



DRAFT



Elgin Street - CPR for Fourth Street

Calculating Schedule C Benefits

Project #1 Road Resurfacing - mill & overlay

Definitions

	input field
	calculated field (no data entry required)

AADT = Average Annual Daily Traffic

RCR = Ride Comfort Rating

MJ = mega joules

Assumptions

- milling of existing asphalt surface full width of pavement to a depth of 90mm
- surfacing with 2 lifts of hot mix asphalt to a depth of 90mm
- base lift of hot mix asphalt contains RAP

Project Description

project length	630	m
width of pavement	7	m
intersections (and areas not included in above)	0	m ²
Total Project Area	4410	m ²
current traffic volume (actual or estimated)	1388	AADT
% light trucks (pickup)	0	%
% trucks (heavy truck)	2	%
% trucks (tractor/trailer)	0	%
% trucks (B trains)	0	%
pavement smoothness	8	RCR

Current CO₂ Emissions

Total Current Emissions	174.2	kg/day
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NOTE: Based on Natural Resources Canada - 2.36Kg/L CO₂ Gasoline, 2.73kg/L CO₂ Diesel and Transport Canada - Company Average Fuel Consumption 2004



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Energy Used For Construction

milling of existing asphalt surface	4410 m ²
trucking of milled asphalt (distance to dump site and return)	20 km
base lift of Hot Mix Asphalt with RAP	50 mm
% RAP	20 %
Surface lift of Hot Mix Asphalt	40 mm
Total MJ of energy required for project	594,240.8 MJ

NOTE: Natural Resources Canada - Road Rehabilitation Energy Reduction Guide for Canadian Road Builders 2005, IVL Swedish Environmental Research Institute - Lifecycle Assessment of Road, March 2001

Benefits

Maintaining this road with a smooth surface condition reduces emissions

pavement smoothness (on the above project length)	10 RCR
Total Emissions (on the above project length if pavement maintained with a smooth riding surface)	171.3 kg/day
Reduction in CO ₂	2.9 kg/day
	1062.2 kg/year

Resurfacing at appropriate lifecycle to maintain the road with a smooth surface can reduce the total energy required as the pavement will require less work to rehabilitate. For example: instead of double lift of hot mix asphalt a single lift may be all that is required to maintain a smooth surface

milling of existing asphalt surface	4410 m ²
trucking of milled asphalt (distance to dump site and return)	20 km
Surface lift of Hot Mix Asphalt	40 mm
Total MJ of energy required for single lift resurfacing	298,625.4 MJ
Reduced Energy requirements	295,615.4 MJ