



MINISTRY OF TRANSPORT

COMMUNITY TRANSPORT

Vehicle Replacement and Kilometre Operating Costs Tool Users Guide

Approved by the A/Director - Local & Community Transport [DATE]

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PURPOSE

The Vehicle Replacement and Operating Costs Tool (VROC) has been prepared by the Ministry of Transport for the purpose of assisting Community Transport Operators to determine the per kilometre cost of operating their vehicles.

The VROC is not intended to replace established methods for determining costs. The Ministry of Transport recommends that professional advice be sought from an accountant or similar financial specialists to support any assumptions you arrive at by using the VROC.

AIMS

The aim of the VROC is to aid in planning for vehicle replacement and to ensure consistency and accuracy in the way that the costs of using vehicles are calculated.

The treatment of capital assets such as vehicles need to be evaluated on an ongoing basis to ensure that timely and accurate information is available on the actual costs of operating vehicles.

For the VROC to be an effective planning tool it should be reviewed regularly. Actual costs and figures used in the calculations will vary according to economic factors and changing markets.

DEFINITIONS

Given Period

For the purposes of this guide the definition of a given period varies according to context in which the phrase is used. For example the given period may be used to express the entire serviceable life of the vehicle or it may be used to describe monthly or annual operating costs.

Capital Costs

Capital Costs are the appropriate costs of using and replacing a vehicle to be charged against the operations of the organisation in a given period.

Capital Cost Recovery informs the operator what the cash value of using and replacing their vehicle is in installments over a given period.

Amortisation

Amortisation is an accounting term used to describe the writing down of the book value of an asset over time, through the payment of regular instalments.

In other words the gradual deduction of capital expenses over a specific period of time. Similar to depreciation, it is a method of deducting in periodic instalments the cost of using long-term assets such as vehicles.

Constant Dollars

To ensure capital is not being eroded over the life of an asset the capital costs need to be converted to constant dollars. This is done by calculating the compound rate of inflation and adjusting the costs to maintain relative values in each future year of the vehicles serviceable life.

Operating Cost

The operating cost is the total cost of operating the vehicle in a given period.

Operating costs do not include the cost of staffing or administering the vehicle. These costs are not primarily associated with the cost of the vehicle and need to be considered separately.

Fixed Costs

Fixed Costs are costs that do not vary according to the level of service the vehicle delivers. For example the cost of registration and third party insurance remain constant regardless of the number of kilometres a vehicle does and are fixed for the given period.

Variable Costs

Variable costs are costs such as fuel, maintenance and repairs which are dependant on the usage of the vehicle. The more the vehicle is used the higher variable costs will be.

USER GUIDE EXPLANATORY NOTES

For examples used throughout the VROC refer to the supplied spreadsheet -Vehicle operating Costs EXAMPLE.xls

Entering Data Yellow cells

You will need to enter data in the yellow cells. The default direction when you hit the enter key will be to the next cell that requires information.

The VROC worksheets have been protected to ensure you only enter data in the yellow cells. Removing the protection is not recommended as formulas contained may be altered and there by returning unreliable results.

White Cells and Graphs

All white cells and graphs will be calculated and updated automatically.

Error Messages Vehicle Kilometre Cost Calculator

All efforts have been taken to ensure incorrect or incomplete data can not be entered. There are error messages built into the work sheets.

For example if you enter expenditure data before the KM This Month cell is calculated the Total cells will display "Km Required" and the Average Cost per Km in the Cost to Date Table will display "Data Error". As the calculations are based on the vehicles kilometers you should enter data in the Actual Km Traveled first.

For additional explanatory notes and/or prompts refer to the examples provided below.

Note: The values expressed in the calculated cells are dependant on the accuracy of the data that has been entered.

Vehicle Replacement Cost Calculator

The Vehicle Replacement Cost calculator is designed to aid you in calculating the approximate capital cost of vehicles you intend keep longer than 1 year.

It automatically calculates the amounts that should theoretically be set aside to ensure adequate funds are available to replace the vehicle at the end of its operational life.

Note: The Vehicle replacement cost calculator is not intended to calculate the cost of lease vehicles or vehicles that will be replaced more frequently than every 12 months. If this is the case you will need to calculate the costs manually and enter the data in the Cap Recovery cells of the Kilometre Cost Calculator.

The following table should be used as a guide when filling out the Vehicle Kilometre Cost Calculators.

Entering Data Vehicle - Replacement Cost Calculator

Cell	Data required	Notes
C 3	Interest Rate Enter the actual interest rate you normally receive on your deposit account.	For example you receive interest on funds deposited in a bank account.
C 5	Service Life Enter the number of years you intend to keep the vehicle.	Use whole numbers between 1 and 15.
C 7	Inflation Rate (CPI) Enter the current or average inflation rate over the past 12 months.	The current rate of inflation can be obtained at Reserve Bank of Australia website. www.rba.gov.au
C 9	Purchase Cost Enter the total capital cost of purchasing the vehicle.	This figure should include the cost of vehicle conversions and any taxes or levies that apply to the purchase. It should not include items such as registration and insurance which are operating costs.
C 11	Sale Price Estimate the amount you expect to receive for the vehicle when trading it in or selling it at the end of its useful life.	Due to a number of economic factors this figure may vary considerably. As information becomes available the VROC should be reviewed. There are several websites that provide vehicle valuations such as www.nrma.com.au
C 13	Capital Loss This is the difference between the purchase and sale price of the vehicle.	This dollar amount has not been adjusted to take into account inflation.
C 16-30	Annual Cost These cells represent the annual amounts that should be set aside to ensure there are adequate funds set aside for replacement of the vehicle.	The amounts are adjusted to constant dollars for each subsequent year of the vehicle's operation
D 16-30	Per Month Cost These cells calculate the annual cost divided by 12 representing the monthly amount that should be set aside in each of the vehicle's operational years	The amounts are adjusted to constant dollars and increase as the dollar is devalued by the compound inflation rate.
C 31	Total amount set aside This is the cumulative amount of funds set aside for vehicle replacement	The amounts are also adjusted to constant dollars
G 25	Amortisation Factor This factor is used to calculate installments and adjust the amounts to constant dollars according to the capital recovery formula	This figure is automatically calculated according to the data entered in the yellow cells
G 30	Capital Recovered This is the sum of the funds set aside and the sale price of the vehicle.	Taking into account standard vehicle replacement principles this amount should be sufficient to replace the vehicle at the end of its life.

Vehicle Kilometre Cost Calculator

Five work sheets have been provided for calculating the per kilometre cost of operating your vehicles. For example you can use the sheet for one vehicle over five years or five vehicles over one year. For additional vehicles and/or years complete separate spreadsheets.

To demonstrate variances in per kilometre operating costs the data should be entered on a monthly basis over the twelve month period. There will be considerable variance according to the actual number of kilometres traveled in any given period. Vehicle and fleet cost averages are given in the cost to date analysis and fleet totals spreadsheet.

Expenditure Categories

Vehicle related expenditures have been categorized into 6 basic types. They are:

1. Fuel
2. Registration and Compulsory Third Party Insurance
3. Insurance (other than CTP)
4. Maintenance
5. Capital Recovery
6. Other

The table below should be used as a guide when filling out the Vehicle Kilometre Cost Calculators.

Entering Data Vehicle Kilometre Cost Calculator

Cell	Data Required	Notes
B 1	Start Kilometres Enter the odometer reading when the vehicle is delivered or transfer the final odometer reading from the previous year into this cell	This is the starting point used as for calculating the kilometres traveled each month.
B to M Row 3	Actual Kilometres Enter the odometer reading at the end of each calendar month.	This cell will be used to calculate the amount of kilometres traveled each month
B to M Row 4	Kilometres this month Calculates the kilometres traveled per month	All Year To Date totals are calculated in Column N.
B to M Row 6	Fuel Enter the amount spent on fuel each month. Do not include any other costs i.e. oil and lubricants in these amounts	Include actual figures only. Do not use estimates for fuel used if vehicle is half full.
B to M Row 7	Registration & CTP Enter the average monthly cost of for Registration and Compulsory Third Party Insurance for the vehicle.	To give a more consistent per kilometre running cost this amount is better entered as a monthly average.

B to M Row 8	Insurance Enter the average monthly cost of insurance for the total amount you spend on comprehensive cover insurance for the vehicle.	To give a more consistent per kilometre running cost this amount is better entered as a monthly average when it becomes due.
B to M Row 9	Maintenance Enter the total amount spent on vehicle maintenance each month.	This should include all labour and material costs associated with the maintenance of the vehicle. i.e. any labor for servicing, oils, tires repairs etc.
B to M Row 10	Capital Cost Recovery Enter the monthly vehicle capital recovery costs. Alternately if the vehicle is leased enter the total monthly lease fee.	You can use the Vehicle Replacement Calculator to guide you on Capital Related Costs included in this VROC.
B to M Row 11	Other Costs Enter any other operating amounts spent on the vehicle each month that have not previously been recorded.	Items that could be included are the cost of, roadside assistance, cleaning the vehicle and/or any accessories that may be purchased from time to time, i.e. seat covers.
B to M Row 13	Total Costs This is the operating cost of the vehicle each month.	The sum of all expenditure categories for each month.
B to M Row 14	Cost per Kilometre This is the per kilometre cost of operating the vehicle each month. The total cost divided by the kilometres traveled.	This figure will vary considerably from month to month depending on the actual kilometres traveled.
A to D Rows 18 to 25	Cost to date table This table displays the total amounts spent to date, calculates the percentage of costs attributable to and the running cost in cents per km for each of the cost categories.	All figures in this table are all averaged. Therefore giving a more consistent cost per category for operating the vehicle over the given period.
B 27	Average cost per kilometre This is the average cost of operating the vehicle in the given period defined by data entered.	This figure will vary according to the ongoing expenditure on the vehicle and the number of kilometres traveled.
G 16	Pie Chart The pie chart provides a categorized graphic representation of the vehicle operating costs by percentages.	The chart will be automatically updated as data is entered into the VROC.

Fleet Totals

This spreadsheet shows a summary of amounts spent to date for a fleet of up to four vehicles. It calculates the percentage of costs attributable to and the running cost in cents per km for each of the cost categories.

Fleet Total Cost Category Graph

This spreadsheet provides a visual representation (bar chart) of the total operating cost in dollars of a fleet of up four vehicles. The data can be sorted to display costs in ascending order.

VEHICLE REPLACEMENT COST CALCULATOR EXAMPLE

To familiarize you with the principles of the Vehicle Replacement Cost calculator we have inserted the example data below to look at a hypothetical situation.

Example Assumptions

Item	Example Data
Interest rate	4%
Operational life of vehicle	2 years
Inflation rate	2.8%
Vehicle purchase price	\$35,000
Vehicle trade in or sale price	\$20,000

Results

The Capital Cost recovery spreadsheet indicates that a service should plan to set aside a total of \$16,128.56 to ensure there are adequate vehicle replacement funds available at the end of the operational life of the vehicle.

Note: The capital cost that should to be charged against the operations of the vehicle are adjusted each year of it operational life according to the capital recovery formula.

Capital costs are:

- in the first year of operations \$7953 or \$663 per month
- in the second year of operations \$8176 or \$681 per month

The total amount set aside (adjusted to take inflation and the interest rate into account) plus the trade in value of the vehicle means the service should have a total of \$36,129 to spend on a replacement vehicle.

KILOMETRE COST CALCULATOR EXAMPLE

Example Assumptions

To familiarize you with the principles Kilometre Cost Calculator we have inserted the example data (below) to demonstrate at a hypothetical situation.

Example Item	Annual	Monthly
Annual Kilometres	25,000km	Data that has been entered varies from month to month to highlight effect of km on monthly running costs.
Fuel Calculated AT 11.5 L/100km and @ \$1.32 per Lt	= 2875 litres = \$3794.90	Data that has been entered varies from month to month according to kilometres traveled
Rego & CTP	\$768.96	\$64.08
Insurance	\$558.00	\$46.50
Maintenance	\$800.00	Data that has been entered varies from month to month, \$66.66 average
Capital Recovery	\$7,952.94	\$662.75
Other	\$186.00	Data that has been entered varies from month to month, average \$15.50

Results

The cost to date table demonstrates that the total cost of operating the vehicle for the 12 months was \$14,060.86.

The average per kilometre operating cost of the vehicle is \$0.56. The monthly figure varies from \$0.38 cents in January to \$4.05 per kilometre in April when the car travelled very few kilometres.

The pie chart demonstrates that 57% (averaged) of the cost in operating the vehicle is associated with the replacement of the vehicle.