

Program Planning fundamentals using MS Project

By Martin Vaughan
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Overview

This whitepaper provides practical advice to those wishing to plan, track and report on a Program of work using MS Project scheduling software. Much of the general advice is applicable to other tools, while the specifics are applicable to MS Project.

Covered in this paper are the need for standards, rolled up summary reporting, inter-project dependencies and resource management.

Author

Martin Vaughan is a Senior Consultant and Managing Director of Core Consulting Group. He started his career in the late 1980s in Planning & Scheduling and has enjoyed advising, teaching and hands on provision of planning and scheduling services ever since. He has used and innovated with MS Project since it first came out in Windows, with the origin of many organisation's MS Project templates and standards being attributable to him, in both stand alone and server environments.

Introduction

MS Project stand alone has been around since the mid 1990s and has changed very little since then. Various upgrades have added a new look and new features, but the fundamental tool has remained the same. The advent of MS Project server has provided a substantial increase in capability, but complexity and cost has limited it's use in the corporate environment. As a result the stand alone tool continues to be popular amongst the Project Management corporate community.

The author has been called upon numerous times to advise on using the stand alone MS Project tool on a large program of work. This paper captures the proven approach used in such a scenario, covering the key aspects of Program scheduling which differ from individual project scheduling. The approach has been developed and refined since first used in the mid 1990s on a large Defence program of work.

Key differences between Program and Project Scheduling

All the normal aspects of a "healthy" project schedule must still be covered when scheduling within a program of work. Healthy in this context means not only are all the rules followed (eg each task/milestone shall have at least one predecessor tied to it's start, unless it is an incoming dependency or a kick off milestone), but the schedules must be realistic and achievable. A written **Scheduling standard** is therefore a requirement.

Using an orchestra as an analogy, one fundamental requirement is to get Project Managers and/or schedulers to work in a consistent way. The best scheduler in a group, if not "playing" with the others will result in ad hoc results. To gain consistent results, all participants must follow the Scheduling standard. Project Managers like to lead, not follow, so this can prove challenging, but that's a whole other white paper topic.



Consistency is important; calendars, structure, naming conventions, key milestones, scheduling and status techniques, reporting cycles, views used for reporting, field use, filters etc.

We strongly recommend a **fortnightly status cycle**, giving people time to plan during the interim week. We find weekly statusing/reporting means people become so busy processing reports, people barely have time to read them or resolve problems.

Inter project dependencies between projects become increasingly important. A defined approach for identifying, tracking and passing through information between schedules is needed. A legacy of dependency management is that the status and reporting cycle becomes two step. Step 1 is a basic status of the schedules, step 2 involves identifying and resolving slippage resulting from dependency date shift. Step 2 is often overlooked, reports produced without step 2 can be misleading.

Resource management, using common resources across multiple projects is often an important requirement. Resources in this context could be individuals, generic resources, facilities (eg test environment). Consistency is again important, especially with resource naming so the tool can combine allocations in usage and graphical views.

Rolled up summary reporting tends to be the final requirement. Program scheduling, by its very nature, means the resulting schedules are quite large when combined together and are sometimes complex and overwhelming to read. Senior managers and other stakeholders therefore require simple summary schedules, ideally on one page. We have seen some great examples over the years with the use of Visio and other graphic tools. Our main recommendation is that there be a **single source of truth** approach so that data is not duplicated or misrepresented.

Establishing a Scheduling standard

Scheduling technique – The correct approach to scheduling has been known for years but has only recently been articulated by the PMI in their “Practice standard for scheduling”. While certain specifics are open to debate, the author considers it fundamentally sound and recommend’s its use, particularly the ten pages in section three. In summary we would cover in our standards:

- Schedule structure
- Task descriptions and naming conventions
- Durations – maximum and minimum
- The need for Predecessors
- The need for Successors
- Minimising use of constraints

Statusing technique – Statusing is probably the one area where the most divergent techniques and knowledge is found in scheduling. MS Project allows for differing approaches, it requires user discipline for consistency. We would advocate the use of Actual Dates plus forecasting remaining work relative to the Status date. We do not advocate using percent complete. In summary we would cover in our standards:

- Baseline change
- The status and reporting cycle
- Capturing of previous forecasts
- Entering Actual dates
- Entering Actual/Remaining Duration
- Reforecasting of incomplete work after the Status date

Consistency – The final aspect to define covers where MS Project has been customised for the specific Program of work. In summary we would cover in our standards:

- Use of pre-defined calendars
- Use of pre-defined custom fields
- Use of pre-defined custom filters
- Use of pre-defined custom views/tables
- File naming and storage locations including version control

Organisations using MS Project server are at a distinct advantage as the very nature of MS Project server will address file storage and standards distribution via the global template (eg custom calendars, field use, views, filters, toolbars etc). Organisations using MS Project stand alone will need a File Server or Sharepoint plus manual intervention to achieve a similar result.

Dependencies

We have previously written about inter project dependencies. In summary, the key steps are to:

1. Ensure the Project Managers, one who provides and one who receives, fully understand the dependency scope and timing. It is the recipient Project Manager who should “own” the identification and subsequent tracking.
2. Use Milestones to represent dependencies between projects, group all incoming dependencies at the top of the project schedule.
3. Use a unique referencing system to identify every task and milestone. Core Consulting Group have developed a simple innovation we use with MS Project to uniquely identify a task and the associated project (as shown below).
4. For each incoming dependency, identify the source task or milestone in a custom date field (as shown below).
5. Use CCG developed techniques to either pass through the latest forecast date into a separate custom date field (as shown below) or use advanced techniques to create the inter project link.

The advantage of just passing through the date is that it empowers the Project Manager and provides comfort that their schedule “wont keep changing”. Program managers would then focus on any date disconnect (as shown below).



Shown above: Simple schedule showing unique identifier and inter project dependency with revised forecast

One disadvantage of that option is the potential domino effect, as schedule slippage affects downstream schedules. The other disadvantage of that option is that a full Program critical path and float analysis cannot be easily done. In such cases actual inter project predecessor links would be created. This could result in quite a different schedule (in terms of dates).

Resource Management

Resource Management within MS Project relies on modelling effort over time for each resource. Standards will be needed to address naming conventions, for individual as well as generic resources. Standards will also address any grouping needs, eg by skill set. MS Project Server, by its very nature makes Resource Management across multiple projects easier than stand alone MS Project. When using stand alone, the Resource pool function works reasonably well but can get unstable when large numbers of schedules exist.

Interesting aspects come about through the interaction of people and governance. Who owns the resource model, the Line Manager or the Project Manager? How does a request for a resource result in an approved assignment? Who sets priorities?

The key to Resource management using MS Project is to keep the resource model simple. We would recommend avoiding detailed resource assignments on large schedules, representing the resource effort against higher level “resource bars”, especially where there will be timesheeting and cost integration (as shown below).

Outputs from MS Project are quite impressive, especially if customised:

- Usage views, by day, week or month for each resource, or group of resource, showing allocations and/or availability

- Graph views, used in split screen mode, cumulating whatever is selected on the upper screen, great for histograms.

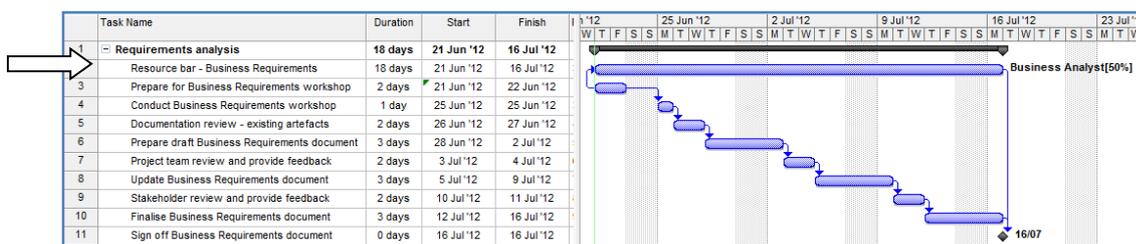
Program reporting

We have already discussed our recommendation for fortnightly statusing and the two step cycle. It is critical to work backwards from the report publishing date/time to ensure both steps are done. It is not unusual for the statusing and report generation process to take three working days. Tying in a Status date to the end of the week means reports wont be available until Wednesday close of business at the earliest, for a Program Management meeting Thursday or Friday.

While tool vendors will promote “self service” for reporting, it is our experience that senior managers like to be provided with their reports, along with the PMO’s analysis. Typical fortnightly program reports we have produced included:

- Exception report (what should have been finished in the last 2 weeks but wasn’t)
- Look ahead report (next 2 weeks)
- Critical threads (Critical path analysis showing the top 5 schedule drivers)
- Dependency reports (Filtered on just dependencies across program)
- Key Milestone reports and/or Flagged Summary reports (for senior management)
- Resource histograms (workload for the next 3 months)

MS Project Server provides the added advantage of the web based user interface with it’s summary schedule capability. Using MS Project stand alone, some quite sophisticated rolled up summary schedules can be produced, as shown by the example on the next page.



Shown above: Simple schedule with high level Resource bar and the BA’s allocation

Conclusion & reflection

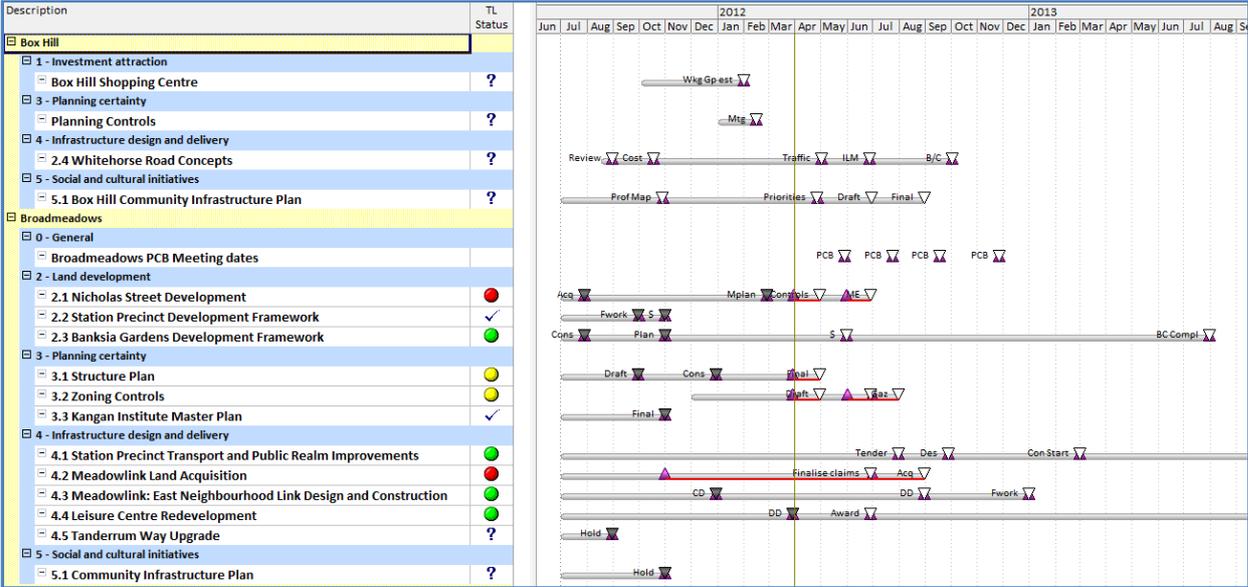
MS Project is often criticised for its lack of rigour. If used in a consistent way, MS Project is more than capable of meeting most Program scheduling needs. We have found the tool’s mis-use, through a combination of the lack of knowledge, effort or care by the user is the major issue. Strong senior management support, with tangible consequences for those who do not support the Program scheduling requirements is unfortunately necessary.

Other articles, conference papers and blogs written by the author have lamented the lack of planning and scheduling skills in the Project Management community. The balance to this is the success we have seen when planning and scheduling properly within our work. With our younger graduate schedulers completing our graduate program and working on large Programs of work, we are heartened to see some excellent Program planning outcomes using the techniques outlined in this paper.

For more information on Core Consulting Group services and capability as well as a number of interesting white papers, please go to our web site: www.coreconsulting.com.au

References:

- PMI:** The Practice Standard for Scheduling, published 2007
- LinkedIn:** PMI scheduling community of practice discussion forum
- PMBOK:** 4th Edition
- Paul Harris:** Various editions of Pauls book “Planning and Scheduling using MS Project”
- Our own IP:** Various MS Project guides, templates and innovative add ons
- CCG Whitepaper:** Dependency Management, Are we there yet ?



Shown above: Grouped and Rolled up Program summary schedule showing Key milestone forecast date slip from Baseline