

The ROI of Trade Labor

by Matt Adams, P.E.

Much has been said about the budgets for our plant departments. Considerable progress has been made in justifying increases in staff roles for trade labor. Consistent with the proposal for increases in maintenance staff budgets are efforts to maximize the effectiveness of that resource. It is not enough to increase the size of our staff; best practices dictate that we make every effort to optimize the utilization of our trade staff resource. While this goal seems intuitively obvious to most of us, the specifics of its realization are not. For example, what percentage of each trade-person's annual available hours is actually utilized for true maintenance work? Are the numbers for your institution as good as they could or should be?

It is hard to find experienced, qualified trade staff. The recent construction boom has made it even more difficult for our public institutions to attract skilled staff. For the staff that we have, each full-time equivalent, or FTE, results in much less than the 2,080 hours of wrench-turning time we might expect. In fact, when you take each person and subtract their benefits there is typically only 1,750 hours—give or take—available for working during the year. Each institution should calculate this average value for its staff. The generous benefits that most of our institutions grant staff make it that much more imperative that we value the potential productive time available. In essence, we are starting with less productivity time compared with the private sector.



To find the return on investment (ROI) for our trade labor, we first must know the costs. The cost of the salary and benefits are obvious. Less obvious is the cost per hour of available or actually delivered labor. With only 1,750 maximum hours available for work, the cost per hour is much higher than most consider. In fact, the

maximum is never realized within our institutions. There are many intended and unintended obstacles or deductions from the available hours for each trade person. For example, there are breaks, lunch, travel time, shop time, etc. Any task other than actual trade work is a deduction from the available time for each person. Looking at this on an annualized basis, we see that we are really shortchanged. Given this reality, any effort to increase the utilization of trade labor has a meaningful ROI.

ROI is important in evaluating operational improvements for our plant maintenance departments. Based on the structural limitations discussed



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earlier, the actual cost per hour of working time is high—higher than most of us realize. Furthermore, the cost per hour is not the only element of cost to the institution. It is assumed that we all have constrained budgets and are normally short on funding. As such, the cost of work not performed by trade staff becomes highly relevant. Put another way, considering that we have more work to do than we have staff, the cost of any “non-work” deduction from each person’s annual pool of hours exceeds their salary. In fact, there is a significant opportunity lost/cost. Let’s assume the cost per hour for a plumber is \$50. This is based on salary, benefits, overhead allocations, and only 1,750 hours available per year. In order to evaluate the merits of proposed operational changes, we must calculate the value, or better the ROI, of our trade labor. If an operational improvement costs our institution x dollars, but enables a

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trade person to have 1 hour more per week to turn a wrench, we will make this change if the value of that hour of work is 2x. So what else is there to this value proposition above and beyond the \$50 per hour previously determined?

If we are considering adding staff to deliver materials from the storeroom to the trade staff, we know what this additional staff costs. The value

created by saving travel time for trade staff is rooted not only in the cost per hour from salary, but also the value of potential increases in work delivered. What is the worth if, as a result of making this change, trade staff are able to execute more preventive maintenance (PM)? This is an essential question for institutions trying to make the transition from reactive to planned maintenance operations. To determine this, we need to know the cost of not performing preventive maintenance. The cost to the institution of not performing preventive maintenance is equal to the value delivered by performing it. This is the ROI.

Unplanned maintenance is directly related to planned maintenance. There is a trade-off relationship that we all recognize. By surveying the published references available to us, we can determine that unplanned maintenance is approximated by 150 percent of theoretical planned maintenance. While statistical records from sources like RS Means and Whitestone support this figure, common sense also justifies this based on the following facts:

- Unplanned maintenance often requires overtime, as failures do not occur on our schedule.
- Unplanned failures generally require more invasive procedures for correction.
- Lack of planned, preventive maintenance results in a reduced life cycle or asset consumption as a significant cost.
- Outages and reactive actions have a negative impact on the productivity of any plant management operation. For the trade person that costs \$50 dollars per hour, the net cost of unplanned maintenance per hour is \$75 – \$50 per hour for salary, benefits, etc., and \$25 per hour for unplanned maintenance avoidance.

If the cost of not performing preventive or planned maintenance is approximated by 150 percent of the

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cost of doing PM, we can make real value judgments for operational change. Given that we are trying to increase the level of PM within our institutions, and almost all of us are, we can determine ROI based on adding PM work to our stewardship activities. Using the same example as before, we might determine that adding expeditors to the storeroom for parts delivery would reduce travel

“By removing as many obstacles and interruptions as we can from their workday, our ROI can only increase. With an increase in productivity comes the possibility of more PM projects being executed.”

time of the trade staff equal to 40 hours per month. This is valued by multiplying the hours saved in travel time each month (40) by the salary and overhead of the trade staff and the UPM avoidance (\$50 and \$25, respectively), which will yield \$3,000 per month. The formula would be as follows:

$$\begin{aligned} 40 \text{ hr/m} \times (\$50 + \$25) &= \\ \$3,000/\text{m} \text{ or} \\ 40 \text{ hr/m} \times \$75 &= \$3,000/\text{m} \end{aligned}$$

Every institution would like to increase the number of hours available for true maintenance work. It is important to realize the value of our skilled trade people, knowing that downtime does occur with trips made back and forth to the shop. This type of interruption invites more interruptions in their workday. An expeditor would not only increase their productivity, but would afford more time available for PM activities. For this proposed initiative to break even, the cost of the new person, or expeditor, must not exceed \$36,000 per year. The point is that the trade labor is now fully valued or recognized based on an ROI that more intrinsically represents the total cost to the institution.

To summarize, we all want to get the best return on investment when it comes to labor. Obtaining and maintaining a strong level of skilled trade people in today's world is not an easy task. However, the skilled individuals we do have on staff need to be fully utilized during the 1,750 hours they have for wrench-turning each year. By removing as many obstacles and interruptions as possible from their workday, our ROI can only increase. With an increase in productivity comes the possibility of more planned maintenance projects being executed. As stated earlier, the cost to the institution of not performing PM is equal to the value delivered by performing it. Do we, as institutions, have an idea of the percentage of each of our trade person's available hours for maintenance work; and, is it as good as it could be? ▲



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