



# Wide-Base (WB) Tires

## Inputs

(Enter data in grey cells only)

### Steps

1	Added cost per axle for tractor drive axles: tires and rims purchase and installation cost	Md	\$600
2	Number of tractor drive axles equipped with WB tires	d	2
3	Added cost per axle for trailer axles: tires and rims purchase and installation cost	Mt	\$600
4	Number of trailer axles equipped with WB tires	t	2
5	Total added cost	$P = Md \times d + Mt \times t$	\$2,400
6	Fuel savings	F	9.7%
7	Annual mileage	K	200000
Select the unit <input checked="" type="radio"/> km <input type="radio"/> miles			
8	Proportion of annual mileage that was driven at speed of 80 km/h or more (%)	p	80
9	Annual applicable mileage	$S = K \times p$	160000 km
10	Fuel price (¢/L)	X	110
1.1 \$/L			
11	Current fuel consumption	Y	34
Select the unit <input checked="" type="radio"/> L/100 km <input type="radio"/> mpg			

## Results

Annual fuel savings	$A = f \times S \times F \times Y$	5277	litres
where f is a conversion factor*			
Annual GHG emission reduction	$G = A \times 2.7$	14248	kg
Annual savings	$B = A \times X$	\$5,805	
Payback period	$C = P / B$	5	months or 0.41 years

## Assumptions

This scenario is for when wide-base tires are purchased as a replacement to dual tires for an existing vehicle. For new vehicle purchases, the unitary cost for wide-base tires including rims is less than dual tires.

Tire life for wide based tires is comparable to regular tires.

High constant speed track tests at Energotest™ showed fuel savings of up to 9.7% for tractor-trailer (tandem drive axles tractor with two-axle semi-trailer) equipped with wide based tires.

## Disclaimer

The purpose of these simplified models is to demonstrate the cost saving opportunities available for the fleet owners through best practices and fuel saving devices.

The model can be refined further based on the customer's requirements.

The user is responsible for verifying the accuracy of the results.

In no event shall Transport Canada be liable to any direct, consequential, incidental, special, punitive or other damages.

In Canada, legal axle weights are reduced in some provinces for vehicles with wide-base tires, which must be considered when choosing this type of tire.

## Reference

Wide-Base and Low Rolling Resistance Tires Fact Sheet, Transport Canada 2011

\* Conversion Factor: is calculated based on user's input for units of distance and fuel consumption. The below table is provided for information only.

Unit of S	Unit of Y	f	Conversion factor (f) formula
km	L/100km	1	km x L/100km
km	mpg	235.25	km x L/100km $(= (3.786 \times 100) / (1.61 \times \text{mpg}))$
miles	L/100km	1.61	km $(= 1.61 \times \text{miles}) \times \text{L}/100\text{km}$
miles	mpg	378.60	km $(= 1.61 \times \text{miles}) \times \text{L}/100\text{km} \mathbf{=} (3.786 \times 100) / (1.61 \times \text{mpg})$