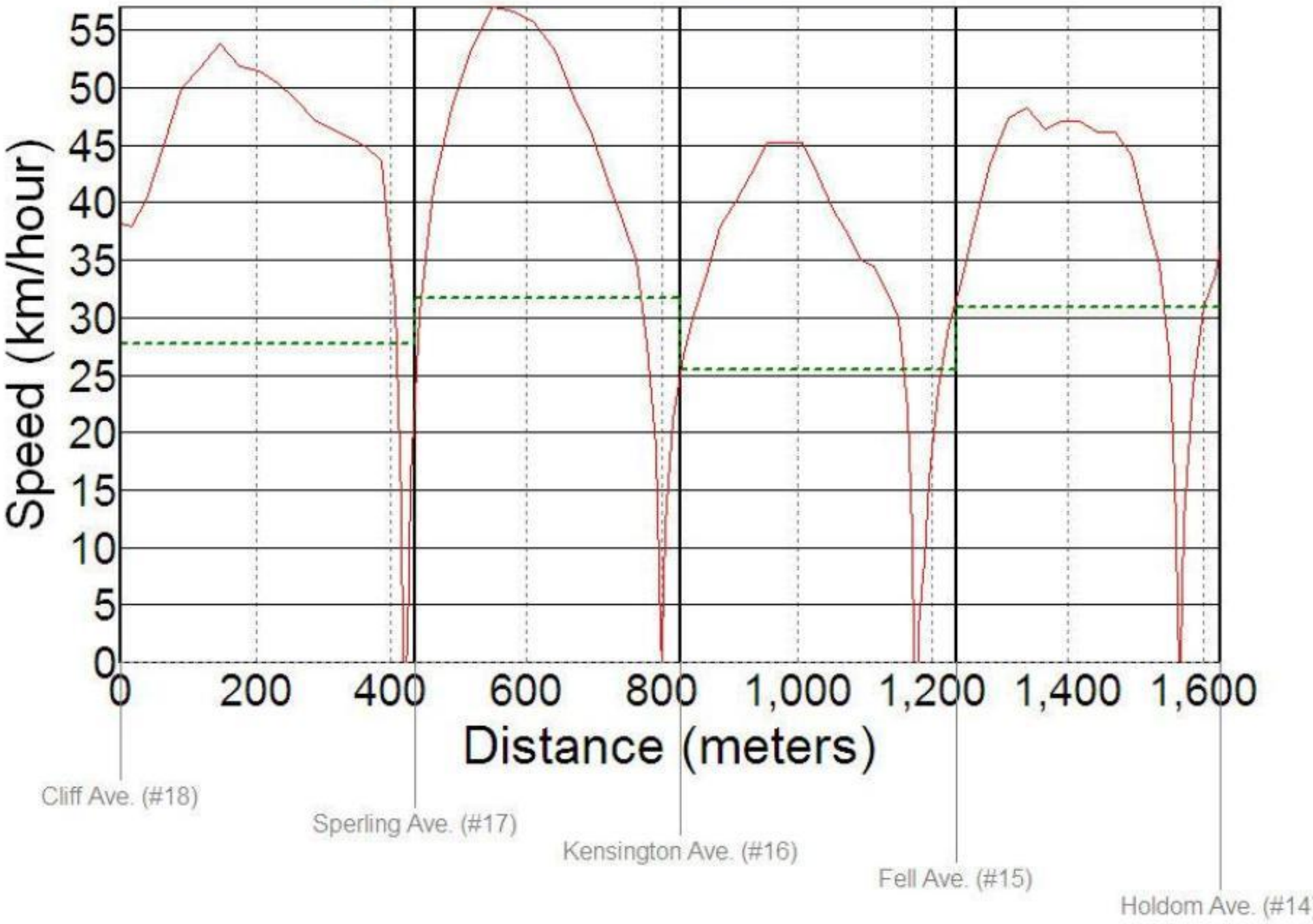
- From Ingleton Ave. to Cliff Ave.
- 18 Intersections
- 11 Pedestrian Signals
- 4.4 km long

Hastings Street – Analysis

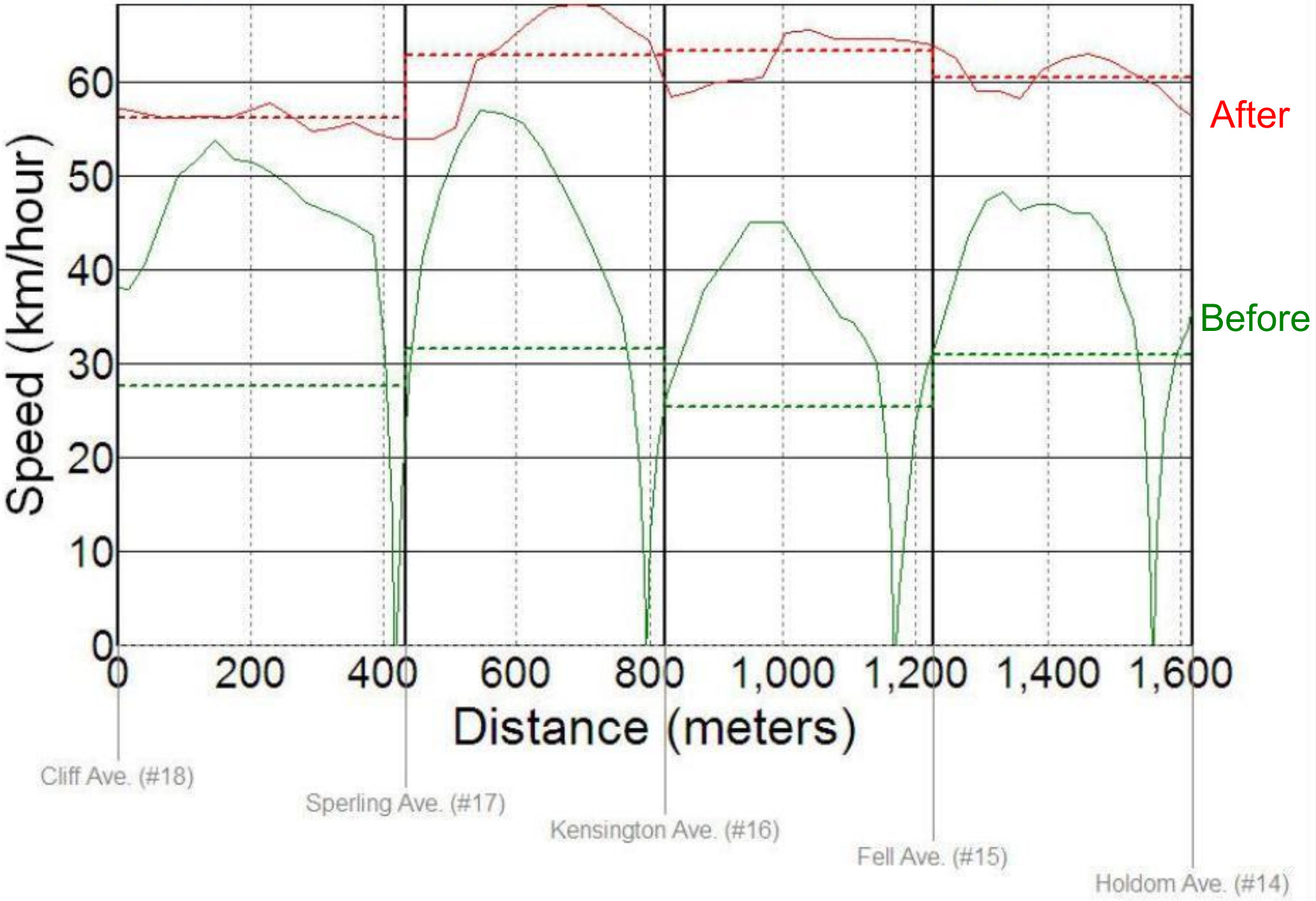
- Tracked position & speed with a GPS receiver
- Captured real-time data
- Measured corridor performance


Hastings Street - Before - 1 Run
Speed (km/hour)
0
5
10
15
20
25
30
35
40
45
50
55
0
200
400
600
800
1,000
1,200
1,400
1,600
Distance (meters)
Cliff Ave. (#18)
Sperling Ave. (#17)
Kensington Ave. (#16)
Fell Ave. (#15)
Holdom Ave. (#14)


Hastings Street - Before - Multiple Runs
Speed (km/hour)
0
10
20
30
40
50
60
0
1,000
2,000
3,000
4,000
Distance (meters)
Ingleton Ave. (#1)
MacDonald Ave. (#2)
Gilmore Ave. (#3)
Carleton Street (#4)
Madison Ave. (#5)
Rosser Ave. (#6)
Willingdon Ave. (#7)
Alpha Ave. (#8)
Beta Ave. (#9)
Gamma Ave. (#10)
Hythe Ave. (#11)
Springer Ave. (#12)
Howard Ave. (#13)
Holdom Ave. (#14)
Fell Ave. (#15)
Kensington Ave. (#16)
Sperling Ave. (#17)
Cliff Ave. (#18)


Hastings Street - Before - 1 Run
Speed (km/hour)
0
5
10
15
20
25
30
35
40
45
50
55
0
200
400
600
800
1,000
1,200
1,400
1,600
Distance (meters)
Cliff Ave. (#18)
Sperling Ave. (#17)
Kensington Ave. (#16)
Fell Ave. (#15)
Holdom Ave. (#14)

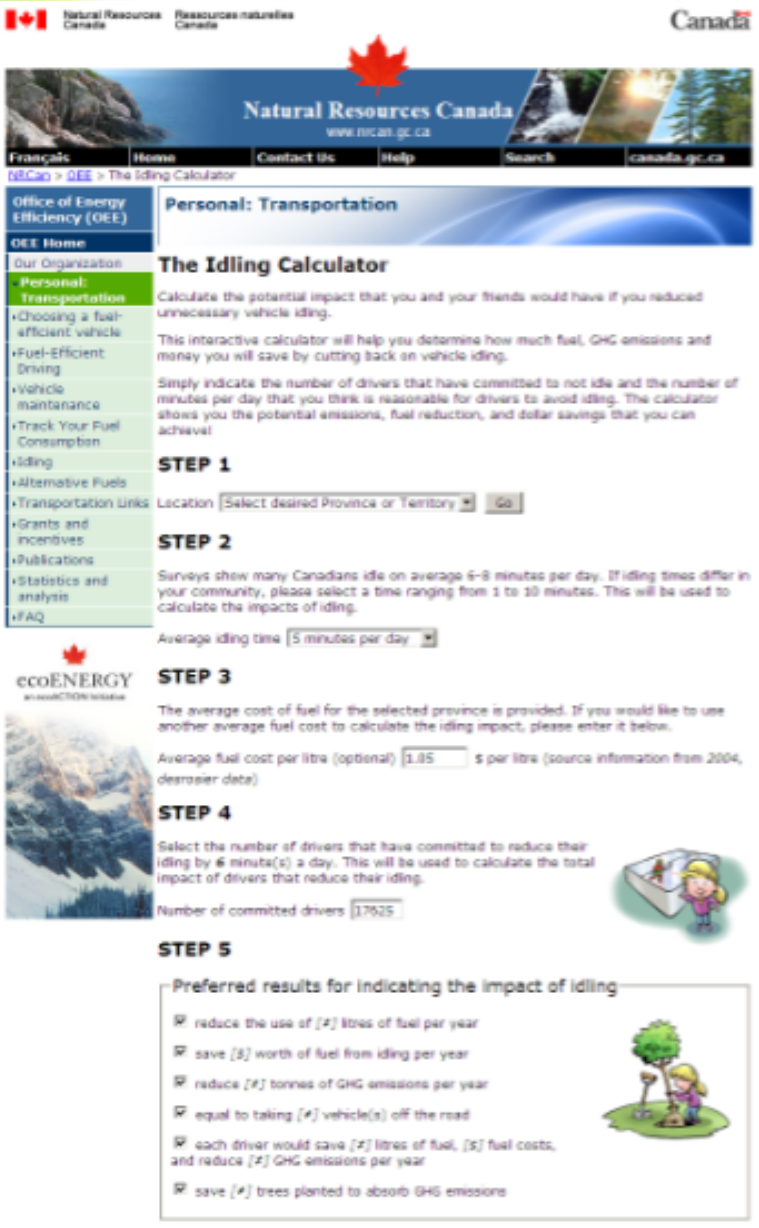
Hastings Street - Before Vs. After Comparison



Results

- Driving time reduced by 5 minutes
- 27% reduction in travel time
- Improved pedestrian intersection re-service time

Natural Resources Canada's (NRC) Idling Calculator

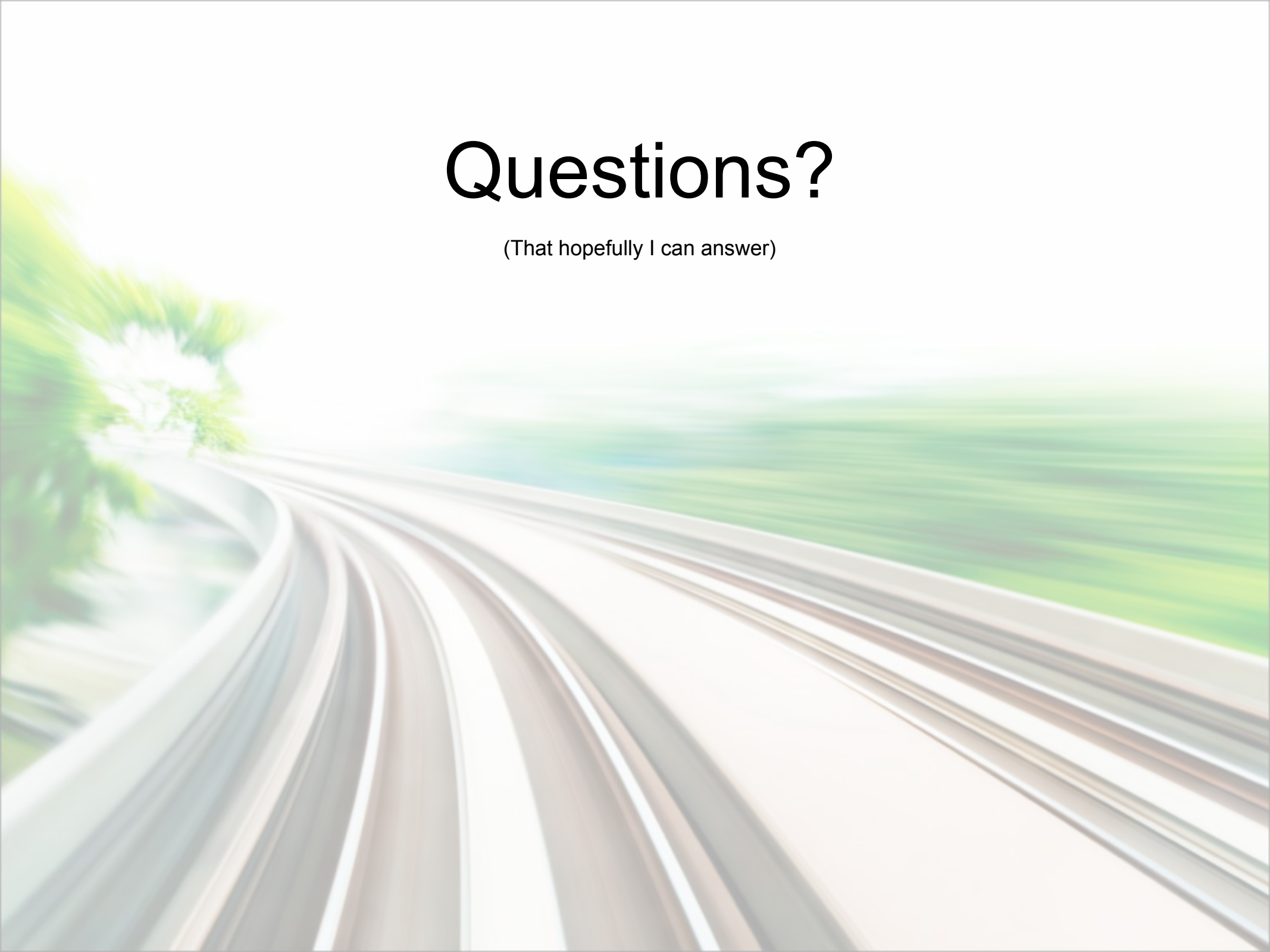


- Province = BC
- AM+PM = 309 sec saved = 5 min
- Price of gas = 1.05 $/L
- Approx. 2350 vehicles/hr
  - AM: 6:00am-9:30am = 3.5 hrs
  - PM: 2:30pm-6:30am = 4hrs
  - Approx. 17625 vehicles
- NRC gives results!

Hastings Street Corridor Results

Annual Environmental Benefits

- Fuel consumption reduced by **746,329 litres**
- Savings of approx. **$783,645** ($44.46 per driver)
- GHG emissions reduced by approx 1.8M kg
- Equal to taking **1,295** vehicles off the road
- Equal to planting **10,883** trees to absorb GHG emissions


Questions?
(That hopefully I can answer)