FREQUENTLY ASKED QUESTIONS SERIES:
Work Management and Planning & Scheduling

This resource guide answers 10 of the questions most frequently asked of LCE subject matter experts in the areas of work management and planning & scheduling
QUESTION #1:
How should I address incidental materials when planning a work order?

ANSWER #1:
When planning out material requirements for any maintenance work, do not forget to include the incidental materials. This will minimize the number and magnitude of delays and wait time during execution of the work. Incidents may include such things as pipe hangers, conduit clamps, wire markers, insulated bushings, pipe sealant, routine nuts, bolts and washers, or gasket sealant.

Thorough job planning should identify these items. Even in environments where free issue or points-of-use systems are in place, delays will result. Including items such as these in the material list for the work order will help the work to proceed faster. It will also raise the standard of work and level of detail that workers expect, strengthening the planning process.

So remember, don’t forget the small stuff.

QUESTION #2:
My connection with my supervisor isn’t very good. How can I improve the way we communicate?

ANSWER #2:
Successful maintenance organizations are built around effective communications between all functions within the organization. The question that should be asked is “How effective are we in our communications?” In many cases, individuals are not effective communicators, don’t see a need or will not communicate.

A planner/scheduler and the first line supervisor have to become a synchronized team that anticipates each other’s needs. To accomplish this relationship, daily dialogue is essential. Establish daily morning discussions to update the previous day and current work progress, in-planning backlog and future scheduling. Afternoon dialogue typically covers clarification of work scopes, future scheduling, and manpower availability as well as other work planning issues.

Developing a relationship this close requires a commitment from both parties for long-term success. Once in place and a part of their daily routine, the effectiveness will roll over into crew communications as well.

QUESTION #3:
My facility implemented Planning and Scheduling several years ago, but we don’t seem to be seeing the results that we anticipated. What could be holding us back?

ANSWER #3:
There are many factors that could be contributing to your lack of results. The first is a lack of support from the entire organization to the role of planning and scheduling. This lack of support can be manifested in various ways.

1. Planning and scheduling is not accepted as one of the three core functions of maintenance.
2. The planning and scheduling function is too low in the maintenance organization, resulting in little support when key decisions are required.
3. The role is not staffed as a management position, and compensation is just above that of a day shift maintenance technician.
4. The planner function is viewed as a fill-in position for supervisors or when additional maintenance labor is needed for peak times or shutdowns.
5. The planner function is used as a parts expediter, an emergency procurement clerk. The planner is also assigned other responsibilities as needed by management.

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The second factor is the capability of the individual performing the planner/scheduler function. The person has to have the technical background of maintenance and a proactive maintenance mind set. True planner/schedulers work in the “next week and beyond” time frame. The selection process for the right planner/scheduler should be as detailed and comprehensive as for any managerial position.

The third factor is the type and amount of training planner/schedulers receive. Training on the roles and responsibilities of planners, the CMMS, purchase requisitions, and workflow have to be conducted as part of new planner orientation. Continuing education and training is required in order to maintain proficiency in their technical.trade backgrounds as well as staying up-to-date on the latest technology to support the organization.

QUESTION #4:
Each week a schedule of maintenance activity is developed and confirmed for the following week. However, it seems that I get hit with “oh, by the way” planned and ready work that has been overlooked or missed. What can I do to minimize these oversights?

ANSWER #4:
Many times circumstances come up that impact a confirmed schedule at the last moment. These circumstances must be addressed. The best way to minimize this trend is to develop a rolling scheduling forecast. Four weeks is a reasonable forecast but it could easily expand further into the future. The forecast is a tool to help the Planner/Scheduler build schedules by working in the future based on what they know or project to come into the scheduling picture. Each forecast week lists the anticipated PM loading, predetermined work that is coming up, and any labor availability issues. As the forecast week approaches the scheduling time frame, all aspects of the coming work are visible with less chance of oversight. Labor or material shortages and equipment access can be identified early and adjustments can be made to head off any further delays. Operations and maintenance should have full access to the rolling schedule forecast and updates can be reviewed at the end of the weekly schedule confirmation meeting.

QUESTION #5:
We have a weekly scheduling meeting to establish our maintenance schedule for the following week. This meeting doesn't seem to be as productive as we feel it should be. How long should this meeting take and who should attend?

ANSWER #5:
There are several factors to consider. First, you need to clearly define the objective of the meeting. This meeting is for final schedule negotiations that consider operation’s ability to grant access to equipment for which maintenance has identified “ready work” and sufficient labor to complete the work. This meeting does not address planning issues.

Second, the meeting should last one hour or less, based on all parties coming to the meeting fully prepared. This meeting is not to start the scheduling process but to finalize the schedule.

Third, only those individuals that have specific responsibilities in the scheduling process should attend the meeting. They would include Planner/Schedulers, Maintenance supervision and an Operation’s representative. The Operation’s representative must have knowledge of the production schedule, the authorization to grant equipment/process downtime and the support of Operations management to back his decisions. Typically this position is called an Operations/Maintenance Coordinator (OMC). Any additional attendees are only on an as-needed support role basis.
QUESTION #6:
What is the proper ratio of Planner/Schedulers to tradespersons? We have a 20:1 ratio, but our Planner/Schedulers still seem to be overloaded.

ANSWER #6:
Your current ratio is what is considered a best-practice ratio. However, the current state of maintenance is a major factor impacting the ratio, and elements that make that best-practice ratio possible may have not been factored in.

- Is there a large amount of reactive/breakdown maintenance taking place?
- What is the state of materials management? Is there a high level of accuracy in the storeroom with well established Bills of Materials (BOMs) for all equipment?
- Is equipment history complete and reliable?
- Are there pre-determined job plans in place with lists of required tools, equipment, materials and associated documentation?
- What is the method of labor estimating?
- Do planner/schedulers have additional, non-related responsibilities?

If the answers to these questions acknowledge that some of these areas need improvement, then the ratio has to be reduced to compensate for the additional time to plan and schedule to the level of expectation. As these issues are addressed, the ratio can be adjusted toward the best-practice ratio of 20:1.

QUESTION #7:
I hear a great deal about knowing how much backlog I have and managing it. Why is it so important and how much is the right amount?

ANSWER #7:
Backlog is used as one of the leading indicators of maintenance performance metrics. It is an index used to determine how well maintenance is keeping up with the rate of work generation. It can also be used to help establish the proper size and composition of the maintenance work force for a particular area or facility. Backlog is the element that allows the maintenance department to make promises to their partners in operations and live up to those promises. It is the tool we use to determine what work would fit into a window of opportunity and allow us to take advantage of it while at the same time allowing us to minimize downtime of production and optimize our maintenance resources.

Backlog allows us to plan for tomorrow, so we can improve our reliability and production requirements, and through the scheduling process, to meet our customers’ needs today. The target is to manage the backlog within the ranges of four-to-six weeks of “total” backlog and two-to-four weeks of “ready” backlog. Total backlog includes all work orders in the system up to the status of “scheduled”. Ready backlog is that portion of the total that is “ready to schedule”.

QUESTION #8:
You say my backlog should be in weeks to give the best picture of how much I have. How do I go about determining weeks of backlog?

ANSWER #8:
Accurate estimates are among the most important factors for success of any backlog. These estimates are what we use to establish, measure and track backlog. Well-trained and qualified Planners are also critical to the process. They supply the work order estimate that establishes the backlog. Planners use various methods to calculate the estimate for jobs: personal experience, modified history, reliability engineering, OEM manuals, floor supervisors, tradesmen, etc. To calculate an accurate

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backlog, all planned work orders must have labor estimates. From there you can run a backlog report on a pre-determined frequency and develop trend charts for those who manage the area/facility so they can better manage any loss of production due to maintenance activities.

**Example:**

Total labor-hours to complete all open work orders  \(= 1880 \text{ m/hrs} \)

Total labor-hours available to complete work  \(= 375 \text{ m/hrs} \)

\((10 \text{ technicians} \times 40 = 400 – \text{lunch} (0.5 \times 5 \times 10) = 375 \text{ hours})\)

\[
1880 \text{ m/hrs} / 375 \text{ m/hrs} = 5.01 \text{ Weeks Total Backlog}
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This indicates an ability to maintain the current backlog, with the current resource level, within the four-to-six week threshold.

**QUESTION #9:**

My maintenance workforce is a mixture of experienced (15-20 years) and lesser experienced (less than five years) technicians. What level of experience should I use when planning work?

**ANSWER #9:**

Keep in mind that one of the main goals of planning is to reduce delays and interruptions during work execution. Thorough work planning should be built around the scope of the work, not the potential technician that may be assigned to do the work. Experienced technicians use work plans as reference to make sure they do not overlook an aspect of the task which might happen if they just recall the work from memory. Less-experienced technicians are not as familiar with the equipment and processes and need the plan to help them gain expertise in maintaining the equipment.

**QUESTION #10:**

What are the elements that contribute to a thoroughly planned work package?

**ANSWER #10:**

There are basically five areas that if addressed properly would result in a well planned work order:

1. The right people – This focuses on the correct skills required for the scope of work, how many and how long (labor estimates) it will take to complete.
2. The right place – Accurate identification of the process, equipment and location to reduce travel, investigation and setup times.
3. The right time – Windows of opportunity to gain access, and operations’ expectation of starting or completing the work. This will assist the scheduling process.
4. The right parts, tools and equipment – All repair parts identified, ordered and on-hand before scheduling. Arrangements are made for additional specialty tools and equipment.
5. The specifications, permits, hazards, work instructions and or appropriate documentation are included as part of the work package.

If these elements are addressed with sufficient detail, the opportunity for the work to be completed within the scheduled window, with minimal delays and waits, will be greatly increased.

Life Cycle Engineering offers classes and services to help you lower maintenance costs and improve productivity by using planning and scheduling best practices (Click on links to learn more):

- Maintenance Planning and Scheduling Course
- Planning for Shutdowns, Turnarounds and Outages Course
- Planning and Scheduling Best Practices Assessment and Coaching