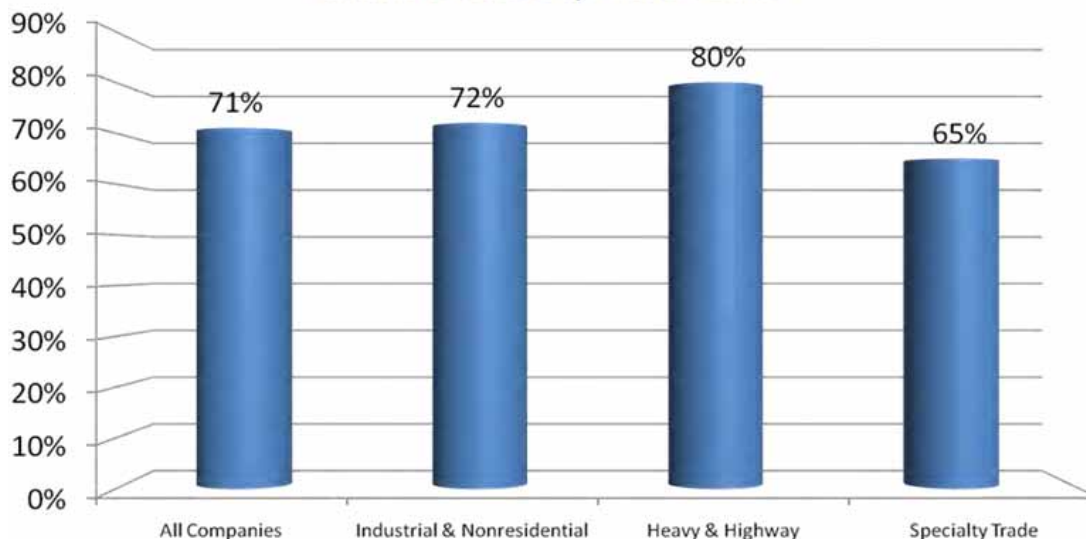


75 Ways to Reduce Equipment Costs in a Downturned Market

By Preston Ingalls, President/CEO of TBR Strategies, LLC

Percent of Contractors Indicating Business Conditions Are Worse Than One Year Ago

Construction Projections-2009



A survey (shown above) conducted at the end of 2008 by the Construction Financial Managers Association (CFMA) indicates the severity of the recession on their businesses.

In this article, I am going to provide you 75 ways to reduce equipment costs—some will have more impact than others—some will be easier than others. Some will net more savings than others, but all 75 will help you to lower your equipment costs, netting and impact to the bottom-line.

The average heavy highway construction company has no less than 25 to 30% waste in their maintenance costs. That is the “low lying fruit.”

If you spend \$5 million a year on equipment—this can result in a net savings of \$1.5 to 2.5 million a year... straight to the bottom line

The question; how much work would you have to do to net that amount of profit? Think about it. While 25-30% is typical, you can actually reduce it as much as 50% if you are aggressive and dedicated. One of our clients, Barriere Construction LLC, in New Orleans, reduced their costs by 52% over several years by taking a structured approach called Total Process Reliability (TPR). They spend less than 1% of their revenue on maintenance costs. They did that while increasing revenue from \$60 million a year to \$190 million over that time period.

In recognition of their efforts and focus on improving their costs and processes, they won the 2004 and 2009 Fleet Masters Award, given by the Association for Equipment Management Professionals (AEMP). So, it is achievable.

Let's look at ten opportunity areas.

- A. *Reducing Maintenance Labor Costs*
- B. *Reducing Materials Costs*
- C. *Lowering Fuel Costs*
- D. *Increasing Utilization by Shedding Unnecessary Equipment*
- E. *Lowering the Cost of Preventive Maintenance*
- F. *Outsourcing Maintenance*
- G. *Tracking and Analyzing Equipment Costs*
- H. *Analyzing Shop Configuration*
- I. *Extending your Mean Time to Replace*
- J. *Improving Lubrication Practices*

Reducing Maintenance Labor Costs

1. Hold a cap on overtime. Ten percent is a reasonable expectation for a busy group and 5% is considered World Class.
2. Hold meetings with the shops and field mechanics and stress the need to lower costs so people can keep their jobs. Challenge them to come up with savings—you may be surprised with their ideas.
3. Shorten the work week from 5 to 4 days—if your business is down, your level of support should as well.
4. If worse comes to worse, you can have your shop supervisor spend part of his time turning wrenches and downsize one mechanic.
5. Use this opportunity to weed out the “non-productives.”
6. Ask the shop supervisors who the most productive mechanics are and reduce the hours on those that are not or reduce them
7. Plan and schedule work will improve maintenance wrench time or productivity on an average of 50 to 80%. You can cost justify a fulltime maintenance planner if you

have at least six craftsmen. A prepped job goes faster than an un-prepped job. Dedicate and train one as a planner and it can actually double the amount of work you perform or enable you to operate at a smaller complement of personnel. Contact me at pingalls@tbr-strategies.com if you want to know some different sources and seminars for training planners.

8. Use the downtime to invest in upgrading skills—invest in training. It won't be an immediate payback but will be a long-term one. Five to six percent of payroll dollars is normal.
9. Train operators in Basic Care. A well trained operator can detect 70% of all potential problems on equipment—if trained. They can also help offload some work from the shop and field mechanics.
10. Make sure your mechanics and technicians have the necessary skill sets. Poorly trained craftsmen take longer to perform their jobs and produce more call-backs. Might be time for some coaching to improve efficiencies.
11. Eliminate “buddy jobs” if they aren't really needed for safety—do you really need to send two.
12. Assess the work better. Emergencies cost more—is this job really an emergency? Can it be done later at a lower cost?
13. Make sure there is adequate oversight—work can take longer and cost more if it is not being sufficiently supervised—“*inspect what you expect*”... *audit to ensure quality and minimize errors.*

Reducing Materials Costs

14. Use planning and scheduling to have materials available on time without having to spend the extra to expedite (hot shot, overnight, etc).
15. Improve inventory control by making sure there is an inventory of all items along with their locations and they have assigned bins. So much time is wasted searching and retrieving parts.

16. Make sure there is a spending approval levels to avoid excessive spending and buying.
17. Use lower cost labor to pick-up and deliver parts—it is wasted costs for mechanics and technicians to do so and a lost opportunity as to what they could be doing instead.
18. Use “less applied labor” to purge unnecessary parts and materials. The cost to sit there (carrying cost), especially if the parts room is manned, averages 25 to 35% of the inventory value. Verify that the supported equipment is still in service and eliminate obsolete and never used parts.
19. Track turn rates (how often items and inventory value turn) to improve efficiency and cost—industry average is one turn a year—World Class is two to four turns a year.
20. Clean the sores or parts room. Clutter and trash make it unsafe and difficult to search and retrieve.
21. Have a designated location staged or kitted jobs for upcoming work. This reduces the cycle time to complete work by having a “go to” place for kitted work.
22. Produce standard kits for PMs (filters, belts, etc) to shorten prep time.
23. Implement a reliability program that identifies and corrects defects through a root cause analysis process, reducing the need to perform certain activities. If I can eliminate the need, I can reduce my costs. This is Proactive maintenance. It reduces the needs for parts... and labor... and downtime.
24. Use consignment parts as much as possible—you only pay for it when it is used.
25. Use vendor stocking as much as possible. Especially if the vendor is close by. There is no use to stock it when it can be stocked elsewhere at someone else’s expense.
26. Collect all the uncontrolled satellite stores (pigeon-holed and rat-holed parts) to eliminate ordering parts already available.
27. Use a computerized maintenance management system (CMMS) to manage parts—unmanaged parts usually will cost 3 to 4 times their value.
28. Label everything to make it easier to find—time is money.
29. Look for bulk deals (grease, oil, etc)... shop around.
30. If you have over 2000 line items (individual SKUs) you can justify a fulltime attendant/purchasing person to help control costs and secure parts-room from random and undocumented issues as well as theft. If you have that much inventory—you are already paying NOT to have someone there.
31. Develop Bill of Materials (BOMs) for each piece of equipment; at least crucial equipment.
32. Use cycle counting (randomly generated counts) to provide an ongoing count—improves inventory accuracy.
33. Eliminate redundant parts and material from different suppliers. I have seen as many as five different drums of SAE 30 oil from different suppliers in the same shop.
34. Identify critical or insurance spares. They are handled separate from the other parts and should be listed. There is a formula to help distinguish non-critical from critical.
35. Improve safety stock calculation—review and refine.
36. Develop a rigorous adherence to inventory control. The process is a science... not an art

Lowering Fuel Costs

37. Minimize “human touch” as much as possible—the more automated the more accurate.
38. Fuel management technology can take the face of many forms including electronics that have helped reduce fuel consumption through direct injection, variable valve timing and other technologies. Fuel Telematics include GPS monitoring, fuel usage and burn rates, driver driving behavior and equipment usage
 - Controlling your cost in this challenging economy through Fuel Telematics

utilization should be a must for all companies and absolutely essential for those companies with medium to large fleets from 50 pieces of equipment and up.

- Typical installation is \$300 to \$500 per vehicle and \$30 to \$50 a month monitoring and it is worth every penny.
- Fuel Telematics are designed to keep you in control of your own equipment, monitor your personnel and control your cost and the utilization of both.
- Fuel Telematics vary by system and their implementation are not all the same.
- It is a effective method to control your cost, increase productivity and to ensure that your investment in the equipment and personnel are a return a good ROI
- Utilizing GPS/Telematics System will:
 - Lower your job response time
 - Increase planning/scheduling effectiveness, by knowing **exactly** where your equipment is located
 - Tell you how long your equipment is sitting idle
 - Lower gas consumption through accurate monitoring
 - Identify improvements with the gathered data
 - If you don't use Telematics, sample burn rate to see what it really is
 - *Cat Performance Handbook has Low-Med-High rates but engine efficiency and application can alter GPH*
- Other benefits include:
 - Reduce fuel costs by monitoring inappropriate routes taken by drivers, private mileage/unauthorized use, excessive speeds, idling etc
 - Verify time/job sheets by journey reports
 - Monitor load-out time

- Determine how long a truck is in front of a paver
- Find out how many cubic yards were excavated today
- Provide satellite navigation to aid your drivers in their daily tasks
- Provide wireless communications to improve communications between your mobile workforce and office
- Remotely monitor mileage for service schedules (PM)

Increasing Utilization by Shedding Unnecessary Equipment

- 39. Run a utilization report that shows each piece of equipment's utilization against its target (or budgeted hours)
- 40. Analyze its utilization against targeted revenue hours (see example below)

	2008	2007
Description	Variance	Variance
<i>Bomag Rollers</i>	-10%	-35%
<i>Chippers</i>	-34%	-27%
<i>Crackseal</i>	-41%	-55%
<i>Distributor</i>	-32%	-27%
<i>Dump Truck</i>	-64%	-66%
<i>Flatbed</i>	-35%	-11%
<i>Grader</i>	-8%	46%
<i>Loader</i>	-35%	-48%
<i>Little Steel Roller</i>	-31%	-18%
<i>Micro Paver</i>	-16%	-32%
<i>CMI Milling</i>	-31%	-44%

- 41. Analyze its utilization against annual operating and ownership costs—start with maintenance costs (see example next page)

Number	Description	AVG Maint \$/YR	5 YR Total	Replacement Cost	Replacement as % of 5 YR	Current or Residual Value	Annual Cost % of Value	Utilization % of '08 Target
P-150	1995 Midland Paver	\$ 90,495.60	\$452,477.98	\$250,000	181%	\$100,000	90%	35%
M-56	1995 CMI Milling	\$ 80,120.01	\$400,600.04	\$750,000	53%	\$125,000	64%	39%
P-162	1999 Vogeles Paver	\$ 75,528.95	\$377,644.76	\$650,000	58%	\$300,000	25%	51%
P-158	Midland Mix Paver	\$ 71,212.60	\$356,063.02	\$650,000	55%	\$125,000	57%	56%
M-63	2000 CMI Milling	\$ 66,326.16	\$331,630.79	\$750,000	44%	\$175,000	38%	57%
R-7	2002 Reclaimer	\$ 60,091.45	\$300,457.24	\$450,000	67%	\$200,000	30%	70%
P-159	1997 Vogeles Paver	\$ 56,841.00	\$284,205.01	\$650,000	44%	\$250,000	23%	33%
P-81	1977 Midland Paver	\$ 45,259.70	\$226,298.48	\$250,000	91%	\$50,000	91%	51%
R-9	CMI Reclaimer	\$ 44,455.57	\$222,277.84	\$450,000	49%	\$150,000	30%	39%

42. Measure equipment against the cost to have and to hold as well as its revenue generating ability
 - *“Bury the dead dogs and feed the rest.”* Separate from the emotional need to have so much spare equipment and purge it... *“Heal the wounded...Shoot the stragglers.”*
43. Look for alternative uses of equipment—is there any other function it could serve to generate revenue?
44. Always charge for idle time (that should be at least the ownership cost).
45. Develop a Equipment Optimization Team to conduct the analyses and make recommendations on elimination of equipment
46. Set targets. Our experiences show that most fleets have 20 to 25% opportunity for reduction of surplus equipment.
47. Is the equipment really a utilized spare or a JIC spare (Just in Case)? If you improved the efficiency and reliability of your existing equipment, you wouldn't need as many back-ups. Challenge its classification.

48. Develop strategic partnerships or alliances with others to rent your equipment to increase utilization—get out of the box—if it is sitting it doesn't pay for itself.

Lowering the Cost of Preventive Maintenance

49. Shed non-value-added PMs; about 25% are often considered non-valued added. That means you are spending money doing non-valued added PMs.
50. Extend PM frequencies—it may surprise you as to what you can do. Just track the changes to ensure no degradation or issues have arisen.

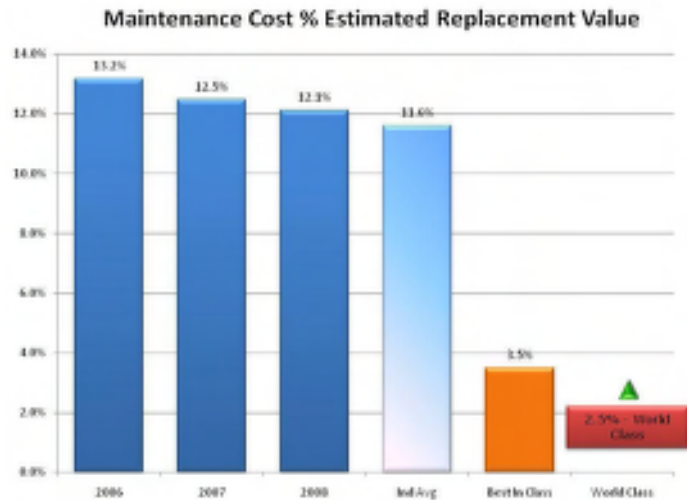
Outsourcing Maintenance

51. Look for every opportunity to outsource maintenance services. You cannot retain core competencies in every area nor should you try. Look for those services that make sense due to the degree of specialization, uniqueness of facilities or equipment support, and frequency of use

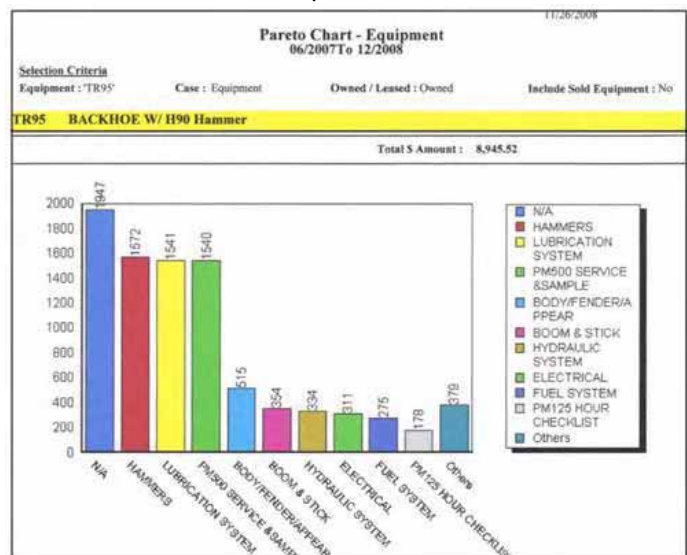
- a. Tires, Painting, Transmission work, Welding
- 52. Look at the possibility of outsourcing your parts room. There are companies that will do it if the inventory value and purchases per year warrant it. You sell them the inventory and they sell it back. Less hassle if done right.
- 53. Maintain strong relationships with your outsourcing partner and manage them just as you would your own folks. Have routine planning meetings and periodic (quarterly progress review) meetings
- 54. Measure all key vendors using Key Performance Indicators (KPIs)—hold them accountable for performance and costs—set goals and measures—make the expectations clear
- 55. Help your major suppliers/vendors to improve. They may not know how and you are only as strong as your weakest link. Show them techniques and how to improve their processes.

Tracking and Analyzing Equipment Costs

- 56. Use a Computerized Maintenance Management System to track all your maintenance cost and histories. Try to have an integrated or Enterprise systems versus a CMMS that is linked. You lose efficiencies when you have to bridge information.
- 57. Charge all maintenance costs (labor and material) to equipment.
- 58. Maintaining good equipment histories on all equipment helps to identify problem-some and costly equipment.
- 59. Focus on 80/20 rule, 80% of your problems will come from 20% of your components.
- 60. Work orders should cover 100% of all work in order to have accurate costing.
- 61. Know how your maintenance costs compares to others (benchmark). The chart below shows maintenance costs as a percent of estimated replacement value, a universal measure of “Am I spending too much or not enough on my equipment?”



- 62. Ensure you have good maintenance practices. Maintenance systems are like accounting systems. There are some minimal expectations as to how they should work. The problem is that many folks have been promoted up from the ranks without a thorough knowledge as to what that looks like. You may need some outside help if you don't think it is as efficiently as it should be.
- 63. Develop a Pareto Chart of your most costly equipment (Culprits List) and find out why it is so costly in order to eliminate the costs. Then Pareto costs within each. The chart below is an example of a Pareto.



64. Set goals to reduce costs on certain equipment (i.e., 30%) and attack it with a small team with a 45-day time limit. These are called Breakthrough Teams and can be very effective in going after the culprits to reduce costs.

Analyzing Shop Configuration

65. Analyze the value of a centralized versus decentralized shop arrangement if you have multiple shops. In many cases, you can maintain a higher quality shop in a central location than trying to spread them out over multiple locations.
66. Analyze outsourcing availabilities before making any major decisions on shop sizes and configurations; this could alter the size of your shop.
67. Examine the cost of movement of personnel and equipment to and from both. Develop a cost analysis and justification.
68. Examine the cost of the shops and compare to others in the industry. See the benchmarks in the article <http://www.constructionequipment.com/article/CA515040.html?text=benchmarks>

Extending your MTTR (Mean Time to Replace)

69. Look at keeping your equipment longer. This can help reduce your capital expenditures. If you couple this with increasing utilization, your ROI improves significantly.
- Your operating costs will most likely rise but if you do good PM and manage the

conditions of your wear parts (keeping a history here helps enormously with projections)

70. Look at a schedule for Equipment Replacement Plan; 5 years for vehicular stock, 7 years production stock and 8 years specialty (unique) stock—play with it
- Be careful, this means servicing it well enough to avoid accelerating deterioration
 - At 10 years duration with 1500 hours per year increased to 12 years, an example hourly ownership cost for this equipment goes from \$9.03 per hour to \$8.99 per hour (4 cents per hour)
 - But, increasing utilization from 1500 hours per year to 1800 per year, the hourly ownership rate goes from \$9.03 per hour to \$7.96 per hour (over a dollar per hour savings)—running it more produces better returns.

Improving Lubrication Practices

71. Consolidate lube types to minimize duplication
72. Improve lube storage and handling since 50% of all lube related failures are due to poor handling and storage practices
73. Shop around for bulk deals—hungrier suppliers now than a year ago
74. Use the Economic Order Quantity formula when purchasing to ensure you don't purchase too much of a "good deal"

75. As the chart below illustrates, wise shopping for lubrication and savings from more efficient repair and maintenance which includes Proactive Maintenance can produce the largest savings in lubrication.



Source: H. Peter Jost's "Projected Economic Benefits Associated with Improved Lubrication Design and Practice" Uptime Magazine Feb/Mar 2009

Improving costs means focusing on waste. Given the current tight economic times, there never has been more of a reason to tackle these issues than now.

TBR stands for Team-Based Reliability, an approach that engages the people in your organization in improving reliability and maintenance of your equipment. TBR Strategies, LLC is able to achieve desired results by getting your employees to work together toward a common goal...fleet uptime. TBR has extensive experience in construction fleets, pharmaceutical, chemical, and oil and gas production.