

3. The department will make the third payment, equal to 25 percent of the amount bid for this bid item, when the contractor completes work representing 80 percent of the total contract price, excluding the price for this bid item.

108.4.4 Critical Path Method Progress Schedule

108.4.4.1 General

- (1) If the contract requires, submit a CPM Progress Schedule.

108.4.4.2 Initial Work Plan

- (1) At least 14 calendar days before the preconstruction meeting, submit an initial work plan conforming to, as a minimum, the following requirements:
 1. Include a detailed bar chart schedule, meeting the requirements of [108.4.2.1\(1\)](#), for the first 60 calendar days of work. Ensure that all activities have durations of one to 15 working days, unless the engineer accepts requested exceptions. Show additional activities that require department review or approval.
 2. Include a summary bar chart schedule for the balance of the project. Summary activities may be greater than 15 working days.
 3. Ensure the bar chart schedules show completing the work within the interim completion dates and specified contract time or completion date.
- (2) The engineer and the contractor will review the initial work plan at the preconstruction meeting. Within 5 business days after the preconstruction meeting, the engineer will accept the contractor's initial work plan or request additional information. The engineer will use the detailed bar chart schedule to monitor the progress of the work until accepting the initial CPM schedule.
- (3) Maintain and submit on a bi-weekly basis an updated version of the detailed bar chart schedule until the department accepts the initial CPM schedule. Ensure that each schedule update includes the actual start and finish of each activity, percentage complete, and the remaining durations of activities started but not yet completed.

108.4.4.3 Initial CPM Progress Schedule

- (1) Within 30 calendar days after the notice to proceed, submit to the engineer for review an initial CPM schedule, beginning at the start of work date and conforming to the following minimum requirements:
 1. Include activities that describe essential features of the work and activities that might potentially delay contract completion. Identify activities that are controlling items of work.
 2. Identify the contemplated start and completion dates for each activity. Provide a duration, ranging from one to 15 working days, for each activity. Break longer activities into 2 or more activities distinguished by the addition of a location or some other description.
 3. Provide a logic diagram having a maximum of 50 activities for each 11 in. by 17 in. sheet. Ensure that each sheet includes title, match data for diagram correlation, and a key to identify all components used in the diagram. Show the sequence of activities and the scheduling interrelationships among activities. Ensure all activity interrelationships are finish to start relationships with no leads or lags. Use only contractual constraints in the schedule logic. The engineer may accept requested exceptions.
 4. Provide the quantity and the estimated daily production rate for controlling items of work.
 5. Include a narrative that lists the work days per week, department-specified holidays, number of shifts per day, and number of hours per shift. For calendar day and completion date contracts, provide the estimated number of adverse weather days for each month consistent with the monthly-anticipated adverse weather days [108.10.2.2](#) shows.
 6. Provide tabular sorts by:
 - Activity Identification/Early Start.
 - Total Float.
 - Predecessor/Successor.
 - Responsibility/Early Start.
 - Area/Early Start.
 7. Provide 60-day look-ahead bar charts by early start.
 8. Show completing the work within interim completion dates and the specified contract time or completion date.
 9. Develop the CPM schedule using computerized scheduling software. Provide the engineer with a paper copy of the information required in items 3, 5, 6, and 7 of 108.4.4.3(1). Submit a diskette of the schedule and identify the software used to prepare that schedule.
- (2) In addition to the required activities, the contractor is encouraged to include other activities such as:
 1. The procurement of materials, equipment, articles of special manufacture, concrete curing time, etc.
 2. The furnishing of drawings, plans, and other data required in the contract for the engineer's review.

3. The department's inspections of structural steel fabrication, etc.
 4. Third-party activities related to the contract.
- (3) Float is defined as the time between the date when an activity can start, the early start, and the date when an activity must start, the late start. The department and the contractor agree that float is a shared commodity, and is not for the exclusive use or financial benefit of either party. Either party has the full use of the float until it is depleted.
 - (4) The contractor may augment the initial submittal of the CPM schedule by submitting a linear schedule. The linear schedule must be generated from the CPM schedule.
 - (5) Attend a meeting to review the schedule. The engineer will schedule the meeting within 10 business days after receiving the contractor's initial CPM schedule submittal. Within 5 business days after the meeting, the engineer will accept the contractor's initial CPM schedule or request additional information. Make the appropriate adjustments and resubmit the revised initial CPM schedule within 10 business days after the engineer's request. If the engineer requests justification for an activity duration, provide information that may include estimated labor, equipment, unit quantities, and production rates used to determine the activity duration.
 - (6) The department will only make progress payments for the value of materials, as specified in [109.6.3.2](#), until the contractor has submitted the initial CPM schedule. The department will retain 10 percent of each estimate until the department accepts the initial CPM schedule.
 - (7) The engineer accepts the contractor's initial CPM schedule based solely on whether that schedule is complete as specified in [108.4.4.3](#)(1). The engineer's acceptance of the schedule does not modify the contract or validate the schedule.

108.4.4.4 Monthly CPM Progress Schedule Updates and Progress Meetings

- (1) Update the schedule monthly to show current progress. At a minimum, ensure that the update includes:
 1. The actual start and finish of each activity, percentage complete, and remaining durations of activities started but not yet completed.
 2. A narrative report that includes a listing of monthly progress, changes to the controlling items of work from the previous update, sources of delay, potential problems, work planned for the next 30 calendar days, and changes to the CPM schedule. Changes include, but are not limited to, changes in the method and manner of performing the work, changes in the contract, extra work, changes in an activity duration, and changes to relationships between activities.
- (2) For each schedule update, submit a diskette and an updated paper copy of the following:
 1. Tabular sorts by:
 - Activity Identification/Early Start.
 - Total Float.
 2. If applicable, an updated logic diagram as the engineer requires.
 3. If augmenting the CPM schedule with a linear schedule, provide an update of the linear schedule.
- (3) Within 5 business days after submitting the monthly update, hold a job-site meeting with the engineer to review the progress of the schedule. At that meeting, the department will confirm the actual start and actual finish dates of completed activities, remaining durations of uncompleted activities, changes to the controlling items of work, and the logic changes.

108.4.4.5 Engineer's Right to Request CPM Progress Schedule Revisions

- (1) Between monthly updates, the engineer will monitor the progress of the work and may request that the contractor revise the schedule for one or more of the following reasons:
 1. The project completion or interim completion targets are delayed 14 calendar days or more for calendar day or completion date contracts, or 10 working days or more for working day contracts.
 2. The engineer determines the progress of the work differs significantly from the current schedule.
 3. A change order requires the addition, deletion, or revision of activities that causes a change in the contractor's work sequence or the method and manner of performing the work.
- (2) Submit the revised schedule within 10 business days after the engineer's request.
- (3) Within 5 business days after submitting the revised schedule, hold a job-site meeting to review the schedule revisions. At the meeting, the engineer will accept the contractor's schedule or request additional information. Make the appropriate adjustments and resubmit the newly revised schedule.

108.4.4.6 CPM Progress Schedule Documentation for Time Extensions

- (1) Furnish documentation, including schedule updates, to support requests to extend interim completion dates, the specified contract time, or completion date.

108.4.4.7 CPM Progress Schedule Measurement

- (1) The department will measure one CPM Progress Schedule for the contract acceptably completed.

108.4.4.8 CPM Progress Schedule Payment

- (1) The department will pay for the measured quantity at the contract unit price under the following bid item:

<u>ITEM NUMBER</u>	<u>DESCRIPTION</u>	<u>UNIT</u>
108.4400	CPM Progress Schedule	EACH

- (2) Payment is full compensation for all work required under this bid item. The department will pay the contract amount in 3 payments as follows:
 1. The department will make the first payment, equal to 50 percent of the amount bid for this bid item, after the department accepts the initial schedule.
 2. The department will make the second payment, equal to 25 percent of the amount bid for this bid item, when the contractor completes work representing 40 percent of the total contract price, excluding the price for this bid item.
 3. The department will make the third payment, equal to 25 percent of the amount bid for this bid item, when the contractor completes work representing 80 percent of the total contract price, excluding the price for this bid item.

108.5 Limiting Operations

- (1) Limit operations to prevent undue inconvenience to the traveling public. If the engineer concludes that the extent of the contractor's work zone unnecessarily inconveniences the public, the engineer will require the contractor to finish sections in progress before allowing the contractor to start work on additional sections.

108.6 Character of Workers

- (1) Provide personnel necessary to supervise and complete all contract work as specified. Ensure workers have the experience and skills necessary to perform assigned work.
- (2) Remove from the project all personnel performing in an unskilled manner or who are intemperate or disorderly. If the engineer concludes that personnel are performing in an unskilled manner or are intemperate or disorderly, the engineer may direct the contractor, in writing, to remove them from the project. Do not allow removed personnel to return to the project without the engineer's written consent.
- (3) The engineer may suspend the work in writing, withhold progress payments due the contractor, or both for the following reasons:
 1. The contractor does not furnish suitable and sufficient personnel to perform the work.
 2. The contractor does not remove personnel from the project as specified in [108.6\(2\)](#).

108.7 Methods and Equipment

108.7.1 General

- (1) Use equipment of the capacity and mechanical condition necessary to perform work conforming to the contract. Ensure that the equipment does not harm the roadway, pavement, structures, adjacent property, other highways, workers, or the public. Use equipment conforming to the specific contract requirements for individual bid items or classes of work.
- (2) If the contractor does not provide adequate equipment, properly maintained, the engineer may:
 1. Order the contractor to remove the equipment.
 2. Suspend specific operations until the contractor provides adequate equipment.
 3. Determine that the contractor is in default of the contract.
- (3) Equip each unit of motorized construction equipment with a muffler constructed to the equipment manufacturer's specifications. The contractor may substitute other mufflers producing equivalent results. Maintain mufflers and exhaust systems in good operating condition, free from leaks and holes.

108.7.2 Moving Heavy Loads

- (1) For all vehicles operated on completed subgrade, base, or pavement that will remain a permanent part of the project, do not exceed the legal loading defined in Wisconsin statutes for Class A highways without the engineer's written permission. For structures, do not exceed that legal loading without written permission whether or not the structure will remain a permanent part of the project. Adhering to these requirements, or allowed variations, does not relieve the contractor of liability for damage caused by those operations.