



TxDOT Equipment Replacement Model

T E R M

The Texas Department of Transportation (TxDOT) utilizes a uniform process in its approach to determine equipment replacement criteria. The department owns and maintains an active fleet of approximately 17,000 units to serve 301,141 total miles of roads and highways on the state maintained system. TxDOT annually disposes of approximately ten percent of its fleet.

To meet the diverse geographical conditions and program needs in the State of Texas, the TxDOT fleet ranges from compact sedans to motorized ferries. The department consists of twenty-five districts and twenty-seven support divisions/offices. Each district receives an annual allocation for equipment purchases. District management is responsible for specific needs, and most utilize equipment committees to assist in identification of equipment as candidates for replacement.

TxDOT continually evaluates the suitability of units in its fleet based on age, miles (or hours) of operation, downtime, as well as operating and maintenance costs. Some of the evaluation is performed subjectively through input from equipment, maintenance, and field personnel.

Prior to implementation of the TxDOT Equipment Replacement Model (TERM) in 1991, an extensive search of printed material and software was made. Also, state highway departments were contacted to determine if an automated method of identifying equipment as a candidate for replacement was in use. While various methods were being used, most employed schedules/benchmarks for classes of equipment based on the criteria of age and usage, and included life repair costs, as well as the equipment's condition.

TxDOT Equipment Replacement Model (TERM) was developed to identify equipment items that were candidates for equipment replacement. This was a result of an internal audit recommendation and review of replacement methodologies.

***Actual Model** — The logic is that each equipment item reaches a point when there are significant increases in repair costs. Replacement should occur prior to this point. Ad hoc reports were developed and are monitored annually to display historical cost information on usage and repairs to identify vehicles for replacement consideration. From this historical information, standards/benchmarks for each criteria are established for each class of equipment.*

See
TERM
listings
below

TxDOT's Equipment Operations System (EOS), a subsystem of the department's Management Information System (MIS), in operation since 1984, captures extensive information on all aspects of equipment operation. This system is used to provide historical data in a computerized approach. Due to the complexity of the equipment replacement decisions, TxDOT chose to keep the philosophy and logic relatively simple. EOS historical cost data is processed against three preset standards/benchmarks for each identified equipment class. The criteria used in the approach are 1) equipment age, 2) life usage expressed in miles (or hours), and 3) life repair costs (adjusted for inflation) relative to original purchase cost (including net adjustment to capital value). Example: A light duty truck, 4600-6199 lb. GVWR, State Series 861c, that is seven years old, has accumulated 100,000 miles of usage, and whose life repair costs have exceeded fifty percent of the original purchase cost, including net adjustments to capital value, meets all three criteria.

The resulting report provides information to manage equipment replacement and to plan for future needs. This approach identifies equipment meeting specified criteria one year in advance of the actual time that a replacement is required. This allows sufficient time for the procurement and delivery of a new unit.

TERM is only one tool in the overall decision making process. It does not replace the knowledge of the equipment manager, but only serves to supplement it. Consequently, as equipment budget constraints are realized, this requires each district to prioritize equipment replacement relative to their needs and approved budget funding. Accordingly, each district considers this information, downtime, condition of existing equipment, new equipment needs, identified projects, and other factors when planning equipment replacement.

TEXAS DEPARTMENT OF TRANSPORTATION EQUIPMENT REPLACEMENT MODEL (TERM)

The Texas Department of Transportation Equipment Replacement Model (TERM) uses historical data to identify vehicles for replacement. Early identification, a process that takes approximately one year, allows the districts time to identify vehicles for replacement; budget for replacement; develop specifications; advertise and award the purchase bid; and allows the vendor opportunity to build and deliver the vehicle.

SERIES	DESCRIPTION	GVWR	STANDARD	DISPOSAL	AGE	DISPOSAL	REPAIR
360b, 372b, 374c	AUTOMOBILES, SEDAN, OR STATION WAGONS	N/A	90,000 MI	100,000	8 YRS	9 YRS	50%
	TRUCK, 4 -WHEEL DRIVE PICKUP, ALL STYLES	N/A	100,000 MI	120,000	7 YRS	8 YRS	50%
661b, 665c	TRUCK, 4 -WHEEL DRIVE UTILITY AND CARRYALL	N/A	100,000 MI	120,000	7 YRS	8 YRS	50%
661b, 665c	TRUCK, 2 -WHEEL DRIVE UTILITY VEHICLE	3,961-5000	100,000 MI	110,000	7 YRS	8 YRS	50%
844b	TRUCK, EXTENDED CAB COMPACT	4,245-5,034	100,000 MI	110,000	7 YRS	8 YRS	50%
842b, 843b, 845b	TRUCK, HEAVY DUTY COMPACT	4,320-5,600	100,000 MI	110,000	7 YRS	8 YRS	50%
841b	TRUCK, LIGHT DUTY, PICKUP	TO 4,600	100,000 MI	110,000	8 YRS	9 YRS	50%
855b/c, 861c	TRUCK, LIGHT DUTY, PICKUP	4,600-6,199	100,000 MI	110,000	7 YRS	8 YRS	50%
861c	TRUCK, LIGHT DUTY, PICKUP, OTHER BODY STYLES	4,600-6,199	100,000 MI	110,000	7 YRS	8 YRS	50%
862c, 863c	TRUCK, EXTENDED CAB 1/2 TON	6,000-6799	100,000 MI	110,000	7 YRS	8 YRS	50%
668b, 741b	TRUCK, CARGO OR WINDOW VAN, MINI	TO 6,200	100,000 MI	110,000	8 YRS	9 YRS	50%
670c, 680c, 685c, 750c, 755c, 760c	TRUCK, CARGO OR WINDOW VAN, FULL-SIZE	6,200+	100,000 MI	110,000	8 YRS	9 YRS	50%
867c	TRUCK, LIGHT DUTY, PICKUP	6,200-7,999	100,000 MI	110,000	7 YRS	8 YRS	50%
867c	TRUCK, LIGHT DUTY, PICKUP, OTHER BODY STYLES	6,200-7,999	100,000 MI	110,000	7 YRS	8 YRS	50%
868c/d, 869c/d	TRUCK, EXTENDED CAB 3/4 TON	6,800-8,599	100,000 MI	110,000	7 YRS	8 YRS	50%
650c	TRUCK, CARRYALL	TO 6,950	100,000 MI	110,000	7 YRS	8 YRS	50%
655c	TRUCK, CARRYALL	7,000+	100,000 MI	110,000	7 YRS	8 YRS	50%
	TRUCK, LIGHT DUTY, CREW CAB, ALL BODY STYLES	7,901-8,599	100,000 MI	110,000	7 YRS	8 YRS	50%
870c/d	TRUCK, LIGHT DUTY, PICKUP BODY	8,000-8,599	100,000 MI	110,000	7 YRS	8 YRS	50%
872c/d	TRUCK, LIGHT DUTY, OTHER BODY STYLES	8,000-8,599	100,000 MI	110,000	7 YRS	8 YRS	50%
875c/d, 876c	TRUCK, LIGHT DUTY, OTHER BODY STYLES	8,600-14,999	100,000 MI	110,000	7 YRS	8 YRS	50%
876c	TRUCK, LIGHT DUTY, PICKUP BODY	8,600-14,999	100,000 MI	110,000	7 YRS	8 YRS	50%
881c/d, 886c/d, 888c/d	TRUCK, LIGHT DUTY, CREW CAB, ALL BODY STYLES	8,600-14,999	100,000 MI	110,000	7 YRS	8 YRS	50%
875c/d, 876c/d	TRUCK, PLATFORM, PLATFORM DUMP, STAKE	8,600-14,999	100,000 MI	110,000	7 YRS	8 YRS	50%
930d/g	TRUCK, LIGHT/MEDIUM DUTY	14,500-18,999	100,000 MI	110,000	7 YRS	8 YRS	50%
930d/g	TRUCK, ALL BODY STYLES	15,000-18,900	115,000 MI	125,000	8 YRS	9 YRS	50%
950d/g	TRUCK, ALL BODY STYLES	19,000-20,900	115,000 MI	125,000	8 YRS	9 YRS	50%
	TRUCK, CONVENTIONAL DUMP	21,000-25,400	100,000 MI	110,000	8 YRS	9 YRS	50%
	TRUCK, EJECTION TYPE MATERIAL BODY	21,000-25,400	100,000 MI	110,000	8 YRS	9 YRS	50%
960d/g, 961d/g	TRUCK, ALL BODY STYLES, EXCEPT CONVENTIONAL DUMP	21,000-25,400	115,000 MI	125,000	8 YRS	9 YRS	50%
970d/g, 971d/g	TRUCK, ALL BODY STYLES, EXCEPT CONVENTIONAL DUMP/WRECKER	25,500-28,900	125,000 MI	135,000	10 YRS	11 YRS	75%
970d/g, 971d/g, 980d/g, 981d/g	TRUCK, CONVENTIONAL DUMP	25,500-28,900	125,000 MI	135,000	10 YRS	11 YRS	75%
985d, 990d	TRUCK, EJECTION TYPE MATERIAL BODY	25,500-38,900	120,000 MI	130,000	10 YRS	11 YRS	75%
	TRUCK, ALL STYLES EXCEPT DUMP, SINGLE REAR AXLE	29,000-38,900	120,000 MI	130,000	11 YRS	12 YRS	75%
990d	TRUCK, DUMP, SINGLE REAR AXLE	29,000-42,900	140,000 MI	160,000	14 YRS	15 YRS	100%
	TRUCK, ALL STYLES EXCEPT DUMP, TANDEM REAR AXLE	39,000+	120,000 MI	130,000	11 YRS	12 YRS	75%
	TRUCK, DUMP, TANDEM REAR AXLE	43,000+	150,000 MI	175,000	12 YRS	13 YRS	100%
	TRUCK TRACTOR, SINGLE REAR AXLE	TO 60,000 GCWR	125,000 MI	135,000	13 YRS	14 YRS	75%
	TRUCK TRACTOR, SINGLE REAR AXLE	60,000+ GCWR	125,000 MI	135,000	13 YRS	14 YRS	100%
	TRUCK TRACTOR, TANDEM REAR AXLE	ALL GCWR	200,000 MI	250,000	10 YRS	11 YRS	100%



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