

Optimum Replacement benchmarks recommended in the Institute of Public Works Engineering Australia (IPWEA) Plant & Vehicle Management Manual

Part 2 - Plant / Heavy Vehicle Replacement & Management

2.2.1 Utilisation

Plant and Heavy Vehicle Utilisation be reviewed at least bi-annually to ensure machinery is meeting budget utilisation forecasts

2.2.2 Optimum Replacement Timing

The optimum replacement timing for a vehicle or an item of plant is calculated to best estimate the optimum time, in either kilometres or engine hours, and time, to achieve the lowest average annual cost during the life of the machine.

The optimum replacement point in the life of the plant item is near when the decreasing line of depreciation intersects with the increasing cost of repairs and maintenance costs. Actual depreciation figures will show two distinct steep drops in resale value. The first significant drop is immediately post purchase. The second drop is prior to a major component overhaul, which is when second hand buyers are aware of a large impending repair and maintenance bill.

Utilisation is as critical in optimum replacement as time, understanding the importance of replacing plant before resale values fall dramatically and repairs & maintenance costs increase. Adopting optimum replacement reduces annual plant replacement costs in the long term, reduce maintenance costs and most importantly reduce downtime in the outside operations.

Group / Type	Engine Hrs / Kms Travelled	Optimum Replacement Timing	
		Years	Kms / Hrs
Grader	1,000 hrs	10	8,000 hrs
Loader	800 hrs	8	8,000 hrs
Backhoe Loader	800 hrs	7	5,000 hrs
Skid Steer	700 hrs	5	5,000 hrs
Excavator (15 Tonne)	1,000 hrs	10	8,000 hrs
Excavator (8 Tonne)	800 hrs	10	8,000 hrs
Excavator (3.5 Tonne)	700 hrs	8	5,000 hrs
Heavy duty Truck (HR & HC)	35,000 kms	8	500,000 kms
Medium duty Truck (MR)	20,000 kms	8	200,000 kms
Light duty Truck (LR)	10,000 kms	6	150,000 kms
Rubber Tyred Roller	500 hrs	10	5,000 hrs
Vibrating Drum Roller	500 hrs	8	5,000 hrs
Mower Front Deck	500 hrs	5	2,000 hrs
Slasher Mower	500 hrs	7	5,000 hrs
Tractor (PTO hours)	800 hrs	7	5,000 hrs
Rear Lift Compactor	1,000 hrs	10	8,000 hrs
Side Lift Compactor	25,000 kms / 1,700 hrs	8	8,000 hrs
Landfill Compactor	1,000 hrs	10	8,000 hrs
Landfill Wheel Loader	1,000 hrs	10	8,000 hrs
Road Sweeper (Large)	1,700 hrs	8	8,000 hrs
Road/Footpath Sweeper (Small)	500 hrs	5	2,000 hrs

Wood Chipper	800 hrs	8	5,000 hrs
Trailer Heavy	N/A	15	N/A
Trailer Light	N/A	10	N/A