

Tips for Developing CPMs

This guidance is intended to provide helpful tips to assist designers in developing realistic CPM schedules for their projects. For Federal Lands official procedures on determining contract time, see the FLH Project Development and Design Manual.

The tip sheets do not cover software use. For help on that, refer to *MICROSOFT PROJECT – CPM's MADE EASY*, written by Peter Field, and revised for MS Project 2000 by Susan Yenne.

Tip No. 1
Durations for Activities Between PS&E Sign-Off and Notice to Proceed

The Notice to Proceed date for a project is set in PRMS. The purpose of this tip is to verify that the PRMS Notice to Proceed date is still valid given the actual PS&E sign-off date, and to make adjustments if necessary.

PS&E Sign-Off to Advertisement

Allow **20 working days** between the date you deliver the complete package to Contracts and the intended advertisement date. This allows time for:

- Dean Moberg
 - CO's biddability review
 - Bid Schedule prep and engineer's estimate revisions
 - FAR Clause notations
- Barb Allen
 - Prepare Solicitation documents (with FAR Clauses, wage rates, etc.)
 - Compile review package
- Reviews
 - Ted Wood or Phyllis Chun
 - Legal Review
 - CO Review
 - 2nd level CO Review (for solicitations over \$500k)
 - Rick Suarez (only for Project Development solicitations)
- Revisions after review
- Order printed Plans
- Save all documents to PDF for website
- Printing of the solicitation package
- Time/scheduling consideration for other projects

Advertisement to Bid Opening

Allow **30 calendar days**, or more if:

- the 30th day lands on a Saturday, Sunday, or Monday, or the first workday of the week if there is a holiday.
- it is a Montana project, which are opened in the Montana Division Office. Allow 35 days minimum for these bid openings.
- it is a complex project. Many complex projects have a least one delay to the bid opening.
- several projects are in Contracts at the same time.

Bid Opening to Award (Note: check with Contracts for Best Value projects. Best Value requires a much longer duration for proposal reviews, discussions, and negotiations.)

Allow **30 calendar days** between bid opening and award for:

- Responsibility determination and responsiveness determination
- Programming to obtain additional money (when the low bid exceeds the obligated amount)
- Printing of all award documents
- Consideration for other projects

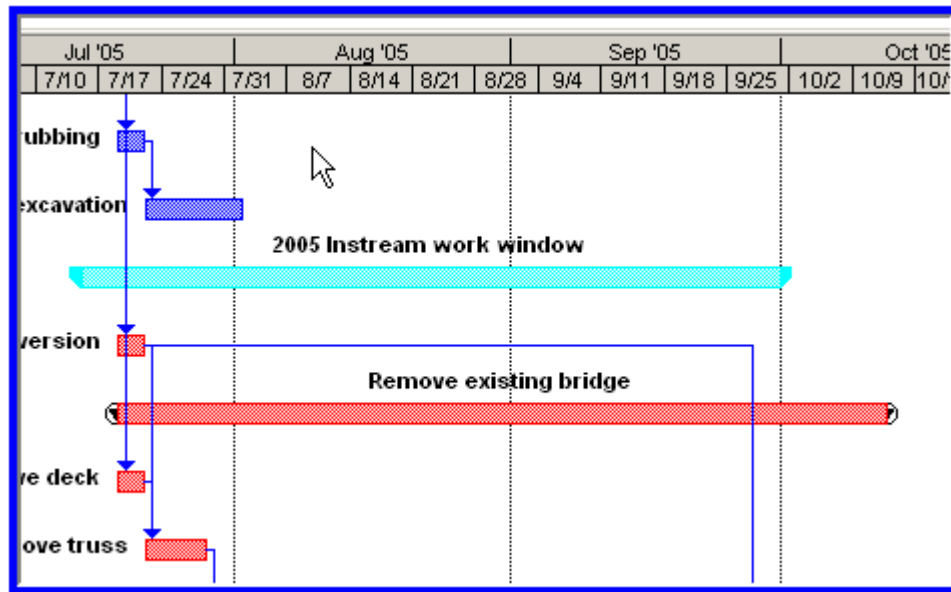
Award to Notice to Proceed

Allow **21 calendar days** between Award and Notice to Proceed for:

- Bonds and Insurance
- The contractor to prepare documents (construction schedule, safety plan, etc.) that will enable them to start construction work.
- Scheduling and having the preconstruction conference.

Tip No. 2 Showing the In-Stream and Other Work Restrictions

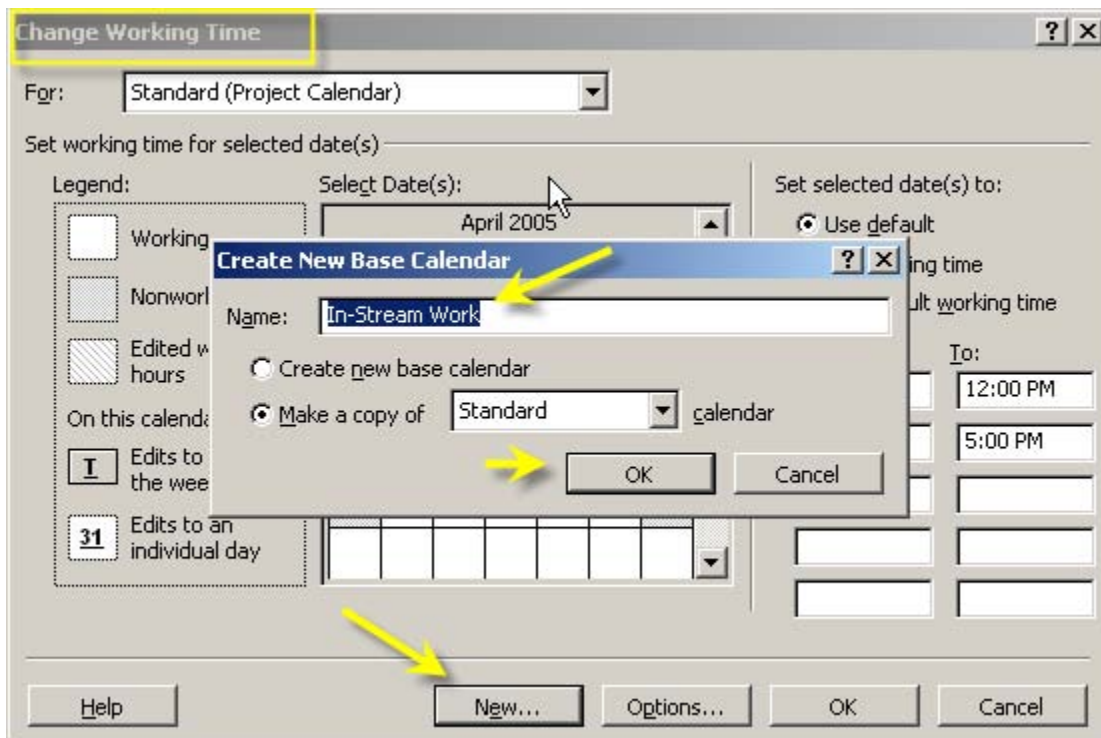
Show the in-stream window, road closure periods, environmental restrictions, and other restrictions on the Gantt chart so that you can develop your schedule around such restrictions.



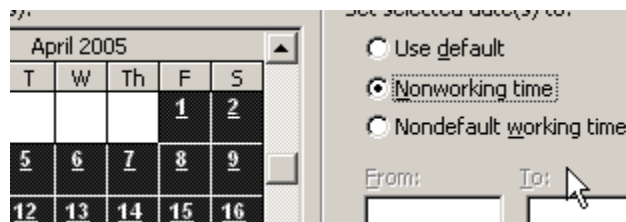
Tip No. 3 Using Modified Calendars for In-Stream and Other Work Restrictions

If an activity or group of activities is restricted to certain time periods, it is a good idea to create a separate calendar for those activities to use. For example, if you have an in-stream window that only allows the bridge piers to be removed between July 15 and September 30th, you would want to create a calendar for in-stream work. Here is how to create and use that calendar.

- From the Tools menu, choose Change working time
- Click New
- Enter “In-Stream Work” (or another restriction name) in the Name box
- Click OK



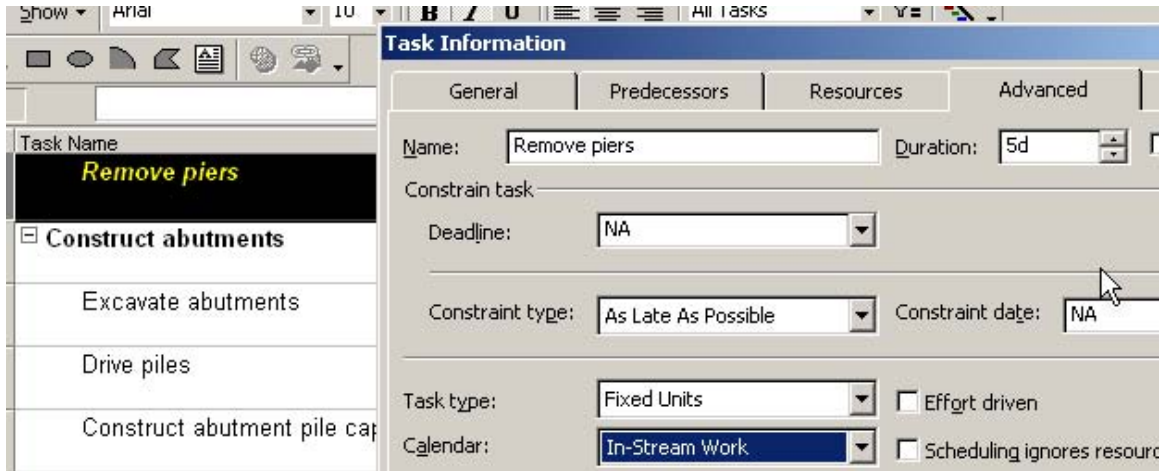
- Highlight the days on which in-stream work cannot be performed
- Click on non-working time



- Do this for the entire project duration
- Click OK

Now, you'll want to have certain activities use that restricted calendar.

- For the activities that can only occur during the in-stream window, such as Remove Piers, double click on that task, and in the Task Information window,
- Click on ADVANCED
- Click on the Calendar down arrow and select In-Stream Work
- With this, the Remove piers activity can only occur during the period you have allowed on the In-Stream Work calendar.



Tip No. 4
Lead Times for Certain Activities

Materials (bridge girders, treated timber, etc.)

If you have any type of structure (bridge, multi-plate culvert), check with Marc Veneroso on lead times for obtaining materials. For example, it is currently taking 6 months to get steel girders and this needs to be accounted for in the schedule by adding activities for obtaining steel, fabrication, and delivery. Treated timber is currently taking 3 months to delivery. These are just examples. For your project, check with your technical specialists or Dean Moberg in Contracts to identify unusually long lead times.

Alaska Projects – Material Delivery

If the project is in Alaska, the lead time for materials and products ordered from the lower 48 needs to be factored in. Consult with the Alaska Project Engineers or COE for advice on durations.

Material Source Clearance

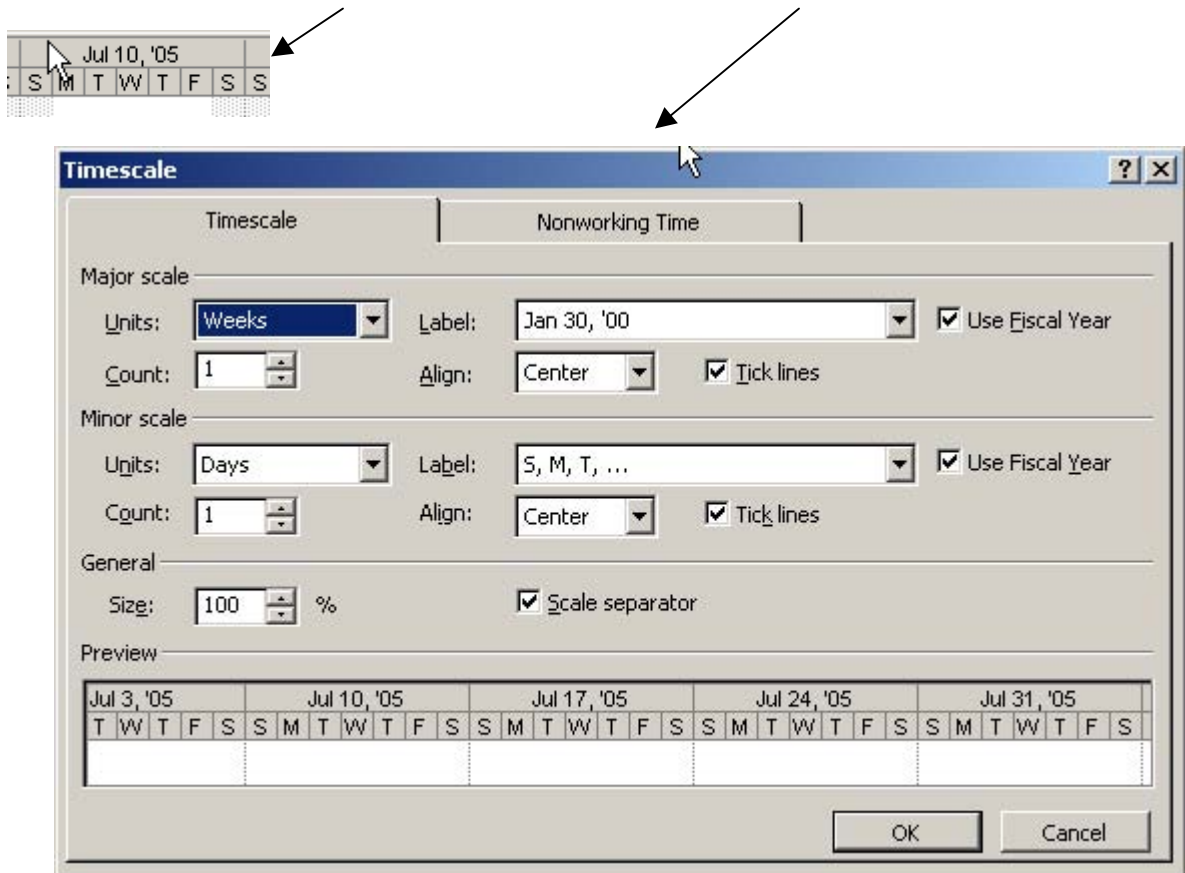
Unless you are certain the contractor will use a commercial material source, allow 75 days for source clearance. This duration should start on the Notice to Proceed date, as the contractor will not be ready to do anything before that date.

Submittal preparation and review

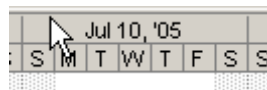
If the contractor will need to prepare submittals, include activities for submittal preparation (by contractor) and submittal review and acceptance (by WFLHD). Submittals may include anything from bridge drawings to blasting plans. Allow the contractor 3 weeks to prepare the submittal (more or less depending on the submittal) and allow the time stated in the SCRs for the CO's review and approval.

Tip No. 5 Timescale

- The timescale that you use depends on the overall project duration. For very short projects (2 months or less), use WEEKS for the major scale and DAYS for the minor scale. For longer projects, use MONTHS for the major scale and WEEKS for the minor scale.
- Double click on the timescale to modify it. You will then get this window.



- For short duration projects, label the major scale with the week date and year, and label the minor scale with the name of the day (S, M, T, etc.)



- For longer duration projects, label the major scale with the month and year, and label the minor scale with the start date of the week.



Tip No. 6
Activities to Include in the Schedule

A key factor in developing a realistic schedule is to include the right activities. The only one-size-that-fits-all guidance that can be offered in this area is to consider the uniqueness of each project and to use engineering judgment. The guidance below addresses the activities to definitely include or definitely omit.

In most cases, it is not necessary to include every bid item in the schedule. The following items should not be shown:

- Construction schedule
- QC/QA Plan
- Contractor testing
- Watering

Staking should be shown, but only show the staking tasks that are necessary to start the project (e.g., clearing limits and slope stakes). Do not show staking as a continuous activity throughout the project. It happens that way in the field, but for determining contract time, showing the entire duration is unnecessary.

Show activities for clearing, silt fence installation, and grubbing.

Always show separate activities for the major earthwork and pavement structure items (excavation/embankment, subexcavation, subbase, base, emulsified base, asphalt concrete, etc.).

Show bridge activities by the phase of construction (drive pile, form/reinforce/pour pile cap, form/reinforce/pour backwall, etc.), not by the bid item (structural steel, concrete, reinforcing steel, etc.)

Combine associated bid items into one work activity. For example, if oil is a separate 401 item, you only need to show the work item, i.e., paving. Also, subexcavation, geotextile, and select borrow (the subex backfill material) should be combined into one activity.

Break out and highlight the in-stream work activities. This will make it easy to identify when they occur with respect to the in-stream window. You also may want to break out other activities that are restricted in Subsection 107.10 or Subsection 108.01 of the contract. For example, blasting may be restricted during a certain time period due to the presence of peregrine falcons.

Major drainage items such as fish passage culverts, culverts larger than 48 inches in diameter or culverts that cause significant impacts to traffic or other operations should be shown individually. Culvert pipe 48 inches in diameter or less can be lumped into one activity if they don't substantially impact other operations.

Show the turf establishment items (seeding and mulching) as one activity. Check to ensure that it is occurring during the seeding window.

Show a striping activity. Again, combine all the types of striping into one activity.

Tip No. 7
Miscellaneous Good Ideas

Working Days vs. Calendar Days

In MS Project, the duration that you enter in the duration column is working days. In some cases, such as for the ADVERTISEMENT activity, calendar days would be more appropriate. To do this, simply enter "30 edays" in the duration column.

Assumptions for Production Rates, etc.

In the notes section for the activity, it is a good idea to document any assumptions such as production rates, equipment types, and quantities. That way, if the schedule is used later, the logic can be followed.

Use of the Schedule & FOIA

The purpose of the Designer's schedule is to determine a contract fixed completion date that is reasonable and has accounted for all work restrictions. The schedule may be used as a reference by the Construction staff. The schedule is usually not used by the Contractor but it is, however, often requested during FOIA reviews and often scrutinized by attorneys and expert witnesses during depositions and legal proceedings.