

# Phoenix WorkStream Scheduling



## WorkStream Management

Driving Early Project Delivery with Phoenix  
Project Manager

# Executive Summary

As a team member on any project, you are focused on project delivery: meeting project objectives early and keeping control of the project budget. But is your project schedule helping you to achieve these goals? Most project schedules today fail to perform their most fundamental tasks: communicating the project plan effectively to every level of the project team, and identifying activities that are falling behind, enabling a corrective action plan to be implemented.

There are two basic problems with the standard bar chart schedule:

1. The printout of the bar chart schedule is difficult to read, and following relationships is impractical in a complex schedule.
2. Current scheduling systems inadequately display status by not transparently displaying which activities are ahead, behind or on schedule.

Phoenix Project Manager's WorkStream process gives you powerful project management tools that can improve your project delivery by simplifying complex projects into easier to understand WorkStream diagrams, and improving visibility of progress to allow continual monitoring. Two key WorkStream features introduced in this paper are:

WorkStream Network Diagram:

- Grounded in the original intent of scheduling methodology, simplify planning and scheduling by reducing your complex project to an easy to understand diagram, consumable by all project stakeholders.
- Ideal for complex construction projects where related activities can be developed into cohesive work streams, condensing the logical steps by 40-50%.
- Visualize how all the project pieces will fit together, focusing on schedule progress and accountability within a stream of work. Identify key work areas to refine your schedule and develop strategies to deliver the project faster.
- Create a practical schedule that reflects how the project will actually be executed, without losing the detailed data necessary for contract requirements.

Status on Master:

- Current schedules do not allow team members to quickly identify activities which are ahead of or behind schedule. Because all uncompleted work is simply pushed out to a later date whenever the schedule is updated, it's impossible to tell delayed work from that which simply starts later.
- Status on Master allows anybody with a schedule printout to immediately see which activities need attention, without waiting for expert reports and analysis.
- Gives you the information to communicate to the project team where the schedule is today, and where you will end up.

Phoenix Project Manager and the WorkStream process are designed to improve your project delivery by increasing visibility of project status, and improving your ability to communicate. WorkStream Network Diagram will help you to understand and communicate to the project team how the whole project fits together, and where you can proactively work to improve project performance to meet your objectives. Status on Master gives you real insight into your current progress on a per-activity basis, allowing you to target those tasks which need immediate action to avoid project delays. Phoenix is introducing the WorkStream process to re-establish the schedule as the management tool for communicating progress and driving project delivery.



Is your project schedule working for you, or is it just another report to submit to the project owner with your pay request? Project schedules today fail to perform their most fundamental tasks: communicating the project plan effectively to every level of the project team, and showing the team where the work in the field is not keeping up with the schedule on the wall. How is a project team supposed to deliver on-time or early if they don't even know where the project is today?

This paper discusses the nature of these two problems, and how Phoenix Project Manager's WorkStream process provides unique solutions which will improve your project delivery.

## The Project Management Natural Law

Everybody knows that managing complex projects is not an easy task. With all the project stakeholders, interrelated activities, and pressure to finish on time, it takes a strong project manager to understand and drive a successful project. Successful project managers understand two simple principles: every project is likely to be behind schedule at some point and change is the only constant. Understanding how these two challenges affect your projects is critical to successfully achieving on time and under budget project delivery.

Managing these factors requires the right tools that help you understand what is on schedule and what is not, and how your critical path may be changing as a result. The real challenge for project teams is identifying the activities that are falling behind and creating an appropriate corrective action plan to right the ship. The faster the team can identify the situation the more likely the project is to get back on track. There are a number of methodologies designed to identify problems after the fact, such as earned value management and cost tracking. But these techniques are generally too late in the process to head off and prevent delays--providing only a rear view mirror approach to project management.

The solution is a systematic and proactive approach to continually monitor progress. Such a process requires the project team to understand the progress for each activity, identify the activities that are behind, and develop an action plan to resolve the problem as soon as possible. While the project schedule seems like the obvious tool to drive this process, in practice, many project schedules are too complicated to be used for proactive project management. The project schedule has instead become a monthly reporting tool and vehicle for pay requests, and is merely wall art for the team actually building the project.

## The Evolution of Project Schedules

How did we get where we are today? When scheduling best practices were being developed back in the 50's and 60's for critical national defense programs, the schedule was designed as a management tool to understand the project plan and to monitor progress. Like any major project, the construction of submarines, destroyers and ballistic missiles involve thousands of activities. Faced with this management challenge, the U.S. Navy Special Projects office needed both a methodology and tools designed to streamline the development and construction process. The PERT and network diagram approach pioneered by the Navy for these projects forms the basis of modern scheduling methodology.

*"We were tasked with developing a methodology to speed the development of the Polaris Missile to defend the country against a growing nuclear threat. Developing a schedule methodology was critical to national security and we knew the importance of what we were creating."*

- Jerry Poulsen of Poulsen Construction Management and Co-Founder of Phoenix Project Management Systems helped develop early project scheduling techniques on the Polaris Missile Project.

For years, schedulers calculated and drew network diagrams for projects by hand. Even when rented time on mainframe computers became available to perform the critical path calculations, the network diagram itself was still prepared and duplicated through hand drafting.

With the development of the personal computer, early scheduling software like AlderGraf allowed schedulers to generate network diagrams directly from the software for the first time. While the process remained somewhat laborious, the network diagram produced by this software remained an accurate and useful tool for project management.

However, with the advent of schedule tools like Primavera and Microsoft Project scheduling was made easier and more accessible through the adoption of the Bar or Gantt Chart as a standard format. This adoption was driven largely by new graphical operating systems which made displaying data in a tabular view more convenient. While this tabular view of data made the input of schedule data easier, it made viewing the schedule as a cohesive whole more difficult, as relationships between activities began to span pages and pages of printouts. Yet, in the face of the popularity of this software with busy project managers, other tried and true ways to view and manage schedules fell by the wayside.

### **Today's Schedules are too Difficult to Read and Understand**

The Bar Chart has now become the primary tool to manage a schedule and is widely identified as the standard scheduling view by the project management community. The tabular format remains its greatest strength, which allows the scheduler to quickly construct a list of activities and assign attributes like dates, durations, logic, and resources to individual activities. However, with the ever-growing complexity of projects, bar chart schedules have grown increasingly difficult to read, and using one to get an accurate picture of project status has become next to impossible.

The Gantt chart's rigid tabular nature makes following logic ties in a larger schedule an exercise in futility, as the activity list dictates where activities appear, rather than logical ties. Relationships between activities are not only paramount for calculating the critical path, but also for understanding how activities relate to one another. Rather than a tool to understand the project, a contemporary Bar Chart schedule is just another report that is submitted to the owner to satisfy the contract requirements.

### **The WorkStream Network Diagram**

Phoenix is reintroducing the Network Diagram to project scheduling. The WorkStream Network Diagram capability in Phoenix Project Manager allows schedulers to organize projects into logical streams of activities—simplifying the construction process. The goal of the WorkStream process is grounded in the original intent of scheduling methodology: simplify planning and scheduling of complex projects into easy to understand diagrams.

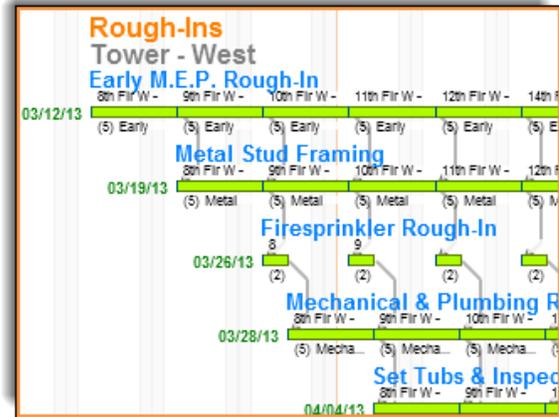
The network diagram is a scheduling format designed to simplify complex projects. It consolidates many activities into a logical work streams to streamline the project management process. This process is ideal for complex construction projects where related activities can be consolidated into a cohesive work stream, reducing the logical steps the project is made up of by 40-50%. The result is that the schedule becomes consumable by all stakeholders on the project. This simplifies understanding of the project, allowing the project team to quickly identify the work streams that are driving or delaying the project.

The process for WorkStream schedule development is a similar to the methods that most schedulers use today. It starts with developing a "well-constructed" project plan in the bar chart view. The project plan should follow schedule best practices, logically tying activities together to effectively deliver the project within the allotted timeframe. After the schedule basics are input into the bar chart

view, the schedule can be composed in the WorkStream Network Diagram view to best communicate the plan to the project team.

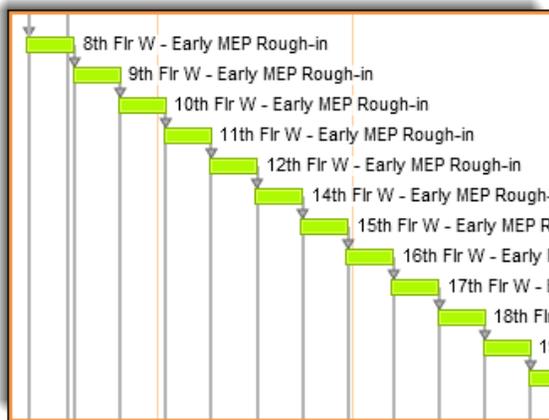
The Phoenix WorkStream Diagram allows you to organize the list of activities into the logical WorkStreams necessary to complete the project. The project activities are associated by the user into work streams based on how the project will be constructed. This solves one of the biggest challenges voiced by the project team: a project schedule that does not reflect how the project will actually be constructed.

This small example below demonstrates how the WorkStream Diagram organizes projects into simple to understand execution streams. The project team manages down the data date to quickly determine what activities are on schedule, behind schedule or ahead. On a complex project, this consolidation significantly streamlines the process and the WorkStream owner can implement a corrective action plan. The project schedule still supports the payment milestone process through the barchart view, while the WorkStream Diagram becomes the valued project management tool used to execute the plan.



WORKSTREAM NETWORK DIAGRAM EXAMPLE

By consolidating related activities onto a single line, representing a contiguous stream of work, you can organize and consolidate your schedule into an easier to read project plan, without losing the detail you built into your plan. Utilizing the WorkStream Network Diagram, you are able to see not only how individual activities relate, but also how the different work areas interrelate. Most importantly, you can see how the critical path flows through the project. Now that you have the ability to visualize how all the pieces fit together, refining your plan becomes easier and more effective.



BAR CHART EXAMPLE

Just as an experiment, print a bar chart with a few hundred activities. Now try to follow the critical path from page to page through the project. Not easy is it?

Adopting the Phoenix WorkStream process changes the focus of the schedule to clear visibility of progress and accountability to streams of work. The project team can continually review project status to quickly identify the key work areas and develop strategies to move the project faster. The resulting scheduling is a tool that helps the entire team understand the project, rather than an obligation that must be maintained merely to satisfy contract requirements.

The Phoenix WorkStream process returns project scheduling to its original intent while maintaining the best practice standards of today. It solves the gap between the contractual requirements and need for a practical plan to actually build a project. The WorkStream Network Diagram does not try to replace the Bar chart, but instead supplements it. The benefit is a project schedule everyone can understand, follow and execute, creating open communication and amazing results.

*“After successfully using Phoenix Project Manager to complete our last project months ahead of schedule, we chose to incorporate the WorkStream Network Diagram early in our planning for construction of The Vermont, our new mixed-use development in downtown Los Angeles. The WorkStream schedule let us see how the whole project fits together, and where we could cut time out of our original plan before we even broke ground. It now lets us quickly see what is ahead or behind schedule, and how our progress in the field is affecting the plan, without waiting for an expert to decipher the schedule for us. Most importantly, I can use the same schedule to communicate with our executives that we use to meet with the guys in the field, and everybody understands where the project is headed.”*

- Pat Irvine, Senior Vice President of Construction  
J.H. Snyder Company

## **Today’s Schedules are Poor Project Management Tools**

Another key issue with current software is an inability to quickly identify which activities are ahead of schedule, and which are behind. When an in-progress activity is delayed in these scheduling programs, the remaining work is simply shifted to occur later, altering the project

plan without any indication to a non-expert reviewing the schedule that the activity is potentially delaying other work. The only way to identify a delay with certainty is to compare your current schedule against a previous version, which may be weeks old by the time the delay is noticed. Without the ability to continually monitor progress as the plan is updated, the schedule is a poor tool to manage or avoid delays.

Compounding this problem is the tendency of some schedulers to simply update the project status date without evaluating and updating each in-progress activity. Because all uncompleted work is simply pushed out to a later date by the new status date, it’s nearly impossible to differentiate those activities which have been delayed from those which were planned to start later.

**If you’re reviewing a printout of a project schedule that had been built and updated in Primavera P3 or P6, can you flip through it and recognize which activities are behind schedule and which are ahead? Just as importantly, can you see how these delayed activities are affecting downstream work, and where you can act to mitigate the delays?**

These issues have minimized the value of the schedule to the project team, relegating its maintenance and review to those few on the team responsible for compliance with customer or contract requirements or payment milestones.

Projects have a high probability of failure unless the team implements tools that effectively manage and communicate progress. PWC studies on Project Management have consistently shown a strong correlation between use of project management tools and methodologies and project success. “Project management software use is linked to high-performing project performance,” and

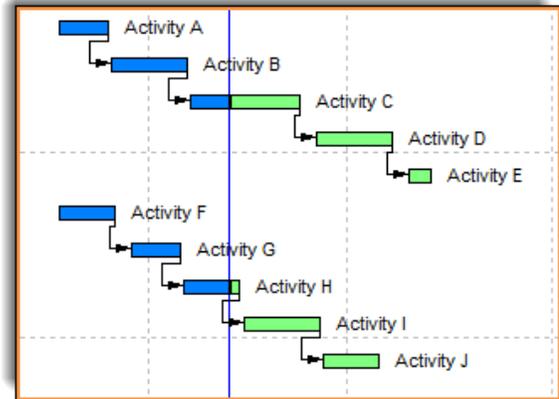
“organizations that do not have a project management methodology reported lower performing projects.”<sup>i</sup>

It is clear that you need an effective tool to manage and communicate with your project team. The schedule should be this tool, but the current software does a poor job of visualizing key information, such as workflow and activity progress. Phoenix Project Manager WorkStream lets you see and share this critical information.

### Status on Master

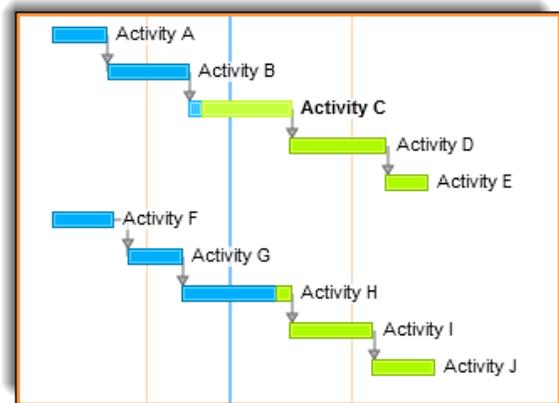
What good is a plan if you can't quickly determine when and where the project is out of sync with that plan? The way most schedules are calculated today is by shifting all remaining work to occur after the current date (the project data date or status date) and calculating your project completion based off this shifted sequence of work. If you view this schedule without incorporating historical comparisons, there is no indication where a delay has occurred. If you ran your finger down the data date it would appear that everything is exactly on schedule. This view is what Phoenix refers to as Status on Current. While this view is often useful for determining the potential impact of a delay to your project finish date, it is nearly useless for diagnosing where a project has gone away. In order to identify where action needs to be taken to prevent delays to project completion, Phoenix offers the Status on Master view as part of the WorkStream approach to scheduling, so you can mitigate delays before they reach your project finish.

In the examples below, there is a small list of activities linked in a logical sequence, forming the steps to complete a work process. The blue activities in this example are completed activities, or the completed portion of in-progress activities, the red activities are on the critical path, and the green activities show the work which is not started, or not yet completed.



STATUS ON CURRENT EXAMPLE

This first example demonstrates the method of scheduling described above as Status On Current. In this example you can see a group of activities that have been updated with their current status. You can see that all remaining work is set to occur after the status date, and when the project will finish based off this status. However, what you can't see is when the project was expected to finish, and which activities may be delaying that finish date. Without this information, you don't have the data you need to make decisions about how to allocate resources to get your project back on track.



STATUS ON CURRENT EXAMPLE

The second example demonstrates the Status on Master method employed in the Phoenix WorkStream process. In this example you can easily determine which activity is behind schedule, which is on schedule and which is ahead of schedule. Given this information, you

may choose to reallocate resource in order to ensure that your project completes on time. With Status on Master, you can immediately see which activities need attention, without waiting for your schedule analyst to prepare monthly reports on variances and schedule comparisons. Status on Master communicates the status of your in-progress activities to anybody who can run their finger down the data date.

The way current scheduling systems calculate your progress, it is impossible to quickly glance at a project and determine which activities are ahead or behind schedule. Without this critical information, you have no real way to know where your project is at today. The best tool for communicating schedule progress has essentially lost its effectiveness. Status on Master gives you the capability of using the schedule to visualize an answer to the question “How is my project doing right now?”. Using both Status On Current and Status On Master you now can now communicate to the whole team both where you are at now, and where you will end up.

**After all, isn't that what a schedule is for? To tell you where you are ahead or behind, and where your project is right now?**

### **Powerful Tools to Improve Project Performance**

The 2012 PWC survey on the current state of project management practices attributes nearly 40% of poor project performance to inability to meet planned estimates and deadlines, and poor communication. Improving on these factors will “improve project scope, schedule, budget, quality, and business benefits performance.”<sup>ii</sup>

Phoenix Project Manager’s WorkStream methodology gives you powerful project management tools that can improve project delivery, and ultimately your bottom line. The WorkStream Network Diagram will help you to understand and communicate to the project

team how the whole project fits together, and where you can proactively work to improve project performance to meet your estimates and deadlines. Status on Master gives you real insight into your current progress on a per-activity basis, allowing you to target those tasks which need immediate action to avoid project delays.

To successfully drive project success, the project schedule must re-establish itself as the management tool for communicating project progress and driving project delivery. Take advantage of the WorkStream and put your schedule to work to eliminate poor project performance.

### **About Phoenix Project Manager**

Phoenix Project Manager is a scheduling tool designed to work the way the industry works: project by project. For every project, from the very simple to the most complex, Phoenix gives you the power to make the schedule a valuable tool for communicating your plan and managing the job.

The power of Phoenix Project Manager is in the superior graphic bar charts and network views to communicate the value of the schedule. The schedule is easy to filter, communicate project progress, and forecast at-complete status. With Phoenix Project Manager, the schedule is an invaluable management tool to execute successful projects.

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<sup>i</sup> PricewaterhouseCoopers LLP, Insights and Trends: Current Programme and Project Management Practices (2007), 16-19.

<sup>ii</sup> PricewaterhouseCoopers LLP, Insights and Trends: Current Portfolio, Programme, and Project Management Practices (2012), 17.