

TOTAL COST OF OWNERSHIP

Spend time now comparing Total Cost of Ownership (TCO) of a Rice Lake SURVIVOR® truck scale and save time and overhead costs in your future.

Total Cost of Ownership is a method developed by the Gartner Group¹ in the late 1980s to identify, estimate and appraise costs related to capital equipment investment. Gartner first applied this methodology, to the process of purchasing, owning and using personal computers. Business professionals were surprised to learn that a PC initially costing less than \$1,000 averages a TCO over \$5,000 per year.

Today, TCO is accepted as a standard approach to evaluating the true cost of equipment ownership from purchase to retirement; a “cradle-to-grave” financial analysis. When TCO is applied to truck scales, the numbers are magnified by many powers.

Properly maintaining a poorly designed truck scale can cost \$7,000 or more per year. Scheduling regular predictive maintenance when it is convenient and least costly, rather than requiring reactive maintenance, makes that \$7,000 a bargain compared to revenue loss caused by inaccurate weighments. A food processor weighing 900 million tons of product annually across a vehicle scale with a discrepancy of -1%, could put their enterprise in financial jeopardy. One hour of downtime can cost \$10,000 in lost revenue to a busy asphalt company, where the truck scale functions as a cash register.

A few short years ago, a truck scale could be expected to last a generation or longer. Scale weighbridges were simply designed however utilized massive main girders, complex cast iron levers, heavy concrete decks, and finely machined tool steel components. Weighbridges were built like highway bridges with heavy iron I-beam construction to withstand years and years of heavy, constant traffic.

These scales however had to be installed in expensive deep wet pits, accuracy was difficult to maintain, and these products required intensive maintenance to insure consistent performance.

It was not until the early 1970s that manufacturers took a new approach to truck scale bridge designs that would eventually revolutionize the truck scale industry. The first totally electronic truck scales consisted of massive side rail I-Beams and compression type load cells, but they could be installed on simpler and less expensive concrete foundations on top of the ground—a tremendous breakthrough in technology.

CAD/CAM software permitted them to optimize the use of steel components and still meet the maximum load requirements by using structural support shapes of sheet metal instead of heavy I-beams. What most manufacturers failed to realize was that traffic was increasing and trucks were getting bigger and heavier, adding additional axles to carry more cargo with fewer trips.

As the sales of truck scale products became more cost competitive, and the cost of steel increased, manufacturers developed lower cost weighbridge designs resulting in lower-priced truck scales. New terminology was introduced like “Concentrated Load Capacity”, the “r” factor, and “Span Deflection Ratios” to establish the integrity of the high-strength to lower-weight ratio CAD/CAM designs. Manufacturers offered “Super Warranties” to cover minimal parts and labor. Based on these claims, many less informed buyers invested in lower priced, lighter-weight truck scales.

Hard lessons were learned in a short time. While some of these new ratings had value, they did not address the longevity of the equipment, which buyers were taking for granted. Steel welds popped, weighbridges twisted, scales literally broke in half, steel plates peeled or warped, and concrete decks cracked. The cost of weighment inaccuracies, repairs, and downtime not covered by “super warranties” far exceeded the perceived cost savings on purchasing a low cost truck scale with less steel content.

In seven to eight years “bargain” scales had to be replaced. Then the essential question became “How much will it cost?” Again, the common mistake buyers made was in considering only the purchase price of the replacement scale and ignoring the associated costs such as torching the weighbridge and modules down to manageable pieces, extra labor, crane charges, disposal fees, scale house construction and permits, site preparation, wiring and initial calibration to meet NTEP Handbook-44 requirements.

Conclusion: The single most important consideration in selection of a properly designed truck scale, is the structural integrity of the weighbridge.

HOW TO USE TCO TO COMPARE TRUCK SCALES:

A. Direct Costs

Add the following and divide by the expected truck scale life*.

- Initial purchase price or lease payment
- Site preparation
- Installation

B. Indirect Costs

Add the following and multiply total indirect costs by expected truck scale life*.

Maintenance

- Preventive maintenance contracts
- Periodic calibration checks
- Spare parts, supplies and materials

Operations

- Labor (scale house operator, weigh ticket or bill of lading processor and related costs and fringe benefits)
- Scale house operation (value/share of site space, furnishings and equipment, network fees for modems, routers, T-1, wireless or ISD lines)

Estimated Downtime

- Interruption of use by scale and/or component mechanical or electrical problems
- Routine scheduled maintenance and calibration checks

Administrative Overhead

- Training, human resources
- Administrative
- Financial costs

*Expected truck scale life of a SURVIVOR truck scale - 30 years. Expected truck scale life of a lighter weight truck scale - 10 years.

C. Total Cost of Ownership = A + B

¹Gartner, Inc. is an information and technology research and advisory firm headquartered in Stamford, Connecticut. It was known as The Gartner Group until 2001. Gartner clients include many large corporations and government agencies, as well as technology companies and the investment community. Founded in 1979, Gartner has 3,700 associates, including 1,200 research analysts and consultants in 75 countries worldwide.