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Trulls Road - Mitchell Corners.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	1145	m
width of pavement	6.1	m
intersections (and areas not included in above)	664	m ²
Total Project Area	7648.5	m ²
current traffic volume (actual or estimated)	2814	AADT
% light trucks (pickup)	0	%
% trucks (heavy truck)	2	%
% trucks (tractor/trailer)	0	%
% trucks (B trains)	0	%
pavement smoothness	7	RCR

Current CO₂ Emissions

Total Current Emissions	647.0	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	7648.5 m ²
trucking of milled asphalt (distance to dump site and return)	20 km
base lift of Hot Mix Asphalt with RAP	0 mm
% RAP	20 %
Surface lift of Hot Mix Asphalt	50 mm
Total MJ of energy required for project	647,071.5 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)	631.2 kg/day
Reduction in CO ₂	15.8 kg/day
	5767.3 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	7648.5 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	517,922.1 MJ
Reduced Energy requirements	129,149.5 MJ