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Old Scugog Road.xls

## 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	749	m
width of pavement	6.1	m
intersections (and areas not included in above)	410	m <sup>2</sup>
Total Project Area	4978.9	m <sup>2</sup>
current traffic volume (actual or estimated)	2724	AADT
% light trucks (pickup)	0	%
% trucks (heavy truck)	2	%
% trucks (tractor/trailer)	0	%
% trucks (B trains)	0	%
pavement smoothness	7	RCR

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

Total Current Emissions	409.7	kg/day
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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



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## Energy Used For Construction

milling of existing asphalt surface	4978.9	m <sup>2</sup>
trucking of milled asphalt (distance to dump site and return)	10	km
base lift of Hot Mix Asphalt with RAP	50	mm
% RAP	20	%
Surface lift of Hot Mix Asphalt	40	mm
<b>Total MJ of energy required for project</b>	<b>665,844.8</b>	<b>MJ</b>

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)	399.7	kg/day
Reduction in CO <sub>2</sub>	10.0	kg/day
	3652.0	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	4978.9	m <sup>2</sup>
trucking of milled asphalt (distance to dump site and return)	10	km
Surface lift of Hot Mix Asphalt	40	mm
<b>Total MJ of energy required for single lift resurfacing</b>	<b>334,902.3</b>	<b>MJ</b>
<b>Reduced Energy requirements</b>	<b>330,942.4</b>	<b>MJ</b>