

Road Graders - Purchase Or Contract Out?

Towns might want to consider the cost of owning a grader to the cost of contracting out

Road graders are expensive to buy and expensive to operate and maintain. Towns might consider comparing those ownership costs with the cost of contracting with someone else to maintain town roads. Town officials could use the following procedure to compare costs.

First, determine the economic life of the machine. Economic life relates to the total stream of costs associated with the unit through time. Since eventually we'll have to break down costs to an hourly basis, it's important to determine the number of hours the road grader is used in a normal year. For purposes of this discussion we'll use 1,000 hours per year.

Determine the annual costs for the following seven items and divide by 1,000 to obtain a per-hour cost. Add each of the per-hour costs to obtain a total per-hour cost. The total per-hour costs can then be compared to the per-hour costs of the contractor's service.

1. Depreciation: Using the straight-line method we can calculate as follows, assuming 15 years estimated life.

$$\frac{\text{Cost} - \$ \frac{\text{estimated salvage value}}{15 \text{ years (estimated life)}}}{\text{annual depreciation}} = \$ \frac{\text{annual depreciation}}{\text{depreciation}}$$

2. Fuel, oil, and grease: The better the town records are, the easier it is to come up with a cost for this item.
3. Maintenance and repair: Again, good records help. Some include major repairs here but others say that overhauls, for example, should be considered a capital expenditure. Include here the cost of parts and any charges to repair, replacement parts and the like.
4. Interest costs: If the town has accumulated sufficient cash in an equipment fund, do not include this item as a cost. If the new grader would be purchased using borrowed money, then determine interest costs.

5. Insurance: Records over the life of the present vehicle are helpful plus, of course, finding out from the town insurer what the premium would be on a new piece of equipment.
6. Wages and fringe benefits: Calculate the wages and fringe benefits costs attributed to operation and maintenance.
7. Overhead costs: Overhead costs are estimated to run between 9% and 12%. It is possible to come up with a more exact figure, but a good rule of thumb is to use 10%.

In addition to economic life considerations, towns should weigh other matters in their deliberations. For example:

1. Would the town's liability be more or less if road work were contracted out?
2. Would the contracting service be available at any time for emergencies or unforeseen situations?
3. Are the contractor's operators as qualified as the town's? Would the same operator maintain the roads or would a number of operators do the work over a year's time?
4. What degree of supervision would be required in either case?
5. Would a contract arrangement free a town employee to do other work?
6. If repair and maintenance of a town-owned grader has been troublesome, would a contract situation relieve the town of those headaches?
7. Consider downtime costs. A contractor may have a second machine more readily available to perform needed work.
8. There's a certain pride of ownership (a morale factor) accompanying ownership, this should be considered. ■

Grab Your Coffee Can: Figure Lost Gravel Cost

Question: How would you like to save \$50,000 per motor grader operator per year?

Answer: Train your operators to properly pick up windrows of gravel.

Some do-it-yourself coffee-can research by the Nebraska T² Center's Ed Wootton led to a \$50,000 conclusion.

As he watched motor grader operators at work, Ed wondered about the cost of the gravel lost off the toe of moldboards as windrows were picked up. So he measured one foot in the ditch and put all the spilled gravel he found in that area in a coffee can. When he weighed the can he found he had two pounds of gravel (which he says is a very minimal loss - often it is much more).

At the rate of 2 pounds per foot, the gravel loss is 10,560 pounds in one mile. If an operator grades 20 miles in a day, he loses 105.6 tons. At \$3.65 per ton, the dollar loss is \$385.44 per day.

If the operator works 22 days per month and devotes half of his time to this job during the year, the total dollar amount of lost gravel is \$50,878 - two and a half times the salary of an average operator.

The main cause of this loss, Ed says, is improper blade angle.

"We know there are other factors in the loss, such as wind and water loss and heavy traffic," Ed says, "but the chief cause is improper procedures."

The spilled gravel is partially retrievable by pulling up the slopes, but that is time-consuming and costly, and "you don't get it all."

Here is Ed's formula, if you want to measure your own losses:

1. Weigh gravel collected from one foot of ditch
2. x 5,280 (feet per mile).
3. x number of miles per day per machine.
4. x number of days worked per year.
5. x number of machines used.
6. ÷ by 2000 (to get number of tons).
7. x cost per ton of gravel.

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