

# How to Cost-E Support Street Maintenance

*To be successful, fleet management must develop a partnership with the operating departments, their operators, and vendors. Fleet is the pivotal player in these relationships as it manages equipment from cradle to grave.*

**By Christopher D. Amos, CAFM**

**T**he fundamental question for fleet managers and their street maintenance customers to ask themselves before acquiring new vehicles and equipment is whether or not the organization should perform the work with internal assets or outsource it. This question should be asked regularly because the optimum choice changes depending on a host of economic variables.

The answer may also differ by street maintenance function or even sub-function. For example, it may be more cost-effective for a contractor to mill, overlay, and stripe arterial roads, but for government crews to resurface neighborhood streets. These jobs really only differ in scope and potential speed of completion, but those factors may significantly impact contractors' bid prices.

## **Partnering with Users**

Once it is decided that government crews are the most cost-effective means to perform a street maintenance function, fleet management and the operating department should partner to develop specifications for the units needed. Both partners have a unique perspective. Both perspectives are important.



## **At a Glance**

To support maintenance operations:

- Partner with users.
- Develop clear specifications.
- Diligently perform preventive and predictive maintenance.
- Tightly control spare units.

Operating department managers demand production from their crews, which requires having units available when needed and avoiding breakdown. Vehicle drivers and equipment operators prioritize safety, comfort, ease of operation, and ease of operator-level maintenance. Fleet maintenance personnel want reliable equipment to easily perform scheduled and emergency road-call work. Equipment should be backed by

solid warranties, expert factory technicians, readily available diagnostic and specialty tools, and local dealer support with a good replacement parts inventory.

## **Buy/Lease vs. Rent**

The next fundamental question is whether it makes the most economic sense to buy or lease a unit for exclusive use or rent it for shared use. For work performed infrequently or sporadically, renting may be the best option if the unit is available in the area of operations. The operating department's flexibility in scheduling work to ensure a rental unit is available is another deciding factor determining whether or not to rent.

# Effectively Operations



A lifecycle cost analysis considering fixed (e.g., depreciation, insurance, cost-of-money), operating (e.g., fuel, maintenance, repairs), and incidental (e.g., vehicle cleaning) expenses, as well as fully-burdened operator labor costs to determine production hourly/daily costs, provides an easy comparison against the cost of renting equipment only when needed. It is important to keep in mind that fixed costs associated with expensive equipment continue to mount even while the unit sits idle.

## Developing Clear Specifications

Once you determine that owning or leasing the vehicle or equipment is the



best option, it is time to develop bid specs. Fleet management and operating department representatives should make joint trips to trade shows periodically to compare and contrast what is available in the marketplace. However, there is no substitute for having operators sit in the seat while a machine is put through its paces during a demo before specs are written.

Once required performance and design features or suitable makes and models are known, specifications can be jointly developed. Performance or design specifications generally produce more competition between bidders and result in lower net acquisition or lifecycle costs if bid items are included on factors such as fuel economy, extended warranties, standard maintenance, delivery date, or guaranteed buy-back value. Proprietary specifications are appropriate when standardizing the fleet. A particular make/model can be justified as being the best choice even considering the risk of increased cost, at least up-front, if the competition is less keen.

Whichever single or combination type of spec is used, don't forget to include provisions for vendors to respond on non-monetary issues such as minimum factory technician response times and local parts availability. It is a good practice to require vendors to include all essential diagnostic equipment and specialty tools with the unit for future repairs. Successful bid specifications should address all critical concerns of

operating department managers, vehicle drivers/equipment operators, and fleet maintenance personnel.

Units used for unintended purposes or circumstances are almost certain to lead to higher maintenance, repair, and downtime costs. The critical time to prevent this is during the specification and bid selection phases. Doing so requires clear communication between fleet management and operating departments and a commitment to restrict use of the vehicle or equipment to its intended purposes.

## Cost-Effective Maintenance

If units are used as intended, are not abused by operators or vandalized at a work site, fleet management is left with the predictable expenses of scheduled services and breakdown repairs. Of these, breakdowns are clearly the most expensive often resulting in crew downtime, project delays, and material losses, as well as the direct cost of repairs in locations less safe and hospitable than the maintenance garage. The goal of a thorough preventive and predictive maintenance program is to minimize breakdowns.

## Preventive Maintenance

Street maintenance units are subjected to more heat, vibration, and grit than any other in a municipal fleet. In addition, most units sit exposed to the elements at work sites or in yards much of the time requiring extra care and attention to remain operational.

Scheduled services occur at multiple levels in an organization. The first and most important is the operator level. Operators should regularly inspect and lubricate their units at the end of every shift. If diligent, they spot developing problems first. Quick identification can make the difference between a quick repair after hours and a later breakdown that can cost thousands of dollars more.

Fleet maintenance managers can't expect the average operator to perform preventive maintenance checks and services without training. This is another essential area for fleet management and operating department personnel to partner for mutual benefit. Developing thorough checklists complete with diagrams,



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providing the proper tools, investing in fleet maintenance technician time to train operators and supervisors, and some spot-checking are essential ingredients of an effective PM program.

Higher echelons of maintenance include fleet maintenance mobile technicians and shops as well as dealer, manufacturer, and other vendor maintenance operations. At least one of these operations must provide a service truck with the tools, equipment, parts, materials, and a qualified technician to perform job site maintenance and minor repairs. One of them must also have these resources available in a maintenance shop.

To avoid downtime cost, services should be performed when the operating department doesn't need the equipment. If the shop works only a single shift, this may require technicians working nights, weekends, or holidays especially in regions where inclement weather is infrequent and streets can be maintained year-round. Scheduling downtime for unit maintenance may be essential if variable working hours or overtime costs are problematic. The objective is to complete all tasks required by the manufacturer on schedule and to conduct a thorough inspection to uncover signs of imminent parts or systems failures.

### Predictive Maintenance

As with preventive maintenance, predictive maintenance is intended to pre-

vent the greater cost of unscheduled breakdowns. However, it involves much more than changing filters and fluids and lubricating components on a manufacturer's schedule. Rather, it involves sacrificing some usable life of components that wear out in a predictable way in order to schedule their replacement at an opportune time and place.

For example, you know from experience that the conveyor belt of a milling machine which transports the shredded pavement from the grinding teeth into an awaiting dump truck wears out consistently between 1,200 and 1,400 hours of service. The belts are expensive, costing \$4,000 each. Changing them requires 14 man-hours and the use of a crane if performed in the shop. You decide it is more cost-effective to bring the milling machine into the shop overnight to change the belt at 1,100 hours of service wasting 8-35 percent of the belt's average life and paying overtime for the labor. The alternative is the belt breaking while in operation, it idling the milling machine, its operator the dozen dump trucks and their drivers who haul the materials away, and the entire paving crew of another 20 vehicles and operators following on a priority overlay project.

While this scenario is an extreme example, the lesson is no different from replacing roller bearings before a track breaks, brake pads before the backing plates eat into rotors, wiper blades be-

fore they disintegrate in a storm, or a battery before it fails to start a unit on a perfect paving day. Predictive maintenance may seem wasteful to some, but it is good business.

### Backup/Spare Units

Fleets without reliable rental agencies will often rely on keeping older units in their inventory to use as backups/spares when downtime occurs. This can be good business as long as the fixed and operating costs of keeping the spares consistently prevents even higher downtime costs.

The real problem with spare units from a fleet management perspective is when they become augmentations to the street maintenance operation. For example, your organization has a daily requirement for two milling machines and the luxury of keeping a spare unit that has been replaced in first-line service as a backup unit. The operating department gets behind on a big project because of unseasonably bad weather so they throw together a third milling crew and now you find yourself servicing three units operating simultaneously. All is well until the old spare unit loses a track, which was too expensive to replace last winter for backup use, and a first-line unit hits a subsurface trolley track from the previous century. Plan the work, work the plan, and keep tight control of your "spares."

### Fleet Plays a Pivotal Role

In the final analysis, supporting street maintenance operations cost-effectively requires partnering between operating departments, their operators, fleet management, and vehicle and equipment dealers and manufacturers. Fleet management plays a pivotal role in these relationships, and it is important that they invest time and energy into making the partnerships work at every step from cradle to grave of the units they manage. **GF**

#### FOR MORE INFORMATION:



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