Controlling Emergency Fleet OPERATING COSTS

Essential ingredients of effective delegation of management-level responsibility include a clearly defined sphere of authority and responsibility with minimum overlap into the spheres of other managers; selection of a qualified manager; and feedback and incentives linked to clearly defined *departmental*—not individual—performance objectives.

When mistakes are made in delegating fleet maintenance responsibilities, they most often involve the first of these ingredients. The mistakes originate with a hazy understanding by top management of the financial and other consequences of good vs. bad fleet maintenance and the failure to recognize many of the factors that affect fleet performance and operating costs.

The Traditional View

In traditional EMS operations, top management thinks of fleet maintenance as merely a program of routine preventive maintenance (PM) and occasional repair. Financially, the traditional view is that expenditures for PM are valid to the extent that they prevent expenditures for repairs. Slightly more sophisticated managers may also understand that PM costs can also be offset by lowering amortized (i.e., spread out over the life of the equipment) vehicle costs due to extended safe, useful life.

Thus, in traditional organizations, the "maintenance department" is usually responsible for, and in charge of, PM and repairs and not much more. Traditionally, its budget includes only the costs of PM and repairs. The maintenance manager may be rewarded (financially or with a pat on the back) for controlling the costs of PM and repairs, and sometimes for extending the safe, useful lives of vehicles.

This traditional approach is defective in several important ways. First, the financial and other effects of good vs. bad maintenance go far beyond PM and repair costs, and even beyond amortized equipment costs. In the traditional organization, these other costs and effects are often unaccounted for and out of control. Second, in traditional operations, most of the factors that affect fleet operating costs, and the ultimate effectiveness of the maintenance program itself, are not under the control of the maintenance department at all, even though the fleet maintenance manager may be blamed for their effects. Thus, in the traditional organization, the purposes of the maintenance program are too narrowly and too vaguely defined, while authority and responsibility for control of fleet operations simply don't match.

Defining Maintenance Program Objectives

The differences between the traditional perspective and that which prevails in the best high-performance EMS systems are profound. To understand those differences, we must start by examining differences in their goals.

In the traditional view, the purpose of the maintenance program is to limit the costs

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of repairs and, in some systems, to extend the safe, useful life of equipment. In contrast, the objectives of the maintenance programs in high-performance systems are far more extensive. Consider the sample goal statement for high-performance EMS fleet operations in the accompanying table.

Operational Goal Statement. To improve the quality, reliability and public image of our emergency fleet operations by the following methods:

- By eliminating equipment failure that interrupts or disrupts service delivery
- By providing vehicles of the type, appearance, configuration and reliability satisfactory to the personnel who use those vehicles
- By ensuring that the appearance, comfort and reliability of our vehicles at all times present a public image of professionalism and quality

Financial Goal Statement. To reduce our overall fleet operating costs to below-budgeted cost per mile by the following methods:

- By reducing *net* amortized capital equipment costs (i.e., original equipment costs less residual value upon retirement)
- By improving fuel economy
- By reducing costs of uninsured accidental damage
- By reducing costs of mechanical repairs
- By reducing downtime of crews caused by mechanical problems (or delayed shift-change procedures)
- By maintaining PM costs within the budgeted level
- By maintaining spare part inventories adequate to prevent delayed repairs, while eliminating unnecessary inventory costs

In actual practice, numerical values are established for each quantifiable objective (e.g., maximum frequency of vehicle failure per 100,000 emergency runs, targeted annual cost of uninsured accidental damage, and maximum average fuel consumption per mile).

Notice that the differences between the traditional goals and those of the high-performance EMS systems are fundamental—not merely technical. In a high-performance system, the maintenance program is viewed as an extremely important production support service with significant responsibilities for saving lives, presenting a professional public image, providing better working conditions for medics, and containing *overall* fleet operating costs, not merely the costs of repairs. To make this perspective an operational reality, the fleet operations manager must assume control over all functions affecting his department's ability to meet its objectives, and the organization's management accounting methods must be redesigned to track vehicle operating costs as more broadly (and more accurately) defined by the financial objectives shown in the table.

Delegating Management Control

Managers cannot fairly be held accountable for failing to achieve results over which they have little or no control. Nowhere is that principle more frequently or more blatantly violated than in the traditional delegation of authority and responsibility to emergency fleet operations managers. Consider a few examples.

In traditional systems, the manager of fleet operations is required to maintain vehicles purchased by others and driven by others, with driver instruction provided by others. In most such systems, the responsibility for purchasing ends with the purchase. If the equipment bought is inherently unreliable, difficult to maintain, or disliked by the medics who use it, the consequences of the faulty procurement will fall squarely upon the shoulders of the fleet operations manager.

Where drivers are taught the use of heroic, high-forces driving tactics and evasive maneuvers, rather than the skills required for safe, smooth, low-forces driving (e.g., the Failsafe Driving System®), the inevitable result is equipment abuse, shortened life expectancy, increased mechanical failure, higher costs of repairs, more downtime per crew and higher accident rates and associated repairs. Where drivers are not taught at all, similar consequences are found. In either case, the problem *appears* to be a maintenance problem. The truth is it's a problem *for* maintenance, but it is not a result of poor maintenance.

Where top management insists on inadequate fleet size (usually based upon the mistaken belief that a larger fleet amortized more slowly costs more than a smaller fleet amortized more quickly), the maintenance department suffers the results of that decision by being unable to schedule PM, repairs and shift-change procedures in an orderly way. The *symptoms* appear as inadequate PM, excessive failure rates, excessive overtime for maintenance workers, stacked-up repairs, delayed shift changes (and the resulting unscheduled overtime for field personnel), shortened equipment life, and dismal residual values of vehicles retired from the fleet. In fact, the *cause* is the false economy of inadequate fleet size—not inadequate maintenance.

When purchasing practices allow a gradual accumulation of vehicles produced by a variety of original and secondary manufacturers or a variety of component parts (e.g., a mixture of engines, alternators, wheel/tire sizes and brake assemblies), the maintenance department is forced to maintain many different things: good working relationships with several manufacturers for warranty work; in-house expertise in the maintenance and repair of several different brands of component parts; and a spare parts inventory several times larger than would otherwise be required. The *symptoms* are higher maintenance costs and reduced reliability, but the *cause* is poor purchasing practices.

These problems can be solved, with both lives and money saved, by expanding the authority and responsibility of the fleet operations manager to cover the goal statements listed above and by modifying management accounting and record-keeping practices to reveal the effects of good vs. bad management of fleet operations. To better understand the *organizational* changes needed, consider the need for *financial* restructuring.

Tracking True Fleet Operating Costs

In our sample, the second goal statement for high-performance emergency fleet operations is to hold down overall fleet operating costs. The problem is that, in traditional EMS systems, no one knows what those costs really are! And that includes traditional systems with elaborate financial and statistical reporting systems. Plenty of facts are known, but not understood.

Financially, what we really need to know is fairly simple. *We need to know what it costs us per mile to own and operate our emergency fleet.* Sounds simple enough, so why is it that only a handful of EMS providers, public or private, actually know the answer for their own fleet operations? They haven't defined what is included in "cost."

A good way to learn what is really included in your fleet operations cost is to approach the problem backward. That is, ask yourself what kinds of expenditures your system would save if, by some magic process, your medics could function entirely without vehicles. The money you would save is your true fleet operating cost. These same cost items constitute, or should constitute, your fleet operations budget. Thus, the major expenditure categories of an emergency fleet operations budget are the following:

• *Preventive maintenance and mechanical repairs*—This category is even included in the fleet operations budgets of traditional EMS systems. It mainly includes costs of maintenance personnel, contracted services (e.g., contracted transmission work), spare parts, allocated costs of utilities and space utilization and amortized costs of diagnostic and repair equipment.

• *Cost of fuel*—Oddly enough, in traditional systems, this cost item is often excluded from the maintenance program budget, even though the quality of maintenance can substantially affect rates of fuel consumption. The best way to control fuel consumption costs is to incorporate fuel costs within the fleet operations budget.

• *Net amortized vehicle costs*—Since net amortized vehicle costs (i.e., original cost less residual value, amortized) can be greatly affected by the quality of maintenance, and since the costs of providing quality maintenance can be greatly affected by vehicle purchasing and replacement policies, both of these cost items should be accounted for and controlled within the fleet operations budget.

• *Driver training and driver incentive program costs*—Costs of driver training and related incentive programs, if any, are rarely included in the fleet operations budget. They should be. The way your vehicles are driven is perhaps the most significant factor in controlling the costs of mechanical repairs, fuel economy, safe, useful life, uninsured accidental damage, and even residual value upon retirement from the fleet. A few dollars spent teaching low-forces driving skills and on related financial incentives will be more than offset by lower overall fleet operating costs.

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• *Costs of uninsured accidental damage.* In order of importance, four factors affect costs of uninsured accidental damage: driver training and follow up, the size of the insurance deductible, type and manufacturer of the vehicle and efficiency with which repairs are made. Notice that in traditional system structures, the maintenance manager controls only one of these factors—the one that matters least. (Note: Effective management of fleet operations can simultaneously lower costs of uninsured accidental damage *and* justify higher deductible insurance coverage, thus lowering insurance costs, too.)

• *Costs of equipment-related unit-hour downtime.* Here we are talking about the value of productive manpower wasted as a result of vehicle malfunction, lack of a ready vehicle at the time of shift change or slow shift-change procedures. When an on-duty crew is interrupted during a run or is unavailable for dispatch due to vehicle malfunction, the cost of that crew's wages and fringe benefits from the moment of malfunction until the crew is in another vehicle and ready to roll (or the original vehicle is repaired) is entirely wasted. The same is true of time spent at the start of a shift waiting for a vehicle to be readied for service and time spent on unnecessarily cumbersome check-out procedures. In traditional systems, these costs are often not accounted for at all. In high-performance EMS systems, they are included and controlled within the fleet operations budget.

Notice that all of the costs discussed above would evaporate entirely if by some magic we could deliver EMS without using vehicles. These costs are the true costs of fleet operations. It is a little-known but important fact that, when viewed in this broader and more accurate context, a higher cost PM program may actually be less expensive than a cheaper PM program. That is because spending more money on PM (e.g., replacing or repairing parts *before* they fail) can simultaneously reduce equipment failure rates and lower overall fleet operating costs by extending equipment life, reducing unit-hour downtime, increasing the residual value of vehicles retired from the fleet and improving fuel economy.

Did you also notice that midway through this article the concept of fleet maintenance was broadened by switching to the term "fleet operations?" That change was deliberate. Fleet maintenance (i.e., PM and repairs) is only one of six major factors that affect fleet operating costs and fleet reliability. To control any cost, the cost must be budgeted and placed under the control of a manager with authority over most, if not all, of the factors that affect the expenditures in question. *In the best high-performance EMS systems, all six of the cost categories fall within the fleet operations budget and under the control of the fleet operations manager.*

This discussion of management control of fleet operations is continued in the book, ***HPEMS****, by Jack Stout, to be published by Jems Publishing Co.*

Jack Stout has been at the forefront of innovations in the design and implementation of EMS systems for the past dozen years. If you have a question, a problem or a solution related to the public/private interface in prehospital care, address your letter to *Interface*, JEMS, P.O. Box 1026, Solana Beach, CA 92075.