





# Mill Street and Edward Street Signalization, Newcastle



## Calculating Schedule C Benefits Project #4 - Traffic Signals

### Definitions

-  input field
-  calculated field (no data entry required)

AADT = Average Annual Daily Traffic

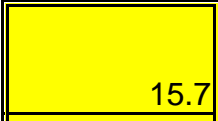

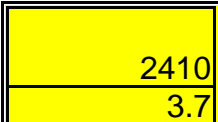
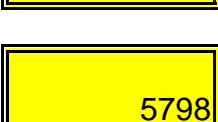


RCR = Ride Comfort Rating

MJ = mega joules

### Assumptions

- warrants for the placement of traffic signal lights have been met. If traffic signal warrants are not met, the results may be increased GHG emissions at the intersection
- cars and light trucks use 0.0264 liters of gasoline per minute while idling
- heavy trucks use 0.0533 liters of diesel per minute while idling
- low emission diesel engine data used in calculations
- free flow traffic on main road
- delays on sideroad at the intersection occur for 8 hours daily
- 60% of the daily traffic uses the road in the 8 peak hours

### Current Conditions

# of seconds, on average, vehicles delayed on sideroad during peak hours (waiting for traffic on main road)		15.7 seconds
# of seconds, on average, vehicles delayed on sideroad during off peak hours (waiting for traffic on main road)		11.6 seconds
current traffic volume on sideroad (actual or estimated)		2410 AADT
% trucks on sideroad		3.7%
current traffic volume on main road (actual or estimated)		5798 AADT
% trucks on main road		4.3%



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## Current CO<sub>2</sub> Emissions

Total emissions from traffic on main road and sideroad

Total Current Emissions **1,302.8** kg/day

NOTE: Based on Natural Resources Canada - 2.36Kg/L CO<sub>2</sub> Gasoline, 2.73kg/L CO<sub>2</sub> Diesel and Transport Canada - Company Average Fuel Consumption 2004

## Benefits

Minimizing traffic delays reduces emissions

signal timing, red light indication (main road) **13.4** seconds

signal timing, red light indication (sideroad) **40.5** seconds

Total emissions when signals are operational **830.7** kg/day

Reduction in CO<sub>2</sub> **472.1** kg/day

**172,321.5** kg/year